

Automation systems Drive solutions

Controls

Inverter



Motors

Gearboxes

Engineering Tools

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 Selected portfolio
 Additional portfolio

Lenze makes many things easy for you.

With our motivated and committed approach, we work together with you to create the best possible solution and set your ideas in motion - whether you are looking to optimise an existing machine or develop a new one. We always strive to make things easy and seek perfection therein. This is anchored in our thinking, in our services and in every detail of our products. It's as easy as that!

1

Developing ideas

Are you looking to build the best machine possible and already have some initial ideas? Then get these down on paper together with us, starting with small innovative details and stretching all the way to completely new machines. Working together, we will develop an intelligent and sustainable concept that is perfectly aligned with your specific requirements.

2

Drafting concepts

We see welcome challenges in your machine tasks, supporting you with our comprehensive expertise and providing valuable impetus for your innovations. We take a holistic view of the individual motion and control functions here and draw up consistent, end-to-end drive and automation solutions for you - keeping everything as easy as possible and as extensive as necessary.

3

Implementing solutions

Our easy formula for satisfied customers is to establish an active partnership with fast decision making processes and an individually tailored offer. We have been using this principle to meet the ever more specialised customer requirements in the field of machine engineering for many years.

4

Manufacturing machines

Functional diversity in perfect harmony: as one of the few full-range providers in the market, we can provide you with precisely those products that you actually need for any machine task – no more and no less. Our L-force product portfolio, a consistent platform for implementing drive and automation tasks, is invaluable in this regard.

5

Ensuring productivity

Productivity, reliability and new performance peaks on a daily basis – these are our key success factors for your machine. After delivery, we offer you cleverly devised service concepts to ensure continued safe operation. The primary focus here is on technical support, based on the excellent application expertise of our highly-skilled and knowledgeable after-sales team.

A matter of principle: the right products for every application.

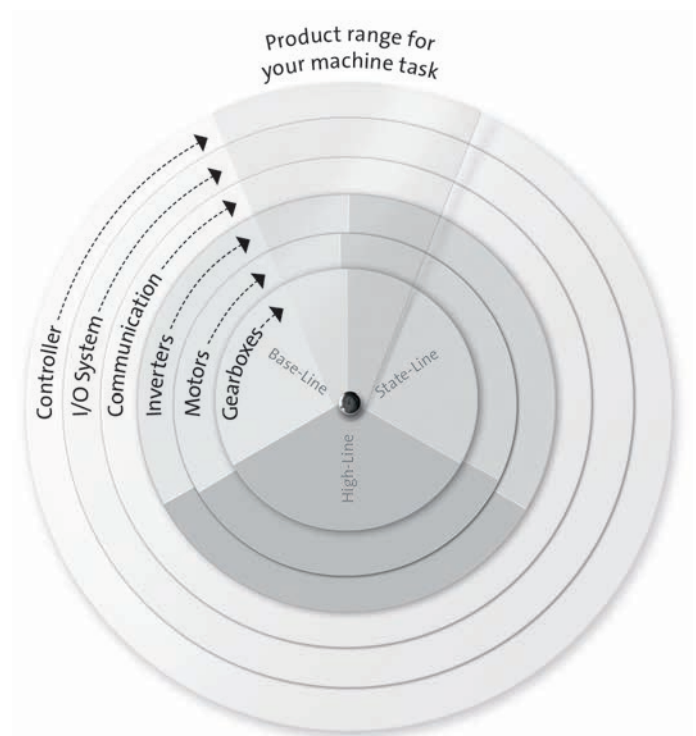
Lenze's extensive L-force product portfolio follows a very simple principle. The functions of our finely scaled products are assigned to the three lines Base-Line, State-Line or High-Line.

But what does this mean for you? It allows you to quickly recognise which products represent the best solution for your own specific requirements.

Powerful products with a major impact:

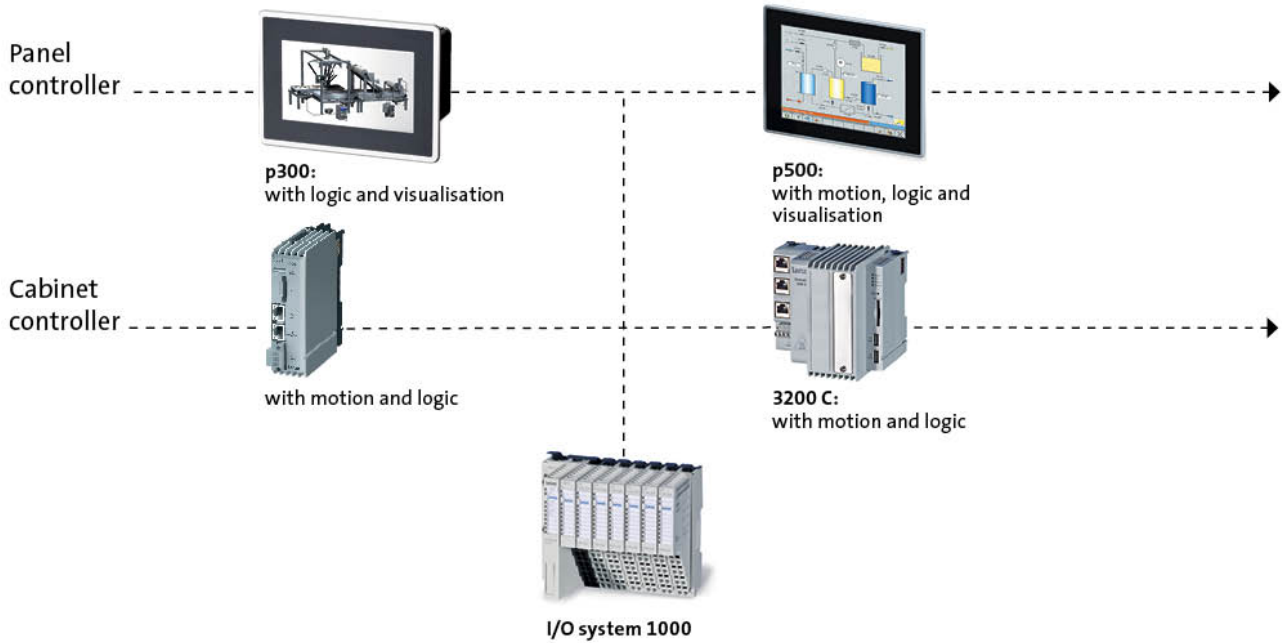
- Easy handling
- High quality and durability
- Reliable technologies in tune with the latest developments

Lenze products undergo the most stringent testing in our own laboratory. This allows us to ensure that you will receive consistently high quality and a long service life. In addition to this, five logistics centres ensure that the Lenze products you select are available for quick delivery anywhere across the globe. It's as easy as that!

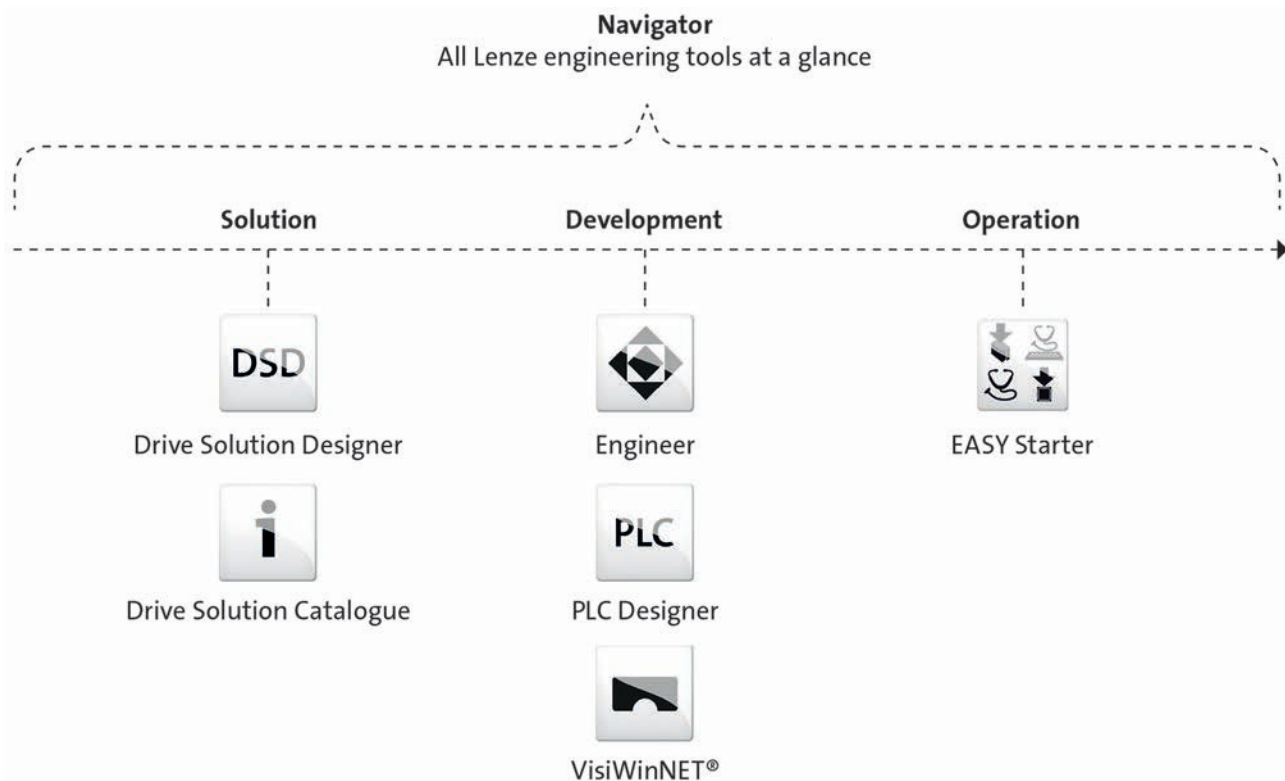


L-force product portfolio

Controls

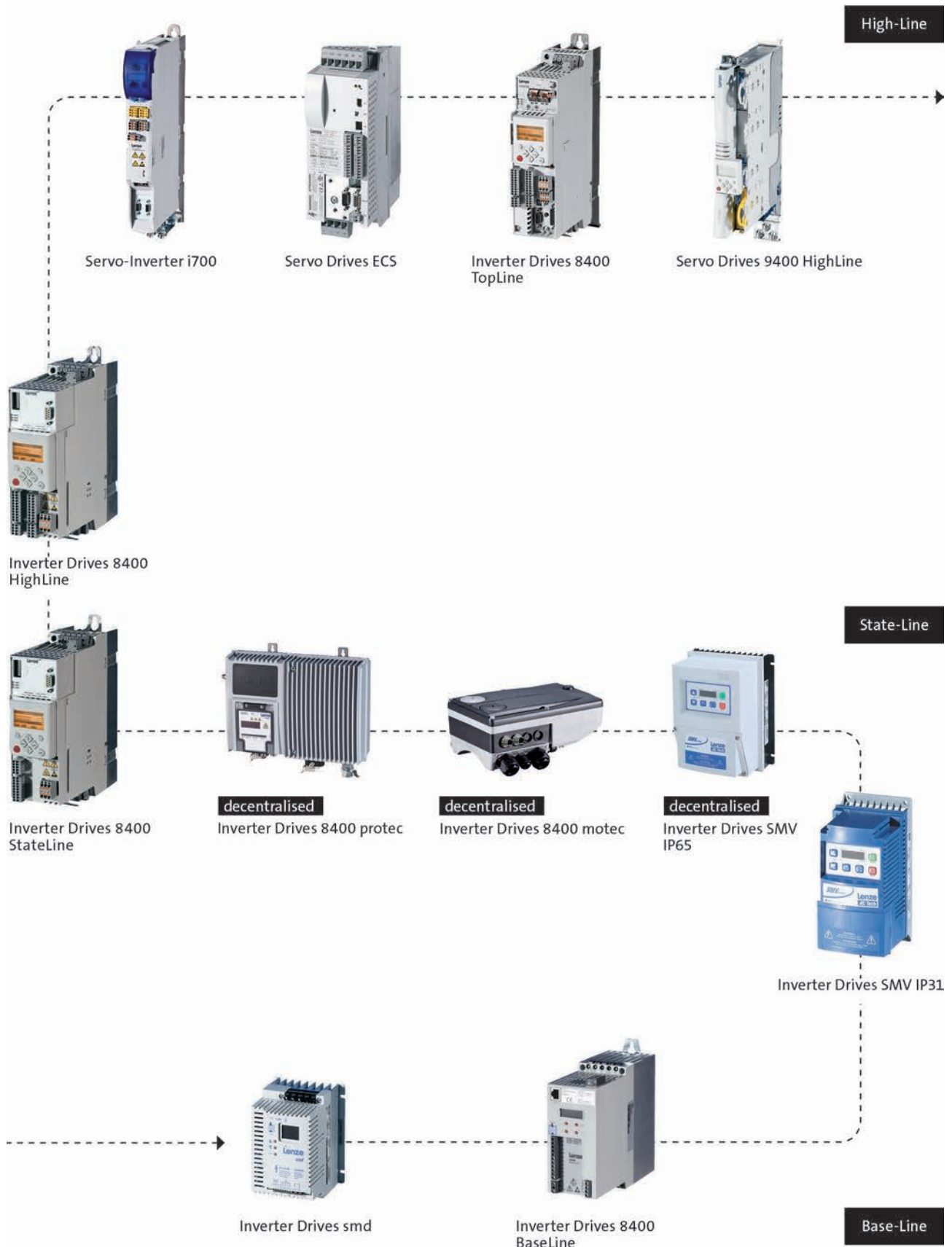


Engineering Tools



L-force product portfolio

Inverter



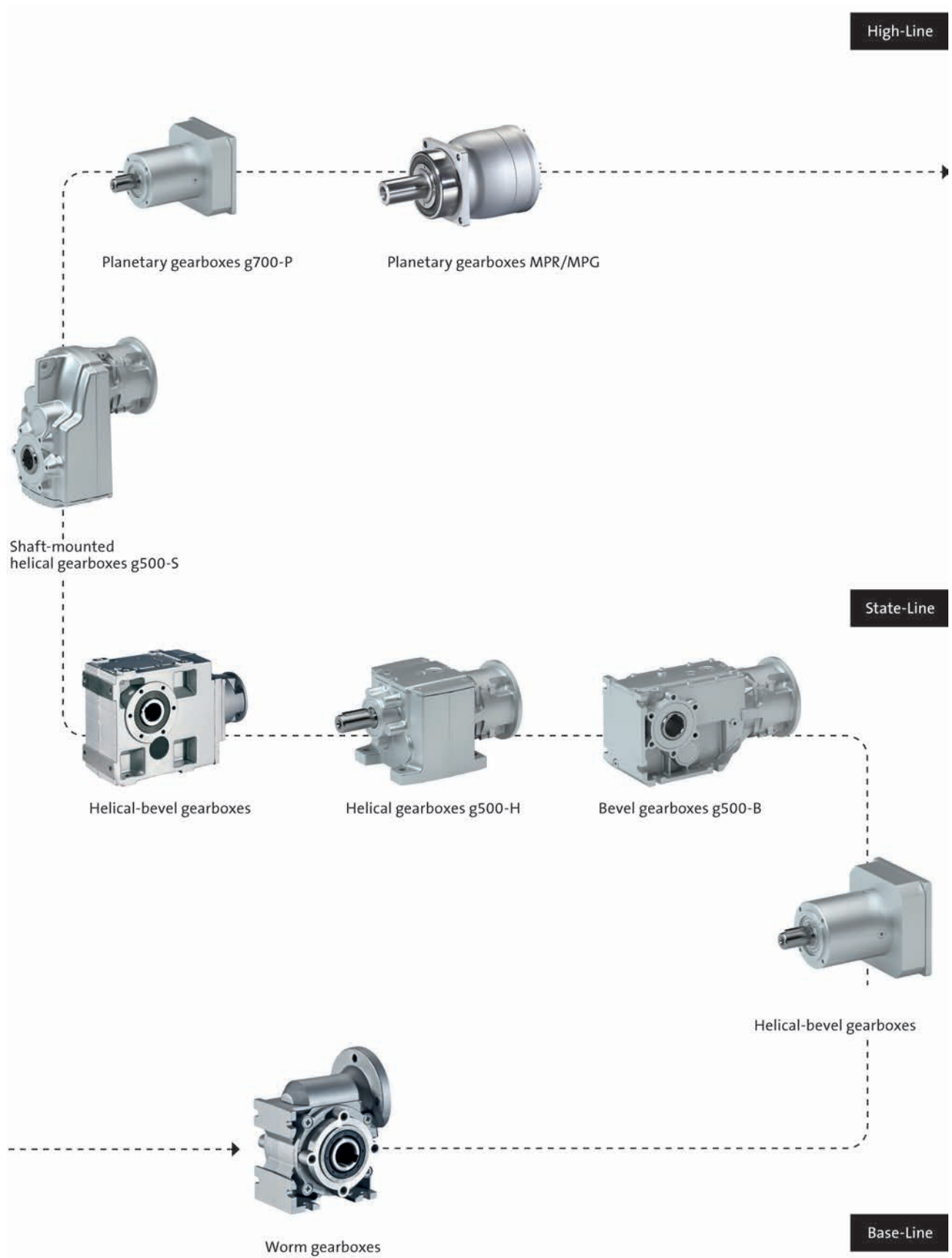
L-force product portfolio

Motors



L-force product portfolio

Gearboxes



Inverter

Inverter Drives 8400 TopLine

0.25 to 45 kW



Inverter Drives 8400 TopLine

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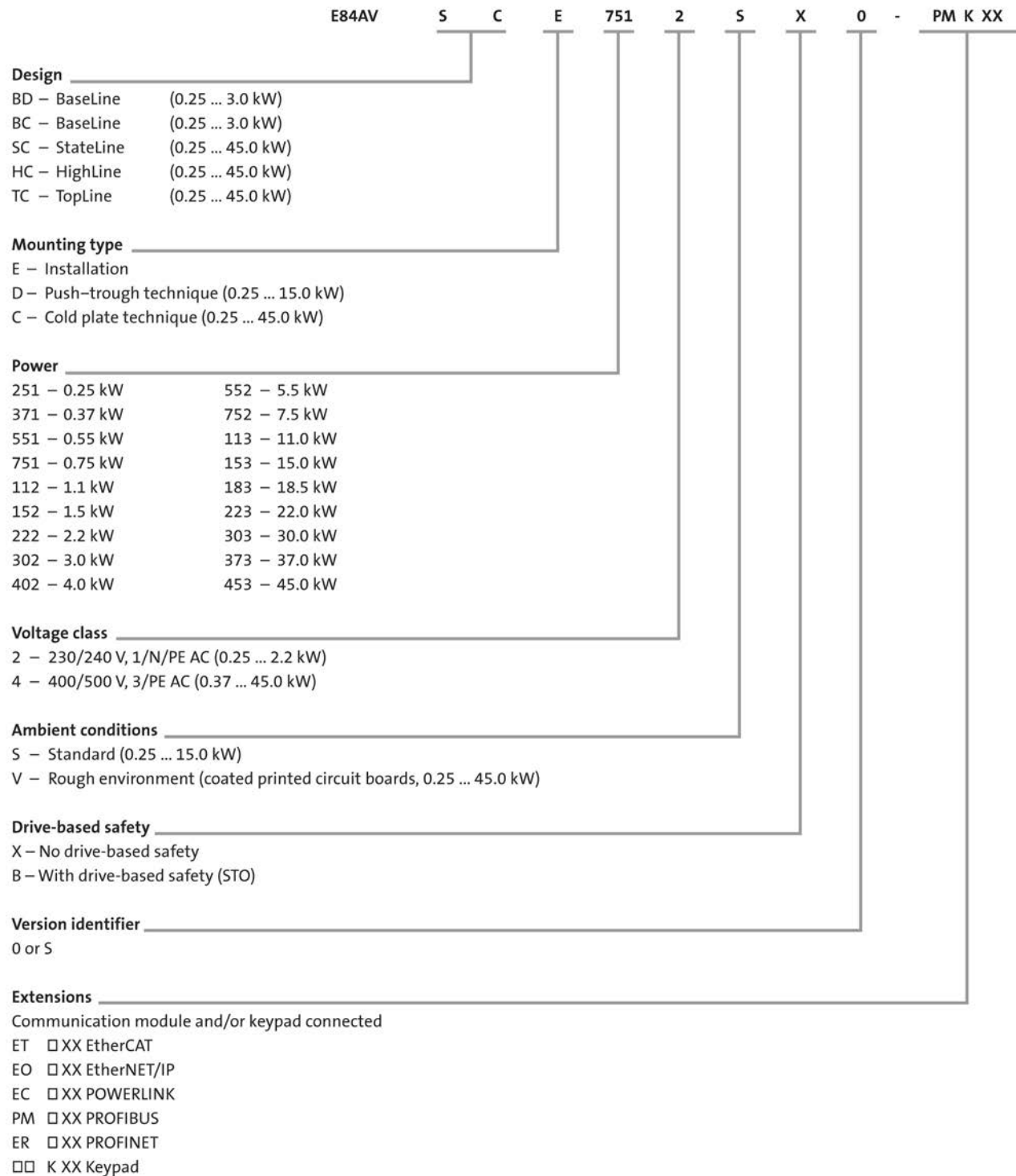
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Inverter Drives 8400 TopLine

General information



Product key



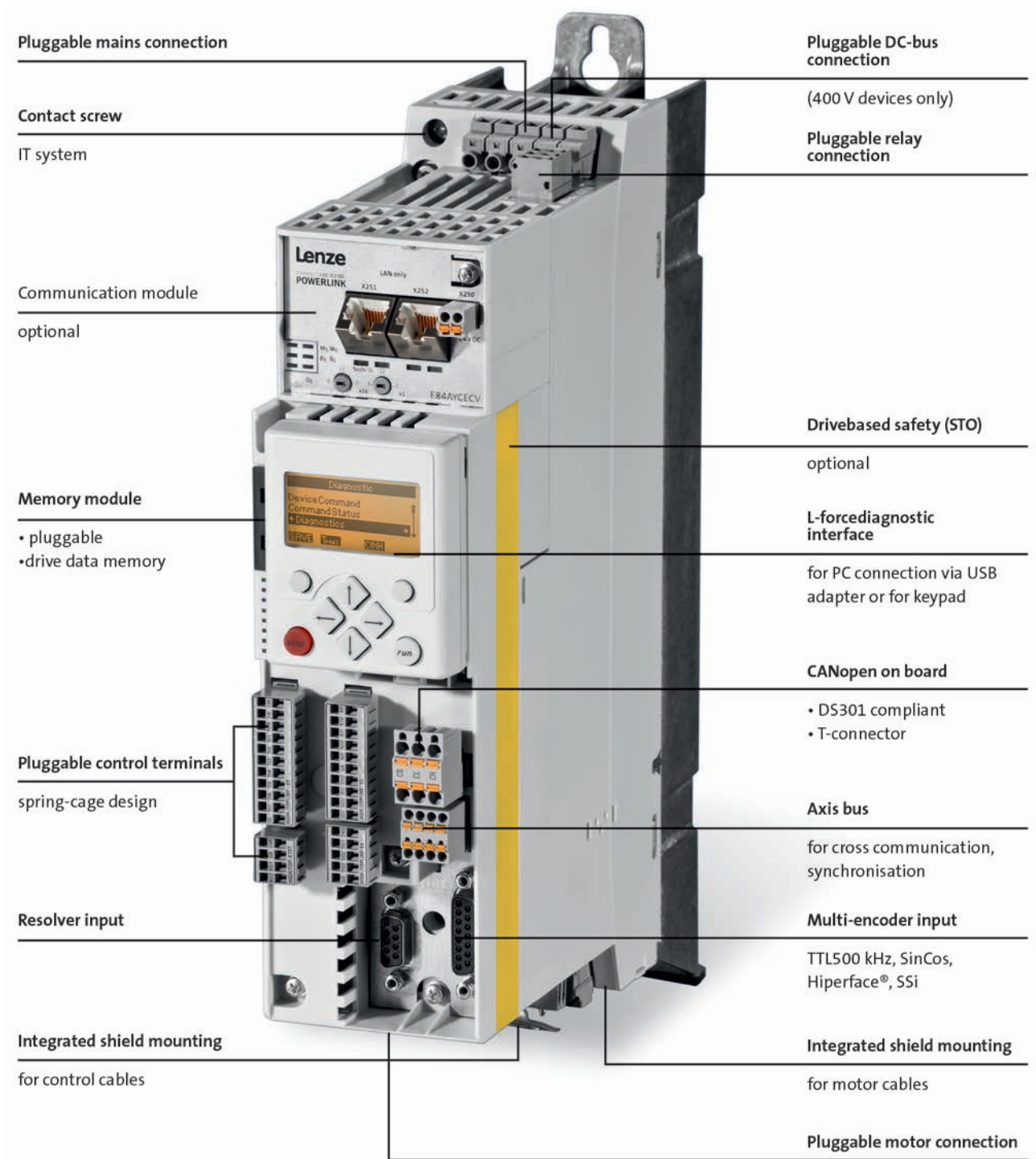
4.4

Inverter Drives 8400 TopLine

General information



Equipment



4.4

Inverter Drives 8400 TopLine

General information



List of abbreviations

| | | |
|---------------------|--------------------|---------------------------|
| b | [mm] | Dimensions |
| C _{th} | [KW _s] | Thermal capacity |
| f _{ch} | [kHz] | Rated switching frequency |
| h | [mm] | Dimensions |
| I _{N, out} | [A] | Rated output current |
| I _{N, AC} | [A] | Rated mains current |
| m | [kg] | Mass |
| n _{max} | [r/min] | Max. speed |
| P | [kW] | Typical motor power |
| P _V | [kW] | Power loss |
| P _N | [kW] | Rated power |
| R _N | [Ω] | Rated resistance |
| t | [mm] | Dimensions |
| U _{AC} | [V] | Mains voltage |
| U _{DC} | [V] | DC supply |
| U _{N, AC} | [V] | Rated voltage |
| U _{out} | [V] | Max. output voltage |

| | |
|------------|--|
| ASM | Asynchronous motor |
| DIAG | Slot for diagnostic adapter |
| DIN | Deutsches Institut für Normung e.V. |
| EN | European standard |
| EN 60529 | Degrees of protection provided by enclosures (IP code) |
| EN 60721-3 | Classification of environmental conditions; Part 3: Classes of environmental parameters and their limit values |
| EN 61800-3 | Electrical variable speed drives Part 3: EMC requirements including special test methods |
| IEC | International Electrotechnical Commission |
| IEC 61508 | Functional safety of electrical/electronic/programmable electronic safety-related systems |
| IM | International Mounting Code |
| IP | International Protection Code |
| MCI | Slot for communication module (module communication interface) |
| NEMA | National Electrical Manufacturers Association |
| UL | Underwriters Laboratory Listed Product |
| UR | Underwriters Laboratory Recognized Product |
| VDE | Verband deutscher Elektrotechniker (Association of German Electrical Engineers) |

Inverter Drives 8400 TopLine

General information



Inverter Drives 8400 TopLine

General information



Inverter Drives 8400

Cost-efficiency, time savings and quality enhancement are the challenges of the future. Lenze is facing these challenges with its L-force product portfolio – the holistic solution portfolio with precisely matched interfaces and components. For faster configuration and commissioning, better performance and more flexibility in production.

As such, the four versions of Inverter Drives 8400 - BaseLine, StateLine, HighLine and TopLine - have been designed for consistent process optimisation – throughout your entire value-added chain. They reduce your costs, from component selection, through project planning, manufacturing and commissioning, all the way up to servicing. We call this "rightsizing".

Rightsized for versatile applications

Are you looking to control a three-phase AC motor or perform positioning with or without feedback? Then select exactly the inverter you need from the scaled solution space of the Inverter Drives 8400 with units in the power range from 0.25 kW to 45 kW. You are sure to find exactly what you are looking for here, as the modular 8400 range of inverters offers the right solution for a broad spectrum of applications.

While the BaseLine is excellent for basic applications, the TopLine offers servo qualities and thereby fulfils with the strict requirements in terms of dynamics and accuracy.

8400 TopLine - for servo applications

8400 TopLine – the inverter with servo qualities within the 8400 range. Equipped with everything needed for high dynamic performance and accuracy in complex applications. Alongside a resolver input, a multiple encoder input (which can be used at the same time) is also provided which optimally supplements the range of feedback systems that can be used. Cross communication between multiple TopLine units requires minimum wiring (3-core), as it runs via the separate axis bus. Alongside asynchronous motors, TopLine also supports dynamic synchronous motors via feedback.

Benefit from precisely tailored, cost-optimised Lenze drive units, consisting of prepared system cables, motors and gearboxes, feedback, brakes, fans and of course the 8400 TopLine.

The 8400 TopLine is, for example, recommended for storage and retrieval units, synchronised line drives and pick-and-place applications.

Inverter Drives 8400 TopLine

General information



Functions and features

| | |
|---|--|
| Mode | 8400 TopLine |
| Control types, motor control | |
| Field-oriented servo control (SC) | For synchronous servo motors, asynchronous servo motors and three-phase asynchronous motors |
| Sensorless control (SLPSM) | For synchronous servo motors |
| Sensorless vector control (SLVC) | For three-phase asynchronous motors |
| V/f control (VFCplus) | For three-phase AC motors and asynchronous servo motor (linear or square-law) |
| Energy saving function (VFC eco) | For three-phase asynchronous motors |
| Basic functions | <ul style="list-style-type: none"> Freely assignable user menu Free function block interconnection with extensive function library Parameter change-over DC brake function Braking operation without brake resistor Brake management for brake control with low rate of wear Flying restart circuit S-shaped ramps for smooth acceleration PID controller 15 fixed frequencies Masking frequencies Inversion of motor phase sequence |
| Technology applications | <ul style="list-style-type: none"> Speed actuating drive Switch-off positioning without feedback Table positioning without feedback (with sequential positioning) |
| Advanced functions | <ul style="list-style-type: none"> Function blocks for positioning sequence control Function blocks for electrical shaft (speed and angular synchronism) Function blocks for dancer control Function blocks for mains failure control |
| Monitoring and protective measures | <ul style="list-style-type: none"> Short circuit Earth fault Overvoltage Motor phase failure Overcurrent I² x t-Motor monitoring Motor overtemperature Mains phase failure Protection for cyclical mains switching Motor stalling |
| Diagnostics | Data logger, logbook, oscilloscope functions |
| Status display | 6 LEDs |
| Diagnostic interface | <ul style="list-style-type: none"> Integrated For USB diagnostic adapter or keypad (diagnosis terminal) |
| Braking operation | |
| Brake chopper | Integrated |
| Brake resistor | External |

Inverter Drives 8400 TopLine

General information

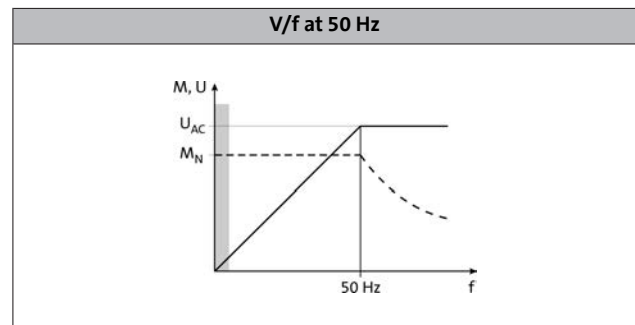


Operating modes

An inverter enables energy-efficient operation of a system in virtually all application cases. The various operating modes, which can be created by making just a few simple settings, facilitate this. The following characteristics and corresponding specifications listed on the following pages can be used to calculate the optimum operating mode during the project planning phase.

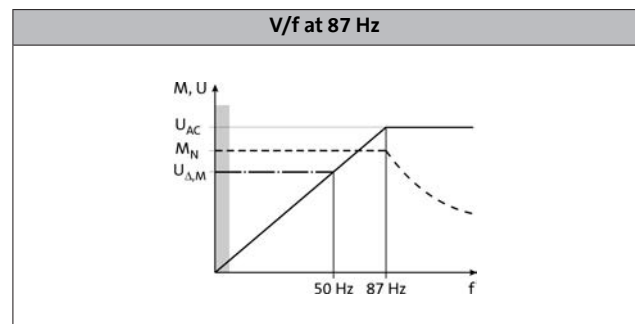
Standard setting

In its initial state when delivered, the inverter is set up for basic operation with a three-phase AC motor with V/f control. When operated in this mode, the rated torque of the motor is available in a setting range up to 50 Hz.



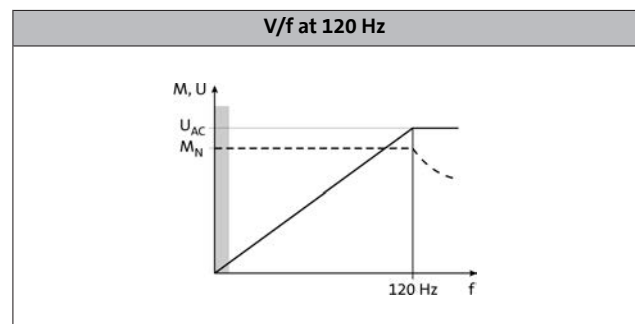
Extended setting range up to 87 Hz

If the V/f reference point on the inverter is set to 87 Hz, the rated torque can be used across an extended setting range. Here, a 230/400V motor is for example used and operated in a delta layout with a 400V inverter. The setting range is then increased by 40 %. The inverter must be dimensioned for a rated motor current of 230 V.



Operation with inverter-optimised MF motors

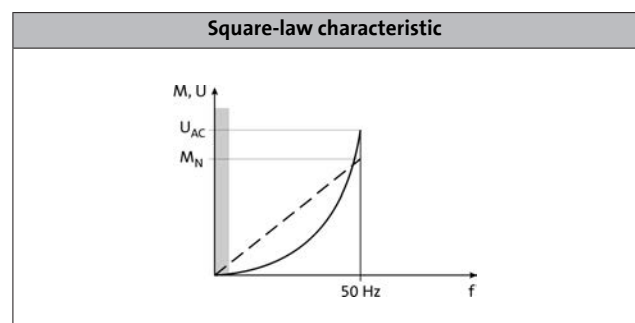
Large setting ranges and optimum operation at the rated torque: these are the strengths of the MF motor when used in combination with an inverter. The motors are optimised for a setting range up to 120 Hz. Compared to conventional 50Hz operation, the setting range increases by 250 %. It is quite simply not possible for a drive to be operated any more efficiently in a machine.



Operation with low loads

This operating mode can be used for various applications, e.g. for fans and pumps:

In fan and pump applications, the load behaviour follows a square-law characteristic depending on the speed. Often, an overload capacity of 120% is sufficient. This serves to operate the inverter during operation with increased power, i.e. the inverter can be dimensioned one power size smaller. The square-law characteristic which corresponds to the load behaviour can be set in the inverter.



Inverter Drives 8400 TopLine



General information

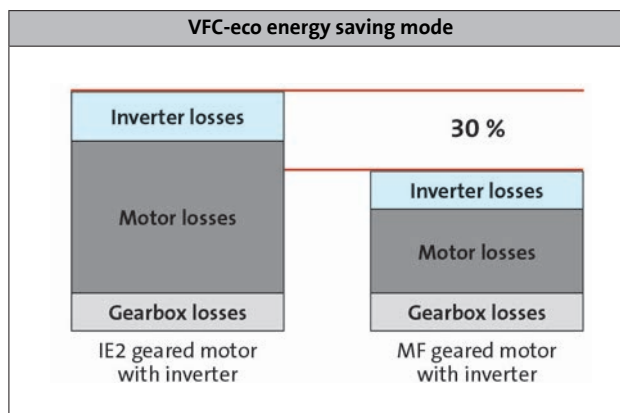
Operating modes

VFC-eco energy saving mode

The Inverter Drives 8400 make energy saving especially easy with the "VFC eco" function. Particularly in the partial load operational range, this function significantly reduces energy requirements. Combined with the new L-force MF three-phase AC motors, this drive solution impresses with the maximum energy efficiency of a Lenze BlueGreen solution.

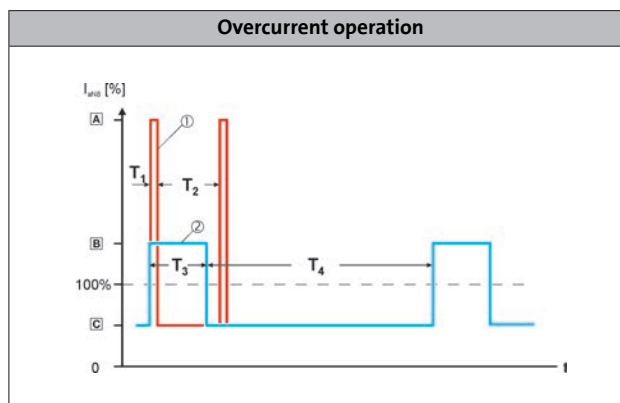
The "VFC eco" mode adjusts the magnetising current of a motor intelligently to actual requirements. This is particularly useful in partial load operational range, as this is precisely where three-phase AC motors need to be supplied with a greater magnetising current than the operating conditions actually require. The "VFC eco" mode allows losses to be reduced so much that savings of up to 30% can be achieved.

Energy efficiency can then be increased even further with the MF three-phase AC motors. These motors have been specifically designed for operation with frequency inverters. They operate at 120 Hz instead of 50 Hz, as 4-pole three-phase AC motors are at their most efficient at this frequency.



Overcurrent operation

The inverters can be driven at higher amperages beyond the rated current if the duration of this overcurrent operation is time limited. Two utilisation cycles with a duration of 15 s and 180 s are defined. Within these utilisation cycles, an overcurrent is possible for a certain time if afterwards an accordingly long recovery phase takes place. For both utilisation cycles, a moving average is determined separately. The adjacent diagram shows both cycles: 15 s in red and 180 s in blue. The overload times t_{o1} are 3 s (T_1) and 60 s (T_3) respectively, the corresponding recovery times t_{re} are 12 s (T_2) and 120 s (T_4) respectively. The following tables show the resulting maximum output currents. Monitoring of the device utilisation ($I \times t$) activates the set error response (trip or warning if one of the two utilisation values exceeds the limit of 100 %).



Switching frequencies

On an inverter, the term "switching frequency" is understood to mean the frequency with which the input and outputs of the output module (inverter) are switched. On an inverter, the switching frequency can generally be set to values between 2 and 16 kHz, whereby the selection is based on the respective power output.

Since losses (in the form of heat) can be generated when switching the modules, the inverter can provide a higher output current at a switching frequency of 2 kHz. In addition to this, it is also important to differentiate between operation at a fixed switching frequency and a variable switching frequency, whereby the switching frequency is automatically reduced based on the output current here.

The data for operation at increased output is permitted for operation at a switching frequency of 2 or 4 kHz and in an ambient temperature of max. 40 °C.

Inverter Drives 8400 TopLine

General information



Inverter Drives 8400 TopLine

Technical data




Standards and operating conditions

| Mode | | | 8400 TopLine |
|---------------------------------|------------------|------------|--|
| Product | | | 8400 TopLine |
| Conformity | | | |
| CE | | | Low-Voltage Directive 2006/95/EC |
| EAC | | | TP TC 004/2011 (TR CU 004/2011) TP TC 020/2011 (TR CU 020/2011) |
| Approval | | | |
| UL 508C | | | Power Conversion Equipment (file no. E132659) |
| CSA ²⁾ | | | CSA 22.2 No. 14 |
| Enclosure | | | |
| EN 60529 ³⁾ | | | IP20 |
| NEMA 250 | | | Type 1 |
| Climatic conditions | | | |
| Storage (EN 60721-3-1) | | | 1K3 (temperature: -25 °C ... +60 °C) |
| Transport (EN 60721-3-2) | | | 2K3 (temperature: -25 °C ... +70 °C) |
| Operation (EN 60721-3-3) | | | 3K3 (temperature: -10°C ... +55°C) |
| Current derating at over 45°C | | | 2.5% / K |
| Site altitude | | | |
| Amsl | H _{max} | [m] | 4000 |
| Current derating at over 1000 m | | [%/1000 m] | 5 |
| Vibration resistance | | | |
| Transport (EN 60721-3-2) | | | 2M2 |
| Operation (EN 61800-5-1) | | | 10 Hz ≤ f ≤ 57 Hz: ±0.075 mm amplitude, 57 Hz ≤ f ≤ 150 Hz: 1.0 g |
| Operation (Germanischer Lloyd) | | | 5 Hz ≤ f ≤ 13.2 Hz: ± 1 mm amplitude 13.2 Hz ≤ f ≤ 100 Hz: 0.7 g |

4.4

| Mode | | | 8400 TopLine |
|---|--|--|---|
| Product | | | 8400 TopLine |
| Supply form | | | |
| | | | Systems with earthed star point (TN and TT systems) Systems with high-resistance or isolated star point (IT systems) |
| Noise emission | | | |
| EN 61800-3 | | | Integrated RFI suppression: category C2 up to 25 m shielded motor cable ¹⁾ |
| Insulation resistance | | | |
| EN 61800-5-1 | | | Overvoltage category III Above 2000 m amsl overvoltage category II |
| Degree of pollution | | | |
| EN 61800-5-1 | | | 2 |
| Protective insulation of control circuits | | | |
| EN 61800-5-1 | | | Safe mains isolation: double/reinforced insulation |

¹⁾  38 - Please also refer to the Motor connection section

²⁾ When using an external mains choke or mains filter

³⁾ Mounted and ready-to-use

Inverter Drives 8400 TopLine

Technical data



Rated data 230 V

► Unless otherwise specified, the data refers to the default setting.

Data in left column per device

Operation with rated data: rated output current $I_{N,out}$ at mains voltage 230 V, switching frequency 8 kHz variable and max. ambient temperature 45 °C (default setting).
Output currents I_{out} apply to:
Ambient temperature 45 °C operating with constant switching frequency 2 kHz or 4 kHz.
Ambient temperature 40 °C operating with constant switching frequency 8 kHz or 16 kHz.

Data in right column per device

Operation with increased power: rated output current $I_{N,out}$ at mains voltage 230 V, switching frequency 4 kHz and max. ambient temperature 40 °C.
Output currents apply to:
Ambient temperature 40 °C operating with switching frequency 2 kHz or 4 kHz.

| | | | | | | |
|-----------------------------|-------------|------|--|------|-----------------|------|
| | | | | | | |
| Typical motor power | | | | | | |
| 4-pole asynchronous motor | P | [kW] | 0.25 | 0.37 | 0.37 | 0.55 |
| Product key | | | E84AV□□□2512□□0 | | E84AV□□□3712□□0 | |
| Mains voltage range | | | 1/N/PE AC 180 V-0 % ... 264 V+0 %, 45 Hz-0 % ... 65 Hz+0 % | | | |
| | U_{AC} | [V] | | | | |
| Rated mains current | | | | | | |
| With mains choke | $I_{N,AC}$ | [A] | 3.0 | 3.6 | 4.2 | 5.0 |
| Without mains choke | $I_{N,AC}$ | [A] | 3.4 | 4.1 | 5.0 | |
| Rated output current | | | | | | |
| | $I_{N,out}$ | [A] | 1.7 | 2.1 | 2.4 | 2.9 |
| Output current | | | | | | |
| 2 kHz | I_{out} | [A] | 1.7 | 2.1 | 2.4 | 2.9 |
| 4 kHz | I_{out} | [A] | 1.7 | 2.1 | 2.4 | 2.9 |
| 8 kHz | I_{out} | [A] | 1.7 | | 2.4 | |
| 16 kHz | I_{out} | [A] | 1.1 | | 1.6 | |

Data for 60 s overload

| | | | | |
|----------------------------|---------------|-----|-------|-----|
| Max. output current | | | | |
| | $I_{max,out}$ | [A] | 2.6 | 3.6 |
| Overload time | | | 60.0 | |
| | t_{ol} | [s] | | |
| Recovery time | | | 120.0 | |
| | t_{re} | [s] | | |

Data for 3 s overload

| | | | | |
|---------------------------------------|---------------|-----|------|-----|
| Max. short-time output current | | | | |
| | $I_{max,out}$ | [A] | 3.4 | 4.8 |
| Overload time | | | 3.0 | |
| | t_{ol} | [s] | | |
| Recovery time | | | 12.0 | |
| | t_{re} | [s] | | |


Inverter Drives 8400 TopLine

Technical data



Rated data 230 V

► Unless otherwise specified, the data refers to the default setting.

| | | | | | | |
|---------------------------------------|------------------|------|--|------|-----------------|------|
| | | |  | | | |
| Typical motor power | | | | | | |
| 4-pole asynchronous motor | P | [kW] | 0.25 | 0.37 | 0.37 | 0.55 |
| Product key | | | | | | |
| Inverter | | | E84AV□□□2512□□0 | | E84AV□□□3712□□0 | |
| Power loss | | | | | | |
| | P _V | [kW] | 0.045 | | 0.050 | |
| Max. cable length¹⁾ | | | | | | |
| Shielded motor cable | I _{max} | [m] | 50 | | | |

Brake chopper rated data

| | | | | |
|---|---------------------|------|-------|-------|
| Rated power, Brake chopper | | | | |
| | P _N | [kW] | 0.6 | 0.6 |
| Max. output power, Brake chopper | | | | |
| | P _{max, 1} | [kW] | 0.8 | 0.8 |
| Min. brake resistance | | | | |
| | R _{min} | [Ω] | 180.0 | 180.0 |

4.4

Dimensions and weights

Standard installation design

| | | | | |
|---------------------|---|------|-----|-----|
| Dimensions | | | | |
| Height | h | [mm] | 215 | 215 |
| Width | b | [mm] | 70 | 70 |
| Depth ²⁾ | t | [mm] | 214 | 214 |
| Mass | | | | |
| | m | [kg] | 2.0 | 2.0 |

¹⁾ Technically possible cable lengths, irrespective of EMC requirements

²⁾ With safety engineering plus 20 mm

Inverter Drives 8400 TopLine

Technical data



Rated data 230 V


► Unless otherwise specified, the data refers to the default setting.

Data in left column per device

Operation with rated data: rated output current $I_{N,out}$ at mains voltage 230 V, switching frequency 8 kHz variable and max. ambient temperature 45 °C (default setting).
Output currents I_{out} apply to:
Ambient temperature 45 °C operating with constant switching frequency 2 kHz or 4 kHz.
Ambient temperature 40 °C operating with constant switching frequency 8 kHz or 16 kHz.

Data in right column per device

Operation with increased power: rated output current $I_{N,out}$ at mains voltage 230 V, switching frequency 4 kHz and max. ambient temperature 40 °C.
Output currents apply to:
Ambient temperature 40 °C operating with switching frequency 2 kHz or 4 kHz.

| | | | | | | |
|-----------------------------|--------------|------|--|------|------------------------------------|--------------------|
| | | |  | | | |
| Typical motor power | | | | | | |
| 4-pole asynchronous motor | P | [kW] | 0.55 | 0.75 | 0.75 | 1.10 ¹⁾ |
| Product key | | | E84AV□□□5512□□0 E84AV□□□5512□□S | | E84AV□□□7512□□0 E84AV□□□7512□□S | |
| Mains voltage range | | | 1/N/PE AC 180 V-0 % ... 264 V+0 %, 45 Hz-0 % ... 65 Hz+0 % | | | |
| | U_{AC} | [V] | | | | |
| Rated mains current | | | | | | |
| With mains choke | $I_{N, AC}$ | [A] | 5.0 | 6.0 | 7.0 | 8.4 |
| Without mains choke | $I_{N, AC}$ | [A] | 5.3 | 6.4 | 8.0 | |
| Rated output current | | | | | | |
| | $I_{N, out}$ | [A] | 3.0 | 3.6 | 4.0 | 4.8 |
| Output current | | | | | | |
| 2 kHz | I_{out} | [A] | 3.0 | 3.6 | 4.0 | 4.8 |
| 4 kHz | I_{out} | [A] | 3.0 | 3.6 | 4.0 | 4.8 |
| 8 kHz | I_{out} | [A] | 3.0 | | 4.0 | |
| 16 kHz | I_{out} | [A] | 2.0 | | 2.7 | |

Data for 60 s overload

| | | | | | | |
|----------------------------|----------------|-----|-------|--|-----|--|
| Max. output current | | | 4.5 | | 6.0 | |
| | $I_{max, out}$ | [A] | | | | |
| Overload time | | | 60.0 | | | |
| | t_{ol} | [s] | | | | |
| Recovery time | | | 120.0 | | | |
| | t_{re} | [s] | | | | |

Data for 3 s overload

| | | | | | | |
|---------------------------------------|----------------|-----|------|--|-----|--|
| Max. short-time output current | | | 6.0 | | 8.0 | |
| | $I_{max, out}$ | [A] | | | | |
| Overload time | | | 3.0 | | | |
| | t_{ol} | [s] | | | | |
| Recovery time | | | 12.0 | | | |
| | t_{re} | [s] | | | | |

¹⁾ Operation only permitted with mains choke


Inverter Drives 8400 TopLine

Technical data



Rated data 230 V

► Unless otherwise specified, the data refers to the default setting.

| | | | | | | |
|--|------------------|------|--|------|------------------------------------|------|
| | | |  | | | |
| Typical motor power | | | | | | |
| 4-pole asynchronous motor | P | [kW] | 0.55 | 0.75 | 0.75 | 1.10 |
| Product key | | | | | | |
| Inverter | | | E84AV□□□5512□□0 E84AV□□□5512□□S | | E84AV□□□7512□□0 E84AV□□□7512□□S | |
| Power loss | | | | | | |
| | P _V | [kW] | 0.060 | | 0.075 | |
| Max. cable length ¹⁾ | | | | | | |
| Shielded motor cable | I _{max} | [m] | 50 | | | |

Brake chopper rated data

| | | | | |
|---|---------------------|------|-------|-------|
| Rated power, Brake chopper | | | | |
| | P _N | [kW] | 1.1 | 1.1 |
| Max. output power, Brake chopper | | | | |
| | P _{max, 1} | [kW] | 1.4 | 1.4 |
| Min. brake resistance | | | | |
| | R _{min} | [Ω] | 100.0 | 100.0 |

Dimensions and weights

Standard installation design

| | | | | |
|---------------------|---|------|-----|-----|
| Dimensions | | | | |
| Height | h | [mm] | 215 | 215 |
| Width | b | [mm] | 70 | 70 |
| Depth ²⁾ | t | [mm] | 214 | 214 |
| Mass | | | | |
| | m | [kg] | 2.0 | 2.0 |

¹⁾ Technically possible cable lengths, irrespective of EMC requirements

²⁾ With safety engineering plus 20 mm

Inverter Drives 8400 TopLine

Technical data



Rated data 230 V


► Unless otherwise specified, the data refers to the default setting.

Data in left column per device

Operation with rated data: rated output current $I_{N,out}$ at mains voltage 230 V, switching frequency 8 kHz variable and max. ambient temperature 45 °C (default setting).
Output currents I_{out} apply to:
Ambient temperature 45 °C operating with constant switching frequency 2 kHz or 4 kHz.
Ambient temperature 40 °C operating with constant switching frequency 8 kHz or 16 kHz.

Data in right column per device

Operation with increased power: rated output current $I_{N,out}$ at mains voltage 230 V, switching frequency 4 kHz and max. ambient temperature 40 °C.
Output currents apply to:
Ambient temperature 40 °C operating with switching frequency 2 kHz or 4 kHz.

| | | | | | | | | |
|-----------------------------|--------------|------|--|------|------------------------------------|--------------------|------------------------------------|--|
| | | |  | | | | | |
| Typical motor power | | | | | | | | |
| 4-pole asynchronous motor | P | [kW] | 1.10 | 1.50 | 1.50 | 2.20 ¹⁾ | 2.20 | |
| Product key | | | | | | | | |
| Inverter | | | E84AV□□□1122□□0 E84AV□□□1122□□S | | E84AV□□□1522□□0 E84AV□□□1522□□S | | E84AV□□□2222□□0 E84AV□□□2222□□S | |
| Mains voltage range | | | | | | | | |
| | U_{AC} | [V] | 1/N/PE AC 180 V-0 % ... 264 V+0 %, 45 Hz-0 % ... 65 Hz+0 % | | | | | |
| Rated mains current | | | | | | | | |
| With mains choke | $I_{N, AC}$ | [A] | 9.9 | 11.9 | 11.4 | 13.7 | 16.4 | |
| Without mains choke | $I_{N, AC}$ | [A] | 12.0 | 14.4 | 13.7 | | 21.8 | |
| Rated output current | | | | | | | | |
| | $I_{N, out}$ | [A] | 5.5 | 6.8 | 7.0 | 8.4 | 9.5 | |
| Output current | | | | | | | | |
| 2 kHz | I_{out} | [A] | 5.5 | 6.8 | 7.0 | 8.4 | 9.5 | |
| 4 kHz | I_{out} | [A] | 5.5 | 6.8 | 7.0 | 8.4 | 9.5 | |
| 8 kHz | I_{out} | [A] | 5.5 | | 7.0 | | 9.5 | |
| 16 kHz | I_{out} | [A] | 3.7 | | 4.7 | | 6.3 | |

Data for 60 s overload

| | | | | | | |
|----------------------------|----------------|-----|-----|--|-------|--|
| Max. output current | | | | | | |
| | $I_{max, out}$ | [A] | 8.3 | | 10.5 | |
| Overload time | | | | | | |
| | t_{ol} | [s] | | | 60.0 | |
| Recovery time | | | | | | |
| | t_{re} | [s] | | | 120.0 | |

Data for 3 s overload

| | | | | | | |
|---------------------------------------|----------------|-----|------|--|------|--|
| Max. short-time output current | | | | | | |
| | $I_{max, out}$ | [A] | 11.0 | | 14.0 | |
| Overload time | | | | | | |
| | t_{ol} | [s] | | | 3.0 | |
| Recovery time | | | | | | |
| | t_{re} | [s] | | | 12.0 | |

¹⁾ Operation only permitted with mains choke


Inverter Drives 8400 TopLine

Technical data



Rated data 230 V

► Unless otherwise specified, the data refers to the default setting.

| | | | | | | | | |
|--|------------------|------|--|------|------------------------------------|------|------------------------------------|------|
| | | |  | | | | | |
| Typical motor power | | | | | | | | |
| 4-pole asynchronous motor | P | [kW] | 1.10 | 1.50 | 1.50 | 2.20 | 2.20 | 2.20 |
| Product key | | | | | | | | |
| Inverter | | | E84AV□□□1122□□0 E84AV□□□1122□□S | | E84AV□□□1522□□0 E84AV□□□1522□□S | | E84AV□□□2222□□0 E84AV□□□2222□□S | |
| Power loss | | | | | | | | |
| | P _V | [kW] | 0.095 | | 0.11 | | 0.14 | |
| Max. cable length ¹⁾ | | | | | | | | |
| Shielded motor cable | I _{max} | [m] | 50 | | | | | |

Brake chopper rated data

| | | | | | | | | |
|---|---------------------|------|------|--|------|--|------|--|
| Rated power, Brake chopper | | | | | | | | |
| | P _N | [kW] | 3.3 | | 3.3 | | 3.3 | |
| Max. output power, Brake chopper | | | | | | | | |
| | P _{max, 1} | [kW] | 4.4 | | 4.4 | | 4.4 | |
| Min. brake resistance | | | | | | | | |
| | R _{min} | [Ω] | 33.0 | | 33.0 | | 33.0 | |

Dimensions and weights

Standard installation design

| | | | | | | | | |
|---------------------|---|------|-----|--|-----|--|-----|--|
| Dimensions | | | | | | | | |
| Height | h | [mm] | 270 | | 270 | | 270 | |
| Width | b | [mm] | 70 | | 70 | | 70 | |
| Depth ²⁾ | t | [mm] | 214 | | 214 | | 214 | |
| Mass | | | | | | | | |
| | m | [kg] | 2.3 | | 2.3 | | 2.3 | |

¹⁾ Technically possible cable lengths, irrespective of EMC requirements

²⁾ With safety engineering plus 20 mm

Inverter Drives 8400 TopLine

Technical data



Rated data 400 V


► Unless otherwise specified, the data refers to the default setting.

Data in left column per device

Operation with rated data: rated output current $I_{N,out}$ at mains voltage 400 V, switching frequency 8 kHz variable and max. ambient temperature 45 °C (default setting).
Output currents I_{out} apply to:
Ambient temperature 45 °C operating with constant switching frequency 2 kHz or 4 kHz.
Ambient temperature 40 °C operating with constant switching frequency 8 kHz or 16 kHz.

Data in right column per device

Operation with increased power: rated output current $I_{N,out}$ at mains voltage 400 V, switching frequency 4 kHz constant and max. ambient temperature 40 °C.
Output currents apply to:
Ambient temperature 40 °C operating with constant switching frequency 2 kHz or 4 kHz.

| | | | | | | | | |
|-----------------------------|--------------|------|--|------|------------------------------------|------|------------------------------------|--------------------|
| | | |  | | | | | |
| Typical motor power | | | | | | | | |
| 4-pole asynchronous motor | P | [kW] | 0.37 | 0.55 | 0.55 | 0.75 | 0.75 | 1.10 ¹⁾ |
| Product key | | | | | | | | |
| Inverter | | | E84AV□□□3714□□0 E84AV□□□3714□□S | | E84AV□□□5514□□0 E84AV□□□5514□□S | | E84AV□□□7514□□0 E84AV□□□7514□□S | |
| Mains voltage range | | | | | | | | |
| | U_{AC} | [V] | 3/PE AC 320 V-0 % ... 550 V+0 %, 45 Hz-0 % ... 65 Hz+0 % | | | | | |
| Rated mains current | | | | | | | | |
| With mains choke | $I_{N, AC}$ | [A] | 1.4 | 1.7 | 2.0 | 2.6 | | 3.0 |
| Without mains choke | $I_{N, AC}$ | [A] | 1.8 | 2.2 | 2.5 | 3.2 | 3.6 | |
| Rated output current | | | | | | | | |
| | $I_{N, out}$ | [A] | 1.3 | 1.6 | 1.8 | 2.2 | 2.4 | 2.9 |
| Output current | | | | | | | | |
| 2 kHz | I_{out} | [A] | 1.3 | 1.6 | 1.8 | 2.2 | 2.4 | 2.9 |
| 4 kHz | I_{out} | [A] | 1.3 | 1.6 | 1.8 | 2.2 | 2.4 | 2.9 |
| 8 kHz | I_{out} | [A] | 1.3 | | 1.8 | | 2.4 | |
| 16 kHz | I_{out} | [A] | 0.9 | | 1.2 | | 1.6 | |

Data for 60 s overload

| | | | | | | | | |
|----------------------------|----------------|-----|-------|--|-----|--|-----|--|
| Max. output current | | | | | | | | |
| | $I_{max, out}$ | [A] | 2.0 | | 2.7 | | 3.6 | |
| Overload time | | | | | | | | |
| | t_{ol} | [s] | 60.0 | | | | | |
| Recovery time | | | | | | | | |
| | t_{re} | [s] | 120.0 | | | | | |

Data for 3 s overload

| | | | | | | | | |
|---------------------------------------|----------------|-----|------|--|-----|--|-----|--|
| Max. short-time output current | | | | | | | | |
| | $I_{max, out}$ | [A] | 2.6 | | 3.6 | | 4.8 | |
| Overload time | | | | | | | | |
| | t_{ol} | [s] | 3.0 | | | | | |
| Recovery time | | | | | | | | |
| | t_{re} | [s] | 12.0 | | | | | |

¹⁾ Operation only permitted with mains choke


Inverter Drives 8400 TopLine

Technical data



Rated data 400 V

► Unless otherwise specified, the data refers to the default setting.

| | | | | | | | | |
|---------------------------------------|-------------|------|--|------|------------------------------------|------|------------------------------------|------|
| | | |  | | | | | |
| Typical motor power | | | | | | | | |
| 4-pole asynchronous motor | P | [kW] | 0.37 | 0.55 | 0.55 | 0.75 | 0.75 | 1.10 |
| Product key | | | | | | | | |
| Inverter | | | E84AV□□□3714□□0 E84AV□□□3714□□S | | E84AV□□□5514□□0 E84AV□□□5514□□S | | E84AV□□□7514□□0 E84AV□□□7514□□S | |
| DC supply | | | | | | | | |
| | U_{DC} | [V] | DC 455 V -0 % ... 775 V +0 % | | | | | |
| Rated DC-bus current | | | | | | | | |
| | $I_{N, DC}$ | [A] | 2.2 | | 3.3 | | 4.4 | |
| Power loss | | | | | | | | |
| | P_V | [kW] | 0.050 | | 0.065 | | 0.080 | |
| Max. cable length¹⁾ | | | | | | | | |
| Shielded motor cable | l_{max} | [m] | 50 | | | | | |

4.4

Brake chopper rated data

| | | | | | |
|---|--------------|------|-------|-------|-------|
| Rated power, Brake chopper | | | | | |
| | P_N | [kW] | 1.3 | 1.3 | 1.3 |
| Max. output power, Brake chopper | | | | | |
| | $P_{max, 1}$ | [kW] | 1.3 | 1.3 | 1.3 |
| Min. brake resistance | | | | | |
| | R_{min} | [Ω] | 390.0 | 390.0 | 390.0 |

Dimensions and weights

Standard installation design

| | | | | | |
|---------------------|---|------|-----|-----|-----|
| Dimensions | | | | | |
| Height | h | [mm] | 215 | 215 | 215 |
| Width | b | [mm] | 70 | 70 | 70 |
| Depth ²⁾ | t | [mm] | 214 | 214 | 214 |
| Mass | | | | | |
| | m | [kg] | 2.0 | 2.0 | 2.0 |

¹⁾ Technically possible cable lengths, irrespective of EMC requirements

²⁾ With safety engineering plus 20 mm

Inverter Drives 8400 TopLine

Technical data



Rated data 400 V


► Unless otherwise specified, the data refers to the default setting.

Data in left column per device

Operation with rated data: rated output current $I_{N,out}$ at mains voltage 400 V, switching frequency 8 kHz variable and max. ambient temperature 45 °C (default setting).
Output currents I_{out} apply to:
Ambient temperature 45 °C operating with constant switching frequency 2 kHz or 4 kHz.
Ambient temperature 40 °C operating with constant switching frequency 8 kHz or 16 kHz.

Data in right column per device

Operation with increased power: rated output current $I_{N,out}$ at mains voltage 400 V, switching frequency 4 kHz constant and max. ambient temperature 40 °C.
Output currents apply to:
Ambient temperature 40 °C operating with constant switching frequency 2 kHz or 4 kHz.

| | | | | | | | | | | |
|-----------------------------|--------------|------|--|------------------------------------|------------------------------------|-----------------|------|--------------------|------|--------------------|
| | | |  | | | | | | | |
| Typical motor power | | | | | | | | | | |
| 4-pole asynchronous motor | P | [kW] | 1.10 | 1.50 | 1.50 | 2.20 | 2.20 | 3.00 ¹⁾ | 3.00 | 4.00 ¹⁾ |
| Product key | | | | | | | | | | |
| Inverter | | | E84AV□□□1124□□0 E84AV□□□1124□□S | E84AV□□□1524□□0 E84AV□□□1524□□S | E84AV□□□2224□□0 E84AV□□□2224□□S | E84AV□□□3024□□S | | | | |
| Mains voltage range | | | 3/PE AC 320 V-0 % ... 550 V+0 %, 45 Hz-0 % ... 65 Hz+0 % | | | | | | | |
| Rated mains current | | | | | | | | | | |
| With mains choke | $I_{N, AC}$ | [A] | 3.2 | 3.8 | 3.9 | 4.7 | 5.1 | 6.1 | 7.0 | 8.4 |
| Without mains choke | $I_{N, AC}$ | [A] | 4.4 | 5.3 | 5.5 | 6.6 | 7.3 | | 9.8 | |
| Rated output current | | | | | | | | | | |
| | $I_{N, out}$ | [A] | 3.2 | 3.8 | 3.9 | 4.8 | 5.6 | 6.7 | 7.3 | 8.8 |
| Output current | | | | | | | | | | |
| 2 kHz | I_{out} | [A] | 3.2 | 3.8 | 3.9 | 4.8 | 5.6 | 6.7 | 7.3 | 8.8 |
| 4 kHz | I_{out} | [A] | 3.2 | 3.8 | 3.9 | 4.8 | 5.6 | 6.7 | 7.3 | 8.8 |
| 8 kHz | I_{out} | [A] | 3.2 | | 3.9 | | 5.6 | | 7.3 | |
| 16 kHz | I_{out} | [A] | 2.1 | | 2.6 | | 3.7 | | 4.9 | |

Data for 60 s overload

| | | | | | | | | | | |
|----------------------------|----------------|-----|-------|--|-----|--|-----|--|------|--|
| Max. output current | | | | | | | | | | |
| | $I_{max, out}$ | [A] | 4.8 | | 5.9 | | 8.4 | | 11.0 | |
| Overload time | | | 60.0 | | | | | | | |
| | t_{ol} | [s] | | | | | | | | |
| Recovery time | | | 120.0 | | | | | | | |
| | t_{re} | [s] | | | | | | | | |

Data for 3 s overload

| | | | | | | | | | | |
|---------------------------------------|----------------|-----|------|--|-----|--|------|--|------|--|
| Max. short-time output current | | | | | | | | | | |
| | $I_{max, out}$ | [A] | 6.4 | | 7.8 | | 11.2 | | 14.6 | |
| Overload time | | | 3.0 | | | | | | | |
| | t_{ol} | [s] | | | | | | | | |
| Recovery time | | | 12.0 | | | | | | | |
| | t_{re} | [s] | | | | | | | | |

¹⁾ Operation only permitted with mains choke


Inverter Drives 8400 TopLine

Technical data



Rated data 400 V

► Unless otherwise specified, the data refers to the default setting.

| | | | | | | | | | | |
|---------------------------------------|-------------|------|--|------------------------------------|------------------------------------|------------------------------------|------|------|------|------|
| | | |  | | | | | | | |
| Typical motor power | | | | | | | | | | |
| 4-pole asynchronous motor | P | [kW] | 1.10 | 1.50 | 1.50 | 2.20 | 2.20 | 3.00 | 3.00 | 4.00 |
| Product key | | | | | | | | | | |
| Inverter | | | E84AV□□□1124□□□ E84AV□□□1124□□S | E84AV□□□1524□□□ E84AV□□□1524□□S | E84AV□□□2224□□□ E84AV□□□2224□□S | E84AV□□□3024□□□ E84AV□□□3024□□S | | | | |
| DC supply | | | | | | | | | | |
| | U_{DC} | [V] | DC 455 V -0 % ... 775 V +0 % | | | | | | | |
| Rated DC-bus current | | | | | | | | | | |
| | $I_{N, DC}$ | [A] | 5.4 | | 6.7 | | 8.9 | | 12.0 | |
| Power loss | | | | | | | | | | |
| | P_V | [kW] | 0.090 | | 0.10 | | 0.14 | | 0.17 | |
| Max. cable length¹⁾ | | | | | | | | | | |
| Shielded motor cable | l_{max} | [m] | 50 | | | | | | | |

4.4

Brake chopper rated data

| | | | | | | | | | | |
|---|--------------|------|-------|--|-------|--|-------|--|------|--|
| Rated power, Brake chopper | | | | | | | | | | |
| | P_N | [kW] | 2.9 | | 2.9 | | 3.5 | | 6.4 | |
| Max. output power, Brake chopper | | | | | | | | | | |
| | $P_{max, 1}$ | [kW] | 2.9 | | 2.9 | | 3.5 | | 6.4 | |
| Min. brake resistance | | | | | | | | | | |
| | R_{min} | [Ω] | 180.0 | | 180.0 | | 150.0 | | 82.0 | |

Dimensions and weights

Standard installation design

| | | | | | | | | | | |
|---------------------|---|------|-----|--|-----|--|-----|--|-----|--|
| Dimensions | | | | | | | | | | |
| Height | h | [mm] | 270 | | 270 | | 270 | | 270 | |
| Width | b | [mm] | 70 | | 70 | | 70 | | 70 | |
| Depth ²⁾ | t | [mm] | 214 | | 214 | | 214 | | 214 | |
| Mass | | | | | | | | | | |
| | m | [kg] | 2.3 | | 2.3 | | 2.3 | | 2.3 | |

¹⁾ Technically possible cable lengths, irrespective of EMC requirements

²⁾ With safety engineering plus 20 mm

Inverter Drives 8400 TopLine

Technical data



Rated data 400 V


► Unless otherwise specified, the data refers to the default setting.

Data in left column per device

Operation with rated data: rated output current $I_{N,out}$ at mains voltage 400 V, switching frequency 8 kHz variable and max. ambient temperature 45 °C (default setting).
Output currents I_{out} apply to:
Ambient temperature 45 °C operating with constant switching frequency 2 kHz or 4 kHz.
Ambient temperature 40 °C operating with constant switching frequency 8 kHz or 16 kHz.

Data in right column per device

Operation with increased power: rated output current $I_{N,out}$ at mains voltage 400 V, switching frequency 4 kHz constant and max. ambient temperature 40 °C.
Output currents apply to:
Ambient temperature 40 °C operating with constant switching frequency 2 kHz or 4 kHz.

| | | |  | | | | | |
|-----------------------------|-------------|------|--|--------------------|-----------------|------|-----------------|--------------------|
| Typical motor power | | | | | | | | |
| 4-pole asynchronous motor | P | [kW] | 3.00 | 4.00 ¹⁾ | 4.00 | 5.50 | 5.50 | 7.50 ¹⁾ |
| Product key | | | E84AV□□□3024□□0 | | E84AV□□□4024□□0 | | E84AV□□□5524□□0 | |
| Mains voltage range | | | 3/PE AC 320 V-0 % ... 550 V+0 %, 45 Hz-0 % ... 65 Hz+0 % | | | | | |
| | U_{AC} | [V] | | | | | | |
| Rated mains current | | | | | | | | |
| With mains choke | $I_{N,AC}$ | [A] | 7.0 | 8.4 | 8.8 | 10.6 | 12.0 | 18.0 |
| Without mains choke | $I_{N,AC}$ | [A] | 9.8 | | 13.1 | 15.7 | 18.0 | |
| Rated output current | | | | | | | | |
| | $I_{N,out}$ | [A] | 7.3 | 8.8 | 9.5 | 11.5 | 13.0 | 15.6 |
| Output current | | | | | | | | |
| 2 kHz | I_{out} | [A] | 7.3 | 8.8 | 9.5 | 11.5 | 13.0 | 15.6 |
| 4 kHz | I_{out} | [A] | 7.3 | 8.8 | 9.5 | 11.5 | 13.0 | 15.6 |
| 8 kHz | I_{out} | [A] | 7.3 | | 9.5 | | 13.0 | |
| 16 kHz | I_{out} | [A] | 4.9 | | 6.3 | | 8.7 | |

Data for 60 s overload

| | | | | | | | |
|----------------------------|---------------|-----|------|--|-------|--|------|
| Max. output current | | | | | | | |
| | $I_{max,out}$ | [A] | 11.0 | | 14.3 | | 19.5 |
| Overload time | | | | | | | |
| | t_{ol} | [s] | | | 60.0 | | |
| Recovery time | | | | | | | |
| | t_{re} | [s] | | | 120.0 | | |

Data for 3 s overload

| | | | | | | | |
|---------------------------------------|---------------|-----|------|--|------|--|------|
| Max. short-time output current | | | | | | | |
| | $I_{max,out}$ | [A] | 14.6 | | 19.0 | | 26.0 |
| Overload time | | | | | | | |
| | t_{ol} | [s] | | | 3.0 | | |
| Recovery time | | | | | | | |
| | t_{re} | [s] | | | 12.0 | | |

¹⁾ Operation only permitted with mains choke

Inverter Drives 8400 TopLine

Technical data



Rated data 400 V

► Unless otherwise specified, the data refers to the default setting.

| | | | | | | | | |
|---------------------------------------|-------------|------|------------------------------|------|-----------------|------|-----------------|------|
| | | | | | | | | |
| Typical motor power | | | | | | | | |
| 4-pole asynchronous motor | P | [kW] | 3.00 | 4.00 | 4.00 | 5.50 | 5.50 | 7.50 |
| Product key | | | | | | | | |
| Inverter | | | E84AV□□□3024□□0 | | E84AV□□□4024□□0 | | E84AV□□□5524□□0 | |
| DC supply | | | | | | | | |
| | U_{DC} | [V] | DC 455 V -0 % ... 775 V +0 % | | | | | |
| Rated DC-bus current | | | | | | | | |
| | $I_{N, DC}$ | [A] | 12.0 | | 16.0 | | 22.0 | |
| Power loss | | | | | | | | |
| | P_V | [kW] | 0.17 | | 0.20 | | 0.28 | |
| Max. cable length¹⁾ | | | | | | | | |
| Shielded motor cable | I_{max} | [m] | 50 | | | | | |

4.4

Brake chopper rated data

| | | | | | |
|---|--------------|------|------|------|------|
| Rated power, Brake chopper | | | | | |
| | P_N | [kW] | 6.4 | 9.4 | 9.4 |
| Max. output power, Brake chopper | | | | | |
| | $P_{max, 1}$ | [kW] | 6.4 | 11.2 | 11.2 |
| Min. brake resistance | | | | | |
| | R_{min} | [Ω] | 82.0 | 47.0 | 47.0 |

Dimensions and weights

Standard installation design

| | | | | | |
|---------------------|---|------|-----|-----|-----|
| Dimensions | | | | | |
| Height | h | [mm] | 270 | 270 | 270 |
| Width | b | [mm] | 140 | 140 | 140 |
| Depth ²⁾ | t | [mm] | 214 | 214 | 214 |
| Mass | | | | | |
| | m | [kg] | 4.6 | 4.6 | 4.6 |

¹⁾ Technically possible cable lengths, irrespective of EMC requirements

²⁾ With safety engineering plus 20 mm

Inverter Drives 8400 TopLine

Technical data



Rated data 400 V


► Unless otherwise specified, the data refers to the default setting.

Data in left column per device

Operation with rated data: rated output current $I_{N,out}$ at mains voltage 400 V, switching frequency 8 kHz variable and max. ambient temperature 45 °C (default setting).
Output currents I_{out} apply to:
Ambient temperature 45 °C operating with constant switching frequency 2 kHz or 4 kHz.
Ambient temperature 40 °C operating with constant switching frequency 8 kHz or 16 kHz.

Data in right column per device

Operation with increased power: rated output current $I_{N,out}$ at mains voltage 400 V, switching frequency 4 kHz constant and max. ambient temperature 40 °C.
Output currents apply to:
Ambient temperature 40 °C operating with constant switching frequency 2 kHz or 4 kHz.

| | | |  | | | | |
|-----------------------------|-------------|------|--|------|-----------------|--------------------|--------------------|
| Typical motor power | | | | | | | |
| 4-pole asynchronous motor | P | [kW] | 7.50 | 11.0 | 11.0 | 15.0 ¹⁾ | 15.0 ¹⁾ |
| Product key | | | E84AV□□□7524□□0 | | E84AV□□□1134□□0 | | E84AV□□□1534□□0 |
| Mains voltage range | | | 3/PE AC 320 V-0 % ... 550 V+0 %, 45 Hz-0 % ... 65 Hz+0 % | | | | |
| | U_{AC} | [V] | | | | | |
| Rated mains current | | | | | | | |
| With mains choke | $I_{N,AC}$ | [A] | 15.0 | 21.0 | | 29.0 | |
| Without mains choke | $I_{N,AC}$ | [A] | 20.0 | 28.0 | 29.0 | | |
| Rated output current | | | | | | | |
| | $I_{N,out}$ | [A] | 16.5 | 21.0 | 23.5 | 28.2 | 32.0 |
| Output current | | | | | | | |
| 2 kHz | I_{out} | [A] | 16.5 | 21.0 | 23.5 | 28.2 | 32.0 |
| 4 kHz | I_{out} | [A] | 16.5 | 21.0 | 23.5 | 28.2 | 32.0 |
| 8 kHz | I_{out} | [A] | 16.5 | | 23.5 | | 32.0 |
| 16 kHz | I_{out} | [A] | 11.0 | | 15.7 | | 21.3 |

Data for 60 s overload

| | | | | | |
|----------------------------|---------------|-----|------|-------|------|
| Max. output current | | | | | |
| | $I_{max,out}$ | [A] | 26.4 | 35.3 | 48.0 |
| Overload time | | | | | |
| | t_{ol} | [s] | | 60.0 | |
| Recovery time | | | | | |
| | t_{re} | [s] | | 120.0 | |

Data for 3 s overload

| | | | | | |
|---------------------------------------|---------------|-----|------|------|------|
| Max. short-time output current | | | | | |
| | $I_{max,out}$ | [A] | 33.0 | 47.0 | 64.0 |
| Overload time | | | | | |
| | t_{ol} | [s] | | 3.0 | |
| Recovery time | | | | | |
| | t_{re} | [s] | | 12.0 | |

¹⁾ Operation only permitted with mains choke


Inverter Drives 8400 TopLine

Technical data



Rated data 400 V

► Unless otherwise specified, the data refers to the default setting.

| | | |  | | | | |
|--|-------------|------|--|------|-----------------|------|-----------------|
| Typical motor power | | | | | | | |
| 4-pole asynchronous motor | P | [kW] | 7.50 | 11.0 | 11.0 | 15.0 | 15.0 |
| Product key | | | | | | | |
| Inverter | | | E84AV□□□7524□□0 | | E84AV□□□1134□□0 | | E84AV□□□1534□□0 |
| DC supply | | | | | | | |
| | U_{DC} | [V] | DC 455 V -0 % ... 775 V +0 % | | | | |
| Rated DC-bus current | | | | | | | |
| | $I_{N, DC}$ | [A] | 24.5 | | 35.5 | | |
| Power loss | | | | | | | |
| | P_V | [kW] | 0.32 | | 0.43 | | 0.47 |
| Max. cable length ¹⁾ | | | | | | | |
| Shielded motor cable | I_{max} | [m] | 50 | | | | |

4.4

Brake chopper rated data

| | | | | | |
|---|--------------|------|------|------|------|
| Rated power, Brake chopper | | | | | |
| | P_N | [kW] | 19.5 | 19.5 | 29.2 |
| Max. output power, Brake chopper | | | | | |
| | $P_{max, 1}$ | [kW] | 19.5 | 19.5 | 29.2 |
| Min. brake resistance | | | | | |
| | R_{min} | [Ω] | 27.0 | 27.0 | 18.0 |

Dimensions and weights

Standard installation design

| Dimensions | | | | | |
|---------------------|---|------|-----|-----|-----|
| Height | h | [mm] | 325 | 325 | 325 |
| Width | b | [mm] | 140 | 140 | 140 |
| Depth ²⁾ | t | [mm] | 214 | 214 | 214 |
| Mass | | | | | |
| | m | [kg] | 6.0 | 6.0 | 6.0 |

¹⁾ Technically possible cable lengths, irrespective of EMC requirements

²⁾ With safety engineering plus 20 mm

Inverter Drives 8400 TopLine

Technical data



Rated data 400 V


► Unless otherwise specified, the data refers to the default setting.

Data in left column per device

Operation with rated data: rated output current $I_{N,out}$ at mains voltage 400 V, switching frequency 8 kHz variable and max. ambient temperature 45 °C (default setting).
Output currents I_{out} apply to:
Ambient temperature 45 °C operating with constant switching frequency 2 kHz or 4 kHz.
Ambient temperature 40 °C operating with constant switching frequency 8 kHz or 16 kHz.

Data in right column per device

Operation with increased power: rated output current $I_{N,out}$ at mains voltage 400 V, switching frequency 4 kHz constant and max. ambient temperature 40 °C.
Output currents apply to:
Ambient temperature 40 °C operating with constant switching frequency 2 kHz or 4 kHz.

| | | | | | | |
|-----------------------------|-------------|------|--|--------------------|--------------------|--------------------|
| | | |  | | | |
| Typical motor power | | | | | | |
| 4-pole asynchronous motor | P | [kW] | 18.5 | 22.0 ¹⁾ | 22.0 ¹⁾ | 30.0 ¹⁾ |
| Product key | | | E84AV□□□1834□□0 | | E84AV□□□2234□□0 | |
| Mains voltage range | | | 3/PE AC 320 V-0 % ... 550 V+0 %, 45 Hz-0 % ... 65 Hz+0 % | | | |
| | U_{AC} | [V] | | | | |
| Rated mains current | | | | | | |
| With mains choke | $I_{N,AC}$ | [A] | 36.0 | 42.2 | 42.0 | 50.8 |
| Without mains choke | $I_{N,AC}$ | [A] | 50.4 | | | |
| Rated output current | | | | | | |
| | $I_{N,out}$ | [A] | 40.0 | 46.8 | 47.0 | 56.4 |
| Output current | | | | | | |
| 2 kHz | I_{out} | [A] | 40.0 | 46.8 | 47.0 | 56.4 |
| 4 kHz | I_{out} | [A] | 40.0 | 46.8 | 47.0 | 56.4 |
| 8 kHz | I_{out} | [A] | 40.0 | | 47.0 | |
| 16 kHz | I_{out} | [A] | 27.0 | | 31.3 | |

Data for 60 s overload

| | | | | | | |
|----------------------------|---------------|-----|-------|--|--|------|
| Max. output current | | | | | | |
| | $I_{max,out}$ | [A] | 60.0 | | | 70.5 |
| Overload time | | | | | | |
| | t_{ol} | [s] | 60.0 | | | |
| Recovery time | | | | | | |
| | t_{re} | [s] | 120.0 | | | |

Data for 3 s overload

| | | | | | | |
|---------------------------------------|---------------|-----|------|--|--|------|
| Max. short-time output current | | | | | | |
| | $I_{max,out}$ | [A] | 78.0 | | | 89.3 |
| Overload time | | | | | | |
| | t_{ol} | [s] | 3.0 | | | |
| Recovery time | | | | | | |
| | t_{re} | [s] | 12.0 | | | |

¹⁾ Operation only permitted with mains choke or mains filter


Inverter Drives 8400 TopLine

Technical data



Rated data 400 V

► Unless otherwise specified, the data refers to the default setting.

| | | | | | | |
|--|-------------|------|--|------|-----------------|------|
| | | |  | | | |
| Typical motor power | | | | | | |
| 4-pole asynchronous motor | P | [kW] | 18.5 | 22.0 | 22.0 | 30.0 |
| Product key | | | | | | |
| Inverter | | | E84AV□□□1834□□0 | | E84AV□□□2234□□0 | |
| DC supply | | | | | | |
| | U_{DC} | [V] | DC 455 V -0 % ... 775 V +0 % | | | |
| Rated DC-bus current | | | | | | |
| | $I_{N, DC}$ | [A] | 44.1 | | 51.4 | |
| Power loss | | | | | | |
| | P_V | [kW] | 0.54 | | 0.64 | |
| Max. cable length ¹⁾ | | | | | | |
| Shielded motor cable | I_{max} | [m] | 100 | | | |

4.4

Brake chopper rated data

| | | | | |
|---|--------------|--------------|------|------|
| Rated power, Brake chopper | | | | |
| | P_N | [kW] | 35.0 | 35.0 |
| Max. output power, Brake chopper | | | | |
| | $P_{max, 1}$ | [kW] | 35.0 | 35.0 |
| Min. brake resistance | | | | |
| | R_{min} | [Ω] | 15.0 | 15.0 |

Dimensions and weights

Standard installation design

| | | | | |
|---------------------|---|------|------|------|
| Dimensions | | | | |
| Height | h | [mm] | 350 | 350 |
| Width | b | [mm] | 205 | 205 |
| Depth ²⁾ | t | [mm] | 265 | 265 |
| Mass | | | | |
| | m | [kg] | 12.2 | 12.2 |

¹⁾ Technically possible cable lengths, irrespective of EMC requirements

²⁾ With safety engineering plus 20 mm

Inverter Drives 8400 TopLine

Technical data



Rated data 400 V

► Unless otherwise specified, the data refers to the default setting.

Data in left column per device

Operation with rated data: rated output current $I_{N,out}$ at mains voltage 400 V, switching frequency 8 kHz variable and max. ambient temperature 45 °C (default setting).
Output currents I_{out} apply to:
Ambient temperature 45 °C operating with constant switching frequency 2 kHz or 4 kHz.
Ambient temperature 40 °C operating with constant switching frequency 8 kHz or 16 kHz.

Data in right column per device

Operation with increased power: rated output current $I_{N,out}$ at mains voltage 400 V, switching frequency 4 kHz constant and max. ambient temperature 40 °C.
Output currents apply to:
Ambient temperature 40 °C operating with constant switching frequency 2 kHz or 4 kHz.

| | | | | | | | | |
|-----------------------------|-------------|------|--|--------------------|--------------------|--------------------|--------------------|--------------------|
| | | | | | | | | |
| Typical motor power | | | | | | | | |
| 4-pole asynchronous motor | P | [kW] | 30.0 ¹⁾ | 37.0 ¹⁾ | 37.0 ¹⁾ | 45.0 ¹⁾ | 45.0 ¹⁾ | 55.0 ¹⁾ |
| Product key | | | E84AV□□□3034□□0 | | E84AV□□□3734□□0 | | E84AV□□□4534□□0 | |
| Mains voltage range | | | 3/PE AC 320 V-0 % ... 550 V+0 %, 45 Hz-0 % ... 65 Hz+0 % | | | | | |
| | U_{AC} | [V] | | | | | | |
| Rated mains current | | | | | | | | |
| With mains choke | $I_{N,AC}$ | [A] | 55.0 | 66.0 | 68.0 | 81.6 | 80.0 | 96.0 |
| Without mains choke | $I_{N,AC}$ | [A] | | | | | | |
| Rated output current | | | | | | | | |
| | $I_{N,out}$ | [A] | 61.0 | 73.2 | 76.0 | 91.2 | 89.0 | 106.8 |
| Output current | | | | | | | | |
| 2 kHz | I_{out} | [A] | 61.0 | 73.2 | 76.0 | 91.2 | 89.0 | 106.8 |
| 4 kHz | I_{out} | [A] | 61.0 | 73.2 | 76.0 | 91.2 | 89.0 | 106.8 |
| 8 kHz | I_{out} | [A] | 61.0 | | 76.0 | | 89.0 | |
| 16 kHz | I_{out} | [A] | 41.0 | | 51.0 | | 60.0 | |

Data for 60 s overload

| | | | | | |
|----------------------------|---------------|-----|------|-------|-------|
| Max. output current | | | | | |
| | $I_{max,out}$ | [A] | 91.5 | 114.0 | 133.5 |
| Overload time | | | | | |
| | t_{ol} | [s] | | 60.0 | |
| Recovery time | | | | | |
| | t_{re} | [s] | | 120.0 | |

Data for 3 s overload

| | | | | | |
|---------------------------------------|---------------|-----|-------|-------|-------|
| Max. short-time output current | | | | | |
| | $I_{max,out}$ | [A] | 112.1 | 136.8 | 169.1 |
| Overload time | | | | | |
| | t_{ol} | [s] | | 3.0 | |
| Recovery time | | | | | |
| | t_{re} | [s] | | 12.0 | |

¹⁾ Operation only permitted with mains choke or mains filter


Inverter Drives 8400 TopLine

Technical data



Rated data 400 V

► Unless otherwise specified, the data refers to the default setting.

| | | | | | | | |
|---------------------------------------|-------------|------|--|------|-----------------|------|-----------------|
| | | |  | | | | |
| Typical motor power | | | | | | | |
| 4-pole asynchronous motor | P | [kW] | 30.0 | 37.0 | 37.0 | 45.0 | 45.0 |
| Product key | | | | | | | |
| Inverter | | | E84AV□□□3034□□0 | | E84AV□□□3734□□0 | | E84AV□□□4534□□0 |
| DC supply | | | | | | | |
| | U_{DC} | [V] | DC 455 V -0 % ... 775 V +0 % | | | | |
| Rated DC-bus current | | | | | | | |
| | $I_{N, DC}$ | [A] | 67.4 | | 83.3 | | 98.0 |
| Power loss | | | | | | | |
| | P_V | [kW] | 0.84 | | 0.98 | | 1.30 |
| Max. cable length¹⁾ | | | | | | | |
| Shielded motor cable | I_{max} | [m] | 100 | | | | |

4.4

Brake chopper rated data

| | | | | | |
|---|--------------|------|------|------|------|
| Rated power, Brake chopper | | | | | |
| | P_N | [kW] | 70.1 | 70.1 | 70.1 |
| Max. output power, Brake chopper | | | | | |
| | $P_{max, 1}$ | [kW] | 70.1 | 70.1 | 70.1 |
| Min. brake resistance | | | | | |
| | R_{min} | [Ω] | 7.5 | 7.5 | 7.5 |

Dimensions and weights

Standard installation design

| | | | | | |
|---------------------|---|------|------|------|------|
| Dimensions | | | | | |
| Height | h | [mm] | 450 | 450 | 450 |
| Width | b | [mm] | 250 | 250 | 250 |
| Depth ²⁾ | t | [mm] | 265 | 265 | 265 |
| Mass | | | | | |
| | m | [kg] | 17.4 | 17.4 | 17.4 |

¹⁾ Technically possible cable lengths, irrespective of EMC requirements

²⁾ With safety engineering plus 20 mm

Inverter Drives 8400 TopLine



Technical data

"Cold plate" design

Inverters in cold-plate design dissipate some of their waste heat (heat loss) via a cooler adapted to the application. For this purpose, the inverters are provided with a planed cooling plate which is connected to a separate cooler in a thermally conductive way. Using the cold plate technology, the main part of the heat energy can be transferred directly to the external cooling units.

The use of cold-plate technology is advantageous for the following application cases:

- Minimising the expense of cooling the control cabinet. Here, the main part of the power loss is directly transferred to a cooling unit outside of the control cabinet, e.g. convection cooler or water cooler.
- Heavily polluted ambient air or control cabinets with a high degree of protection which do not allow for a use of a forced air cooling of the control cabinets.
- Low mounting depth in the control cabinet.

Requirements for the cooler

When cold-plate technology is used, the following basic conditions must be considered:

- Good thermal connection to the external cooling unit, i.e. the implementation of the heat transfer resistance (R_{th}) according to the power loss.
- The contact surface must at least be as big as the cooling plate of the inverter.
- The planarity of the contact surface must not exceed 0.05 mm.
- The contact surface of the external coolers and cooling plate must be connected by means of the intended screwed connection.
- The maximum temperature of the cooling plate of the inverter ((75 °C) must not be exceeded.

| Product key | Power to be dissipated | Thermal resistance |
|-----------------|------------------------|--------------------|
| Inverter | P_V | R_{th} |
| | [W] | [K/W] |
| E84AV□□□2512□□□ | 15.0 | ≤ 1.5 |
| E84AV□□□3712□□□ | 20.0 | ≤ 1.5 |
| E84AV□□□5512□□S | 30.0 | ≤ 1.0 |
| E84AV□□□7512□□S | 40.0 | ≤ 1.0 |
| E84AV□□□1122□□S | 60.0 | ≤ 0.6 |
| E84AV□□□1522□□S | 75.0 | ≤ 0.5 |
| E84AV□□□2222□□S | 100 | ≤ 0.4 |
| E84AV□□□3714□□S | 25.0 | ≤ 1.0 |
| E84AV□□□5514□□S | 35.0 | ≤ 1.0 |
| E84AV□□□7514□□S | 50.0 | ≤ 1.0 |
| E84AV□□□1124□□S | 60.0 | ≤ 0.6 |
| E84AV□□□1524□□S | 70.0 | ≤ 0.5 |
| E84AV□□□2224□□S | 100 | ≤ 0.4 |
| E84AV□□□3024□□S | 100 | ≤ 0.4 |
| E84AV□□□4024□□□ | 155 | ≤ 0.25 |
| E84AV□□□5524□□□ | 215 | ≤ 0.18 |
| E84AV□□□7524□□□ | 250 | ≤ 0.15 |
| E84AV□□□1134□□□ | 355 | ≤ 0.11 |
| E84AV□□□1534□□□ | 390 | ≤ 0.10 |
| E84AV□□□1834□□□ | 460 | ≤ 0.057 |
| E84AV□□□2234□□□ | 540 | ≤ 0.057 |
| E84AV□□□3034□□□ | 720 | ≤ 0.053 |
| E84AV□□□3734□□□ | 810 | ≤ 0.047 |
| E84AV□□□4534□□□ | 1080 | ≤ 0.035 |

Dimensions and weights

| Product key | | | E84AV□□□2512□□□ | E84AV□□□3712□□□ | E84AV□□□5512□□S | E84AV□□□7512□□S |
|-----------------------------|---|------|-----------------|-----------------|-----------------|-----------------|
| Inverter | | | | | | |
| Dimensions | | | | | | |
| Height, including fastening | h | [mm] | 236 | | | |
| Width, including fastening | b | [mm] | 70 | | | |
| Depth | t | [mm] | 178 | | | |
| Mass | | | | | | |
| | m | [kg] | 1.7 | | | |

| Product key | | | E84AV□□□1122□□S | E84AV□□□1522□□S | E84AV□□□2222□□S |
|-----------------------------|---|------|-----------------|-----------------|-----------------|
| Inverter | | | | | |
| Dimensions | | | | | |
| Height, including fastening | h | [mm] | 295 | | |
| Width, including fastening | b | [mm] | 70 | | |
| Depth | t | [mm] | 178 | | |
| Mass | | | | | |
| | m | [kg] | 2.2 | | |

Inverter Drives 8400 TopLine

Technical data



"Cold plate" design

Dimensions and weights

| Product key | | | E84AV□□□3714□□S | E84AV□□□5514□□S | E84AV□□□7514□□S |
|-----------------------------|---|------|-----------------|-----------------|-----------------|
| Inverter | | | | | |
| Dimensions | | | | | |
| Height, including fastening | h | [mm] | | 236 | |
| Width, including fastening | b | [mm] | | 70 | |
| Depth ¹⁾ | t | [mm] | | 178 | |
| Mass | | | | | |
| | m | [kg] | | 1.7 | |

| Product key | | | E84AV□□□1124□□S | E84AV□□□1524□□S | E84AV□□□2224□□S |
|-----------------------------|---|------|-----------------|-----------------|-----------------|
| Inverter | | | | | |
| Dimensions | | | | | |
| Height, including fastening | h | [mm] | | 295 | |
| Width, including fastening | b | [mm] | | 70 | |
| Depth ¹⁾ | t | [mm] | | 178 | |
| Mass | | | | | |
| | m | [kg] | | 2.2 | |

4.4

| Product key | | | E84AV□□□3024□□S | E84AV□□□4024□□0 | E84AV□□□5524□□0 | E84AV□□□7524□□0 |
|-----------------------------|---|------|-----------------|-----------------|-----------------|-----------------|
| Inverter | | | | | | |
| Dimensions | | | | | | |
| Height, including fastening | h | [mm] | 295 | 318 | | 378 |
| Width, including fastening | b | [mm] | 70 | | 174 | |
| Depth ¹⁾ | t | [mm] | 178 | | 156 | |
| Mass | | | | | | |
| | m | [kg] | 2.2 | 2.9 | | 3.8 |

| Product key | | | E84AV□□□1134□□0 | E84AV□□□1534□□0 | E84AV□□□1834□□0 | E84AV□□□2234□□0 |
|-----------------------------|---|------|-----------------|-----------------|-----------------|-----------------|
| Inverter | | | | | | |
| Dimensions | | | | | | |
| Height, including fastening | h | [mm] | | 378 | | 407 |
| Width, including fastening | b | [mm] | | 174 | | 231 |
| Depth ¹⁾ | t | [mm] | | 156 | | 179 |
| Mass | | | | | | |
| | m | [kg] | | 3.8 | | 9.5 |

| Product key | | | E84AV□□□3034□□0 | E84AV□□□3734□□0 | E84AV□□□4534□□0 |
|-----------------------------|---|------|-----------------|-----------------|-----------------|
| Inverter | | | | | |
| Dimensions | | | | | |
| Height, including fastening | h | [mm] | | 520 | |
| Width, including fastening | b | [mm] | | 250 | |
| Depth ¹⁾ | t | [mm] | | 199 | |
| Mass | | | | | |
| | m | [kg] | | 16.9 | |

¹⁾ With safety engineering plus 20 mm

Inverter Drives 8400 TopLine

Technical data



Push-through technique design

The inverters in push-through design reduce the waste heat in the control cabinet.

The inverter is mounted in the control cabinet such that the heatsink of the inverter is outside the control cabinet. Thus, the entire waste heat can be dissipated outside the control cabinet via convection or forced air cooling for almost all device performances. For inverters with a power below 2.2 kW, restrictions may occur.

Using the push-through technology is advantageous in the following application cases:

- Minimising the expense for control cabinet cooling. For this purpose, the main part of the power loss is directly transferred to the ambience outside the control cabinet (e.g. convection cooling).
- In case of control cabinets with a high degree of protection > IP54 by using separate mounting and cooling areas.
- Low mounting depth in the control cabinet.

Inverter Drives 8400 TopLine

Technical data



Push-through technique design

Dimensions and weights

| Product key | | | | E84AV□□□2512□□0 | E84AV□□□3712□□0 | E84AV□□□5512□□0 | E84AV□□□7512□□0 |
|--|---|------|--|-----------------|-----------------|-----------------|-----------------|
| Inverter | | | | | | | |
| Dimensions | | | | | | | |
| Height, including fastening | h | [mm] | | 236 | | | |
| Width, including fastening | b | [mm] | | 102 | | | |
| Depth (in control cabinet) ¹⁾ | t | [mm] | | 178 | | | |
| Mass | | | | | | | |
| | m | [kg] | | 2.1 | | | |

| Product key | | | | E84AV□□□1122□□0 | E84AV□□□1522□□0 | E84AV□□□2222□□0 | E84AV□□□3714□□0 |
|--|---|------|--|-----------------|-----------------|-----------------|-----------------|
| Inverter | | | | | | | |
| Dimensions | | | | | | | |
| Height, including fastening | h | [mm] | | 295 | | | 236 |
| Width, including fastening | b | [mm] | | 137 | | | 102 |
| Depth (in control cabinet) ¹⁾ | t | [mm] | | 178 | | | |
| Mass | | | | | | | |
| | m | [kg] | | 3.7 | | | 2.1 |

4.4

| Product key | | | | E84AV□□□5514□□0 | E84AV□□□7514□□0 | E84AV□□□1124□□0 | E84AV□□□1524□□0 |
|--|---|------|--|-----------------|-----------------|-----------------|-----------------|
| Inverter | | | | | | | |
| Dimensions | | | | | | | |
| Height, including fastening | h | [mm] | | 236 | | | 295 |
| Width, including fastening | b | [mm] | | 102 | | | 137 |
| Depth (in control cabinet) ¹⁾ | t | [mm] | | 178 | | | |
| Mass | | | | | | | |
| | m | [kg] | | 2.1 | | | 3.7 |

| Product key | | | | E84AV□□□2224□□0 | E84AV□□□3024□□0 | E84AV□□□4024□□0 | E84AV□□□5524□□0 |
|--|---|------|--|-----------------|-----------------|-----------------|-----------------|
| Inverter | | | | | | | |
| Dimensions | | | | | | | |
| Height, including fastening | h | [mm] | | 295 | | 318 | |
| Width, including fastening | b | [mm] | | 137 | | 174 | |
| Depth (in control cabinet) ¹⁾ | t | [mm] | | 178 | | 156 | |
| Mass | | | | | | | |
| | m | [kg] | | 3.7 | | 5.1 | |

| Product key | | | | E84AV□□□7524□□0 | E84AV□□□1134□□0 | E84AV□□□1534□□0 | |
|--|---|------|--|-----------------|-----------------|-----------------|--|
| Inverter | | | | | | | |
| Dimensions | | | | | | | |
| Height, including fastening | h | [mm] | | 378 | | | |
| Width, including fastening | b | [mm] | | 174 | | | |
| Depth (in control cabinet) ¹⁾ | t | [mm] | | 156 | | | |
| Mass | | | | | | | |
| | m | [kg] | | 6.4 | | | |

¹⁾ With safety engineering plus 20 mm

Inverter Drives 8400 TopLine



Interfaces

Mains connection

- ▶ The mains fuse and cable cross-section specifications are for a mains connection of 1 x 230V or 3 x 400V.
- ▶ Class gG/gI fuses or class gRL semiconductor fuses.
- ▶ The cable cross-sections apply to PVC-insulated copper cables.
- ▶ Use for installation with UL-approved cables, fuses and brackets.

Operation with mains choke

| Typical motor power | Mains voltage | Product key | Circuit breaker | Fuse | | Mains connection |
|---------------------------|---------------------|---------------------|-----------------|------------|-----|----------------------------------|
| | | | | EN 60204-1 | UL | |
| 4-pole asynchronous motor | | Inverter | | | | Cross-section (with mains choke) |
| P | U _{AC} | | I | I | I | q |
| [kW] | [V] | | [A] | [A] | [A] | [mm ²] |
| 0.25 | 1 AC 180 ... 264 | E84AV□□□2512□□0 | C6 | 6 | 6 | 1.0 |
| 0.37 | | E84AV□□□3712□□0 | | | 10 | |
| 0.55 | | E84AV□□□5512□□0 | C10 | 10 | 15 | 1.5 |
| 0.75 | | E84AV□□□7512□□0 | | | 20 | |
| 1.10 | | E84AV□□□1122□□0 | C16 | 16 | 25 | 2.5 |
| 1.50 | | E84AV□□□1522□□0 | | | 30 | |
| 2.20 | | E84AV□□□2222□□0 | C20 | 20 | 30 | 4.0 |
| 0.37 | | 3 AC 320 ... 550 | E84AV□□□3714□□0 | C6 | 6 | 6 |
| 0.55 | E84AV□□□5514□□0 | | | | | |
| 0.75 | E84AV□□□7514□□0 | | | | | |
| 1.10 | E84AV□□□1124□□0 | | C10 | 10 | 10 | 1.5 |
| 1.50 | E84AV□□□1524□□0 | | | | | |
| 2.20 | E84AV□□□2224□□0 | | C16 | 16 | 15 | 2.5 |
| 3.00 | E84AV□□□3024□□0 | | | | | |
| 4.00 | E84AV□□□4024□□0 | | C20 | 20 | 20 | 4.0 |
| 5.50 | E84AV□□□5524□□0 | | | | | |
| 7.50 | E84AV□□□7524□□0 | | C32 | 32 | 30 | 10.0 |
| 11.0 | E84AV□□□1134□□0 | | | | | |
| 15.0 | E84AV□□□1534□□0 | | C50 | 50 | 40 | 16.0 |
| 18.5 | E84AV□□□1834□□0 | | | | | |
| 22.0 | E84AV□□□2234□□0 | | C63 | 63 | 50 | 25.0 |
| 30.0 | E84AV□□□3034□□0 | | C80 | 80 | 70 | |
| 37.0 | E84AV□□□3734□□0 | | C100 | 100 | 80 | 50.0 |
| 45.0 | E84AV□□□4534□□0 | | C125 | 125 | 100 | |

- ▶ Data are valid also for inverters with type code E84AV□□□□□□□□□□S

4.4

Inverter Drives 8400 TopLine

Interfaces



Mains connection

Operation without mains choke

| Typical motor power | Mains voltage | Product key | Circuit breaker | Fuse | | Mains connection |
|---------------------------|--------------------|--------------------|-----------------|------------|-----|-------------------------------------|
| | | | | EN 60204-1 | UL | |
| 4-pole asynchronous motor | | Inverter | | | | Cross-section (without mains choke) |
| P | U _{AC} | | I | I | I | q |
| [kW] | [V] | | [A] | [A] | [A] | [mm ²] |
| 0.25 | 1 AC 180... 264 | E84AV□□□2512□□0 | C6 | 6 | 6 | 1.0 |
| 0.37 | | E84AV□□□3712□□0 | | | 10 | |
| 0.55 | | E84AV□□□5512□□0 | C10 | 10 | 15 | 1.5 |
| 0.75 | | E84AV□□□7512□□0 | | | 20 | |
| 1.10 | | E84AV□□□1122□□0 | C16 | 16 | 20 | 2.5 |
| 1.50 | | E84AV□□□1522□□0 | C20 | 20 | 25 | |
| 2.20 | | E84AV□□□2222□□0 | C25 | 25 | 30 | 4.0 |
| 0.37 | | 3 AC 320... 550 | E84AV□□□3714□□0 | C15 | 6 | 6 |
| 0.55 | E84AV□□□5514□□0 | | | | | |
| 0.75 | E84AV□□□7514□□0 | | | | | |
| 1.10 | E84AV□□□1124□□0 | | | | | |
| 1.50 | E84AV□□□1524□□0 | | C20 | 10 | 10 | 1.5 |
| 2.20 | E84AV□□□2224□□0 | | | | | |
| 3.00 | E84AV□□□3024□□0 | | C20 | 16 | 15 | 2.5 |
| 4.00 | E84AV□□□4024□□0 | | | | 20 | |
| 5.50 | E84AV□□□5524□□0 | | C25 | 25 | 25 | 4.0 |
| 7.50 | E84AV□□□7524□□0 | | C32 | 32 | 25 | 10.0 |
| 11.0 | E84AV□□□1134□□0 | | | | 40 | |
| 18.5 | E84AV□□□1834□□0 | | C80 | 80 | 60 | 25.0 |

► Data are valid also for inverters with type code E84AV□□□□□□□□□□S

Inverter Drives 8400 TopLine

Interfaces



Motor connection

- ▶ Keep motor cables as short as possible, as this has a positive effect on the drive behaviour.
- ▶ With group drives (multiple motors on one inverter), the resulting cable length is the key factor. This can be calculated using the hardware manual.
- ▶ Electric strength of the motor cable: 1 kV as per VDE 250-1.
- ▶ Capacitance per unit length
 $\leq 1.5 \text{ mm}^2 / \text{AWG 16}: C_{\text{core-core}} / C_{\text{core-shield}} \leq 75 / \leq 150 \text{ pF/m}$
 $\geq 2.5 \text{ mm}^2 / \text{AWG 12}: C_{\text{core-core}} / C_{\text{core-shield}} \leq 100 / \leq 150 \text{ pF/m}$

| Typical motor power | Mains voltage | Product key | Max. cable length (shielded) | | | Max. cable length shielded C2 | | |
|---------------------|---------------------|------------------|------------------------------|-----------------------------|------------------------------|-------------------------------|---------------|---------------|
| | | | 4 kHz (without limit value) | 8 kHz (without limit value) | 16 kHz (without limit value) | Integrated filter | RFI filter SD | RFI filter LD |
| P | U_{AC} | Inverter | I | I | I | I | I | I |
| [kW] | [V] | | [m] | [m] | [m] | [m] | [m] | [m] |
| 0.25 | 1 AC 180 ... 264 | E84AV□□□□2512□□0 | 50.0 | 50.0 | 50.0 | 25 | 50 | 100 |
| 0.37 | | E84AV□□□□3712□□0 | | | | | | |
| 0.55 | | E84AV□□□□5512□□0 | | | | | | |
| 0.75 | | E84AV□□□□7512□□0 | | | | | | |
| 1.10 | | E84AV□□□□1122□□0 | | | | | | |
| 1.50 | | E84AV□□□□1522□□0 | | | | | | |
| 2.20 | | E84AV□□□□2222□□0 | | | | | | |
| 0.37 | 3 AC 320 ... 550 | E84AV□□□□3714□□0 | 50.0 | 25.0 | 15.0 | 25 | 50 | 100 |
| 0.55 | | E84AV□□□□5514□□0 | | | | | | |
| 0.75 | | E84AV□□□□7514□□0 | | | | | | |
| 1.10 | | E84AV□□□□1124□□0 | | | | | | |
| 1.50 | | E84AV□□□□1524□□0 | | | | | | |
| 2.20 | | E84AV□□□□2224□□0 | | | | | | |
| 3.00 | | E84AV□□□□3024□□0 | | | | | | |
| 4.00 | | E84AV□□□□4024□□0 | | | | | | |
| 5.50 | | E84AV□□□□5524□□0 | | | | | | |
| 7.50 | | E84AV□□□□7524□□0 | | | | | | |
| 11.0 | E84AV□□□□1134□□0 | | | | | | | |
| 15.0 | E84AV□□□□1534□□0 | | | | | | | |
| 18.5 | E84AV□□□□1834□□0 | | | | | | | |
| 22.0 | E84AV□□□□2234□□0 | | | | | | | |
| 30.0 | E84AV□□□□3034□□0 | | | | | | | |
| 37.0 | E84AV□□□□3734□□0 | | | | | | | |
| 45.0 | E84AV□□□□4534□□0 | | | | | | | |

- ▶ Data are valid also for inverters with type code E84AV□□□□□□□□□□S

4.4

Inverter Drives 8400 TopLine

Interfaces



Motor connection

Operation with earth-leakage circuit breaker

If the inverter is connected via an earth-leakage circuit breaker, the following cable lengths are permissible, although the table must also be taken into account:

Earth-leakage circuit breaker 30 mA:

- 0.25 to 2.2 kW (230 V, Category C1) up to 5 m shielded motor cable with RFI filter LL
- 0.25 to 2.2 kW up to 25 m shielded motor cable with integrated RFI measures
- 0.25 to 15 kW up to 25 m shielded motor cable with RFI filter SD.

Earth-leakage circuit breaker 300 mA:

- 3.0 to 45 kW up to 25 m shielded motor cable with integrated RFI measures
- 0.25 to 45 kW up to 50 m shielded motor cable with RFI filter LD.

- ▶ When using an earth-leakage circuit breaker and RFI filter, the cable lengths can also be used for Category C1, cable-guided.

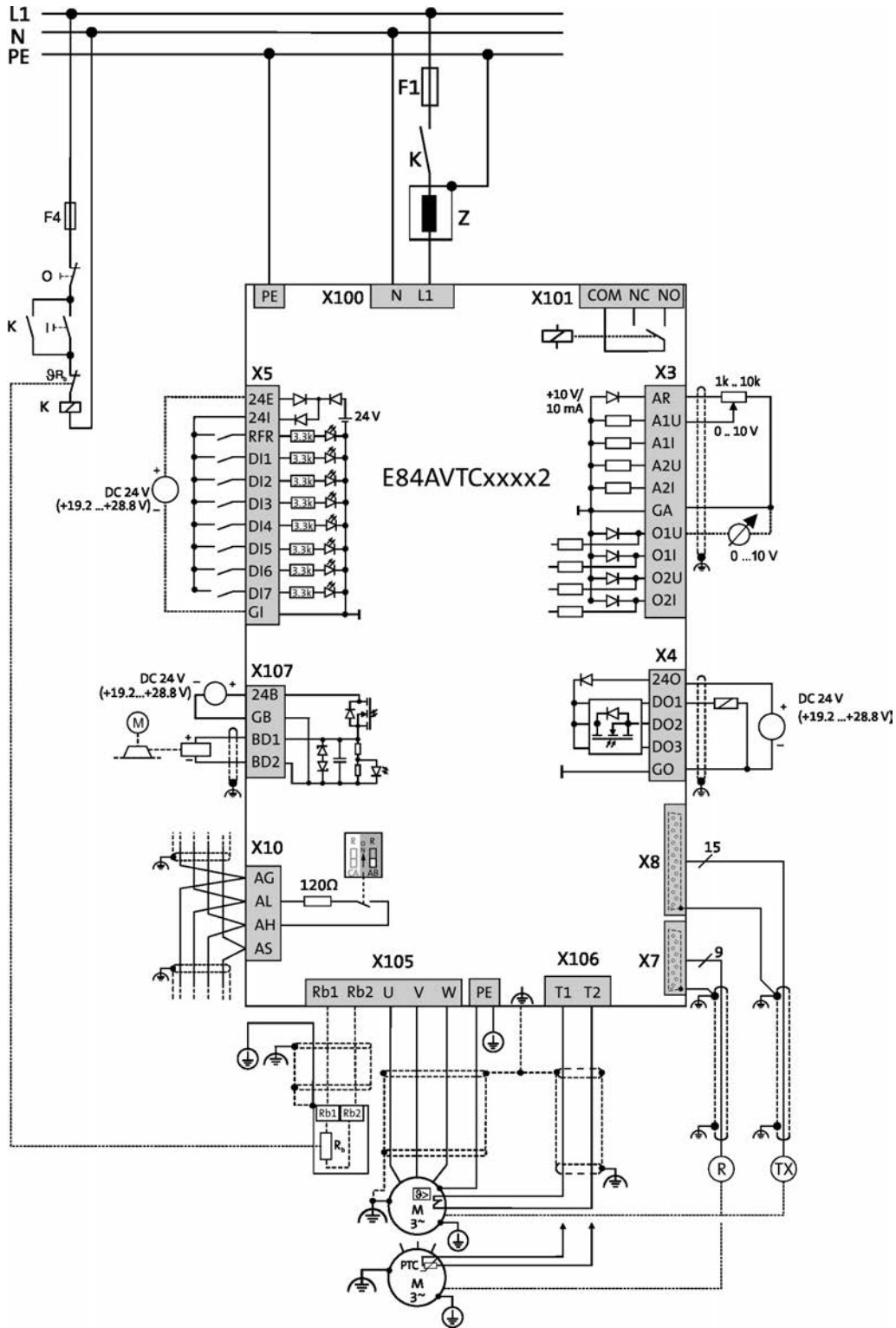
Inverter Drives 8400 TopLine

Interfaces



Connection diagrams

Wiring example for connecting Inverter Drives 8400 TopLine to 1 x 230V



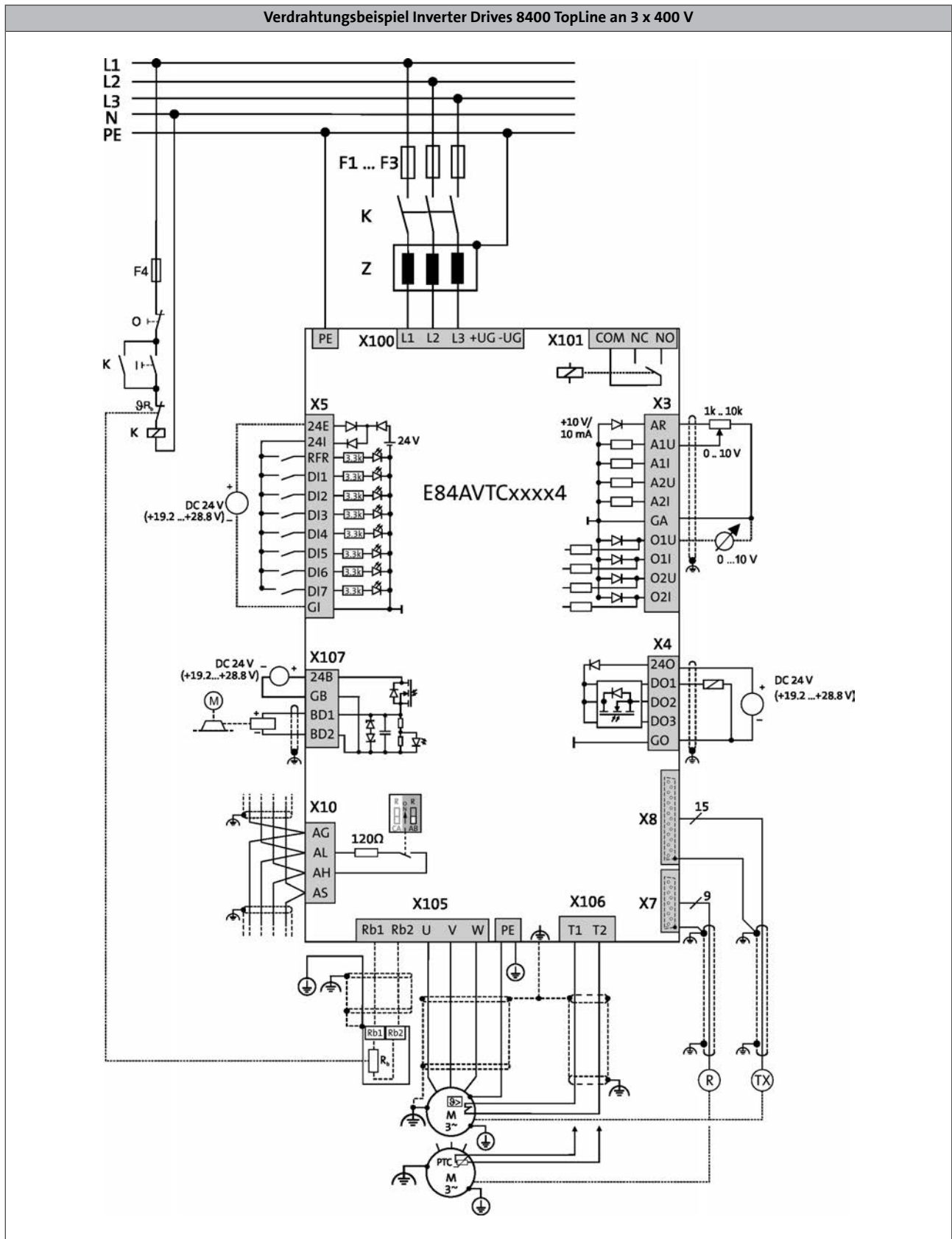
4.4

Inverter Drives 8400 TopLine

Interfaces



Connection diagrams



Inverter Drives 8400 TopLine

Interfaces



Control connections

| | |
|-----------------------------|--|
| Mode | 8400 TopLine |
| Analog inputs | |
| Number | 2 Optional: voltage or current input |
| Resolution | 10 bits + sign |
| Value range | 0 ... +/- 10V, 0/4 ... 20 mA |
| Analog outputs | |
| Number | 2 Optional: voltage or current output |
| Resolution | 10 bits |
| Value range | 0 ... 10V, 0/4 ... 20mA |
| Digital inputs | |
| Number | 8 |
| Switching level | PLC (IEC 61131-2) |
| Max. input current | 11 mA |
| Function | 2 inputs, can optionally be used as a frequency input (10 kHz, 2-track) |
| Digital outputs | |
| Number | 4 |
| Switching level | PLC (IEC 61131-2) |
| Max. output current | 1 x 2.5 A, (basic insulation, with spark suppressor, e.g. for 24 V service brake) 3 x 50 mA |
| Relay | |
| Number | 1 |
| Contact | Changeover contact |
| AC connection | 250V, 3A |
| DC connection | 24V, 2A ... 240V, 0.16A |
| External DC supply | |
| Rated voltage ¹⁾ | 24 V |
| Interfaces | |
| CANopen | Integrated functional insulated Max. baud rate 1.000 kbps DIP switch for address, baud rate, bus termination |
| Extensions | optional communication module |
| Safety engineering | Optional Safe torque off (STO) |
| Drive interface | |
| Axis bus | for cross communication and synchronisation of several 8400 TopLine devices |
| Encoder input | Sub-D, 15-pin Multiple encoder input for: TTL incremental encoder, SinCos incremental or absolute value encoder, SSI absolute value encoder KTY temperature sensor evaluation Via 2 digital inputs, HTL, 2-track, 200 kHz can also be used as a frequency input, |
| Resolver input | Sub-D, 9-pin |

¹⁾ For mains-independent control electronics supply

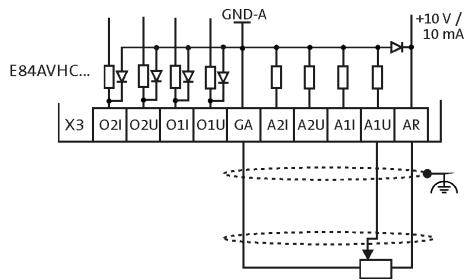
Inverter Drives 8400 TopLine

Interfaces

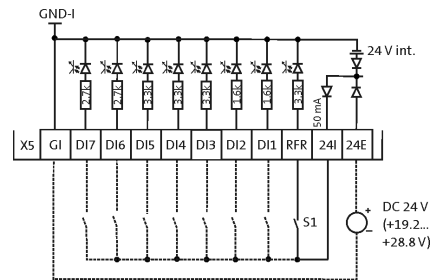


Control connections

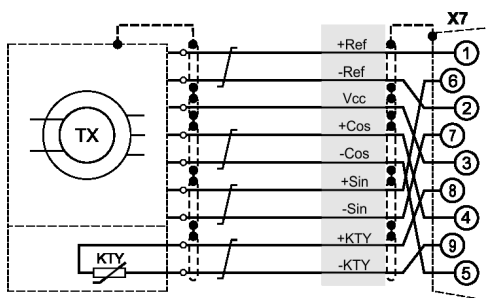
Connection of analog inputs and outputs



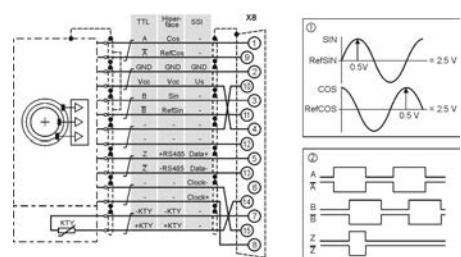
Connection of digital inputs and outputs



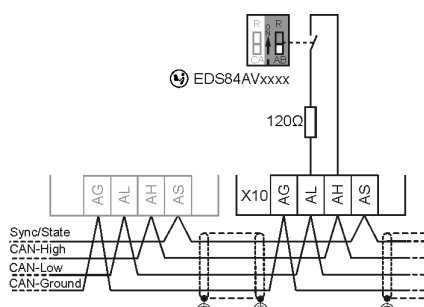
Resolver connection



Encoder connection



Axis bus connection



Inverter Drives 8400 TopLine

Interfaces



Memory module

All drive settings for the 8400 are stored on the memory module, which is a pluggable memory chip. The memory module ensures that drives can be replaced quickly and without errors being made.

| Mode | Features | Product key |
|---------------|--|-------------|
| Memory module | <ul style="list-style-type: none">• For 8400 StateLine, HighLine, Topline and protec• Packaging unit: 5 items | E84AYM10S/M |

- Each inverter is equipped with a memory module in the factory

Safety system (STO)

The 8400 StateLine, HighLine and TopLine models are optionally available with "STO safe torque off" safety engineering. This helps reduce control system costs, save space in the control cabinet and keep wiring to a minimum. The safety engineering is certified to EN ISO 13849-1 (Cat. 4, PL e), EN 61508/EN 62061 (SIL 3).

The inverters can optionally be ordered with integrated safety engineering (STO). In this case, the product key of the inverter has a "B" as the 14th character.

By way of an example, a StateLine 230 V, 0.55 kW built-in unit with safety engineering would be: E84AVSCE5512SB0



8400 StateLine with safety engineering

Inverter Drives 8400 TopLine

Interfaces



Inverter Drives 8400 TopLine

Interfaces




EtherCAT® communication module

A communication module is used to connect the 8400 StateLine, HighLine or TopLine to a bus system.



EtherCAT® communication module

| Mode | | Features | Slot | Product key |
|----------------------|---|--|------|-------------|
| Communication module | | | | |
| EtherCAT |  | <ul style="list-style-type: none"> • Distributed clock • 5 LEDs for status display • 2 RJ45 connections with LEDs for link and activity • Connection option for separate 24 V supply | MCI | E84AYCETV/S |

4.4

- ▶ The Inverter Drives 8400 can be ordered with a plug-in EtherCAT® communication module already installed. If you would like to order the products in this complete form, please add the inverter product key as follows when placing your order: E84AV to X-ETXXX
- ▶ The product key with the supplement for the applied module is provided in our sales documents. This information is not part of the nameplate of the device.

Standards and operating conditions

| | | | | |
|---|----------|-----|--|--------------------------------------|
| Product key | | | | E84AYCETV/S |
| Mode | | | | EtherCAT |
| Enclosure | | | | IP20 |
| Climatic conditions | | | | |
| Storage (EN 60721-3-1) | | | | 1K3 (temperature: -25 °C ... +60 °C) |
| Transport (EN 60721-3-2) | | | | 2K3 (temperature: -25 °C ... +70 °C) |
| Operation (EN 60721-3-3) | | | | 3K3 (temperature: -10°C ... +55°C) |
| Insulation voltage to reference earth/PE | | | | |
| EN 61800-5-1 | U_{AC} | [V] | | 50.0 |

Inverter Drives 8400 TopLine

Interfaces



EtherCAT® communication module

Rated data

| | | | |
|--|------------|----------|--|
| Product key | | | E84AYCETV/S |
| Communication | | | |
| Medium | | | CAT5e S/FTP according to ISO/ICE11801 (2002) |
| Communication profile | | | CoE (CANopen over EtherCAT) |
| Baud rate | | | |
| | b | [MBit/s] | 100 |
| Node | | | |
| | | | Slave |
| Network topology | | | |
| | | | Line |
| Number of logical process data channels | | | |
| | | | 1 |
| Process data words (PCD) | | | |
| 16 Bit | | | 1 ... 16 |
| Number of bus nodes | | | |
| | | | Max. 65535 |
| Max. cable length | | | |
| between two nodes | l_{\max} | [m] | 100 |

Inverter Drives 8400 TopLine

Interfaces




EtherNet/IP communication module

A communication module is used to connect the 8400 StateLine, HighLine or TopLine to a bus system.



EtherNet/IP communication module

4.4

| Mode | | Features | Slot | Product key |
|----------------------|---|---|------|-------------|
| Communication module | | | | |
| EtherNet/IP |  | <ul style="list-style-type: none"> • 5 LEDs for status display • 2 RJ45 connections with LEDs for link and activity • Address can be set via 2 rotary DIP switches • TCP/IP channel • ODVA certification (Open Device Vendor Association) • Supported assembly object instances as per ODVA: 20, 21, 22, 23 and 70, 71, 72, 73 • Manufacturer-specific supported assembly object instances (custom): 110 and 111 • Connection option for separate 24 V supply | MCI | E84AYCEOV/S |

- ▶ The Inverter Drives 8400 can be ordered with a plug-on PROFINET communication module already installed. If you would like to order the products in this complete form, please add the inverter product key as follows when placing your order: E84AV to X-EOXXX
- ▶ The product key with the supplement for the applied module is provided in our sales documents. This information is not part of the nameplate of the device.

Standards and operating conditions

| | | | | |
|---|-----------------|-----|--|--------------------------------------|
| Product key | | | | E84AYCEOV/S |
| Mode | | | | EtherNet/IP |
| Enclosure | | | | IP20 |
| EN 60529 | | | | |
| Climatic conditions | | | | |
| Storage (EN 60721-3-1) | | | | 1K3 (temperature: -25 °C ... +60 °C) |
| Transport (EN 60721-3-2) | | | | 2K3 (temperature: -25 °C ... +70 °C) |
| Operation (EN 60721-3-3) | | | | 3K3 (temperature: -10°C ... +55°C) |
| Insulation voltage to reference earth/PE | | | | |
| EN 61800-5-1 | U _{AC} | [V] | | 50.0 |

Inverter Drives 8400 TopLine

Interfaces



EtherNet/IP communication module

Rated data

| | | | |
|---------------------------------|------------|----------|---|
| Product key | | | E84AYCEOVS |
| Communication | | | |
| Medium | | | CAT5e S/FTP according to ISO/ICE11801 / EN50173 |
| Communication profile | | | EtherNET/IP, AC Drive |
| Baud rate | | | |
| | b | [MBit/s] | 10/100 (full duplex/half duplex) |
| Node | | | |
| | | | Slave (Adapter) |
| Network topology | | | |
| | | | Tree, star and line |
| Process data words (PCD) | | | |
| 16 Bit | | | 1 ... 16 |
| Number of bus nodes | | | |
| | | | max. 254 im Subnetz |
| Max. cable length | | | |
| between two nodes | l_{\max} | [m] | 100 |

Inverter Drives 8400 TopLine

Interfaces




POWERLINK communication module

A communication module is used to connect the 8400 StateLine, HighLine or TopLine to a bus system.



POWERLINK communication module

| Mode | | Features | Slot | Product key |
|----------------------|---|---|------|-------------|
| Communication module | | | | |
| POWERLINK CN |  | <ul style="list-style-type: none"> • Sync mode, Multiplex mode • 5 LEDs for status display • 2 x RJ45 connections with LEDs for link and collision • Connection option for separate 24 V supply | MCI | E84AYCECV/S |

4.4

- ▶ The Inverter Drives 8400 can be ordered with a plug-in POWERLINK communication module already installed. If you would like to order the products in this complete form, please add the inverter product key as follows when placing your order: E84AV to X-ECXXX
- ▶ The product key with the supplement for the applied module is provided in our sales documents. This information is not part of the nameplate of the device.

Standards and operating conditions

| | | | | |
|---|----------|-----|--|--------------------------------------|
| Product key | | | | E84AYCECV/S |
| Mode | | | | POWERLINK CN |
| Enclosure | | | | IP20 |
| Climatic conditions | | | | |
| Storage (EN 60721-3-1) | | | | 1K3 (temperature: -25 °C ... +60 °C) |
| Transport (EN 60721-3-2) | | | | 2K3 (temperature: -25 °C ... +70 °C) |
| Operation (EN 60721-3-3) | | | | 3K3 (temperature: -10°C ... +55°C) |
| Insulation voltage to reference earth/PE | | | | |
| EN 61800-5-1 | U_{AC} | [V] | | 50.0 |

Inverter Drives 8400 TopLine

Interfaces



POWERLINK communication module

Rated data

| | | | |
|--|------------|----------|--|
| Product key | | | E84AYCECV/S |
| Communication | | | |
| Medium | | | CAT5e S/FTP according to ISO/ICE11801 (2002) |
| Communication profile | | | EPL2.0 |
| Baud rate | | | |
| | b | [MBit/s] | 100 |
| Node | | | |
| | | | Controlled node (CN) |
| Network topology | | | |
| | | | bei Verwendung von externen Hubs Line bei Verwendung der internen Hubs Tree |
| Number of logical process data channels | | | |
| | | | 1 |
| Process data words (PCD) | | | |
| 16 Bit | | | 1 ... 16 |
| Number of bus nodes | | | |
| | | | max. 239 |
| Max. cable length | | | |
| between two nodes | I_{max} | [m] | 100 |
| Rated voltage | | | |
| | $U_{N,DC}$ | [V] | 24.0 |


4.4

Ethernet POWERLINK Hub

Lenze offers an external 8-way hub, supplementing the 2-way hub integrated in the Ethernet POWERLINK interface connections. This infrastructure component corresponds to a class-II repeater as per IEEE802.3u. It automatically detects the network baud rate (10 or 100 Mbps). The hubs can be cascaded via a special uplink port.



Ethernet POWERLINK Hub

| Mode | | Features | Product key |
|----------------------|---|---|-------------|
| Communication module | | | |
| POWERLINK hub |  | <ul style="list-style-type: none"> • DC 24 V • Automatic baud rate detection (10/100 Mbps) • 8-fold hub in industrial design • Cascadable | E94AZCEH |

Inverter Drives 8400 TopLine

Interfaces




PROFIBUS communication module

A communication module is used to connect the 8400 StateLine, HighLine or TopLine to a bus system.



PROFIBUS communication module

| Mode | | Features | Slot | Product key |
|----------------------|---|--|------|-------------|
| Communication module | | | | |
| PROFIBUS |  | <ul style="list-style-type: none"> • 5 LEDs for status display • Sub-D connection • Address can be set via DIP switch | MCI | E84AYCPMV/S |

4.4

- ▶ The Inverter Drives 8400 can be ordered with a plug-in PROFIBUS communication module already installed. If you would like to order the products in this complete form, please add the inverter product key as follows when placing your order: E84AV to X-PMXXX
- ▶ The product key with the supplement for the applied module is provided in our sales documents. This information is not part of the nameplate of the device.

Standards and operating conditions

| | | | | |
|---|----------|-----|--|--------------------------------------|
| Product key | | | | E84AYCPMV/S |
| Mode | | | | PROFIBUS |
| Enclosure | | | | IP20 |
| Climatic conditions | | | | |
| Storage (EN 60721-3-1) | | | | 1K3 (temperature: -25 °C ... +60 °C) |
| Transport (EN 60721-3-2) | | | | 2K3 (temperature: -25 °C ... +70 °C) |
| Operation (EN 60721-3-3) | | | | 3K3 (temperature: -10°C ... +55°C) |
| Insulation voltage to reference earth/PE | | | | |
| EN 61800-5-1 | U_{AC} | [V] | | 50.0 |

Inverter Drives 8400 TopLine

Interfaces



PROFIBUS communication module

Rated data

| | | | |
|---------------------------------|------------|----------|---|
| Product key | | | E84AYCPMV/S |
| Communication | | | |
| Medium | | | RS 485 |
| Communication profile | | | PROFIBUS-DP-V1 PROFIBUS-DP-V0 |
| Device profile | | | PROFIDrive, version 3 |
| Baud rate | | | |
| | b | [kBit/s] | 9.6 ... 12 000 (automatic detection) |
| Node | | | |
| | | | Slave |
| Network topology | | | |
| | | | Line with repeater: Line or tree without repeater: |
| Process data words (PCD) | | | |
| 16 Bit | | | 1 ... 16 |
| DP user data length | | | |
| | | | Optional parameter channel (4 words) + process data words |
| Number of bus nodes | | | |
| | | | 31 slaves + 1 master per bus segment With repeaters: 125 |
| Max. cable length | | | |
| per bus segment | l_{\max} | [m] | 1200 (depending on the baud rate and the cable type used) |

Inverter Drives 8400 TopLine

Interfaces




PROFINET communication module

A communication module is used to connect the 8400 StateLine, HighLine or TopLine to a bus system.



PROFINET communication module

| Mode | | Features | Slot | Product key |
|----------------------|---|---|------|-------------|
| Communication module | | | | |
| PROFINET |  | <ul style="list-style-type: none"> • 5 LEDs for status display • 2 RJ45 connections with LEDs for link and activity • TCP/IP channel • Connection option for separate 24 V supply | MCI | E84AYCERV/S |

4.4

- ▶ The Inverter Drives 8400 can be ordered with a plug-on PROFINET communication module already installed. If you would like to order the products in this complete form, please add the inverter product key as follows when placing your order: E84AV to X-ER-XXX
- ▶ The product key with the supplement for the applied module is provided in our sales documents. This information is not part of the nameplate of the device.

Standards and operating conditions

| | | | | |
|---|----------|-----|--|--------------------------------------|
| Product key | | | | E84AYCERV/S |
| Mode | | | | PROFINET |
| Enclosure | | | | IP20 |
| EN 60529 | | | | |
| Climatic conditions | | | | |
| Storage (EN 60721-3-1) | | | | 1K3 (temperature: -25 °C ... +60 °C) |
| Transport (EN 60721-3-2) | | | | 2K3 (temperature: -25 °C ... +70 °C) |
| Operation (EN 60721-3-3) | | | | 3K3 (temperature: -10°C ... +55°C) |
| Insulation voltage to reference earth/PE | | | | |
| EN 61800-5-1 | U_{AC} | [V] | | 50.0 |

Inverter Drives 8400 TopLine

Interfaces



PROFINET communication module

Rated data

| | | | |
|--|------------|----------|--|
| Product key | | | E84AYCERV/S |
| Communication | | | |
| Medium | | | CAT5e S/FTP according to ISO/ICE11801 (2002) |
| Communication profile | | | PROFINET RT Conf. Class B |
| Baud rate | | | |
| | b | [MBit/s] | 100 |
| Node | | | |
| | | | Slave (Device) |
| Network topology | | | |
| | | | Line |
| Number of logical process data channels | | | |
| | | | 1 |
| Process data words (PCD) | | | |
| 16 Bit | | | 1 ... 16 |
| Max. cable length | | | |
| between two nodes | l_{\max} | [m] | 100 |

Inverter Drives 8400 TopLine

Accessories



Brake resistors

An external brake resistor is required to brake high moments of inertia or in the event of prolonged operation in generator mode; this resistor converts braking energy into heat.

The brake resistors recommended in the table below have been dimensioned for approx. 1.5 times the regenerative power, with a cycle time of 15/135 s (brake/rest ratio). These brake resistors generally meet the usual requirements of standard applications.

The brake resistors are fitted with a thermostat (potential-free NC contact).



ERBM...(IP50) brake resistor

| Typical motor power | Mains voltage | Product key | | Rated resistance | Rated power | Thermal capacity | Dimensions | Mass |
|---------------------------|--------------------|-----------------|----------------|------------------|----------------|------------------|-----------------|------|
| | | Inverter | Brake resistor | | | | | |
| 4-pole asynchronous motor | | | | | | | | |
| P | U _{AC} | | | R _N | P _N | C _{th} | h x b x t | m |
| [kW] | [V] | | | [Ω] | [kW] | [KWs] | [mm] | [kg] |
| 0.25 | 1 AC 180... 264 | E84AV□□□2512□□0 | ERBM180R050W | 180.0 | 0.050 | 7.50 | 175 x 20.6 x 40 | 0.3 |
| 0.37 | | E84AV□□□3712□□0 | | | | | | |
| 0.55 | | E84AV□□□5512□□0 | ERBM100R100W | 100.0 | 0.10 | 15.0 | 240 x 80 x 95 | 0.5 |
| 0.75 | | E84AV□□□7512□□0 | | | | | | |
| 1.10 | | E84AV□□□1122□□0 | ERBP033R200W | 33.0 | 0.20 | 30.0 | 240 x 41 x 122 | 1.0 |
| 1.50 | | E84AV□□□1522□□0 | | | | | | |
| 2.20 | E84AV□□□2222□□0 | ERBP033R300W | | 0.30 | 45.0 | 320 x 41 x 122 | 1.4 | |
| 0.37 | 3 AC 320... 550 | E84AV□□□3714□□0 | ERBM390R100W | 390.0 | 0.10 | 15.0 | 235 x 20.6 x 40 | 0.4 |
| 0.55 | | E84AV□□□5514□□0 | | | | | | |
| 0.75 | | E84AV□□□7514□□0 | ERBP180R200W | 180.0 | 0.20 | 30.0 | 240 x 41 x 122 | 1.0 |
| 1.10 | | E84AV□□□1124□□0 | | | | | | |
| 1.50 | | E84AV□□□1524□□0 | ERBP180R300W | | 0.30 | 45.0 | 320 x 41 x 122 | 1.4 |
| 2.20 | | E84AV□□□2224□□0 | | | | | | |

► Data are valid also for inverters with type code E84AV□□□□□□□□□S

4.4

Inverter Drives 8400 TopLine

Accessories



Brake resistors

For standard applications, we recommend the following combinations:

- E84AV□□□3024□□□ and ERBP180R300W
- E84AV□□□4024□□□ and ERBS047R400W
- E84AV□□□5524□□□ and ERBS047R800W
- E84AV□□□7524□□□ and ERBS027R01K2
- E84AV□□□1134□□□ and ERBS027R01K2
- E84AV□□□1534□□□ and ERBS018R01K4
- E84AV□□□1834□□□ and ERBS015R02K4
- E84AV□□□2234□□□ and ERBS015R02K4.



Other possible combinations:

ERBP...(IP21) and ERBS...(IP65) brake resistor

| Typical motor power | Mains voltage | Product key | | Rated resistance | Rated power | Thermal capacity | Dimensions | Mass |
|---------------------|--------------------|-----------------|----------------|------------------|------------------|------------------|------------------|------|
| | | Inverter | Brake resistor | | | | | |
| P | U _{AC} | | | R _N | P _N | C _{th} | h x b x t | m |
| [kW] | [V] | | | [Ω] | [kW] | [KWs] | [mm] | [kg] |
| 3.00 | 3 AC 320... 550 | E84AV□□□3024□□□ | ERBP180R300W | 180.0 | 0.30 | 45.0 | 320 x 41 x 122 | 1.4 |
| | | | ERBP082R200W | 82.0 | 0.20 | 30.0 | | 1.0 |
| | | | ERBS082R780W | | 0.78 | 117 | 666 x 124 x 122 | 4.0 |
| 4.00 | | E84AV□□□4024□□□ | ERBP047R200W | 47.0 | 0.20 | 30.0 | 320 x 41 x 122 | 1.0 |
| | | | ERBS047R400W | | 0.40 | 60.0 | 400 x 110 x 105 | 2.3 |
| | | | ERBS047R800W | | 0.80 | 120 | 710 x 110 x 105 | 3.9 |
| 5.50 | | E84AV□□□5524□□□ | ERBP047R200W | | 0.20 | 30.0 | 320 x 41 x 122 | 1.0 |
| | | | ERBS047R400W | | 0.40 | 60.0 | 400 x 110 x 105 | 2.3 |
| | | | ERBS047R800W | 0.80 | 120 | 710 x 110 x 105 | 3.9 | |
| 7.50 | | E84AV□□□7524□□□ | ERBP027R200W | 27.0 | 0.20 | 30.0 | 320 x 41 x 122 | 1.0 |
| | | | ERBS027R600W | | 0.60 | 90.0 | 550 x 110 x 105 | 3.1 |
| | | | ERBS027R01K2 | | 1.20 | 180 | 1020 x 110 x 105 | 5.6 |
| 11.0 | | E84AV□□□1134□□□ | ERBP027R200W | | 0.20 | 30.0 | 320 x 41 x 122 | 1.0 |
| | | | ERBS027R600W | | 0.60 | 90.0 | 550 x 110 x 105 | 3.1 |
| | | | ERBS027R01K2 | 1.20 | 180 | 1020 x 110 x 105 | 5.6 | |
| 15.0 | E84AV□□□1534□□□ | ERBS018R800W | 18.0 | 0.80 | 120 | 710 x 110 x 105 | 3.9 | |
| | | ERBS018R01K4 | | 1.40 | 210 | 1110 x 110 x 105 | 6.2 | |
| | | ERBS018R02K8 | | 2.80 | 420 | 1110 x 200 x 105 | 12.0 | |
| 18.5 | E84AV□□□1834□□□ | ERBS015R800W | 15.0 | 0.80 | 120 | 710 x 110 x 105 | 3.9 | |
| | | ERBS015R01K2 | | 1.20 | 180 | 1020 x 110 x 105 | 5.6 | |
| | | ERBS015R02K4 | | 2.40 | 420 | 1020 x 200 x 105 | 10.0 | |
| 22.0 | E84AV□□□2234□□□ | ERBS015R800W | | 0.80 | 120 | 710 x 110 x 105 | 3.9 | |
| | | ERBS015R01K2 | | 1.20 | 180 | 1020 x 110 x 105 | 5.6 | |
| | | ERBS015R02K4 | 2.40 | 420 | 1020 x 200 x 105 | 10.0 | | |
| 30.0 | E84AV□□□3034□□□ | ERBG075D01K9 | 7.5 | 1.90 | 285 | 486 x 236 x 302 | 9.5 | |
| 37.0 | E84AV□□□3734□□□ | | | | | | | |
| 45.0 | E84AV□□□4534□□□ | | | | | | | |

► Data are valid also for inverters with type code E84AV□□□□□□□□□S

Inverter Drives 8400 TopLine

Accessories



Mains chokes

A mains choke is an inductive resistor which is connected in the mains cable of the power supply module. The use of a mains choke provides the following advantages:

- **Fewer effects on the mains:**
The wave form of the mains current is a close approximation to a sine wave.
- **Reduction in the effective mains current:**
Reduction of mains, cable and fuse loads

Mains chokes can be used without restrictions in conjunction with RFI filters and/or sinusoidal filters.



Mains choke

Please note:

: The use of a mains choke slightly reduces the mains voltage at the input of the inverter - the typical voltage drop across the mains choke at the rated values is around 4%.

Operation at rated power

| Typical motor power P [kW] | Mains voltage U _{AC} [V] | Product key | | Rated current I _N [A] | Dimensions h x b x t [mm] | Mass m [kg] |
|----------------------------------|---|-------------------------------|----------------|--|---------------------------------|-------------------|
| | | Inverter | Mains choke | | | |
| 0.25 | 1 AC 180 ... 264 | E84AV□□□2512□□□□ | ELN1-0900H005 | 5.00 | 75 x 66 x 82 | 1.1 |
| 0.37 | | E84AV□□□3712□□□□ | | | | |
| 0.55 | | E84AV□□□5512□□□□ | ELN1-0500H009 | 9.00 | | |
| 0.75 | | E84AV□□□7512□□□□ | | | | |
| 1.10 | | E84AV□□□1122□□□□ | ELN1-0250H018 | 18.0 | | |
| 1.50 | | E84AV□□□1522□□□□ | | | | |
| 2.20 | | E84AV□□□2222□□□□ | | | | |
| 3.00 | | E84AV□□□3024□□□□ | | | | |
| 0.37 | 3 AC 320 ... 550 | E84AV□□□3714□□□□ | EZAELN3002B153 | 2.00 | 56 x 77 x 100 | 0.5 |
| 0.55 | | E84AV□□□5514□□□□ | EZAELN3004B742 | 4.00 | 60 x 95 x 114 | 1.3 |
| 0.75 | | E84AV□□□7514□□□□ | | | | |
| 1.10 | | E84AV□□□1124□□□□ | EZAELN3006B492 | 6.00 | 69 x 95 x 117 | 1.5 |
| 1.50 | | E84AV□□□1524□□□□ | | | | |
| 2.20 | | E84AV□□□2224□□□□ | | | | |
| 3.00 | | E84AV□□□3024□□□□ | | | | |
| 4.00 | | E84AV□□□4024□□□□ | EZAELN3010B292 | 10.0 | 85 x 120 x 134 | 2.0 |
| 5.50 | | E84AV□□□5524□□□□ | EZAELN3016B182 | 16.0 | 95 x 120 x 134 | 2.7 |
| 7.50 | | E84AV□□□7524□□□□ | EZAELN3020B152 | 20.0 | 95 x 155 x 162 | 3.8 |
| 11.0 | | E84AV□□□1134□□□□ | EZAELN3025B122 | 25.0 | 110 x 155 x 167 | 5.8 |
| 15.0 | | E84AV□□□1534□□□ ¹⁾ | EZAELN3035B841 | 35.0 | | 6.0 |
| 18.5 | | E84AV□□□1834□□□□ | EZAELN3045B651 | 45.0 | 112 x 185 x 196 | 8.3 |
| 22.0 | | E84AV□□□2234□□□ ¹⁾ | EZAELN3050B591 | 50.0 | 112 x 185 x 208 | 8.4 |
| 30.0 | | E84AV□□□3034□□□ ¹⁾ | EZAELN3063B471 | 63.0 | 122 x 185 x 207 | 9.7 |
| 37.0 | | E84AV□□□3734□□□ ¹⁾ | EZAELN3080B371 | 80.0 | 125 x 210 x 239 | 12.5 |
| 45.0 | E84AV□□□4534□□□ ¹⁾ | EZAELN3090B331 | 90.0 | 115 x 267 x 201 | 16.0 | |

¹⁾ Operation only permitted with mains choke

► Data are valid also for inverters with type code
E84AV□□□□□□□□□□\$

► On some inverters, a mains filter (combination of RFI filter and mains choke) can be used in place of a mains choke. Information on this can be found in the "Interference suppression" section.

Inverter Drives 8400 TopLine

Accessories



Mains chokes

Operation with increased power output



Mains choke

| Typical motor power | Mains voltage | Product key | | Rated current | Dimensions | Mass |
|---------------------------|-------------------------------|-------------------------------|----------------|-----------------|-----------------------|------|
| | | Inverter | Mains choke | | | |
| 4-pole asynchronous motor | | | | | | |
| P | U_{AC} | | | I_N | $h \times b \times t$ | m |
| [kW] | [V] | | | [A] | [mm] | [kg] |
| 0.37 | 1 AC 180 ... 264 | E84AV□□□2512□□0 | ELN1-0900H005 | 5.00 | 75 x 66 x 82 | 1.1 |
| 0.55 | | E84AV□□□3712□□0 | | | | |
| 0.75 | | E84AV□□□5512□□0 | ELN1-0500H009 | 9.00 | | |
| 1.10 | | E84AV□□□7512□□0 ¹⁾ | | | | |
| 1.50 | | E84AV□□□1122□□0 | ELN1-0250H018 | 18.0 | | |
| 2.20 | | E84AV□□□1522□□0 ¹⁾ | | | | |
| 0.55 | 3 AC 320 ... 550 | E84AV□□□3714□□0 | EZAELN3002B153 | 2.00 | 56 x 77 x 100 | 0.5 |
| 0.75 | | E84AV□□□5514□□0 | EZAELN3004B742 | 4.00 | 60 x 95 x 114 | 1.3 |
| 1.10 | | E84AV□□□7514□□0 ¹⁾ | | | | |
| 1.50 | | E84AV□□□1124□□0 | EZAELN3006B492 | 6.00 | 69 x 95 x 117 | 1.5 |
| 2.20 | | E84AV□□□1524□□0 | | | | |
| 3.00 | | E84AV□□□2224□□0 ¹⁾ | EZAELN3008B372 | 8.00 | 85 x 120 x 137 | 1.9 |
| 4.00 | | E84AV□□□3024□□0 | EZAELN3010B292 | 10.0 | 85 x 120 x 134 | 2.0 |
| 5.50 | | E84AV□□□4024□□0 | EZAELN3016B182 | 16.0 | 95 x 120 x 134 | 2.7 |
| 7.50 | | E84AV□□□5524□□0 ¹⁾ | EZAELN3020B152 | 20.0 | 95 x 155 x 162 | 3.8 |
| 11.0 | | E84AV□□□7524□□0 | EZAELN3025B122 | 25.0 | 110 x 155 x 167 | 5.8 |
| 15.0 | | E84AV□□□1134□□0 ¹⁾ | EZAELN3030B982 | 30.0 | | 5.9 |
| 22.0 | | E84AV□□□1834□□0 ¹⁾ | EZAELN3045B651 | 45.0 | 112 x 185 x 196 | 8.3 |
| 30.0 | | E84AV□□□2234□□0 ¹⁾ | EZAELN3063B471 | 63.0 | 122 x 185 x 207 | 9.7 |
| 37.0 | | E84AV□□□3034□□0 ¹⁾ | EZAELN3080B371 | 80.0 | 125 x 210 x 239 | 12.5 |
| 45.0 | | E84AV□□□3734□□0 ¹⁾ | EZAELN3090B331 | 90.0 | 115 x 267 x 201 | 16.0 |
| 55.0 | E84AV□□□4534□□0 ¹⁾ | EZAELN3100B301 | 100 | 139 x 267 x 201 | 19.0 | |

¹⁾ Operation only permitted with mains choke

► Data are valid also for inverters with type code
E84AV□□□□□□□□□□S

Inverter Drives 8400 TopLine

Accessories



Interference suppression

RFI and mains filters are used to ensure compliance with the EMC requirements of European Standard EN 61800-3. This standard defines the EMC requirements for electrical drive system in various categories. **Category C1** applies to public networks (residential areas). Category C1 corresponds to Class B with regard to the limit values of Class B in line with EN 55011.

Category C2 is applicable in industrial premises; use in residential areas is left to the user's discretion. With regard to limit values, Category C2 corresponds to Class A according to EN 55011.





RFI filters

When working with stricter line-bound noise emission requirements, which cannot be met using the radio interference suppression measures integrated in the inverter (C2 up to 25 m shielded motor cable), external filters can be used. The filters can be installed below or next to the inverters.

Available RFI and mains filters

| Mode | RFI filter LL (Low Leakage) E84AZESR□□□□LL | RFI filter SD (Short Distance) E84AZESR□□□□SD | RFI filter LD (Long Distance) E84AZESR□□□□LD | Mains filter LD (Long Distance) E84AZESM□□□□LD |
|--------------------|--|--|--|--|
| Category C1 | Up to 5 m shielded motor cable ¹⁾ | Up to 25 m shielded motor cable ¹⁾ | Up to 50 m shielded motor cable ¹⁾ | Up to 50 m shielded motor cable ¹⁾ |
| Category C2 | | Up to 50 m shielded motor cable ¹⁾ | Up to 100 m shielded motor cable ¹⁾ | Up to 100 m shielded motor cable ¹⁾ |
| Power range | 0.25 to 2.2 kW, 230 V | 0.25 to 15 kW | 0.25 to 18.5 kW | 22 to 45 kW |
| Features | <ul style="list-style-type: none"> For installation in mobile systems, leakage current < 3.5 mA (up to 5 m shielded motor cable) | <ul style="list-style-type: none"> Optimised for low leakage current. | <ul style="list-style-type: none"> 0,25 up to 15 kW: 50 - 100 m at max. 40 °C ambient temperature and max. 4 kHz switching frequency. | <ul style="list-style-type: none"> Combination of mains choke and RFI filter. |

¹⁾   38 - Details on maximum motor cable lengths.

Inverter Drives 8400 TopLine

Accessories



Interference suppression

Operation at rated power

► RFI filter LL (Low Leakage)

| Typical motor power 4-pole asynchronous motor | Mains voltage U_{AC} | Product key | | Rated current I_N | Dimensions h x b x t | Mass |
|--|---------------------------|-----------------|----------------|------------------------|-------------------------|-----------|
| | | Inverter | RFI filter | | | |
| P [kW] | U_{AC} [V] | | | I_N [A] | h x b x t [mm] | m [kg] |
| 0.25 | 1 AC 180 ... 264 | E84AV□□□2512□□0 | E84AZESR3712LL | 5.00 | 212 x 70 x 60 | 0.8 |
| 0.37 | | E84AV□□□3712□□0 | | | | |
| 0.55 | | E84AV□□□5512□□0 | E84AZESR7512LL | 9.00 | 262 x 70 x 60 | 1.0 |
| 0.75 | | E84AV□□□7512□□0 | | | | |
| 1.10 | | E84AV□□□1122□□0 | E84AZESR2222LL | 22.0 | 317 x 70 x 60 | 1.4 |
| 1.50 | | E84AV□□□1522□□0 | | | | |
| 2.20 | | E84AV□□□2222□□0 | | | | |

► RFI filter SD (Short Distance)

4.4

| Typical motor power 4-pole asynchronous motor | Mains voltage U_{AC} | Product key | | Rated current I_N | Dimensions h x b x t | Mass |
|--|---------------------------|-----------------|----------------|------------------------|-------------------------|-----------|
| | | Inverter | RFI filter | | | |
| P [kW] | U_{AC} [V] | | | I_N [A] | h x b x t [mm] | m [kg] |
| 0.25 | 1 AC 180 ... 264 | E84AV□□□2512□□0 | E84AZESR3712SD | 5.00 | 212 x 70 x 60 | 0.8 |
| 0.37 | | E84AV□□□3712□□0 | | | | |
| 0.55 | | E84AV□□□5512□□0 | E84AZESR7512SD | 9.00 | 262 x 70 x 60 | 1.0 |
| 0.75 | | E84AV□□□7512□□0 | | | | |
| 1.10 | | E84AV□□□1122□□0 | E84AZESR2222SD | 22.0 | 317 x 70 x 60 | 1.7 |
| 1.50 | | E84AV□□□1522□□0 | | | | |
| 2.20 | | E84AV□□□2222□□0 | | | | |
| 0.37 | | E84AV□□□3714□□0 | | | | |
| 0.55 | E84AV□□□5514□□0 | | | | | |
| 0.75 | E84AV□□□7514□□0 | E84AZESR2224SD | 7.30 | 317 x 70 x 60 | 1.5 | |
| 1.10 | E84AV□□□1124□□0 | | | | | |
| 1.50 | E84AV□□□1524□□0 | | | | | |
| 2.20 | E84AV□□□2224□□0 | | | | | |
| 3.00 | 3 AC 320 ... 550 | E84AV□□□3024□□S | E84AZESR3024SD | 9.80 | 317 x 70 x 60 | 1.5 |
| | | E84AV□□□3024□□0 | | | | |
| 4.00 | | E84AV□□□4024□□0 | E84AZESR5524SD | 18.0 | 306 x 140 x 60 | 3.1 |
| 5.50 | | E84AV□□□5524□□0 | | | | |
| 7.50 | | E84AV□□□7524□□0 | E84AZESR1534SD | 29.0 | 361 x 140 x 60 | 4.4 |
| 11.0 | | E84AV□□□1134□□0 | | | | |
| 15.0 | | E84AV□□□1534□□0 | | | | |

► Data are valid also for inverters with type code E84AV□□□□□□□□S

Inverter Drives 8400 TopLine

Accessories



Interference suppression

Operation at rated power

► RFI filter LD (Long Distance)

| Typical motor power 4-pole asynchronous motor | Mains voltage U_{AC} | Product key | | Rated current I_N | Dimensions h x b x t | Mass | | |
|--|---------------------------|-----------------|-----------------|------------------------|-------------------------|------|----------------|-----|
| | | Inverter | RFI filter | | | | | |
| P [kW] | [V] | | | [A] | [mm] | [kg] | | |
| 0.25 | 1 AC 180 ... 264 | E84AV□□□2512□□0 | E84AZESR3712LD | 5.00 | 212 x 70 x 60 | 0.8 | | |
| 0.37 | | E84AV□□□3712□□0 | | | | | | |
| 0.55 | | E84AV□□□5512□□0 | E84AZESR7512LD | | 9.00 | | 262 x 70 x 60 | 1.0 |
| 0.75 | | E84AV□□□7512□□0 | | | | | | |
| 1.10 | | E84AV□□□1122□□0 | E84AZESR2222LD | | 22.0 | | 317 x 70 x 60 | 1.5 |
| 1.50 | | E84AV□□□1522□□0 | | | | | | |
| 2.20 | | E84AV□□□2222□□0 | | | | | | |
| 0.37 | | E84AV□□□3714□□0 | | | | | | |
| 0.55 | E84AV□□□5514□□0 | | | | | | | |
| 0.75 | E84AV□□□7514□□0 | E84AZESR2224LD | 7.30 | 317 x 70 x 60 | 1.4 | | | |
| 1.10 | E84AV□□□1124□□0 | | | | | | | |
| 1.50 | E84AV□□□1524□□0 | E84AZESR3024LD | 9.80 | 306 x 140 x 60 | 2.2 | | | |
| 2.20 | E84AV□□□2224□□0 | | | | | | | |
| 3.00 | 3 AC 320 ... 550 | E84AV□□□3024□□S | E84AZESR5524LD | 18.0 | 306 x 140 x 60 | 2.2 | | |
| 4.00 | | E84AV□□□3024□□0 | | | | | | |
| 5.50 | | E84AV□□□4024□□0 | E84AZESR1534LD | | 29.0 | | 361 x 140 x 60 | 3.3 |
| 7.50 | | E84AV□□□5524□□0 | | | | | | |
| 11.0 | | E84AV□□□7524□□0 | E84AZESR1834LD | | 50.4 | | 365 x 205 x 90 | 7.5 |
| 15.0 | | E84AV□□□1134□□0 | | | | | | |
| 18.5 | | E84AV□□□1534□□0 | | | | | | |
| | | | E84AV□□□1834□□0 | | | | | |

► Mains filter LD (Long Distance)

| Typical motor power 4-pole asynchronous motor | Mains voltage U_{AC} | Product key | | Rated current I_N | Dimensions h x b x t | Mass |
|--|---------------------------|-----------------|----------------|------------------------|-------------------------|------|
| | | Inverter | Mains filter | | | |
| P [kW] | [V] | | | [A] | [mm] | [kg] |
| 22.0 | 3 AC 320 ... 550 | E84AV□□□2234□□0 | E84AZESM2234LD | 42.0 | 365 x 205 x 90 | 14.0 |
| 30.0 | | E84AV□□□3034□□0 | E84AZESM3034LD | | 519 x 250 x 105 | 23.0 |
| 37.0 | | E84AV□□□3734□□0 | E84AZESM3734LD | | | 25.0 |
| 45.0 | | E84AV□□□4534□□0 | E84AZESM4534LD | | 30.0 | |

► Data are valid also for inverters with type code
E84AV□□□□□□□□□□S

Inverter Drives 8400 TopLine

Accessories



Interference suppression

Operation with increased power output

► RFI filter LL (Low Leakage)

| Typical motor power 4-pole asynchronous motor | Mains voltage | Product key | | Rated current | Dimensions | Mass |
|--|------------------|-----------------|----------------|---------------|-----------------------|------|
| | | Inverter | RFI filter | | | |
| P | U_{AC} | | | I_N | $h \times b \times t$ | m |
| [kW] | [V] | | | [A] | [mm] | [kg] |
| 0.37 | 1 AC 180 ... 264 | E84AV□□□2512□□0 | E84AZESR3712LL | 5.00 | 212 x 70 x 60 | 0.8 |
| 0.55 | | E84AV□□□3712□□0 | E84AZESR7512LL | 9.00 | 262 x 70 x 60 | 1.0 |
| 0.75 | | E84AV□□□5512□□0 | | | | |
| 1.10 | | E84AV□□□7512□□0 | E84AZESR2222LL | 22.0 | 317 x 70 x 60 | 1.4 |
| 1.50 | | E84AV□□□1122□□0 | | | | |
| 2.20 | | E84AV□□□1522□□0 | | | | |

► RFI filter SD (Short Distance)

| Typical motor power 4-pole asynchronous motor | Mains voltage | Product key | | Rated current | Dimensions | Mass |
|--|------------------|------------------|-----------------|----------------|-----------------------|---------------|
| | | Inverter | RFI filter | | | |
| P | U_{AC} | | | I_N | $h \times b \times t$ | m |
| [kW] | [V] | | | [A] | [mm] | [kg] |
| 0.37 | 1 AC 180 ... 264 | E84AV□□□2512□□0 | E84AZESR3712SD | 5.00 | 212 x 70 x 60 | 0.8 |
| 0.55 | | E84AV□□□3712□□0 | E84AZESR7512SD | 9.00 | 262 x 70 x 60 | 1.0 |
| 0.75 | | E84AV□□□5512□□0 | | | | |
| 1.10 | | E84AV□□□7512□□0 | E84AZESR2222SD | 22.0 | 317 x 70 x 60 | 1.7 |
| 1.50 | | E84AV□□□1122□□0 | | | | |
| 2.20 | | E84AV□□□1522□□0 | | | | |
| 0.55 | | 3 AC 320 ... 550 | E84AV□□□3714□□0 | E84AZESR7514SD | 3.30 | 262 x 70 x 60 |
| 0.75 | E84AV□□□5514□□0 | | | | | |
| 1.10 | E84AV□□□7514□□0 | | E84AZESR2224SD | 7.30 | 317 x 70 x 60 | 1.5 |
| 1.50 | E84AV□□□1124□□0 | | | | | |
| 2.20 | E84AV□□□1524□□0 | | | | | |
| 3.00 | E84AV□□□2224□□0 | | E84AZESR5524SD | 18.0 | 306 x 140 x 60 | 3.1 |
| 4.00 | E84AV□□□3024□□S | | | | | |
| 5.50 | E84AV□□□4024□□0 | | | | | |
| 7.50 | E84AV□□□5524□□0 | | E84AZESR1534SD | 29.0 | 361 x 140 x 60 | 4.4 |
| 11.0 | E84AV□□□7524□□0 | | | | | |
| 15.0 | E84AV□□□1134□□0 | | | | | |

► Data are valid also for inverters with type code
E84AV□□□□□□□□S

Inverter Drives 8400 TopLine

Accessories



Interference suppression

Operation with increased power output

► RFI filter LD (Long Distance)

| Typical motor power 4-pole asynchronous motor | Mains voltage | Product key | | Rated current | Dimensions | Mass |
|--|------------------|-----------------|----------------|----------------|----------------|------|
| | | Inverter | RFI filter | | | |
| P | U _{AC} | | | I _N | h x b x t | m |
| [kW] | [V] | | | [A] | [mm] | [kg] |
| 0.37 | 1 AC 180 ... 264 | E84AV□□□2512□□0 | E84AZESR3712LD | 5.00 | 212 x 70 x 60 | 0.8 |
| 0.55 | | E84AV□□□3712□□0 | E84AZESR7512LD | 9.00 | 262 x 70 x 60 | 1.0 |
| 0.75 | | E84AV□□□5512□□0 | | | | |
| 1.10 | | E84AV□□□7512□□0 | E84AZESR2222LD | 22.0 | 317 x 70 x 60 | 1.5 |
| 1.50 | | E84AV□□□1122□□0 | | | | |
| 2.20 | | E84AV□□□1522□□0 | | | | |
| 0.55 | 3 AC 320 ... 550 | E84AV□□□3714□□0 | E84AZESR7514LD | 3.30 | 262 x 70 x 60 | 1.1 |
| 0.75 | | E84AV□□□5514□□0 | E84AZESR2224LD | 7.30 | 317 x 70 x 60 | 1.4 |
| 1.10 | | E84AV□□□7514□□0 | | | | |
| 1.50 | | E84AV□□□1124□□0 | | | | |
| 2.20 | | E84AV□□□1524□□0 | E84AZESR5524LD | 18.0 | 306 x 140 x 60 | 2.2 |
| 3.00 | | E84AV□□□2224□□0 | | | | |
| 4.00 | | E84AV□□□3024□□0 | | | | |
| 5.50 | | E84AV□□□4024□□0 | | | | |
| 7.50 | | E84AV□□□5524□□0 | E84AZESR1534LD | 29.0 | 361 x 140 x 60 | 3.3 |
| 11.0 | | E84AV□□□7524□□0 | | | | |
| 15.0 | E84AV□□□1134□□0 | | | | | |

► Mains filter LD (Long Distance)

| Typical motor power 4-pole asynchronous motor | Mains voltage | Product key | | Rated current | Dimensions | Mass |
|--|------------------|-----------------|--------------------|----------------|-----------------|------|
| | | Inverter | Mains filter | | | |
| P | U _{AC} | | | I _N | h x b x t | m |
| [kW] | [V] | | | [A] | [mm] | [kg] |
| 22.0 | 3 AC 320 ... 550 | E84AV□□□1834□□0 | E84AZESM2234LD | 42.0 | 365 x 205 x 90 | 14.0 |
| 30.0 | | E84AV□□□2234□□0 | E84AZESM2234LDN001 | | | 18.5 |
| 37.0 | | E84AV□□□3034□□0 | E84AZESM3734LD | | 519 x 250 x 105 | 25.0 |
| 45.0 | | E84AV□□□3734□□0 | E84AZESM4534LD | | | 30.0 |
| 55.0 | | E84AV□□□4534□□0 | E84AZESM4534LDN001 | | | 32.0 |
| | | | | | | |

► Data are valid also for inverters with type code
E84AV□□□□□□□□S

Inverter Drives 8400 TopLine

Accessories



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Accessories



Sinusoidal filters

A sinusoidal filter in the motor cable limits the rate of voltage rise and the capacitive charge/discharge currents that occur during inverter operation. In combination with the specified line filter, the EMC requirements of the limit class C2 for conducted noise emissions are still met, even if longer shielded or even unshielded motor cables are used.

Application range:

- Only use a sinusoidal filter with standard asynchronous motors 0 to 550 V
- Operation only with V/f or V/f² characteristic control
- Set the switching frequency permanently to the specified value
- Limit the output frequency of the Inverter Drives 8400 to the specified value



Sinusoidal filters

Operation at rated power

| Typical motor power | Mains voltage | Product key | | | | Rated inductance | Switching frequency | Mass |
|---------------------------|---------------------|-----------------|----------------|----------------|-------------------|------------------|---------------------|------|
| | | Inverter | RFI filter | Mains filter | Sinusoidal filter | | | |
| 4-pole asynchronous motor | | | | | | | | |
| P | U _{AC} | | | | | L _N | f _{ch} | m |
| [kW] | [V] | | | | | [mH] | [kHz] | [kg] |
| 0.37 | 3 AC 320 ... 550 | E84AV□□□3714□□□ | E84AZESR7514LD | | EZS3-004A200 | 11.0 | 4 | 4.0 |
| 0.55 | | E84AV□□□5514□□□ | | | | | | |
| 0.75 | | E84AV□□□7514□□□ | | | | | | |
| 1.10 | | E84AV□□□1124□□□ | E84AZESR2224LD | | EZS3-010A200 | 5.10 | 8 | 5.5 |
| 1.50 | | E84AV□□□1524□□□ | | | | | | |
| 2.20 | | E84AV□□□2224□□□ | E84AZESR5524LD | | EZS3-017A200 | 3.07 | 4 | 8.5 |
| 3.00 | | E84AV□□□3024□□□ | | | | | | |
| 4.00 | | E84AV□□□4024□□□ | | | | | | |
| 5.50 | | E84AV□□□5524□□□ | E84AZESR1534LD | | EZS3-024A200 | 2.50 | 8 | 14.5 |
| 7.50 | | E84AV□□□7524□□□ | | | | | | |
| 11.0 | | E84AV□□□1134□□□ | | | | | | |
| 15.0 | | E84AV□□□1534□□□ | E84AZESR1834LD | | EZS3-032A200 | 2.00 | 4 | 19.0 |
| 18.5 | | E84AV□□□1834□□□ | | | | | | |
| 22.0 | | E84AV□□□2234□□□ | | | | | | |
| 30.0 | | E84AV□□□3034□□□ | E84AZESM1834LD | E84AZESM2234LD | EZS3-061A200 | 1.00 | 4 | 25.5 |
| 37.0 | | E84AV□□□3734□□□ | | | | | | |
| 45.0 | | E84AV□□□4534□□□ | | | | | | |
| | | | | E84AZESM3034LD | EZS3-072A200 | 0.95 | | 33.5 |
| | | | E84AZESM3734LD | EZS3-072A200 | 0.95 | | 37.0 | |
| | | | E84AZESM4534LD | EZS3-090A200 | 0.80 | | 53.0 | |
| | | | | EZS3-115A200 | 0.70 | 2 4 | 66.0 | |

- Data are valid also for inverters with type code E84AV□□□□□□□□□S

4.4

Inverter Drives 8400 TopLine

Accessories



Sinusoidal filters

Operation with increased power output

| Typical motor power | Mains voltage | Product key | | | | Rated inductance | Switching frequency | Mass | |
|---------------------------|---------------------|-----------------|--------------------|--------------|-------------------|------------------|---------------------|--------|------|
| | | Inverter | RFI filter | Mains filter | Sinusoidal filter | | | | |
| 4-pole asynchronous motor | | | | | | | | | |
| P | U _{AC} | | | | | L _N | f _{ch} | m | |
| [kW] | [V] | | | | | [mH] | [kHz] | [kg] | |
| 0.55 | 3 AC 320 ... 550 | E84AV□□□3714□□□ | E84AZESR7514LD | | EZS3-010A200 | 5.10 | 4 8 | 5.5 | |
| 0.75 | | E84AV□□□5514□□□ | | | | | | | |
| 1.10 | | E84AV□□□7514□□□ | E84AZESR2224LD | | EZS3-017A200 | 3.07 | | 8.5 | |
| 1.50 | | E84AV□□□1124□□□ | | | | | | | |
| 2.20 | | E84AV□□□1524□□□ | E84AZESR5524LD | | EZS3-024A200 | 2.50 | | 14.5 | |
| 3.00 | | E84AV□□□2224□□□ | | | | | | | |
| 4.00 | | E84AV□□□3024□□□ | E84AZESR1534LD | | EZS3-037A200 | 1.70 | | 21.0 | |
| 5.50 | | E84AV□□□4024□□□ | | | | | | | |
| 7.50 | | E84AV□□□5524□□□ | E84AZESM2234LD | | EZS3-048A200 | 1.20 | | 25.5 | |
| 11.0 | | E84AV□□□7524□□□ | | | | | | | |
| 15.0 | | E84AV□□□1134□□□ | E84AZESM2234LDN001 | | EZS3-061A200 | 1.00 | | 33.5 | |
| 22.0 | | E84AV□□□1834□□□ | | | | | | | |
| 30.0 | | E84AV□□□2234□□□ | E84AZESM3734LD | | EZS3-072A200 | 0.95 | | 37.0 | |
| 37.0 | | E84AV□□□3034□□□ | | | | | | | |
| 45.0 | | E84AV□□□3734□□□ | E84AZESM4534LD | | EZS3-090A200 | 0.80 | | 53.0 | |
| 55.0 | | E84AV□□□4534□□□ | | | | | | | |
| | | | E84AZESM4534LDN001 | | EZS3-115A200 | 0.70 | | 2 4 | 66.0 |

► Data are valid also for inverters with type code E84AV□□□□□□□□□S





Inverter Drives 8400 TopLine

Accessories



Rated data for power supply modules

► The data is valid for operation at 3/PE AC 400 V.

| | | |  |  |  |  |
|----------------------------------|-------------|------|---|---|---|---|
| Product key | | | | | | |
| Power supply module | | | E94APNE0104 | E94APNE0364 | E94APNE1004 | E94APNE2454 |
| Rated power | | | | | | |
| With mains filter/mains choke | P_N | [kW] | 4.90 | 17.5 | 48.6 | 119 |
| Without mains filter/mains choke | P_N | [kW] | 3.60 | 13.0 | 36.2 | 88.6 |
| Mains voltage range | | | 3/PE AC 180 V-0 % ... 550 V+0 %, 45 Hz-0 % ... 65 Hz+0 % | | | |
| Rated mains current | | | | | | |
| | $I_{N, AC}$ | [A] | 8.0 | 29.0 | 82.0 | 200.0 |
| Rated DC-bus current | | | | | | |
| | $I_{N, DC}$ | [A] | 10.0 | 36.0 | 100.0 | 245.0 |

4.4

Data for 60 s overload

| | | | | | | |
|---------------------------------------|---------------|------|-------|------|-------|-------|
| Max. DC-bus current | | | | | | |
| | I_{max} | [A] | 15.0 | 54.0 | 150.0 | 368.0 |
| Reduced DC-bus current | | | | | | |
| | $I_{red, DC}$ | [A] | 7.5 | 27.0 | 75.0 | 183.5 |
| Overload time | | | | | | |
| | t_{ol} | [s] | 120.0 | | | |
| Recovery time | | | | | | |
| | t_{re} | [s] | 60.0 | | | |
| Max. output power¹⁾ | | | | | | |
| | $P_{max, 1}$ | [kW] | 7.4 | 26.3 | 72.9 | 179.0 |

Data for 0.5 s overload

| | | | | | | |
|--|---------------|------|------|-------|-------|-------|
| Max. short-time DC-bus current | | | | | | |
| | I_{max} | [A] | 40.0 | 108.0 | 200.0 | 368.0 |
| Reduced DC-bus current | | | | | | |
| | $I_{red, DC}$ | [A] | 7.5 | 27.0 | 75.0 | 183.5 |
| Overload time | | | | | | |
| | t_{ol} | [s] | 0.5 | | | |
| Recovery time | | | | | | |
| | t_{re} | [s] | 4.5 | | | |
| Max. short-term output power¹⁾ | | | | | | |
| | $P_{max, 2}$ | [kW] | 19.6 | 52.5 | 146.0 | 357.0 |

¹⁾ Mains filter required; if no mains filter is installed, the stated values for P_{max} decrease





Inverter Drives 8400 TopLine

Accessories



Rated data for power supply modules

► The data is valid for operation at 3/PE AC 400 V.

| | | |  |  |  |  |
|----------------------------------|------------|------|---|---|---|---|
| Product key | | | | | | |
| Power supply module | | | E94APNE0104 | E94APNE0364 | E94APNE1004 | E94APNE2454 |
| Rated power | | | | | | |
| With mains filter/mains choke | P_N | [kW] | 4.90 | 17.5 | 48.6 | 119 |
| Without mains filter/mains choke | P_N | [kW] | 3.60 | 13.0 | 36.2 | 88.6 |
| Rated DC-bus current | | | | | | |
| | $I_{N,DC}$ | [A] | 10.0 | 36.0 | 100.0 | 245.0 |
| Power loss | | | | | | |
| | P_V | [kW] | 0.055 | 0.11 | 0.23 | 0.55 |
| Dimensions | | | | | | |
| Height | h | [mm] | 350 | | | 383 |
| Height, including fastening | h | [mm] | 481 | | | 510 |
| Width | b | [mm] | 60 | 120 | 210 | 390 |
| Depth | t | [mm] | 288 | | | |
| Mass | | | | | | |
| | m | [kg] | 2.6 | 5.3 | 13.5 | 28.5 |

4.4

Brake chopper rated data

| | | | | | | |
|---|-------------|------|------|------|-------|-------|
| Rated power, Brake chopper | | | | | | |
| | P_N | [kW] | 2.6 | 8.7 | 17.0 | 30.3 |
| Max. output power, Brake chopper | | | | | | |
| | $P_{max,1}$ | [kW] | 19.5 | 43.8 | 105.1 | 187.7 |
| Running time | | | | | | |
| | t_{on} | [s] | 1.0 | | | |
| Recovery time | | | | | | |
| | t_{re} | [s] | 3.8 | 2.5 | 3.1 | |
| Min. brake resistance | | | | | | |
| | R_{min} | [Ω] | 27.0 | 12.0 | 5.0 | 2.8 |


Inverter Drives 8400 TopLine

Accessories



Rated data for regenerative power supply modules

- ▶ The data is valid for operation at 3/PE AC 400 V.
- ▶ Mains filter required, please refer to the following pages

| | | |  | | | |
|-------------------------------|-------------|------|---|----------|-------------|----------|
| Product key | | | E94ARNE0134 | | E94ARNE0244 | |
| Supply- / regenerative module | | | | | | |
| Operating mode | | | Feed | Feedback | Feed | Feedback |
| Rated power | | | | | | |
| With mains filter/mains choke | P_N | [kW] | 15.0 | 7.50 | 27.0 | 13.5 |
| Mains voltage range | | | 3/PE AC 180 V-0 % ... 550 V+0 %, 45 Hz-0 % ... 65 Hz+0 % | | | |
| | U_{AC} | [V] | | | | |
| Rated mains current | | | | | | |
| | $I_{N, AC}$ | [A] | 26.0 | 13.0 | 47.0 | 23.5 |
| Rated DC-bus current | | | | | | |
| | $I_{N, DC}$ | [A] | 32.0 | 16.0 | 57.0 | 29.0 |

4.4

Data for 60 s overload

| Max. DC-bus current | | | | | | |
|------------------------|---------------|------|-------|------|------|------|
| | I_{max} | [A] | 48.0 | 24.0 | 86.0 | 44.0 |
| Reduced DC-bus current | | | | | | |
| | $I_{red, DC}$ | [A] | 20.0 | 9.8 | 35.0 | 18.0 |
| Overload time | | | 60.0 | | | |
| | t_{ol} | [s] | | | | |
| Recovery time | | | 120.0 | | | |
| | t_{re} | [s] | | | | |
| Max. output power | | | | | | |
| | $P_{max, 1}$ | [kW] | 22.4 | 11.2 | 40.5 | 20.2 |

Data for 0.5 s overload

| Max. short-time DC-bus current | | | | | | |
|--------------------------------|---------------|------|------|------|-------|------|
| | I_{max} | [A] | 96.0 | 48.0 | 171.0 | 87.0 |
| Reduced DC-bus current | | | | | | |
| | $I_{red, DC}$ | [A] | 20.0 | 9.8 | 35.0 | 18.0 |
| Max. short-term output power | | | | | | |
| | $P_{max, 2}$ | [kW] | 44.9 | 22.4 | 81.1 | 40.5 |
| with brake chopper support | $P_{max, 2}$ | [kW] | | 35.1 | | 59.6 |


Inverter Drives 8400 TopLine

Accessories



Rated data for regenerative power supply modules

- ▶ The data is valid for operation at 3/PE AC 400 V.
- ▶ Mains filter required, please refer to the following pages

| | | |  | | | |
|-------------------------------|------------|------|---|----------|-------------|----------|
| Product key | | | E94ARNE0134 | | E94ARNE0244 | |
| Supply- / regenerative module | | | | | | |
| Operating mode | | | Feed | Feedback | Feed | Feedback |
| Rated power | | | | | | |
| With mains filter/mains choke | P_N | [kW] | 15.0 | 7.50 | 27.0 | 13.5 |
| Rated DC-bus current | | | | | | |
| | $I_{N,DC}$ | [A] | 32.0 | 16.0 | 57.0 | 29.0 |
| Power loss | | | | | | |
| | P_V | [kW] | 0.15 | 0.11 | 0.23 | 0.19 |
| Dimensions | | | | | | |
| Height | h | [mm] | 350 | | | |
| Height, including fastening | h | [mm] | 481 | | | |
| Width | b | [mm] | 120 | | | |
| Depth | t | [mm] | 288 | | | |
| Mass | | | | | | |
| | m | [kg] | 6.0 | | | |

4.4

Brake chopper rated data

| Rated power, Brake chopper | | | | |
|----------------------------------|-------------|------|------|------|
| | P_N | [kW] | 4.7 | 9.3 |
| Max. output power, Brake chopper | | | | |
| | $P_{max,1}$ | [kW] | 19.5 | 29.2 |
| Running time | | | | |
| | t_{on} | [s] | 1.0 | |
| Recovery time | | | | |
| | t_{re} | [s] | 4.2 | 3.9 |
| Min. brake resistance | | | | |
| | R_{min} | [Ω] | 27.0 | 18.0 |

Inverter Drives 8400 TopLine

Accessories



Control connections

| Mode | Power supply modules | Regenerative power supply modules |
|-----------------------------|--|--|
| Analog inputs | | |
| Number | | 2 |
| Resolution | | 11 bits + sign |
| Value range | | +/- 10V 1 x switchable 20 mA |
| Analog outputs | | |
| Number | | 2 |
| Resolution | | 10 bits + sign |
| Value range | | +/- 10V max. 2 mA |
| Digital inputs | | |
| Number | 1 Permanently configured | 8 |
| Switching level | PLC (IEC 61131-2) | |
| Max. input current | 8 mA | |
| Digital outputs | | |
| Number | 4 fest konfiguriert | 4 |
| Switching level | PLC (IEC 61131-2) | |
| Max. output current | 50 mA per output | |
| Load capacity | >480 Ω at 24 V | |
| External DC supply | | |
| Rated voltage | 24 V in accordance with IEC 61131-2 | |
| Voltage range | 19.2 ... 28.8 V, max. residual ripple ± 5% | |
| Current | Approx. 1.4 A during operation, max. 4 A starting current for 100 ms | Approx. 1.2 A during operation, max. 3 A starting current for 100 ms ¹⁾ |
| Interfaces | | |
| CANopen | | Integrated |
| Extensions | | Via slot MXI 2: extension 2 Via slot MXI 1: extension 1 |
| State bus | | Integrated |
| Memory | | Slot MMI |
| Safety engineering | | Slot MSI |
| Drive interface | | |
| Resolver input | | Integrated (no function) |
| Mains synchronisation input | | Integrated Sub-D, 15-pin |

¹⁾ The supply to the control electronics comes from the mains voltage. Alternatively, it can be provided by a 24 V supply that is independent of the mains (available as an option).

Inverter Drives 8400 TopLine

Accessories



Brake resistors of the regenerative power supply modules

Assignment of brake resistors to the supply and regenerative power supply modules is shown in the tables below.



Brake resistor 27 ohms

Brake resistors for power supply modules

| Rated power | Mains voltage | Product key | | Rated resistance | Rated power | Thermal capacity | Dimensions | Mass |
|----------------------------------|-----------------------------------|---------------------|----------------|------------------|-------------|------------------|-----------------------|------|
| Without mains filter/mains choke | | Power supply module | Brake resistor | | | | | |
| P_N | U_{AC} | | | R_N | P_N | C_{th} | $h \times b \times t$ | m |
| [kW] | [V] | | | [Ω] | [kW] | [KWs] | [mm] | [kg] |
| 3.60 | 3 AC 180 ... 550 ¹⁾ | E94APNE0104 | ERBP027R200W | 27.0 | 0.20 | 30.0 | 320 x 41 x 122 | 1.0 |
| | | | ERBS027R600W | | 0.60 | 90.0 | 550 x 110 x 105 | 3.1 |
| | | | ERBS027R01K2 | | 1.20 | 180 | 1020 x 110 x 105 | 5.6 |
| 13.0 | | E94APNE0364 | ERBG012R01K9 | 12.0 | 1.90 | 285 | 486 x 236 x 302 | 13.0 |
| | | | ERBG012R05K2 | | 5.20 | 750 | 486 x 426 x 302 | 28.0 |
| 36.2 | | E94APNE1004 | ERBG005R02K6 | 5.0 | 2.60 | 390 | 486 x 326 x 302 | 12.6 |
| 88.6 | | E94APNE2454 | ERBG028D04K1 | 2.8 | 4.10 | 615 | 486 x 426 x 302 | 12.8 |

¹⁾ For 230 V mains voltage a different brake resistor assignment applies.

Brake resistors for regenerative power supply modules

| Rated power | Mains voltage | Product key | | Rated resistance | Rated power | Thermal capacity | Dimensions | Mass |
|-------------------------------|-----------------------------------|-------------------------------|----------------|------------------|-------------|------------------|-----------------------|------|
| With mains filter/mains choke | | Supply- / regenerative module | Brake resistor | | | | | |
| P_N | U_{AC} | | | R_N | P_N | C_{th} | $h \times b \times t$ | m |
| [kW] | [V] | | | [Ω] | [kW] | [KWs] | [mm] | [kg] |
| 15.0 | 3 AC 180 ... 550 ¹⁾ | E94ARNE0134 | ERBP027R200W | 27.0 | 0.20 | 30.0 | 320 x 41 x 122 | 1.0 |
| | | | ERBS027R600W | | 0.60 | 90.0 | 550 x 110 x 105 | 3.1 |
| | | | ERBS027R01K2 | | 1.20 | 180 | 1020 x 110 x 105 | 5.6 |
| 27.0 | | E94ARNE0244 | ERBP018R300W | 18.0 | 0.30 | 30.0 | 240 x 41 x 122 | 1.4 |
| | | | ERBS018R01K2 | | 1.20 | 180 | 1020 x 110 x 105 | 5.6 |
| | | | ERBS018R02K8 | | 2.80 | 420 | 1110 x 200 x 105 | 12.0 |

²⁾ For 230 V mains voltage a different brake resistor assignment applies.

Inverter Drives 8400 TopLine

Accessories



Mains chokes of the power supply modules

A mains choke is an inductive resistor which is connected in the mains cable of the power supply module. The use of a mains choke provides the following advantages:

- **Fewer effects on the mains:**
The wave form of the mains current is a close approximation to a sine wave.
- **Reduction in the effective mains current:**
Reduction of mains, cable and fuse loads

Mains chokes can be used without restrictions in conjunction with RFI filters and/or sinusoidal filters.

Please note:

: The use of a mains choke slightly reduces the mains voltage at the input of the inverter - the typical voltage drop across the mains choke at the rated values is around 4%.



Mains choke

| Rated power | Mains voltage | Product key | | Rated current | Dimensions | Mass |
|-------------|---------------------|---------------------|----------------|---------------|-----------------------|------|
| | | Power supply module | Mains choke | | | |
| P_N | U_{AC} | | | I_N | $h \times b \times t$ | m |
| [kW] | [V] | | | [A] | [mm] | [kg] |
| 4.90 | 3 AC 180 ... 550 | E94APNE0104 | EZAELN3008B372 | 8.00 | 85 x 120 x 137 | 1.9 |
| 17.5 | | E94APNE0364 | EZAELN3030B982 | 30.0 | 110 x 155 x 167 | 5.9 |
| 48.6 | | E94APNE1004 | EZAELN3080B371 | 80.0 | 125 x 210 x 239 | 12.5 |
| 119 | | E94APNE2454 | EZAELN3200B151 | 200 | 352 x 144 x 264 | 32.0 |

4.4

Inverter Drives 8400 TopLine

Accessories



Interference suppression of the regenerative power supply modules

RFI filters and mains filters enable compliance with the interference voltage categories of the European standard EN 61800-3. There a distinction is drawn between category C1 and category C2.

Category C1 describes the use on public supply networks.

Category C2 describes the use of drives which are intended to be used for industrial purposes in areas also comprising residential areas.

For Multi Drives external filters must be used to comply with the EMC Directive.



RFI filter, can be mounted beside the power supply module

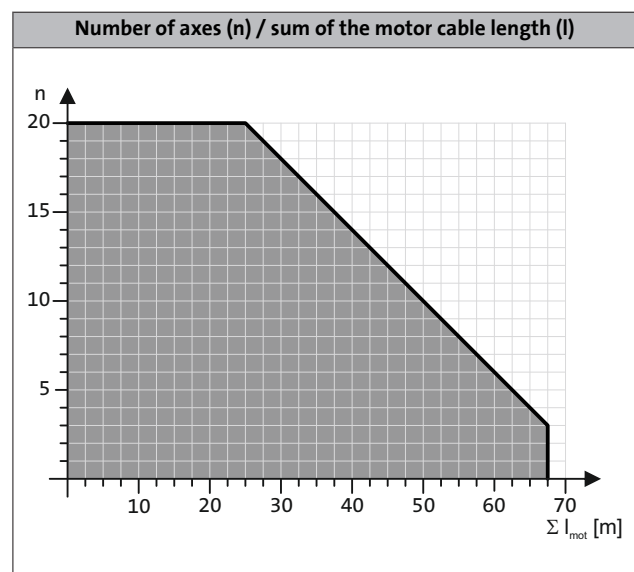
RFI filters

RFI filters are primarily capacitive accessory components which can be connected directly upstream from the power supply modules. This measure enables compliance with the corresponding conducted noise emission requirements according to EN 61800-3.

4.4

| Rated power | Mains voltage | Product key | | Rated current | Power loss | Max. cable length | Dimensions | Mass |
|----------------------------------|---------------------|---------------------|-------------|---------------|------------|---------------------|-----------------------|------|
| | | Power supply module | RFI filter | | | | | |
| Without mains filter/mains choke | | | | | | Reference group C2 | | |
| P_N | U_{AC} | | | I_N | P_V | l_{max} | $h \times b \times t$ | m |
| [kW] | [V] | | | [A] | [kW] | [m] | [mm] | [kg] |
| 3.60 | 3 AC 180 ... 550 | E94APNE0104 | E94AZRP0084 | 8.00 | 0.020 | 6 axes of 10 m each | 485 x 60 x 261 | 4.2 |
| 13.0 | | E94APNE0364 | E94AZRP0294 | 29.0 | 0.050 | | | 4.5 |
| 36.2 | | E94APNE1004 | E94AZRP0824 | 82.0 | 0.080 | | 490 x 209 x 272 | 18.5 |
| 88.6 | | E94APNE2454 | E94AZRP2004 | 200 | 0.15 | | | 20.5 |

The following diagram shows the possible number of axes and the possible sum of motor cable lengths to ensure compliance with interference suppression according to category C2.



Inverter Drives 8400 TopLine

Accessories



Interference suppression of the regenerative power supply modules

Mains filters

A mains filter is a combination of mains choke and RFI filter in a single housing. It reduces line-bound noise emission into the mains, thus ensuring that the line-bound interference voltage is reduced to a permissible level according to EN61800-3.



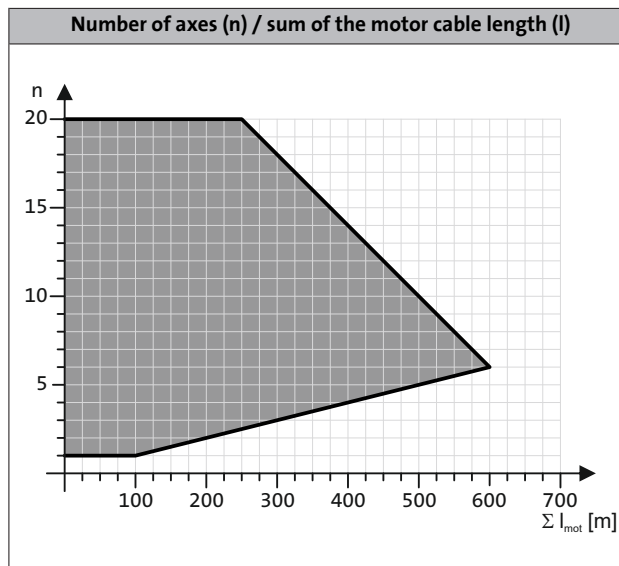
Mains filter, can be mounted beside the power supply modules (right) or the regenerative power supply modules (left)

RFI filters

| Rated power | Mains voltage | Product key | | Rated current | Voltage drop | Max. cable length | Dimensions | Mass |
|-------------------------------|---------------------|---------------------|---------------------------|---------------|--------------|----------------------|-----------------------|------|
| | | Power supply module | Mains filter | | | | | |
| With mains filter/mains choke | | | | | | Reference group C2 | | |
| P_N | U_{AC} | | | I_N | U | I_{max} | $h \times b \times t$ | m |
| [kW] | [V] | | | [A] | [V] | [m] | [mm] | [kg] |
| 4.90 | 3 AC 180 ... 550 | E94APNE0104 | E94AZMP0084 | 8.00 | 10.0 | 10 axes of 50 m each | 485 x 90 x 261 | 8.6 |
| 17.5 | | E94APNE0364 | E94AZMP0294 | 29.0 | 7.3 | | 485 x 120 x 261 | 16.5 |
| 48.6 | | E94APNE1004 | E94AZMP0824 ¹⁾ | 82.0 | 6.4 | | 490 x 270 x 272 | 29.0 |
| 119 | | E94APNE2454 | E94AZMP2004 ¹⁾ | 200 | 6.3 | | 490 x 330 x 272 | 52.0 |

¹⁾ External 24 V supply from a safely separated power supply unit (SELV/PELV) required for integrated fan.

The following diagram shows the possible number of axes and the possible sum of motor cable lengths to ensure compliance with interference suppression according to category C2.



Inverter Drives 8400 TopLine

Accessories



Interference suppression of the regenerative power supply modules

Mains filters for regenerative power supply modules

| Rated power | Mains voltage | Product key | | Rated current | Voltage drop | Max. cable length | Dimensions | Mass |
|-------------------------------|---------------------|-------------------------------|------------------------------|---------------|--------------|----------------------|-----------------------|------|
| With mains filter/mains choke | | Supply- / regenerative module | Mains filter | | | Reference group C2 | | |
| P_N | U_{AC} | | | I_N | U | I_{max} | $h \times b \times t$ | m |
| [kW] | [V] | | | [A] | [V] | [m] | [mm] | [kg] |
| 15.0 | 3 AC 180 ... 550 | E94ARNE0134 | E94AZMR0264SDB ¹⁾ | 26.0 | 6.3 | 6 axes of 10 m each | 485 x 149 x 272 | 25.0 |
| | | | E94AZMR0264LDB ¹⁾ | | | 10 axes of 50 m each | | 26.0 |
| 27.0 | | E94ARNE0244 | E94AZMR0474SDB ¹⁾ | 47.0 | 6.2 | 6 axes of 10 m each | 485 x 209 x 272 | 36.0 |
| | | | E94AZMR0474LDB ¹⁾ | | | 10 axes of 50 m each | | 37.0 |

¹⁾ External 24 V supply through safely separated power supply unit (SELV/PELV) required for integrated mains voltage recording.

Inverter Drives 8400 TopLine

Accessories



DC input module

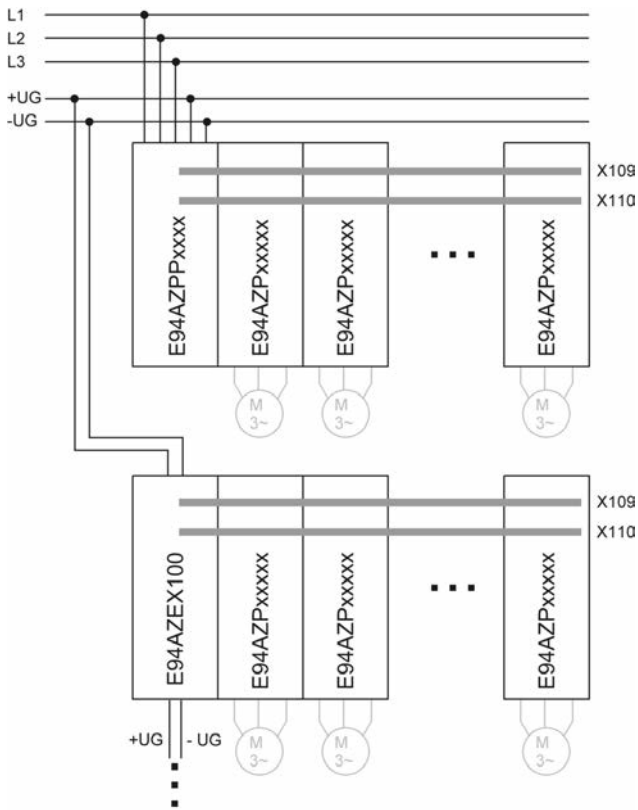
Via a DC input module, an axis module interconnection can be supplied with power from a central DC source (power supply module, Single Drive axis modules, Multi Drive axis modules). This is required for example if a drive system with a multi-level structure installed in a control cabinet is to be supplied via a central DC power supply unit. The rated current of the DC input module is defined to be 100 A (DC). The DC input module can be connected at the top or bottom, offering great flexibility with regard to integration into the system wiring. This provides an ideal way of connecting multi-row axis modules in particular.



DC input module
100 A

| Mode | Product key | Dimensions | Mass |
|-----------------------|--------------|---------------|------|
| | Input module | | |
| | | h x b x t | m |
| | | [mm] | [kg] |
| DC input module 100 A | E94AZEX100 | 422 x 60 x 95 | 0.9 |

4.4



Wiring example for multi-row mounting of axis modules

Inverter Drives 8400 TopLine

Accessories



DC-bus connection

The Inverter Drives 8400 can be operated in a DC-bus connection. The 400 V devices have a direct connection for this.

The components listed here are used to interconnect the individual devices for operation with or without a regenerative power supply module. With a DC-bus connection, energy can be exchanged between the individual devices. This makes particular sense with cyclic operation of multiple devices.

The design of a DC-bus connection requires extremely precise dimensioning of the devices' energy requirements among one another. Lenze Sales is happy to advise you here to ensure the most energy-efficient drive dimensioning. The components listed here form the basis for this.

- ▶ Two DC fuses are always required.
- ▶ The fuse holders EFH10005 and EFH10004 are single-pole, while the holders EFH20005 and EFH20007 are 2-pole.
- ▶ The DC fuses are not UL-approved
- ▶ Please consult Lenze Sales to ensure the right dimensioning.

Components for DC-bus connection

| Product key | Rated current | Design |
|---------------|---------------|-------------------------|
| DC fuses | | |
| | I_N | |
| | [A] | |
| EFSGR0060AYHN | 6.00 | 14x51 without indicator |
| EFSGR0100AYHN | 10.0 | |
| EFSGR0160AYHN | 16.0 | |
| EFSGR0200AYHN | 20.0 | |
| EFSGR0250AYHN | 25.0 | |
| EFSGR0320AYHN | 32.0 | |
| EFSGR0400AYHN | 40.0 | |
| EFSGR0060AYHK | 6.00 | 14x51 with indicator |
| EFSGR0100AYHK | 10.0 | |
| EFSGR0160AYHK | 16.0 | |
| EFSGR0200AYHK | 20.0 | |
| EFSGR0250AYHK | 25.0 | |
| EFSGR0320AYHK | 32.0 | |
| EFSGR0400AYHK | 40.0 | |

| Product key | Rated current | Design |
|---------------|---------------|-------------------------|
| DC fuses | | |
| | I_N | |
| | [A] | |
| EFSGR0120AYIN | 12.0 | 22x58 without indicator |
| EFSGR0160AYIN | 16.0 | |
| EFSGR0200AYIN | 20.0 | |
| EFSGR0250AYIN | 25.0 | |
| EFSGR0320AYIN | 32.0 | |
| EFSGR0400AYIN | 40.0 | |
| EFSGR0500AYIN | 50.0 | |
| EFSGR0800AYIN | 80.0 | |
| EFSGR0120AYIK | 12.0 | 22x58 with indicator |
| EFSGR0160AYIK | 16.0 | |
| EFSGR0200AYIK | 20.0 | |
| EFSGR0250AYIK | 25.0 | |
| EFSGR0320AYIK | 32.0 | |
| EFSGR0400AYIK | 40.0 | |
| EFSGR0500AYIK | 50.0 | |
| EFSGR0800AYIK | 80.0 | |

4.4

| Mode | Features | Product key |
|-----------|--|-------------|
| DC busbar | • Busbar system 14 x 51 • DC busbar length 1m, cross-section 25 mm ² | EWZ0036 |
| | • Busbar system 22 x 58 • DC busbar length 1m, cross-section 25 mm ² | EWZ0037 |
| End cap | • End caps for DC busbar (packaging unit 10 pcs) | EWZ0038 |
| Terminal | • Single-pole terminal for internal supply | EWZ0039 |

Inverter Drives 8400 TopLine

Accessories



DC-bus connection

DC fuses size 14 x 51 mm

| Typical motor power | Mains voltage | Product key | | | | |
|---------------------------|---------------------|-----------------|---------------|----------|---------------|----------|
| | | Inverter | DC fuses | | | |
| 4-pole asynchronous motor | | | | | | |
| P | U _{AC} | | | | | |
| [kW] | [V] | | | | | |
| 0.37 | 3 AC 320 ... 550 | E84AV□□□3714□□0 | EFSGR0160AYHN | EFH20005 | EFSGR0160AYHK | EFH10005 |
| 0.55 | | E84AV□□□5514□□0 | | | | |
| 0.75 | | E84AV□□□7514□□0 | | | | |
| 1.10 | | E84AV□□□1124□□0 | | | | |
| 1.50 | | E84AV□□□1524□□0 | | | | |
| 2.20 | | E84AV□□□2224□□0 | EFSGR0200AYHN | | EFSGR0200AYHK | |
| 3.00 | | E84AV□□□3024□□0 | | | | |
| 4.00 | | E84AV□□□4024□□0 | EFSGR0320AYHN | | EFSGR0320AYHK | |
| 5.50 | | E84AV□□□5524□□0 | EFSGR0400AYHN | | EFSGR0400AYHK | |
| 7.50 | | E84AV□□□7524□□0 | | | | |
| 11.0 | | E84AV□□□1134□□0 | | | | |
| 15.0 | | E84AV□□□1534□□0 | | | | |

4.4

DC fuses size 22 x 58 mm

| Typical motor power | Mains voltage | Product key | | | | |
|---------------------------|---------------------|-----------------|---------------|----------|---------------|----------|
| | | Inverter | DC fuses | | | |
| 4-pole asynchronous motor | | | | | | |
| P | U _{AC} | | | | | |
| [kW] | [V] | | | | | |
| 0.37 | 3 AC 320 ... 550 | E84AV□□□3714□□0 | EFSGR0120AYIN | EFH20007 | EFSGR0120AYIK | EFH10004 |
| 0.55 | | E84AV□□□5514□□0 | | | | |
| 0.75 | | E84AV□□□7514□□0 | | | | |
| 1.10 | | E84AV□□□1124□□0 | | | | |
| 1.50 | | E84AV□□□1524□□0 | | | | |
| 2.20 | | E84AV□□□2224□□0 | EFSGR0200AYIN | | EFSGR0200AYIK | |
| 3.00 | | E84AV□□□3024□□0 | | | | |
| 4.00 | | E84AV□□□4024□□0 | EFSGR0320AYIN | | EFSGR0320AYIK | |
| 5.50 | | E84AV□□□5524□□0 | EFSGR0400AYIN | | EFSGR0400AYIK | |
| 7.50 | | E84AV□□□7524□□0 | EFSGR0500AYIN | | EFSGR0500AYIK | |
| 11.0 | | E84AV□□□1134□□0 | EFSGR0800AYIN | | EFSGR0800AYIK | |
| 15.0 | | E84AV□□□1534□□0 | | | | |

Inverter Drives 8400 TopLine

Accessories



24 V power supply unit

External power supply units are available for supplying the control electronics of the 8400 StateLine, HighLine or TopLine. With an external supply, the inverters can be parameterised and diagnosed while the mains input is deenergised.



24 V power supply unit

Rated data

| Product key | | | EZV1200-000 | EZV2400-000 | EZV4800-000 | EZV1200-001 | EZV2400-001 | EZV4800-001 |
|-----------------------------|-------------|------|--------------------------------|-------------|-------------|----------------------------------|-------------|-------------|
| Rated voltage | | | 230 | | | 400 | | |
| AC | $U_{N,AC}$ | [V] | 230 | | | 400 | | |
| Input voltage | | | AC 85 ... 264 DC 90 ... 350 | | | AC 320 ... 575 DC 450 ... 800 | | |
| | U_{in} | [V] | AC 85 ... 264 DC 90 ... 350 | | | AC 320 ... 575 DC 450 ... 800 | | |
| Rated mains current | | | 0.8 | 1.2 | 2.3 | 0.3 | 0.6 | 1.0 |
| | $I_{N,AC}$ | [A] | 0.8 | 1.2 | 2.3 | 0.3 | 0.6 | 1.0 |
| Output voltage | | | DC 22.5 ... 28.5 | | | | | |
| | U_{out} | [V] | DC 22.5 ... 28.5 | | | | | |
| Rated output current | | | 5.0 | 10.0 | 20.0 | 5.0 | 10.0 | 20.0 |
| | $I_{N,out}$ | [A] | 5.0 | 10.0 | 20.0 | 5.0 | 10.0 | 20.0 |
| Dimensions | | | | | | | | |
| Height | h | [mm] | 130 | | | | | |
| Width | b | [mm] | 55 | 85 | 157 | 73 | 85 | 160 |
| Depth | t | [mm] | 125 | | | | | |
| Mass | | | | | | | | |
| | m | [kg] | 0.8 | 1.2 | 2.5 | 1.0 | 1.1 | 1.9 |

4.4

Brake switch

The brake switch consists of a rectifier and an electronic circuit breaker for the switching of an electromechanical brake switch. The brake switch is mounted on the control cabinet plate by means of two screws. Control is performed using a digital output on the inverter.



Brake switch

| Mode | Features | Product key |
|-------------------------|---|-------------|
| Half-wave rectification | <ul style="list-style-type: none"> Input voltage: AC 320 ... 550 V Output voltage: DC 180 V (at AC 400 V), DC 225 V (at AC 500 V) Max. brake current: DC 0.61 A IP00 degree of protection | E82ZWBRE |
| Bridge rectification | <ul style="list-style-type: none"> Input voltage: AC 180 ... 317 V Output voltage: DC 205 V (at AC 230 V) Max. brake current: DC 0.54 A IP00 degree of protection | E82ZWBRE |

Inverter Drives 8400 TopLine

Accessories



USB diagnostic adapter

The operation, parameter setting and diagnostics of the Inverter Drives 8400 and the Servo Drives 9400 via the L-force diagnostics is made with the keypad X400 or a PC. The connection of a PC can be made via a USB interface and the USB diagnostic adapter.

For connecting the USB diagnostic adapter with the L-force diagnostics interface (DIAG) at the inverter, three different connecting cables are separately available in the lengths 2.5 m, 5 m and 10 m. The connection can be established during operation. The engineering tools EASY Starter or Engineer can be used to carry out the operation, parameter setting or diagnostics of the inverters. Both tools have simple intuitive surfaces. This enables a quick and easy commissioning.


Optionally to the USB diagnostic adapter, the PC system bus adapter can be used. For this purpose, a CANopen interface must be available at the inverter.



USB diagnostic adapter incl. connecting cable to the PC

- The engineering tools EASY Starter or Engineer are used for operation, parameter setting and diagnostics of the inverters.

4.4

| Mode | | Features | Product key |
|------------------------|--|---|-------------|
| USB diagnostic adapter |  | <ul style="list-style-type: none"> • Input-side voltage supply via USB connection on PC • Output-side voltage supply via inverter's diagnostic interface • Diagnostic LEDs • Electrical isolation of PC and inverter • Hot-pluggable | E94AZCUS |

Connecting cables for USB diagnostic adapter

| Mode | Features | Product key |
|---|-----------------|-------------|
| Connecting cable for USB diagnostic adapter | • Length: 2.5 m | EWL0070 |
| | • Length: 5 m | EWL0071 |
| | • Length: 10 m | EWL0072 |

Inverter Drives 8400 TopLine

Accessories




X400 keypad

As an alternative to the PC, the X400 keypad can be used for local operation, parameter setting or diagnostics. The X400 keypad plugs into the L-force diagnostics interface (DIAG) on the front of the inverter.




X400 keypad

| Mode | | Features | Slot | Product key |
|-------------|---|--|------|-------------|
| X400 keypad |  | <ul style="list-style-type: none"> • Menu navigation • Graphics display with background lightning for clear presentation of information • 4 navigation keys, 2 context-sensitive keys • Adjustable RUN/STOP function | DIAG | EZAEBK1001 |

- ▶ The Inverter Drives 8400 can be ordered with a plug-in keypad already installed. If you would like to order the products in this complete form, please add the inverter product key as follows when placing your order: E84AV to X-XXXXXX
- ▶ The product key with the supplement for the applied module is provided in our sales documents. This information is not part of the nameplate of the device.

4.4

X400 diagnosis terminal

| Mode | | Features | Slot | Product key |
|-------------------------|---|--|------|-------------|
| X400 diagnosis terminal |  | <ul style="list-style-type: none"> • X400 keypad in a robust housing • Also suitable for installation in the control cabinet door • incl. 2.5 m cable • IP20 degree of protection, IP65 for control cabinet installation on front face | DIAG | EZAEBK2001 |

Inverter Drives 8400 TopLine

Accessories



PC system bus adapter

Instead of a PC, the 8400 inverter drives can alternatively be operated, parameterised and diagnosed using the CANopen interface and a PC system bus adapter, which is required instead of a USB diagnostic adapter. This adapter plugs into the parallel interface or the USB connection of the PC. The corresponding drivers are installed automatically. Depending on the version, the adapter is supplied with voltage via the DIN, PS2 or USB connection of the PC. The CANopen interface is integrated or available with a variant (BaseLine C).

Advantage:

- Operation, parameterisation and diagnostics in parallel with the keypad
- In interconnected systems, multiple inverters can be addressed simultaneously from one point (remote parameterisation via CANopen)



EMF2173IBV003 adapter

| Mode | Features | Product key |
|-----------------------|--|---------------|
| PC system bus adapter | • Voltage supply via DIN port on PC | EMF2173IB |
| | • Voltage supply via PS2 connection on PC | EMF2173IBV002 |
| | • Voltage supply via PS2 connection on PC • Electrical isolation from the bus | EMF2173IBV003 |
| | • Voltage supply via USB port on PC | EMF2177IB |
| | • Electrical isolation from the bus | |

4.4

Shield mounting

A shield mounting is used to connect the motor cable shield on the inverter's shield connection.

| Mode | Features | Product key |
|-----------------|--|---------------|
| Metal cable tie | • Cable diameter: 8...30 mm • Packaging unit: 50 items | EZAMBKBM |
| Fixing clip | • Cable diameter: 4...10 mm • Packaging unit: 20 items | EZAMBHXM007/M |
| Wire clamp | • Cable diameter: 4...15 mm • Packaging unit: 10 items | EZAMBHXM006/M |
| | • Cable diameter: 10...20 mm • Packaging unit: 10 items | EZAMBHXM003/M |
| | • Cable diameter: 15...28 mm • Packaging unit: 10 items | EZAMBHXM004/M |
| | • Cable diameter: 20...37 mm • Packaging unit: 10 items | EZAMBHXM005/M |

Inverter Drives 8400 TopLine

Accessories



Terminal strips

All connections are equipped with pluggable connectors, with power connections up to 15 kW. These pluggable connectors are available separately for service purposes or if cable harnesses need to be physically separated.

► Power connections

| Product key | Terminal strip | Features | Product key | Terminal strip | Features | Product key |
|-----------------|----------------|---|-------------------|----------------|--|-------------------|
| Inverter | | | | | | |
| E84AV□□□2512□□0 | X100 | <ul style="list-style-type: none"> • Connection: mains • Packaging unit: 10 items | E84AZEVS001X100/M | X105 | <ul style="list-style-type: none"> • Connection: motor • Packaging unit: 5 items | E84AZEVS010X105/M |
| E84AV□□□3712□□0 | | | | | | |
| E84AV□□□5512□□0 | | | E84AZEVS003X100/M | | | |
| E84AV□□□7512□□0 | | | | | | |
| E84AV□□□1122□□0 | | | E84AZEVS005X100/M | | | |
| E84AV□□□1522□□0 | | | | | | |
| E84AV□□□2222□□0 | | E84AZEVS012X105/M | | | | |
| E84AV□□□3714□□0 | | | E84AZEVS011X105/M | | | |
| E84AV□□□5514□□0 | | E84AZEVS012X105/M | | | | |
| E84AV□□□7514□□0 | | | E84AZEVS011X105/M | | | |
| E84AV□□□1124□□0 | | E84AZEVS012X105/M | | | | |
| E84AV□□□1524□□0 | | | E84AZEVS011X105/M | | | |
| E84AV□□□2224□□0 | | E84AZEVS012X105/M | | | | |
| E84AV□□□3024□□S | | | E84AZEVS011X105/M | | | |
| E84AV□□□3024□□0 | | E84AZEVS012X105/M | | | | |
| E84AV□□□4024□□0 | | | E84AZEVS011X105/M | | | |
| E84AV□□□5524□□0 | | E84AZEVS012X105/M | | | | |
| E84AV□□□7524□□0 | | | E84AZEVS011X105/M | | | |
| E84AV□□□1134□□0 | | E84AZEVS012X105/M | | | | |
| E84AV□□□1534□□0 | | | | | | |

► Control connections

| Terminal strip | Features | Product key |
|----------------|--|-------------------|
| X1 | <ul style="list-style-type: none"> • Connection: CANopen • Packaging unit: 10 items | E84AZEVS040X001/M |
| X3 | <ul style="list-style-type: none"> • Connection: analog inputs and outputs • Packaging unit: 5 items | E84AZEVS060X003/M |
| X4 | <ul style="list-style-type: none"> • Connection: digital outputs • Packaging unit: 10 items | E84AZEVS060X004/M |
| X5 | <ul style="list-style-type: none"> • Connection: digital inputs • Packaging unit: 5 items | E84AZEVS060X005/M |
| X10 | <ul style="list-style-type: none"> • Connection: axis bus • Packaging unit: 10 items | E84AZEVS060X010/M |
| X80 | <ul style="list-style-type: none"> • Connection: safety engineering • Packaging unit: 10 items | E84AZEVS070X080/M |
| X101 | <ul style="list-style-type: none"> • Connection: relay • Packaging unit: 10 items | E84AZEVS020X101/M |
| X106 | <ul style="list-style-type: none"> • Connection: PTC • Packaging unit: 10 items | E84AZEVS030X106/M |
| X107 | <ul style="list-style-type: none"> • Connection: 2.5 A digital output • Packaging unit: 10 items | E84AZEVS060X107/M |

Inverter Drives 8400 TopLine

Accessories



Setpoint potentiometer

The setpoint selection (e.g. speed) can be made via an external potentiometer.

The setpoint potentiometer is connected to the inverter's analog input terminals. A scale and a rotary knob are also available.



Setpoint potentiometer with scale and rotary knob

| Mode | Product key |
|-------------------------------------|----------------|
| 10 kOhm / 1 Watt potentiometer | ERPD0010K0001W |
| Rotary knob, 36 mm diameter | ERZ0001 |
| Scale 0 ... 100%, 62 mm diameter | ERZ0002 |

Inverter Drives 8400 TopLine

Accessories



Inverter Drives 8400 TopLine

Accessories



Inverter

Inverter Drives 8400 HighLine

0.25 to 45 kW



Inverter Drives 8400 HighLine

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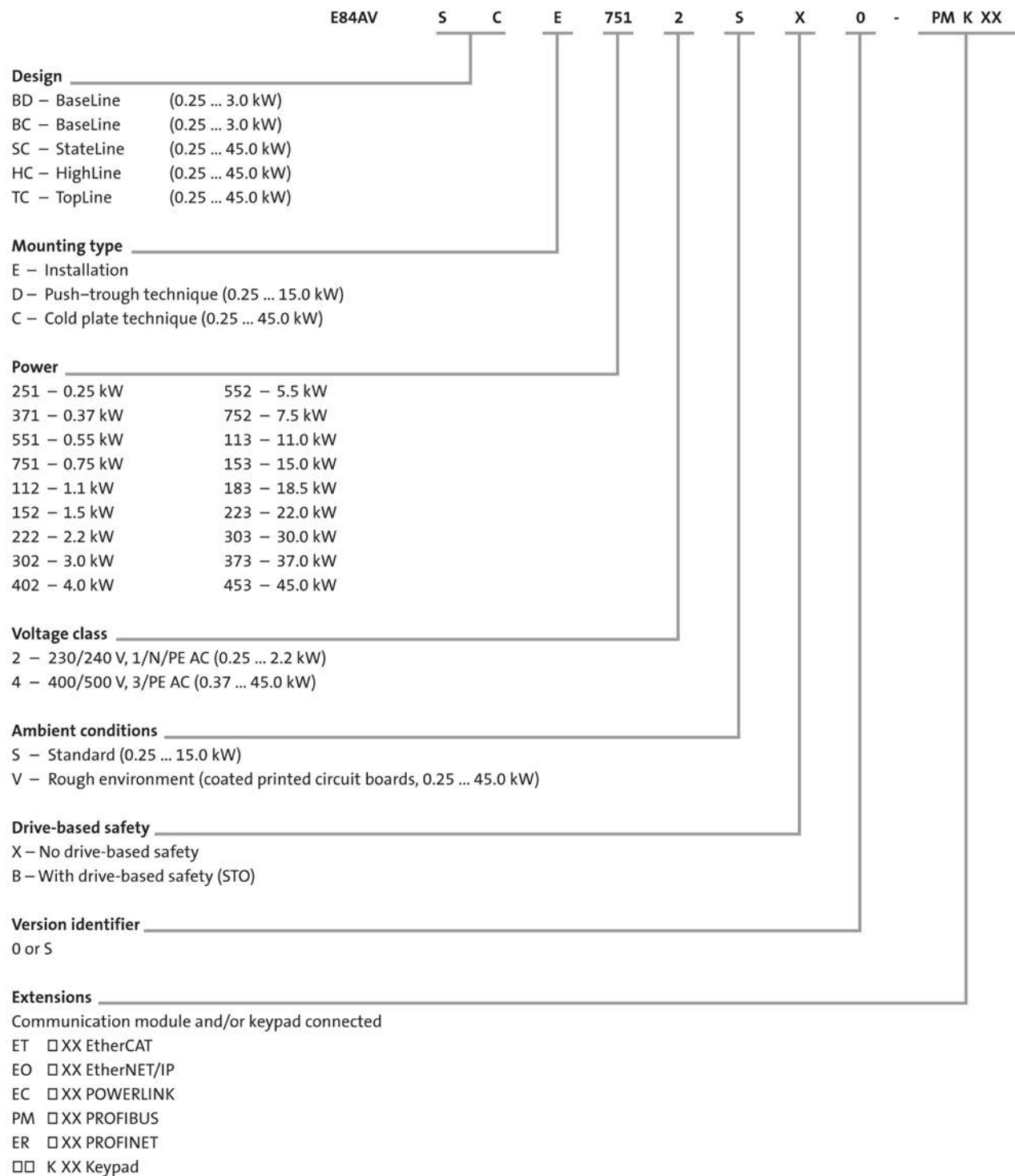
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Inverter Drives 8400 HighLine

General information



Product key

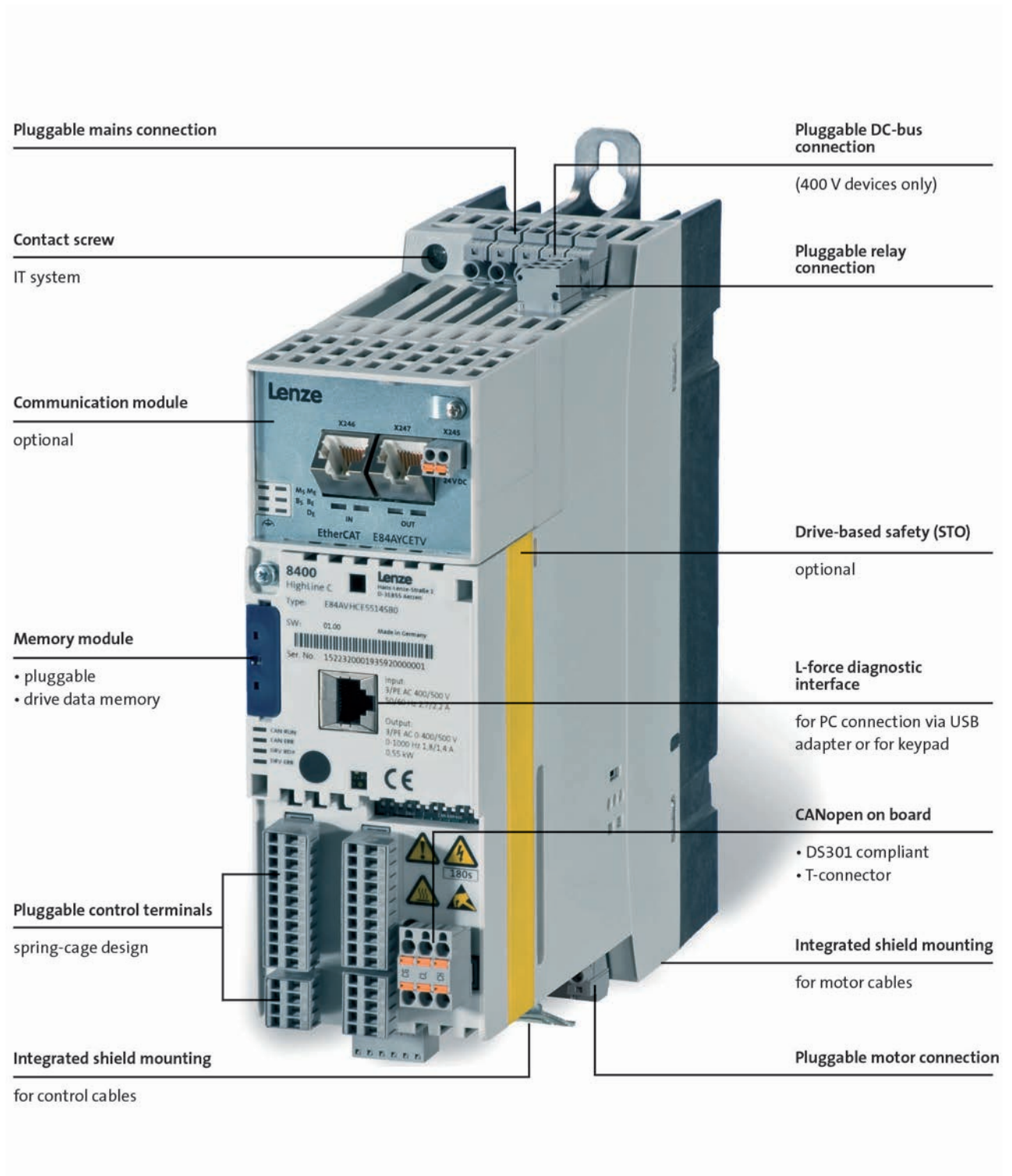


Inverter Drives 8400 HighLine

General information



Equipment



4.6

Inverter Drives 8400 HighLine

General information



List of abbreviations

| | | |
|---------------------|--------------------|---------------------------|
| b | [mm] | Dimensions |
| C _{th} | [kW _s] | Thermal capacity |
| f _{ch} | [kHz] | Rated switching frequency |
| h | [mm] | Dimensions |
| I _{N, out} | [A] | Rated output current |
| I _{N, AC} | [A] | Rated mains current |
| m | [kg] | Mass |
| n _{max} | [r/min] | Max. speed |
| P | [kW] | Typical motor power |
| P _V | [kW] | Power loss |
| P _N | [kW] | Rated power |
| R _N | [Ω] | Rated resistance |
| t | [mm] | Dimensions |
| U _{AC} | [V] | Mains voltage |
| U _{DC} | [V] | DC supply |
| U _{N, AC} | [V] | Rated voltage |
| U _{out} | [V] | Max. output voltage |

| | |
|------------|--|
| ASM | Asynchronous motor |
| DIAG | Slot for diagnostic adapter |
| DIN | Deutsches Institut für Normung e.V. |
| EN | European standard |
| EN 60529 | Degrees of protection provided by enclosures (IP code) |
| EN 60721-3 | Classification of environmental conditions; Part 3: Classes of environmental parameters and their limit values |
| EN 61800-3 | Electrical variable speed drives Part 3: EMC requirements including special test methods |
| IEC | International Electrotechnical Commission |
| IEC 61508 | Functional safety of electrical/electronic/programmable electronic safety-related systems |
| IM | International Mounting Code |
| IP | International Protection Code |
| MCI | Slot for communication module (module communication interface) |
| NEMA | National Electrical Manufacturers Association |
| UL | Underwriters Laboratory Listed Product |
| UR | Underwriters Laboratory Recognized Product |
| VDE | Verband deutscher Elektrotechniker (Association of German Electrical Engineers) |

Inverter Drives 8400 HighLine

General information



Inverter Drives 8400 HighLine

General information



Inverter Drives 8400

Cost-efficiency, time savings and quality enhancement are the challenges of the future. Lenze is facing these challenges with its L-force product portfolio – the holistic solution portfolio with precisely matched interfaces and components. For faster configuration and commissioning, better performance and more flexibility in production.

As such, the four versions of Inverter Drives 8400 - BaseLine, StateLine, HighLine and TopLine - have been designed for consistent process optimisation – throughout your entire value-added chain. They reduce your costs, from component selection, through project planning, manufacturing and commissioning, all the way up to servicing. We call this "rightsizing".

Rightsized for versatile applications

Are you looking to control a three-phase AC motor or perform positioning with or without feedback? Then select exactly the inverter you need from the scaled solution space of the Inverter Drives 8400 with units in the power range from 0.25 kW to 45 kW. You are sure to find exactly what you are looking for here, as the modular 8400 range of inverters offers the right solution for a broad spectrum of applications.

While the BaseLine is excellent for basic applications, the TopLine offers servo qualities and thereby fulfils with the strict requirements in terms of dynamics and accuracy.

Rightsized for optimised operation

The energy-saving function "VFC eco" supported by the 8400 reduces the energy required by the motor in partial load operation. Combine this with an MF L-force three-phase AC motor (inverter-optimised, 120 Hz) and what you get is a highly efficient, compact and cost-effective drive with high dynamic performance and a wide setting range. "VFC eco" can reduce your energy costs by up to 30%.

8400 HighLine - for positioning tasks

Alongside the options offered by the 8400 StateLine, the additional features of the 8400 HighLine include integrated point-to-point positioning. As such, up to 15 selectable target positions, including the corresponding travel profile (e.g. acceleration), can be stored in the inverter. These positions are selected and corresponding procedures specified by the master control. The returned incremental encoder signal is evaluated via two digital inputs, whereby many applications do not require feedback.

The 8400 HighLine is recommended for applications such as rotary indexing tables, rolling and sliding doors or positioning tasks in storage systems.

Inverter Drives 8400 HighLine

General information



Functions and features

| | |
|---|--|
| Mode | 8400 HighLine |
| Control types, motor control | |
| Field-oriented servo control (SC) | For asynchronous servo motors and three-phase asynchronous motors |
| Sensorless control (SLPSM) | For synchronous servo motors |
| Sensorless vector control (SLVC) | For three-phase asynchronous motors |
| V/f control (VFCplus) | For three-phase AC motors and asynchronous servo motor (linear or square-law) |
| Energy saving function (VFC eco) | For three-phase asynchronous motors |
| Basic functions | <ul style="list-style-type: none"> Freely assignable user menu Free function block interconnection with extensive function library Parameter change-over DC brake function Braking operation without brake resistor Brake management for brake control with low rate of wear Flying restart circuit S-shaped ramps for smooth acceleration PID controller 15 fixed frequencies Masking frequencies Inversion of motor phase sequence |
| Technology applications | <ul style="list-style-type: none"> Speed actuating drive Switch-off positioning without feedback Table positioning without feedback |
| Monitoring and protective measures | <ul style="list-style-type: none"> Short circuit Earth fault Overvoltage Motor phase failure Overcurrent I² x t-Motor monitoring Motor overtemperature Mains phase failure Protection for cyclical mains switching Motor stalling |
| Diagnostics | Data logger, logbook, oscilloscope functions |
| Status display | 4 LEDs |
| Diagnostic interface | Integrated For USB diagnostic adapter or keypad (diagnosis terminal) |
| Braking operation | |
| Brake chopper | Integrated |
| Brake resistor | External |

Inverter Drives 8400 HighLine

General information

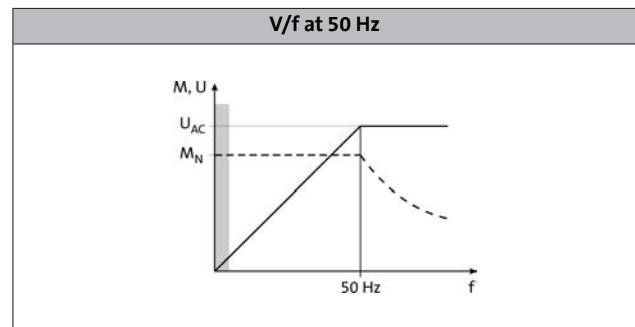


Operating modes

An inverter enables energy-efficient operation of a system in virtually all application cases. The various operating modes, which can be created by making just a few simple settings, facilitate this. The following characteristics and corresponding specifications listed on the following pages can be used to calculate the optimum operating mode during the project planning phase.

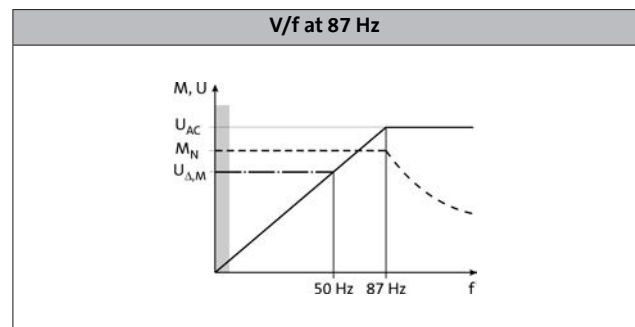
Standard setting

In its initial state when delivered, the inverter is set up for basic operation with a three-phase AC motor with V/f control. When operated in this mode, the rated torque of the motor is available in a setting range up to 50 Hz.



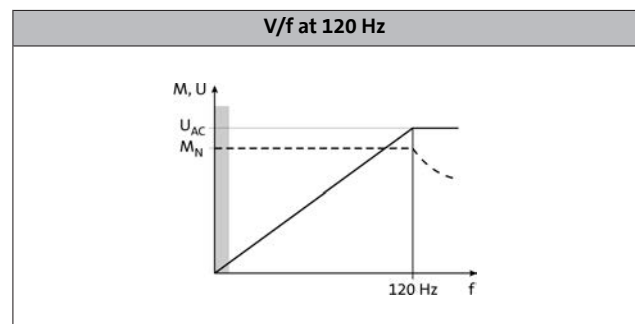
Extended setting range up to 87 Hz

If the V/f reference point on the inverter is set to 87 Hz, the rated torque can be used across an extended setting range. Here, a 230/400V motor is for example used and operated in a delta layout with a 400V inverter. The setting range is then increased by 40 %. The inverter must be dimensioned for a rated motor current of 230 V.



Operation with inverter-optimised MF motors

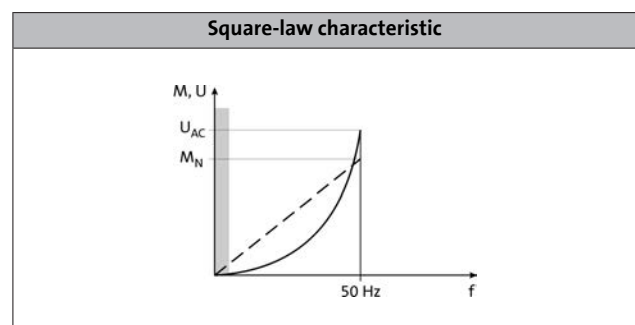
Large setting ranges and optimum operation at the rated torque: these are the strengths of the MF motor when used in combination with an inverter. The motors are optimised for a setting range up to 120 Hz. Compared to conventional 50Hz operation, the setting range increases by 250 %. It is quite simply not possible for a drive to be operated any more efficiently in a machine.



Operation with low loads

This operating mode can be used for various applications, e.g. for fans and pumps:

In fan and pump applications, the load behaviour follows a square-law characteristic depending on the speed. Often, an overload capacity of 120% is sufficient. This serves to operate the inverter during operation with increased power, i.e. the inverter can be dimensioned one power size smaller. The square-law characteristic which corresponds to the load behaviour can be set in the inverter.



Inverter Drives 8400 HighLine



General information

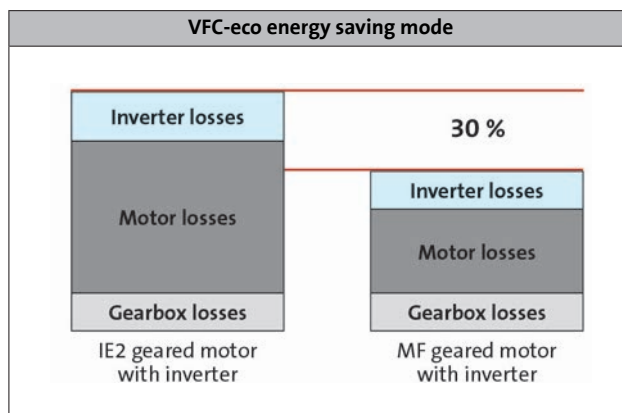
Operating modes

VFC-eco energy saving mode

The Inverter Drives 8400 make energy saving especially easy with the "VFC eco" function. Particularly in the partial load operational range, this function significantly reduces energy requirements. Combined with the new L-force MF three-phase AC motors, this drive solution impresses with the maximum energy efficiency of a Lenze BlueGreen solution.

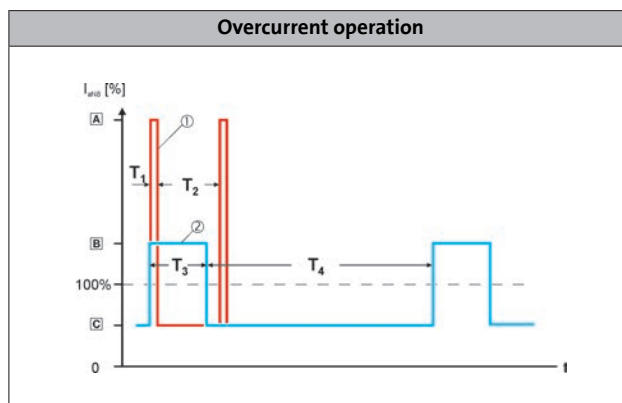
The "VFC eco" mode adjusts the magnetising current of a motor intelligently to actual requirements. This is particularly useful in partial load operational range, as this is precisely where three-phase AC motors need to be supplied with a greater magnetising current than the operating conditions actually require. The "VFC eco" mode allows losses to be reduced so much that savings of up to 30% can be achieved.

Energy efficiency can then be increased even further with the MF three-phase AC motors. These motors have been specifically designed for operation with frequency inverters. They operate at 120 Hz instead of 50 Hz, as 4-pole three-phase AC motors are at their most efficient at this frequency.



Overcurrent operation

The inverters can be driven at higher amperages beyond the rated current if the duration of this overcurrent operation is time limited. Two utilisation cycles with a duration of 15 s and 180 s are defined. Within these utilisation cycles, an overcurrent is possible for a certain time if afterwards an accordingly long recovery phase takes place. For both utilisation cycles, a moving average is determined separately. The adjacent diagram shows both cycles: 15 s in red and 180 s in blue. The overload times t_{o1} are 3 s (T_1) and 60 s (T_3) respectively, the corresponding recovery times t_{re} are 12 s (T_2) and 120 s (T_4) respectively. The following tables show the resulting maximum output currents. Monitoring of the device utilisation ($I \times t$) activates the set error response (trip or warning if one of the two utilisation values exceeds the limit of 100 %).



4.6

Switching frequencies

On an inverter, the term "switching frequency" is understood to mean the frequency with which the input and outputs of the output module (inverter) are switched. On an inverter, the switching frequency can generally be set to values between 2 and 16 kHz, whereby the selection is based on the respective power output.

Since losses (in the form of heat) can be generated when switching the modules, the inverter can provide a higher output current at a switching frequency of 2 kHz. In addition to this, it is also important to differentiate between operation at a fixed switching frequency and a variable switching frequency, whereby the switching frequency is automatically reduced based on the output current here.

The data for operation at increased output is permitted for operation at a switching frequency of 2 or 4 kHz and in an ambient temperature of max. 40 °C.

Inverter Drives 8400 HighLine

General information



Inverter Drives 8400 HighLine

Technical data




Standards and operating conditions

| | | | |
|---------------------------------|------------------|------------|--|
| Mode | | | |
| Product | | | 8400 HighLine |
| Conformity | | | |
| CE | | | Low-Voltage Directive 2006/95/EC |
| EAC | | | TP TC 004/2011 (TR CU 004/2011) TP TC 020/2011 (TR CU 020/2011) |
| Approval | | | |
| UL 508C | | | Power Conversion Equipment (file no. E132659) |
| CSA ²⁾ | | | CSA 22.2 No. 14 |
| Enclosure | | | |
| EN 60529 ³⁾ | | | IP20 |
| NEMA 250 | | | Type 1 |
| Climatic conditions | | | |
| Storage (EN 60721-3-1) | | | 1K3 (temperature: -25 °C ... +60 °C) |
| Transport (EN 60721-3-2) | | | 2K3 (temperature: -25 °C ... +70 °C) |
| Operation (EN 60721-3-3) | | | 3K3 (temperature: -10 °C ... +55 °C) |
| Current derating at over 45 °C | | | 2.5% / K |
| Site altitude | | | |
| Amsl | H _{max} | [m] | 4000 |
| Current derating at over 1000 m | | [%/1000 m] | 5 |
| Vibration resistance | | | |
| Transport (EN 60721-3-2) | | | 2M2 |
| Operation (EN 61800-5-1) | | | 10 Hz ≤ f ≤ 57 Hz: ±0.075 mm amplitude, 57 Hz ≤ f ≤ 150 Hz: 1.0 g |
| Operation (Germanischer Lloyd) | | | 5 Hz ≤ f ≤ 13.2 Hz: ± 1 mm amplitude 13.2 Hz ≤ f ≤ 100 Hz: 0.7 g |

4.6

| | | | |
|--|--|--|---|
| Mode | | | |
| Product | | | 8400 HighLine |
| Supply form | | | |
| | | | Systems with earthed star point (TN and TT systems) Systems with high-resistance or isolated star point (IT systems) |
| Noise emission | | | |
| EN 61800-3 | | | Integrated RFI suppression: category C2 up to 25 m shielded motor cable ¹⁾ |
| Insulation resistance | | | |
| EN 61800-5-1 | | | Overvoltage category III Above 2000 m amsl overvoltage category II |
| Degree of pollution | | | |
| EN 61800-5-1 | | | 2 |
| Protective insulation of control circuits | | | |
| EN 61800-5-1 | | | Safe mains isolation: double/reinforced insulation |

¹⁾  38 - Please also refer to the Motor connection section

²⁾ When using an external mains choke or mains filter

³⁾ Mounted and ready-to-use

Inverter Drives 8400 HighLine

Technical data



Rated data 230 V

► Unless otherwise specified, the data refers to the default setting.

Data in left column per device

Operation with rated data: rated output current $I_{N,out}$ at mains voltage 230 V, switching frequency 8 kHz variable and max. ambient temperature 45 °C (default setting).
Output currents I_{out} apply to:
Ambient temperature 45 °C operating with constant switching frequency 2 kHz or 4 kHz.
Ambient temperature 40 °C operating with constant switching frequency 8 kHz or 16 kHz.

Data in right column per device

Operation with increased power: rated output current $I_{N,out}$ at mains voltage 230 V, switching frequency 4 kHz and max. ambient temperature 40 °C.
Output currents apply to:
Ambient temperature 40 °C operating with switching frequency 2 kHz or 4 kHz.

| Typical motor power | | | | | | |
|-----------------------------|-------------|------|--|------|-----------------|--------------------|
| 4-pole asynchronous motor | P | [kW] | 0.25 | 0.37 | 0.37 | 0.55 ¹⁾ |
| Product key | | | E84AV□□□2512□□0 | | E84AV□□□3712□□0 | |
| Mains voltage range | | | 1/N/PE AC 180 V-0 % ... 264 V+0 %, 45 Hz-0 % ... 65 Hz+0 % | | | |
| | U_{AC} | [V] | | | | |
| Rated mains current | | | | | | |
| With mains choke | $I_{N,AC}$ | [A] | 3.0 | 3.6 | 4.2 | 5.0 |
| Without mains choke | $I_{N,AC}$ | [A] | 3.4 | 4.1 | 5.0 | |
| Rated output current | | | | | | |
| | $I_{N,out}$ | [A] | 1.7 | 2.1 | 2.4 | 2.9 |
| Output current | | | | | | |
| 2 kHz | I_{out} | [A] | 1.7 | 2.1 | 2.4 | 2.9 |
| 4 kHz | I_{out} | [A] | 1.7 | 2.1 | 2.4 | 2.9 |
| 8 kHz | I_{out} | [A] | 1.7 | | 2.4 | |
| 16 kHz | I_{out} | [A] | 1.1 | | 1.6 | |

Data for 60 s overload

| | | | | | | |
|----------------------------|---------------|-----|-------|--|-----|--|
| Max. output current | | | | | | |
| | $I_{max,out}$ | [A] | 2.6 | | 3.6 | |
| Overload time | | | 60.0 | | | |
| | t_{ol} | [s] | | | | |
| Recovery time | | | 120.0 | | | |
| | t_{re} | [s] | | | | |

Data for 3 s overload

| | | | | | | |
|---------------------------------------|---------------|-----|------|--|-----|--|
| Max. short-time output current | | | | | | |
| | $I_{max,out}$ | [A] | 3.4 | | 4.8 | |
| Overload time | | | 3.0 | | | |
| | t_{ol} | [s] | | | | |
| Recovery time | | | 12.0 | | | |
| | t_{re} | [s] | | | | |

¹⁾ Operation only permitted with mains choke


Inverter Drives 8400 HighLine

Technical data



Rated data 230 V

► Unless otherwise specified, the data refers to the default setting.

| | | | | | | |
|---------------------------------------|------------------|------|--|------|-----------------|------|
| | | |  | | | |
| Typical motor power | | | | | | |
| 4-pole asynchronous motor | P | [kW] | 0.25 | 0.37 | 0.37 | 0.55 |
| Product key | | | E84AV□□□2512□□0 | | E84AV□□□3712□□0 | |
| Power loss | | | | | | |
| | P _V | [kW] | 0.045 | | 0.050 | |
| Max. cable length¹⁾ | | | | | | |
| Shielded motor cable | I _{max} | [m] | 50 | | | |

Brake chopper rated data

| | | | | |
|---|---------------------|------|-------|-------|
| Rated power, Brake chopper | | | | |
| | P _N | [kW] | 0.6 | 0.6 |
| Max. output power, Brake chopper | | | | |
| | P _{max, 1} | [kW] | 0.8 | 0.8 |
| Min. brake resistance | | | | |
| | R _{min} | [Ω] | 180.0 | 180.0 |

Dimensions and weights

Standard installation design

| | | | | |
|---------------------|---|------|-----|-----|
| Dimensions | | | | |
| Height | h | [mm] | 165 | 165 |
| Width | b | [mm] | 70 | 70 |
| Depth ²⁾ | t | [mm] | 199 | 199 |
| Mass | | | | |
| | m | [kg] | 1.3 | 1.3 |

¹⁾ Technically possible cable lengths, irrespective of EMC requirements

²⁾ With safety engineering plus 20 mm

Inverter Drives 8400 HighLine

Technical data



Rated data 230 V

► Unless otherwise specified, the data refers to the default setting.

Data in left column per device

Operation with rated data: rated output current $I_{N,out}$ at mains voltage 230 V, switching frequency 8 kHz variable and max. ambient temperature 45 °C (default setting).
Output currents I_{out} apply to:
Ambient temperature 45 °C operating with constant switching frequency 2 kHz or 4 kHz.
Ambient temperature 40 °C operating with constant switching frequency 8 kHz or 16 kHz.

Data in right column per device

Operation with increased power: rated output current $I_{N,out}$ at mains voltage 230 V, switching frequency 4 kHz and max. ambient temperature 40 °C.
Output currents apply to:
Ambient temperature 40 °C operating with switching frequency 2 kHz or 4 kHz.

| | | | | | | |
|-----------------------------|--------------|------|--|------|------------------------------------|--------------------|
| | | | | | | |
| Typical motor power | | | | | | |
| 4-pole asynchronous motor | P | [kW] | 0.55 | 0.75 | 0.75 | 1.10 ¹⁾ |
| Product key | | | | | | |
| Inverter | | | E84AV□□□5512□□0 E84AV□□□5512□□S | | E84AV□□□7512□□0 E84AV□□□7512□□S | |
| Mains voltage range | | | | | | |
| | U_{AC} | [V] | 1/N/PE AC 180 V-0 % ... 264 V+0 %, 45 Hz-0 % ... 65 Hz+0 % | | | |
| Rated mains current | | | | | | |
| With mains choke | $I_{N, AC}$ | [A] | 5.0 | 6.0 | 7.0 | 8.4 |
| Without mains choke | $I_{N, AC}$ | [A] | 5.3 | 6.4 | 8.0 | |
| Rated output current | | | | | | |
| | $I_{N, out}$ | [A] | 3.0 | 3.6 | 4.0 | 4.8 |
| Output current | | | | | | |
| 2 kHz | I_{out} | [A] | 3.0 | 3.6 | 4.0 | 4.8 |
| 4 kHz | I_{out} | [A] | 3.0 | 3.6 | 4.0 | 4.8 |
| 8 kHz | I_{out} | [A] | 3.0 | | 4.0 | |
| 16 kHz | I_{out} | [A] | 2.0 | | 2.7 | |

Data for 60 s overload

| | | | | | | |
|----------------------------|----------------|-----|-------|--|-----|--|
| Max. output current | | | | | | |
| | $I_{max, out}$ | [A] | 4.5 | | 6.0 | |
| Overload time | | | | | | |
| | t_{ol} | [s] | 60.0 | | | |
| Recovery time | | | | | | |
| | t_{re} | [s] | 120.0 | | | |

Data for 3 s overload

| | | | | | | |
|---------------------------------------|----------------|-----|------|--|-----|--|
| Max. short-time output current | | | | | | |
| | $I_{max, out}$ | [A] | 6.0 | | 8.0 | |
| Overload time | | | | | | |
| | t_{ol} | [s] | 3.0 | | | |
| Recovery time | | | | | | |
| | t_{re} | [s] | 12.0 | | | |

¹⁾ Operation only permitted with mains choke


Inverter Drives 8400 HighLine

Technical data



Rated data 230 V

► Unless otherwise specified, the data refers to the default setting.

| | | | | | | |
|---------------------------------------|------------------|------|--|------|------------------------------------|------|
| | | |  | | | |
| Typical motor power | | | | | | |
| 4-pole asynchronous motor | P | [kW] | 0.55 | 0.75 | 0.75 | 1.10 |
| Product key | | | | | | |
| Inverter | | | E84AV□□□5512□□0 E84AV□□□5512□□S | | E84AV□□□7512□□0 E84AV□□□7512□□S | |
| Power loss | | | | | | |
| | P _V | [kW] | 0.060 0.060 | | 0.075 0.075 | |
| Max. cable length¹⁾ | | | | | | |
| Shielded motor cable | l _{max} | [m] | 50 50 | | | |

Brake chopper rated data

| | | | | | | |
|---|--------------------|------|-------|--|-------|--|
| Rated power, Brake chopper | | | | | | |
| | P _N | [kW] | 1.1 | | 1.1 | |
| Max. output power, Brake chopper | | | | | | |
| | P _{max,1} | [kW] | 1.4 | | 1.4 | |
| Min. brake resistance | | | | | | |
| | R _{min} | [Ω] | 100.0 | | 100.0 | |

Dimensions and weights

Standard installation design

| | | | | | | |
|---------------------|---|------|-----|--|-----|--|
| Dimensions | | | | | | |
| Height | h | [mm] | 215 | | 215 | |
| Width | b | [mm] | 70 | | 70 | |
| Depth ²⁾ | t | [mm] | 199 | | 199 | |
| Mass | | | | | | |
| | m | [kg] | 1.8 | | 1.8 | |

¹⁾ Technically possible cable lengths, irrespective of EMC requirements

²⁾ With safety engineering plus 20 mm

Inverter Drives 8400 HighLine

Technical data



Rated data 230 V


► Unless otherwise specified, the data refers to the default setting.

Data in left column per device

Operation with rated data: rated output current $I_{N,out}$ at mains voltage 230 V, switching frequency 8 kHz variable and max. ambient temperature 45 °C (default setting).
Output currents I_{out} apply to:
Ambient temperature 45 °C operating with constant switching frequency 2 kHz or 4 kHz.
Ambient temperature 40 °C operating with constant switching frequency 8 kHz or 16 kHz.

Data in right column per device

Operation with increased power: rated output current $I_{N,out}$ at mains voltage 230 V, switching frequency 4 kHz and max. ambient temperature 40 °C.
Output currents apply to:
Ambient temperature 40 °C operating with switching frequency 2 kHz or 4 kHz.

| | | | | | | | |
|-----------------------------|--------------|------|--|------|------------------------------------|--------------------|------------------------------------|
| | | |  | | | | |
| Typical motor power | | | | | | | |
| 4-pole asynchronous motor | P | [kW] | 1.10 | 1.50 | 1.50 | 2.20 ¹⁾ | 2.20 |
| Product key | | | | | | | |
| Inverter | | | E84AV□□□1122□□0 E84AV□□□1122□□S | | E84AV□□□1522□□0 E84AV□□□1522□□S | | E84AV□□□2222□□0 E84AV□□□2222□□S |
| Mains voltage range | | | | | | | |
| | U_{AC} | [V] | 1/N/PE AC 180 V-0 % ... 264 V+0 %, 45 Hz-0 % ... 65 Hz+0 % | | | | |
| Rated mains current | | | | | | | |
| With mains choke | $I_{N, AC}$ | [A] | 9.9 | 11.9 | 11.4 | 13.7 | 16.4 |
| Without mains choke | $I_{N, AC}$ | [A] | 12.0 | 14.4 | 13.7 | | 21.8 |
| Rated output current | | | | | | | |
| | $I_{N, out}$ | [A] | 5.5 | 6.8 | 7.0 | 8.4 | 9.5 |
| Output current | | | | | | | |
| 2 kHz | I_{out} | [A] | 5.5 | 6.8 | 7.0 | 8.4 | 9.5 |
| 4 kHz | I_{out} | [A] | 5.5 | 6.8 | 7.0 | 8.4 | 9.5 |
| 8 kHz | I_{out} | [A] | 5.5 | | 7.0 | | 9.5 |
| 16 kHz | I_{out} | [A] | 3.7 | | 4.7 | | 6.3 |

Data for 60 s overload

| | | | | | | |
|----------------------------|----------------|-----|-----|--|-------|--|
| Max. output current | | | | | | |
| | $I_{max, out}$ | [A] | 8.3 | | 10.5 | |
| Overload time | | | | | 60.0 | |
| | t_{ol} | [s] | | | 60.0 | |
| Recovery time | | | | | 120.0 | |
| | t_{re} | [s] | | | 120.0 | |

Data for 3 s overload

| | | | | | | |
|---------------------------------------|----------------|-----|------|--|------|--|
| Max. short-time output current | | | | | | |
| | $I_{max, out}$ | [A] | 11.0 | | 14.0 | |
| Overload time | | | | | 3.0 | |
| | t_{ol} | [s] | | | 3.0 | |
| Recovery time | | | | | 12.0 | |
| | t_{re} | [s] | | | 12.0 | |

¹⁾ Operation only permitted with mains choke

Inverter Drives 8400 HighLine

Technical data



Rated data 230 V

► Unless otherwise specified, the data refers to the default setting.

| Typical motor power | | | | | | | | |
|---------------------------------------|------------------|------|------------------------------------|------|------------------------------------|------|------------------------------------|------|
| 4-pole asynchronous motor | P | [kW] | 1.10 | 1.50 | 1.50 | 2.20 | 2.20 | 2.20 |
| Product key | | | | | | | | |
| Inverter | | | E84AV□□□1122□□0 E84AV□□□1122□□S | | E84AV□□□1522□□0 E84AV□□□1522□□S | | E84AV□□□2222□□0 E84AV□□□2222□□S | |
| Power loss | | | | | | | | |
| | P _V | [kW] | 0.095 0.095 | | 0.11 0.11 | | 0.14 0.14 | |
| Max. cable length¹⁾ | | | | | | | | |
| Shielded motor cable | l _{max} | [m] | 50 50 | | | | | |

Brake chopper rated data

| | | | | | | | | |
|---|--------------------|------|------|--|------|--|------|--|
| Rated power, Brake chopper | | | | | | | | |
| | P _N | [kW] | 3.3 | | 3.3 | | 3.3 | |
| Max. output power, Brake chopper | | | | | | | | |
| | P _{max,1} | [kW] | 4.4 | | 4.4 | | 4.4 | |
| Min. brake resistance | | | | | | | | |
| | R _{min} | [Ω] | 33.0 | | 33.0 | | 33.0 | |

Dimensions and weights

Standard installation design

| | | | | | | | | |
|---------------------|---|------|-----|--|-----|--|-----|--|
| Dimensions | | | | | | | | |
| Height | h | [mm] | 270 | | 270 | | 270 | |
| Width | b | [mm] | 70 | | 70 | | 70 | |
| Depth ²⁾ | t | [mm] | 199 | | 199 | | 199 | |
| Mass | | | | | | | | |
| | m | [kg] | 2.1 | | 2.1 | | 2.1 | |

¹⁾ Technically possible cable lengths, irrespective of EMC requirements

²⁾ With safety engineering plus 20 mm

Inverter Drives 8400 HighLine



Technical data

Rated data 400 V


► Unless otherwise specified, the data refers to the default setting.

Data in left column per device

Operation with rated data: rated output current $I_{N,out}$ at mains voltage 400 V, switching frequency 8 kHz variable and max. ambient temperature 45 °C (default setting).
Output currents I_{out} apply to:
Ambient temperature 45 °C operating with constant switching frequency 2 kHz or 4 kHz.
Ambient temperature 40 °C operating with constant switching frequency 8 kHz or 16 kHz.

Data in right column per device

Operation with increased power: rated output current $I_{N,out}$ at mains voltage 400 V, switching frequency 4 kHz constant and max. ambient temperature 40 °C.
Output currents apply to:
Ambient temperature 40 °C operating with constant switching frequency 2 kHz or 4 kHz.

| | | | | | | | | |
|-----------------------------|--------------|------|--|------|------------------------------------|------|------------------------------------|--------------------|
| | | |  | | | | | |
| Typical motor power | | | | | | | | |
| 4-pole asynchronous motor | P | [kW] | 0.37 | 0.55 | 0.55 | 0.75 | 0.75 | 1.10 ¹⁾ |
| Product key | | | | | | | | |
| Inverter | | | E84AV□□□3714□□0 E84AV□□□3714□□S | | E84AV□□□5514□□0 E84AV□□□5514□□S | | E84AV□□□7514□□0 E84AV□□□7514□□S | |
| Mains voltage range | | | | | | | | |
| | U_{AC} | [V] | 3/PE AC 320 V-0 % ... 550 V+0 %, 45 Hz-0 % ... 65 Hz+0 % | | | | | |
| Rated mains current | | | | | | | | |
| With mains choke | $I_{N, AC}$ | [A] | 1.4 | 1.7 | 2.0 | 2.6 | | 3.0 |
| Without mains choke | $I_{N, AC}$ | [A] | 1.8 | 2.2 | 2.5 | 3.2 | 3.6 | |
| Rated output current | | | | | | | | |
| | $I_{N, out}$ | [A] | 1.3 | 1.6 | 1.8 | 2.2 | 2.4 | 2.9 |
| Output current | | | | | | | | |
| 2 kHz | I_{out} | [A] | 1.3 | 1.6 | 1.8 | 2.2 | 2.4 | 2.9 |
| 4 kHz | I_{out} | [A] | 1.3 | 1.6 | 1.8 | 2.2 | 2.4 | 2.9 |
| 8 kHz | I_{out} | [A] | 1.3 | | 1.8 | | 2.4 | |
| 16 kHz | I_{out} | [A] | 0.9 | | 1.2 | | 1.6 | |

Data for 60 s overload

| | | | | | | | | |
|----------------------------|----------------|-----|-------|--|-----|--|-----|--|
| Max. output current | | | | | | | | |
| | $I_{max, out}$ | [A] | 2.0 | | 2.7 | | 3.6 | |
| Overload time | | | | | | | | |
| | t_{ol} | [s] | 60.0 | | | | | |
| Recovery time | | | | | | | | |
| | t_{re} | [s] | 120.0 | | | | | |

Data for 3 s overload

| | | | | | | | | |
|---------------------------------------|----------------|-----|------|--|-----|--|-----|--|
| Max. short-time output current | | | | | | | | |
| | $I_{max, out}$ | [A] | 2.6 | | 3.6 | | 4.8 | |
| Overload time | | | | | | | | |
| | t_{ol} | [s] | 3.0 | | | | | |
| Recovery time | | | | | | | | |
| | t_{re} | [s] | 12.0 | | | | | |

¹⁾ Operation only permitted with mains choke

Inverter Drives 8400 HighLine

Technical data



Rated data 400 V

► Unless otherwise specified, the data refers to the default setting.

| Typical motor power | | | | | | | | |
|---------------------------------------|--------------------|------|--|------|------------------------------------|------|------------------------------------|------|
| 4-pole asynchronous motor | P | [kW] | 0.37 | 0.55 | 0.55 | 0.75 | 0.75 | 1.10 |
| Product key | | | | | | | | |
| Inverter | | | E84AV□□□3714□□0 E84AV□□□3714□□S | | E84AV□□□5514□□0 E84AV□□□5514□□S | | E84AV□□□7514□□0 E84AV□□□7514□□S | |
| DC supply | | | | | | | | |
| | U _{DC} | [V] | DC 455 V -0 % ... 775 V +0 % DC 455 V -0 % ... 775 V +0 % | | | | | |
| Rated DC-bus current | | | | | | | | |
| | I _{N, DC} | [A] | 2.2 2.2 | | 3.3 3.3 | | 4.4 4.4 | |
| Power loss | | | | | | | | |
| | P _V | [kW] | 0.050 0.050 | | 0.065 0.065 | | 0.080 0.080 | |
| Max. cable length¹⁾ | | | | | | | | |
| Shielded motor cable | l _{max} | [m] | | | 50 50 | | | |

4.6

Brake chopper rated data

| | | | | | |
|---|---------------------|------|-------|-------|-------|
| Rated power, Brake chopper | | | | | |
| | P _N | [kW] | 1.3 | 1.3 | 1.3 |
| Max. output power, Brake chopper | | | | | |
| | P _{max, 1} | [kW] | 1.3 | 1.3 | 1.3 |
| Min. brake resistance | | | | | |
| | R _{min} | [Ω] | 390.0 | 390.0 | 390.0 |

Dimensions and weights

Standard installation design

| Dimensions | | | | | |
|---------------------|---|------|-----|-----|-----|
| Height | h | [mm] | 215 | 215 | 215 |
| Width | b | [mm] | 70 | 70 | 70 |
| Depth ²⁾ | t | [mm] | 199 | 199 | 199 |
| Mass | | | | | |
| | m | [kg] | 1.8 | 1.8 | 1.8 |

¹⁾ Technically possible cable lengths, irrespective of EMC requirements

²⁾ With safety engineering plus 20 mm

Inverter Drives 8400 HighLine

Technical data



Rated data 400 V


► Unless otherwise specified, the data refers to the default setting.

Data in left column per device

Operation with rated data: rated output current $I_{N,out}$ at mains voltage 400 V, switching frequency 8 kHz variable and max. ambient temperature 45 °C (default setting).
Output currents I_{out} apply to:
Ambient temperature 45 °C operating with constant switching frequency 2 kHz or 4 kHz.
Ambient temperature 40 °C operating with constant switching frequency 8 kHz or 16 kHz.

Data in right column per device

Operation with increased power: rated output current $I_{N,out}$ at mains voltage 400 V, switching frequency 4 kHz constant and max. ambient temperature 40 °C.
Output currents apply to:
Ambient temperature 40 °C operating with constant switching frequency 2 kHz or 4 kHz.

| | | | | | | | | | | |
|-----------------------------|--------------|------|--|------------------------------------|------------------------------------|-----------------|------|--------------------|------|--------------------|
| | | |  | | | | | | | |
| Typical motor power | | | | | | | | | | |
| 4-pole asynchronous motor | P | [kW] | 1.10 | 1.50 | 1.50 | 2.20 | 2.20 | 3.00 ¹⁾ | 3.00 | 4.00 ¹⁾ |
| Product key | | | | | | | | | | |
| Inverter | | | E84AV□□□1124□□0 E84AV□□□1124□□S | E84AV□□□1524□□0 E84AV□□□1524□□S | E84AV□□□2224□□0 E84AV□□□2224□□S | E84AV□□□3024□□S | | | | |
| Mains voltage range | | | | | | | | | | |
| | U_{AC} | [V] | 3/PE AC 320 V-0 % ... 550 V+0 %, 45 Hz-0 % ... 65 Hz+0 % | | | | | | | |
| Rated mains current | | | | | | | | | | |
| With mains choke | $I_{N, AC}$ | [A] | 3.2 | 3.8 | 3.9 | 4.7 | 5.1 | 6.1 | 7.0 | 8.4 |
| Without mains choke | $I_{N, AC}$ | [A] | 4.4 | 5.3 | 5.5 | 6.6 | 7.3 | 9.8 | | |
| Rated output current | | | | | | | | | | |
| | $I_{N, out}$ | [A] | 3.2 | 3.8 | 3.9 | 4.8 | 5.6 | 6.7 | 7.3 | 8.8 |
| Output current | | | | | | | | | | |
| 2 kHz | I_{out} | [A] | 3.2 | 3.8 | 3.9 | 4.8 | 5.6 | 6.7 | 7.3 | 8.8 |
| 4 kHz | I_{out} | [A] | 3.2 | 3.8 | 3.9 | 4.8 | 5.6 | 6.7 | 7.3 | 8.8 |
| 8 kHz | I_{out} | [A] | 3.2 | | 3.9 | | 5.6 | | 7.3 | |
| 16 kHz | I_{out} | [A] | 2.1 | | 2.6 | | 3.7 | | 4.9 | |

Data for 60 s overload

| | | | | | | | | | | |
|----------------------------|----------------|-----|-------|-----|--|--|-----|--|------|--|
| Max. output current | | | | | | | | | | |
| | $I_{max, out}$ | [A] | 4.8 | 5.9 | | | 8.4 | | 11.0 | |
| Overload time | | | | | | | | | | |
| | t_{ol} | [s] | 60.0 | | | | | | | |
| Recovery time | | | | | | | | | | |
| | t_{re} | [s] | 120.0 | | | | | | | |

Data for 3 s overload

| | | | | | | | | | | |
|---------------------------------------|----------------|-----|------|-----|--|--|------|--|------|--|
| Max. short-time output current | | | | | | | | | | |
| | $I_{max, out}$ | [A] | 6.4 | 7.8 | | | 11.2 | | 14.6 | |
| Overload time | | | | | | | | | | |
| | t_{ol} | [s] | 3.0 | | | | | | | |
| Recovery time | | | | | | | | | | |
| | t_{re} | [s] | 12.0 | | | | | | | |

¹⁾ Operation only permitted with mains choke


Inverter Drives 8400 HighLine

Technical data



Rated data 400 V

► Unless otherwise specified, the data refers to the default setting.

| | | | | | | | | | | |
|---------------------------------------|-------------|------|--|------------------------------------|------------------------------------|------------------|------|------|------|------|
| | | |  | | | | | | | |
| Typical motor power | | | | | | | | | | |
| 4-pole asynchronous motor | P | [kW] | 1.10 | 1.50 | 1.50 | 2.20 | 2.20 | 3.00 | 3.00 | 4.00 |
| Product key | | | | | | | | | | |
| Inverter | | | E84AV□□□1124□□□ E84AV□□□1124□□S | E84AV□□□1524□□□ E84AV□□□1524□□S | E84AV□□□2224□□□ E84AV□□□2224□□S | E84AV□□□3024□□□S | | | | |
| DC supply | | | | | | | | | | |
| | U_{DC} | [V] | DC 455 V -0 % ... 775 V +0 % | | | | | | | |
| Rated DC-bus current | | | | | | | | | | |
| | $I_{N, DC}$ | [A] | 5.4 | | 6.7 | | 8.9 | | 12.0 | |
| Power loss | | | | | | | | | | |
| | P_V | [kW] | 0.090 | | 0.10 | | 0.14 | | 0.17 | |
| Max. cable length¹⁾ | | | | | | | | | | |
| Shielded motor cable | l_{max} | [m] | 50 | | | | | | | |

4.6

Brake chopper rated data

| | | | | | | | | | | |
|---|--------------|------|-------|--|-------|--|-------|--|------|--|
| Rated power, Brake chopper | | | | | | | | | | |
| | P_N | [kW] | 2.9 | | 2.9 | | 3.5 | | 6.4 | |
| Max. output power, Brake chopper | | | | | | | | | | |
| | $P_{max, 1}$ | [kW] | 2.9 | | 2.9 | | 3.5 | | 6.4 | |
| Min. brake resistance | | | | | | | | | | |
| | R_{min} | [Ω] | 180.0 | | 180.0 | | 150.0 | | 82.0 | |

Dimensions and weights

Standard installation design

| | | | | | | | | | | |
|---------------------|---|------|-----|--|-----|--|-----|--|-----|--|
| Dimensions | | | | | | | | | | |
| Height | h | [mm] | 270 | | 270 | | 270 | | 270 | |
| Width | b | [mm] | 70 | | 70 | | 70 | | 70 | |
| Depth ²⁾ | t | [mm] | 199 | | 199 | | 199 | | 199 | |
| Mass | | | | | | | | | | |
| | m | [kg] | 2.1 | | 2.1 | | 2.1 | | 2.0 | |

¹⁾ Technically possible cable lengths, irrespective of EMC requirements

²⁾ With safety engineering plus 20 mm

Inverter Drives 8400 HighLine

Technical data



Rated data 400 V


► Unless otherwise specified, the data refers to the default setting.

Data in left column per device

Operation with rated data: rated output current $I_{N,out}$ at mains voltage 400 V, switching frequency 8 kHz variable and max. ambient temperature 45 °C (default setting).
Output currents I_{out} apply to:
Ambient temperature 45 °C operating with constant switching frequency 2 kHz or 4 kHz.
Ambient temperature 40 °C operating with constant switching frequency 8 kHz or 16 kHz.

Data in right column per device

Operation with increased power: rated output current $I_{N,out}$ at mains voltage 400 V, switching frequency 4 kHz constant and max. ambient temperature 40 °C.
Output currents apply to:
Ambient temperature 40 °C operating with constant switching frequency 2 kHz or 4 kHz.

| | | |  | | | | | |
|-----------------------------|-------------|------|--|--------------------|-----------------|------|-----------------|--------------------|
| Typical motor power | | | | | | | | |
| 4-pole asynchronous motor | P | [kW] | 3.00 | 4.00 ¹⁾ | 4.00 | 5.50 | 5.50 | 7.50 ¹⁾ |
| Product key | | | E84AV□□□3024□□0 | | E84AV□□□4024□□0 | | E84AV□□□5524□□0 | |
| Mains voltage range | | | 3/PE AC 320 V-0 % ... 550 V+0 %, 45 Hz-0 % ... 65 Hz+0 % | | | | | |
| Rated mains current | | | | | | | | |
| With mains choke | $I_{N,AC}$ | [A] | 7.0 | 8.4 | 8.8 | 10.6 | 12.0 | 18.0 |
| Without mains choke | $I_{N,AC}$ | [A] | 9.8 | | 13.1 | 15.7 | 18.0 | |
| Rated output current | | | | | | | | |
| | $I_{N,out}$ | [A] | 7.3 | 8.8 | 9.5 | 11.5 | 13.0 | 15.6 |
| Output current | | | | | | | | |
| 2 kHz | I_{out} | [A] | 7.3 | 8.8 | 9.5 | 11.5 | 13.0 | 15.6 |
| 4 kHz | I_{out} | [A] | 7.3 | 8.8 | 9.5 | 11.5 | 13.0 | 15.6 |
| 8 kHz | I_{out} | [A] | 7.3 | | 9.5 | | 13.0 | |
| 16 kHz | I_{out} | [A] | 4.9 | | 6.3 | | 8.7 | |

Data for 60 s overload

| | | | | | | | |
|----------------------------|---------------|-----|------|--|-------|--|------|
| Max. output current | | | | | | | |
| | $I_{max,out}$ | [A] | 11.0 | | 14.3 | | 19.5 |
| Overload time | | | | | | | |
| | t_{ol} | [s] | | | 60.0 | | |
| Recovery time | | | | | | | |
| | t_{re} | [s] | | | 120.0 | | |

Data for 3 s overload

| | | | | | | | |
|---------------------------------------|---------------|-----|------|--|------|--|------|
| Max. short-time output current | | | | | | | |
| | $I_{max,out}$ | [A] | 14.6 | | 19.0 | | 26.0 |
| Overload time | | | | | | | |
| | t_{ol} | [s] | | | 3.0 | | |
| Recovery time | | | | | | | |
| | t_{re} | [s] | | | 12.0 | | |

¹⁾ Operation only permitted with mains choke

Inverter Drives 8400 HighLine

Technical data



Rated data 400 V

► Unless otherwise specified, the data refers to the default setting.

| Typical motor power | | | | | | | | |
|---------------------------------------|-------------|------|------------------------------|------|-----------------|------|-----------------|------|
| 4-pole asynchronous motor | P | [kW] | 3.00 | 4.00 | 4.00 | 5.50 | 5.50 | 7.50 |
| Product key | | | | | | | | |
| Inverter | | | E84AV□□□3024□□0 | | E84AV□□□4024□□0 | | E84AV□□□5524□□0 | |
| DC supply | | | DC 455 V -0 % ... 775 V +0 % | | | | | |
| | U_{DC} | [V] | | | | | | |
| Rated DC-bus current | | | | | | | | |
| | $I_{N, DC}$ | [A] | 12.0 | | 16.0 | | 22.0 | |
| Power loss | | | | | | | | |
| | P_V | [kW] | 0.17 | | 0.20 | | 0.28 | |
| Max. cable length¹⁾ | | | | | | | | |
| Shielded motor cable | I_{max} | [m] | 50 | | | | | |

Brake chopper rated data

4.6

| | | | | | |
|---|--------------|------|------|------|------|
| Rated power, Brake chopper | | | | | |
| | P_N | [kW] | 6.4 | 9.4 | 9.4 |
| Max. output power, Brake chopper | | | | | |
| | $P_{max, 1}$ | [kW] | 6.4 | 11.2 | 11.2 |
| Min. brake resistance | | | | | |
| | R_{min} | [Ω] | 82.0 | 47.0 | 47.0 |

Dimensions and weights

Standard installation design

| Dimensions | | | | | |
|---------------------|---|------|-----|-----|-----|
| Height | h | [mm] | 270 | 270 | 270 |
| Width | b | [mm] | 140 | 140 | 140 |
| Depth ²⁾ | t | [mm] | 199 | 199 | 199 |
| Mass | | | | | |
| | m | [kg] | 2.1 | 4.4 | 4.4 |

¹⁾ Technically possible cable lengths, irrespective of EMC requirements

²⁾ With safety engineering plus 20 mm

Inverter Drives 8400 HighLine

Technical data



Rated data 400 V


► Unless otherwise specified, the data refers to the default setting.

Data in left column per device

Operation with rated data: rated output current $I_{N,out}$ at mains voltage 400 V, switching frequency 8 kHz variable and max. ambient temperature 45 °C (default setting).
Output currents I_{out} apply to:
Ambient temperature 45 °C operating with constant switching frequency 2 kHz or 4 kHz.
Ambient temperature 40 °C operating with constant switching frequency 8 kHz or 16 kHz.

Data in right column per device

Operation with increased power: rated output current $I_{N,out}$ at mains voltage 400 V, switching frequency 4 kHz constant and max. ambient temperature 40 °C.
Output currents apply to:
Ambient temperature 40 °C operating with constant switching frequency 2 kHz or 4 kHz.

| | | |  | | | | |
|-----------------------------|-------------|------|--|------|-----------------|--------------------|--------------------|
| Typical motor power | | | | | | | |
| 4-pole asynchronous motor | P | [kW] | 7.50 | 11.0 | 11.0 | 15.0 ¹⁾ | 15.0 ¹⁾ |
| Product key | | | E84AV□□□7524□□0 | | E84AV□□□1134□□0 | | E84AV□□□1534□□0 |
| Mains voltage range | | | 3/PE AC 320 V-0 % ... 550 V+0 %, 45 Hz-0 % ... 65 Hz+0 % | | | | |
| | U_{AC} | [V] | | | | | |
| Rated mains current | | | | | | | |
| With mains choke | $I_{N,AC}$ | [A] | 15.0 | 21.0 | | 29.0 | |
| Without mains choke | $I_{N,AC}$ | [A] | 20.0 | 28.0 | 29.0 | | |
| Rated output current | | | | | | | |
| | $I_{N,out}$ | [A] | 16.5 | 21.0 | 23.5 | 28.2 | 32.0 |
| Output current | | | | | | | |
| 2 kHz | I_{out} | [A] | 16.5 | 21.0 | 23.5 | 28.2 | 32.0 |
| 4 kHz | I_{out} | [A] | 16.5 | 21.0 | 23.5 | 28.2 | 32.0 |
| 8 kHz | I_{out} | [A] | 16.5 | | 23.5 | | 32.0 |
| 16 kHz | I_{out} | [A] | 11.0 | | 15.7 | | 21.3 |

Data for 60 s overload

| | | | | | | |
|----------------------------|---------------|-----|------|--|-------|------|
| Max. output current | | | | | | |
| | $I_{max,out}$ | [A] | 26.4 | | 35.3 | 48.0 |
| Overload time | | | | | | |
| | t_{ol} | [s] | | | 60.0 | |
| Recovery time | | | | | | |
| | t_{re} | [s] | | | 120.0 | |

Data for 3 s overload

| | | | | | | |
|---------------------------------------|---------------|-----|------|--|------|------|
| Max. short-time output current | | | | | | |
| | $I_{max,out}$ | [A] | 33.0 | | 47.0 | 64.0 |
| Overload time | | | | | | |
| | t_{ol} | [s] | | | 3.0 | |
| Recovery time | | | | | | |
| | t_{re} | [s] | | | 12.0 | |

¹⁾ Operation only permitted with mains choke


Inverter Drives 8400 HighLine

Technical data



Rated data 400 V

► Unless otherwise specified, the data refers to the default setting.

| | | |  | | | | |
|--|-------------|------|--|------|-----------------|------|-----------------|
| Typical motor power | | | | | | | |
| 4-pole asynchronous motor | P | [kW] | 7.50 | 11.0 | 11.0 | 15.0 | 15.0 |
| Product key | | | | | | | |
| Inverter | | | E84AV□□□7524□□0 | | E84AV□□□1134□□0 | | E84AV□□□1534□□0 |
| DC supply | | | | | | | |
| | U_{DC} | [V] | DC 455 V -0 % ... 775 V +0 % | | | | |
| Rated DC-bus current | | | | | | | |
| | $I_{N, DC}$ | [A] | 24.5 | | 35.5 | | |
| Power loss | | | | | | | |
| | P_V | [kW] | 0.32 | | 0.43 | | 0.47 |
| Max. cable length ¹⁾ | | | | | | | |
| Shielded motor cable | I_{max} | [m] | 50 | | | | |

Brake chopper rated data

4.6

| | | | | | |
|---|--------------|------|------|------|------|
| Rated power, Brake chopper | | | | | |
| | P_N | [kW] | 19.5 | 19.5 | 29.2 |
| Max. output power, Brake chopper | | | | | |
| | $P_{max, 1}$ | [kW] | 19.5 | 19.5 | 29.2 |
| Min. brake resistance | | | | | |
| | R_{min} | [Ω] | 27.0 | 27.0 | 18.0 |

Dimensions and weights

Standard installation design

| Dimensions | | | | | |
|---------------------|---|------|-----|-----|-----|
| Height | h | [mm] | 325 | 325 | 325 |
| Width | b | [mm] | 140 | 140 | 140 |
| Depth ²⁾ | t | [mm] | 199 | 199 | 199 |
| Mass | | | | | |
| | m | [kg] | 5.8 | 5.8 | 5.8 |

¹⁾ Technically possible cable lengths, irrespective of EMC requirements

²⁾ With safety engineering plus 20 mm

Inverter Drives 8400 HighLine

Technical data



Rated data 400 V

► Unless otherwise specified, the data refers to the default setting.

Data in left column per device

Operation with rated data: rated output current $I_{N,out}$ at mains voltage 400 V, switching frequency 8 kHz variable and max. ambient temperature 45 °C (default setting).
Output currents I_{out} apply to:
Ambient temperature 45 °C operating with constant switching frequency 2 kHz or 4 kHz.
Ambient temperature 40 °C operating with constant switching frequency 8 kHz or 16 kHz.

Data in right column per device

Operation with increased power: rated output current $I_{N,out}$ at mains voltage 400 V, switching frequency 4 kHz constant and max. ambient temperature 40 °C.
Output currents apply to:
Ambient temperature 40 °C operating with constant switching frequency 2 kHz or 4 kHz.

| Typical motor power | | | | | | |
|-----------------------------|-------------|------|--|--------------------|--------------------|--------------------|
| 4-pole asynchronous motor | P | [kW] | 18.5 | 22.0 ¹⁾ | 22.0 ¹⁾ | 30.0 ¹⁾ |
| Product key | | | E84AV□□□1834□□0 | | E84AV□□□2234□□0 | |
| Mains voltage range | | | 3/PE AC 320 V-0 % ... 550 V+0 %, 45 Hz-0 % ... 65 Hz+0 % | | | |
| Rated mains current | | | | | | |
| With mains choke | $I_{N,AC}$ | [A] | 36.0 | 42.2 | 42.0 | 50.8 |
| Without mains choke | $I_{N,AC}$ | [A] | 50.4 | | | |
| Rated output current | | | | | | |
| | $I_{N,out}$ | [A] | 40.0 | 46.8 | 47.0 | 56.4 |
| Output current | | | | | | |
| 2 kHz | I_{out} | [A] | 40.0 | 46.8 | 47.0 | 56.4 |
| 4 kHz | I_{out} | [A] | 40.0 | 46.8 | 47.0 | 56.4 |
| 8 kHz | I_{out} | [A] | 40.0 | | 47.0 | |
| 16 kHz | I_{out} | [A] | 27.0 | | 31.3 | |

Data for 60 s overload

| | | | | | | |
|----------------------------|---------------|-----|------|-------|--|------|
| Max. output current | | | | | | |
| | $I_{max,out}$ | [A] | 60.0 | | | 70.5 |
| Overload time | | | | | | |
| | t_{ol} | [s] | | 60.0 | | |
| Recovery time | | | | | | |
| | t_{re} | [s] | | 120.0 | | |

Data for 3 s overload

| | | | | | | |
|---------------------------------------|---------------|-----|------|------|--|------|
| Max. short-time output current | | | | | | |
| | $I_{max,out}$ | [A] | 78.0 | | | 89.3 |
| Overload time | | | | | | |
| | t_{ol} | [s] | | 3.0 | | |
| Recovery time | | | | | | |
| | t_{re} | [s] | | 12.0 | | |

¹⁾ Operation only permitted with mains choke or mains filter


Inverter Drives 8400 HighLine

Technical data



Rated data 400 V

► Unless otherwise specified, the data refers to the default setting.

| | | | | | | |
|--|-------------|------|--|------|-----------------|------|
| | | |  | | | |
| Typical motor power | | | | | | |
| 4-pole asynchronous motor | P | [kW] | 18.5 | 22.0 | 22.0 | 30.0 |
| Product key | | | E84AV□□□1834□□0 | | E84AV□□□2234□□0 | |
| DC supply | | | DC 455 V -0 % ... 775 V +0 % | | | |
| | U_{DC} | [V] | | | | |
| Rated DC-bus current | | | 44.1 | | 51.4 | |
| | $I_{N, DC}$ | [A] | | | | |
| Power loss | | | 0.54 | | 0.64 | |
| | P_V | [kW] | | | | |
| Max. cable length ¹⁾ | | | 100 | | | |
| Shielded motor cable | I_{max} | [m] | | | | |

Brake chopper rated data

4.6

| | | | | | | |
|---|--------------|------|------|--|------|--|
| Rated power, Brake chopper | | | 35.0 | | 35.0 | |
| | P_N | [kW] | | | | |
| Max. output power, Brake chopper | | | 35.0 | | 35.0 | |
| | $P_{max, 1}$ | [kW] | | | | |
| Min. brake resistance | | | 15.0 | | 15.0 | |
| | R_{min} | [Ω] | | | | |

Dimensions and weights

Standard installation design

| | | | | | | |
|---------------------|---|------|------|--|------|--|
| Dimensions | | | | | | |
| Height | h | [mm] | 350 | | 350 | |
| Width | b | [mm] | 205 | | 205 | |
| Depth ²⁾ | t | [mm] | 250 | | 250 | |
| Mass | | | | | | |
| | m | [kg] | 12.0 | | 12.0 | |

¹⁾ Technically possible cable lengths, irrespective of EMC requirements

²⁾ With safety engineering plus 20 mm

Inverter Drives 8400 HighLine

Technical data



Rated data 400 V


► Unless otherwise specified, the data refers to the default setting.

Data in left column per device

Operation with rated data: rated output current $I_{N,out}$ at mains voltage 400 V, switching frequency 8 kHz variable and max. ambient temperature 45 °C (default setting).
Output currents I_{out} apply to:
Ambient temperature 45 °C operating with constant switching frequency 2 kHz or 4 kHz.
Ambient temperature 40 °C operating with constant switching frequency 8 kHz or 16 kHz.

Data in right column per device

Operation with increased power: rated output current $I_{N,out}$ at mains voltage 400 V, switching frequency 4 kHz constant and max. ambient temperature 40 °C.
Output currents apply to:
Ambient temperature 40 °C operating with constant switching frequency 2 kHz or 4 kHz.

| | | |  | | | | | |
|-----------------------------|-------------|------|--|--------------------|--------------------|--------------------|--------------------|--------------------|
| Typical motor power | | | | | | | | |
| 4-pole asynchronous motor | P | [kW] | 30.0 ¹⁾ | 37.0 ¹⁾ | 37.0 ¹⁾ | 45.0 ¹⁾ | 45.0 ¹⁾ | 55.0 ¹⁾ |
| Product key | | | E84AV□□□□3034□□0 | | E84AV□□□□3734□□0 | | E84AV□□□□4534□□0 | |
| Mains voltage range | | | 3/PE AC 320 V-0 % ... 550 V+0 %, 45 Hz-0 % ... 65 Hz+0 % | | | | | |
| Rated mains current | | | | | | | | |
| With mains choke | $I_{N,AC}$ | [A] | 55.0 | 66.0 | 68.0 | 81.6 | 80.0 | 96.0 |
| Without mains choke | $I_{N,AC}$ | [A] | | | | | | |
| Rated output current | | | | | | | | |
| | $I_{N,out}$ | [A] | 61.0 | 73.2 | 76.0 | 91.2 | 89.0 | 106.8 |
| Output current | | | | | | | | |
| 2 kHz | I_{out} | [A] | 61.0 | 73.2 | 76.0 | 91.2 | 89.0 | 106.8 |
| 4 kHz | I_{out} | [A] | 61.0 | 73.2 | 76.0 | 91.2 | 89.0 | 106.8 |
| 8 kHz | I_{out} | [A] | 61.0 | | 76.0 | | 89.0 | |
| 16 kHz | I_{out} | [A] | 41.0 | | 51.0 | | 60.0 | |

Data for 60 s overload

| | | | | | |
|----------------------------|---------------|-----|------|-------|-------|
| Max. output current | | | | | |
| | $I_{max,out}$ | [A] | 91.5 | 114.0 | 133.5 |
| Overload time | | | | | |
| | t_{ol} | [s] | | 60.0 | |
| Recovery time | | | | | |
| | t_{re} | [s] | | 120.0 | |

Data for 3 s overload

| | | | | | |
|---------------------------------------|---------------|-----|-------|-------|-------|
| Max. short-time output current | | | | | |
| | $I_{max,out}$ | [A] | 112.1 | 136.8 | 169.1 |
| Overload time | | | | | |
| | t_{ol} | [s] | | 3.0 | |
| Recovery time | | | | | |
| | t_{re} | [s] | | 12.0 | |

¹⁾ Operation only permitted with mains choke or mains filter

Inverter Drives 8400 HighLine

Technical data



Rated data 400 V

► Unless otherwise specified, the data refers to the default setting.

| Typical motor power | | | | | | | | |
|---------------------------------------|-------------|------|------------------------------|------|-----------------|------|-----------------|------|
| 4-pole asynchronous motor | P | [kW] | 30.0 | 37.0 | 37.0 | 45.0 | 45.0 | 55.0 |
| Product key | | | | | | | | |
| Inverter | | | E84AV□□□3034□□0 | | E84AV□□□3734□□0 | | E84AV□□□4534□□0 | |
| DC supply | | | | | | | | |
| | U_{DC} | [V] | DC 455 V -0 % ... 775 V +0 % | | | | | |
| Rated DC-bus current | | | | | | | | |
| | $I_{N, DC}$ | [A] | 67.4 | | 83.3 | | 98.0 | |
| Power loss | | | | | | | | |
| | P_V | [kW] | 0.84 | | 0.98 | | 1.30 | |
| Max. cable length¹⁾ | | | | | | | | |
| Shielded motor cable | I_{max} | [m] | 100 | | | | | |

Brake chopper rated data

4.6

| | | | | | |
|---|--------------|------|------|------|------|
| Rated power, Brake chopper | | | | | |
| | P_N | [kW] | 70.1 | 70.1 | 70.1 |
| Max. output power, Brake chopper | | | | | |
| | $P_{max, 1}$ | [kW] | 70.1 | 70.1 | 70.1 |
| Min. brake resistance | | | | | |
| | R_{min} | [Ω] | 7.5 | 7.5 | 7.5 |

Dimensions and weights

Standard installation design

| Dimensions | | | | | |
|---------------------|---|------|------|------|------|
| Height | h | [mm] | 450 | 450 | 450 |
| Width | b | [mm] | 250 | 250 | 250 |
| Depth ²⁾ | t | [mm] | 250 | 250 | 250 |
| Mass | | | | | |
| | m | [kg] | 17.2 | 17.2 | 17.2 |

¹⁾ Technically possible cable lengths, irrespective of EMC requirements

²⁾ With safety engineering plus 20 mm

Inverter Drives 8400 HighLine



Technical data

"Cold plate" design

Inverters in cold-plate design dissipate some of their waste heat (heat loss) via a cooler adapted to the application. For this purpose, the inverters are provided with a planed cooling plate which is connected to a separate cooler in a thermally conductive way. Using the cold plate technology, the main part of the heat energy can be transferred directly to the external cooling units.

The use of cold-plate technology is advantageous for the following application cases:

- Minimising the expense of cooling the control cabinet. Here, the main part of the power loss is directly transferred to a cooling unit outside of the control cabinet, e.g. convection cooler or water cooler.
- Heavily polluted ambient air or control cabinets with a high degree of protection which do not allow for a use of a forced air cooling of the control cabinets.
- Low mounting depth in the control cabinet.

Requirements for the cooler

When cold-plate technology is used, the following basic conditions must be considered:

- Good thermal connection to the external cooling unit, i.e. the implementation of the heat transfer resistance (R_{th}) according to the power loss.
- The contact surface must at least be as big as the cooling plate of the inverter.
- The planarity of the contact surface must not exceed 0.05 mm.
- The contact surface of the external coolers and cooling plate must be connected by means of the intended screwed connection.
- The maximum temperature of the cooling plate of the inverter ((75 °C) must not be exceeded.

| Product key | Power to be dissipated | Thermal resistance |
|-----------------|------------------------|--------------------|
| Inverter | P_V | R_{th} |
| | [W] | [K/W] |
| E84AV□□□2512□□□ | 15.0 | ≤ 1.5 |
| E84AV□□□3712□□□ | 20.0 | ≤ 1.5 |
| E84AV□□□5512□□S | 30.0 | ≤ 1.0 |
| E84AV□□□7512□□S | 40.0 | ≤ 1.0 |
| E84AV□□□1122□□S | 60.0 | ≤ 0.6 |
| E84AV□□□1522□□S | 75.0 | ≤ 0.5 |
| E84AV□□□2222□□S | 100 | ≤ 0.4 |
| E84AV□□□3714□□S | 25.0 | ≤ 1.0 |
| E84AV□□□5514□□S | 35.0 | ≤ 1.0 |
| E84AV□□□7514□□S | 50.0 | ≤ 1.0 |
| E84AV□□□1124□□S | 60.0 | ≤ 0.6 |
| E84AV□□□1524□□S | 70.0 | ≤ 0.5 |
| E84AV□□□2224□□S | 100 | ≤ 0.4 |
| E84AV□□□3024□□S | 100 | ≤ 0.4 |
| E84AV□□□4024□□□ | 155 | ≤ 0.25 |
| E84AV□□□5524□□□ | 215 | ≤ 0.18 |
| E84AV□□□7524□□□ | 250 | ≤ 0.15 |
| E84AV□□□1134□□□ | 355 | ≤ 0.11 |
| E84AV□□□1534□□□ | 390 | ≤ 0.10 |
| E84AV□□□1834□□□ | 460 | ≤ 0.057 |
| E84AV□□□2234□□□ | 540 | ≤ 0.057 |
| E84AV□□□3034□□□ | 720 | ≤ 0.053 |
| E84AV□□□3734□□□ | 810 | ≤ 0.047 |
| E84AV□□□4534□□□ | 1080 | ≤ 0.035 |

Dimensions and weights

| Product key | | | E84AV□□□2512□□□ | E84AV□□□3712□□□ | E84AV□□□5512□□S | E84AV□□□7512□□S |
|-----------------------------|---|------|-----------------|-----------------|-----------------|-----------------|
| Inverter | | | | | | |
| Dimensions | | | | | | |
| Height, including fastening | h | [mm] | 186 | | 236 | |
| Width, including fastening | b | [mm] | 102 | | 70 | |
| Depth | t | [mm] | 185 | | 163 | |
| Mass | | | | | | |
| | m | [kg] | 1.3 | | 1.5 | |

| Product key | | | E84AV□□□1122□□S | E84AV□□□1522□□S | E84AV□□□2222□□S |
|-----------------------------|---|------|-----------------|-----------------|-----------------|
| Inverter | | | | | |
| Dimensions | | | | | |
| Height, including fastening | h | [mm] | 295 | | |
| Width, including fastening | b | [mm] | 70 | | |
| Depth | t | [mm] | 163 | | |
| Mass | | | | | |
| | m | [kg] | 2.0 | | |

Inverter Drives 8400 HighLine

Technical data



"Cold plate" design

Dimensions and weights

| Product key | | | E84AV□□□3714□□S | E84AV□□□5514□□S | E84AV□□□7514□□S |
|-----------------------------|---|------|-----------------|-----------------|-----------------|
| Inverter | | | | | |
| Dimensions | | | | | |
| Height, including fastening | h | [mm] | | 236 | |
| Width, including fastening | b | [mm] | | 70 | |
| Depth ¹⁾ | t | [mm] | | 163 | |
| Mass | | | | | |
| | m | [kg] | | 1.5 | |

| Product key | | | E84AV□□□1124□□S | E84AV□□□1524□□S | E84AV□□□2224□□S |
|-----------------------------|---|------|-----------------|-----------------|-----------------|
| Inverter | | | | | |
| Dimensions | | | | | |
| Height, including fastening | h | [mm] | | 295 | |
| Width, including fastening | b | [mm] | | 70 | |
| Depth ¹⁾ | t | [mm] | | 163 | |
| Mass | | | | | |
| | m | [kg] | | 2.0 | |

| Product key | | | E84AV□□□3024□□S | E84AV□□□4024□□0 | E84AV□□□5524□□0 | E84AV□□□7524□□0 |
|-----------------------------|---|------|-----------------|-----------------|-----------------|-----------------|
| Inverter | | | | | | |
| Dimensions | | | | | | |
| Height, including fastening | h | [mm] | 295 | 318 | | 378 |
| Width, including fastening | b | [mm] | 70 | | 174 | |
| Depth ¹⁾ | t | [mm] | 163 | | 141 | |
| Mass | | | | | | |
| | m | [kg] | 2.0 | 2.7 | | 3.6 |

| Product key | | | E84AV□□□1134□□0 | E84AV□□□1534□□0 | E84AV□□□1834□□0 | E84AV□□□2234□□0 |
|-----------------------------|---|------|-----------------|-----------------|-----------------|-----------------|
| Inverter | | | | | | |
| Dimensions | | | | | | |
| Height, including fastening | h | [mm] | | 378 | | 407 |
| Width, including fastening | b | [mm] | | 174 | | 231 |
| Depth ¹⁾ | t | [mm] | | 141 | | 164 |
| Mass | | | | | | |
| | m | [kg] | | 3.6 | | 9.3 |

| Product key | | | E84AV□□□2234□□0 | E84AV□□□3734□□0 | E84AV□□□4534□□0 |
|-----------------------------|---|------|-----------------|-----------------|-----------------|
| Inverter | | | | | |
| Dimensions | | | | | |
| Height, including fastening | h | [mm] | 407 | | 520 |
| Width, including fastening | b | [mm] | 231 | | 250 |
| Depth ¹⁾ | t | [mm] | 164 | | 184 |
| Mass | | | | | |
| | m | [kg] | 9.3 | | 16.9 |

¹⁾ With safety engineering plus 20 mm

Inverter Drives 8400 HighLine

Technical data



Push-through technique design

The inverters in push-through design reduce the waste heat in the control cabinet.

The inverter is mounted in the control cabinet such that the heatsink of the inverter is outside the control cabinet. Thus, the entire waste heat can be dissipated outside the control cabinet via convection or forced air cooling for almost all device performances. For inverters with a power below 2.2 kW, restrictions may occur.

Using the push-through technology is advantageous in the following application cases:

- Minimising the expense for control cabinet cooling. For this purpose, the main part of the power loss is directly transferred to the ambience outside the control cabinet (e.g. convection cooling).
- In case of control cabinets with a high degree of protection > IP54 by using separate mounting and cooling areas.
- Low mounting depth in the control cabinet.

Inverter Drives 8400 HighLine

Technical data



Push-through technique design

Dimensions and weights

| Product key | | | E84AV□□□2512□□0 | E84AV□□□3712□□0 | E84AV□□□5512□□0 | E84AV□□□7512□□0 |
|--|---|------|-----------------|-----------------|-----------------|-----------------|
| Inverter | | | | | | |
| Dimensions | | | | | | |
| Height, including fastening | h | [mm] | 186 | | 236 | |
| Width, including fastening | b | [mm] | 102 | | | |
| Depth (in control cabinet) ¹⁾ | t | [mm] | 185 | | 163 | |
| Mass | | | | | | |
| | m | [kg] | 1.4 | | 1.9 | |

| Product key | | | E84AV□□□1122□□0 | E84AV□□□1522□□0 | E84AV□□□2222□□0 | E84AV□□□3714□□0 |
|--|---|------|-----------------|-----------------|-----------------|-----------------|
| Inverter | | | | | | |
| Dimensions | | | | | | |
| Height, including fastening | h | [mm] | 295 | | 236 | |
| Width, including fastening | b | [mm] | 137 | | 102 | |
| Depth (in control cabinet) ¹⁾ | t | [mm] | 163 | | | |
| Mass | | | | | | |
| | m | [kg] | 3.5 | | 1.9 | |

| Product key | | | E84AV□□□5514□□0 | E84AV□□□7514□□0 | E84AV□□□1124□□0 | E84AV□□□1524□□0 |
|--|---|------|-----------------|-----------------|-----------------|-----------------|
| Inverter | | | | | | |
| Dimensions | | | | | | |
| Height, including fastening | h | [mm] | 236 | | 295 | |
| Width, including fastening | b | [mm] | 102 | | 137 | |
| Depth (in control cabinet) ¹⁾ | t | [mm] | 163 | | | |
| Mass | | | | | | |
| | m | [kg] | 1.9 | | 3.5 | |

| Product key | | | E84AV□□□2224□□0 | E84AV□□□3024□□0 | E84AV□□□4024□□0 | E84AV□□□5524□□0 |
|--|---|------|-----------------|-----------------|-----------------|-----------------|
| Inverter | | | | | | |
| Dimensions | | | | | | |
| Height, including fastening | h | [mm] | 295 | | 318 | |
| Width, including fastening | b | [mm] | 137 | | 174 | |
| Depth (in control cabinet) ¹⁾ | t | [mm] | 163 | | 141 | |
| Mass | | | | | | |
| | m | [kg] | 3.5 | | 4.9 | |

| Product key | | | E84AV□□□7524□□0 | E84AV□□□1134□□0 | E84AV□□□1534□□0 | |
|--|---|------|-----------------|-----------------|-----------------|--|
| Inverter | | | | | | |
| Dimensions | | | | | | |
| Height, including fastening | h | [mm] | 378 | | | |
| Width, including fastening | b | [mm] | 174 | | | |
| Depth (in control cabinet) ¹⁾ | t | [mm] | 141 | | | |
| Mass | | | | | | |
| | m | [kg] | 6.2 | | | |

¹⁾ With safety engineering plus 20 mm

Inverter Drives 8400 HighLine



Interfaces

Mains connection

- ▶ The mains fuse and cable cross-section specifications are for a mains connection of 1 x 230V or 3 x 400V.
- ▶ Class gG/gI fuses or class gRL semiconductor fuses.
- ▶ The cable cross-sections apply to PVC-insulated copper cables.
- ▶ Use for installation with UL-approved cables, fuses and brackets.

Operation with mains choke

| Typical motor power | Mains voltage | Product key | Circuit breaker | Fuse | | Mains connection |
|---------------------------|---------------------|-----------------|-----------------|------------|-----|----------------------------------|
| | | | | EN 60204-1 | UL | |
| 4-pole asynchronous motor | | Inverter | | | | Cross-section (with mains choke) |
| P | U _{AC} | | I | I | I | q |
| [kW] | [V] | | [A] | [A] | [A] | [mm ²] |
| 0.25 | 1 AC 180 ... 264 | E84AV□□□2512□□0 | C6 | 6 | 6 | 1.0 |
| 0.37 | | E84AV□□□3712□□0 | | | 10 | |
| 0.55 | | E84AV□□□5512□□0 | C10 | 10 | 15 | 1.5 |
| 0.75 | | E84AV□□□7512□□0 | | | 20 | |
| 1.10 | | E84AV□□□1122□□0 | | | 25 | |
| 1.50 | | E84AV□□□1522□□0 | C20 | 20 | 30 | 4.0 |
| 2.20 | | E84AV□□□2222□□0 | | | | |
| 0.37 | 3 AC 320 ... 550 | E84AV□□□3714□□0 | C6 | 6 | 6 | 1.0 |
| 0.55 | | E84AV□□□5514□□0 | | | | |
| 0.75 | | E84AV□□□7514□□0 | | | | |
| 1.10 | | E84AV□□□1124□□0 | | | | |
| 1.50 | | E84AV□□□1524□□0 | C10 | 10 | 10 | 1.5 |
| 2.20 | | E84AV□□□2224□□0 | | | | |
| 3.00 | | E84AV□□□3024□□0 | C16 | 16 | 15 | 2.5 |
| 4.00 | | E84AV□□□4024□□0 | | | | |
| 5.50 | | E84AV□□□5524□□0 | C20 | 20 | 20 | 4.0 |
| 7.50 | | E84AV□□□7524□□0 | | | | |
| 11.0 | | E84AV□□□1134□□0 | C32 | 32 | 30 | 10.0 |
| 15.0 | | E84AV□□□1534□□0 | | | | |
| 18.5 | | E84AV□□□1834□□0 | C50 | 50 | 40 | 16.0 |
| 22.0 | | E84AV□□□2234□□0 | C63 | 63 | 50 | 25.0 |
| 30.0 | | E84AV□□□3034□□0 | C80 | 80 | 70 | |
| 37.0 | | E84AV□□□3734□□0 | C100 | 100 | 80 | 50.0 |
| 45.0 | E84AV□□□4534□□0 | C125 | 125 | 100 | | |

- ▶ Data are valid also for inverters with type code E84AV□□□□□□□□□□S

Inverter Drives 8400 HighLine

Interfaces



Mains connection

Operation without mains choke

| Typical motor power | Mains voltage | Product key | Circuit breaker | Fuse | | Mains connection |
|---------------------------|--------------------|--------------------|-----------------|------------|-----|-------------------------------------|
| | | | | EN 60204-1 | UL | |
| 4-pole asynchronous motor | | Inverter | | | | Cross-section (without mains choke) |
| P | U _{AC} | | I | I | I | q |
| [kW] | [V] | | [A] | [A] | [A] | [mm ²] |
| 0.25 | 1 AC 180... 264 | E84AV□□□2512□□0 | C6 | 6 | 6 | 1.0 |
| 0.37 | | E84AV□□□3712□□0 | | | 10 | |
| 0.55 | | E84AV□□□5512□□0 | C10 | 10 | 15 | 1.5 |
| 0.75 | | E84AV□□□7512□□0 | | | | |
| 1.10 | | E84AV□□□1122□□0 | C16 | 16 | 20 | 2.5 |
| 1.50 | | E84AV□□□1522□□0 | C20 | 20 | 25 | |
| 2.20 | | E84AV□□□2222□□0 | C25 | 25 | 30 | 4.0 |
| 0.37 | | 3 AC 320... 550 | E84AV□□□3714□□0 | C15 | 6 | 6 |
| 0.55 | E84AV□□□5514□□0 | | | | | |
| 0.75 | E84AV□□□7514□□0 | | | | | |
| 1.10 | E84AV□□□1124□□0 | | | | | |
| 1.50 | E84AV□□□1524□□0 | | C20 | 10 | 10 | 1.5 |
| 2.20 | E84AV□□□2224□□0 | | | | | |
| 3.00 | E84AV□□□3024□□0 | | C25 | 16 | 15 | 2.5 |
| 4.00 | E84AV□□□4024□□0 | | | | 20 | |
| 5.50 | E84AV□□□5524□□0 | | C25 | 25 | 25 | 4.0 |
| 7.50 | E84AV□□□7524□□0 | | C32 | 32 | 40 | |
| 11.0 | E84AV□□□1134□□0 | | | | 40 | 40 |
| 18.5 | E84AV□□□1834□□0 | | C80 | 80 | 60 | 25.0 |

► Data are valid also for inverters with type code E84AV□□□□□□□□□□S

Inverter Drives 8400 HighLine

Interfaces



Motor connection

- ▶ Keep motor cables as short as possible, as this has a positive effect on the drive behaviour.
- ▶ With group drives (multiple motors on one inverter), the resulting cable length is the key factor. This can be calculated using the hardware manual.
- ▶ Electric strength of the motor cable: 1 kV as per VDE 250-1.
- ▶ Capacitance per unit length
 $\leq 1.5 \text{ mm}^2 / \text{AWG 16}: C_{\text{core-core}} / C_{\text{core-shield}} \leq 75 / \leq 150 \text{ pF/m}$
 $\geq 2.5 \text{ mm}^2 / \text{AWG 12}: C_{\text{core-core}} / C_{\text{core-shield}} \leq 100 / \leq 150 \text{ pF/m}$

| Typical motor power | Mains voltage | Product key | Max. cable length (shielded) | | | Max. cable length shielded C2 | | |
|---------------------|---------------------|------------------|--------------------------------|--------------------------------|---------------------------------|-------------------------------|---------------|---------------|
| | | | 4 kHz (without limit value) | 8 kHz (without limit value) | 16 kHz (without limit value) | Integrated filter | RFI filter SD | RFI filter LD |
| P | U _{AC} | Inverter | I | I | I | I | I | I |
| [kW] | [V] | | [m] | [m] | [m] | [m] | [m] | [m] |
| 0.25 | 1 AC 180 ... 264 | E84AV□□□□2512□□0 | 50.0 | 50.0 | 50.0 | 25 | 50 | |
| 0.37 | | E84AV□□□□3712□□0 | | | | | | |
| 0.55 | | E84AV□□□□5512□□0 | | | | | | |
| 0.75 | | E84AV□□□□7512□□0 | | | | | | |
| 1.10 | | E84AV□□□□1122□□0 | | | | | | |
| 1.50 | | E84AV□□□□1522□□0 | | | | | | |
| 2.20 | | E84AV□□□□2222□□0 | | | | | | |
| 0.37 | 3 AC 320 ... 550 | E84AV□□□□3714□□0 | 50.0 | 25.0 | 15.0 | 25 | 50 | |
| 0.55 | | E84AV□□□□5514□□0 | | | | | | |
| 0.75 | | E84AV□□□□7514□□0 | | | | | | |
| 1.10 | | E84AV□□□□1124□□0 | | | | | | |
| 1.50 | | E84AV□□□□1524□□0 | | | | | | |
| 2.20 | | E84AV□□□□2224□□0 | | | | | | |
| 3.00 | | E84AV□□□□3024□□0 | | | | | | |
| 4.00 | | E84AV□□□□4024□□0 | | | | | | |
| 5.50 | | E84AV□□□□5524□□0 | | | | | | |
| 7.50 | | E84AV□□□□7524□□0 | | | | | | |
| 11.0 | E84AV□□□□1134□□0 | 100 | 100 | 100 | 100 | | | |
| 15.0 | E84AV□□□□1534□□0 | | | | | | | |
| 18.5 | E84AV□□□□1834□□0 | | | | | | | |
| 22.0 | E84AV□□□□2234□□0 | | | | | | | |
| 30.0 | E84AV□□□□3034□□0 | | | | | | | |
| 37.0 | E84AV□□□□3734□□0 | | | | | | | |
| 45.0 | E84AV□□□□4534□□0 | | | | | | | |

- ▶ Data are valid also for inverters with type code E84AV□□□□□□□□□□S

4.6

Inverter Drives 8400 HighLine

Interfaces



Motor connection

Operation with earth-leakage circuit breaker

If the inverter is connected via an earth-leakage circuit breaker, the following cable lengths are permissible, although the table must also be taken into account:

Earth-leakage circuit breaker 30 mA:

- 0.25 to 2.2 kW (230 V, Category C1) up to 5 m shielded motor cable with RFI filter LL
- 0.25 to 2.2 kW up to 25 m shielded motor cable with integrated RFI measures
- 0.25 to 15 kW up to 25 m shielded motor cable with RFI filter SD.

Earth-leakage circuit breaker 300 mA:

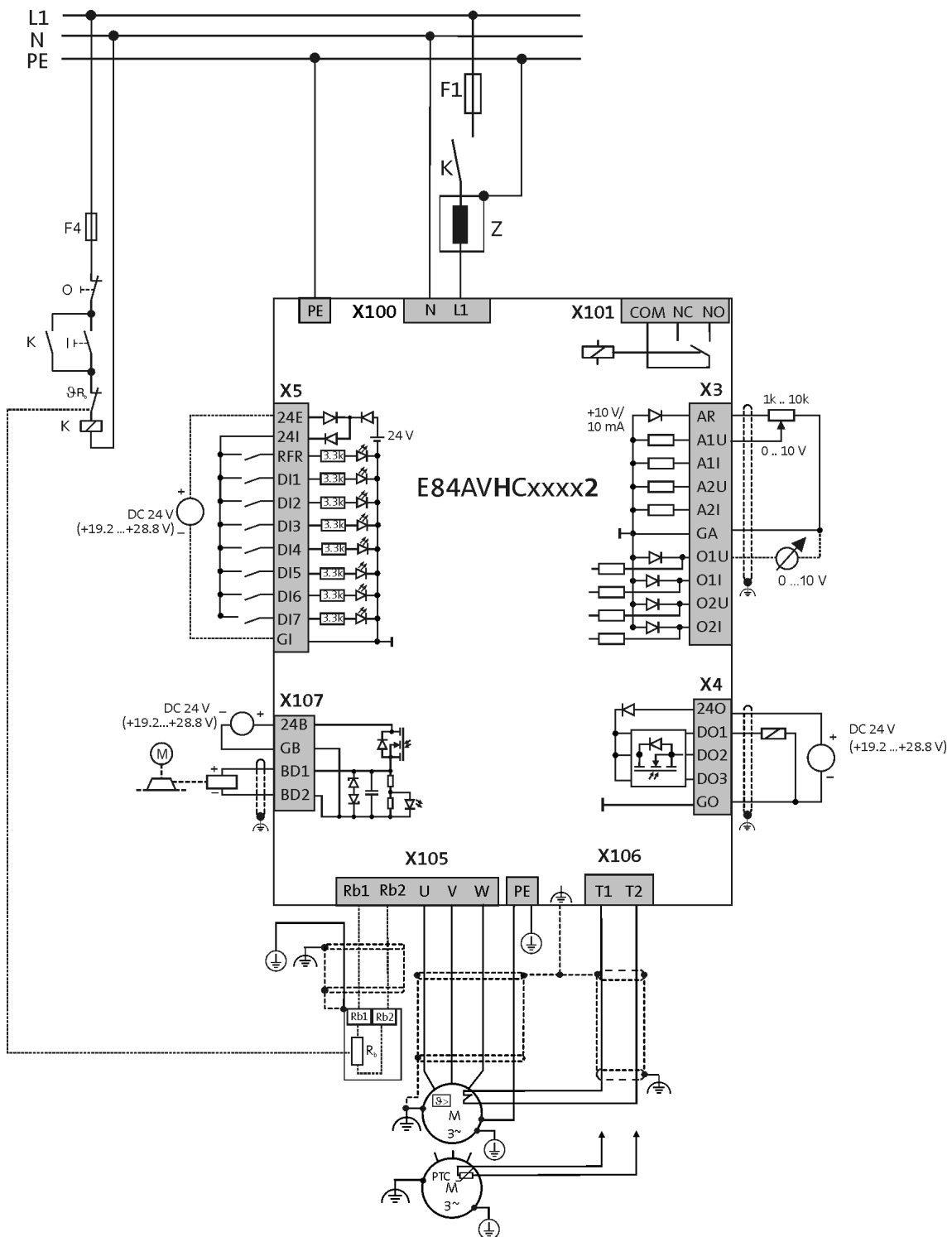
- 3.0 to 45 kW up to 25 m shielded motor cable with integrated RFI measures
- 0.25 to 45 kW up to 50 m shielded motor cable with RFI filter LD.

- ▶ When using an earth-leakage circuit breaker and RFI filter, the cable lengths can also be used for Category C1, cable-guided.



Connection diagrams

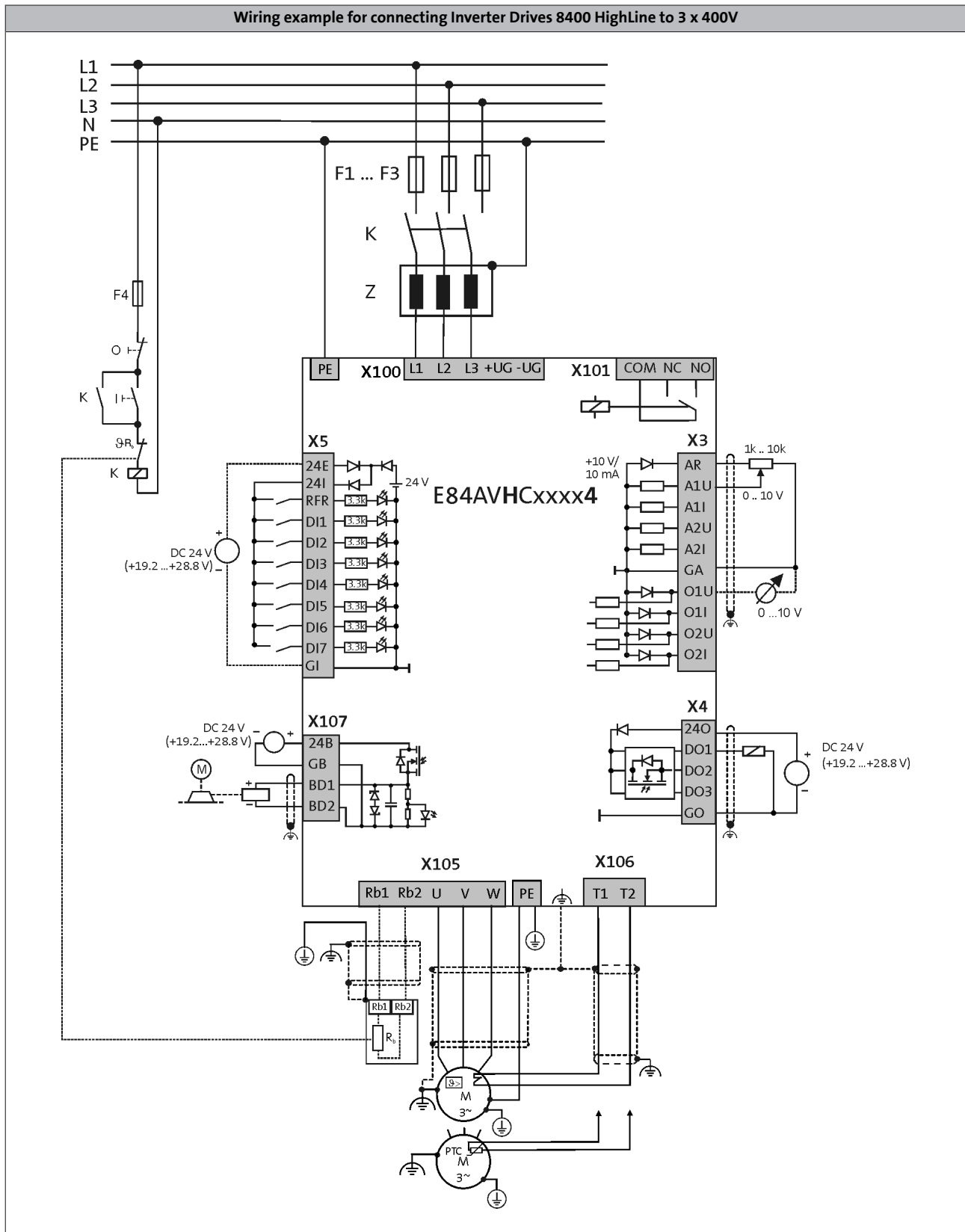
Wiring example for connecting Inverter Drives 8400 HighLine to 1 x 230V



4.6



Connection diagrams



Inverter Drives 8400 HighLine

Interfaces



Control connections

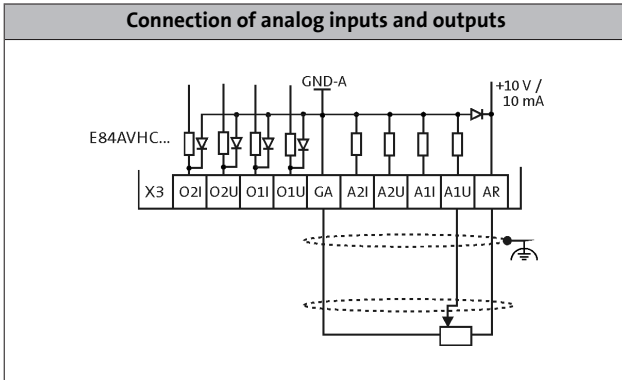
| | |
|---------------------------|--|
| Mode | 8400 HighLine |
| Analog inputs | |
| Number | 2 Optional: voltage or current input |
| Resolution | 10 bits + sign |
| Value range | 0 ... +/- 10V, 0/4 ... 20 mA |
| Analog outputs | |
| Number | 2 Optional: voltage or current output |
| Resolution | 10 bits |
| Value range | 0 ... 10V, 0/4 ... 20mA |
| Digital inputs | |
| Number | 8 |
| Switching level | PLC (IEC 61131-2) |
| Max. input current | 11 mA |
| Function | 2 inputs, can optionally be used as a frequency input (10 kHz, 2-track) |
| Digital outputs | |
| Number | 4 |
| Switching level | PLC (IEC 61131-2) |
| Max. output current | 1 x 2.5 A, (basic insulation, with spark suppressor, e.g. for 24 V service brake) 3 x 50 mA |
| Relay | |
| Number | 1 |
| Contact | Changeover contact |
| AC connection | 250V, 3A |
| DC connection | 24V, 2A ... 240V, 0.16A |
| External DC supply | |
| Rated voltage | 24 V |
| Interfaces | |
| CANopen | Integrated functional insulated Max. baud rate 1.000 kbps DIP switch for address, baud rate, bus termination |
| Extensions | optional communication module |
| Safety engineering | Optional Safe torque off (STO) |
| Drive interface | |
| Encoder input | Via 2 digital inputs, HTL, 2-track, 200 kHz can also be used as a frequency input, |

¹⁾ For mains-independent control electronics supply

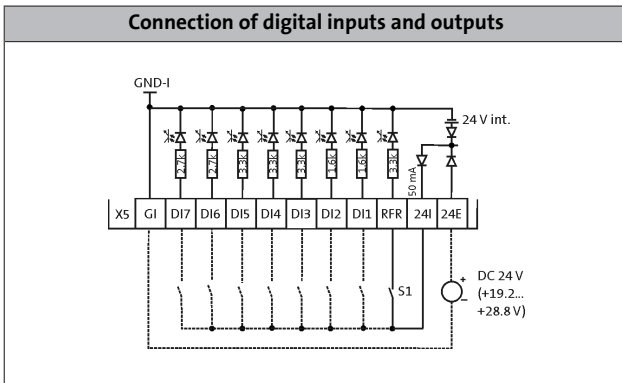


Control connections

Connection of analog inputs and outputs



Connection of digital inputs and outputs



Inverter Drives 8400 HighLine

Interfaces



Memory module

All drive settings for the 8400 are stored on the memory module, which is a pluggable memory chip. The memory module ensures that drives can be replaced quickly and without errors being made.

| Mode | Features | Product key |
|---------------|--|-------------|
| Memory module | <ul style="list-style-type: none">• For 8400 StateLine, HighLine, Topline and protec• Packaging unit: 5 items | E84AYM10S/M |

- Each inverter is equipped with a memory module in the factory

Safety system (STO)

The 8400 StateLine, HighLine and TopLine models are optionally available with "STO safe torque off" safety engineering. This helps reduce control system costs, save space in the control cabinet and keep wiring to a minimum. The safety engineering is certified to EN ISO 13849-1 (Cat. 4, PL e), EN 61508/EN 62061 (SIL 3).

The inverters can optionally be ordered with integrated safety engineering (STO). In this case, the product key of the inverter has a "B" as the 14th character.

By way of an example, a StateLine 230 V, 0.55 kW built-in unit with safety engineering would be: E84AVSCE5512SB0



8400 StateLine with safety engineering

Inverter Drives 8400 HighLine

Interfaces



Inverter Drives 8400 HighLine

Interfaces




EtherCAT® communication module

A communication module is used to connect the 8400 StateLine, HighLine or TopLine to a bus system.



EtherCAT® communication module

| Mode | | Features | Slot | Product key |
|----------------------|---|--|------|-------------|
| Communication module | | | | |
| EtherCAT |  | <ul style="list-style-type: none"> • Distributed clock • 5 LEDs for status display • 2 RJ45 connections with LEDs for link and activity • Connection option for separate 24 V supply | MCI | E84AYCETV/S |

4.6

- ▶ The Inverter Drives 8400 can be ordered with a plug-in EtherCAT® communication module already installed. If you would like to order the products in this complete form, please add the inverter product key as follows when placing your order: E84AV to X-ETXXX
- ▶ The product key with the supplement for the applied module is provided in our sales documents. This information is not part of the nameplate of the device.

Standards and operating conditions

| | | | | |
|---|----------|-----|--|--------------------------------------|
| Product key | | | | E84AYCETV/S |
| Mode | | | | EtherCAT |
| Enclosure | | | | IP20 |
| Climatic conditions | | | | |
| Storage (EN 60721-3-1) | | | | 1K3 (temperature: -25 °C ... +60 °C) |
| Transport (EN 60721-3-2) | | | | 2K3 (temperature: -25 °C ... +70 °C) |
| Operation (EN 60721-3-3) | | | | 3K3 (temperature: -10°C ... +55°C) |
| Insulation voltage to reference earth/PE | | | | |
| EN 61800-5-1 | U_{AC} | [V] | | 50.0 |



EtherCAT® communication module

Rated data

| | | | |
|--|------------|----------|--|
| Product key | | | E84AYCETV/S |
| Communication | | | |
| Medium | | | CAT5e S/FTP according to ISO/ICE11801 (2002) |
| Communication profile | | | CoE (CANopen over EtherCAT) |
| Baud rate | | | |
| | b | [MBit/s] | 100 |
| Node | | | |
| | | | Slave |
| Network topology | | | |
| | | | Line |
| Number of logical process data channels | | | |
| | | | 1 |
| Process data words (PCD) | | | |
| 16 Bit | | | 1 ... 16 |
| Number of bus nodes | | | |
| | | | Max. 65535 |
| Max. cable length | | | |
| between two nodes | l_{\max} | [m] | 100 |

Inverter Drives 8400 HighLine

Interfaces




EtherNet/IP communication module

A communication module is used to connect the 8400 StateLine, HighLine or TopLine to a bus system.



EtherNet/IP communication module

| Mode | | Features | Slot | Product key |
|----------------------|---|---|------|-------------|
| Communication module | | | | |
| EtherNet/IP |  | <ul style="list-style-type: none"> • 5 LEDs for status display • 2 RJ45 connections with LEDs for link and activity • Address can be set via 2 rotary DIP switches • TCP/IP channel • ODVA certification (Open Device Vendor Association) • Supported assembly object instances as per ODVA: 20, 21, 22, 23 and 70, 71, 72, 73 • Manufacturer-specific supported assembly object instances (custom): 110 and 111 • Connection option for separate 24 V supply | MCI | E84AYCEOV/S |

4.6

- ▶ The Inverter Drives 8400 can be ordered with a plug-on PROFINET communication module already installed. If you would like to order the products in this complete form, please add the inverter product key as follows when placing your order: E84AV to X-EOXXX
- ▶ The product key with the supplement for the applied module is provided in our sales documents. This information is not part of the nameplate of the device.

Standards and operating conditions

| | | | | |
|---|-----------------|-----|--|--------------------------------------|
| Product key | | | | E84AYCEOV/S |
| Mode | | | | EtherNet/IP |
| Enclosure | | | | IP20 |
| EN 60529 | | | | |
| Climatic conditions | | | | |
| Storage (EN 60721-3-1) | | | | 1K3 (temperature: -25 °C ... +60 °C) |
| Transport (EN 60721-3-2) | | | | 2K3 (temperature: -25 °C ... +70 °C) |
| Operation (EN 60721-3-3) | | | | 3K3 (temperature: -10°C ... +55°C) |
| Insulation voltage to reference earth/PE | | | | |
| EN 61800-5-1 | U _{AC} | [V] | | 50.0 |

Inverter Drives 8400 HighLine

Interfaces



EtherNet/IP communication module

Rated data

| | | | |
|---------------------------------|------------|----------|---|
| Product key | | | E84AYCEOV/S |
| Communication | | | |
| Medium | | | CAT5e S/FTP according to ISO/ICE11801 / EN50173 |
| Communication profile | | | EtherNET/IP, AC Drive |
| Baud rate | | | |
| | b | [MBit/s] | 10/100 (full duplex/half duplex) |
| Node | | | |
| | | | Slave (Adapter) |
| Network topology | | | |
| | | | Tree, star and line |
| Process data words (PCD) | | | |
| 16 Bit | | | 1 ... 16 |
| Number of bus nodes | | | |
| | | | max. 254 im Subnetz |
| Max. cable length | | | |
| between two nodes | l_{\max} | [m] | 100 |

Inverter Drives 8400 HighLine

Interfaces




POWERLINK communication module

A communication module is used to connect the 8400 StateLine, HighLine or TopLine to a bus system.



POWERLINK communication module

| Mode | | Features | Slot | Product key |
|----------------------|---|---|------|-------------|
| Communication module | | | | |
| POWERLINK CN |  | <ul style="list-style-type: none"> • Sync mode, Multiplex mode • 5 LEDs for status display • 2 x RJ45 connections with LEDs for link and collision • Connection option for separate 24 V supply | MCI | E84AYCECV/S |

4.6

- ▶ The Inverter Drives 8400 can be ordered with a plug-in POWERLINK communication module already installed. If you would like to order the products in this complete form, please add the inverter product key as follows when placing your order: E84AV to X-ECXXX
- ▶ The product key with the supplement for the applied module is provided in our sales documents. This information is not part of the nameplate of the device.

Standards and operating conditions

| | | | | |
|---|----------|-----|--|--------------------------------------|
| Product key | | | | E84AYCECV/S |
| Mode | | | | POWERLINK CN |
| Enclosure | | | | IP20 |
| Climatic conditions | | | | |
| Storage (EN 60721-3-1) | | | | 1K3 (temperature: -25 °C ... +60 °C) |
| Transport (EN 60721-3-2) | | | | 2K3 (temperature: -25 °C ... +70 °C) |
| Operation (EN 60721-3-3) | | | | 3K3 (temperature: -10°C ... +55°C) |
| Insulation voltage to reference earth/PE | | | | |
| EN 61800-5-1 | U_{AC} | [V] | | 50.0 |

Inverter Drives 8400 HighLine

Interfaces



POWERLINK communication module

Rated data

| | | | |
|--|------------|----------|--|
| Product key | | | E84AYCECV/S |
| Communication | | | |
| Medium | | | CAT5e S/FTP according to ISO/ICE11801 (2002) |
| Communication profile | | | EPL2.0 |
| Baud rate | | | |
| | b | [MBit/s] | 100 |
| Node | | | |
| | | | Controlled node (CN) |
| Network topology | | | |
| | | | bei Verwendung von externen Hubs Line bei Verwendung der internen Hubs Tree |
| Number of logical process data channels | | | |
| | | | 1 |
| Process data words (PCD) | | | |
| 16 Bit | | | 1 ... 16 |
| Number of bus nodes | | | |
| | | | max. 239 |
| Max. cable length | | | |
| between two nodes | I_{max} | [m] | 100 |
| Rated voltage | | | |
| | $U_{N,DC}$ | [V] | 24.0 |


4.6

Ethernet POWERLINK Hub

Lenze offers an external 8-way hub, supplementing the 2-way hub integrated in the Ethernet POWERLINK interface connections. This infrastructure component corresponds to a class-II repeater as per IEEE802.3u. It automatically detects the network baud rate (10 or 100 Mbps). The hubs can be cascaded via a special uplink port.



Ethernet POWERLINK Hub

| Mode | | Features | Product key |
|----------------------|---|---|-------------|
| Communication module | | | |
| POWERLINK hub |  | <ul style="list-style-type: none"> DC 24 V Automatic baud rate detection (10/100 Mbps) 8-fold hub in industrial design Cascadable | E94AZCEH |

Inverter Drives 8400 HighLine

Interfaces




PROFIBUS communication module

A communication module is used to connect the 8400 StateLine, HighLine or TopLine to a bus system.



PROFIBUS communication module

| Mode | | Features | Slot | Product key |
|----------------------|---|--|------|-------------|
| Communication module | | | | |
| PROFIBUS |  | <ul style="list-style-type: none"> • 5 LEDs for status display • Sub-D connection • Address can be set via DIP switch | MCI | E84AYCPMV/S |

4.6

- ▶ The Inverter Drives 8400 can be ordered with a plug-in PROFIBUS communication module already installed. If you would like to order the products in this complete form, please add the inverter product key as follows when placing your order: E84AV to X-PMXXX
- ▶ The product key with the supplement for the applied module is provided in our sales documents. This information is not part of the nameplate of the device.

Standards and operating conditions

| | | | | |
|---|----------|-----|--|--------------------------------------|
| Product key | | | | E84AYCPMV/S |
| Mode | | | | PROFIBUS |
| Enclosure | | | | IP20 |
| Climatic conditions | | | | |
| Storage (EN 60721-3-1) | | | | 1K3 (temperature: -25 °C ... +60 °C) |
| Transport (EN 60721-3-2) | | | | 2K3 (temperature: -25 °C ... +70 °C) |
| Operation (EN 60721-3-3) | | | | 3K3 (temperature: -10°C ... +55°C) |
| Insulation voltage to reference earth/PE | | | | |
| EN 61800-5-1 | U_{AC} | [V] | | 50.0 |



PROFIBUS communication module

Rated data

| | | | |
|---------------------------------|------------|----------|---|
| Product key | | | E84AYCPMV/S |
| Communication | | | |
| Medium | | | RS 485 |
| Communication profile | | | PROFIBUS-DP-V1 PROFIBUS-DP-V0 |
| Device profile | | | PROFIDrive, version 3 |
| Baud rate | | | |
| | b | [kBit/s] | 9.6 ... 12 000 (automatic detection) |
| Node | | | |
| | | | Slave |
| Network topology | | | |
| | | | Line with repeater: Line or tree without repeater: |
| Process data words (PCD) | | | |
| 16 Bit | | | 1 ... 16 |
| DP user data length | | | |
| | | | Optional parameter channel (4 words) + process data words |
| Number of bus nodes | | | |
| | | | 31 slaves + 1 master per bus segment With repeaters: 125 |
| Max. cable length | | | |
| per bus segment | l_{\max} | [m] | 1200 (depending on the baud rate and the cable type used) |

Inverter Drives 8400 HighLine

Interfaces




PROFINET communication module

A communication module is used to connect the 8400 StateLine, HighLine or TopLine to a bus system.



PROFINET communication module

| Mode | | Features | Slot | Product key |
|----------------------|---|---|------|-------------|
| Communication module | | | | |
| PROFINET |  | <ul style="list-style-type: none"> • 5 LEDs for status display • 2 RJ45 connections with LEDs for link and activity • TCP/IP channel • Connection option for separate 24 V supply | MCI | E84AYCERV/S |

4.6

- ▶ The Inverter Drives 8400 can be ordered with a plug-on PROFINET communication module already installed. If you would like to order the products in this complete form, please add the inverter product key as follows when placing your order: E84AV to X-ER-XXX
- ▶ The product key with the supplement for the applied module is provided in our sales documents. This information is not part of the nameplate of the device.

Standards and operating conditions

| | | | | |
|---|----------|-----|--|--------------------------------------|
| Product key | | | | E84AYCERV/S |
| Mode | | | | PROFINET |
| Enclosure | | | | IP20 |
| EN 60529 | | | | |
| Climatic conditions | | | | |
| Storage (EN 60721-3-1) | | | | 1K3 (temperature: -25 °C ... +60 °C) |
| Transport (EN 60721-3-2) | | | | 2K3 (temperature: -25 °C ... +70 °C) |
| Operation (EN 60721-3-3) | | | | 3K3 (temperature: -10°C ... +55°C) |
| Insulation voltage to reference earth/PE | | | | |
| EN 61800-5-1 | U_{AC} | [V] | | 50.0 |



PROFINET communication module

Rated data

| | | | |
|--|------------|----------|--|
| Product key | | | E84AYCERV/S |
| Communication | | | |
| Medium | | | CAT5e S/FTP according to ISO/ICE11801 (2002) |
| Communication profile | | | PROFINET RT Conf. Class B |
| Baud rate | | | |
| | b | [MBit/s] | 100 |
| Node | | | |
| | | | Slave (Device) |
| Network topology | | | |
| | | | Line |
| Number of logical process data channels | | | |
| | | | 1 |
| Process data words (PCD) | | | |
| 16 Bit | | | 1 ... 16 |
| Max. cable length | | | |
| between two nodes | l_{\max} | [m] | 100 |

Inverter Drives 8400 HighLine

Accessories



Brake resistors

An external brake resistor is required to brake high moments of inertia or in the event of prolonged operation in generator mode; this resistor converts braking energy into heat.

The brake resistors recommended in the table below have been dimensioned for approx. 1.5 times the regenerative power, with a cycle time of 15/135 s (brake/rest ratio). These brake resistors generally meet the usual requirements of standard applications.

The brake resistors are fitted with a thermostat (potential-free NC contact).



ERBM...(IP50) brake resistor

| Typical motor power | Mains voltage | Product key | | Rated resistance | Rated power | Thermal capacity | Dimensions | Mass |
|---------------------------|--------------------|-----------------|----------------|------------------|----------------|------------------|-----------------|------|
| | | Inverter | Brake resistor | | | | | |
| 4-pole asynchronous motor | | | | | | | | |
| P | U _{AC} | | | R _N | P _N | C _{th} | h x b x t | m |
| [kW] | [V] | | | [Ω] | [kW] | [KWs] | [mm] | [kg] |
| 0.25 | 1 AC 180... 264 | E84AV□□□2512□□0 | ERBM180R050W | 180.0 | 0.050 | 7.50 | 175 x 20.6 x 40 | 0.3 |
| 0.37 | | E84AV□□□3712□□0 | | | | | | |
| 0.55 | | E84AV□□□5512□□0 | ERBM100R100W | 100.0 | 0.10 | 15.0 | 240 x 80 x 95 | 0.5 |
| 0.75 | | E84AV□□□7512□□0 | | | | | | |
| 1.10 | | E84AV□□□1122□□0 | ERBP033R200W | 33.0 | 0.20 | 30.0 | 240 x 41 x 122 | 1.0 |
| 1.50 | | E84AV□□□1522□□0 | | | | | | |
| 2.20 | E84AV□□□2222□□0 | ERBP033R300W | | 0.30 | 45.0 | 320 x 41 x 122 | 1.4 | |
| 0.37 | 3 AC 320... 550 | E84AV□□□3714□□0 | ERBM390R100W | 390.0 | 0.10 | 15.0 | 235 x 20.6 x 40 | 0.4 |
| 0.55 | | E84AV□□□5514□□0 | | | | | | |
| 0.75 | | E84AV□□□7514□□0 | ERBP180R200W | 180.0 | 0.20 | 30.0 | 240 x 41 x 122 | 1.0 |
| 1.10 | | E84AV□□□1124□□0 | | | | | | |
| 1.50 | | E84AV□□□1524□□0 | ERBP180R300W | 180.0 | 0.30 | 45.0 | 320 x 41 x 122 | 1.4 |
| 2.20 | | E84AV□□□2224□□0 | | | | | | |

► Data are valid also for inverters with type code E84AV□□□□□□□□□S

Inverter Drives 8400 HighLine

Accessories



Brake resistors

For standard applications, we recommend the following combinations:

- E84AV□□□3024□□□ and ERBP180R300W
- E84AV□□□4024□□□ and ERBS047R400W
- E84AV□□□5524□□□ and ERBS047R800W
- E84AV□□□7524□□□ and ERBS027R01K2
- E84AV□□□1134□□□ and ERBS027R01K2
- E84AV□□□1534□□□ and ERBS018R01K4
- E84AV□□□1834□□□ and ERBS015R02K4
- E84AV□□□2234□□□ and ERBS015R02K4.



Other possible combinations:

ERBP...(IP21) and ERBS...(IP65) brake resistor

| Typical motor power | Mains voltage | Product key | | Rated resistance | Rated power | Thermal capacity | Dimensions | Mass |
|---------------------|--------------------|-----------------|----------------|------------------|------------------|--------------------|------------------|------|
| | | Inverter | Brake resistor | | | | | |
| P | U _{AC} | | | R _N | P _N | C _{th} | h x b x t | m |
| [kW] | [V] | | | [Ω] | [kW] | [KW _s] | [mm] | [kg] |
| 3.00 | 3 AC 320... 550 | E84AV□□□3024□□□ | ERBP180R300W | 180.0 | 0.30 | 45.0 | 320 x 41 x 122 | 1.4 |
| | | | ERBP082R200W | 82.0 | 0.20 | 30.0 | | 1.0 |
| | | | ERBS082R780W | | 0.78 | 117 | 666 x 124 x 122 | 4.0 |
| 4.00 | | E84AV□□□4024□□□ | ERBP047R200W | 47.0 | 0.20 | 30.0 | 320 x 41 x 122 | 1.0 |
| | | | ERBS047R400W | | 0.40 | 60.0 | 400 x 110 x 105 | 2.3 |
| | | | ERBS047R800W | | 0.80 | 120 | 710 x 110 x 105 | 3.9 |
| 5.50 | | E84AV□□□5524□□□ | ERBP047R200W | | 0.20 | 30.0 | 320 x 41 x 122 | 1.0 |
| | | | ERBS047R400W | | 0.40 | 60.0 | 400 x 110 x 105 | 2.3 |
| | | | ERBS047R800W | 0.80 | 120 | 710 x 110 x 105 | 3.9 | |
| 7.50 | | E84AV□□□7524□□□ | ERBP027R200W | 27.0 | 0.20 | 30.0 | 320 x 41 x 122 | 1.0 |
| | | | ERBS027R600W | | 0.60 | 90.0 | 550 x 110 x 105 | 3.1 |
| | | | ERBS027R01K2 | | 1.20 | 180 | 1020 x 110 x 105 | 5.6 |
| 11.0 | | E84AV□□□1134□□□ | ERBP027R200W | | 0.20 | 30.0 | 320 x 41 x 122 | 1.0 |
| | | | ERBS027R600W | | 0.60 | 90.0 | 550 x 110 x 105 | 3.1 |
| | | | ERBS027R01K2 | 1.20 | 180 | 1020 x 110 x 105 | 5.6 | |
| 15.0 | E84AV□□□1534□□□ | ERBS018R800W | 18.0 | 0.80 | 120 | 710 x 110 x 105 | 3.9 | |
| | | ERBS018R01K4 | | 1.40 | 210 | 1110 x 110 x 105 | 6.2 | |
| | | ERBS018R02K8 | | 2.80 | 420 | 1110 x 200 x 105 | 12.0 | |
| 18.5 | E84AV□□□1834□□□ | ERBS015R800W | 15.0 | 0.80 | 120 | 710 x 110 x 105 | 3.9 | |
| | | ERBS015R01K2 | | 1.20 | 180 | 1020 x 110 x 105 | 5.6 | |
| | | ERBS015R02K4 | | 2.40 | 420 | 1020 x 200 x 105 | 10.0 | |
| 22.0 | E84AV□□□2234□□□ | ERBS015R800W | | 0.80 | 120 | 710 x 110 x 105 | 3.9 | |
| | | ERBS015R01K2 | | 1.20 | 180 | 1020 x 110 x 105 | 5.6 | |
| | | ERBS015R02K4 | 2.40 | 420 | 1020 x 200 x 105 | 10.0 | | |
| 30.0 | E84AV□□□3034□□□ | ERBG075D01K9 | 7.5 | 1.90 | 285 | 486 x 236 x 302 | 9.5 | |
| 37.0 | E84AV□□□3734□□□ | | | | | | | |
| 45.0 | E84AV□□□4534□□□ | | | | | | | |

► Data are valid also for inverters with type code E84AV□□□□□□□□□□S

Inverter Drives 8400 HighLine

Accessories



Mains chokes

A mains choke is an inductive resistor which is connected in the mains cable of the power supply module. The use of a mains choke provides the following advantages:

- **Fewer effects on the mains:**
The wave form of the mains current is a close approximation to a sine wave.
- **Reduction in the effective mains current:**
Reduction of mains, cable and fuse loads

Mains chokes can be used without restrictions in conjunction with RFI filters and/or sinusoidal filters.



Mains choke

Please note:

: The use of a mains choke slightly reduces the mains voltage at the input of the inverter - the typical voltage drop across the mains choke at the rated values is around 4%.

Operation at rated power

| Typical motor power | Mains voltage | Product key | | Rated current | Dimensions | Mass |
|---------------------------|-------------------------------|-------------------------------|----------------|-----------------|-----------------|------|
| 4-pole asynchronous motor | | Inverter | Mains choke | | | |
| P | U_{AC} | | | I_N | h x b x t | m |
| [kW] | [V] | | | [A] | [mm] | [kg] |
| 0.25 | 1 AC 180 ... 264 | E84AV□□□2512□□□□ | ELN1-0900H005 | 5.00 | 75 x 66 x 82 | 1.1 |
| 0.37 | | E84AV□□□3712□□□□ | | | | |
| 0.55 | | E84AV□□□5512□□□□ | ELN1-0500H009 | 9.00 | | |
| 0.75 | | E84AV□□□7512□□□□ | | | | |
| 1.10 | | E84AV□□□1122□□□□ | ELN1-0250H018 | 18.0 | | |
| 1.50 | | E84AV□□□1522□□□□ | | | | |
| 2.20 | | E84AV□□□2222□□□□ | | | | |
| 0.37 | 3 AC 320 ... 550 | E84AV□□□3714□□□□ | EZAELN3002B153 | 2.00 | 56 x 77 x 100 | 0.5 |
| 0.55 | | E84AV□□□5514□□□□ | EZAELN3004B742 | 4.00 | 60 x 95 x 114 | 1.3 |
| 0.75 | | E84AV□□□7514□□□□ | | | | |
| 1.10 | | E84AV□□□1124□□□□ | | | | |
| 1.50 | | E84AV□□□1524□□□□ | EZAELN3006B492 | 6.00 | 69 x 95 x 117 | 1.5 |
| 2.20 | | E84AV□□□2224□□□□ | | | | |
| 3.00 | | E84AV□□□3024□□□□ | EZAELN3008B372 | 8.00 | 85 x 120 x 137 | 1.9 |
| 4.00 | | E84AV□□□4024□□□□ | EZAELN3010B292 | 10.0 | 85 x 120 x 134 | 2.0 |
| 5.50 | | E84AV□□□5524□□□□ | EZAELN3016B182 | 16.0 | 95 x 120 x 134 | 2.7 |
| 7.50 | | E84AV□□□7524□□□□ | EZAELN3020B152 | 20.0 | 95 x 155 x 162 | 3.8 |
| 11.0 | | E84AV□□□1134□□□□ | EZAELN3025B122 | 25.0 | 110 x 155 x 167 | 5.8 |
| 15.0 | | E84AV□□□1534□□□ ¹⁾ | EZAELN3035B841 | 35.0 | | 6.0 |
| 18.5 | | E84AV□□□1834□□□□ | EZAELN3045B651 | 45.0 | 112 x 185 x 196 | 8.3 |
| 22.0 | | E84AV□□□2234□□□ ¹⁾ | EZAELN3050B591 | 50.0 | 112 x 185 x 208 | 8.4 |
| 30.0 | | E84AV□□□3034□□□ ¹⁾ | EZAELN3063B471 | 63.0 | 122 x 185 x 207 | 9.7 |
| 37.0 | E84AV□□□3734□□□ ¹⁾ | EZAELN3080B371 | 80.0 | 125 x 210 x 239 | 12.5 | |
| 45.0 | E84AV□□□4534□□□ ¹⁾ | EZAELN3090B331 | 90.0 | 115 x 267 x 201 | 16.0 | |

¹⁾ Operation only permitted with mains choke

- Data are valid also for inverters with type code E84AV□□□□□□□□□□S

- On some inverters, a mains filter (combination of RFI filter and mains choke) can be used in place of a mains choke. Information on this can be found in the "Interference suppression" section.

Inverter Drives 8400 HighLine

Accessories



Mains chokes

Operation with increased power output



Mains choke

| Typical motor power | Mains voltage | Product key | | Rated current | Dimensions | Mass |
|---------------------------|-------------------------------|-------------------------------|----------------|-----------------|-----------------------|------|
| | | Inverter | Mains choke | | | |
| 4-pole asynchronous motor | | | | | | |
| P | U_{AC} | | | I_N | $h \times b \times t$ | m |
| [kW] | [V] | | | [A] | [mm] | [kg] |
| 0.37 | 1 AC 180 ... 264 | E84AV□□□2512□□0 | ELN1-0900H005 | 5.00 | 75 x 66 x 82 | 1.1 |
| 0.55 | | E84AV□□□3712□□0 ¹⁾ | | | | |
| 0.75 | | E84AV□□□5512□□0 | ELN1-0500H009 | 9.00 | | |
| 1.10 | | E84AV□□□7512□□0 ¹⁾ | | | | |
| 1.50 | | E84AV□□□1122□□0 | ELN1-0250H018 | 18.0 | | |
| 2.20 | | E84AV□□□1522□□0 ¹⁾ | | | | |
| 0.55 | 3 AC 320 ... 550 | E84AV□□□3714□□0 | EZAELN3002B153 | 2.00 | 56 x 77 x 100 | 0.5 |
| 0.75 | | E84AV□□□5514□□0 | EZAELN3004B742 | 4.00 | 60 x 95 x 114 | 1.3 |
| 1.10 | | E84AV□□□7514□□0 ¹⁾ | | | | |
| 1.50 | | E84AV□□□1124□□0 | EZAELN3006B492 | 6.00 | 69 x 95 x 117 | 1.5 |
| 2.20 | | E84AV□□□1524□□0 | | | | |
| 3.00 | | E84AV□□□2224□□0 ¹⁾ | EZAELN3008B372 | 8.00 | 85 x 120 x 137 | 1.9 |
| 4.00 | | E84AV□□□3024□□0 | EZAELN3010B292 | 10.0 | 85 x 120 x 134 | 2.0 |
| 5.50 | | E84AV□□□4024□□0 | EZAELN3016B182 | 16.0 | 95 x 120 x 134 | 2.7 |
| 7.50 | | E84AV□□□5524□□0 ¹⁾ | EZAELN3020B152 | 20.0 | 95 x 155 x 162 | 3.8 |
| 11.0 | | E84AV□□□7524□□0 | EZAELN3025B122 | 25.0 | 110 x 155 x 167 | 5.8 |
| 15.0 | | E84AV□□□1134□□0 ¹⁾ | EZAELN3030B982 | 30.0 | | 5.9 |
| 22.0 | | E84AV□□□1834□□0 ¹⁾ | EZAELN3045B651 | 45.0 | 112 x 185 x 196 | 8.3 |
| 30.0 | | E84AV□□□2234□□0 ¹⁾ | EZAELN3063B471 | 63.0 | 122 x 185 x 207 | 9.7 |
| 37.0 | | E84AV□□□3034□□0 ¹⁾ | EZAELN3080B371 | 80.0 | 125 x 210 x 239 | 12.5 |
| 45.0 | | E84AV□□□3734□□0 ¹⁾ | EZAELN3090B331 | 90.0 | 115 x 267 x 201 | 16.0 |
| 55.0 | E84AV□□□4534□□0 ¹⁾ | EZAELN3100B301 | 100 | 139 x 267 x 201 | 19.0 | |

¹⁾ Operation only permitted with mains choke

► Data are valid also for inverters with type code
E84AV□□□□□□□□□□S

4.6

Inverter Drives 8400 HighLine

Accessories



Interference suppression

RFI and mains filters are used to ensure compliance with the EMC requirements of European Standard EN 61800-3. This standard defines the EMC requirements for electrical drive system in various categories. **Category C1** applies to public networks (residential areas). Category C1 corresponds to Class B with regard to the limit values of Class B in line with EN 55011.

Category C2 is applicable in industrial premises; use in residential areas is left to the user's discretion. With regard to limit values, Category C2 corresponds to Class A according to EN 55011.




RFI filters

When working with stricter line-bound noise emission requirements, which cannot be met using the radio interference suppression measures integrated in the inverter (C2 up to 25 m shielded motor cable), external filters can be used. The filters can be installed below or next to the inverters.

Available RFI and mains filters

| Mode | RFI filter LL (Low Leakage) E84AZESR□□□□LL | RFI filter SD (Short Distance) E84AZESR□□□□SD | RFI filter LD (Long Distance) E84AZESR□□□□LD | Mains filter LD (Long Distance) E84AZESM□□□□LD |
|--------------------|--|--|--|--|
| Category C1 | Up to 5 m shielded motor cable ¹⁾ | Up to 25 m shielded motor cable ¹⁾ | Up to 50 m shielded motor cable ¹⁾ | Up to 50 m shielded motor cable ¹⁾ |
| Category C2 | | Up to 50 m shielded motor cable ¹⁾ | Up to 100 m shielded motor cable ¹⁾ | Up to 100 m shielded motor cable ¹⁾ |
| Power range | 0.25 to 2.2 kW, 230 V | 0.25 to 15 kW | 0.25 to 18.5 kW | 22 to 45 kW |
| Features | <ul style="list-style-type: none"> For installation in mobile systems, leakage current < 3.5 mA (up to 5 m shielded motor cable) | <ul style="list-style-type: none"> Optimised for low leakage current. | <ul style="list-style-type: none"> 0,25 up to 15 kW: 50 - 100 m at max. 40 °C ambient temperature and max. 4 kHz switching frequency. | <ul style="list-style-type: none"> Combination of mains choke and RFI filter. |

¹⁾  38 - Details on maximum motor cable lengths.

Inverter Drives 8400 HighLine

Accessories



Interference suppression

Operation at rated power

► RFI filter LL (Low Leakage)

| Typical motor power 4-pole asynchronous motor | Mains voltage | Product key | | Rated current | Dimensions | Mass |
|--|------------------|-----------------|----------------|---------------|---------------|------|
| | | Inverter | RFI filter | | | |
| P | U_{AC} | | | I_N | h x b x t | m |
| [kW] | [V] | | | [A] | [mm] | [kg] |
| 0.25 | 1 AC 180 ... 264 | E84AV□□□2512□□0 | E84AZESR3712LL | 5.00 | 212 x 70 x 60 | 0.8 |
| 0.37 | | E84AV□□□3712□□0 | | | | |
| 0.55 | | E84AV□□□5512□□0 | E84AZESR7512LL | 9.00 | 262 x 70 x 60 | 1.0 |
| 0.75 | | E84AV□□□7512□□0 | | | | |
| 1.10 | | E84AV□□□1122□□0 | E84AZESR2222LL | 22.0 | 317 x 70 x 60 | 1.4 |
| 1.50 | | E84AV□□□1522□□0 | | | | |
| 2.20 | | E84AV□□□2222□□0 | | | | |

► RFI filter SD (Short Distance)

| Typical motor power 4-pole asynchronous motor | Mains voltage | Product key | | Rated current | Dimensions | Mass |
|--|------------------|-----------------|----------------|----------------|---------------|----------------|
| | | Inverter | RFI filter | | | |
| P | U_{AC} | | | I_N | h x b x t | m |
| [kW] | [V] | | | [A] | [mm] | [kg] |
| 0.25 | 1 AC 180 ... 264 | E84AV□□□2512□□0 | E84AZESR3712SD | 5.00 | 212 x 70 x 60 | 0.8 |
| 0.37 | | E84AV□□□3712□□0 | | | | |
| 0.55 | | E84AV□□□5512□□0 | E84AZESR7512SD | 9.00 | 262 x 70 x 60 | 1.0 |
| 0.75 | | E84AV□□□7512□□0 | | | | |
| 1.10 | | E84AV□□□1122□□0 | E84AZESR2222SD | 22.0 | 317 x 70 x 60 | 1.7 |
| 1.50 | | E84AV□□□1522□□0 | | | | |
| 2.20 | | E84AV□□□2222□□0 | | | | |
| 0.37 | | E84AV□□□3714□□0 | | | | |
| 0.55 | E84AV□□□5514□□0 | | | | | |
| 0.75 | E84AV□□□7514□□0 | | | | | |
| 1.10 | E84AV□□□1124□□0 | E84AZESR2224SD | 7.30 | 317 x 70 x 60 | 1.5 | |
| 1.50 | E84AV□□□1524□□0 | | | | | |
| 2.20 | E84AV□□□2224□□0 | | | | | |
| 3.00 | E84AV□□□3024□□S | | | | | E84AZESR3024SD |
| 4.00 | E84AV□□□3024□□0 | E84AZESR5524SD | 18.0 | 306 x 140 x 60 | 3.1 | |
| 5.50 | E84AV□□□4024□□0 | | | | | |
| 7.50 | E84AV□□□5524□□0 | | | | | |
| 11.0 | E84AV□□□7524□□0 | E84AZESR1534SD | 29.0 | 361 x 140 x 60 | 4.4 | |
| 15.0 | E84AV□□□1134□□0 | | | | | |
| | | E84AV□□□1534□□0 | | | | |

► Data are valid also for inverters with type code
E84AV□□□□□□□□□S

Inverter Drives 8400 HighLine

Accessories



Interference suppression

Operation at rated power

► RFI filter LD (Long Distance)

| Typical motor power 4-pole asynchronous motor | Mains voltage U_{AC} | Product key | | Rated current I_N | Dimensions h x b x t | Mass | |
|--|---------------------------|-----------------|----------------|------------------------|-------------------------|------|----------------|
| | | Inverter | RFI filter | | | | |
| P [kW] | [V] | | | [A] | [mm] | [kg] | |
| 0.25 | 1 AC 180 ... 264 | E84AV□□□2512□□0 | E84AZESR3712LD | 5.00 | 212 x 70 x 60 | 0.8 | |
| 0.37 | | E84AV□□□3712□□0 | | | | | |
| 0.55 | | E84AV□□□5512□□0 | E84AZESR7512LD | | | | |
| 0.75 | | E84AV□□□7512□□0 | | | | | |
| 1.10 | | E84AV□□□1122□□0 | E84AZESR2222LD | | 22.0 | | 317 x 70 x 60 |
| 1.50 | | E84AV□□□1522□□0 | | | | | |
| 2.20 | | E84AV□□□2222□□0 | | | | | |
| 0.37 | | E84AV□□□3714□□0 | | | | | |
| 0.55 | E84AV□□□5514□□0 | | | | | | |
| 0.75 | E84AV□□□7514□□0 | | | | | | |
| 1.10 | E84AV□□□1124□□0 | E84AZESR2224LD | 7.30 | 317 x 70 x 60 | | | |
| 1.50 | E84AV□□□1524□□0 | | | | | | |
| 2.20 | E84AV□□□2224□□0 | | | | | | |
| 3.00 | E84AV□□□3024□□S | | | | E84AZESR3024LD | 9.80 | 306 x 140 x 60 |
| 4.00 | E84AV□□□3024□□0 | E84AZESR5524LD | 18.0 | | | | |
| 5.50 | E84AV□□□4024□□0 | | | | | | |
| 7.50 | E84AV□□□5524□□0 | E84AZESR1534LD | 29.0 | 361 x 140 x 60 | | | |
| 11.0 | E84AV□□□1134□□0 | | | | | | |
| 15.0 | E84AV□□□1534□□0 | | | | | | |
| 18.5 | E84AV□□□1834□□0 | | | | E84AZESR1834LD | 50.4 | |

► Mains filter LD (Long Distance)

| Typical motor power 4-pole asynchronous motor | Mains voltage U_{AC} | Product key | | Rated current I_N | Dimensions h x b x t | Mass |
|--|---------------------------|-----------------|----------------|------------------------|-------------------------|------|
| | | Inverter | Mains filter | | | |
| P [kW] | [V] | | | [A] | [mm] | [kg] |
| 22.0 | 3 AC 320 ... 550 | E84AV□□□2234□□0 | E84AZESM2234LD | 42.0 | 365 x 205 x 90 | 14.0 |
| 30.0 | | E84AV□□□3034□□0 | E84AZESM3034LD | | 519 x 250 x 105 | 23.0 |
| 37.0 | | E84AV□□□3734□□0 | E84AZESM3734LD | | | 25.0 |
| 45.0 | | E84AV□□□4534□□0 | E84AZESM4534LD | | 30.0 | |

► Data are valid also for inverters with type code
E84AV□□□□□□□□□□S

Inverter Drives 8400 HighLine

Accessories



Interference suppression

Operation with increased power output

► RFI filter LL (Low Leakage)

| Typical motor power | Mains voltage | Product key | | Rated current | Dimensions | Mass |
|---------------------------|------------------|-----------------|----------------|---------------|-----------------------|------|
| | | Inverter | RFI filter | | | |
| 4-pole asynchronous motor | | | | | | |
| P | U_{AC} | | | I_N | $h \times b \times t$ | m |
| [kW] | [V] | | | [A] | [mm] | [kg] |
| 0.37 | 1 AC 180 ... 264 | E84AV□□□2512□□0 | E84AZESR3712LL | 5.00 | 212 x 70 x 60 | 0.8 |
| 0.55 | | E84AV□□□3712□□0 | E84AZESR7512LL | 9.00 | 262 x 70 x 60 | 1.0 |
| 0.75 | | E84AV□□□5512□□0 | | | | |
| 1.10 | | E84AV□□□7512□□0 | E84AZESR2222LL | 22.0 | 317 x 70 x 60 | 1.4 |
| 1.50 | | E84AV□□□1122□□0 | | | | |
| 2.20 | | E84AV□□□1522□□0 | | | | |

► RFI filter SD (Short Distance)

| Typical motor power | Mains voltage | Product key | | Rated current | Dimensions | Mass |
|---------------------------|------------------|------------------|-----------------|----------------|-----------------------|---------------|
| | | Inverter | RFI filter | | | |
| 4-pole asynchronous motor | | | | | | |
| P | U_{AC} | | | I_N | $h \times b \times t$ | m |
| [kW] | [V] | | | [A] | [mm] | [kg] |
| 0.37 | 1 AC 180 ... 264 | E84AV□□□2512□□0 | E84AZESR3712SD | 5.00 | 212 x 70 x 60 | 0.8 |
| 0.55 | | E84AV□□□3712□□0 | E84AZESR7512SD | 9.00 | 262 x 70 x 60 | 1.0 |
| 0.75 | | E84AV□□□5512□□0 | | | | |
| 1.10 | | E84AV□□□7512□□0 | E84AZESR2222SD | 22.0 | 317 x 70 x 60 | 1.7 |
| 1.50 | | E84AV□□□1122□□0 | | | | |
| 2.20 | | E84AV□□□1522□□0 | | | | |
| 0.55 | | 3 AC 320 ... 550 | E84AV□□□3714□□0 | E84AZESR7514SD | 3.30 | 262 x 70 x 60 |
| 0.75 | E84AV□□□5514□□0 | | | | | |
| 1.10 | E84AV□□□7514□□0 | | E84AZESR2224SD | 7.30 | 317 x 70 x 60 | 1.5 |
| 1.50 | E84AV□□□1124□□0 | | | | | |
| 2.20 | E84AV□□□1524□□0 | | | | | |
| 3.00 | E84AV□□□2224□□0 | | E84AZESR5524SD | 18.0 | 306 x 140 x 60 | 3.1 |
| 4.00 | E84AV□□□3024□□S | | | | | |
| 5.50 | E84AV□□□4024□□0 | | | | | |
| 7.50 | E84AV□□□5524□□0 | | E84AZESR1534SD | 29.0 | 361 x 140 x 60 | 4.4 |
| 11.0 | E84AV□□□7524□□0 | | | | | |
| 15.0 | E84AV□□□1134□□0 | | | | | |

► Data are valid also for inverters with type code E84AV□□□□□□□□S

Inverter Drives 8400 HighLine

Accessories



Interference suppression

Operation with increased power output

► RFI filter LD (Long Distance)

| Typical motor power 4-pole asynchronous motor | Mains voltage | Product key | | Rated current | Dimensions | Mass |
|--|------------------|-----------------|----------------|---------------|----------------|------|
| | | Inverter | RFI filter | | | |
| P | U_{AC} | | | I_N | h x b x t | m |
| [kW] | [V] | | | [A] | [mm] | [kg] |
| 0.37 | 1 AC 180 ... 264 | E84AV□□□2512□□0 | E84AZESR3712LD | 5.00 | 212 x 70 x 60 | 0.8 |
| 0.55 | | E84AV□□□3712□□0 | E84AZESR7512LD | 9.00 | 262 x 70 x 60 | 1.0 |
| 0.75 | | E84AV□□□5512□□0 | | | | |
| 1.10 | | E84AV□□□7512□□0 | E84AZESR2222LD | 22.0 | 317 x 70 x 60 | 1.5 |
| 1.50 | | E84AV□□□1122□□0 | | | | |
| 2.20 | | E84AV□□□1522□□0 | | | | |
| 0.55 | 3 AC 320 ... 550 | E84AV□□□3714□□0 | E84AZESR7514LD | 3.30 | 262 x 70 x 60 | 1.1 |
| 0.75 | | E84AV□□□5514□□0 | | | | |
| 1.10 | | E84AV□□□7514□□0 | E84AZESR2224LD | 7.30 | 317 x 70 x 60 | 1.4 |
| 1.50 | | E84AV□□□1124□□0 | | | | |
| 2.20 | | E84AV□□□1524□□0 | | | | |
| 3.00 | | E84AV□□□2224□□0 | E84AZESR5524LD | 18.0 | 306 x 140 x 60 | 2.2 |
| 4.00 | | E84AV□□□3024□□0 | | | | |
| 5.50 | | E84AV□□□4024□□0 | | | | |
| 7.50 | | E84AV□□□5524□□0 | E84AZESR1534LD | 29.0 | 361 x 140 x 60 | 3.3 |
| 11.0 | | E84AV□□□7524□□0 | | | | |
| 15.0 | E84AV□□□1134□□0 | | | | | |

► Mains filter LD (Long Distance)

| Typical motor power 4-pole asynchronous motor | Mains voltage | Product key | | Rated current | Dimensions | Mass |
|--|------------------|-----------------|--------------------|---------------|-----------------|------|
| | | Inverter | Mains filter | | | |
| P | U_{AC} | | | I_N | h x b x t | m |
| [kW] | [V] | | | [A] | [mm] | [kg] |
| 22.0 | 3 AC 320 ... 550 | E84AV□□□1834□□0 | E84AZESM2234LD | 42.0 | 365 x 205 x 90 | 14.0 |
| 30.0 | | E84AV□□□2234□□0 | E84AZESM2234LDN001 | | | 18.5 |
| 37.0 | | E84AV□□□3034□□0 | E84AZESM3734LD | | 519 x 250 x 105 | 25.0 |
| 45.0 | | E84AV□□□3734□□0 | E84AZESM4534LD | | | 30.0 |
| 55.0 | | E84AV□□□4534□□0 | E84AZESM4534LDN001 | | | 32.0 |
| | | | | | | |

► Data are valid also for inverters with type code
E84AV□□□□□□□□S

Inverter Drives 8400 HighLine

Accessories



Inverter Drives 8400 HighLine

Accessories



Sinusoidal filters

A sinusoidal filter in the motor cable limits the rate of voltage rise and the capacitive charge/discharge currents that occur during inverter operation. In combination with the specified line filter, the EMC requirements of the limit class C2 for conducted noise emissions are still met, even if longer shielded or even unshielded motor cables are used.

Application range:

- Only use a sinusoidal filter with standard asynchronous motors 0 to 550 V
- Operation only with V/f or V/f² characteristic control
- Set the switching frequency permanently to the specified value
- Limit the output frequency of the Inverter Drives 8400 to the specified value



Sinusoidal filters

Operation at rated power

| Typical motor power | Mains voltage | Product key | | | | Rated inductance | Switching frequency | Mass |
|---------------------------|---------------------|-----------------|----------------|----------------|-------------------|------------------|---------------------|------|
| | | Inverter | RFI filter | Mains filter | Sinusoidal filter | | | |
| 4-pole asynchronous motor | | | | | | | | |
| P | U _{AC} | | | | | L _N | f _{ch} | m |
| [kW] | [V] | | | | | [mH] | [kHz] | [kg] |
| 0.37 | 3 AC 320 ... 550 | E84AV□□□3714□□□ | E84AZESR7514LD | | EZS3-004A200 | 11.0 | 4 | 4.0 |
| 0.55 | | E84AV□□□5514□□□ | | | | | | |
| 0.75 | | E84AV□□□7514□□□ | | | | | | |
| 1.10 | | E84AV□□□1124□□□ | E84AZESR2224LD | EZS3-010A200 | 5.10 | 5.5 | | |
| 1.50 | | E84AV□□□1524□□□ | | | | | | |
| 2.20 | | E84AV□□□2224□□□ | E84AZESR5524LD | EZS3-017A200 | 3.07 | 8.5 | | |
| 3.00 | | E84AV□□□3024□□□ | | | | | | |
| 4.00 | | E84AV□□□4024□□□ | | | | | | |
| 5.50 | | E84AV□□□5524□□□ | E84AZESR1534LD | EZS3-024A200 | 2.50 | 14.5 | | |
| 7.50 | | E84AV□□□7524□□□ | | | | | | |
| 11.0 | | E84AV□□□1134□□□ | | | | | | |
| 15.0 | | E84AV□□□1534□□□ | E84AZESR1834LD | EZS3-032A200 | 2.00 | 19.0 | | |
| 18.5 | | E84AV□□□1834□□□ | | | | | | |
| 22.0 | | E84AV□□□2234□□□ | | | | | | |
| 30.0 | | E84AV□□□3034□□□ | E84AZESM1834LD | EZS3-037A200 | 1.70 | 21.0 | | |
| 37.0 | | E84AV□□□3734□□□ | | | | | | |
| 45.0 | | E84AV□□□4534□□□ | | | | | | |
| | | | | E84AZESM2234LD | EZS3-048A200 | 1.20 | 25.5 | |
| | | | E84AZESM3034LD | EZS3-061A200 | 1.00 | 33.5 | | |
| | | | E84AZESM3734LD | EZS3-072A200 | 0.95 | 37.0 | | |
| | | | E84AZESM4534LD | EZS3-090A200 | 0.80 | 53.0 | | |
| | | | | EZS3-115A200 | 0.70 | 2 4 | 66.0 | |

► Data are valid also for inverters with type code E84AV□□□□□□□□□S

4.6

Inverter Drives 8400 HighLine

Accessories



Sinusoidal filters

Operation with increased power output

| Typical motor power | Mains voltage | Product key | | | | Rated inductance | Switching frequency | Mass | |
|---------------------------|---------------------|-------------------|--------------------|--------------------|-------------------|------------------|---------------------|------|------|
| | | Inverter | RFI filter | Mains filter | Sinusoidal filter | | | | |
| 4-pole asynchronous motor | | | | | | | | | |
| P | U _{AC} | | | | | L _N | f _{ch} | m | |
| [kW] | [V] | | | | | [mH] | [kHz] | [kg] | |
| 0.55 | 3 AC 320 ... 550 | E84AV□□□□3714□□□□ | E84AZESR7514LD | | EZS3-010A200 | 5.10 | 4 | 8 | 5.5 |
| 0.75 | | E84AV□□□□5514□□□□ | | | | | | | |
| 1.10 | | E84AV□□□□7514□□□□ | E84AZESR2224LD | | EZS3-017A200 | 3.07 | | | 8.5 |
| 1.50 | | E84AV□□□□1124□□□□ | | | | | | | |
| 2.20 | | E84AV□□□□1524□□□□ | E84AZESR5524LD | | EZS3-024A200 | 2.50 | | | 14.5 |
| 3.00 | | E84AV□□□□2224□□□□ | | | | | | | |
| 4.00 | | E84AV□□□□3024□□□□ | E84AZESR1534LD | | EZS3-037A200 | 1.70 | | | 21.0 |
| 5.50 | | E84AV□□□□4024□□□□ | | | | | | | |
| 7.50 | | E84AV□□□□5524□□□□ | | E84AZESM2234LD | EZS3-048A200 | 1.20 | | | 25.5 |
| 11.0 | | E84AV□□□□7524□□□□ | | | | | | | |
| 15.0 | | E84AV□□□□1134□□□□ | | E84AZESM2234LDN001 | EZS3-061A200 | 1.00 | | | 33.5 |
| 22.0 | | E84AV□□□□1834□□□□ | | | | | | | |
| 30.0 | | E84AV□□□□2234□□□□ | | E84AZESM3734LD | EZS3-072A200 | 0.95 | | | 37.0 |
| 37.0 | | E84AV□□□□3034□□□□ | | | | | | | |
| 45.0 | | E84AV□□□□3734□□□□ | | E84AZESM4534LD | EZS3-090A200 | 0.80 | | | 53.0 |
| 55.0 | | E84AV□□□□4534□□□□ | | | | | | | |
| | | | E84AZESM4534LDN001 | EZS3-115A200 | 0.70 | | 2 4 | 66.0 | |

► Data are valid also for inverters with type code E84AV□□□□□□□□□□S





Inverter Drives 8400 HighLine

Accessories



Rated data for power supply modules

► The data is valid for operation at 3/PE AC 400 V.

| | | |  |  |  |  |
|----------------------------------|------------|------|---|---|---|---|
| Product key | | | | | | |
| Power supply module | | | E94APNE0104 | E94APNE0364 | E94APNE1004 | E94APNE2454 |
| Rated power | | | | | | |
| With mains filter/mains choke | P_N | [kW] | 4.90 | 17.5 | 48.6 | 119 |
| Without mains filter/mains choke | P_N | [kW] | 3.60 | 13.0 | 36.2 | 88.6 |
| Mains voltage range | | | 3/PE AC 180 V-0 % ... 550 V+0 %, 45 Hz-0 % ... 65 Hz+0 % | | | |
| Rated mains current | | | | | | |
| | $I_{N,AC}$ | [A] | 8.0 | 29.0 | 82.0 | 200.0 |
| Rated DC-bus current | | | | | | |
| | $I_{N,DC}$ | [A] | 10.0 | 36.0 | 100.0 | 245.0 |

Data for 60 s overload

| | | | | | | |
|---------------------------------------|--------------|------|-------|------|-------|-------|
| Max. DC-bus current | | | | | | |
| | I_{max} | [A] | 15.0 | 54.0 | 150.0 | 368.0 |
| Reduced DC-bus current | | | | | | |
| | $I_{red,DC}$ | [A] | 7.5 | 27.0 | 75.0 | 183.5 |
| Overload time | | | | | | |
| | t_{ol} | [s] | 120.0 | | | |
| Recovery time | | | | | | |
| | t_{re} | [s] | 60.0 | | | |
| Max. output power¹⁾ | | | | | | |
| | $P_{max,1}$ | [kW] | 7.4 | 26.3 | 72.9 | 179.0 |

Data for 0.5 s overload

| | | | | | | |
|--|--------------|------|------|-------|-------|-------|
| Max. short-time DC-bus current | | | | | | |
| | I_{max} | [A] | 40.0 | 108.0 | 200.0 | 368.0 |
| Reduced DC-bus current | | | | | | |
| | $I_{red,DC}$ | [A] | 7.5 | 27.0 | 75.0 | 183.5 |
| Overload time | | | | | | |
| | t_{ol} | [s] | 0.5 | | | |
| Recovery time | | | | | | |
| | t_{re} | [s] | 4.5 | | | |
| Max. short-term output power¹⁾ | | | | | | |
| | $P_{max,2}$ | [kW] | 19.6 | 52.5 | 146.0 | 357.0 |

¹⁾ Mains filter required; if no mains filter is installed, the stated values for P_{max} decrease





Inverter Drives 8400 HighLine

Accessories



Rated data for power supply modules

► The data is valid for operation at 3/PE AC 400 V.

| | | |  |  |  |  |
|----------------------------------|------------|------|---|---|---|---|
| Product key | | | | | | |
| Power supply module | | | E94APNE0104 | E94APNE0364 | E94APNE1004 | E94APNE2454 |
| Rated power | | | | | | |
| With mains filter/mains choke | P_N | [kW] | 4.90 | 17.5 | 48.6 | 119 |
| Without mains filter/mains choke | P_N | [kW] | 3.60 | 13.0 | 36.2 | 88.6 |
| Rated DC-bus current | | | | | | |
| | $I_{N,DC}$ | [A] | 10.0 | 36.0 | 100.0 | 245.0 |
| Power loss | | | | | | |
| | P_V | [kW] | 0.055 | 0.11 | 0.23 | 0.55 |
| Dimensions | | | | | | |
| Height | h | [mm] | 350 | | 383 | |
| Height, including fastening | h | [mm] | 481 | | 510 | |
| Width | b | [mm] | 60 | 120 | 210 | 390 |
| Depth | t | [mm] | 288 | | | |
| Mass | | | | | | |
| | m | [kg] | 2.6 | 5.3 | 13.5 | 28.5 |

4.6

Brake chopper rated data

| | | | | | | |
|---|-------------|------|------|------|-------|-------|
| Rated power, Brake chopper | | | | | | |
| | P_N | [kW] | 2.6 | 8.7 | 17.0 | 30.3 |
| Max. output power, Brake chopper | | | | | | |
| | $P_{max,1}$ | [kW] | 19.5 | 43.8 | 105.1 | 187.7 |
| Running time | | | | | | |
| | t_{on} | [s] | 1.0 | | | |
| Recovery time | | | | | | |
| | t_{re} | [s] | 3.8 | 2.5 | 3.1 | |
| Min. brake resistance | | | | | | |
| | R_{min} | [Ω] | 27.0 | 12.0 | 5.0 | 2.8 |

Inverter Drives 8400 HighLine

Accessories



Rated data for regenerative power supply modules

- ▶ The data is valid for operation at 3/PE AC 400 V.
- ▶ Mains filter required, please refer to the following pages

| Product key | | | E94ARNE0134 | | E94ARNE0244 | |
|-------------------------------|-------------|------|--|----------|-------------|----------|
| Supply- / regenerative module | | | | | | |
| Operating mode | | | Feed | Feedback | Feed | Feedback |
| Rated power | | | | | | |
| With mains filter/mains choke | P_N | [kW] | 15.0 | 7.50 | 27.0 | 13.5 |
| Mains voltage range | | | 3/PE AC 180 V-0 % ... 550 V+0 %, 45 Hz-0 % ... 65 Hz+0 % | | | |
| | U_{AC} | [V] | | | | |
| Rated mains current | | | | | | |
| | $I_{N, AC}$ | [A] | 26.0 | 13.0 | 47.0 | 23.5 |
| Rated DC-bus current | | | | | | |
| | $I_{N, DC}$ | [A] | 32.0 | 16.0 | 57.0 | 29.0 |

4.6

Data for 60 s overload

| Max. DC-bus current | | | | | | |
|------------------------|---------------|------|-------|------|------|------|
| | I_{max} | [A] | 48.0 | 24.0 | 86.0 | 44.0 |
| Reduced DC-bus current | | | | | | |
| | $I_{red, DC}$ | [A] | 20.0 | 9.8 | 35.0 | 18.0 |
| Overload time | | | 60.0 | | | |
| | t_{ol} | [s] | | | | |
| Recovery time | | | 120.0 | | | |
| | t_{re} | [s] | | | | |
| Max. output power | | | | | | |
| | $P_{max, 1}$ | [kW] | 22.4 | 11.2 | 40.5 | 20.2 |

Data for 0.5 s overload

| Max. short-time DC-bus current | | | | | | |
|--------------------------------|---------------|------|------|------|-------|------|
| | I_{max} | [A] | 96.0 | 48.0 | 171.0 | 87.0 |
| Reduced DC-bus current | | | | | | |
| | $I_{red, DC}$ | [A] | 20.0 | 9.8 | 35.0 | 18.0 |
| Max. short-term output power | | | | | | |
| | $P_{max, 2}$ | [kW] | 44.9 | 22.4 | 81.1 | 40.5 |
| with brake chopper support | $P_{max, 2}$ | [kW] | | 35.1 | | 59.6 |


Inverter Drives 8400 HighLine

Accessories



Rated data for regenerative power supply modules

- ▶ The data is valid for operation at 3/PE AC 400 V.
- ▶ Mains filter required, please refer to the following pages

| | | |  | | | |
|-------------------------------|------------|------|---|----------|-------------|----------|
| Product key | | | E94ARNE0134 | | E94ARNE0244 | |
| Supply- / regenerative module | | | | | | |
| Operating mode | | | Feed | Feedback | Feed | Feedback |
| Rated power | | | | | | |
| With mains filter/mains choke | P_N | [kW] | 15.0 | 7.50 | 27.0 | 13.5 |
| Rated DC-bus current | | | | | | |
| | $I_{N,DC}$ | [A] | 32.0 | 16.0 | 57.0 | 29.0 |
| Power loss | | | | | | |
| | P_V | [kW] | 0.15 | 0.11 | 0.23 | 0.19 |
| Dimensions | | | | | | |
| Height | h | [mm] | 350 | | | |
| Height, including fastening | h | [mm] | 481 | | | |
| Width | b | [mm] | 120 | | | |
| Depth | t | [mm] | 288 | | | |
| Mass | | | | | | |
| | m | [kg] | 6.0 | | | |

4.6

Brake chopper rated data

| Rated power, Brake chopper | | | | |
|----------------------------------|-------------|------|------|------|
| | P_N | [kW] | 4.7 | 9.3 |
| Max. output power, Brake chopper | | | | |
| | $P_{max,1}$ | [kW] | 19.5 | 29.2 |
| Running time | | | | |
| | t_{on} | [s] | 1.0 | |
| Recovery time | | | | |
| | t_{re} | [s] | 4.2 | 3.9 |
| Min. brake resistance | | | | |
| | R_{min} | [Ω] | 27.0 | 18.0 |



Control connections

| Mode | Power supply modules | Regenerative power supply modules |
|-----------------------------|--|--|
| Analog inputs | | |
| Number | | 2 |
| Resolution | | 11 bits + sign |
| Value range | | +/- 10V 1 x switchable 20 mA |
| Analog outputs | | |
| Number | | 2 |
| Resolution | | 10 bits + sign |
| Value range | | +/- 10V max. 2 mA |
| Digital inputs | | |
| Number | 1 Permanently configured | 8 |
| Switching level | PLC (IEC 61131-2) | |
| Max. input current | 8 mA | |
| Digital outputs | | |
| Number | 4 fest konfiguriert | 4 |
| Switching level | PLC (IEC 61131-2) | |
| Max. output current | 50 mA per output | |
| Load capacity | >480 Ω at 24 V | |
| External DC supply | | |
| Rated voltage | 24 V in accordance with IEC 61131-2 | |
| Voltage range | 19.2 ... 28.8 V, max. residual ripple ± 5% | |
| Current | Approx. 1.4 A during operation, max. 4 A starting current for 100 ms | Approx. 1.2 A during operation, max. 3 A starting current for 100 ms ¹⁾ |
| Interfaces | | |
| CANopen | | Integrated |
| Extensions | | Via slot MXI 2: extension 2 Via slot MXI 1: extension 1 |
| State bus | | Integrated |
| Memory | | Slot MMI |
| Safety engineering | | Slot MSI |
| Drive interface | | |
| Resolver input | | Integrated (no function) |
| Mains synchronisation input | | Integrated Sub-D, 15-pin |

¹⁾ The supply to the control electronics comes from the mains voltage. Alternatively, it can be provided by a 24 V supply that is independent of the mains (available as an option).

Inverter Drives 8400 HighLine

Accessories



Brake resistors of the regenerative power supply modules

Assignment of brake resistors to the supply and regenerative power supply modules is shown in the tables below.



Brake resistor 27 ohms

Brake resistors for power supply modules

| Rated power | Mains voltage | Product key | | Rated resistance | Rated power | Thermal capacity | Dimensions | Mass |
|----------------------------------|-----------------------------------|---------------------|----------------|------------------|-------------|------------------|-----------------------|------|
| Without mains filter/mains choke | | Power supply module | Brake resistor | | | | | |
| P_N | U_{AC} | | | R_N | P_N | C_{th} | $h \times b \times t$ | m |
| [kW] | [V] | | | [Ω] | [kW] | [KWs] | [mm] | [kg] |
| 3.60 | 3 AC 180 ... 550 ¹⁾ | E94APNE0104 | ERBP027R200W | 27.0 | 0.20 | 30.0 | 320 x 41 x 122 | 1.0 |
| | | | ERBS027R600W | | 0.60 | 90.0 | 550 x 110 x 105 | 3.1 |
| | | | ERBS027R01K2 | | 1.20 | 180 | 1020 x 110 x 105 | 5.6 |
| 13.0 | | E94APNE0364 | ERBG012R01K9 | 12.0 | 1.90 | 285 | 486 x 236 x 302 | 13.0 |
| | | | ERBG012R05K2 | | 5.20 | 750 | 486 x 426 x 302 | 28.0 |
| 36.2 | | E94APNE1004 | ERBG005R02K6 | 5.0 | 2.60 | 390 | 486 x 326 x 302 | 12.6 |
| 88.6 | | E94APNE2454 | ERBG028D04K1 | 2.8 | 4.10 | 615 | 486 x 426 x 302 | 12.8 |

¹⁾ For 230 V mains voltage a different brake resistor assignment applies.

4.6

Brake resistors for regenerative power supply modules

| Rated power | Mains voltage | Product key | | Rated resistance | Rated power | Thermal capacity | Dimensions | Mass |
|-------------------------------|-----------------------------------|-------------------------------|----------------|------------------|-------------|------------------|-----------------------|------|
| With mains filter/mains choke | | Supply- / regenerative module | Brake resistor | | | | | |
| P_N | U_{AC} | | | R_N | P_N | C_{th} | $h \times b \times t$ | m |
| [kW] | [V] | | | [Ω] | [kW] | [KWs] | [mm] | [kg] |
| 15.0 | 3 AC 180 ... 550 ²⁾ | E94ARNE0134 | ERBP027R200W | 27.0 | 0.20 | 30.0 | 320 x 41 x 122 | 1.0 |
| | | | ERBS027R600W | | 0.60 | 90.0 | 550 x 110 x 105 | 3.1 |
| | | | ERBS027R01K2 | | 1.20 | 180 | 1020 x 110 x 105 | 5.6 |
| 27.0 | | E94ARNE0244 | ERBP018R300W | 18.0 | 0.30 | 30.0 | 240 x 41 x 122 | 1.4 |
| | | | ERBS018R01K2 | | 1.20 | 180 | 1020 x 110 x 105 | 5.6 |
| | | | ERBS018R02K8 | | 2.80 | 420 | 1110 x 200 x 105 | 12.0 |

²⁾ For 230 V mains voltage a different brake resistor assignment applies.

Inverter Drives 8400 HighLine

Accessories



Mains chokes of the power supply modules

A mains choke is an inductive resistor which is connected in the mains cable of the power supply module. The use of a mains choke provides the following advantages:

- **Fewer effects on the mains:**
The wave form of the mains current is a close approximation to a sine wave.
- **Reduction in the effective mains current:**
Reduction of mains, cable and fuse loads

Mains chokes can be used without restrictions in conjunction with RFI filters and/or sinusoidal filters.

Please note:

: The use of a mains choke slightly reduces the mains voltage at the input of the inverter - the typical voltage drop across the mains choke at the rated values is around 4%.



Mains choke

| Rated power | Mains voltage | Product key | | Rated current | Dimensions | Mass |
|-------------|---------------------|---------------------|----------------|---------------|-----------------------|------|
| | | Power supply module | Mains choke | | | |
| P_N | U_{AC} | | | I_N | $h \times b \times t$ | m |
| [kW] | [V] | | | [A] | [mm] | [kg] |
| 4.90 | 3 AC 180 ... 550 | E94APNE0104 | EZAELN3008B372 | 8.00 | 85 x 120 x 137 | 1.9 |
| 17.5 | | E94APNE0364 | EZAELN3030B982 | 30.0 | 110 x 155 x 167 | 5.9 |
| 48.6 | | E94APNE1004 | EZAELN3080B371 | 80.0 | 125 x 210 x 239 | 12.5 |
| 119 | | E94APNE2454 | EZAELN3200B151 | 200 | 352 x 144 x 264 | 32.0 |

Inverter Drives 8400 HighLine

Accessories



Interference suppression of the regenerative power supply modules

RFI filters and mains filters enable compliance with the interference voltage categories of the European standard EN 61800-3. There a distinction is drawn between category C1 and category C2.

Category C1 describes the use on public supply networks.

Category C2 describes the use of drives which are intended to be used for industrial purposes in areas also comprising residential areas.

For Multi Drives external filters must be used to comply with the EMC Directive.



RFI filter, can be mounted beside the power supply module

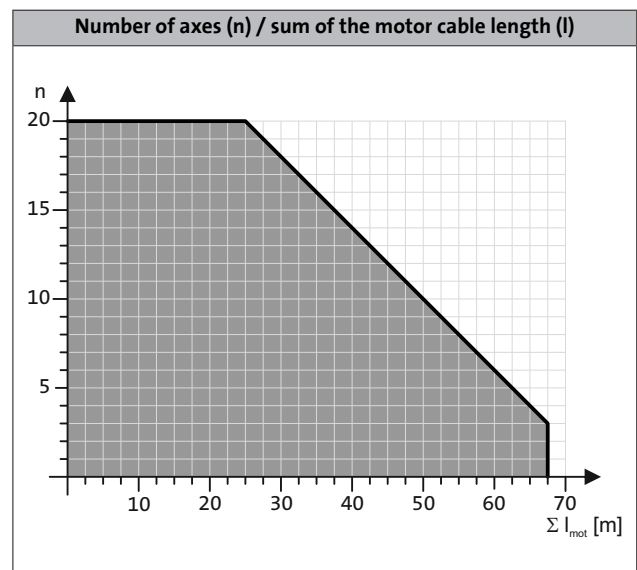
RFI filters

RFI filters are primarily capacitive accessory components which can be connected directly upstream from the power supply modules. This measure enables compliance with the corresponding conducted noise emission requirements according to EN 61800-3.

| Rated power | Mains voltage | Product key | | Rated current | Power loss | Max. cable length | Dimensions | Mass |
|----------------------------------|---------------------|---------------------|-------------|---------------|------------|---------------------|-----------------------|------|
| | | Power supply module | RFI filter | | | | | |
| Without mains filter/mains choke | | | | | | Reference group C2 | | |
| P_N | U_{AC} | | | I_N | P_V | l_{max} | $h \times b \times t$ | m |
| [kW] | [V] | | | [A] | [kW] | [m] | [mm] | [kg] |
| 3.60 | 3 AC 180 ... 550 | E94APNE0104 | E94AZRP0084 | 8.00 | 0.020 | 6 axes of 10 m each | 485 x 60 x 261 | 4.2 |
| 13.0 | | E94APNE0364 | E94AZRP0294 | 29.0 | 0.050 | | | 4.5 |
| 36.2 | | E94APNE1004 | E94AZRP0824 | 82.0 | 0.080 | | 490 x 209 x 272 | 18.5 |
| 88.6 | | E94APNE2454 | E94AZRP2004 | 200 | 0.15 | | | 20.5 |

4.6

The following diagram shows the possible number of axes and the possible sum of motor cable lengths to ensure compliance with interference suppression according to category C2.



Inverter Drives 8400 HighLine

Accessories



Interference suppression of the regenerative power supply modules

Mains filters

A mains filter is a combination of mains choke and RFI filter in a single housing. It reduces line-bound noise emission into the mains, thus ensuring that the line-bound interference voltage is reduced to a permissible level according to EN61800-3.



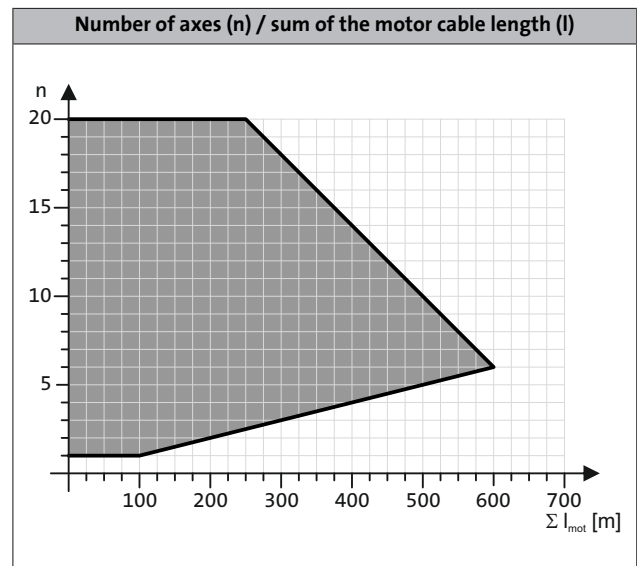
Mains filter, can be mounted beside the power supply modules (right) or the regenerative power supply modules (left)

RFI filters

| Rated power | Mains voltage | Product key | | Rated current | Voltage drop | Max. cable length | Dimensions | Mass |
|-------------------------------|---------------------|---------------------|---------------------------|---------------|--------------|----------------------|-----------------------|------|
| | | Power supply module | Mains filter | | | | | |
| With mains filter/mains choke | | | | | | Reference group C2 | | |
| P_N | U_{AC} | | | I_N | U | I_{max} | $h \times b \times t$ | m |
| [kW] | [V] | | | [A] | [V] | [m] | [mm] | [kg] |
| 4.90 | 3 AC 180 ... 550 | E94APNE0104 | E94AZMP0084 | 8.00 | 10.0 | 10 axes of 50 m each | 485 x 90 x 261 | 8.6 |
| 17.5 | | E94APNE0364 | E94AZMP0294 | 29.0 | 7.3 | | 485 x 120 x 261 | 16.5 |
| 48.6 | | E94APNE1004 | E94AZMP0824 ¹⁾ | 82.0 | 6.4 | | 490 x 270 x 272 | 29.0 |
| 119 | | E94APNE2454 | E94AZMP2004 ¹⁾ | 200 | 6.3 | | 490 x 330 x 272 | 52.0 |

¹⁾ External 24 V supply from a safely separated power supply unit (SELV/PELV) required for integrated fan.

The following diagram shows the possible number of axes and the possible sum of motor cable lengths to ensure compliance with interference suppression according to category C2.





Interference suppression of the regenerative power supply modules

Mains filters for regenerative power supply modules

| Rated power | Mains voltage | Product key | | Rated current | Voltage drop | Max. cable length | Dimensions | Mass |
|-------------------------------|---------------------|-------------------------------|------------------------------|---------------|--------------|----------------------|-----------------------|------|
| With mains filter/mains choke | | Supply- / regenerative module | Mains filter | | | Reference group C2 | | |
| P_N | U_{AC} | | | I_N | U | I_{max} | $h \times b \times t$ | m |
| [kW] | [V] | | | [A] | [V] | [m] | [mm] | [kg] |
| 15.0 | 3 AC 180 ... 550 | E94ARNE0134 | E94AZMR0264SDB ¹⁾ | 26.0 | 6.3 | 6 axes of 10 m each | 485 x 149 x 272 | 25.0 |
| | | | E94AZMR0264LDB ¹⁾ | | | 10 axes of 50 m each | | 26.0 |
| 27.0 | | E94ARNE0244 | E94AZMR0474SDB ¹⁾ | 47.0 | 6.2 | 6 axes of 10 m each | 485 x 209 x 272 | 36.0 |
| | | | E94AZMR0474LDB ¹⁾ | | | 10 axes of 50 m each | | 37.0 |

¹⁾ External 24 V supply through safely separated power supply unit (SELV/PELV) required for integrated mains voltage recording.

Inverter Drives 8400 HighLine

Accessories



DC input module

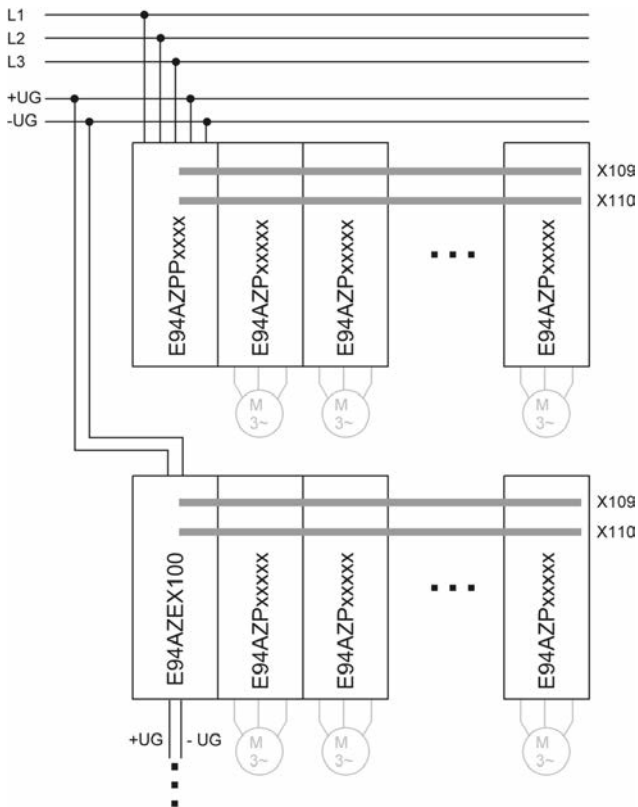
Via a DC input module, an axis module interconnection can be supplied with power from a central DC source (power supply module, Single Drive axis modules, Multi Drive axis modules). This is required for example if a drive system with a multi-level structure installed in a control cabinet is to be supplied via a central DC power supply unit. The rated current of the DC input module is defined to be 100 A (DC). The DC input module can be connected at the top or bottom, offering great flexibility with regard to integration into the system wiring. This provides an ideal way of connecting multi-row axis modules in particular.



DC input module
100 A

| Mode | Product key | Dimensions | Mass |
|-----------------------|--------------|---------------|------|
| | Input module | h x b x t | m |
| | | [mm] | [kg] |
| DC input module 100 A | E94AZEX100 | 422 x 60 x 95 | 0.9 |

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Wiring example for multi-row mounting of axis modules

Inverter Drives 8400 HighLine

Accessories



DC-bus connection

The Inverter Drives 8400 can be operated in a DC-bus connection. The 400 V devices have a direct connection for this.

The components listed here are used to interconnect the individual devices for operation with or without a regenerative power supply module. With a DC-bus connection, energy can be exchanged between the individual devices. This makes particular sense with cyclic operation of multiple devices.

The design of a DC-bus connection requires extremely precise dimensioning of the devices' energy requirements among one another. Lenze Sales is happy to advise you here to ensure the most energy-efficient drive dimensioning. The components listed here form the basis for this.

- ▶ Two DC fuses are always required.
- ▶ The fuse holders EFH10005 and EFH10004 are single-pole, while the holders EFH20005 and EFH20007 are 2-pole.
- ▶ The DC fuses are not UL-approved
- ▶ Please consult Lenze Sales to ensure the right dimensioning.

Components for DC-bus connection

| Product key | Rated current | Design |
|---------------|---------------|-------------------------|
| DC fuses | | |
| | I_N | |
| | [A] | |
| EFSGR0060AYHN | 6.00 | 14x51 without indicator |
| EFSGR0100AYHN | 10.0 | |
| EFSGR0160AYHN | 16.0 | |
| EFSGR0200AYHN | 20.0 | |
| EFSGR0250AYHN | 25.0 | |
| EFSGR0320AYHN | 32.0 | |
| EFSGR0400AYHN | 40.0 | |
| EFSGR0060AYHK | 6.00 | 14x51 with indicator |
| EFSGR0100AYHK | 10.0 | |
| EFSGR0160AYHK | 16.0 | |
| EFSGR0200AYHK | 20.0 | |
| EFSGR0250AYHK | 25.0 | |
| EFSGR0320AYHK | 32.0 | |
| EFSGR0400AYHK | 40.0 | |

| Product key | Rated current | Design |
|---------------|---------------|-------------------------|
| DC fuses | | |
| | I_N | |
| | [A] | |
| EFSGR0120AYIN | 12.0 | 22x58 without indicator |
| EFSGR0160AYIN | 16.0 | |
| EFSGR0200AYIN | 20.0 | |
| EFSGR0250AYIN | 25.0 | |
| EFSGR0320AYIN | 32.0 | |
| EFSGR0400AYIN | 40.0 | |
| EFSGR0500AYIN | 50.0 | |
| EFSGR0800AYIN | 80.0 | |
| EFSGR0120AYIK | 12.0 | 22x58 with indicator |
| EFSGR0160AYIK | 16.0 | |
| EFSGR0200AYIK | 20.0 | |
| EFSGR0250AYIK | 25.0 | |
| EFSGR0320AYIK | 32.0 | |
| EFSGR0400AYIK | 40.0 | |
| EFSGR0500AYIK | 50.0 | |
| EFSGR0800AYIK | 80.0 | |

4.6

| Mode | Features | Product key |
|-----------|--|-------------|
| DC busbar | • Busbar system 14 x 51 • DC busbar length 1m, cross-section 25 mm ² | EWZ0036 |
| | • Busbar system 22 x 58 • DC busbar length 1m, cross-section 25 mm ² | EWZ0037 |
| End cap | • End caps for DC busbar (packaging unit 10 pcs) | EWZ0038 |
| Terminal | • Single-pole terminal for internal supply | EWZ0039 |

Inverter Drives 8400 HighLine

Accessories



DC-bus connection

DC fuses size 14 x 51 mm

| Typical motor power | Mains voltage | Product key | | | | |
|---------------------------|---------------------|-----------------|---------------|----------|---------------|----------|
| | | Inverter | DC fuses | | | |
| 4-pole asynchronous motor | | | | | | |
| P | U _{AC} | | | | | |
| [kW] | [V] | | | | | |
| 0.37 | 3 AC 320 ... 550 | E84AV□□□3714□□0 | EFSGR0160AYHN | EFH20005 | EFSGR0160AYHK | EFH10005 |
| 0.55 | | E84AV□□□5514□□0 | | | | |
| 0.75 | | E84AV□□□7514□□0 | | | | |
| 1.10 | | E84AV□□□1124□□0 | | | | |
| 1.50 | | E84AV□□□1524□□0 | | | | |
| 2.20 | | E84AV□□□2224□□0 | EFSGR0200AYHN | | EFSGR0200AYHK | |
| 3.00 | | E84AV□□□3024□□0 | | | | |
| 4.00 | | E84AV□□□4024□□0 | EFSGR0320AYHN | | EFSGR0320AYHK | |
| 5.50 | | E84AV□□□5524□□0 | EFSGR0400AYHN | | EFSGR0400AYHK | |
| 7.50 | | E84AV□□□7524□□0 | | | | |
| 11.0 | | E84AV□□□1134□□0 | | | | |
| 15.0 | | E84AV□□□1534□□0 | | | | |

4.6

DC fuses size 22 x 58 mm

| Typical motor power | Mains voltage | Product key | | | | |
|---------------------------|---------------------|-----------------|---------------|----------|---------------|----------|
| | | Inverter | DC fuses | | | |
| 4-pole asynchronous motor | | | | | | |
| P | U _{AC} | | | | | |
| [kW] | [V] | | | | | |
| 0.37 | 3 AC 320 ... 550 | E84AV□□□3714□□0 | EFSGR0120AYIN | EFH20007 | EFSGR0120AYIK | EFH10004 |
| 0.55 | | E84AV□□□5514□□0 | | | | |
| 0.75 | | E84AV□□□7514□□0 | | | | |
| 1.10 | | E84AV□□□1124□□0 | | | | |
| 1.50 | | E84AV□□□1524□□0 | | | | |
| 2.20 | | E84AV□□□2224□□0 | EFSGR0200AYIN | | EFSGR0200AYIK | |
| 3.00 | | E84AV□□□3024□□0 | | | | |
| 4.00 | | E84AV□□□4024□□0 | EFSGR0320AYIN | | EFSGR0320AYIK | |
| 5.50 | | E84AV□□□5524□□0 | EFSGR0400AYIN | | EFSGR0400AYIK | |
| 7.50 | | E84AV□□□7524□□0 | EFSGR0500AYIN | | EFSGR0500AYIK | |
| 11.0 | | E84AV□□□1134□□0 | EFSGR0800AYIN | | EFSGR0800AYIK | |
| 15.0 | | E84AV□□□1534□□0 | | | | |

Inverter Drives 8400 HighLine

Accessories



24 V power supply unit

External power supply units are available for supplying the control electronics of the 8400 StateLine, HighLine or TopLine. With an external supply, the inverters can be parameterised and diagnosed while the mains input is deenergised.



24 V power supply unit

Rated data

| Product key | | | EZV1200-000 | EZV2400-000 | EZV4800-000 | EZV1200-001 | EZV2400-001 | EZV4800-001 |
|-----------------------------|-------------|------|--------------------------------|-------------|-------------|----------------------------------|-------------|-------------|
| Rated voltage | | | 230 | | | 400 | | |
| AC | $U_{N,AC}$ | [V] | 230 | | | 400 | | |
| Input voltage | | | AC 85 ... 264 DC 90 ... 350 | | | AC 320 ... 575 DC 450 ... 800 | | |
| | U_{in} | [V] | AC 85 ... 264 DC 90 ... 350 | | | AC 320 ... 575 DC 450 ... 800 | | |
| Rated mains current | | | 0.8 | 1.2 | 2.3 | 0.3 | 0.6 | 1.0 |
| | $I_{N,AC}$ | [A] | 0.8 | 1.2 | 2.3 | 0.3 | 0.6 | 1.0 |
| Output voltage | | | DC 22.5 ... 28.5 | | | | | |
| | U_{out} | [V] | DC 22.5 ... 28.5 | | | | | |
| Rated output current | | | 5.0 | 10.0 | 20.0 | 5.0 | 10.0 | 20.0 |
| | $I_{N,out}$ | [A] | 5.0 | 10.0 | 20.0 | 5.0 | 10.0 | 20.0 |
| Dimensions | | | | | | | | |
| Height | h | [mm] | 130 | | | | | |
| Width | b | [mm] | 55 | 85 | 157 | 73 | 85 | 160 |
| Depth | t | [mm] | 125 | | | | | |
| Mass | | | | | | | | |
| | m | [kg] | 0.8 | 1.2 | 2.5 | 1.0 | 1.1 | 1.9 |

4.6

Brake switch

The brake switch consists of a rectifier and an electronic circuit breaker for the switching of an electromechanical brake switch. The brake switch is mounted on the control cabinet plate by means of two screws. Control is performed using a digital output on the inverter.



Brake switch

| Mode | Features | Product key |
|-------------------------|---|-------------|
| Half-wave rectification | <ul style="list-style-type: none"> Input voltage: AC 320 ... 550 V Output voltage: DC 180 V (at AC 400 V), DC 225 V (at AC 500 V) Max. brake current: DC 0.61 A IP00 degree of protection | E82ZWBRE |
| Bridge rectification | <ul style="list-style-type: none"> Input voltage: AC 180 ... 317 V Output voltage: DC 205 V (at AC 230 V) Max. brake current: DC 0.54 A IP00 degree of protection | E82ZWBRE |

Inverter Drives 8400 HighLine

Accessories



USB diagnostic adapter

The operation, parameter setting and diagnostics of the Inverter Drives 8400 and the Servo Drives 9400 via the L-force diagnostics is made with the keypad X400 or a PC. The connection of a PC can be made via a USB interface and the USB diagnostic adapter.

For connecting the USB diagnostic adapter with the L-force diagnostics interface (DIAG) at the inverter, three different connecting cables are separately available in the lengths 2.5 m, 5 m and 10 m. The connection can be established during operation. The engineering tools EASY Starter or Engineer can be used to carry out the operation, parameter setting or diagnostics of the inverters. Both tools have simple intuitive surfaces. This enables a quick and easy commissioning.


Optionally to the USB diagnostic adapter, the PC system bus adapter can be used. For this purpose, a CANopen interface must be available at the inverter.



USB diagnostic adapter incl. connecting cable to the PC

- The engineering tools EASY Starter or Engineer are used for operation, parameter setting and diagnostics of the inverters.

4.6

| Mode | | Features | Product key |
|------------------------|--|---|-------------|
| USB diagnostic adapter |  | <ul style="list-style-type: none"> • Input-side voltage supply via USB connection on PC • Output-side voltage supply via inverter's diagnostic interface • Diagnostic LEDs • Electrical isolation of PC and inverter • Hot-pluggable | E94AZCUS |

Connecting cables for USB diagnostic adapter

| Mode | Features | Product key |
|---|-----------------|-------------|
| Connecting cable for USB diagnostic adapter | • Length: 2.5 m | EWL0070 |
| | • Length: 5 m | EWL0071 |
| | • Length: 10 m | EWL0072 |

Inverter Drives 8400 HighLine

Accessories




X400 keypad

As an alternative to the PC, the X400 keypad can be used for local operation, parameter setting or diagnostics. The X400 keypad plugs into the L-force diagnostics interface (DIAG) on the front of the inverter.




X400 keypad

| Mode | | Features | Slot | Product key |
|-------------|---|--|------|-------------|
| X400 keypad |  | <ul style="list-style-type: none"> • Menu navigation • Graphics display with background lightning for clear presentation of information • 4 navigation keys, 2 context-sensitive keys • Adjustable RUN/STOP function | DIAG | EZAEBK1001 |

- ▶ The Inverter Drives 8400 can be ordered with a plug-in keypad already installed. If you would like to order the products in this complete form, please add the inverter product key as follows when placing your order: E84AV to X-XXXXXX
- ▶ The product key with the supplement for the applied module is provided in our sales documents. This information is not part of the nameplate of the device.

X400 diagnosis terminal

| Mode | | Features | Slot | Product key |
|-------------------------|---|--|------|-------------|
| X400 diagnosis terminal |  | <ul style="list-style-type: none"> • X400 keypad in a robust housing • Also suitable for installation in the control cabinet door • incl. 2.5 m cable • IP20 degree of protection, IP65 for control cabinet installation on front face | DIAG | EZAEBK2001 |

Inverter Drives 8400 HighLine



Accessories

PC system bus adapter

Instead of a PC, the 8400 inverter drives can alternatively be operated, parameterised and diagnosed using the CANopen interface and a PC system bus adapter, which is required instead of a USB diagnostic adapter. This adapter plugs into the parallel interface or the USB connection of the PC. The corresponding drivers are installed automatically. Depending on the version, the adapter is supplied with voltage via the DIN, PS2 or USB connection of the PC. The CANopen interface is integrated or available with a variant (BaseLine C).

Advantage:

- Operation, parameterisation and diagnostics in parallel with the keypad
- In interconnected systems, multiple inverters can be addressed simultaneously from one point (remote parameterisation via CANopen)



EMF2173IBV003 adapter

| Mode | Features | Product key |
|-----------------------|--|---------------|
| PC system bus adapter | • Voltage supply via DIN port on PC | EMF2173IB |
| | • Voltage supply via PS2 connection on PC | EMF2173IBV002 |
| | • Voltage supply via PS2 connection on PC • Electrical isolation from the bus | EMF2173IBV003 |
| | • Voltage supply via USB port on PC • Electrical isolation from the bus | EMF2177IB |

4.6

Shield mounting

A shield mounting is used to connect the motor cable shield on the inverter's shield connection.

| Mode | Features | Product key |
|-----------------|--|---------------|
| Metal cable tie | • Cable diameter: 8...30 mm • Packaging unit: 50 items | EZAMBKBM |
| Fixing clip | • Cable diameter: 4...10 mm • Packaging unit: 20 items | EZAMBHXM007/M |
| Wire clamp | • Cable diameter: 4...15 mm • Packaging unit: 10 items | EZAMBHXM006/M |
| | • Cable diameter: 10...20 mm • Packaging unit: 10 items | EZAMBHXM003/M |
| | • Cable diameter: 15...28 mm • Packaging unit: 10 items | EZAMBHXM004/M |
| | • Cable diameter: 20...37 mm • Packaging unit: 10 items | EZAMBHXM005/M |

Inverter Drives 8400 HighLine

Accessories



Terminal strips

All connections are equipped with pluggable connectors, with power connections up to 15 kW. These pluggable connectors are available separately for service purposes or if cable harnesses need to be physically separated.

► Power connections

| Product key | Terminal strip | Features | Product key | Terminal strip | Features | Product key |
|-----------------|-------------------|---|-------------------|----------------|--|-------------------|
| Inverter | | | | | | |
| E84AV□□□2512□□0 | X100 | <ul style="list-style-type: none"> • Connection: mains • Packaging unit: 10 items | E84AZEVS001X100/M | X105 | <ul style="list-style-type: none"> • Connection: motor • Packaging unit: 5 items | E84AZEVS010X105/M |
| E84AV□□□3712□□0 | | | | | | |
| E84AV□□□5512□□0 | | | E84AZEVS003X100/M | | | |
| E84AV□□□7512□□0 | | | | | | |
| E84AV□□□1122□□0 | | | E84AZEVS005X100/M | | | |
| E84AV□□□1522□□0 | | | | | | |
| E84AV□□□2222□□0 | | E84AZEVS012X105/M | | | | |
| E84AV□□□3714□□0 | | | E84AZEVS011X105/M | | | |
| E84AV□□□5514□□0 | | E84AZEVS012X105/M | | | | |
| E84AV□□□7514□□0 | | | E84AZEVS011X105/M | | | |
| E84AV□□□1124□□0 | | E84AZEVS012X105/M | | | | |
| E84AV□□□1524□□0 | | | E84AZEVS011X105/M | | | |
| E84AV□□□2224□□0 | | E84AZEVS012X105/M | | | | |
| E84AV□□□3024□□S | | | E84AZEVS011X105/M | | | |
| E84AV□□□3024□□0 | | E84AZEVS012X105/M | | | | |
| E84AV□□□4024□□0 | | | E84AZEVS011X105/M | | | |
| E84AV□□□5524□□0 | | E84AZEVS012X105/M | | | | |
| E84AV□□□7524□□0 | | | E84AZEVS011X105/M | | | |
| E84AV□□□1134□□0 | E84AZEVS012X105/M | | | | | |
| E84AV□□□1534□□0 | | | | | | |

► Control connections

| Terminal strip | Features | Product key |
|----------------|--|-------------------|
| X1 | <ul style="list-style-type: none"> • Connection: CANopen • Packaging unit: 10 items | E84AZEVS040X001/M |
| X3 | <ul style="list-style-type: none"> • Connection: analog inputs and outputs • Packaging unit: 5 items | E84AZEVS060X003/M |
| X4 | <ul style="list-style-type: none"> • Connection: digital outputs • Packaging unit: 10 items | E84AZEVS060X004/M |
| X5 | <ul style="list-style-type: none"> • Connection: digital inputs • Packaging unit: 5 items | E84AZEVS060X005/M |
| X10 | <ul style="list-style-type: none"> • Connection: axis bus • Packaging unit: 10 items | E84AZEVS060X010/M |
| X80 | <ul style="list-style-type: none"> • Connection: safety engineering • Packaging unit: 10 items | E84AZEVS070X080/M |
| X101 | <ul style="list-style-type: none"> • Connection: relay • Packaging unit: 10 items | E84AZEVS020X101/M |
| X106 | <ul style="list-style-type: none"> • Connection: PTC • Packaging unit: 10 items | E84AZEVS030X106/M |
| X107 | <ul style="list-style-type: none"> • Connection: 2.5 A digital output • Packaging unit: 10 items | E84AZEVS060X107/M |

Inverter Drives 8400 HighLine

Accessories



Setpoint potentiometer

The setpoint selection (e.g. speed) can be made via an external potentiometer.

The setpoint potentiometer is connected to the inverter's analog input terminals. A scale and a rotary knob are also available.



Setpoint potentiometer with scale and rotary knob

| Mode | Product key |
|-------------------------------------|----------------|
| 10 kOhm / 1 Watt potentiometer | ERPD0010K0001W |
| Rotary knob, 36 mm diameter | ERZ0001 |
| Scale 0 ... 100%, 62 mm diameter | ERZ0002 |

Inverter Drives 8400 HighLine

Accessories



Inverter Drives 8400 HighLine

Accessories



Inverter

Inverter Drives 8400 StateLine

0.25 to 45 kW



Inverter Drives 8400 StateLine



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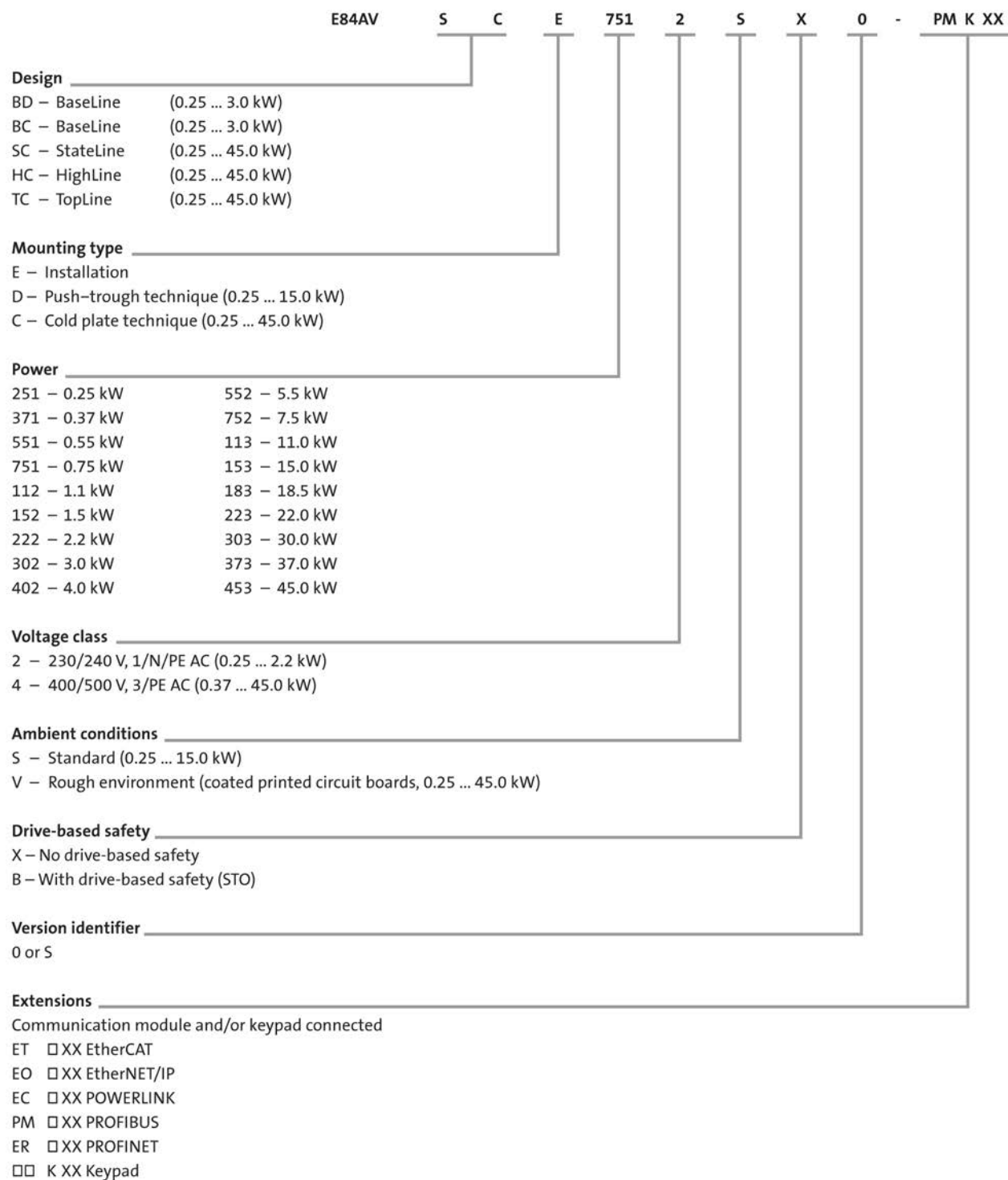
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Inverter Drives 8400 StateLine

General information



Product key



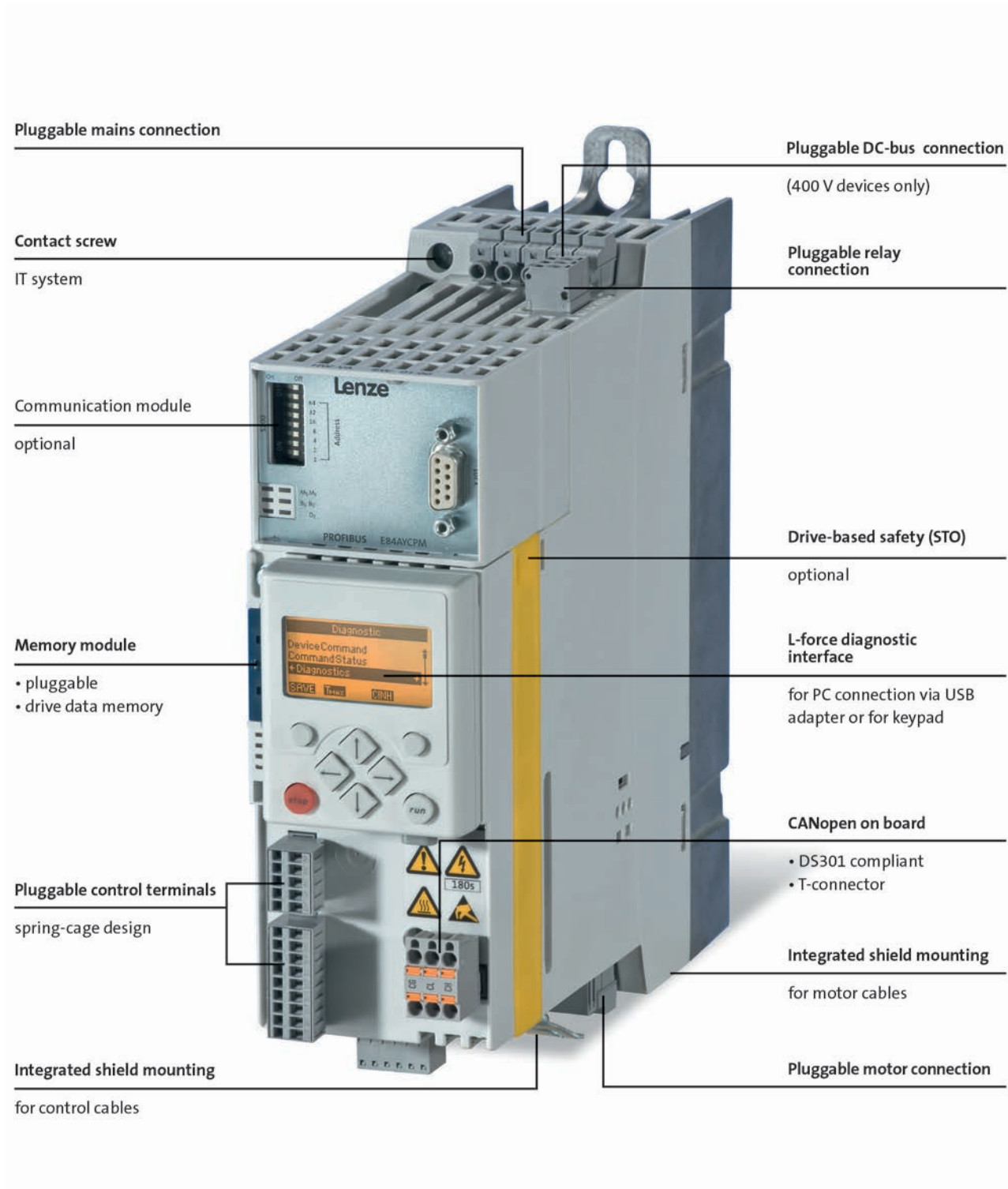
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Inverter Drives 8400 StateLine

General information



Equipment



Inverter Drives 8400 StateLine

General information



List of abbreviations

| | | |
|---------------------|--------------------|---------------------------|
| b | [mm] | Dimensions |
| C _{th} | [KW _s] | Thermal capacity |
| f _{ch} | [kHz] | Rated switching frequency |
| h | [mm] | Dimensions |
| I _{N, out} | [A] | Rated output current |
| I _{N, AC} | [A] | Rated mains current |
| m | [kg] | Mass |
| n _{max} | [r/min] | Max. speed |
| P | [kW] | Typical motor power |
| P _V | [kW] | Power loss |
| P _N | [kW] | Rated power |
| R _N | [Ω] | Rated resistance |
| t | [mm] | Dimensions |
| U _{AC} | [V] | Mains voltage |
| U _{DC} | [V] | DC supply |
| U _{N, AC} | [V] | Rated voltage |
| U _{out} | [V] | Max. output voltage |

| | |
|------------|--|
| ASM | Asynchronous motor |
| DIAG | Slot for diagnostic adapter |
| DIN | Deutsches Institut für Normung e.V. |
| EN | European standard |
| EN 60529 | Degrees of protection provided by enclosures (IP code) |
| EN 60721-3 | Classification of environmental conditions; Part 3: Classes of environmental parameters and their limit values |
| EN 61800-3 | Electrical variable speed drives Part 3: EMC requirements including special test methods |
| IEC | International Electrotechnical Commission |
| IEC 61508 | Functional safety of electrical/electronic/programmable electronic safety-related systems |
| IM | International Mounting Code |
| IP | International Protection Code |
| MCI | Slot for communication module (module communication interface) |
| NEMA | National Electrical Manufacturers Association |
| UL | Underwriters Laboratory Listed Product |
| UR | Underwriters Laboratory Recognized Product |
| VDE | Verband deutscher Elektrotechniker (Association of German Electrical Engineers) |

Inverter Drives 8400 StateLine

General information



Inverter Drives 8400 StateLine



General information

Inverter Drives 8400

Cost-efficiency, time savings and quality enhancement are the challenges of the future. Lenze is facing these challenges with its L-force product portfolio – the holistic solution portfolio with precisely matched interfaces and components. For faster configuration and commissioning, better performance and more flexibility in production.

As such, the four versions of Inverter Drives 8400 - BaseLine, StateLine, HighLine and TopLine - have been designed for consistent process optimisation – throughout your entire value-added chain. They reduce your costs, from component selection, through project planning, manufacturing and commissioning, all the way up to servicing. We call this "rightsizing".

Rightsized for versatile applications

Are you looking to control a three-phase AC motor or perform positioning with or without feedback? Then select exactly the inverter you need from the scaled solution space of the Inverter Drives 8400 with units in the power range from 0.25 kW to 45 kW. You are sure to find exactly what you are looking for here, as the modular 8400 range of inverters offers the right solution for a broad spectrum of applications.

While the BaseLine is excellent for basic applications, the TopLine offers servo qualities and thereby fulfils with the strict requirements in terms of dynamics and accuracy.

Rightsized for optimised operation

The energy-saving function "VFC eco" supported by the 8400 reduces the energy required by the motor in partial load operation. Combine this with an MF L-force three-phase AC motor (inverter-optimised, 120 Hz) and what you get is a highly efficient, compact and cost-effective drive with high dynamic performance and a wide setting range. "VFC eco" can reduce your energy costs by up to 30%.

8400 StateLine - for controlled motion

The 8400 StateLine is intended for drive control with or without speed feedback and is also used when networking via bus systems is needed. The integrated brake management system also delivers greatly reduced wear on the service brakes. Mains switching at too high a rate is also no problem for the StateLine, as the input circuit is protected from overload.

The 8400 StateLine is a step up from the BaseLine models for applications that must satisfy more stringent requirements. The StateLine is also ideally suited to applications such as palletizers, extruders, filling systems or travelling/variable speed drives.

Inverter Drives 8400 StateLine



General information

Functions and features

| | |
|---|--|
| Mode | 8400 StateLine |
| Control types, motor control | |
| Sensorless vector control (SLVC) | For three-phase asynchronous motors |
| V/f control (VFCplus) | For three-phase AC motors and asynchronous servo motor (linear or square-law) |
| Energy saving function (VFC eco) | For three-phase asynchronous motors |
| Basic functions | <ul style="list-style-type: none"> Freely assignable user menu Free function block interconnection with extensive function library Parameter change-over DC brake function Braking operation without brake resistor Brake management for brake control with low rate of wear Flying restart circuit S-shaped ramps for smooth acceleration PID controller 15 fixed frequencies Masking frequencies Inversion of motor phase sequence |
| Technology applications | <ul style="list-style-type: none"> Speed actuating drive Switch-off positioning without feedback |
| Monitoring and protective measures | <ul style="list-style-type: none"> Short circuit Earth fault Overvoltage Motor phase failure Overcurrent I² x t-Motor monitoring Motor overtemperature Mains phase failure Protection for cyclical mains switching Motor stalling |
| Diagnostics | Data logger, logbook, oscilloscope functions |
| Status display | 4 LEDs |
| Diagnostic interface | Integrated For USB diagnostic adapter or keypad (diagnosis terminal) |
| Braking operation | |
| Brake chopper | Integrated |
| Brake resistor | External |

Inverter Drives 8400 StateLine



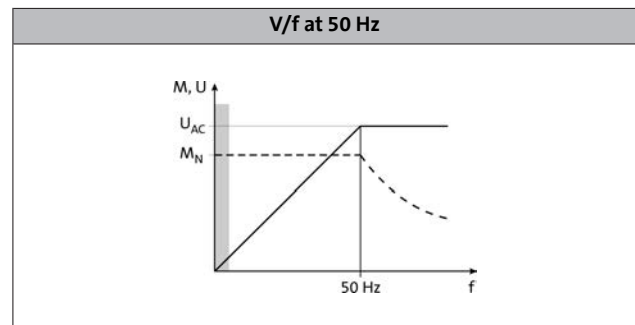
General information

Operating modes

An inverter enables energy-efficient operation of a system in virtually all application cases. The various operating modes, which can be created by making just a few simple settings, facilitate this. The following characteristics and corresponding specifications listed on the following pages can be used to calculate the optimum operating mode during the project planning phase.

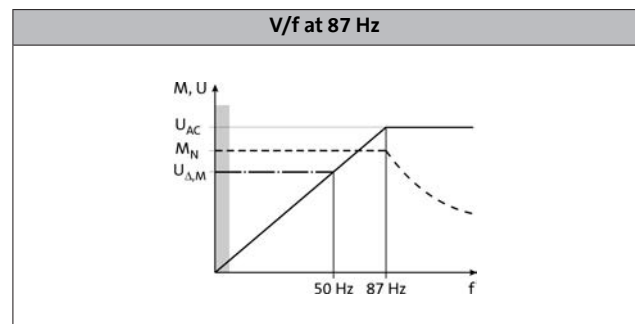
Standard setting

In its initial state when delivered, the inverter is set up for basic operation with a three-phase AC motor with V/f control. When operated in this mode, the rated torque of the motor is available in a setting range up to 50 Hz.



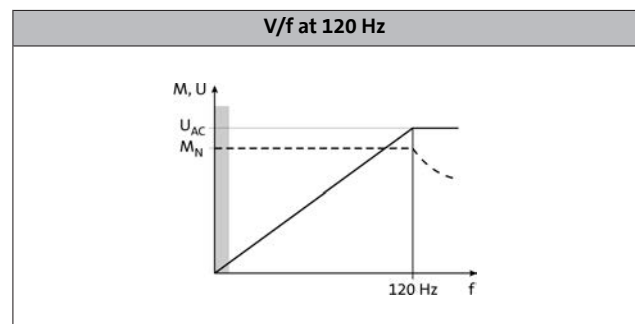
Extended setting range up to 87 Hz

If the V/f reference point on the inverter is set to 87 Hz, the rated torque can be used across an extended setting range. Here, a 230/400V motor is for example used and operated in a delta layout with a 400V inverter. The setting range is then increased by 40 %. The inverter must be dimensioned for a rated motor current of 230 V.



Operation with inverter-optimised MF motors

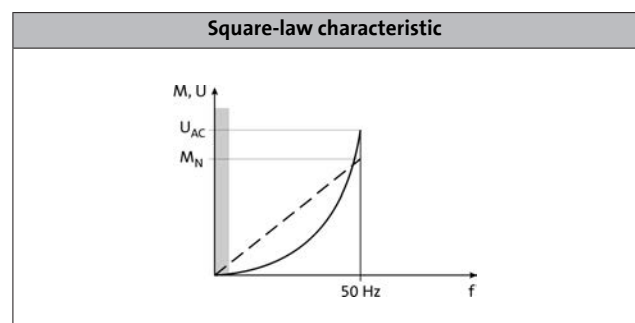
Large setting ranges and optimum operation at the rated torque: these are the strengths of the MF motor when used in combination with an inverter. The motors are optimised for a setting range up to 120 Hz. Compared to conventional 50Hz operation, the setting range increases by 250 %. It is quite simply not possible for a drive to be operated any more efficiently in a machine.



Operation with low loads

This operating mode can be used for various applications, e.g. for fans and pumps:

In fan and pump applications, the load behaviour follows a square-law characteristic depending on the speed. Often, an overload capacity of 120% is sufficient. This serves to operate the inverter during operation with increased power, i.e. the inverter can be dimensioned one power size smaller. The square-law characteristic which corresponds to the load behaviour can be set in the inverter.



Inverter Drives 8400 StateLine



General information

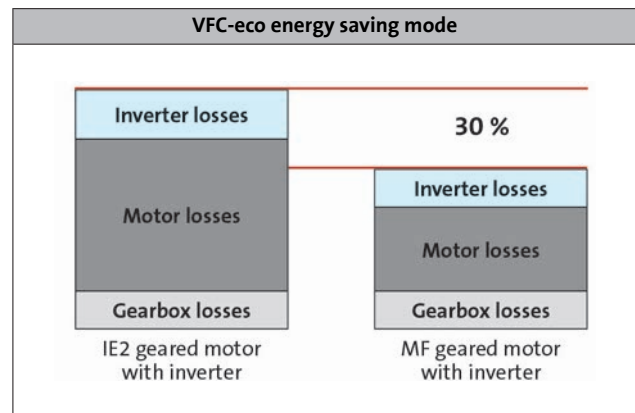
Operating modes

VFC-eco energy saving mode

The Inverter Drives 8400 make energy saving especially easy with the "VFC eco" function. Particularly in the partial load operational range, this function significantly reduces energy requirements. Combined with the new L-force MF three-phase AC motors, this drive solution impresses with the maximum energy efficiency of a Lenze BlueGreen solution.

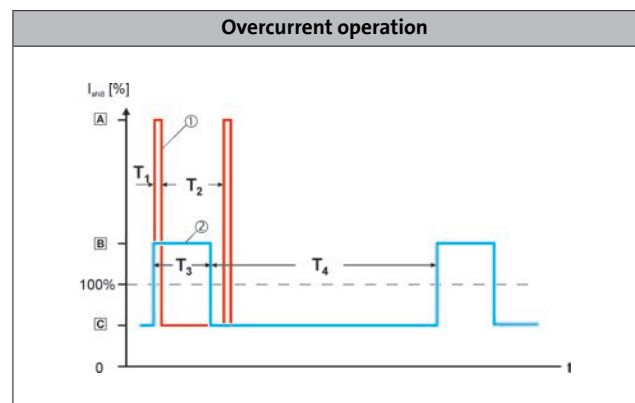
The "VFC eco" mode adjusts the magnetising current of a motor intelligently to actual requirements. This is particularly useful in partial load operational range, as this is precisely where three-phase AC motors need to be supplied with a greater magnetising current than the operating conditions actually require. The "VFC eco" mode allows losses to be reduced so much that savings of up to 30% can be achieved.

Energy efficiency can then be increased even further with the MF three-phase AC motors. These motors have been specifically designed for operation with frequency inverters. They operate at 120 Hz instead of 50 Hz, as 4-pole three-phase AC motors are at their most efficient at this frequency.



Overcurrent operation

The inverters can be driven at higher amperages beyond the rated current if the duration of this overcurrent operation is time limited. Two utilisation cycles with a duration of 15 s and 180 s are defined. Within these utilisation cycles, an overcurrent is possible for a certain time if afterwards an accordingly long recovery phase takes place. For both utilisation cycles, a moving average is determined separately. The adjacent diagram shows both cycles: 15 s in red and 180 s in blue. The overload times t_{o1} are 3 s (T_1) and 60 s (T_3) respectively, the corresponding recovery times t_{re} are 12 s (T_2) and 120 s (T_4) respectively. The following tables show the resulting maximum output currents. Monitoring of the device utilisation ($I \times t$) activates the set error response (trip or warning if one of the two utilisation values exceeds the limit of 100 %).



4.7

Switching frequencies

On an inverter, the term "switching frequency" is understood to mean the frequency with which the input and outputs of the output module (inverter) are switched. On an inverter, the switching frequency can generally be set to values between 2 and 16 kHz, whereby the selection is based on the respective power output.

Since losses (in the form of heat) can be generated when switching the modules, the inverter can provide a higher output current at a switching frequency of 2 kHz. In addition to this, it is also important to differentiate between operation at a fixed switching frequency and a variable switching frequency, whereby the switching frequency is automatically reduced based on the output current here.

The data for operation at increased output is permitted for operation at a switching frequency of 2 or 4 kHz and in an ambient temperature of max. 40 °C.

Inverter Drives 8400 StateLine

General information



Inverter Drives 8400 StateLine

Technical data




Standards and operating conditions

| Mode | | | 8400 StateLine |
|---------------------------------|------------------|------------|--|
| Product | | | 8400 StateLine |
| Conformity | | | |
| CE | | | Low-Voltage Directive 2006/95/EC |
| EAC | | | TP TC 004/2011 (TR CU 004/2011) TP TC 020/2011 (TR CU 020/2011) |
| Approval | | | |
| UL 508C | | | Power Conversion Equipment (file no. E132659) |
| CSA ²⁾ | | | CSA 22.2 No. 14 |
| Enclosure | | | |
| EN 60529 ³⁾ | | | IP20 |
| NEMA 250 | | | Type 1 |
| Climatic conditions | | | |
| Storage (EN 60721-3-1) | | | 1K3 (temperature: -25 °C ... +60 °C) |
| Transport (EN 60721-3-2) | | | 2K3 (temperature: -25 °C ... +70 °C) |
| Operation (EN 60721-3-3) | | | 3K3 (temperature: -10°C ... +55°C) |
| Current derating at over 45°C | | | 2.5% / K |
| Site altitude | | | |
| Amsl | H _{max} | [m] | 4000 |
| Current derating at over 1000 m | | [%/1000 m] | 5 |
| Vibration resistance | | | |
| Transport (EN 60721-3-2) | | | 2M2 |
| Operation (EN 61800-5-1) | | | 10 Hz ≤ f ≤ 57 Hz: ±0.075 mm amplitude, 57 Hz ≤ f ≤ 150 Hz: 1.0 g |
| Operation (Germanischer Lloyd) | | | 5 Hz ≤ f ≤ 13.2 Hz: ± 1 mm amplitude 13.2 Hz ≤ f ≤ 100 Hz: 0.7 g |

4.7

| Mode | | | 8400 StateLine |
|---|--|--|---|
| Product | | | 8400 StateLine |
| Supply form | | | |
| | | | Systems with earthed star point (TN and TT systems) Systems with high-resistance or isolated star point (IT systems) |
| Noise emission | | | |
| EN 61800-3 | | | Integrated RFI suppression: category C2 up to 25 m shielded motor cable ¹⁾ |
| Insulation resistance | | | |
| EN 61800-5-1 | | | Overvoltage category III Above 2000 m amsl overvoltage category II |
| Degree of pollution | | | |
| EN 61800-5-1 | | | 2 |
| Protective insulation of control circuits | | | |
| EN 61800-5-1 | | | Safe mains isolation: double/reinforced insulation |

¹⁾  38 - Please also refer to the Motor connection section

²⁾ When using an external mains choke or mains filter

³⁾ Mounted and ready-to-use

Inverter Drives 8400 StateLine



Technical data

Rated data 230 V

► Unless otherwise specified, the data refers to the default setting.

Data in left column per device

Operation with rated data: rated output current $I_{N,out}$ at mains voltage 230 V, switching frequency 8 kHz variable and max. ambient temperature 45 °C (default setting).
Output currents I_{out} apply to:
Ambient temperature 45 °C operating with constant switching frequency 2 kHz or 4 kHz.
Ambient temperature 40 °C operating with constant switching frequency 8 kHz or 16 kHz.

Data in right column per device

Operation with increased power: rated output current $I_{N,out}$ at mains voltage 230 V, switching frequency 4 kHz and max. ambient temperature 40 °C.
Output currents apply to:
Ambient temperature 40 °C operating with switching frequency 2 kHz or 4 kHz.

| Typical motor power | | | | | | |
|-----------------------------|-------------|------|--|------|-----------------|--------------------|
| 4-pole asynchronous motor | P | [kW] | 0.25 | 0.37 | 0.37 | 0.55 ¹⁾ |
| Product key | | | E84AV□□□2512□□0 | | E84AV□□□3712□□0 | |
| Mains voltage range | | | 1/N/PE AC 180 V-0 % ... 264 V+0 %, 45 Hz-0 % ... 65 Hz+0 % | | | |
| | U_{AC} | [V] | | | | |
| Rated mains current | | | | | | |
| With mains choke | $I_{N,AC}$ | [A] | 3.0 | 3.6 | 4.2 | 5.0 |
| Without mains choke | $I_{N,AC}$ | [A] | 3.4 | 4.1 | 5.0 | |
| Rated output current | | | | | | |
| | $I_{N,out}$ | [A] | 1.7 | 2.1 | 2.4 | 2.9 |
| Output current | | | | | | |
| 2 kHz | I_{out} | [A] | 1.7 | 2.1 | 2.4 | 2.9 |
| 4 kHz | I_{out} | [A] | 1.7 | 2.1 | 2.4 | 2.9 |
| 8 kHz | I_{out} | [A] | 1.7 | | 2.4 | |
| 16 kHz | I_{out} | [A] | 1.1 | | 1.6 | |

Data for 60 s overload

| | | | | | | |
|----------------------------|---------------|-----|-------|--|-----|--|
| Max. output current | | | | | | |
| | $I_{max,out}$ | [A] | 2.6 | | 3.6 | |
| Overload time | | | 60.0 | | | |
| | t_{ol} | [s] | | | | |
| Recovery time | | | 120.0 | | | |
| | t_{re} | [s] | | | | |

Data for 3 s overload

| | | | | | | |
|---------------------------------------|---------------|-----|------|--|-----|--|
| Max. short-time output current | | | | | | |
| | $I_{max,out}$ | [A] | 3.4 | | 4.8 | |
| Overload time | | | 3.0 | | | |
| | t_{ol} | [s] | | | | |
| Recovery time | | | 12.0 | | | |
| | t_{re} | [s] | | | | |

¹⁾ Operation only permitted with mains choke

Inverter Drives 8400 StateLine

Technical data



Rated data 230 V

► Unless otherwise specified, the data refers to the default setting.

| | | | | | | |
|---------------------------------------|------------------|------|-----------------|------|-----------------|------|
| | | | | | | |
| Typical motor power | | | | | | |
| 4-pole asynchronous motor | P | [kW] | 0.25 | 0.37 | 0.37 | 0.55 |
| Product key | | | E84AV□□□2512□□0 | | E84AV□□□3712□□0 | |
| Power loss | | | | | | |
| | P _V | [kW] | 0.045 | | 0.050 | |
| Max. cable length¹⁾ | | | | | | |
| Shielded motor cable | I _{max} | [m] | 50 | | | |

Brake chopper rated data

| | | | | |
|---|---------------------|------|-------|-------|
| Rated power, Brake chopper | | | | |
| | P _N | [kW] | 0.6 | 0.6 |
| Max. output power, Brake chopper | | | | |
| | P _{max, 1} | [kW] | 0.8 | 0.8 |
| Min. brake resistance | | | | |
| | R _{min} | [Ω] | 180.0 | 180.0 |

Dimensions and weights

Standard installation design

| | | | | |
|---------------------|---|------|-----|-----|
| Dimensions | | | | |
| Height | h | [mm] | 165 | 165 |
| Width | b | [mm] | 70 | 70 |
| Depth ²⁾ | t | [mm] | 199 | 199 |
| Mass | | | | |
| | m | [kg] | 1.3 | 1.3 |

¹⁾ Technically possible cable lengths, irrespective of EMC requirements

²⁾ With safety engineering plus 20 mm

Inverter Drives 8400 StateLine



Technical data

Rated data 230 V

► Unless otherwise specified, the data refers to the default setting.

Data in left column per device

Operation with rated data: rated output current $I_{N,out}$ at mains voltage 230 V, switching frequency 8 kHz variable and max. ambient temperature 45 °C (default setting).
Output currents I_{out} apply to:
Ambient temperature 45 °C operating with constant switching frequency 2 kHz or 4 kHz.
Ambient temperature 40 °C operating with constant switching frequency 8 kHz or 16 kHz.

Data in right column per device

Operation with increased power: rated output current $I_{N,out}$ at mains voltage 230 V, switching frequency 4 kHz and max. ambient temperature 40 °C.
Output currents apply to:
Ambient temperature 40 °C operating with switching frequency 2 kHz or 4 kHz.

| | | | | | | |
|-----------------------------|--------------|------|--|------|------------------------------------|--------------------|
| | | | | | | |
| Typical motor power | | | | | | |
| 4-pole asynchronous motor | P | [kW] | 0.55 | 0.75 | 0.75 | 1.10 ¹⁾ |
| Product key | | | | | | |
| Inverter | | | E84AV□□□5512□□0 E84AV□□□5512□□S | | E84AV□□□7512□□0 E84AV□□□7512□□S | |
| Mains voltage range | | | | | | |
| | U_{AC} | [V] | 1/N/PE AC 180 V-0 % ... 264 V+0 %, 45 Hz-0 % ... 65 Hz+0 % | | | |
| Rated mains current | | | | | | |
| With mains choke | $I_{N, AC}$ | [A] | 5.0 | 6.0 | 7.0 | 8.4 |
| Without mains choke | $I_{N, AC}$ | [A] | 5.3 | 6.4 | 8.0 | |
| Rated output current | | | | | | |
| | $I_{N, out}$ | [A] | 3.0 | 3.6 | 4.0 | 4.8 |
| Output current | | | | | | |
| 2 kHz | I_{out} | [A] | 3.0 | 3.6 | 4.0 | 4.8 |
| 4 kHz | I_{out} | [A] | 3.0 | 3.6 | 4.0 | 4.8 |
| 8 kHz | I_{out} | [A] | 3.0 | | 4.0 | |
| 16 kHz | I_{out} | [A] | 2.0 | | 2.7 | |

Data for 60 s overload

| | | | | | | |
|----------------------------|----------------|-----|-------|--|-----|--|
| Max. output current | | | | | | |
| | $I_{max, out}$ | [A] | 4.5 | | 6.0 | |
| Overload time | | | | | | |
| | t_{ol} | [s] | 60.0 | | | |
| Recovery time | | | | | | |
| | t_{re} | [s] | 120.0 | | | |

Data for 3 s overload

| | | | | | | |
|---------------------------------------|----------------|-----|------|--|-----|--|
| Max. short-time output current | | | | | | |
| | $I_{max, out}$ | [A] | 6.0 | | 8.0 | |
| Overload time | | | | | | |
| | t_{ol} | [s] | 3.0 | | | |
| Recovery time | | | | | | |
| | t_{re} | [s] | 12.0 | | | |

¹⁾ Operation only permitted with mains choke

Inverter Drives 8400 StateLine

Technical data



Rated data 230 V

► Unless otherwise specified, the data refers to the default setting.

| | | | | | | |
|---------------------------------------|------------------|------|------------------------------------|------|------------------------------------|------|
| | | | | | | |
| Typical motor power | | | | | | |
| 4-pole asynchronous motor | P | [kW] | 0.55 | 0.75 | 0.75 | 1.10 |
| Product key | | | | | | |
| Inverter | | | E84AV□□□5512□□0 E84AV□□□5512□□S | | E84AV□□□7512□□0 E84AV□□□7512□□S | |
| Power loss | | | | | | |
| | P _V | [kW] | 0.060 0.060 | | 0.075 0.075 | |
| Max. cable length¹⁾ | | | | | | |
| Shielded motor cable | l _{max} | [m] | | | 50 50 | |

Brake chopper rated data

| | | | | | | |
|---|--------------------|------|-------|--|-------|--|
| Rated power, Brake chopper | | | | | | |
| | P _N | [kW] | 1.1 | | 1.1 | |
| Max. output power, Brake chopper | | | | | | |
| | P _{max,1} | [kW] | 1.4 | | 1.4 | |
| Min. brake resistance | | | | | | |
| | R _{min} | [Ω] | 100.0 | | 100.0 | |

Dimensions and weights

Standard installation design

| | | | | | | |
|---------------------|---|------|-----|--|-----|--|
| Dimensions | | | | | | |
| Height | h | [mm] | 215 | | 215 | |
| Width | b | [mm] | 70 | | 70 | |
| Depth ²⁾ | t | [mm] | 199 | | 199 | |
| Mass | | | | | | |
| | m | [kg] | 1.8 | | 1.8 | |

¹⁾ Technically possible cable lengths, irrespective of EMC requirements

²⁾ With safety engineering plus 20 mm

Inverter Drives 8400 StateLine



Technical data

Rated data 230 V


► Unless otherwise specified, the data refers to the default setting.

Data in left column per device

Operation with rated data: rated output current $I_{N,out}$ at mains voltage 230 V, switching frequency 8 kHz variable and max. ambient temperature 45 °C (default setting).
Output currents I_{out} apply to:
Ambient temperature 45 °C operating with constant switching frequency 2 kHz or 4 kHz.
Ambient temperature 40 °C operating with constant switching frequency 8 kHz or 16 kHz.

Data in right column per device

Operation with increased power: rated output current $I_{N,out}$ at mains voltage 230 V, switching frequency 4 kHz and max. ambient temperature 40 °C.
Output currents apply to:
Ambient temperature 40 °C operating with switching frequency 2 kHz or 4 kHz.

| | | |  | | | | | |
|-----------------------------|--------------|------|--|------|------------------------------------|--------------------|------------------------------------|--|
| Typical motor power | | | | | | | | |
| 4-pole asynchronous motor | P | [kW] | 1.10 | 1.50 | 1.50 | 2.20 ¹⁾ | 2.20 | |
| Product key | | | | | | | | |
| Inverter | | | E84AV□□□1122□□0 E84AV□□□1122□□S | | E84AV□□□1522□□0 E84AV□□□1522□□S | | E84AV□□□2222□□0 E84AV□□□2222□□S | |
| Mains voltage range | | | 1/N/PE AC 180 V-0 % ... 264 V+0 %, 45 Hz-0 % ... 65 Hz+0 % | | | | | |
| | U_{AC} | [V] | | | | | | |
| Rated mains current | | | | | | | | |
| With mains choke | $I_{N, AC}$ | [A] | 9.9 | 11.9 | 11.4 | 13.7 | 16.4 | |
| Without mains choke | $I_{N, AC}$ | [A] | 12.0 | 14.4 | 13.7 | | 21.8 | |
| Rated output current | | | | | | | | |
| | $I_{N, out}$ | [A] | 5.5 | 6.8 | 7.0 | 8.4 | 9.5 | |
| Output current | | | | | | | | |
| 2 kHz | I_{out} | [A] | 5.5 | 6.8 | 7.0 | 8.4 | 9.5 | |
| 4 kHz | I_{out} | [A] | 5.5 | 6.8 | 7.0 | 8.4 | 9.5 | |
| 8 kHz | I_{out} | [A] | 5.5 | | 7.0 | | 9.5 | |
| 16 kHz | I_{out} | [A] | 3.7 | | 4.7 | | 6.3 | |

Data for 60 s overload

| | | | | | | | | |
|----------------------------|----------------|-----|-------|--|------|--|------|--|
| Max. output current | | | 8.3 | | 10.5 | | 14.3 | |
| | $I_{max, out}$ | [A] | | | | | | |
| Overload time | | | 60.0 | | | | | |
| | t_{ol} | [s] | | | | | | |
| Recovery time | | | 120.0 | | | | | |
| | t_{re} | [s] | | | | | | |

Data for 3 s overload

| | | | | | | | | |
|---------------------------------------|----------------|-----|------|--|------|--|------|--|
| Max. short-time output current | | | 11.0 | | 14.0 | | 19.0 | |
| | $I_{max, out}$ | [A] | | | | | | |
| Overload time | | | 3.0 | | | | | |
| | t_{ol} | [s] | | | | | | |
| Recovery time | | | 12.0 | | | | | |
| | t_{re} | [s] | | | | | | |

¹⁾ Operation only permitted with mains choke


Inverter Drives 8400 StateLine

Technical data



Rated data 230 V

► Unless otherwise specified, the data refers to the default setting.

| | | | | | | | | |
|---------------------------------------|------------------|------|--|------|------------------------------------|------|------------------------------------|------|
| | | |  | | | | | |
| Typical motor power | | | | | | | | |
| 4-pole asynchronous motor | P | [kW] | 1.10 | 1.50 | 1.50 | 2.20 | 2.20 | 2.20 |
| Product key | | | | | | | | |
| Inverter | | | E84AV□□□1122□□0 E84AV□□□1122□□S | | E84AV□□□1522□□0 E84AV□□□1522□□S | | E84AV□□□2222□□0 E84AV□□□2222□□S | |
| Power loss | | | | | | | | |
| | P _V | [kW] | 0.095 0.095 | | 0.11 0.11 | | 0.14 0.14 | |
| Max. cable length¹⁾ | | | | | | | | |
| Shielded motor cable | l _{max} | [m] | 50 50 | | | | | |

Brake chopper rated data

| | | | | | | | | |
|---|--------------------|------|------|--|------|--|------|--|
| Rated power, Brake chopper | | | | | | | | |
| | P _N | [kW] | 3.3 | | 3.3 | | 3.3 | |
| Max. output power, Brake chopper | | | | | | | | |
| | P _{max,1} | [kW] | 4.4 | | 4.4 | | 4.4 | |
| Min. brake resistance | | | | | | | | |
| | R _{min} | [Ω] | 33.0 | | 33.0 | | 33.0 | |

4.7

Dimensions and weights

Standard installation design

| | | | | | | | | |
|---------------------|---|------|-----|--|-----|--|-----|--|
| Dimensions | | | | | | | | |
| Height | h | [mm] | 270 | | 270 | | 270 | |
| Width | b | [mm] | 70 | | 70 | | 70 | |
| Depth ²⁾ | t | [mm] | 199 | | 199 | | 199 | |
| Mass | | | | | | | | |
| | m | [kg] | 2.1 | | 2.1 | | 2.1 | |

¹⁾ Technically possible cable lengths, irrespective of EMC requirements

²⁾ With safety engineering plus 20 mm

Inverter Drives 8400 StateLine



Technical data

Rated data 400 V


► Unless otherwise specified, the data refers to the default setting.

Data in left column per device

Operation with rated data: rated output current $I_{N,out}$ at mains voltage 400 V, switching frequency 8 kHz variable and max. ambient temperature 45 °C (default setting).
Output currents I_{out} apply to:
Ambient temperature 45 °C operating with constant switching frequency 2 kHz or 4 kHz.
Ambient temperature 40 °C operating with constant switching frequency 8 kHz or 16 kHz.

Data in right column per device

Operation with increased power: rated output current $I_{N,out}$ at mains voltage 400 V, switching frequency 4 kHz constant and max. ambient temperature 40 °C.
Output currents apply to:
Ambient temperature 40 °C operating with constant switching frequency 2 kHz or 4 kHz.

| | | |  | | | | | |
|-----------------------------|--------------|------|--|------|------------------------------------|------|------------------------------------|--------------------|
| Typical motor power | | | | | | | | |
| 4-pole asynchronous motor | P | [kW] | 0.37 | 0.55 | 0.55 | 0.75 | 0.75 | 1.10 ¹⁾ |
| Product key | | | | | | | | |
| Inverter | | | E84AV□□□3714□□0 E84AV□□□3714□□S | | E84AV□□□5514□□0 E84AV□□□5514□□S | | E84AV□□□7514□□0 E84AV□□□7514□□S | |
| Mains voltage range | | | 3/PE AC 320 V-0 % ... 550 V+0 %, 45 Hz-0 % ... 65 Hz+0 % | | | | | |
| | U_{AC} | [V] | | | | | | |
| Rated mains current | | | | | | | | |
| With mains choke | $I_{N, AC}$ | [A] | 1.4 | 1.7 | 2.0 | 2.6 | | 3.0 |
| Without mains choke | $I_{N, AC}$ | [A] | 1.8 | 2.2 | 2.5 | 3.2 | 3.6 | |
| Rated output current | | | | | | | | |
| | $I_{N, out}$ | [A] | 1.3 | 1.6 | 1.8 | 2.2 | 2.4 | 2.9 |
| Output current | | | | | | | | |
| 2 kHz | I_{out} | [A] | 1.3 | 1.6 | 1.8 | 2.2 | 2.4 | 2.9 |
| 4 kHz | I_{out} | [A] | 1.3 | 1.6 | 1.8 | 2.2 | 2.4 | 2.9 |
| 8 kHz | I_{out} | [A] | 1.3 | | 1.8 | | 2.4 | |
| 16 kHz | I_{out} | [A] | 0.9 | | 1.2 | | 1.6 | |

Data for 60 s overload

| | | | | | | | | |
|----------------------------|----------------|-----|-------|--|-----|--|-----|--|
| Max. output current | | | | | | | | |
| | $I_{max, out}$ | [A] | 2.0 | | 2.7 | | 3.6 | |
| Overload time | | | | | | | | |
| | t_{ol} | [s] | 60.0 | | | | | |
| Recovery time | | | | | | | | |
| | t_{re} | [s] | 120.0 | | | | | |

Data for 3 s overload

| | | | | | | | | |
|---------------------------------------|----------------|-----|------|--|-----|--|-----|--|
| Max. short-time output current | | | | | | | | |
| | $I_{max, out}$ | [A] | 2.6 | | 3.6 | | 4.8 | |
| Overload time | | | | | | | | |
| | t_{ol} | [s] | 3.0 | | | | | |
| Recovery time | | | | | | | | |
| | t_{re} | [s] | 12.0 | | | | | |

¹⁾ Operation only permitted with mains choke

Inverter Drives 8400 StateLine

Technical data



Rated data 400 V

► Unless otherwise specified, the data refers to the default setting.

| Typical motor power | | | | | | | | |
|---------------------------------------|--------------------|------|--|------|------------------------------------|------|------------------------------------|------|
| 4-pole asynchronous motor | P | [kW] | 0.37 | 0.55 | 0.55 | 0.75 | 0.75 | 1.10 |
| Product key | | | | | | | | |
| Inverter | | | E84AV□□□3714□□0 E84AV□□□3714□□S | | E84AV□□□5514□□0 E84AV□□□5514□□S | | E84AV□□□7514□□0 E84AV□□□7514□□S | |
| DC supply | | | | | | | | |
| | U _{DC} | [V] | DC 455 V -0 % ... 775 V +0 % DC 455 V -0 % ... 775 V +0 % | | | | | |
| Rated DC-bus current | | | | | | | | |
| | I _{N, DC} | [A] | 2.2 2.2 | | 3.3 3.3 | | 4.4 4.4 | |
| Power loss | | | | | | | | |
| | P _V | [kW] | 0.050 0.050 | | 0.065 0.065 | | 0.080 0.080 | |
| Max. cable length¹⁾ | | | | | | | | |
| Shielded motor cable | l _{max} | [m] | 50 50 | | | | | |

4.7

Brake chopper rated data

| | | | | | |
|---|---------------------|------|-------|-------|-------|
| Rated power, Brake chopper | | | | | |
| | P _N | [kW] | 1.3 | 1.3 | 1.3 |
| Max. output power, Brake chopper | | | | | |
| | P _{max, 1} | [kW] | 1.3 | 1.3 | 1.3 |
| Min. brake resistance | | | | | |
| | R _{min} | [Ω] | 390.0 | 390.0 | 390.0 |

Dimensions and weights

Standard installation design

| Dimensions | | | | | |
|---------------------|---|------|-----|-----|-----|
| Height | h | [mm] | 215 | 215 | 215 |
| Width | b | [mm] | 70 | 70 | 70 |
| Depth ²⁾ | t | [mm] | 199 | 199 | 199 |
| Mass | | | | | |
| | m | [kg] | 1.8 | 1.8 | 1.8 |

¹⁾ Technically possible cable lengths, irrespective of EMC requirements

²⁾ With safety engineering plus 20 mm

Inverter Drives 8400 StateLine



Technical data

Rated data 400 V


► Unless otherwise specified, the data refers to the default setting.

Data in left column per device

Operation with rated data: rated output current $I_{N,out}$ at mains voltage 400 V, switching frequency 8 kHz variable and max. ambient temperature 45 °C (default setting).
Output currents I_{out} apply to:
Ambient temperature 45 °C operating with constant switching frequency 2 kHz or 4 kHz.
Ambient temperature 40 °C operating with constant switching frequency 8 kHz or 16 kHz.

Data in right column per device

Operation with increased power: rated output current $I_{N,out}$ at mains voltage 400 V, switching frequency 4 kHz constant and max. ambient temperature 40 °C.
Output currents apply to:
Ambient temperature 40 °C operating with constant switching frequency 2 kHz or 4 kHz.

| | | | | | | | | | | |
|-----------------------------|--------------|------|--|------------------------------------|------------------------------------|-----------------|------|--------------------|------|--------------------|
| | | |  | | | | | | | |
| Typical motor power | | | | | | | | | | |
| 4-pole asynchronous motor | P | [kW] | 1.10 | 1.50 | 1.50 | 2.20 | 2.20 | 3.00 ¹⁾ | 3.00 | 4.00 ¹⁾ |
| Product key | | | | | | | | | | |
| Inverter | | | E84AV□□□1124□□0 E84AV□□□1124□□S | E84AV□□□1524□□0 E84AV□□□1524□□S | E84AV□□□2224□□0 E84AV□□□2224□□S | E84AV□□□3024□□S | | | | |
| Mains voltage range | | | 3/PE AC 320 V-0 % ... 550 V+0 %, 45 Hz-0 % ... 65 Hz+0 % | | | | | | | |
| | U_{AC} | [V] | | | | | | | | |
| Rated mains current | | | | | | | | | | |
| With mains choke | $I_{N, AC}$ | [A] | 3.2 | 3.8 | 3.9 | 4.7 | 5.1 | 6.1 | 7.0 | 8.4 |
| Without mains choke | $I_{N, AC}$ | [A] | 4.4 | 5.3 | 5.5 | 6.6 | 7.3 | 9.8 | | |
| Rated output current | | | | | | | | | | |
| | $I_{N, out}$ | [A] | 3.2 | 3.8 | 3.9 | 4.8 | 5.6 | 6.7 | 7.3 | 8.8 |
| Output current | | | | | | | | | | |
| 2 kHz | I_{out} | [A] | 3.2 | 3.8 | 3.9 | 4.8 | 5.6 | 6.7 | 7.3 | 8.8 |
| 4 kHz | I_{out} | [A] | 3.2 | 3.8 | 3.9 | 4.8 | 5.6 | 6.7 | 7.3 | 8.8 |
| 8 kHz | I_{out} | [A] | 3.2 | | 3.9 | | 5.6 | | 7.3 | |
| 16 kHz | I_{out} | [A] | 2.1 | | 2.6 | | 3.7 | | 4.9 | |

Data for 60 s overload

| | | | | | | | | | | |
|----------------------------|----------------|-----|-------|-----|-----|------|--|--|--|--|
| Max. output current | | | | | | | | | | |
| | $I_{max, out}$ | [A] | 4.8 | 5.9 | 8.4 | 11.0 | | | | |
| Overload time | | | | | | | | | | |
| | t_{ol} | [s] | 60.0 | | | | | | | |
| Recovery time | | | | | | | | | | |
| | t_{re} | [s] | 120.0 | | | | | | | |

Data for 3 s overload

| | | | | | | | | | | |
|---------------------------------------|----------------|-----|------|-----|------|------|--|--|--|--|
| Max. short-time output current | | | | | | | | | | |
| | $I_{max, out}$ | [A] | 6.4 | 7.8 | 11.2 | 14.6 | | | | |
| Overload time | | | | | | | | | | |
| | t_{ol} | [s] | 3.0 | | | | | | | |
| Recovery time | | | | | | | | | | |
| | t_{re} | [s] | 12.0 | | | | | | | |

¹⁾ Operation only permitted with mains choke

Inverter Drives 8400 StateLine

Technical data



Rated data 400 V

► Unless otherwise specified, the data refers to the default setting.

| | | | | | | | | | | |
|---------------------------------------|-------------|------|------------------------------------|------------------------------------|------------------------------------|------------------|------|------|------|------|
| | | | | | | | | | | |
| Typical motor power | | | | | | | | | | |
| 4-pole asynchronous motor | P | [kW] | 1.10 | 1.50 | 1.50 | 2.20 | 2.20 | 3.00 | 3.00 | 4.00 |
| Product key | | | | | | | | | | |
| Inverter | | | E84AV□□□1124□□□ E84AV□□□1124□□S | E84AV□□□1524□□□ E84AV□□□1524□□S | E84AV□□□2224□□□ E84AV□□□2224□□S | E84AV□□□3024□□□S | | | | |
| DC supply | | | | | | | | | | |
| | U_{DC} | [V] | DC 455 V -0 % ... 775 V +0 % | | | | | | | |
| Rated DC-bus current | | | | | | | | | | |
| | $I_{N, DC}$ | [A] | 5.4 | | 6.7 | | 8.9 | | 12.0 | |
| Power loss | | | | | | | | | | |
| | P_V | [kW] | 0.090 | | 0.10 | | 0.14 | | 0.17 | |
| Max. cable length¹⁾ | | | | | | | | | | |
| Shielded motor cable | l_{max} | [m] | 50 | | | | | | | |

Brake chopper rated data

4.7

| | | | | | | | | | | |
|---|--------------|------|-------|--|-------|--|-------|--|------|--|
| Rated power, Brake chopper | | | | | | | | | | |
| | P_N | [kW] | 2.9 | | 2.9 | | 3.5 | | 6.4 | |
| Max. output power, Brake chopper | | | | | | | | | | |
| | $P_{max, 1}$ | [kW] | 2.9 | | 2.9 | | 3.5 | | 6.4 | |
| Min. brake resistance | | | | | | | | | | |
| | R_{min} | [Ω] | 180.0 | | 180.0 | | 150.0 | | 82.0 | |

Dimensions and weights

Standard installation design

| | | | | | | | | | | |
|---------------------|---|------|-----|--|-----|--|-----|--|-----|--|
| Dimensions | | | | | | | | | | |
| Height | h | [mm] | 270 | | 270 | | 270 | | 270 | |
| Width | b | [mm] | 70 | | 70 | | 70 | | 70 | |
| Depth ²⁾ | t | [mm] | 199 | | 199 | | 199 | | 199 | |
| Mass | | | | | | | | | | |
| | m | [kg] | 2.1 | | 2.1 | | 2.1 | | 2.0 | |

¹⁾ Technically possible cable lengths, irrespective of EMC requirements

²⁾ With safety engineering plus 20 mm

Inverter Drives 8400 StateLine



Technical data

Rated data 400 V

► Unless otherwise specified, the data refers to the default setting.

Data in left column per device

Operation with rated data: rated output current $I_{N,out}$ at mains voltage 400 V, switching frequency 8 kHz variable and max. ambient temperature 45 °C (default setting).
Output currents I_{out} apply to:
Ambient temperature 45 °C operating with constant switching frequency 2 kHz or 4 kHz.
Ambient temperature 40 °C operating with constant switching frequency 8 kHz or 16 kHz.

Data in right column per device

Operation with increased power: rated output current $I_{N,out}$ at mains voltage 400 V, switching frequency 4 kHz constant and max. ambient temperature 40 °C.
Output currents apply to:
Ambient temperature 40 °C operating with constant switching frequency 2 kHz or 4 kHz.

| Typical motor power | | | | | | | | |
|-----------------------------|-------------|------|--|--------------------|-----------------|------|-----------------|--------------------|
| 4-pole asynchronous motor | P | [kW] | 3.00 | 4.00 ¹⁾ | 4.00 | 5.50 | 5.50 | 7.50 ¹⁾ |
| Product key | | | E84AV□□□3024□□0 | | E84AV□□□4024□□0 | | E84AV□□□5524□□0 | |
| Mains voltage range | | | 3/PE AC 320 V-0 % ... 550 V+0 %, 45 Hz-0 % ... 65 Hz+0 % | | | | | |
| | U_{AC} | [V] | | | | | | |
| Rated mains current | | | | | | | | |
| With mains choke | $I_{N,AC}$ | [A] | 7.0 | 8.4 | 8.8 | 10.6 | 12.0 | 18.0 |
| Without mains choke | $I_{N,AC}$ | [A] | 9.8 | | 13.1 | 15.7 | 18.0 | |
| Rated output current | | | | | | | | |
| | $I_{N,out}$ | [A] | 7.3 | 8.8 | 9.5 | 11.5 | 13.0 | 15.6 |
| Output current | | | | | | | | |
| 2 kHz | I_{out} | [A] | 7.3 | 8.8 | 9.5 | 11.5 | 13.0 | 15.6 |
| 4 kHz | I_{out} | [A] | 7.3 | 8.8 | 9.5 | 11.5 | 13.0 | 15.6 |
| 8 kHz | I_{out} | [A] | 7.3 | | 9.5 | | 13.0 | |
| 16 kHz | I_{out} | [A] | 4.9 | | 6.3 | | 8.7 | |

Data for 60 s overload

| | | | | | |
|----------------------------|---------------|-----|------|-------|------|
| Max. output current | | | | | |
| | $I_{max,out}$ | [A] | 11.0 | 14.3 | 19.5 |
| Overload time | | | | | |
| | t_{ol} | [s] | | 60.0 | |
| Recovery time | | | | | |
| | t_{re} | [s] | | 120.0 | |

Data for 3 s overload

| | | | | | |
|---------------------------------------|---------------|-----|------|------|------|
| Max. short-time output current | | | | | |
| | $I_{max,out}$ | [A] | 14.6 | 19.0 | 26.0 |
| Overload time | | | | | |
| | t_{ol} | [s] | | 3.0 | |
| Recovery time | | | | | |
| | t_{re} | [s] | | 12.0 | |

¹⁾ Operation only permitted with mains choke


Inverter Drives 8400 StateLine



Technical data

Rated data 400 V

► Unless otherwise specified, the data refers to the default setting.

| | | | | | | | | |
|---------------------------------------|-------------|------|--|------|-----------------|------|-----------------|------|
| | | |  | | | | | |
| Typical motor power | | | | | | | | |
| 4-pole asynchronous motor | P | [kW] | 3.00 | 4.00 | 4.00 | 5.50 | 5.50 | 7.50 |
| Product key | | | | | | | | |
| Inverter | | | E84AV□□□3024□□0 | | E84AV□□□4024□□0 | | E84AV□□□5524□□0 | |
| DC supply | | | | | | | | |
| | U_{DC} | [V] | DC 455 V -0 % ... 775 V +0 % | | | | | |
| Rated DC-bus current | | | | | | | | |
| | $I_{N, DC}$ | [A] | 12.0 | | 16.0 | | 22.0 | |
| Power loss | | | | | | | | |
| | P_V | [kW] | 0.17 | | 0.20 | | 0.28 | |
| Max. cable length¹⁾ | | | | | | | | |
| Shielded motor cable | I_{max} | [m] | 50 | | | | | |

Brake chopper rated data

| | | | | | |
|---|--------------|------|------|------|------|
| Rated power, Brake chopper | | | | | |
| | P_N | [kW] | 6.4 | 9.4 | 9.4 |
| Max. output power, Brake chopper | | | | | |
| | $P_{max, 1}$ | [kW] | 6.4 | 11.2 | 11.2 |
| Min. brake resistance | | | | | |
| | R_{min} | [Ω] | 82.0 | 47.0 | 47.0 |

Dimensions and weights

Standard installation design

| | | | | | |
|---------------------|---|------|-----|-----|-----|
| Dimensions | | | | | |
| Height | h | [mm] | 270 | 270 | 270 |
| Width | b | [mm] | 140 | 140 | 140 |
| Depth ²⁾ | t | [mm] | 199 | 199 | 199 |
| Mass | | | | | |
| | m | [kg] | 2.1 | 4.4 | 4.4 |

¹⁾ Technically possible cable lengths, irrespective of EMC requirements

²⁾ With safety engineering plus 20 mm

Inverter Drives 8400 StateLine



Technical data

Rated data 400 V


► Unless otherwise specified, the data refers to the default setting.

Data in left column per device

Operation with rated data: rated output current $I_{N,out}$ at mains voltage 400 V, switching frequency 8 kHz variable and max. ambient temperature 45 °C (default setting).
Output currents I_{out} apply to:
Ambient temperature 45 °C operating with constant switching frequency 2 kHz or 4 kHz.
Ambient temperature 40 °C operating with constant switching frequency 8 kHz or 16 kHz.

Data in right column per device

Operation with increased power: rated output current $I_{N,out}$ at mains voltage 400 V, switching frequency 4 kHz constant and max. ambient temperature 40 °C.
Output currents apply to:
Ambient temperature 40 °C operating with constant switching frequency 2 kHz or 4 kHz.

| | | |  | | | | |
|-----------------------------|-------------|------|--|------|-----------------|--------------------|--------------------|
| Typical motor power | | | | | | | |
| 4-pole asynchronous motor | P | [kW] | 7.50 | 11.0 | 11.0 | 15.0 ¹⁾ | 15.0 ¹⁾ |
| Product key | | | E84AV□□□7524□□0 | | E84AV□□□1134□□0 | | E84AV□□□1534□□0 |
| Mains voltage range | | | 3/PE AC 320 V-0 % ... 550 V+0 %, 45 Hz-0 % ... 65 Hz+0 % | | | | |
| | U_{AC} | [V] | | | | | |
| Rated mains current | | | | | | | |
| With mains choke | $I_{N,AC}$ | [A] | 15.0 | 21.0 | 29.0 | | |
| Without mains choke | $I_{N,AC}$ | [A] | 20.0 | 28.0 | 29.0 | | |
| Rated output current | | | | | | | |
| | $I_{N,out}$ | [A] | 16.5 | 21.0 | 23.5 | 28.2 | 32.0 |
| Output current | | | | | | | |
| 2 kHz | I_{out} | [A] | 16.5 | 21.0 | 23.5 | 28.2 | 32.0 |
| 4 kHz | I_{out} | [A] | 16.5 | 21.0 | 23.5 | 28.2 | 32.0 |
| 8 kHz | I_{out} | [A] | 16.5 | | 23.5 | | 32.0 |
| 16 kHz | I_{out} | [A] | 11.0 | | 15.7 | | 21.3 |

Data for 60 s overload

| | | | | | |
|----------------------------|---------------|-----|------|-------|------|
| Max. output current | | | | | |
| | $I_{max,out}$ | [A] | 26.4 | 35.3 | 48.0 |
| Overload time | | | | | |
| | t_{ol} | [s] | | 60.0 | |
| Recovery time | | | | | |
| | t_{re} | [s] | | 120.0 | |

Data for 3 s overload

| | | | | | |
|---------------------------------------|---------------|-----|------|------|------|
| Max. short-time output current | | | | | |
| | $I_{max,out}$ | [A] | 33.0 | 47.0 | 64.0 |
| Overload time | | | | | |
| | t_{ol} | [s] | | 3.0 | |
| Recovery time | | | | | |
| | t_{re} | [s] | | 12.0 | |

¹⁾ Operation only permitted with mains choke


Inverter Drives 8400 StateLine

Technical data



Rated data 400 V

► Unless otherwise specified, the data refers to the default setting.

| | | | | | | | |
|---------------------------------------|------------|------|--|------|-----------------|------|-----------------|
| | | |  | | | | |
| Typical motor power | | | | | | | |
| 4-pole asynchronous motor | P | [kW] | 7.50 | 11.0 | 11.0 | 15.0 | 15.0 |
| Product key | | | | | | | |
| Inverter | | | E84AV□□□7524□□0 | | E84AV□□□1134□□0 | | E84AV□□□1534□□0 |
| DC supply | | | | | | | |
| | U_{DC} | [V] | DC 455 V -0 % ... 775 V +0 % | | | | |
| Rated DC-bus current | | | | | | | |
| | $I_{N,DC}$ | [A] | 24.5 | | 35.5 | | |
| Power loss | | | | | | | |
| | P_V | [kW] | 0.32 | | 0.43 | | 0.47 |
| Max. cable length¹⁾ | | | | | | | |
| Shielded motor cable | I_{max} | [m] | 50 | | | | |

Brake chopper rated data

| | | | | | |
|---|-------------|------|------|------|------|
| Rated power, Brake chopper | | | | | |
| | P_N | [kW] | 19.5 | 19.5 | 29.2 |
| Max. output power, Brake chopper | | | | | |
| | $P_{max,1}$ | [kW] | 19.5 | 19.5 | 29.2 |
| Min. brake resistance | | | | | |
| | R_{min} | [Ω] | 27.0 | 27.0 | 18.0 |

Dimensions and weights

Standard installation design

| | | | | | |
|---------------------|---|------|-----|-----|-----|
| Dimensions | | | | | |
| Height | h | [mm] | 325 | 325 | 325 |
| Width | b | [mm] | 140 | 140 | 140 |
| Depth ²⁾ | t | [mm] | 199 | 199 | 199 |
| Mass | | | | | |
| | m | [kg] | 5.8 | 5.8 | 5.8 |

¹⁾ Technically possible cable lengths, irrespective of EMC requirements

²⁾ With safety engineering plus 20 mm

Inverter Drives 8400 StateLine



Technical data

Rated data 400 V


► Unless otherwise specified, the data refers to the default setting.

Data in left column per device

Operation with rated data: rated output current $I_{N,out}$ at mains voltage 400 V, switching frequency 8 kHz variable and max. ambient temperature 45 °C (default setting).
Output currents I_{out} apply to:
Ambient temperature 45 °C operating with constant switching frequency 2 kHz or 4 kHz.
Ambient temperature 40 °C operating with constant switching frequency 8 kHz or 16 kHz.

Data in right column per device

Operation with increased power: rated output current $I_{N,out}$ at mains voltage 400 V, switching frequency 4 kHz constant and max. ambient temperature 40 °C.
Output currents apply to:
Ambient temperature 40 °C operating with constant switching frequency 2 kHz or 4 kHz.

| | | | | | | |
|-----------------------------|-------------|------|--|--------------------|--------------------|--------------------|
| | | |  | | | |
| Typical motor power | | | | | | |
| 4-pole asynchronous motor | P | [kW] | 18.5 | 22.0 ¹⁾ | 22.0 ¹⁾ | 30.0 ¹⁾ |
| Product key | | | E84AV□□□1834□□0 | | E84AV□□□2234□□0 | |
| Mains voltage range | | | 3/PE AC 320 V-0 % ... 550 V+0 %, 45 Hz-0 % ... 65 Hz+0 % | | | |
| | U_{AC} | [V] | | | | |
| Rated mains current | | | | | | |
| With mains choke | $I_{N,AC}$ | [A] | 36.0 | 42.2 | 42.0 | 50.8 |
| Without mains choke | $I_{N,AC}$ | [A] | 50.4 | | | |
| Rated output current | | | | | | |
| | $I_{N,out}$ | [A] | 40.0 | 46.8 | 47.0 | 56.4 |
| Output current | | | | | | |
| 2 kHz | I_{out} | [A] | 40.0 | 46.8 | 47.0 | 56.4 |
| 4 kHz | I_{out} | [A] | 40.0 | 46.8 | 47.0 | 56.4 |
| 8 kHz | I_{out} | [A] | 40.0 | | 47.0 | |
| 16 kHz | I_{out} | [A] | 27.0 | | 31.3 | |

Data for 60 s overload

| | | | | | | |
|----------------------------|---------------|-----|-------|--|--|------|
| Max. output current | | | | | | |
| | $I_{max,out}$ | [A] | 60.0 | | | 70.5 |
| Overload time | | | | | | |
| | t_{ol} | [s] | 60.0 | | | |
| Recovery time | | | | | | |
| | t_{re} | [s] | 120.0 | | | |

Data for 3 s overload

| | | | | | | |
|---------------------------------------|---------------|-----|------|--|--|------|
| Max. short-time output current | | | | | | |
| | $I_{max,out}$ | [A] | 78.0 | | | 89.3 |
| Overload time | | | | | | |
| | t_{ol} | [s] | 3.0 | | | |
| Recovery time | | | | | | |
| | t_{re} | [s] | 12.0 | | | |

¹⁾ Operation only permitted with mains choke or mains filter


Inverter Drives 8400 StateLine

Technical data



Rated data 400 V

► Unless otherwise specified, the data refers to the default setting.

| | | | | | | |
|--|-------------|------|--|------|-----------------|------|
| | | |  | | | |
| Typical motor power | | | | | | |
| 4-pole asynchronous motor | P | [kW] | 18.5 | 22.0 | 22.0 | 30.0 |
| Product key | | | E84AV□□□1834□□0 | | E84AV□□□2234□□0 | |
| DC supply | | | DC 455 V -0 % ... 775 V +0 % | | | |
| | U_{DC} | [V] | | | | |
| Rated DC-bus current | | | 44.1 | | 51.4 | |
| | $I_{N, DC}$ | [A] | | | | |
| Power loss | | | 0.54 | | 0.64 | |
| | P_V | [kW] | | | | |
| Max. cable length ¹⁾ | | | 100 | | | |
| Shielded motor cable | I_{max} | [m] | | | | |

Brake chopper rated data

| | | | | | | |
|---|--------------|------|------|--|------|--|
| Rated power, Brake chopper | | | 35.0 | | 35.0 | |
| | P_N | [kW] | | | | |
| Max. output power, Brake chopper | | | 35.0 | | 35.0 | |
| | $P_{max, 1}$ | [kW] | | | | |
| Min. brake resistance | | | 15.0 | | 15.0 | |
| | R_{min} | [Ω] | | | | |

Dimensions and weights

Standard installation design

| | | | | | | |
|---------------------|---|------|------|--|------|--|
| Dimensions | | | | | | |
| Height | h | [mm] | 350 | | 350 | |
| Width | b | [mm] | 205 | | 205 | |
| Depth ²⁾ | t | [mm] | 250 | | 250 | |
| Mass | | | | | | |
| | m | [kg] | 12.0 | | 12.0 | |

¹⁾ Technically possible cable lengths, irrespective of EMC requirements

²⁾ With safety engineering plus 20 mm

Inverter Drives 8400 StateLine



Technical data

Rated data 400 V

► Unless otherwise specified, the data refers to the default setting.

Data in left column per device

Operation with rated data: rated output current $I_{N,out}$ at mains voltage 400 V, switching frequency 8 kHz variable and max. ambient temperature 45 °C (default setting).
Output currents I_{out} apply to:
Ambient temperature 45 °C operating with constant switching frequency 2 kHz or 4 kHz.
Ambient temperature 40 °C operating with constant switching frequency 8 kHz or 16 kHz.

Data in right column per device

Operation with increased power: rated output current $I_{N,out}$ at mains voltage 400 V, switching frequency 4 kHz constant and max. ambient temperature 40 °C.
Output currents apply to:
Ambient temperature 40 °C operating with constant switching frequency 2 kHz or 4 kHz.

| Typical motor power | | | | | | | | |
|-----------------------------|-------------|------|--|---------------------|---------------------|---------------------|---------------------|---------------------|
| 4-pole asynchronous motor | P | [kW] | 30.0 ⁻¹⁾ | 37.0 ⁻¹⁾ | 37.0 ⁻¹⁾ | 45.0 ⁻¹⁾ | 45.0 ⁻¹⁾ | 55.0 ⁻¹⁾ |
| Product key | | | E84AV□□□□3034□□□0 | | E84AV□□□□3734□□□0 | | E84AV□□□□4534□□□0 | |
| Mains voltage range | | | 3/PE AC 320 V-0 % ... 550 V+0 %, 45 Hz-0 % ... 65 Hz+0 % | | | | | |
| Rated mains current | | | | | | | | |
| With mains choke | $I_{N,AC}$ | [A] | 55.0 | 66.0 | 68.0 | 81.6 | 80.0 | 96.0 |
| Without mains choke | $I_{N,AC}$ | [A] | | | | | | |
| Rated output current | | | | | | | | |
| | $I_{N,out}$ | [A] | 61.0 | 73.2 | 76.0 | 91.2 | 89.0 | 106.8 |
| Output current | | | | | | | | |
| 2 kHz | I_{out} | [A] | 61.0 | 73.2 | 76.0 | 91.2 | 89.0 | 106.8 |
| 4 kHz | I_{out} | [A] | 61.0 | 73.2 | 76.0 | 91.2 | 89.0 | 106.8 |
| 8 kHz | I_{out} | [A] | 61.0 | | 76.0 | | 89.0 | |
| 16 kHz | I_{out} | [A] | 41.0 | | 51.0 | | 60.0 | |

Data for 60 s overload

| | | | | | | | | |
|----------------------------|---------------|-----|-------|--|-------|--|-------|--|
| Max. output current | | | | | | | | |
| | $I_{max,out}$ | [A] | 91.5 | | 114.0 | | 133.5 | |
| Overload time | | | | | | | | |
| | t_{ol} | [s] | 60.0 | | | | | |
| Recovery time | | | | | | | | |
| | t_{re} | [s] | 120.0 | | | | | |

Data for 3 s overload

| | | | | | | | | |
|---------------------------------------|---------------|-----|-------|--|-------|--|-------|--|
| Max. short-time output current | | | | | | | | |
| | $I_{max,out}$ | [A] | 112.1 | | 136.8 | | 169.1 | |
| Overload time | | | | | | | | |
| | t_{ol} | [s] | 3.0 | | | | | |
| Recovery time | | | | | | | | |
| | t_{re} | [s] | 12.0 | | | | | |

¹⁾ Operation only permitted with mains choke

Inverter Drives 8400 StateLine

Technical data



Rated data 400 V

► Unless otherwise specified, the data refers to the default setting.

| | | | | | | | | |
|---------------------------------------|-------------|------|------------------------------|------|-----------------|------|-----------------|------|
| | | | | | | | | |
| Typical motor power | | | | | | | | |
| 4-pole asynchronous motor | P | [kW] | 30.0 | 37.0 | 37.0 | 45.0 | 45.0 | 55.0 |
| Product key | | | | | | | | |
| Inverter | | | E84AV□□□3034□□0 | | E84AV□□□3734□□0 | | E84AV□□□4534□□0 | |
| DC supply | | | | | | | | |
| | U_{DC} | [V] | DC 455 V -0 % ... 775 V +0 % | | | | | |
| Rated DC-bus current | | | | | | | | |
| | $I_{N, DC}$ | [A] | 67.4 | | 83.3 | | 98.0 | |
| Power loss | | | | | | | | |
| | P_V | [kW] | 0.84 | | 0.98 | | 1.30 | |
| Max. cable length¹⁾ | | | | | | | | |
| Shielded motor cable | I_{max} | [m] | 100 | | | | | |

Brake chopper rated data

| | | | | | |
|---|--------------|------|------|------|------|
| Rated power, Brake chopper | | | | | |
| | P_N | [kW] | 70.1 | 70.1 | 70.1 |
| Max. output power, Brake chopper | | | | | |
| | $P_{max, 1}$ | [kW] | 70.1 | 70.1 | 70.1 |
| Min. brake resistance | | | | | |
| | R_{min} | [Ω] | 7.5 | 7.5 | 7.5 |

Dimensions and weights

Standard installation design

| | | | | | |
|---------------------|---|------|------|------|------|
| Dimensions | | | | | |
| Height | h | [mm] | 450 | 450 | 450 |
| Width | b | [mm] | 250 | 250 | 250 |
| Depth ²⁾ | t | [mm] | 250 | 250 | 250 |
| Mass | | | | | |
| | m | [kg] | 17.2 | 17.2 | 17.2 |

¹⁾ Technically possible cable lengths, irrespective of EMC requirements

²⁾ With safety engineering plus 20 mm

Inverter Drives 8400 StateLine



Technical data

"Cold plate" design

Inverters in cold-plate design dissipate some of their waste heat (heat loss) via a cooler adapted to the application. For this purpose, the inverters are provided with a planed cooling plate which is connected to a separate cooler in a thermally conductive way. Using the cold plate technology, the main part of the heat energy can be transferred directly to the external cooling units.

The use of cold-plate technology is advantageous for the following application cases:

- Minimising the expense of cooling the control cabinet. Here, the main part of the power loss is directly transferred to a cooling unit outside of the control cabinet, e.g. convection cooler or water cooler.
- Heavily polluted ambient air or control cabinets with a high degree of protection which do not allow for a use of a forced air cooling of the control cabinets.
- Low mounting depth in the control cabinet.

Requirements for the cooler

When cold-plate technology is used, the following basic conditions must be considered:

- Good thermal connection to the external cooling unit, i.e. the implementation of the heat transfer resistance (R_{th}) according to the power loss.
- The contact surface must at least be as big as the cooling plate of the inverter.
- The planarity of the contact surface must not exceed 0.05 mm.
- The contact surface of the external coolers and cooling plate must be connected by means of the intended screwed connection.
- The maximum temperature of the cooling plate of the inverter ((75 °C) must not be exceeded.

| Product key | Power to be dissipated | Thermal resistance |
|-----------------|------------------------|--------------------|
| Inverter | P_V | R_{th} |
| | [W] | [K/W] |
| E84AV□□□2512□□□ | 15.0 | ≤ 1.5 |
| E84AV□□□3712□□□ | 20.0 | ≤ 1.5 |
| E84AV□□□5512□□S | 30.0 | ≤ 1.0 |
| E84AV□□□7512□□S | 40.0 | ≤ 1.0 |
| E84AV□□□1122□□S | 60.0 | ≤ 0.6 |
| E84AV□□□1522□□S | 75.0 | ≤ 0.5 |
| E84AV□□□2222□□S | 100 | ≤ 0.4 |
| E84AV□□□3714□□S | 25.0 | ≤ 1.0 |
| E84AV□□□5514□□S | 35.0 | ≤ 1.0 |
| E84AV□□□7514□□S | 50.0 | ≤ 1.0 |
| E84AV□□□1124□□S | 60.0 | ≤ 0.6 |
| E84AV□□□1524□□S | 70.0 | ≤ 0.5 |
| E84AV□□□2224□□S | 100 | ≤ 0.4 |
| E84AV□□□3024□□S | 100 | ≤ 0.4 |
| E84AV□□□4024□□□ | 155 | ≤ 0.25 |
| E84AV□□□5524□□□ | 215 | ≤ 0.18 |
| E84AV□□□7524□□□ | 250 | ≤ 0.15 |
| E84AV□□□1134□□□ | 355 | ≤ 0.11 |
| E84AV□□□1534□□□ | 390 | ≤ 0.10 |
| E84AV□□□1834□□□ | 460 | ≤ 0.057 |
| E84AV□□□2234□□□ | 540 | ≤ 0.057 |
| E84AV□□□3034□□□ | 720 | ≤ 0.053 |
| E84AV□□□3734□□□ | 810 | ≤ 0.047 |
| E84AV□□□4534□□□ | 1080 | ≤ 0.035 |

Dimensions and weights

| Product key | | | E84AV□□□2512□□□ | E84AV□□□3712□□□ | E84AV□□□5512□□S | E84AV□□□7512□□S |
|-----------------------------|---|------|-----------------|-----------------|-----------------|-----------------|
| Inverter | | | | | | |
| Dimensions | | | | | | |
| Height, including fastening | h | [mm] | 186 | | 236 | |
| Width, including fastening | b | [mm] | 102 | | 70 | |
| Depth | t | [mm] | 185 | | 163 | |
| Mass | | | | | | |
| | m | [kg] | 1.3 | | 1.5 | |

| Product key | | | E84AV□□□1122□□S | E84AV□□□1522□□S | E84AV□□□2222□□S |
|-----------------------------|---|------|-----------------|-----------------|-----------------|
| Inverter | | | | | |
| Dimensions | | | | | |
| Height, including fastening | h | [mm] | 295 | | |
| Width, including fastening | b | [mm] | 70 | | |
| Depth | t | [mm] | 163 | | |
| Mass | | | | | |
| | m | [kg] | 2.0 | | |

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Inverter Drives 8400 StateLine

Technical data



"Cold plate" design

Dimensions and weights

| Product key | | | E84AV□□□3714□□S | E84AV□□□5514□□S | E84AV□□□7514□□S |
|-----------------------------|---|------|-----------------|-----------------|-----------------|
| Inverter | | | | | |
| Dimensions | | | | | |
| Height, including fastening | h | [mm] | | 236 | |
| Width, including fastening | b | [mm] | | 70 | |
| Depth ¹⁾ | t | [mm] | | 163 | |
| Mass | | | | | |
| | m | [kg] | | 1.5 | |

| Product key | | | E84AV□□□1124□□S | E84AV□□□1524□□S | E84AV□□□2224□□S |
|-----------------------------|---|------|-----------------|-----------------|-----------------|
| Inverter | | | | | |
| Dimensions | | | | | |
| Height, including fastening | h | [mm] | | 295 | |
| Width, including fastening | b | [mm] | | 70 | |
| Depth ¹⁾ | t | [mm] | | 163 | |
| Mass | | | | | |
| | m | [kg] | | 2.0 | |

| Product key | | | E84AV□□□3024□□S | E84AV□□□4024□□0 | E84AV□□□5524□□0 | E84AV□□□7524□□0 |
|-----------------------------|---|------|-----------------|-----------------|-----------------|-----------------|
| Inverter | | | | | | |
| Dimensions | | | | | | |
| Height, including fastening | h | [mm] | 295 | 318 | | 378 |
| Width, including fastening | b | [mm] | 70 | | 174 | |
| Depth ¹⁾ | t | [mm] | 163 | | 141 | |
| Mass | | | | | | |
| | m | [kg] | 2.0 | 2.7 | | 3.6 |

| Product key | | | E84AV□□□1134□□0 | E84AV□□□1534□□0 | E84AV□□□1834□□0 | E84AV□□□2234□□0 |
|-----------------------------|---|------|-----------------|-----------------|-----------------|-----------------|
| Inverter | | | | | | |
| Dimensions | | | | | | |
| Height, including fastening | h | [mm] | | 378 | | 407 |
| Width, including fastening | b | [mm] | | 174 | | 231 |
| Depth ¹⁾ | t | [mm] | | 141 | | 164 |
| Mass | | | | | | |
| | m | [kg] | | 3.6 | | 9.3 |

| Product key | | | E84AV□□□2234□□0 | E84AV□□□3734□□0 | E84AV□□□4534□□0 |
|-----------------------------|---|------|-----------------|-----------------|-----------------|
| Inverter | | | | | |
| Dimensions | | | | | |
| Height, including fastening | h | [mm] | 407 | | 520 |
| Width, including fastening | b | [mm] | 231 | | 250 |
| Depth ¹⁾ | t | [mm] | 164 | | 184 |
| Mass | | | | | |
| | m | [kg] | 9.3 | | 16.9 |

¹⁾ With safety engineering plus 20 mm

Inverter Drives 8400 StateLine

Technical data



Push-through technique design

The inverters in push-through design reduce the waste heat in the control cabinet.

The inverter is mounted in the control cabinet such that the heatsink of the inverter is outside the control cabinet. Thus, the entire waste heat can be dissipated outside the control cabinet via convection or forced air cooling for almost all device performances. For inverters with a power below 2.2 kW, restrictions may occur.

Using the push-through technology is advantageous in the following application cases:

- Minimising the expense for control cabinet cooling. For this purpose, the main part of the power loss is directly transferred to the ambience outside the control cabinet (e.g. convection cooling).
- In case of control cabinets with a high degree of protection > IP54 by using separate mounting and cooling areas.
- Low mounting depth in the control cabinet.

Inverter Drives 8400 StateLine

Technical data



Push-through technique design

Dimensions and weights

| Product key | | | E84AV□□□2512□□0 | E84AV□□□3712□□0 | E84AV□□□5512□□0 | E84AV□□□7512□□0 |
|--|---|------|-----------------|-----------------|-----------------|-----------------|
| Inverter | | | | | | |
| Dimensions | | | | | | |
| Height, including fastening | h | [mm] | 186 | | 236 | |
| Width, including fastening | b | [mm] | 102 | | | |
| Depth (in control cabinet) ¹⁾ | t | [mm] | 185 | | 163 | |
| Mass | | | | | | |
| | m | [kg] | 1.4 | | 1.9 | |

| Product key | | | E84AV□□□1122□□0 | E84AV□□□1522□□0 | E84AV□□□2222□□0 | E84AV□□□3714□□0 |
|--|---|------|-----------------|-----------------|-----------------|-----------------|
| Inverter | | | | | | |
| Dimensions | | | | | | |
| Height, including fastening | h | [mm] | 295 | | 236 | |
| Width, including fastening | b | [mm] | 137 | | 102 | |
| Depth (in control cabinet) ¹⁾ | t | [mm] | 163 | | | |
| Mass | | | | | | |
| | m | [kg] | 3.5 | | 1.9 | |

| Product key | | | E84AV□□□5514□□0 | E84AV□□□7514□□0 | E84AV□□□1124□□0 | E84AV□□□1524□□0 |
|--|---|------|-----------------|-----------------|-----------------|-----------------|
| Inverter | | | | | | |
| Dimensions | | | | | | |
| Height, including fastening | h | [mm] | 236 | | 295 | |
| Width, including fastening | b | [mm] | 102 | | 137 | |
| Depth (in control cabinet) ¹⁾ | t | [mm] | 163 | | | |
| Mass | | | | | | |
| | m | [kg] | 1.9 | | 3.5 | |

| Product key | | | E84AV□□□2224□□0 | E84AV□□□3024□□0 | E84AV□□□4024□□0 | E84AV□□□5524□□0 |
|--|---|------|-----------------|-----------------|-----------------|-----------------|
| Inverter | | | | | | |
| Dimensions | | | | | | |
| Height, including fastening | h | [mm] | 295 | | 318 | |
| Width, including fastening | b | [mm] | 137 | | 174 | |
| Depth (in control cabinet) ¹⁾ | t | [mm] | 163 | | 141 | |
| Mass | | | | | | |
| | m | [kg] | 3.5 | | 4.9 | |

| Product key | | | E84AV□□□7524□□0 | E84AV□□□1134□□0 | E84AV□□□1534□□0 | |
|--|---|------|-----------------|-----------------|-----------------|--|
| Inverter | | | | | | |
| Dimensions | | | | | | |
| Height, including fastening | h | [mm] | 378 | | | |
| Width, including fastening | b | [mm] | 174 | | | |
| Depth (in control cabinet) ¹⁾ | t | [mm] | 141 | | | |
| Mass | | | | | | |
| | m | [kg] | 6.2 | | | |

¹⁾ With safety engineering plus 20 mm

Inverter Drives 8400 StateLine



Interfaces

Mains connection

- ▶ The mains fuse and cable cross-section specifications are for a mains connection of 1 x 230V or 3 x 400V.
- ▶ Class gG/gI fuses or class gRL semiconductor fuses.
- ▶ The cable cross-sections apply to PVC-insulated copper cables.
- ▶ Use for installation with UL-approved cables, fuses and brackets.

Operation with mains choke

| Typical motor power | Mains voltage | Product key | Circuit breaker | Fuse | | Mains connection |
|---------------------------|---------------------|-----------------|-----------------|------------|------|----------------------------------|
| | | | | EN 60204-1 | UL | |
| 4-pole asynchronous motor | | Inverter | | | | Cross-section (with mains choke) |
| P | U _{AC} | | I | I | I | q |
| [kW] | [V] | | [A] | [A] | [A] | [mm ²] |
| 0.25 | 1 AC 180 ... 264 | E84AV□□□2512□□0 | C6 | 6 | 6 | 1.0 |
| 0.37 | | E84AV□□□3712□□0 | | | 10 | |
| 0.55 | | E84AV□□□5512□□0 | C10 | 10 | 15 | 1.5 |
| 0.75 | | E84AV□□□7512□□0 | | | 20 | |
| 1.10 | | E84AV□□□1122□□0 | | | 25 | |
| 1.50 | | E84AV□□□1522□□0 | C16 | 16 | 30 | 2.5 |
| 2.20 | | E84AV□□□2222□□0 | | | C20 | |
| 0.37 | 3 AC 320 ... 550 | E84AV□□□3714□□0 | C6 | 6 | 6 | 1.0 |
| 0.55 | | E84AV□□□5514□□0 | | | | |
| 0.75 | | E84AV□□□7514□□0 | | | | |
| 1.10 | | E84AV□□□1124□□0 | | | | |
| 1.50 | | E84AV□□□1524□□0 | C10 | 10 | 10 | 1.5 |
| 2.20 | | E84AV□□□2224□□0 | | | | |
| 3.00 | | E84AV□□□3024□□0 | C16 | 16 | 15 | 2.5 |
| 4.00 | | E84AV□□□4024□□0 | | | | |
| 5.50 | | E84AV□□□5524□□0 | | | | |
| 7.50 | | E84AV□□□7524□□0 | C20 | 20 | 20 | 4.0 |
| 11.0 | | E84AV□□□1134□□0 | | | | |
| 15.0 | | E84AV□□□1534□□0 | C32 | 32 | 30 | 10.0 |
| 18.5 | | E84AV□□□1834□□0 | | | | |
| 22.0 | | E84AV□□□2234□□0 | C50 | 50 | 40 | 16.0 |
| 30.0 | E84AV□□□3034□□0 | | | | | |
| 37.0 | E84AV□□□3734□□0 | C63 | 63 | 50 | 25.0 | |
| 45.0 | E84AV□□□4534□□0 | | | | | |
| | | E84AV□□□3034□□0 | C80 | 80 | 70 | 50.0 |
| | | E84AV□□□3734□□0 | | | | |
| | | E84AV□□□4534□□0 | C100 | 100 | 80 | 50.0 |
| | | E84AV□□□4534□□0 | | | | |
| | | E84AV□□□4534□□0 | C125 | 125 | 100 | 50.0 |
| | | E84AV□□□4534□□0 | | | | |

- ▶ Data are valid also for inverters with type code E84AV□□□□□□□□□□S

4.7

Inverter Drives 8400 StateLine

Interfaces



Mains connection

Operation without mains choke

| Typical motor power | Mains voltage | Product key | Circuit breaker | Fuse | | Mains connection |
|---------------------------|--------------------|------------------|-----------------|------------|------|-------------------------------------|
| | | | | EN 60204-1 | UL | |
| 4-pole asynchronous motor | | Inverter | | | | Cross-section (without mains choke) |
| P | U _{AC} | | I | I | I | q |
| [kW] | [V] | | [A] | [A] | [A] | [mm ²] |
| 0.25 | 1 AC 180... 264 | E84AV□□□□2512□□0 | C6 | 6 | 6 | 1.0 |
| 0.37 | | E84AV□□□□3712□□0 | | | 10 | |
| 0.55 | | E84AV□□□□5512□□0 | C10 | 10 | 15 | 1.5 |
| 0.75 | | E84AV□□□□7512□□0 | | | 20 | |
| 1.10 | | E84AV□□□□1122□□0 | C16 | 16 | 20 | 2.5 |
| 1.50 | | E84AV□□□□1522□□0 | C20 | 20 | 25 | 4.0 |
| 2.20 | | E84AV□□□□2222□□0 | C25 | 25 | 30 | |
| 0.37 | 3 AC 320... 550 | E84AV□□□□3714□□0 | C15 | 6 | 6 | 1.0 |
| 0.55 | | E84AV□□□□5514□□0 | | | | |
| 0.75 | | E84AV□□□□7514□□0 | | | | |
| 1.10 | | E84AV□□□□1124□□0 | | | | |
| 1.50 | | E84AV□□□□1524□□0 | 10 | 10 | 10 | 1.5 |
| 2.20 | | E84AV□□□□2224□□0 | | | | |
| 3.00 | | E84AV□□□□3024□□0 | C20 | 16 | 15 | 2.5 |
| 4.00 | | E84AV□□□□4024□□0 | | | 20 | |
| 5.50 | | E84AV□□□□5524□□0 | C25 | 25 | 25 | 4.0 |
| 7.50 | | E84AV□□□□7524□□0 | C32 | 32 | 25 | 10.0 |
| 11.0 | | E84AV□□□□1134□□0 | | | 40 | |
| 18.5 | E84AV□□□□1834□□0 | C80 | 80 | 60 | 25.0 | |

► Data are valid also for inverters with type code E84AV□□□□□□□□□□S



Interfaces

Motor connection

- ▶ Keep motor cables as short as possible, as this has a positive effect on the drive behaviour.
- ▶ With group drives (multiple motors on one inverter), the resulting cable length is the key factor. This can be calculated using the hardware manual.
- ▶ Electric strength of the motor cable: 1 kV as per VDE 250-1.
- ▶ Capacitance per unit length
 $\leq 1.5 \text{ mm}^2 / \text{AWG 16}: C_{\text{core-core}} / C_{\text{core-shield}} \leq 75 / \leq 150 \text{ pF/m}$
 $\geq 2.5 \text{ mm}^2 / \text{AWG 12}: C_{\text{core-core}} / C_{\text{core-shield}} \leq 100 / \leq 150 \text{ pF/m}$.

| Typical motor power | Mains voltage | Product key | Max. cable length (shielded) | | | Max. cable length shielded C2 | | |
|---------------------|---------------------|------------------|------------------------------|-----------------------------|------------------------------|-------------------------------|---------------|---------------|
| | | | 4 kHz (without limit value) | 8 kHz (without limit value) | 16 kHz (without limit value) | Integrated filter | RFI filter SD | RFI filter LD |
| P | U _{AC} | Inverter | l | l | l | l | l | l |
| [kW] | [V] | | [m] | [m] | [m] | [m] | [m] | [m] |
| 0.25 | 1 AC 180 ... 264 | E84AV□□□□2512□□0 | 50.0 | 50.0 | 50.0 | 25 | 50 | |
| 0.37 | | E84AV□□□□3712□□0 | | | | | | |
| 0.55 | | E84AV□□□□5512□□0 | | | | | | |
| 0.75 | | E84AV□□□□7512□□0 | | | | | | |
| 1.10 | | E84AV□□□□1122□□0 | | | | | | |
| 1.50 | | E84AV□□□□1522□□0 | | | | | | |
| 2.20 | | E84AV□□□□2222□□0 | | | | | | |
| 0.37 | 3 AC 320 ... 550 | E84AV□□□□3714□□0 | 50.0 | 25.0 | 15.0 | 25 | 50 | |
| 0.55 | | E84AV□□□□5514□□0 | | | | | | |
| 0.75 | | E84AV□□□□7514□□0 | | | | | | |
| 1.10 | | E84AV□□□□1124□□0 | | | | | | |
| 1.50 | | E84AV□□□□1524□□0 | | | | | | |
| 2.20 | | E84AV□□□□2224□□0 | | | | | | |
| 3.00 | | E84AV□□□□3024□□0 | | | | | | |
| 4.00 | | E84AV□□□□4024□□0 | | | | | | |
| 5.50 | | E84AV□□□□5524□□0 | | | | | | |
| 7.50 | | E84AV□□□□7524□□0 | | | | | | |
| 11.0 | E84AV□□□□1134□□0 | 100 | 100 | 100 | 25 | 50 | | |
| 15.0 | E84AV□□□□1534□□0 | | | | | | | |
| 18.5 | E84AV□□□□1834□□0 | | | | | | | |
| 22.0 | E84AV□□□□2234□□0 | | | | | | | |
| 30.0 | E84AV□□□□3034□□0 | | | | | | | |
| 37.0 | E84AV□□□□3734□□0 | | | | | | | |
| 45.0 | E84AV□□□□4534□□0 | | | | | | | |

- ▶ Data are valid also for inverters with type code E84AV□□□□□□□□□□S

4.7



Motor connection

Operation with earth-leakage circuit breaker

If the inverter is connected via an earth-leakage circuit breaker, the following cable lengths are permissible, although the table must also be taken into account:

Earth-leakage circuit breaker 30 mA:

- 0.25 to 2.2 kW (230 V, Category C1) up to 5 m shielded motor cable with RFI filter LL
- 0.25 to 2.2 kW up to 25 m shielded motor cable with integrated RFI measures
- 0.25 to 15 kW up to 25 m shielded motor cable with RFI filter SD.

Earth-leakage circuit breaker 300 mA:

- 3.0 to 45 kW up to 25 m shielded motor cable with integrated RFI measures
- 0.25 to 45 kW up to 50 m shielded motor cable with RFI filter LD.

- ▶ When using an earth-leakage circuit breaker and RFI filter, the cable lengths can also be used for Category C1, cable-guided.

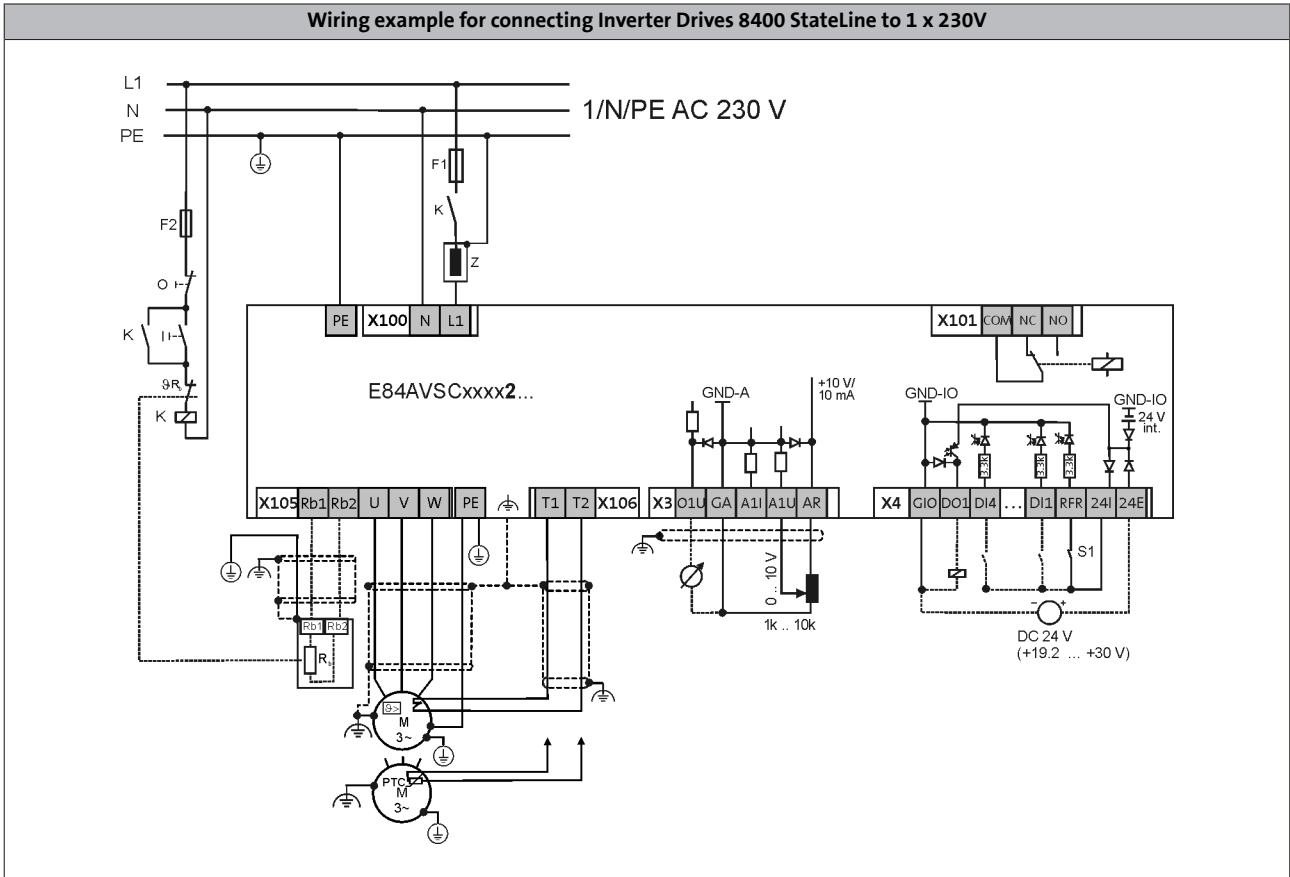
Inverter Drives 8400 StateLine

Interfaces



Connection diagrams

Wiring example for connecting Inverter Drives 8400 StateLine to 1 x 230V

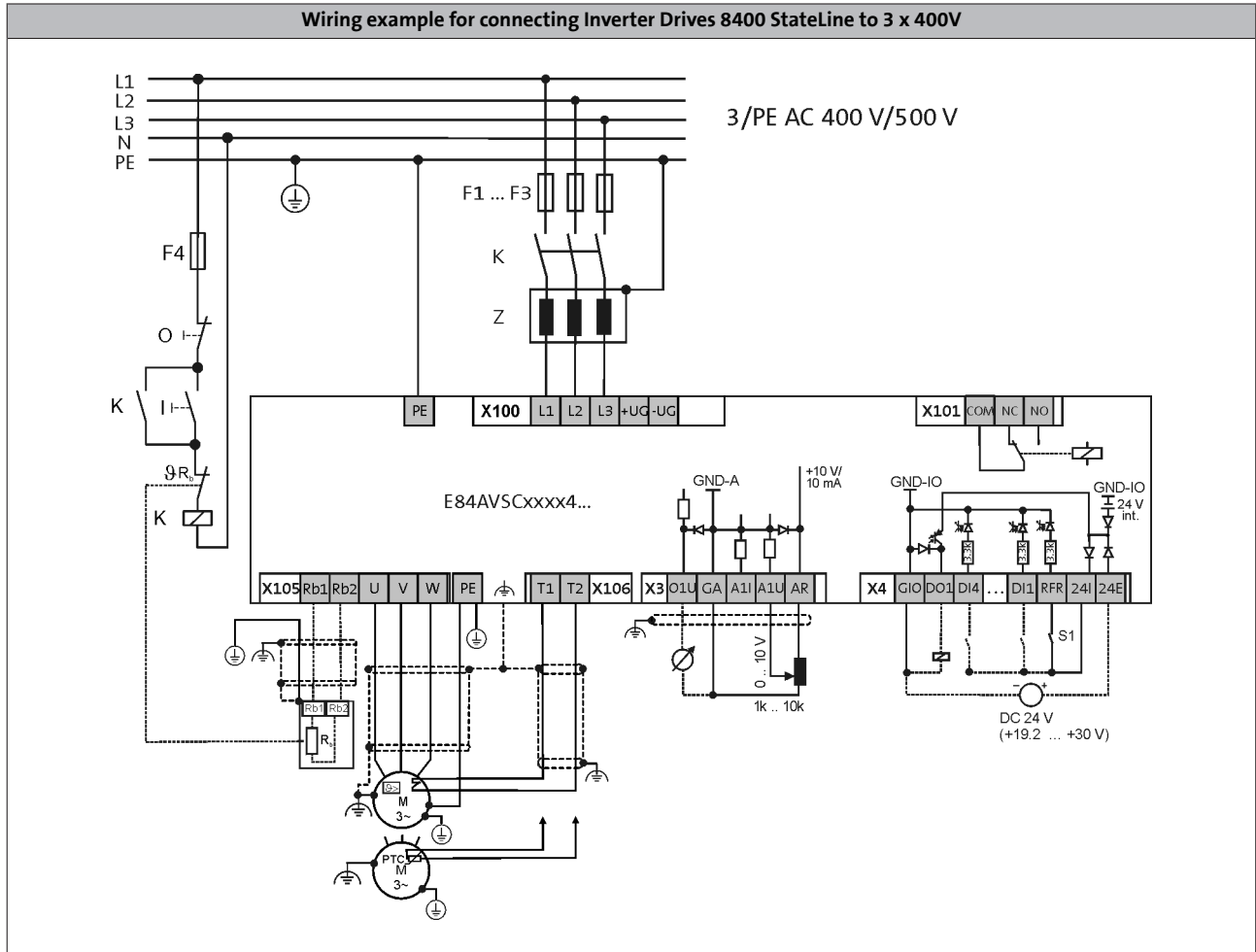


Inverter Drives 8400 StateLine

Interfaces



Connection diagrams



Inverter Drives 8400 StateLine

Interfaces



Control connections

| | |
|-----------------------------|--|
| Mode | 8400 StateLine |
| Analog inputs | |
| Number | 1 Optional: voltage or current input |
| Resolution | 10 bits |
| Value range | 0 ... +/- 10V, 0/4 ... 20 mA |
| Analog outputs | |
| Number | 1 |
| Resolution | 10 bits |
| Value range | 0 ... 10V |
| Digital inputs | |
| Number | 5 |
| Switching level | PLC (IEC 61131-2) |
| Max. input current | 11mA |
| Function | 2 inputs, can optionally be used as a frequency input (10 kHz, 2-track) |
| Digital outputs | |
| Number | 1 |
| Switching level | PLC (IEC 61131-2) |
| Max. output current | 50mA |
| Relay | |
| Number | 1 |
| Contact | Changeover contact |
| AC connection | 250V, 3A |
| DC connection | 24V, 2A ... 240V, 0.16A |
| External DC supply | |
| Rated voltage ¹⁾ | 24 V |
| Interfaces | |
| CANopen | Integrated functional insulated Max. baud rate 1000 kbps DIP switch for address, baud rate, bus termination |
| Extensions | optional communication module |
| Safety engineering | Optional Safe torque off (STO) |
| Drive interface | |
| Encoder input | Via 2 digital inputs, HTL, 2-track, 10 kHz can also be used as a frequency input, |

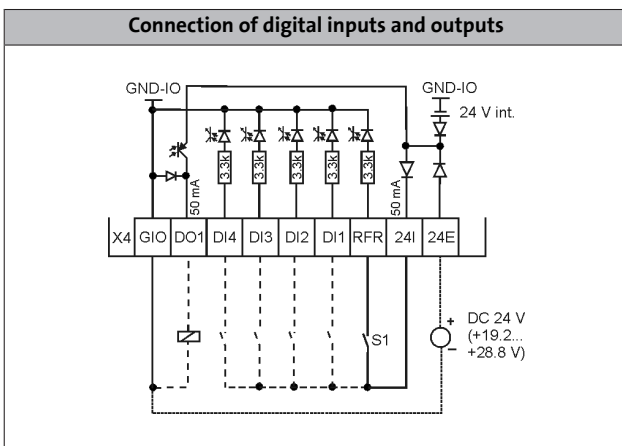
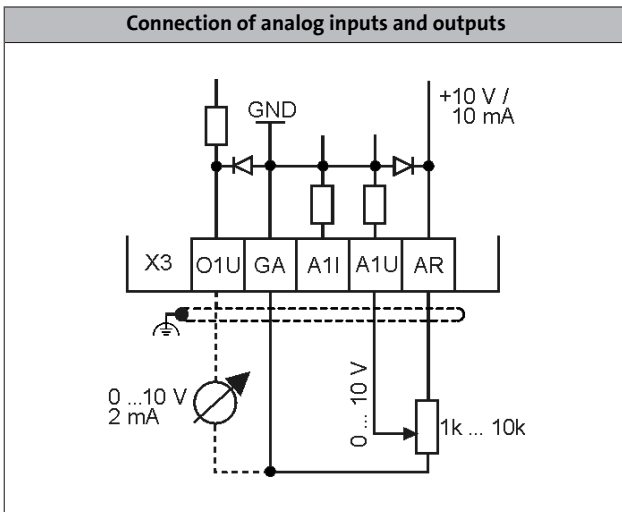
¹⁾ For mains-independent control electronics supply

Inverter Drives 8400 StateLine

Interfaces



Control connections



Inverter Drives 8400 StateLine

Interfaces



Memory module

All drive settings for the 8400 are stored on the memory module, which is a pluggable memory chip. The memory module ensures that drives can be replaced quickly and without errors being made.

| Mode | Features | Product key |
|---------------|--|-------------|
| Memory module | <ul style="list-style-type: none">• For 8400 StateLine, HighLine, Topline and protec• Packaging unit: 5 items | E84AYM10S/M |

- ▶ Each inverter is equipped with a memory module in the factory

Safety system (STO)

The 8400 StateLine, HighLine and TopLine models are optionally available with "STO safe torque off" safety engineering. This helps reduce control system costs, save space in the control cabinet and keep wiring to a minimum. The safety engineering is certified to EN ISO 13849-1 (Cat. 4, PL e), EN 61508/EN 62061 (SIL 3).

The inverters can optionally be ordered with integrated safety engineering (STO). In this case, the product key of the inverter has a "B" as the 14th character.

By way of an example, a StateLine 230 V, 0.55 kW built-in unit with safety engineering would be: E84AVSCE5512SB0



8400 StateLine with safety engineering

Inverter Drives 8400 StateLine

Interfaces



Inverter Drives 8400 StateLine

Interfaces




EtherCAT® communication module

A communication module is used to connect the 8400 StateLine, HighLine or TopLine to a bus system.



EtherCAT® communication module

| Mode | | Features | Slot | Product key |
|----------------------|---|--|------|-------------|
| Communication module | | | | |
| EtherCAT |  | <ul style="list-style-type: none"> • Distributed clock • 5 LEDs for status display • 2 RJ45 connections with LEDs for link and activity • Connection option for separate 24 V supply | MCI | E84AYCETV/S |

- ▶ The Inverter Drives 8400 can be ordered with a plug-in EtherCAT® communication module already installed. If you would like to order the products in this complete form, please add the inverter product key as follows when placing your order: E84AV to X-ETXXX
- ▶ The product key with the supplement for the applied module is provided in our sales documents. This information is not part of the nameplate of the device.

Standards and operating conditions

| | | | | |
|---|----------|-----|--|--------------------------------------|
| Product key | | | | E84AYCETV/S |
| Mode | | | | EtherCAT |
| Enclosure | | | | IP20 |
| Climatic conditions | | | | |
| Storage (EN 60721-3-1) | | | | 1K3 (temperature: -25 °C ... +60 °C) |
| Transport (EN 60721-3-2) | | | | 2K3 (temperature: -25 °C ... +70 °C) |
| Operation (EN 60721-3-3) | | | | 3K3 (temperature: -10°C ... +55°C) |
| Insulation voltage to reference earth/PE | | | | |
| EN 61800-5-1 | U_{AC} | [V] | | 50.0 |

Inverter Drives 8400 StateLine

Interfaces



EtherCAT® communication module

Rated data

| | | | |
|--|------------|----------|--|
| Product key | | | E84AYCETV/S |
| Communication | | | |
| Medium | | | CAT5e S/FTP according to ISO/ICE11801 (2002) |
| Communication profile | | | CoE (CANopen over EtherCAT) |
| Baud rate | | | |
| | b | [MBit/s] | 100 |
| Node | | | |
| | | | Slave |
| Network topology | | | |
| | | | Line |
| Number of logical process data channels | | | |
| | | | 1 |
| Process data words (PCD) | | | |
| 16 Bit | | | 1 ... 16 |
| Number of bus nodes | | | |
| | | | Max. 65535 |
| Max. cable length | | | |
| between two nodes | l_{\max} | [m] | 100 |

Inverter Drives 8400 StateLine

Interfaces




EtherNet/IP communication module

A communication module is used to connect the 8400 StateLine, HighLine or TopLine to a bus system.



EtherNet/IP communication module

| Mode | | Features | Slot | Product key |
|----------------------|---|---|------|-------------|
| Communication module | | | | |
| EtherNet/IP |  | <ul style="list-style-type: none"> • 5 LEDs for status display • 2 RJ45 connections with LEDs for link and activity • Address can be set via 2 rotary DIP switches • TCP/IP channel • ODVA certification (Open Device Vendor Association) • Supported assembly object instances as per ODVA: 20, 21, 22, 23 and 70, 71, 72, 73 • Manufacturer-specific supported assembly object instances (custom): 110 and 111 • Connection option for separate 24 V supply | MCI | E84AYCEOV/S |

4.7

- ▶ The Inverter Drives 8400 can be ordered with a plug-on PROFINET communication module already installed. If you would like to order the products in this complete form, please add the inverter product key as follows when placing your order: E84AV to X-EOXXX
- ▶ The product key with the supplement for the applied module is provided in our sales documents. This information is not part of the nameplate of the device.

Standards and operating conditions

| | | | | |
|---|-----------------|-----|--|--------------------------------------|
| Product key | | | | E84AYCEOV/S |
| Mode | | | | EtherNet/IP |
| Enclosure | | | | IP20 |
| EN 60529 | | | | |
| Climatic conditions | | | | |
| Storage (EN 60721-3-1) | | | | 1K3 (temperature: -25 °C ... +60 °C) |
| Transport (EN 60721-3-2) | | | | 2K3 (temperature: -25 °C ... +70 °C) |
| Operation (EN 60721-3-3) | | | | 3K3 (temperature: -10°C ... +55°C) |
| Insulation voltage to reference earth/PE | | | | |
| EN 61800-5-1 | U _{AC} | [V] | | 50.0 |



EtherNet/IP communication module

Rated data

| | | | |
|---------------------------------|------------|----------|---|
| Product key | | | E84AYCEOVS |
| Communication | | | |
| Medium | | | CAT5e S/FTP according to ISO/ICE11801 / EN50173 |
| Communication profile | | | EtherNET/IP, AC Drive |
| Baud rate | | | |
| | b | [MBit/s] | 10/100 (full duplex/half duplex) |
| Node | | | |
| | | | Slave (Adapter) |
| Network topology | | | |
| | | | Tree, star and line |
| Process data words (PCD) | | | |
| 16 Bit | | | 1 ... 16 |
| Number of bus nodes | | | |
| | | | max. 254 im Subnetz |
| Max. cable length | | | |
| between two nodes | l_{\max} | [m] | 100 |

Inverter Drives 8400 StateLine

Interfaces




POWERLINK communication module

A communication module is used to connect the 8400 StateLine, HighLine or TopLine to a bus system.



POWERLINK communication module

| Mode | | Features | Slot | Product key |
|----------------------|---|---|------|-------------|
| Communication module | | | | |
| POWERLINK CN |  | <ul style="list-style-type: none"> • Sync mode, Multiplex mode • 5 LEDs for status display • 2 x RJ45 connections with LEDs for link and collision • Connection option for separate 24 V supply | MCI | E84AYCECV/S |

- ▶ The Inverter Drives 8400 can be ordered with a plug-in POWERLINK communication module already installed. If you would like to order the products in this complete form, please add the inverter product key as follows when placing your order: E84AV to X-ECXXX
- ▶ The product key with the supplement for the applied module is provided in our sales documents. This information is not part of the nameplate of the device.

Standards and operating conditions

| | | | | |
|---|----------|-----|--|--------------------------------------|
| Product key | | | | E84AYCECV/S |
| Mode | | | | POWERLINK CN |
| Enclosure | | | | IP20 |
| Climatic conditions | | | | |
| Storage (EN 60721-3-1) | | | | 1K3 (temperature: -25 °C ... +60 °C) |
| Transport (EN 60721-3-2) | | | | 2K3 (temperature: -25 °C ... +70 °C) |
| Operation (EN 60721-3-3) | | | | 3K3 (temperature: -10°C ... +55°C) |
| Insulation voltage to reference earth/PE | | | | |
| EN 61800-5-1 | U_{AC} | [V] | | 50.0 |

Inverter Drives 8400 StateLine

Interfaces



POWERLINK communication module

Rated data

| | | | |
|--|------------|----------|--|
| Product key | | | E84AYCECV/S |
| Communication | | | |
| Medium | | | CAT5e S/FTP according to ISO/ICE11801 (2002) |
| Communication profile | | | EPL2.0 |
| Baud rate | | | |
| | b | [MBit/s] | 100 |
| Node | | | |
| | | | Controlled node (CN) |
| Network topology | | | |
| | | | bei Verwendung von externen Hubs Line bei Verwendung der internen Hubs Tree |
| Number of logical process data channels | | | |
| | | | 1 |
| Process data words (PCD) | | | |
| 16 Bit | | | 1 ... 16 |
| Number of bus nodes | | | |
| | | | max. 239 |
| Max. cable length | | | |
| between two nodes | I_{max} | [m] | 100 |
| Rated voltage | | | |
| | $U_{N,DC}$ | [V] | 24.0 |


4.7

Ethernet POWERLINK Hub

Lenze offers an external 8-way hub, supplementing the 2-way hub integrated in the Ethernet POWERLINK interface connections. This infrastructure component corresponds to a class-II repeater as per IEEE802.3u. It automatically detects the network baud rate (10 or 100 Mbps). The hubs can be cascaded via a special uplink port.



Ethernet POWERLINK Hub

| Mode | | Features | Product key |
|----------------------|---|---|-------------|
| Communication module | | | |
| POWERLINK hub |  | <ul style="list-style-type: none"> • DC 24 V • Automatic baud rate detection (10/100 Mbps) • 8-fold hub in industrial design • Cascadable | E94AZCEH |

Inverter Drives 8400 StateLine

Interfaces




PROFIBUS communication module

A communication module is used to connect the 8400 StateLine, HighLine or TopLine to a bus system.



PROFIBUS communication module

| Mode | | Features | Slot | Product key |
|----------------------|---|--|------|-------------|
| Communication module | | | | |
| PROFIBUS |  | <ul style="list-style-type: none"> • 5 LEDs for status display • Sub-D connection • Address can be set via DIP switch | MCI | E84AYCPMV/S |

- ▶ The Inverter Drives 8400 can be ordered with a plug-in PROFIBUS communication module already installed. If you would like to order the products in this complete form, please add the inverter product key as follows when placing your order: E84AV to X-PMXXX
- ▶ The product key with the supplement for the applied module is provided in our sales documents. This information is not part of the nameplate of the device.

Standards and operating conditions

| | | | | |
|---|----------|-----|--|--------------------------------------|
| Product key | | | | E84AYCPMV/S |
| Mode | | | | PROFIBUS |
| Enclosure | | | | IP20 |
| Climatic conditions | | | | |
| Storage (EN 60721-3-1) | | | | 1K3 (temperature: -25 °C ... +60 °C) |
| Transport (EN 60721-3-2) | | | | 2K3 (temperature: -25 °C ... +70 °C) |
| Operation (EN 60721-3-3) | | | | 3K3 (temperature: -10°C ... +55°C) |
| Insulation voltage to reference earth/PE | | | | |
| EN 61800-5-1 | U_{AC} | [V] | | 50.0 |



PROFIBUS communication module

Rated data

| | | | |
|---------------------------------|------------|----------|---|
| Product key | | | E84AYCPMV/S |
| Communication | | | |
| Medium | | | RS 485 |
| Communication profile | | | PROFIBUS-DP-V1 PROFIBUS-DP-V0 |
| Device profile | | | PROFIDrive, version 3 |
| Baud rate | | | |
| | b | [kBit/s] | 9.6 ... 12 000 (automatic detection) |
| Node | | | |
| | | | Slave |
| Network topology | | | |
| | | | Line with repeater: Line or tree without repeater: |
| Process data words (PCD) | | | |
| 16 Bit | | | 1 ... 16 |
| DP user data length | | | |
| | | | Optional parameter channel (4 words) + process data words |
| Number of bus nodes | | | |
| | | | 31 slaves + 1 master per bus segment With repeaters: 125 |
| Max. cable length | | | |
| per bus segment | l_{\max} | [m] | 1200 (depending on the baud rate and the cable type used) |

Inverter Drives 8400 StateLine

Interfaces




PROFINET communication module

A communication module is used to connect the 8400 StateLine, HighLine or TopLine to a bus system.



PROFINET communication module

| Mode | | Features | Slot | Product key |
|----------------------|---|---|------|-------------|
| Communication module | | | | |
| PROFINET |  | <ul style="list-style-type: none"> • 5 LEDs for status display • 2 RJ45 connections with LEDs for link and activity • TCP/IP channel • Connection option for separate 24 V supply | MCI | E84AYCERV/S |

- ▶ The Inverter Drives 8400 can be ordered with a plug-on PROFINET communication module already installed. If you would like to order the products in this complete form, please add the inverter product key as follows when placing your order: E84AV to X-ER-XXX
- ▶ The product key with the supplement for the applied module is provided in our sales documents. This information is not part of the nameplate of the device.

Standards and operating conditions

| | | | | |
|---|----------|-----|--|--------------------------------------|
| Product key | | | | E84AYCERV/S |
| Mode | | | | PROFINET |
| Enclosure | | | | IP20 |
| EN 60529 | | | | |
| Climatic conditions | | | | |
| Storage (EN 60721-3-1) | | | | 1K3 (temperature: -25 °C ... +60 °C) |
| Transport (EN 60721-3-2) | | | | 2K3 (temperature: -25 °C ... +70 °C) |
| Operation (EN 60721-3-3) | | | | 3K3 (temperature: -10°C ... +55°C) |
| Insulation voltage to reference earth/PE | | | | |
| EN 61800-5-1 | U_{AC} | [V] | | 50.0 |



PROFINET communication module

Rated data

| | | | |
|--|------------|----------|--|
| Product key | | | E84AYCERV/S |
| Communication | | | |
| Medium | | | CAT5e S/FTP according to ISO/ICE11801 (2002) |
| Communication profile | | | PROFINET RT Conf. Class B |
| Baud rate | | | |
| | b | [MBit/s] | 100 |
| Node | | | |
| | | | Slave (Device) |
| Network topology | | | |
| | | | Line |
| Number of logical process data channels | | | |
| | | | 1 |
| Process data words (PCD) | | | |
| 16 Bit | | | 1 ... 16 |
| Max. cable length | | | |
| between two nodes | l_{\max} | [m] | 100 |

Inverter Drives 8400 StateLine

Accessories



Brake resistors

An external brake resistor is required to brake high moments of inertia or in the event of prolonged operation in generator mode; this resistor converts braking energy into heat.

The brake resistors recommended in the table below have been dimensioned for approx. 1.5 times the regenerative power, with a cycle time of 15/135 s (brake/rest ratio). These brake resistors generally meet the usual requirements of standard applications.

The brake resistors are fitted with a thermostat (potential-free NC contact).



ERBM...(IP50) brake resistor

| Typical motor power | Mains voltage | Product key | | Rated resistance | Rated power | Thermal capacity | Dimensions | Mass |
|---------------------------|--------------------|-----------------|----------------|------------------|----------------|------------------|-----------------|------|
| | | Inverter | Brake resistor | | | | | |
| 4-pole asynchronous motor | | | | | | | | |
| P | U _{AC} | | | R _N | P _N | C _{th} | h x b x t | m |
| [kW] | [V] | | | [Ω] | [kW] | [KWs] | [mm] | [kg] |
| 0.25 | 1 AC 180... 264 | E84AV□□□2512□□0 | ERBM180R050W | 180.0 | 0.050 | 7.50 | 175 x 20.6 x 40 | 0.3 |
| 0.37 | | E84AV□□□3712□□0 | | | | | | |
| 0.55 | | E84AV□□□5512□□0 | ERBM100R100W | 100.0 | 0.10 | 15.0 | 240 x 80 x 95 | 0.5 |
| 0.75 | | E84AV□□□7512□□0 | | | | | | |
| 1.10 | | E84AV□□□1122□□0 | ERBP033R200W | 33.0 | 0.20 | 30.0 | 240 x 41 x 122 | 1.0 |
| 1.50 | | E84AV□□□1522□□0 | | | | | | |
| 2.20 | E84AV□□□2222□□0 | ERBP033R300W | | | 0.30 | 45.0 | 320 x 41 x 122 | 1.4 |
| 0.37 | 3 AC 320... 550 | E84AV□□□3714□□0 | ERBM390R100W | 390.0 | 0.10 | 15.0 | 235 x 20.6 x 40 | 0.4 |
| 0.55 | | E84AV□□□5514□□0 | | | | | | |
| 0.75 | | E84AV□□□7514□□0 | ERBP180R200W | 180.0 | 0.20 | 30.0 | 240 x 41 x 122 | 1.0 |
| 1.10 | | E84AV□□□1124□□0 | | | | | | |
| 1.50 | | E84AV□□□1524□□0 | ERBP180R300W | | 0.30 | 45.0 | 320 x 41 x 122 | 1.4 |
| 2.20 | | E84AV□□□2224□□0 | | | | | | |

► Data are valid also for inverters with type code E84AV□□□□□□□□□□S

4.7

Inverter Drives 8400 StateLine

Accessories



Brake resistors

For standard applications, we recommend the following combinations:

- E84AV□□□3024□□□ and ERBP180R300W
- E84AV□□□4024□□□ and ERBS047R400W
- E84AV□□□5524□□□ and ERBS047R800W
- E84AV□□□7524□□□ and ERBS027R01K2
- E84AV□□□1134□□□ and ERBS027R01K2
- E84AV□□□1534□□□ and ERBS018R01K4
- E84AV□□□1834□□□ and ERBS015R02K4
- E84AV□□□2234□□□ and ERBS015R02K4.



Other possible combinations:

ERBP...(IP21) and ERBS...(IP65) brake resistor

| Typical motor power | Mains voltage | Product key | | Rated resistance | Rated power | Thermal capacity | Dimensions | Mass |
|---------------------|--------------------|-----------------|----------------|------------------|----------------|------------------|------------------|------|
| | | Inverter | Brake resistor | | | | | |
| P | U _{AC} | | | R _N | P _N | C _{th} | h x b x t | m |
| [kW] | [V] | | | [Ω] | [kW] | [KWs] | [mm] | [kg] |
| 3.00 | 3 AC 320... 550 | E84AV□□□3024□□□ | ERBP180R300W | 180.0 | 0.30 | 45.0 | 320 x 41 x 122 | 1.4 |
| | | | ERBP082R200W | 82.0 | 0.20 | 30.0 | | 1.0 |
| | | | ERBS082R780W | | 0.78 | 117 | 666 x 124 x 122 | 4.0 |
| 4.00 | | E84AV□□□4024□□□ | ERBP047R200W | 47.0 | 0.20 | 30.0 | 320 x 41 x 122 | 1.0 |
| | | | ERBS047R400W | | 0.40 | 60.0 | 400 x 110 x 105 | 2.3 |
| | | | ERBS047R800W | | 0.80 | 120 | 710 x 110 x 105 | 3.9 |
| 5.50 | | E84AV□□□5524□□□ | ERBP047R200W | | 0.20 | 30.0 | 320 x 41 x 122 | 1.0 |
| | | | ERBS047R400W | | 0.40 | 60.0 | 400 x 110 x 105 | 2.3 |
| | | | ERBS047R800W | | 0.80 | 120 | 710 x 110 x 105 | 3.9 |
| 7.50 | | E84AV□□□7524□□□ | ERBP027R200W | 27.0 | 0.20 | 30.0 | 320 x 41 x 122 | 1.0 |
| | | | ERBS027R600W | | 0.60 | 90.0 | 550 x 110 x 105 | 3.1 |
| | | | ERBS027R01K2 | | 1.20 | 180 | 1020 x 110 x 105 | 5.6 |
| 11.0 | | E84AV□□□1134□□□ | ERBP027R200W | | 0.20 | 30.0 | 320 x 41 x 122 | 1.0 |
| | | | ERBS027R600W | | 0.60 | 90.0 | 550 x 110 x 105 | 3.1 |
| | | | ERBS027R01K2 | | 1.20 | 180 | 1020 x 110 x 105 | 5.6 |
| 15.0 | E84AV□□□1534□□□ | ERBS018R800W | 18.0 | 0.80 | 120 | 710 x 110 x 105 | 3.9 | |
| | | ERBS018R01K4 | | 1.40 | 210 | 1110 x 110 x 105 | 6.2 | |
| | | ERBS018R02K8 | | 2.80 | 420 | 1110 x 200 x 105 | 12.0 | |
| 18.5 | E84AV□□□1834□□□ | ERBS015R800W | 15.0 | 0.80 | 120 | 710 x 110 x 105 | 3.9 | |
| | | ERBS015R01K2 | | 1.20 | 180 | 1020 x 110 x 105 | 5.6 | |
| | | ERBS015R02K4 | | 2.40 | 420 | 1020 x 200 x 105 | 10.0 | |
| 22.0 | E84AV□□□2234□□□ | ERBS015R800W | | 0.80 | 120 | 710 x 110 x 105 | 3.9 | |
| | | ERBS015R01K2 | | 1.20 | 180 | 1020 x 110 x 105 | 5.6 | |
| | | ERBS015R02K4 | | 2.40 | 420 | 1020 x 200 x 105 | 10.0 | |
| 30.0 | E84AV□□□3034□□□ | ERBG075D01K9 | 7.5 | 1.90 | 285 | 486 x 236 x 302 | 9.5 | |
| 37.0 | E84AV□□□3734□□□ | | | | | | | |
| 45.0 | E84AV□□□4534□□□ | | | | | | | |

► Data are valid also for inverters with type code E84AV□□□□□□□□□□S

Inverter Drives 8400 StateLine

Accessories



Mains chokes

A mains choke is an inductive resistor which is connected in the mains cable of the power supply module. The use of a mains choke provides the following advantages:

- **Fewer effects on the mains:**
The wave form of the mains current is a close approximation to a sine wave.
- **Reduction in the effective mains current:**
Reduction of mains, cable and fuse loads

Mains chokes can be used without restrictions in conjunction with RFI filters and/or sinusoidal filters.



Mains choke

Please note:

: The use of a mains choke slightly reduces the mains voltage at the input of the inverter - the typical voltage drop across the mains choke at the rated values is around 4%.

Operation at rated power

| Typical motor power | Mains voltage | Product key | | Rated current | Dimensions | Mass |
|---------------------------|-------------------------------|-------------------------------|----------------|-----------------|-----------------|------|
| 4-pole asynchronous motor | | Inverter | Mains choke | | | |
| P | U_{AC} | | | I_N | h x b x t | m |
| [kW] | [V] | | | [A] | [mm] | [kg] |
| 0.25 | 1 AC 180 ... 264 | E84AV□□□2512□□□ | ELN1-0900H005 | 5.00 | 75 x 66 x 82 | 1.1 |
| 0.37 | | E84AV□□□3712□□□ | | | | |
| 0.55 | | E84AV□□□5512□□□ | ELN1-0500H009 | 9.00 | | |
| 0.75 | | E84AV□□□7512□□□ | | | | |
| 1.10 | | E84AV□□□1122□□□ | ELN1-0250H018 | 18.0 | | |
| 1.50 | | E84AV□□□1522□□□ | | | | |
| 2.20 | E84AV□□□2222□□□ | | | | | |
| 0.37 | 3 AC 320 ... 550 | E84AV□□□3714□□□ | EZAELN3002B153 | 2.00 | 56 x 77 x 100 | 0.5 |
| 0.55 | | E84AV□□□5514□□□ | EZAELN3004B742 | 4.00 | 60 x 95 x 114 | 1.3 |
| 0.75 | | E84AV□□□7514□□□ | | | | |
| 1.10 | | E84AV□□□1124□□□ | | | | |
| 1.50 | | E84AV□□□1524□□□ | EZAELN3006B492 | 6.00 | 69 x 95 x 117 | 1.5 |
| 2.20 | | E84AV□□□2224□□□ | | | | |
| 3.00 | | E84AV□□□3024□□□ | EZAELN3008B372 | 8.00 | 85 x 120 x 137 | 1.9 |
| 4.00 | | E84AV□□□4024□□□ | EZAELN3010B292 | 10.0 | 85 x 120 x 134 | 2.0 |
| 5.50 | | E84AV□□□5524□□□ | EZAELN3016B182 | 16.0 | 95 x 120 x 134 | 2.7 |
| 7.50 | | E84AV□□□7524□□□ | EZAELN3020B152 | 20.0 | 95 x 155 x 162 | 3.8 |
| 11.0 | | E84AV□□□1134□□□ | EZAELN3025B122 | 25.0 | 110 x 155 x 167 | 5.8 |
| 15.0 | | E84AV□□□1534□□□ ¹⁾ | EZAELN3035B841 | 35.0 | | 6.0 |
| 18.5 | | E84AV□□□1834□□□ | EZAELN3045B651 | 45.0 | 112 x 185 x 196 | 8.3 |
| 22.0 | | E84AV□□□2234□□□ ¹⁾ | EZAELN3050B591 | 50.0 | 112 x 185 x 208 | 8.4 |
| 30.0 | | E84AV□□□3034□□□ ¹⁾ | EZAELN3063B471 | 63.0 | 122 x 185 x 207 | 9.7 |
| 37.0 | E84AV□□□3734□□□ ¹⁾ | EZAELN3080B371 | 80.0 | 125 x 210 x 239 | 12.5 | |
| 45.0 | E84AV□□□4534□□□ ¹⁾ | EZAELN3090B331 | 90.0 | 115 x 267 x 201 | 16.0 | |

¹⁾ Operation only permitted with mains choke

► Data are valid also for inverters with type code
E84AV□□□□□□□□□□\$

► On some inverters, a mains filter (combination of RFI filter and mains choke) can be used in place of a mains choke. Information on this can be found in the "Interference suppression" section.

Inverter Drives 8400 StateLine

Accessories



Mains chokes

Operation with increased power output



Mains choke

| Typical motor power | Mains voltage | Product key | | Rated current | Dimensions | Mass |
|---------------------------|-------------------------------|-------------------------------|----------------|-----------------|-----------------------|------|
| | | Inverter | Mains choke | | | |
| 4-pole asynchronous motor | | | | | | |
| P | U_{AC} | | | I_N | $h \times b \times t$ | m |
| [kW] | [V] | | | [A] | [mm] | [kg] |
| 0.37 | 1 AC 180 ... 264 | E84AV□□□2512□□0 | ELN1-0900H005 | 5.00 | 75 x 66 x 82 | 1.1 |
| 0.55 | | E84AV□□□3712□□0 ¹⁾ | | | | |
| 0.75 | | E84AV□□□5512□□0 | ELN1-0500H009 | 9.00 | | |
| 1.10 | | E84AV□□□7512□□0 ¹⁾ | | | | |
| 1.50 | | E84AV□□□1122□□0 | ELN1-0250H018 | 18.0 | | |
| 2.20 | | E84AV□□□1522□□0 ¹⁾ | | | | |
| 0.55 | 3 AC 320 ... 550 | E84AV□□□3714□□0 | EZAELN3002B153 | 2.00 | 56 x 77 x 100 | 0.5 |
| 0.75 | | E84AV□□□5514□□0 | EZAELN3004B742 | 4.00 | 60 x 95 x 114 | 1.3 |
| 1.10 | | E84AV□□□7514□□0 ¹⁾ | | | | |
| 1.50 | | E84AV□□□1124□□0 | EZAELN3006B492 | 6.00 | 69 x 95 x 117 | 1.5 |
| 2.20 | | E84AV□□□1524□□0 | | | | |
| 3.00 | | E84AV□□□2224□□0 ¹⁾ | EZAELN3008B372 | 8.00 | 85 x 120 x 137 | 1.9 |
| 4.00 | | E84AV□□□3024□□0 | EZAELN3010B292 | 10.0 | 85 x 120 x 134 | 2.0 |
| 5.50 | | E84AV□□□4024□□0 | EZAELN3016B182 | 16.0 | 95 x 120 x 134 | 2.7 |
| 7.50 | | E84AV□□□5524□□0 ¹⁾ | EZAELN3020B152 | 20.0 | 95 x 155 x 162 | 3.8 |
| 11.0 | | E84AV□□□7524□□0 | EZAELN3025B122 | 25.0 | 110 x 155 x 167 | 5.8 |
| 15.0 | | E84AV□□□1134□□0 ¹⁾ | EZAELN3030B982 | 30.0 | | 5.9 |
| 22.0 | | E84AV□□□1834□□0 ¹⁾ | EZAELN3045B651 | 45.0 | 112 x 185 x 196 | 8.3 |
| 30.0 | | E84AV□□□2234□□0 ¹⁾ | EZAELN3063B471 | 63.0 | 122 x 185 x 207 | 9.7 |
| 37.0 | | E84AV□□□3034□□0 ¹⁾ | EZAELN3080B371 | 80.0 | 125 x 210 x 239 | 12.5 |
| 45.0 | | E84AV□□□3734□□0 ¹⁾ | EZAELN3090B331 | 90.0 | 115 x 267 x 201 | 16.0 |
| 55.0 | E84AV□□□4534□□0 ¹⁾ | EZAELN3100B301 | 100 | 139 x 267 x 201 | 19.0 | |

¹⁾ Operation only permitted with mains choke

► Data are valid also for inverters with type code
E84AV□□□□□□□□□□\$

Inverter Drives 8400 StateLine

Accessories



Interference suppression

RFI and mains filters are used to ensure compliance with the EMC requirements of European Standard EN 61800-3. This standard defines the EMC requirements for electrical drive system in various categories. **Category C1** applies to public networks (residential areas). Category C1 corresponds to Class B with regard to the limit values of Class B in line with EN 55011.

Category C2 is applicable in industrial premises; use in residential areas is left to the user's discretion. With regard to limit values, Category C2 corresponds to Class A according to EN 55011.




RFI filters

When working with stricter line-bound noise emission requirements, which cannot be met using the radio interference suppression measures integrated in the inverter (C2 up to 25 m shielded motor cable), external filters can be used. The filters can be installed below or next to the inverters.

Available RFI and mains filters

| Mode | RFI filter LL (Low Leakage) E84AZESR□□□□LL | RFI filter SD (Short Distance) E84AZESR□□□□SD | RFI filter LD (Long Distance) E84AZESR□□□□LD | Mains filter LD (Long Distance) E84AZESM□□□□LD |
|--------------------|--|--|--|--|
| Category C1 | Up to 5 m shielded motor cable ¹⁾ | Up to 25 m shielded motor cable ¹⁾ | Up to 50 m shielded motor cable ¹⁾ | Up to 50 m shielded motor cable ¹⁾ |
| Category C2 | | Up to 50 m shielded motor cable ¹⁾ | Up to 100 m shielded motor cable ¹⁾ | Up to 100 m shielded motor cable ¹⁾ |
| Power range | 0.25 to 2.2 kW, 230 V | 0.25 to 15 kW | 0.25 to 18.5 kW | 22 to 45 kW |
| Features | <ul style="list-style-type: none"> For installation in mobile systems, leakage current < 3.5 mA (up to 5 m shielded motor cable) | <ul style="list-style-type: none"> Optimised for low leakage current. | <ul style="list-style-type: none"> 0,25 up to 15 kW: 50 - 100 m at max. 40 °C ambient temperature and max. 4 kHz switching frequency. | <ul style="list-style-type: none"> Combination of mains choke and RFI filter. |

¹⁾  38 - Details on maximum motor cable lengths.

Inverter Drives 8400 StateLine

Accessories



Interference suppression

Operation at rated power

► RFI filter LL (Low Leakage)

| Typical motor power 4-pole asynchronous motor | Mains voltage | Product key | | Rated current | Dimensions | Mass |
|--|------------------|-----------------|----------------|---------------|-----------------------|------|
| | | Inverter | RFI filter | | | |
| P | U_{AC} | | | I_N | $h \times b \times t$ | m |
| [kW] | [V] | | | [A] | [mm] | [kg] |
| 0.25 | 1 AC 180 ... 264 | E84AV□□□2512□□0 | E84AZESR3712LL | 5.00 | 212 x 70 x 60 | 0.8 |
| 0.37 | | E84AV□□□3712□□0 | | | | |
| 0.55 | | E84AV□□□5512□□0 | E84AZESR7512LL | 9.00 | 262 x 70 x 60 | 1.0 |
| 0.75 | | E84AV□□□7512□□0 | | | | |
| 1.10 | | E84AV□□□1122□□0 | E84AZESR2222LL | 22.0 | 317 x 70 x 60 | 1.4 |
| 1.50 | | E84AV□□□1522□□0 | | | | |
| 2.20 | | E84AV□□□2222□□0 | | | | |

► RFI filter SD (Short Distance)

| Typical motor power 4-pole asynchronous motor | Mains voltage | Product key | | Rated current | Dimensions | Mass |
|--|------------------|-----------------|----------------|---------------|-----------------------|----------------|
| | | Inverter | RFI filter | | | |
| P | U_{AC} | | | I_N | $h \times b \times t$ | m |
| [kW] | [V] | | | [A] | [mm] | [kg] |
| 0.25 | 1 AC 180 ... 264 | E84AV□□□2512□□0 | E84AZESR3712SD | 5.00 | 212 x 70 x 60 | 0.8 |
| 0.37 | | E84AV□□□3712□□0 | | | | |
| 0.55 | | E84AV□□□5512□□0 | E84AZESR7512SD | 9.00 | 262 x 70 x 60 | 1.0 |
| 0.75 | | E84AV□□□7512□□0 | | | | |
| 1.10 | | E84AV□□□1122□□0 | E84AZESR2222SD | 22.0 | 317 x 70 x 60 | 1.7 |
| 1.50 | | E84AV□□□1522□□0 | | | | |
| 2.20 | | E84AV□□□2222□□0 | | | | |
| 0.37 | | E84AV□□□3714□□0 | | | | |
| 0.55 | E84AV□□□5514□□0 | | | | | |
| 0.75 | E84AV□□□7514□□0 | | | | | |
| 1.10 | E84AV□□□1124□□0 | E84AZESR2224SD | 7.30 | 317 x 70 x 60 | 1.5 | |
| 1.50 | E84AV□□□1524□□0 | | | | | |
| 2.20 | E84AV□□□2224□□0 | | | | | |
| 3.00 | E84AV□□□3024□□S | | | | | E84AZESR3024SD |
| 4.00 | 3 AC 320 ... 550 | E84AV□□□3024□□0 | E84AZESR5524SD | 18.0 | 306 x 140 x 60 | 3.1 |
| 5.50 | | E84AV□□□5524□□0 | | | | |
| 7.50 | | E84AV□□□7524□□0 | E84AZESR1534SD | 29.0 | 361 x 140 x 60 | 4.4 |
| 11.0 | | E84AV□□□1134□□0 | | | | |
| 15.0 | | E84AV□□□1534□□0 | | | | |

► Data are valid also for inverters with type code
E84AV□□□□□□□□□S

Inverter Drives 8400 StateLine

Accessories



Interference suppression

Operation at rated power

► RFI filter LD (Long Distance)

| Typical motor power 4-pole asynchronous motor | Mains voltage U_{AC} | Product key | | Rated current I_N | Dimensions h x b x t | Mass | | |
|--|---------------------------|-----------------|----------------|------------------------|-------------------------|----------------|---------------|----------------|
| | | Inverter | RFI filter | | | | | |
| P [kW] | [V] | | | [A] | [mm] | [kg] | | |
| 0.25 | 1 AC 180 ... 264 | E84AV□□□2512□□0 | E84AZESR3712LD | 5.00 | 212 x 70 x 60 | 0.8 | | |
| 0.37 | | E84AV□□□3712□□0 | | | | | | |
| 0.55 | | E84AV□□□5512□□0 | E84AZESR7512LD | | 9.00 | | 262 x 70 x 60 | 1.0 |
| 0.75 | | E84AV□□□7512□□0 | | | | | | |
| 1.10 | | E84AV□□□1122□□0 | E84AZESR2222LD | | 22.0 | | 317 x 70 x 60 | 1.5 |
| 1.50 | | E84AV□□□1522□□0 | | | | | | |
| 2.20 | | E84AV□□□2222□□0 | | | | | | |
| 0.37 | | E84AV□□□3714□□0 | | | | | | |
| 0.55 | E84AV□□□5514□□0 | | | | | | | |
| 0.75 | E84AV□□□7514□□0 | | | | | | | |
| 1.10 | E84AV□□□1124□□0 | E84AZESR2224LD | 7.30 | 317 x 70 x 60 | 1.4 | | | |
| 1.50 | E84AV□□□1524□□0 | | | | | | | |
| 2.20 | E84AV□□□2224□□0 | | | | | | | |
| 3.00 | E84AV□□□3024□□S | | | | | E84AZESR3024LD | 9.80 | 306 x 140 x 60 |
| 4.00 | E84AV□□□3024□□0 | E84AZESR5524LD | 18.0 | | | | | |
| 5.50 | E84AV□□□4024□□0 | | | | | | | |
| 7.50 | E84AV□□□5524□□0 | | | | | | | |
| 11.0 | E84AV□□□7524□□0 | E84AZESR1534LD | 29.0 | 361 x 140 x 60 | 3.3 | | | |
| 15.0 | E84AV□□□1134□□0 | | | | | | | |
| 18.5 | E84AV□□□1534□□0 | | | | | | | |
| 18.5 | E84AV□□□1834□□0 | | | | | E84AZESR1834LD | 50.4 | |

► Mains filter LD (Long Distance)

| Typical motor power 4-pole asynchronous motor | Mains voltage U_{AC} | Product key | | Rated current I_N | Dimensions h x b x t | Mass |
|--|---------------------------|-----------------|----------------|------------------------|-------------------------|------|
| | | Inverter | Mains filter | | | |
| P [kW] | [V] | | | [A] | [mm] | [kg] |
| 22.0 | 3 AC 320 ... 550 | E84AV□□□2234□□0 | E84AZESM2234LD | 42.0 | 365 x 205 x 90 | 14.0 |
| 30.0 | | E84AV□□□3034□□0 | E84AZESM3034LD | | 519 x 250 x 105 | 23.0 |
| 37.0 | | E84AV□□□3734□□0 | E84AZESM3734LD | | | 25.0 |
| 45.0 | | E84AV□□□4534□□0 | E84AZESM4534LD | | 30.0 | |

► Data are valid also for inverters with type code
E84AV□□□□□□□□□□S

Inverter Drives 8400 StateLine

Accessories



Interference suppression

Operation with increased power output

► RFI filter LL (Low Leakage)

| Typical motor power | Mains voltage | Product key | | Rated current | Dimensions | Mass |
|---------------------------|------------------|-----------------|----------------|---------------|-----------------------|------|
| | | Inverter | RFI filter | | | |
| 4-pole asynchronous motor | | | | | | |
| P | U_{AC} | | | I_N | $h \times b \times t$ | m |
| [kW] | [V] | | | [A] | [mm] | [kg] |
| 0.37 | 1 AC 180 ... 264 | E84AV□□□2512□□0 | E84AZESR3712LL | 5.00 | 212 x 70 x 60 | 0.8 |
| 0.55 | | E84AV□□□3712□□0 | E84AZESR7512LL | 9.00 | 262 x 70 x 60 | 1.0 |
| 0.75 | | E84AV□□□5512□□0 | | | | |
| 1.10 | | E84AV□□□7512□□0 | E84AZESR2222LL | 22.0 | 317 x 70 x 60 | 1.4 |
| 1.50 | | E84AV□□□1122□□0 | | | | |
| 2.20 | | E84AV□□□1522□□0 | | | | |

► RFI filter SD (Short Distance)

| Typical motor power | Mains voltage | Product key | | Rated current | Dimensions | Mass |
|---------------------------|------------------|-----------------|----------------|---------------|-----------------------|------|
| | | Inverter | RFI filter | | | |
| 4-pole asynchronous motor | | | | | | |
| P | U_{AC} | | | I_N | $h \times b \times t$ | m |
| [kW] | [V] | | | [A] | [mm] | [kg] |
| 0.37 | 1 AC 180 ... 264 | E84AV□□□2512□□0 | E84AZESR3712SD | 5.00 | 212 x 70 x 60 | 0.8 |
| 0.55 | | E84AV□□□3712□□0 | E84AZESR7512SD | 9.00 | 262 x 70 x 60 | 1.0 |
| 0.75 | | E84AV□□□5512□□0 | | | | |
| 1.10 | | E84AV□□□7512□□0 | E84AZESR2222SD | 22.0 | 317 x 70 x 60 | 1.7 |
| 1.50 | | E84AV□□□1122□□0 | | | | |
| 2.20 | | E84AV□□□1522□□0 | | | | |
| 0.55 | 3 AC 320 ... 550 | E84AV□□□3714□□0 | E84AZESR7514SD | 3.30 | 262 x 70 x 60 | 1.1 |
| 0.75 | | E84AV□□□5514□□0 | | | | |
| 1.10 | | E84AV□□□7514□□0 | E84AZESR2224SD | 7.30 | 317 x 70 x 60 | 1.5 |
| 1.50 | | E84AV□□□1124□□0 | | | | |
| 2.20 | | E84AV□□□1524□□0 | | | | |
| 3.00 | | E84AV□□□2224□□0 | E84AZESR5524SD | 18.0 | 306 x 140 x 60 | 3.1 |
| 4.00 | | E84AV□□□3024□□S | | | | |
| 5.50 | | E84AV□□□4024□□0 | | | | |
| 7.50 | | E84AV□□□5524□□0 | E84AZESR1534SD | 29.0 | 361 x 140 x 60 | 4.4 |
| 11.0 | | E84AV□□□7524□□0 | | | | |
| 15.0 | E84AV□□□1134□□0 | | | | | |

► Data are valid also for inverters with type code E84AV□□□□□□□□S

Inverter Drives 8400 StateLine

Accessories



Interference suppression

Operation with increased power output

► RFI filter LD (Long Distance)

| Typical motor power 4-pole asynchronous motor | Mains voltage U_{AC} | Product key | | Rated current I_N | Dimensions h x b x t | Mass |
|--|---------------------------|-----------------|----------------|------------------------|-------------------------|------|
| | | Inverter | RFI filter | | | |
| P [kW] | [V] | | | [A] | [mm] | [kg] |
| 0.37 | 1 AC 180 ... 264 | E84AV□□□2512□□0 | E84AZESR3712LD | 5.00 | 212 x 70 x 60 | 0.8 |
| 0.55 | | E84AV□□□3712□□0 | E84AZESR7512LD | 9.00 | 262 x 70 x 60 | 1.0 |
| 0.75 | | E84AV□□□5512□□0 | | | | |
| 1.10 | | E84AV□□□7512□□0 | E84AZESR2222LD | 22.0 | 317 x 70 x 60 | 1.5 |
| 1.50 | | E84AV□□□1122□□0 | | | | |
| 2.20 | | E84AV□□□1522□□0 | | | | |
| 0.55 | 3 AC 320 ... 550 | E84AV□□□3714□□0 | E84AZESR7514LD | 3.30 | 262 x 70 x 60 | 1.1 |
| 0.75 | | E84AV□□□5514□□0 | | | | |
| 1.10 | | E84AV□□□7514□□0 | E84AZESR2224LD | 7.30 | 317 x 70 x 60 | 1.4 |
| 1.50 | | E84AV□□□1124□□0 | | | | |
| 2.20 | | E84AV□□□1524□□0 | | | | |
| 3.00 | | E84AV□□□2224□□0 | E84AZESR5524LD | 18.0 | 306 x 140 x 60 | 2.2 |
| 4.00 | | E84AV□□□3024□□0 | | | | |
| 5.50 | | E84AV□□□4024□□0 | | | | |
| 7.50 | | E84AV□□□5524□□0 | E84AZESR1534LD | 29.0 | 361 x 140 x 60 | 3.3 |
| 11.0 | | E84AV□□□7524□□0 | | | | |
| 15.0 | E84AV□□□1134□□0 | | | | | |

► Mains filter LD (Long Distance)

| Typical motor power 4-pole asynchronous motor | Mains voltage U_{AC} | Product key | | Rated current I_N | Dimensions h x b x t | Mass |
|--|---------------------------|-----------------|--------------------|------------------------|-------------------------|------|
| | | Inverter | Mains filter | | | |
| P [kW] | [V] | | | [A] | [mm] | [kg] |
| 22.0 | 3 AC 320 ... 550 | E84AV□□□1834□□0 | E84AZESM2234LD | 42.0 | 365 x 205 x 90 | 14.0 |
| 30.0 | | E84AV□□□2234□□0 | E84AZESM2234LDN001 | | | 18.5 |
| 37.0 | | E84AV□□□3034□□0 | E84AZESM3734LD | | 519 x 250 x 105 | 25.0 |
| 45.0 | | E84AV□□□3734□□0 | E84AZESM4534LD | | | 30.0 |
| 55.0 | | E84AV□□□4534□□0 | E84AZESM4534LDN001 | | | 32.0 |
| | | | | | | |

► Data are valid also for inverters with type code
E84AV□□□□□□□□S

Inverter Drives 8400 StateLine

Accessories



Inverter Drives 8400 StateLine

Accessories



Sinusoidal filters

A sinusoidal filter in the motor cable limits the rate of voltage rise and the capacitive charge/discharge currents that occur during inverter operation. In combination with the specified line filter, the EMC requirements of the limit class C2 for conducted noise emissions are still met, even if longer shielded or even unshielded motor cables are used.

Application range:

- Only use a sinusoidal filter with standard asynchronous motors 0 to 550 V
- Operation only with V/f or V/f² characteristic control
- Set the switching frequency permanently to the specified value
- Limit the output frequency of the Inverter Drives 8400 to the specified value



Sinusoidal filters

Operation at rated power

| Typical motor power | Mains voltage | Product key | | | | Rated inductance | Switching frequency | Mass |
|---------------------------|---------------------|-----------------|----------------|----------------|-------------------|------------------|---------------------|------|
| | | Inverter | RFI filter | Mains filter | Sinusoidal filter | | | |
| 4-pole asynchronous motor | | | | | | | | |
| P | U _{AC} | | | | | L _N | f _{ch} | m |
| [kW] | [V] | | | | | [mH] | [kHz] | [kg] |
| 0.37 | 3 AC 320 ... 550 | E84AV□□□3714□□□ | E84AZESR7514LD | | EZS3-004A200 | 11.0 | 4 8 | 4.0 |
| 0.55 | | E84AV□□□5514□□□ | | | | | | |
| 0.75 | | E84AV□□□7514□□□ | | | | | | |
| 1.10 | | E84AV□□□1124□□□ | E84AZESR2224LD | EZS3-010A200 | 5.10 | 5.5 | | |
| 1.50 | | E84AV□□□1524□□□ | | | | | | |
| 2.20 | | E84AV□□□2224□□□ | E84AZESR5524LD | EZS3-017A200 | 3.07 | 8.5 | | |
| 3.00 | | E84AV□□□3024□□□ | | | | | | |
| 4.00 | | E84AV□□□4024□□□ | | | | | | |
| 5.50 | | E84AV□□□5524□□□ | E84AZESR1534LD | EZS3-024A200 | 2.50 | 14.5 | | |
| 7.50 | | E84AV□□□7524□□□ | | | | | | |
| 11.0 | | E84AV□□□1134□□□ | | | | | | |
| 15.0 | | E84AV□□□1534□□□ | E84AZESR1834LD | EZS3-032A200 | 2.00 | 19.0 | | |
| 18.5 | | E84AV□□□1834□□□ | | | | | | |
| 22.0 | | E84AV□□□2234□□□ | | | | | | |
| 30.0 | | E84AV□□□3034□□□ | E84AZESM1834LD | EZS3-037A200 | 1.70 | 21.0 | | |
| 37.0 | | E84AV□□□3734□□□ | | | | | | |
| 45.0 | | E84AV□□□4534□□□ | | | | | | |
| | | | | E84AZESM2234LD | EZS3-048A200 | 1.20 | 25.5 | |
| | | | | E84AZESM3034LD | EZS3-061A200 | 1.00 | 33.5 | |
| | | | E84AZESM3734LD | EZS3-072A200 | 0.95 | 37.0 | | |
| | | | E84AZESM4534LD | EZS3-090A200 | 0.80 | 53.0 | | |
| | | | | EZS3-115A200 | 0.70 | 2 4 | 66.0 | |

► Data are valid also for inverters with type code E84AV□□□□□□□□□S

Inverter Drives 8400 StateLine

Accessories



Sinusoidal filters

Operation with increased power output

| Typical motor power | Mains voltage | Product key | | | | Rated inductance | Switching frequency | Mass | |
|---------------------------|---------------------|-------------------|--------------------|--------------------|-------------------|------------------|---------------------|------|------|
| | | Inverter | RFI filter | Mains filter | Sinusoidal filter | | | | |
| 4-pole asynchronous motor | | | | | | | | | |
| P | U _{AC} | | | | | L _N | f _{ch} | m | |
| [kW] | [V] | | | | | [mH] | [kHz] | [kg] | |
| 0.55 | 3 AC 320 ... 550 | E84AV□□□□3714□□□□ | E84AZESR7514LD | | EZS3-010A200 | 5.10 | 4 | 8 | 5.5 |
| 0.75 | | E84AV□□□□5514□□□□ | | | | | | | |
| 1.10 | | E84AV□□□□7514□□□□ | E84AZESR2224LD | | EZS3-017A200 | 3.07 | | | 8.5 |
| 1.50 | | E84AV□□□□1124□□□□ | | | | | | | |
| 2.20 | | E84AV□□□□1524□□□□ | E84AZESR5524LD | | EZS3-024A200 | 2.50 | | | 14.5 |
| 3.00 | | E84AV□□□□2224□□□□ | | | | | | | |
| 4.00 | | E84AV□□□□3024□□□□ | E84AZESR1534LD | | EZS3-037A200 | 1.70 | | | 21.0 |
| 5.50 | | E84AV□□□□4024□□□□ | | | | | | | |
| 7.50 | | E84AV□□□□5524□□□□ | | E84AZESM2234LD | EZS3-048A200 | 1.20 | | | 25.5 |
| 11.0 | | E84AV□□□□7524□□□□ | | | | | | | |
| 15.0 | | E84AV□□□□1134□□□□ | | E84AZESM2234LDN001 | EZS3-061A200 | 1.00 | | | 33.5 |
| 22.0 | | E84AV□□□□1834□□□□ | | | | | | | |
| 30.0 | | E84AV□□□□2234□□□□ | | E84AZESM3734LD | EZS3-072A200 | 0.95 | | | 37.0 |
| 37.0 | | E84AV□□□□3034□□□□ | | | | | | | |
| 45.0 | | E84AV□□□□3734□□□□ | | E84AZESM4534LD | EZS3-090A200 | 0.80 | | | 53.0 |
| 55.0 | | E84AV□□□□4534□□□□ | | | | | | | |
| | | | E84AZESM4534LDN001 | EZS3-115A200 | 0.70 | | 2 4 | 66.0 | |

► Data are valid also for inverters with type code E84AV□□□□□□□□□□S





Inverter Drives 8400 StateLine

Accessories



Rated data for power supply modules

► The data is valid for operation at 3/PE AC 400 V.

| | | |  |  |  |  |
|----------------------------------|-------------|------|---|---|---|---|
| Product key | | | | | | |
| Power supply module | | | E94APNE0104 | E94APNE0364 | E94APNE1004 | E94APNE2454 |
| Rated power | | | | | | |
| With mains filter/mains choke | P_N | [kW] | 4.90 | 17.5 | 48.6 | 119 |
| Without mains filter/mains choke | P_N | [kW] | 3.60 | 13.0 | 36.2 | 88.6 |
| Mains voltage range | | | 3/PE AC 180 V-0 % ... 550 V+0 %, 45 Hz-0 % ... 65 Hz+0 % | | | |
| Rated mains current | U_{AC} | [V] | | | | |
| | $I_{N, AC}$ | [A] | 8.0 | 29.0 | 82.0 | 200.0 |
| Rated DC-bus current | | | | | | |
| | $I_{N, DC}$ | [A] | 10.0 | 36.0 | 100.0 | 245.0 |

Data for 60 s overload

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| | | | | | | |
|---------------------------------------|---------------|------|-------|------|-------|-------|
| Max. DC-bus current | | | | | | |
| | I_{max} | [A] | 15.0 | 54.0 | 150.0 | 368.0 |
| Reduced DC-bus current | | | | | | |
| | $I_{red, DC}$ | [A] | 7.5 | 27.0 | 75.0 | 183.5 |
| Overload time | | | | | | |
| | t_{ol} | [s] | 120.0 | | | |
| Recovery time | | | | | | |
| | t_{re} | [s] | 60.0 | | | |
| Max. output power¹⁾ | | | | | | |
| | $P_{max, 1}$ | [kW] | 7.4 | 26.3 | 72.9 | 179.0 |

Data for 0.5 s overload

| | | | | | | |
|--|---------------|------|------|-------|-------|-------|
| Max. short-time DC-bus current | | | | | | |
| | I_{max} | [A] | 40.0 | 108.0 | 200.0 | 368.0 |
| Reduced DC-bus current | | | | | | |
| | $I_{red, DC}$ | [A] | 7.5 | 27.0 | 75.0 | 183.5 |
| Overload time | | | | | | |
| | t_{ol} | [s] | 0.5 | | | |
| Recovery time | | | | | | |
| | t_{re} | [s] | 4.5 | | | |
| Max. short-term output power¹⁾ | | | | | | |
| | $P_{max, 2}$ | [kW] | 19.6 | 52.5 | 146.0 | 357.0 |

¹⁾ Mains filter required; if no mains filter is installed, the stated values for P_{max} decrease





Inverter Drives 8400 StateLine

Accessories



Rated data for power supply modules

► The data is valid for operation at 3/PE AC 400 V.

| | | |  |  |  |  |
|----------------------------------|------------|------|---|---|---|---|
| Product key | | | | | | |
| Power supply module | | | E94APNE0104 | E94APNE0364 | E94APNE1004 | E94APNE2454 |
| Rated power | | | | | | |
| With mains filter/mains choke | P_N | [kW] | 4.90 | 17.5 | 48.6 | 119 |
| Without mains filter/mains choke | P_N | [kW] | 3.60 | 13.0 | 36.2 | 88.6 |
| Rated DC-bus current | | | | | | |
| | $I_{N,DC}$ | [A] | 10.0 | 36.0 | 100.0 | 245.0 |
| Power loss | | | | | | |
| | P_V | [kW] | 0.055 | 0.11 | 0.23 | 0.55 |
| Dimensions | | | | | | |
| Height | h | [mm] | 350 | | 383 | |
| Height, including fastening | h | [mm] | 481 | | 510 | |
| Width | b | [mm] | 60 | 120 | 210 | 390 |
| Depth | t | [mm] | 288 | | | |
| Mass | | | | | | |
| | m | [kg] | 2.6 | 5.3 | 13.5 | 28.5 |

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Brake chopper rated data

| | | | | | | |
|---|-------------|------|------|------|-------|-------|
| Rated power, Brake chopper | | | | | | |
| | P_N | [kW] | 2.6 | 8.7 | 17.0 | 30.3 |
| Max. output power, Brake chopper | | | | | | |
| | $P_{max,1}$ | [kW] | 19.5 | 43.8 | 105.1 | 187.7 |
| Running time | | | | | | |
| | t_{on} | [s] | 1.0 | | | |
| Recovery time | | | | | | |
| | t_{re} | [s] | 3.8 | 2.5 | 3.1 | |
| Min. brake resistance | | | | | | |
| | R_{min} | [Ω] | 27.0 | 12.0 | 5.0 | 2.8 |



Rated data for regenerative power supply modules

- ▶ The data is valid for operation at 3/PE AC 400 V.
- ▶ Mains filter required, please refer to the following pages

| | | |  | | | |
|-------------------------------|-------------|------|---|----------|-------------|----------|
| Product key | | | E94ARNE0134 | | E94ARNE0244 | |
| Supply- / regenerative module | | | | | | |
| Operating mode | | | Feed | Feedback | Feed | Feedback |
| Rated power | | | | | | |
| With mains filter/mains choke | P_N | [kW] | 15.0 | 7.50 | 27.0 | 13.5 |
| Mains voltage range | | | 3/PE AC 180 V-0 % ... 550 V+0 %, 45 Hz-0 % ... 65 Hz+0 % | | | |
| | U_{AC} | [V] | | | | |
| Rated mains current | | | | | | |
| | $I_{N, AC}$ | [A] | 26.0 | 13.0 | 47.0 | 23.5 |
| Rated DC-bus current | | | | | | |
| | $I_{N, DC}$ | [A] | 32.0 | 16.0 | 57.0 | 29.0 |

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Data for 60 s overload

| Max. DC-bus current | | | | | | |
|------------------------|---------------|------|-------|------|------|------|
| | I_{max} | [A] | 48.0 | 24.0 | 86.0 | 44.0 |
| Reduced DC-bus current | | | | | | |
| | $I_{red, DC}$ | [A] | 20.0 | 9.8 | 35.0 | 18.0 |
| Overload time | | | 60.0 | | | |
| | t_{ol} | [s] | | | | |
| Recovery time | | | 120.0 | | | |
| | t_{re} | [s] | | | | |
| Max. output power | | | | | | |
| | $P_{max, 1}$ | [kW] | 22.4 | 11.2 | 40.5 | 20.2 |

Data for 0.5 s overload

| Max. short-time DC-bus current | | | | | | |
|--------------------------------|---------------|------|------|------|-------|------|
| | I_{max} | [A] | 96.0 | 48.0 | 171.0 | 87.0 |
| Reduced DC-bus current | | | | | | |
| | $I_{red, DC}$ | [A] | 20.0 | 9.8 | 35.0 | 18.0 |
| Max. short-term output power | | | | | | |
| | $P_{max, 2}$ | [kW] | 44.9 | 22.4 | 81.1 | 40.5 |
| with brake chopper support | $P_{max, 2}$ | [kW] | | 35.1 | | 59.6 |



Rated data for regenerative power supply modules

- ▶ The data is valid for operation at 3/PE AC 400 V.
- ▶ Mains filter required, please refer to the following pages

| Product key | | | E94ARNE0134 | | E94ARNE0244 | |
|-------------------------------|------------|------|-------------|----------|-------------|----------|
| Supply- / regenerative module | | | | | | |
| Operating mode | | | Feed | Feedback | Feed | Feedback |
| Rated power | | | | | | |
| With mains filter/mains choke | P_N | [kW] | 15.0 | 7.50 | 27.0 | 13.5 |
| Rated DC-bus current | | | | | | |
| | $I_{N,DC}$ | [A] | 32.0 | 16.0 | 57.0 | 29.0 |
| Power loss | | | | | | |
| | P_V | [kW] | 0.15 | 0.11 | 0.23 | 0.19 |
| Dimensions | | | | | | |
| Height | h | [mm] | 350 | | | |
| Height, including fastening | h | [mm] | 481 | | | |
| Width | b | [mm] | 120 | | | |
| Depth | t | [mm] | 288 | | | |
| Mass | | | | | | |
| | m | [kg] | 6.0 | | | |

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Brake chopper rated data

| Rated power, Brake chopper | | | | |
|----------------------------------|-------------|------|------|------|
| | P_N | [kW] | 4.7 | 9.3 |
| Max. output power, Brake chopper | | | | |
| | $P_{max,1}$ | [kW] | 19.5 | 29.2 |
| Running time | | | | |
| | t_{on} | [s] | 1.0 | |
| Recovery time | | | | |
| | t_{re} | [s] | 4.2 | 3.9 |
| Min. brake resistance | | | | |
| | R_{min} | [Ω] | 27.0 | 18.0 |



Control connections

| Mode | Power supply modules | Regenerative power supply modules |
|-----------------------------|--|--|
| Analog inputs | | |
| Number | | 2 |
| Resolution | | 11 bits + sign |
| Value range | | +/- 10V 1 x switchable 20 mA |
| Analog outputs | | |
| Number | | 2 |
| Resolution | | 10 bits + sign |
| Value range | | +/- 10V max. 2 mA |
| Digital inputs | | |
| Number | 1 Permanently configured | 8 |
| Switching level | PLC (IEC 61131-2) | |
| Max. input current | 8 mA | |
| Digital outputs | | |
| Number | 4 fest konfiguriert | 4 |
| Switching level | PLC (IEC 61131-2) | |
| Max. output current | 50 mA per output | |
| Load capacity | >480 Ω at 24 V | |
| External DC supply | | |
| Rated voltage | 24 V in accordance with IEC 61131-2 | |
| Voltage range | 19.2 ... 28.8 V, max. residual ripple ± 5% | |
| Current | Approx. 1.4 A during operation, max. 4 A starting current for 100 ms | Approx. 1.2 A during operation, max. 3 A starting current for 100 ms ¹⁾ |
| Interfaces | | |
| CANopen | | Integrated |
| Extensions | | Via slot MXI 2: extension 2 Via slot MXI 1: extension 1 |
| State bus | | Integrated |
| Memory | | Slot MMI |
| Safety engineering | | Slot MSI |
| Drive interface | | |
| Resolver input | | Integrated (no function) |
| Mains synchronisation input | | Integrated Sub-D, 15-pin |

¹⁾ The supply to the control electronics comes from the mains voltage. Alternatively, it can be provided by a 24 V supply that is independent of the mains (available as an option).

Inverter Drives 8400 StateLine

Accessories



Brake resistors of the regenerative power supply modules

Assignment of brake resistors to the supply and regenerative power supply modules is shown in the tables below.



Brake resistor 27 ohms

Brake resistors for power supply modules

| Rated power | Mains voltage | Product key | | Rated resistance | Rated power | Thermal capacity | Dimensions | Mass |
|----------------------------------|-----------------------------------|---------------------|----------------|------------------|-------------|------------------|-----------------------|------|
| Without mains filter/mains choke | | Power supply module | Brake resistor | | | | | |
| P_N | U_{AC} | | | R_N | P_N | C_{th} | $h \times b \times t$ | m |
| [kW] | [V] | | | [Ω] | [kW] | [KWs] | [mm] | [kg] |
| 3.60 | 3 AC 180 ... 550 ¹⁾ | E94APNE0104 | ERBP027R200W | 27.0 | 0.20 | 30.0 | 320 x 41 x 122 | 1.0 |
| | | | ERBS027R600W | | 0.60 | 90.0 | 550 x 110 x 105 | 3.1 |
| | | | ERBS027R01K2 | | 1.20 | 180 | 1020 x 110 x 105 | 5.6 |
| 13.0 | | E94APNE0364 | ERBG012R01K9 | 12.0 | 1.90 | 285 | 486 x 236 x 302 | 13.0 |
| | | | ERBG012R05K2 | | 5.20 | 750 | 486 x 426 x 302 | 28.0 |
| 36.2 | | E94APNE1004 | ERBG005R02K6 | 5.0 | 2.60 | 390 | 486 x 326 x 302 | 12.6 |
| 88.6 | | E94APNE2454 | ERBG028D04K1 | 2.8 | 4.10 | 615 | 486 x 426 x 302 | 12.8 |

¹⁾ For 230 V mains voltage a different brake resistor assignment applies.

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Brake resistors for regenerative power supply modules

| Rated power | Mains voltage | Product key | | Rated resistance | Rated power | Thermal capacity | Dimensions | Mass |
|-------------------------------|-----------------------------------|-------------------------------|----------------|------------------|-------------|------------------|-----------------------|------|
| With mains filter/mains choke | | Supply- / regenerative module | Brake resistor | | | | | |
| P_N | U_{AC} | | | R_N | P_N | C_{th} | $h \times b \times t$ | m |
| [kW] | [V] | | | [Ω] | [kW] | [KWs] | [mm] | [kg] |
| 15.0 | 3 AC 180 ... 550 ¹⁾ | E94ARNE0134 | ERBP027R200W | 27.0 | 0.20 | 30.0 | 320 x 41 x 122 | 1.0 |
| | | | ERBS027R600W | | 0.60 | 90.0 | 550 x 110 x 105 | 3.1 |
| | | | ERBS027R01K2 | | 1.20 | 180 | 1020 x 110 x 105 | 5.6 |
| 27.0 | | E94ARNE0244 | ERBP018R300W | 18.0 | 0.30 | 30.0 | 240 x 41 x 122 | 1.4 |
| | | | ERBS018R01K2 | | 1.20 | 180 | 1020 x 110 x 105 | 5.6 |
| | | | ERBS018R02K8 | | 2.80 | 420 | 1110 x 200 x 105 | 12.0 |

²⁾ For 230 V mains voltage a different brake resistor assignment applies.

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Accessories



Mains chokes of the power supply modules

A mains choke is an inductive resistor which is connected in the mains cable of the power supply module. The use of a mains choke provides the following advantages:

- **Fewer effects on the mains:**
The wave form of the mains current is a close approximation to a sine wave.
- **Reduction in the effective mains current:**
Reduction of mains, cable and fuse loads

Mains chokes can be used without restrictions in conjunction with RFI filters and/or sinusoidal filters.

Please note:

: The use of a mains choke slightly reduces the mains voltage at the input of the inverter - the typical voltage drop across the mains choke at the rated values is around 4%.



Mains choke

| Rated power | Mains voltage | Product key | | Rated current | Dimensions | Mass |
|-------------|---------------------|---------------------|----------------|---------------|-----------------------|------|
| | | Power supply module | Mains choke | | | |
| P_N | U_{AC} | | | I_N | $h \times b \times t$ | m |
| [kW] | [V] | | | [A] | [mm] | [kg] |
| 4.90 | 3 AC 180 ... 550 | E94APNE0104 | EZAELN3008B372 | 8.00 | 85 x 120 x 137 | 1.9 |
| 17.5 | | E94APNE0364 | EZAELN3030B982 | 30.0 | 110 x 155 x 167 | 5.9 |
| 48.6 | | E94APNE1004 | EZAELN3080B371 | 80.0 | 125 x 210 x 239 | 12.5 |
| 119 | | E94APNE2454 | EZAELN3200B151 | 200 | 352 x 144 x 264 | 32.0 |

Inverter Drives 8400 StateLine

Accessories



Interference suppression of the regenerative power supply modules

RFI filters and mains filters enable compliance with the interference voltage categories of the European standard EN 61800-3. There a distinction is drawn between category C1 and category C2.

Category C1 describes the use on public supply networks.

Category C2 describes the use of drives which are intended to be used for industrial purposes in areas also comprising residential areas.

For Multi Drives external filters must be used to comply with the EMC Directive.



RFI filter, can be mounted beside the power supply module

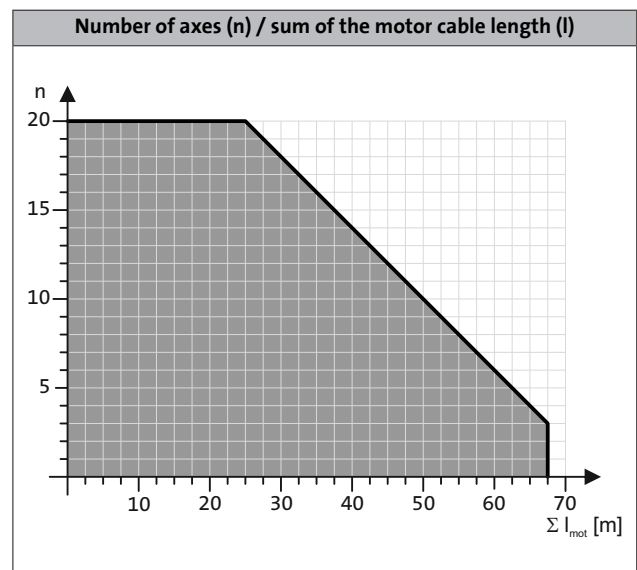
RFI filters

RFI filters are primarily capacitive accessory components which can be connected directly upstream from the power supply modules. This measure enables compliance with the corresponding conducted noise emission requirements according to EN 61800-3.

| Rated power | Mains voltage | Product key | | Rated current | Power loss | Max. cable length | Dimensions | Mass |
|----------------------------------|---------------------|---------------------|-------------|---------------|------------|---------------------|-----------------------|------|
| | | Power supply module | RFI filter | | | | | |
| Without mains filter/mains choke | | | | | | Reference group C2 | | |
| P_N | U_{AC} | | | I_N | P_V | l_{max} | $h \times b \times t$ | m |
| [kW] | [V] | | | [A] | [kW] | [m] | [mm] | [kg] |
| 3.60 | 3 AC 180 ... 550 | E94APNE0104 | E94AZRP0084 | 8.00 | 0.020 | 6 axes of 10 m each | 485 x 60 x 261 | 4.2 |
| 13.0 | | E94APNE0364 | E94AZRP0294 | 29.0 | 0.050 | | | 4.5 |
| 36.2 | | E94APNE1004 | E94AZRP0824 | 82.0 | 0.080 | | 490 x 209 x 272 | 18.5 |
| 88.6 | | E94APNE2454 | E94AZRP2004 | 200 | 0.15 | | | 20.5 |

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The following diagram shows the possible number of axes and the possible sum of motor cable lengths to ensure compliance with interference suppression according to category C2.



Inverter Drives 8400 StateLine

Accessories



Interference suppression of the regenerative power supply modules

Mains filters

A mains filter is a combination of mains choke and RFI filter in a single housing. It reduces line-bound noise emission into the mains, thus ensuring that the line-bound interference voltage is reduced to a permissible level according to EN61800-3.



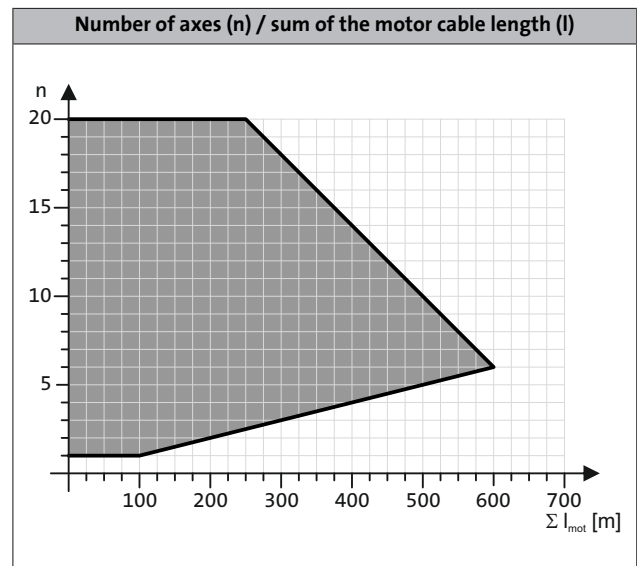
Mains filter, can be mounted beside the power supply modules (right) or the regenerative power supply modules (left)

RFI filters

| Rated power | Mains voltage | Product key | | Rated current | Voltage drop | Max. cable length | Dimensions | Mass |
|-------------------------------|---------------------|---------------------|---------------------------|---------------|--------------|----------------------|-----------------------|------|
| | | Power supply module | Mains filter | | | | | |
| With mains filter/mains choke | | | | | | Reference group C2 | | |
| P_N | U_{AC} | | | I_N | U | I_{max} | $h \times b \times t$ | m |
| [kW] | [V] | | | [A] | [V] | [m] | [mm] | [kg] |
| 4.90 | 3 AC 180 ... 550 | E94APNE0104 | E94AZMP0084 | 8.00 | 10.0 | 10 axes of 50 m each | 485 x 90 x 261 | 8.6 |
| 17.5 | | E94APNE0364 | E94AZMP0294 | 29.0 | 7.3 | | 485 x 120 x 261 | 16.5 |
| 48.6 | | E94APNE1004 | E94AZMP0824 ¹⁾ | 82.0 | 6.4 | | 490 x 270 x 272 | 29.0 |
| 119 | | E94APNE2454 | E94AZMP2004 ¹⁾ | 200 | 6.3 | | 490 x 330 x 272 | 52.0 |

¹⁾ External 24 V supply from a safely separated power supply unit (SELV/PELV) required for integrated fan.

The following diagram shows the possible number of axes and the possible sum of motor cable lengths to ensure compliance with interference suppression according to category C2.





Interference suppression of the regenerative power supply modules

Mains filters for regenerative power supply modules

| Rated power | Mains voltage | Product key | | Rated current | Voltage drop | Max. cable length | Dimensions | Mass |
|-------------------------------|---------------------|-------------------------------|------------------------------|---------------|--------------|----------------------|-----------------------|------|
| | | Supply- / regenerative module | Mains filter | | | | | |
| With mains filter/mains choke | | | | | | Reference group C2 | | |
| P_N | U_{AC} | | | I_N | U | I_{max} | $h \times b \times t$ | m |
| [kW] | [V] | | | [A] | [V] | [m] | [mm] | [kg] |
| 15.0 | 3 AC 180 ... 550 | E94ARNE0134 | E94AZMR0264SDB ¹⁾ | 26.0 | 6.3 | 6 axes of 10 m each | 485 x 149 x 272 | 25.0 |
| | | | E94AZMR0264LDB ¹⁾ | | | 10 axes of 50 m each | | 26.0 |
| 27.0 | | E94ARNE0244 | E94AZMR0474SDB ¹⁾ | 47.0 | 6.2 | 6 axes of 10 m each | 485 x 209 x 272 | 36.0 |
| | | | E94AZMR0474LDB ¹⁾ | | | 10 axes of 50 m each | | 37.0 |

¹⁾ External 24 V supply through safely separated power supply unit (SELV/PELV) required for integrated mains voltage recording.

Inverter Drives 8400 StateLine

Accessories



DC input module

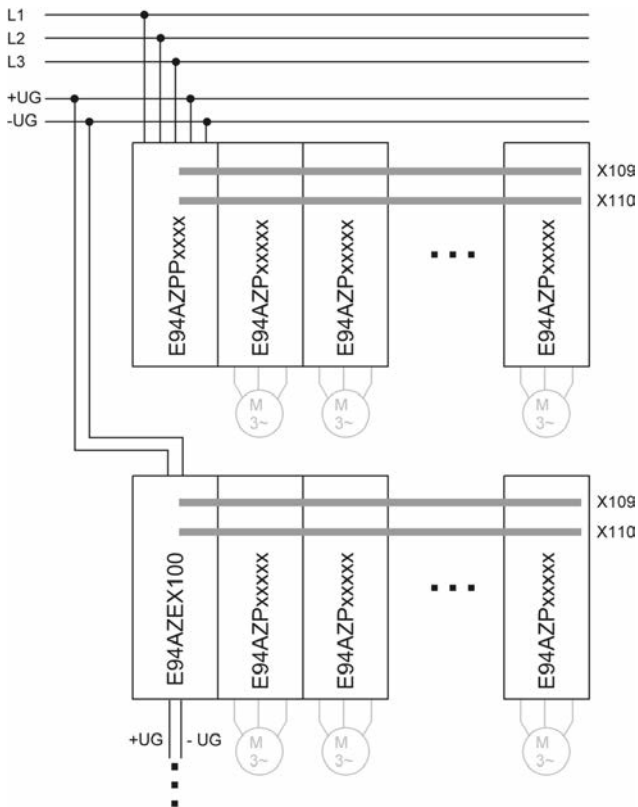
Via a DC input module, an axis module interconnection can be supplied with power from a central DC source (power supply module, Single Drive axis modules, Multi Drive axis modules). This is required for example if a drive system with a multi-level structure installed in a control cabinet is to be supplied via a central DC power supply unit. The rated current of the DC input module is defined to be 100 A (DC). The DC input module can be connected at the top or bottom, offering great flexibility with regard to integration into the system wiring. This provides an ideal way of connecting multi-row axis modules in particular.



DC input module
100 A

| Mode | Product key | Dimensions | Mass |
|-----------------------|--------------|---------------|------|
| | Input module | | |
| | | h x b x t | m |
| | | [mm] | [kg] |
| DC input module 100 A | E94AZEX100 | 422 x 60 x 95 | 0.9 |

4.7



Wiring example for multi-row mounting of axis modules

Inverter Drives 8400 StateLine

Accessories



DC-bus connection

The Inverter Drives 8400 can be operated in a DC-bus connection. The 400 V devices have a direct connection for this.

The components listed here are used to interconnect the individual devices for operation with or without a regenerative power supply module. With a DC-bus connection, energy can be exchanged between the individual devices. This makes particular sense with cyclic operation of multiple devices.

The design of a DC-bus connection requires extremely precise dimensioning of the devices' energy requirements among one another. Lenze Sales is happy to advise you here to ensure the most energy-efficient drive dimensioning. The components listed here form the basis for this.

- ▶ Two DC fuses are always required.
- ▶ The fuse holders EFH10005 and EFH10004 are single-pole, while the holders EFH20005 and EFH20007 are 2-pole.
- ▶ The DC fuses are not UL-approved
- ▶ Please consult Lenze Sales to ensure the right dimensioning.

Components for DC-bus connection

| Product key | Rated current | Design |
|---------------|---------------|-------------------------|
| DC fuses | | |
| | I_N | |
| | [A] | |
| EFSGR0060AYHN | 6.00 | 14x51 without indicator |
| EFSGR0100AYHN | 10.0 | |
| EFSGR0160AYHN | 16.0 | |
| EFSGR0200AYHN | 20.0 | |
| EFSGR0250AYHN | 25.0 | |
| EFSGR0320AYHN | 32.0 | |
| EFSGR0400AYHN | 40.0 | |
| EFSGR0060AYHK | 6.00 | 14x51 with indicator |
| EFSGR0100AYHK | 10.0 | |
| EFSGR0160AYHK | 16.0 | |
| EFSGR0200AYHK | 20.0 | |
| EFSGR0250AYHK | 25.0 | |
| EFSGR0320AYHK | 32.0 | |
| EFSGR0400AYHK | 40.0 | |

| Product key | Rated current | Design |
|---------------|---------------|-------------------------|
| DC fuses | | |
| | I_N | |
| | [A] | |
| EFSGR0120AYIN | 12.0 | 22x58 without indicator |
| EFSGR0160AYIN | 16.0 | |
| EFSGR0200AYIN | 20.0 | |
| EFSGR0250AYIN | 25.0 | |
| EFSGR0320AYIN | 32.0 | |
| EFSGR0400AYIN | 40.0 | |
| EFSGR0500AYIN | 50.0 | |
| EFSGR0800AYIN | 80.0 | |
| EFSGR0120AYIK | 12.0 | 22x58 with indicator |
| EFSGR0160AYIK | 16.0 | |
| EFSGR0200AYIK | 20.0 | |
| EFSGR0250AYIK | 25.0 | |
| EFSGR0320AYIK | 32.0 | |
| EFSGR0400AYIK | 40.0 | |
| EFSGR0500AYIK | 50.0 | |
| EFSGR0800AYIK | 80.0 | |

4.7

| Mode | Features | Product key |
|-----------|--|-------------|
| DC busbar | • Busbar system 14 x 51 • DC busbar length 1m, cross-section 25 mm ² | EWZ0036 |
| | • Busbar system 22 x 58 • DC busbar length 1m, cross-section 25 mm ² | EWZ0037 |
| End cap | • End caps for DC busbar (packaging unit 10 pcs) | EWZ0038 |
| Terminal | • Single-pole terminal for internal supply | EWZ0039 |

Inverter Drives 8400 StateLine

Accessories



DC-bus connection

DC fuses size 14 x 51 mm

| Typical motor power | Mains voltage | Product key | | | | |
|---------------------------|---------------------|-----------------|---------------|----------|---------------|----------|
| | | Inverter | DC fuses | | | |
| 4-pole asynchronous motor | | | | | | |
| P | U _{AC} | | | | | |
| [kW] | [V] | | | | | |
| 0.37 | 3 AC 320 ... 550 | E84AV□□□3714□□0 | EFSGR0160AYHN | EFH20005 | EFSGR0160AYHK | EFH10005 |
| 0.55 | | E84AV□□□5514□□0 | | | | |
| 0.75 | | E84AV□□□7514□□0 | | | | |
| 1.10 | | E84AV□□□1124□□0 | | | | |
| 1.50 | | E84AV□□□1524□□0 | EFSGR0200AYHN | | EFSGR0200AYHK | |
| 2.20 | | E84AV□□□2224□□0 | | | | |
| 3.00 | | E84AV□□□3024□□0 | | | | |
| 4.00 | | E84AV□□□4024□□0 | | | | |
| 5.50 | | E84AV□□□5524□□0 | EFSGR0400AYHN | | EFSGR0400AYHK | |
| 7.50 | | E84AV□□□7524□□0 | | | | |
| 11.0 | | E84AV□□□1134□□0 | | | | |
| 15.0 | | E84AV□□□1534□□0 | | | | |

4.7

DC fuses size 22 x 58 mm

| Typical motor power | Mains voltage | Product key | | | | |
|---------------------------|---------------------|-----------------|---------------|----------|---------------|----------|
| | | Inverter | DC fuses | | | |
| 4-pole asynchronous motor | | | | | | |
| P | U _{AC} | | | | | |
| [kW] | [V] | | | | | |
| 0.37 | 3 AC 320 ... 550 | E84AV□□□3714□□0 | EFSGR0120AYIN | EFH20007 | EFSGR0120AYIK | EFH10004 |
| 0.55 | | E84AV□□□5514□□0 | | | | |
| 0.75 | | E84AV□□□7514□□0 | | | | |
| 1.10 | | E84AV□□□1124□□0 | | | | |
| 1.50 | | E84AV□□□1524□□0 | EFSGR0200AYIN | | EFSGR0200AYIK | |
| 2.20 | | E84AV□□□2224□□0 | | | | |
| 3.00 | | E84AV□□□3024□□0 | | | | |
| 4.00 | | E84AV□□□4024□□0 | | | | |
| 5.50 | | E84AV□□□5524□□0 | EFSGR0400AYIN | | EFSGR0400AYIK | |
| 7.50 | | E84AV□□□7524□□0 | EFSGR0500AYIN | | EFSGR0500AYIK | |
| 11.0 | | E84AV□□□1134□□0 | EFSGR0800AYIN | | EFSGR0800AYIK | |
| 15.0 | | E84AV□□□1534□□0 | | | | |

Inverter Drives 8400 StateLine

Accessories



24 V power supply unit

External power supply units are available for supplying the control electronics of the 8400 StateLine, HighLine or TopLine. With an external supply, the inverters can be parameterised and diagnosed while the mains input is deenergised.



24 V power supply unit

Rated data

| Product key | | | EZV1200-000 | EZV2400-000 | EZV4800-000 | EZV1200-001 | EZV2400-001 | EZV4800-001 |
|-----------------------------|-------------|------|--------------------------------|-------------|-------------|----------------------------------|-------------|-------------|
| Rated voltage | | | 230 | | | 400 | | |
| AC | $U_{N,AC}$ | [V] | 230 | | | 400 | | |
| Input voltage | | | AC 85 ... 264 DC 90 ... 350 | | | AC 320 ... 575 DC 450 ... 800 | | |
| | U_{in} | [V] | AC 85 ... 264 DC 90 ... 350 | | | AC 320 ... 575 DC 450 ... 800 | | |
| Rated mains current | | | 0.8 | 1.2 | 2.3 | 0.3 | 0.6 | 1.0 |
| | $I_{N,AC}$ | [A] | 0.8 | 1.2 | 2.3 | 0.3 | 0.6 | 1.0 |
| Output voltage | | | DC 22.5 ... 28.5 | | | | | |
| | U_{out} | [V] | DC 22.5 ... 28.5 | | | | | |
| Rated output current | | | 5.0 | 10.0 | 20.0 | 5.0 | 10.0 | 20.0 |
| | $I_{N,out}$ | [A] | 5.0 | 10.0 | 20.0 | 5.0 | 10.0 | 20.0 |
| Dimensions | | | | | | | | |
| Height | h | [mm] | 130 | | | | | |
| Width | b | [mm] | 55 | 85 | 157 | 73 | 85 | 160 |
| Depth | t | [mm] | 125 | | | | | |
| Mass | | | | | | | | |
| | m | [kg] | 0.8 | 1.2 | 2.5 | 1.0 | 1.1 | 1.9 |

4.7

Brake switch

The brake switch consists of a rectifier and an electronic circuit breaker for the switching of an electromechanical brake switch. The brake switch is mounted on the control cabinet plate by means of two screws. Control is performed using a digital output on the inverter.



Brake switch

| Mode | Features | Product key |
|-------------------------|---|-------------|
| Half-wave rectification | <ul style="list-style-type: none"> Input voltage: AC 320 ... 550 V Output voltage: DC 180 V (at AC 400 V), DC 225 V (at AC 500 V) Max. brake current: DC 0.61 A IP00 degree of protection | E82ZWBRE |
| Bridge rectification | <ul style="list-style-type: none"> Input voltage: AC 180 ... 317 V Output voltage: DC 205 V (at AC 230 V) Max. brake current: DC 0.54 A IP00 degree of protection | E82ZWBRE |

Inverter Drives 8400 StateLine



Accessories

USB diagnostic adapter

The operation, parameter setting and diagnostics of the Inverter Drives 8400 and the Servo Drives 9400 via the L-force diagnostics is made with the keypad X400 or a PC. The connection of a PC can be made via a USB interface and the USB diagnostic adapter.


For connecting the USB diagnostic adapter with the L-force diagnostics interface (DIAG) at the inverter, three different connecting cables are separately available in the lengths 2.5 m, 5 m and 10 m. The connection can be established during operation. The engineering tools EASY Starter or Engineer can be used to carry out the operation, parameter setting or diagnostics of the inverters. Both tools have simple intuitive surfaces. This enables a quick and easy commissioning.

Optionally to the USB diagnostic adapter, the PC system bus adapter can be used. For this purpose, a CANopen interface must be available at the inverter.



USB diagnostic adapter incl. connecting cable to the PC

- The engineering tools EASY Starter or Engineer are used for operation, parameter setting and diagnostics of the inverters.

| Mode | | Features | Product key |
|------------------------|--|---|-------------|
| USB diagnostic adapter |  | <ul style="list-style-type: none"> • Input-side voltage supply via USB connection on PC • Output-side voltage supply via inverter's diagnostic interface • Diagnostic LEDs • Electrical isolation of PC and inverter • Hot-pluggable | E94AZCUS |

4.7

Connecting cables for USB diagnostic adapter

| Mode | Features | Product key |
|---|-----------------|-------------|
| Connecting cable for USB diagnostic adapter | • Length: 2.5 m | EWL0070 |
| | • Length: 5 m | EWL0071 |
| | • Length: 10 m | EWL0072 |

Inverter Drives 8400 StateLine

Accessories




X400 keypad

As an alternative to the PC, the X400 keypad can be used for local operation, parameter setting or diagnostics. The X400 keypad plugs into the L-force diagnostics interface (DIAG) on the front of the inverter.




X400 keypad

| Mode | | Features | Slot | Product key |
|-------------|---|--|------|-------------|
| X400 keypad |  | <ul style="list-style-type: none"> • Menu navigation • Graphics display with background lightning for clear presentation of information • 4 navigation keys, 2 context-sensitive keys • Adjustable RUN/STOP function | DIAG | EZAEBK1001 |

- ▶ The Inverter Drives 8400 can be ordered with a plug-in keypad already installed. If you would like to order the products in this complete form, please add the inverter product key as follows when placing your order: E84AV to X-XXXXXX
- ▶ The product key with the supplement for the applied module is provided in our sales documents. This information is not part of the nameplate of the device.

X400 diagnosis terminal

| Mode | | Features | Slot | Product key |
|-------------------------|---|--|------|-------------|
| X400 diagnosis terminal |  | <ul style="list-style-type: none"> • X400 keypad in a robust housing • Also suitable for installation in the control cabinet door • incl. 2.5 m cable • IP20 degree of protection, IP65 for control cabinet installation on front face | DIAG | EZAEBK2001 |

Inverter Drives 8400 StateLine



Accessories

PC system bus adapter

Instead of a PC, the 8400 inverter drives can alternatively be operated, parameterised and diagnosed using the CANopen interface and a PC system bus adapter, which is required instead of a USB diagnostic adapter. This adapter plugs into the parallel interface or the USB connection of the PC. The corresponding drivers are installed automatically. Depending on the version, the adapter is supplied with voltage via the DIN, PS2 or USB connection of the PC. The CANopen interface is integrated or available with a variant (BaseLine C).

Advantage:

- Operation, parameterisation and diagnostics in parallel with the keypad
- In interconnected systems, multiple inverters can be addressed simultaneously from one point (remote parameterisation via CANopen)



EMF2173IBV003 adapter

| Mode | Features | Product key |
|-----------------------|--|---------------|
| PC system bus adapter | • Voltage supply via DIN port on PC | EMF2173IB |
| | • Voltage supply via PS2 connection on PC | EMF2173IBV002 |
| | • Voltage supply via PS2 connection on PC • Electrical isolation from the bus | EMF2173IBV003 |
| | • Voltage supply via USB port on PC • Electrical isolation from the bus | EMF2177IB |

4.7

Shield mounting

A shield mounting is used to connect the motor cable shield on the inverter's shield connection.

| Mode | Features | Product key |
|-----------------|--|---------------|
| Metal cable tie | • Cable diameter: 8...30 mm • Packaging unit: 50 items | EZAMBKBM |
| Fixing clip | • Cable diameter: 4...10 mm • Packaging unit: 20 items | EZAMBHXM007/M |
| Wire clamp | • Cable diameter: 4...15 mm • Packaging unit: 10 items | EZAMBHXM006/M |
| | • Cable diameter: 10...20 mm • Packaging unit: 10 items | EZAMBHXM003/M |
| | • Cable diameter: 15...28 mm • Packaging unit: 10 items | EZAMBHXM004/M |
| | • Cable diameter: 20...37 mm • Packaging unit: 10 items | EZAMBHXM005/M |

Inverter Drives 8400 StateLine



Accessories

Terminal strips

All connections are equipped with pluggable connectors, with power connections up to 15 kW. These pluggable connectors are available separately for service purposes or if cable harnesses need to be physically separated.

► Power connections

| Product key | Terminal strip | Features | Product key | Terminal strip | Features | Product key |
|-----------------|-------------------|---|-------------------|----------------|--|-------------------|
| Inverter | | | | | | |
| E84AV□□□2512□□0 | X100 | <ul style="list-style-type: none"> • Connection: mains • Packaging unit: 10 items | E84AZEVS001X100/M | X105 | <ul style="list-style-type: none"> • Connection: motor • Packaging unit: 5 items | E84AZEVS010X105/M |
| E84AV□□□3712□□0 | | | | | | |
| E84AV□□□5512□□0 | | | E84AZEVS003X100/M | | | |
| E84AV□□□7512□□0 | | | | | | |
| E84AV□□□1122□□0 | | | E84AZEVS005X100/M | | | |
| E84AV□□□1522□□0 | | | | | | |
| E84AV□□□2222□□0 | | E84AZEVS012X105/M | | | | |
| E84AV□□□3714□□0 | | | E84AZEVS011X105/M | | | |
| E84AV□□□5514□□0 | | E84AZEVS012X105/M | | | | |
| E84AV□□□7514□□0 | | | E84AZEVS011X105/M | | | |
| E84AV□□□1124□□0 | | E84AZEVS012X105/M | | | | |
| E84AV□□□1524□□0 | | | E84AZEVS011X105/M | | | |
| E84AV□□□2224□□0 | | E84AZEVS012X105/M | | | | |
| E84AV□□□3024□□S | | | E84AZEVS011X105/M | | | |
| E84AV□□□3024□□0 | | E84AZEVS012X105/M | | | | |
| E84AV□□□4024□□0 | | | E84AZEVS011X105/M | | | |
| E84AV□□□5524□□0 | | E84AZEVS012X105/M | | | | |
| E84AV□□□7524□□0 | | | E84AZEVS011X105/M | | | |
| E84AV□□□1134□□0 | E84AZEVS012X105/M | | | | | |
| E84AV□□□1534□□0 | | | | | | |

► Control connections

| Terminal strip | Features | Product key |
|----------------|---|-------------------|
| X1 | <ul style="list-style-type: none"> • Connection: CANopen • Packaging unit: 10 items | E84AZEVS040X001/M |
| X3 | <ul style="list-style-type: none"> • Connection: analog inputs and outputs • Packaging unit: 10 items | E84AZEVS050X003/M |
| X4 | <ul style="list-style-type: none"> • Connection: digital inputs and outputs • Packaging unit: 5 items | E84AZEVS050X004/M |
| X5 | <ul style="list-style-type: none"> • Connection: digital inputs • Packaging unit: 5 items | E84AZEVS060X005/M |
| X10 | <ul style="list-style-type: none"> • Connection: axis bus • Packaging unit: 10 items | E84AZEVS060X010/M |
| X80 | <ul style="list-style-type: none"> • Connection: safety engineering • Packaging unit: 10 items | E84AZEVS070X080/M |
| X101 | <ul style="list-style-type: none"> • Connection: relay • Packaging unit: 10 items | E84AZEVS020X101/M |
| X106 | <ul style="list-style-type: none"> • Connection: PTC • Packaging unit: 10 items | E84AZEVS030X106/M |
| X107 | <ul style="list-style-type: none"> • Connection: 2.5 A digital output • Packaging unit: 10 items | E84AZEVS060X107/M |

Inverter Drives 8400 StateLine

Accessories



Setpoint potentiometer

The setpoint selection (e.g. speed) can be made via an external potentiometer.

The setpoint potentiometer is connected to the inverter's analog input terminals. A scale and a rotary knob are also available.



Setpoint potentiometer with scale and rotary knob

| Mode | Product key |
|-------------------------------------|----------------|
| 10 kOhm / 1 Watt potentiometer | ERPD0010K0001W |
| Rotary knob, 36 mm diameter | ERZ0001 |
| Scale 0 ... 100%, 62 mm diameter | ERZ0002 |

Inverter Drives 8400 StateLine

Accessories



Inverter Drives 8400 StateLine

Accessories



Inverter

Inverter Drives 8400 BaseLine

0.25 to 3.0 kW



Inverter Drives 8400 BaseLine



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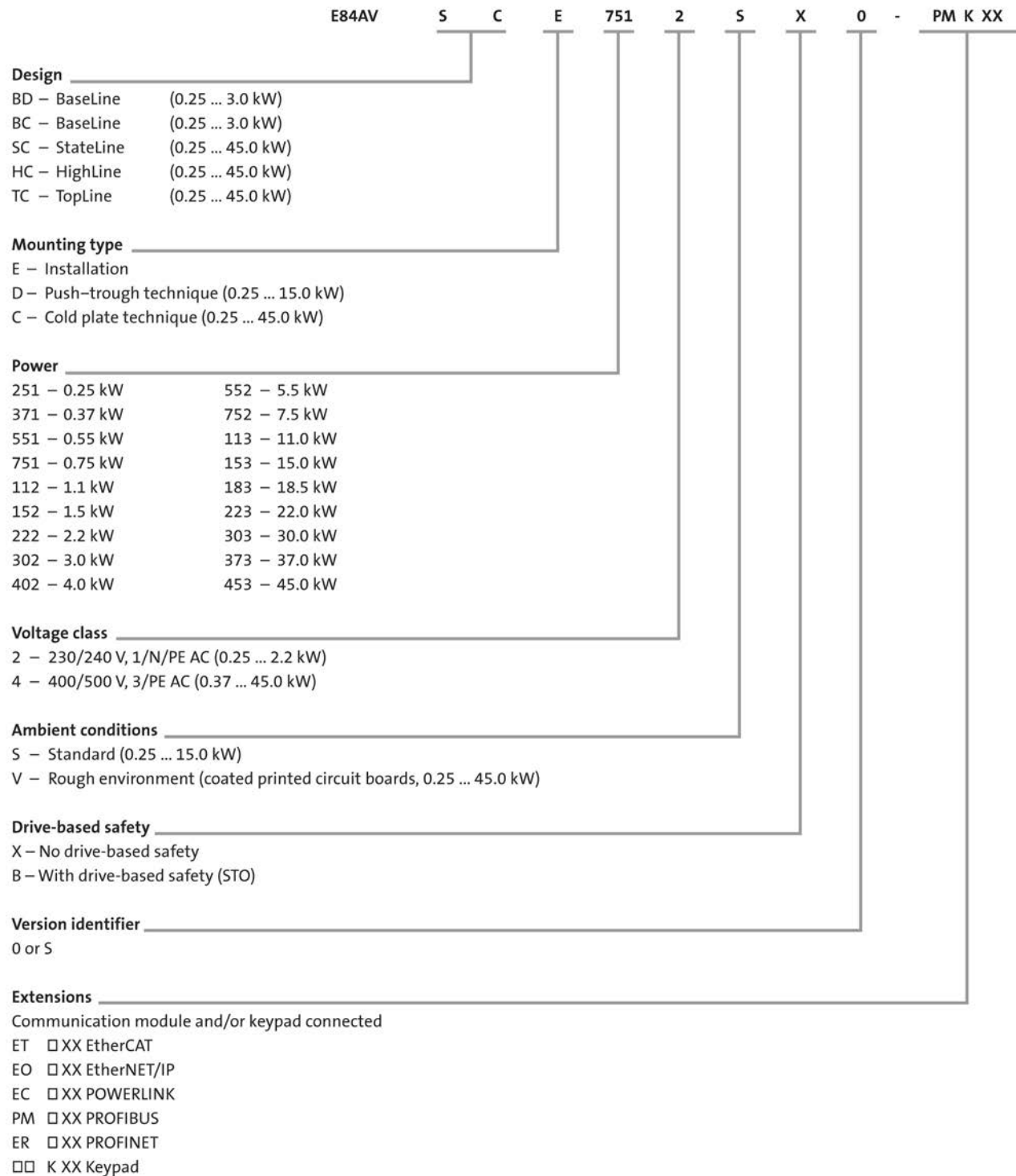
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Inverter Drives 8400 BaseLine

General information



Product key

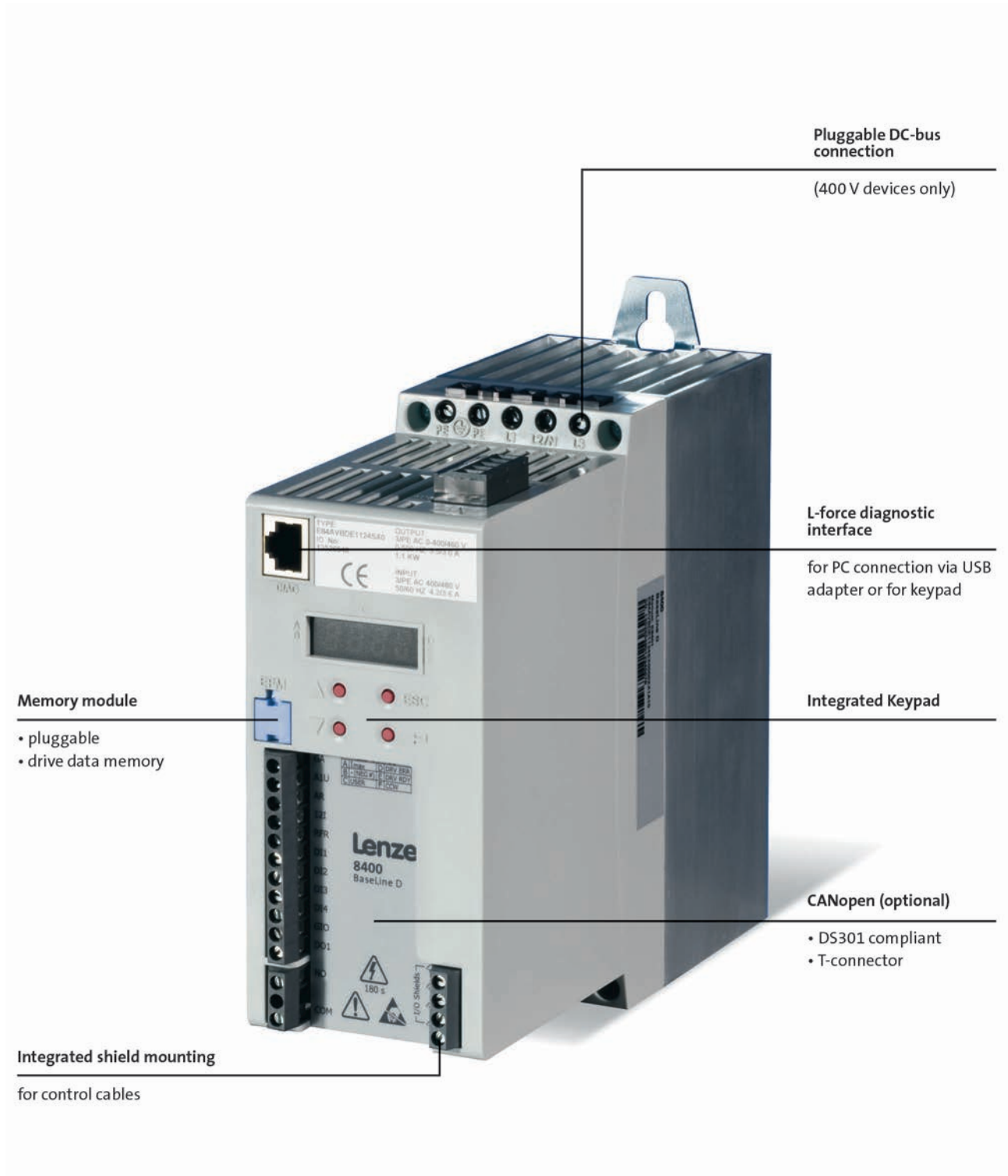


Inverter Drives 8400 BaseLine

General information



Equipment



Inverter Drives 8400 BaseLine

General information



List of abbreviations

| | | |
|---------------------|--------------------|---------------------------|
| b | [mm] | Dimensions |
| C _{th} | [KW _s] | Thermal capacity |
| f _{ch} | [kHz] | Rated switching frequency |
| h | [mm] | Dimensions |
| I _{N, out} | [A] | Rated output current |
| I _{N, AC} | [A] | Rated mains current |
| m | [kg] | Mass |
| n _{max} | [r/min] | Max. speed |
| P | [kW] | Typical motor power |
| P _V | [kW] | Power loss |
| P _N | [kW] | Rated power |
| R _N | [Ω] | Rated resistance |
| t | [mm] | Dimensions |
| U _{AC} | [V] | Mains voltage |
| U _{DC} | [V] | DC supply |
| U _{N, AC} | [V] | Rated voltage |
| U _{out} | [V] | Max. output voltage |

| | |
|------------|--|
| ASM | Asynchronous motor |
| DIAG | Slot for diagnostic adapter |
| DIN | Deutsches Institut für Normung e.V. |
| EN | European standard |
| EN 60529 | Degrees of protection provided by enclosures (IP code) |
| EN 60721-3 | Classification of environmental conditions; Part 3: Classes of environmental parameters and their limit values |
| EN 61800-3 | Electrical variable speed drives Part 3: EMC requirements including special test methods |
| IEC | International Electrotechnical Commission |
| IEC 61508 | Functional safety of electrical/electronic/programmable electronic safety-related systems |
| IM | International Mounting Code |
| IP | International Protection Code |
| MCI | Slot for communication module (module communication interface) |
| NEMA | National Electrical Manufacturers Association |
| UL | Underwriters Laboratory Listed Product |
| UR | Underwriters Laboratory Recognized Product |
| VDE | Verband deutscher Elektrotechniker (Association of German Electrical Engineers) |

Inverter Drives 8400 BaseLine

General information



Inverter Drives 8400 BaseLine

General information



Inverter Drives 8400

Cost-efficiency, time savings and quality enhancement are the challenges of the future. Lenze is facing these challenges with its L-force product portfolio – the holistic solution portfolio with precisely matched interfaces and components. For faster configuration and commissioning, better performance and more flexibility in production.

As such, the four versions of Inverter Drives 8400 - BaseLine, StateLine, HighLine and TopLine - have been designed for consistent process optimisation – throughout your entire value-added chain. They reduce your costs, from component selection, through project planning, manufacturing and commissioning, all the way up to servicing. We call this "rightsizing".

Rightsized for versatile applications

Are you looking to control a three-phase AC motor or perform positioning with or without feedback? Then select exactly the inverter you need from the scaled solution space of the Inverter Drives 8400 with units in the power range from 0.25 kW to 45 kW. You are sure to find exactly what you are looking for here, as the modular 8400 range of inverters offers the right solution for a broad spectrum of applications.

While the BaseLine is excellent for basic applications, the TopLine offers servo qualities and thereby fulfils with the strict requirements in terms of dynamics and accuracy.

8400 BaseLine - for constant motion

The BaseLine version is the entry-level model in terms of functionality and drive behaviour. Featuring an integrated keypad and everything you would expect from a modern frequency inverter suitable for universal use, the 8400 BaseLine is the ideal solution for applications such as conveyor drives, pumps, fans or ventilators.

Two versions

Two versions of the 8400 BaseLine are available:

- BaseLine C with CANopen;
Product key: E84AVBCE□□□□SXO
- BaseLine D without communication;
Product key: E84AVBDE□□□□SXO

Inverter Drives 8400 BaseLine

General information



Functions and features

| | |
|---|---|
| Mode | 8400 BaseLine |
| Control types, motor control | |
| Sensorless vector control (SLVC) | For three-phase asynchronous motors |
| V/f control (VFCplus) | For three-phase AC motors and asynchronous servo motor (linear or square-law) |
| Basic functions | <ul style="list-style-type: none"> Freely assignable user menu DC brake function Flying restart circuit S-shaped ramps for smooth acceleration PID controller 3 fixed frequencies |
| Monitoring and protective measures | <ul style="list-style-type: none"> Short circuit Earth fault Overvoltage Overcurrent I² x t-Motor monitoring Motor stalling |
| Diagnostics | Data logger, logbook, oscilloscope functions |
| Status display | 4 LEDs |
| Diagnostic interface | <ul style="list-style-type: none"> Integrated For USB diagnostic adapter or keypad (diagnosis terminal) |
| Braking operation | |
| Brake chopper | Integrated (400 V types) |
| Brake resistor | External (400 V types) |

Inverter Drives 8400 BaseLine

General information



Inverter Drives 8400 BaseLine

Technical data




Standards and operating conditions

| Mode | | | 8400 BaseLine |
|---------------------------------|------------------|------------|--|
| Product | | | 8400 BaseLine |
| Conformity | | | |
| CE | | | Low-Voltage Directive 2006/95/EC |
| EAC | | | TP TC 004/2011 (TR CU 004/2011) TP TC 020/2011 (TR CU 020/2011) |
| Approval | | | |
| UL 508C | | | Power Conversion Equipment (File No. E170350) |
| CSA | | | |
| Enclosure | | | |
| EN 60529 ²⁾ | | | IP20 |
| NEMA 250 | | | Type 1 |
| Climatic conditions | | | |
| Storage (EN 60721-3-1) | | | 1K3 (temperature: -25 °C ... +60 °C) |
| Transport (EN 60721-3-2) | | | 2K3 (temperature: -25 °C ... +70 °C) |
| Operation (EN 60721-3-3) | | | 3K3 (temperature: -10°C ... +55°C) |
| Current derating at over 45°C | | | 2.5% / K |
| Site altitude | | | |
| Amsl | H _{max} | [m] | 4000 |
| Current derating at over 1000 m | | [%/1000 m] | 5 |
| Vibration resistance | | | |
| Transport (EN 60721-3-2) | | | 2M2 |
| Operation (EN 61800-5-1) | | | 10 Hz ≤ f ≤ 57 Hz: ±0.075 mm amplitude, 57 Hz ≤ f ≤ 150 Hz: 1.0 g |
| Operation (Germanischer Lloyd) | | | 5 Hz ≤ f ≤ 13.2 Hz: ± 1 mm amplitude 13.2 Hz ≤ f ≤ 100 Hz: 0.7 g |

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| Mode | | | 8400 BaseLine |
|---|--|--|--|
| Product | | | 8400 BaseLine |
| Supply form | | | |
| | | | Systems with earthed star point (TN and TT systems) |
| Noise emission | | | |
| EN 61800-3 | | | Integrated RFI suppression: category C2 up to 25 m shielded motor cable ⁻¹⁾ |
| Insulation resistance | | | |
| EN 61800-5-1 | | | Overvoltage category III Above 2000 m amsl overvoltage category II |
| Degree of pollution | | | |
| EN 61800-5-1 | | | 2 |
| Protective insulation of control circuits | | | |
| EN 61800-5-1 | | | Safe mains isolation: double/reinforced insulation |

¹⁾  1 - Please also refer to the Motor connection section

²⁾ Mounted and ready-to-use

Inverter Drives 8400 BaseLine



Technical data

Rated data 230 V

► Unless otherwise specified, the data refers to the default setting.



Data / Device

Operation with rated data: rated output current $I_{N,out}$ at mains voltage 230 V, switching frequency 8 kHz variable and max. ambient temperature 45 °C (default setting).

Output currents I_{out} apply to:

Ambient temperature 45 °C operating with constant switching frequency 2 kHz or 4 kHz.

Ambient temperature 40 °C operating with constant switching frequency 8 kHz or 16 kHz.

| | | |  | |  | |
|-----------------------------|-------------|------|---|-----------------|---|-----------------|
| Typical motor power | | | | | | |
| 4-pole asynchronous motor | P | [kW] | 0.25 | 0.37 | 0.55 | 0.75 |
| Product key | | | | | | |
| Inverter | | | E84AV0002512000 | E84AV0003712000 | E84AV0005512000 | E84AV0007512000 |
| Mains voltage range | | | 1/N/PE AC 180 V-0 % ... 264 V+0 %, 45 Hz-0 % ... 65 Hz+0 % | | | |
| | U_{AC} | [V] | | | | |
| Rated mains current | | | | | | |
| With mains choke | $I_{N,AC}$ | [A] | 3.0 | 4.2 | 5.4 | 7.0 |
| Without mains choke | $I_{N,AC}$ | [A] | 3.4 | 5.1 | 6.7 | 8.8 |
| Rated output current | | | | | | |
| | $I_{N,out}$ | [A] | 1.7 | 2.4 | 3.0 | 4.0 |
| Output current | | | | | | |
| 2 kHz | I_{out} | [A] | 1.7 | 2.4 | 3.0 | 4.0 |
| 4 kHz | I_{out} | [A] | 1.7 | 2.4 | 3.0 | 4.0 |
| 8 kHz | I_{out} | [A] | 1.7 | 2.4 | 3.0 | 4.0 |
| 16 kHz | I_{out} | [A] | 1.1 | 1.6 | 2.0 | 2.7 |

4.8

Data for 60 s overload

| | | | | | | |
|----------------------------|---------------|-----|-------|-----|-----|-----|
| Max. output current | | | | | | |
| | $I_{max,out}$ | [A] | 2.6 | 3.6 | 4.5 | 6.0 |
| Overload time | | | 60.0 | | | |
| | t_{ol} | [s] | | | | |
| Recovery time | | | 120.0 | | | |
| | t_{re} | [s] | | | | |

Data for 3 s overload

| | | | | | | |
|---------------------------------------|---------------|-----|------|-----|-----|-----|
| Max. short-time output current | | | | | | |
| | $I_{max,out}$ | [A] | 3.4 | 4.8 | 6.0 | 8.0 |
| Overload time | | | 3.0 | | | |
| | t_{ol} | [s] | | | | |
| Recovery time | | | 12.0 | | | |
| | t_{re} | [s] | | | | |





Inverter Drives 8400 BaseLine

Technical data



Rated data 230 V

► Unless otherwise specified, the data refers to the default setting.

| | | |  |  |  |  |
|---------------------------------------|-----------|------|---|---|---|---|
| Typical motor power | | | | | | |
| 4-pole asynchronous motor | P | [kW] | 0.25 | 0.37 | 0.55 | 0.75 |
| Product key | | | | | | |
| Inverter | | | E84AV0002512000 | E84AV0003712000 | E84AV0005512000 | E84AV0007512000 |
| Power loss | | | | | | |
| | P_V | [kW] | 0.015 | 0.017 | 0.023 | 0.030 |
| Max. cable length¹⁾ | | | | | | |
| Shielded motor cable | l_{max} | [m] | 50 | | | |

Dimensions and weights

| Dimensions | | | | | | |
|-------------------|---|------|-----|-----|-----|-----|
| Height | h | [mm] | 165 | 165 | 165 | 165 |
| Width | b | [mm] | 70 | 70 | 70 | 70 |
| Depth | t | [mm] | 144 | 144 | 162 | 162 |
| Mass | | | | | | |
| | m | [kg] | 1.2 | 1.2 | 1.2 | 1.2 |

¹⁾ Technically possible cable lengths, irrespective of EMC requirements

Inverter Drives 8400 BaseLine



Technical data

Rated data 230 V

► Unless otherwise specified, the data refers to the default setting.


Data / Device

Operation with rated data: rated output current $I_{N,out}$ at mains voltage 230 V, switching frequency 8 kHz variable and max. ambient temperature 45 °C (default setting).

Output currents I_{out} apply to:

Ambient temperature 45 °C operating with constant switching frequency 2 kHz or 4 kHz.

Ambient temperature 40 °C operating with constant switching frequency 8 kHz or 16 kHz.

| | | |  | | |
|-----------------------------|-------------|------|--|-----------------|-----------------|
| Typical motor power | | | | | |
| 4-pole asynchronous motor | P | [kW] | 1.10 | 1.50 | 2.20 |
| Product key | | | | | |
| Inverter | | | E84AV□□□1122□□0 | E84AV□□□1522□□0 | E84AV□□□2222□□0 |
| Mains voltage range | | | | | |
| | U_{AC} | [V] | 1/N/PE AC 180 V-0 % ... 264 V+0 %, 45 Hz-0 % ... 65 Hz+0 % | | |
| Rated mains current | | | | | |
| With mains choke | $I_{N,AC}$ | [A] | 9.9 | 11.8 | 15.7 |
| Without mains choke | $I_{N,AC}$ | [A] | 12.0 | 13.7 | 22.0 |
| Rated output current | | | | | |
| | $I_{N,out}$ | [A] | 5.5 | 7.0 | 9.5 |
| Output current | | | | | |
| 2 kHz | I_{out} | [A] | 5.5 | 7.0 | 9.5 |
| 4 kHz | I_{out} | [A] | 5.5 | 7.0 | 9.5 |
| 8 kHz | I_{out} | [A] | 5.5 | 7.0 | 9.5 |
| 16 kHz | I_{out} | [A] | 3.7 | 4.7 | 6.3 |

4.8

Data for 60 s overload

| | | | | | |
|----------------------------|---------------|-----|-------|------|------|
| Max. output current | | | 8.3 | 10.5 | 14.3 |
| | $I_{max,out}$ | [A] | | | |
| Overload time | | | 60.0 | | |
| | t_{ol} | [s] | | | |
| Recovery time | | | 120.0 | | |
| | t_{re} | [s] | | | |

Data for 3 s overload

| | | | | | |
|---------------------------------------|---------------|-----|------|------|------|
| Max. short-time output current | | | 11.0 | 14.0 | 19.0 |
| | $I_{max,out}$ | [A] | | | |
| Overload time | | | 3.0 | | |
| | t_{ol} | [s] | | | |
| Recovery time | | | 12.0 | | |
| | t_{re} | [s] | | | |


Inverter Drives 8400 BaseLine

Technical data



Rated data 230 V

► Unless otherwise specified, the data refers to the default setting.

| | | | | | |
|--|-----------|------|--|-----------------|-----------------|
| | | |  | | |
| Typical motor power | | | | | |
| 4-pole asynchronous motor | P | [kW] | 1.10 | 1.50 | 2.20 |
| Product key | | | | | |
| Inverter | | | E84AV□□□1122□□0 | E84AV□□□1522□□0 | E84AV□□□2222□□0 |
| Power loss | | | | | |
| | P_V | [kW] | 0.043 | 0.054 | 0.076 |
| Max. cable length ¹⁾ | | | | | |
| Shielded motor cable | l_{max} | [m] | 50 | | |

Dimensions and weights

| | | | | | |
|-------------------|---|------|-----|-----|-----|
| Dimensions | | | | | |
| Height | h | [mm] | 165 | 215 | 215 |
| Width | b | [mm] | 70 | 70 | 70 |
| Depth | t | [mm] | 162 | 162 | 162 |
| Mass | | | | | |
| | m | [kg] | 1.4 | 1.9 | 1.9 |

¹⁾ Technically possible cable lengths, irrespective of EMC requirements

Inverter Drives 8400 BaseLine

Technical data



Rated data 400 V

► Unless otherwise specified, the data refers to the default setting.


Data / Device

Operation with rated data: rated output current $I_{N,out}$ at mains voltage 400 V, switching frequency 8 kHz variable and max. ambient temperature 45 °C (default setting).

Output currents I_{out} apply to:

Ambient temperature 45 °C operating with constant switching frequency 2 kHz or 4 kHz.

Ambient temperature 40 °C operating with constant switching frequency 8 kHz or 16 kHz.

| | | |  | | |
|-----------------------------|-------------|------|--|-----------------|-----------------|
| Typical motor power | | | | | |
| 4-pole asynchronous motor | P | [kW] | 0.37 | 0.55 | 0.75 |
| Product key | | | | | |
| Inverter | | | E84AV□□□3714□□0 | E84AV□□□5514□□0 | E84AV□□□7514□□0 |
| Mains voltage range | | | | | |
| | U_{AC} | [V] | 3/PE AC 180 V-0 % ... 550 V+0 %, 45 Hz-0 % ... 65 Hz+0 % | | |
| Rated mains current | | | | | |
| With mains choke | $I_{N,AC}$ | [A] | 1.4 | 1.8 | 2.2 |
| Without mains choke | $I_{N,AC}$ | [A] | 1.8 | 2.3 | 3.2 |
| Rated output current | | | | | |
| | $I_{N,out}$ | [A] | 1.3 | 1.8 | 2.4 |
| Output current | | | | | |
| 2 kHz | I_{out} | [A] | 1.3 | 1.8 | 2.4 |
| 4 kHz | I_{out} | [A] | 1.3 | 1.8 | 2.4 |
| 8 kHz | I_{out} | [A] | 1.3 | 1.8 | 2.4 |
| 16 kHz | I_{out} | [A] | 0.9 | 1.2 | 1.6 |

4.8

Data for 60 s overload

| | | | | | |
|----------------------------|---------------|-----|-----|-------|-----|
| Max. output current | | | | | |
| | $I_{max,out}$ | [A] | 2.0 | 2.7 | 3.6 |
| Overload time | | | | | |
| | t_{ol} | [s] | | 60.0 | |
| Recovery time | | | | | |
| | t_{re} | [s] | | 120.0 | |

Data for 3 s overload

| | | | | | |
|---------------------------------------|---------------|-----|-----|------|-----|
| Max. short-time output current | | | | | |
| | $I_{max,out}$ | [A] | 2.3 | 3.2 | 4.2 |
| Overload time | | | | | |
| | t_{ol} | [s] | | 3.0 | |
| Recovery time | | | | | |
| | t_{re} | [s] | | 12.0 | |


Inverter Drives 8400 BaseLine



Technical data

Rated data 400 V

► Unless otherwise specified, the data refers to the default setting.

| | | |  | | |
|--|-------------------|------|--|-----------------|-----------------|
| Typical motor power | | | | | |
| 4-pole asynchronous motor | P | [kW] | 0.37 | 0.55 | 0.75 |
| Product key | | | | | |
| Inverter | | | E84AV□□□3714□□0 | E84AV□□□5514□□0 | E84AV□□□7514□□0 |
| DC supply | | | DC 455 V -0 % ... 775 V +0 % | | |
| | U _{DC} | [V] | | | |
| Rated DC-bus current | | | | | |
| | I _{N,DC} | [A] | 2.2 | 2.8 | 3.6 |
| Power loss | | | | | |
| | P _V | [kW] | 0.015 | 0.022 | 0.029 |
| Max. cable length ¹⁾ | | | | | |
| Shielded motor cable | I _{max} | [m] | 50 | | |

Brake chopper rated data

| | | | | | |
|---|--------------------|------|-------|-------|-------|
| Rated power, Brake chopper | | | | | |
| | P _N | [kW] | 1.3 | 1.3 | 1.3 |
| Max. output power, Brake chopper | | | | | |
| | P _{max,1} | [kW] | 1.3 | 1.3 | 1.3 |
| Min. brake resistance | | | | | |
| | R _{min} | [Ω] | 390.0 | 390.0 | 390.0 |

Dimensions and weights

| | | | | | |
|-------------------|---|------|-----|-----|-----|
| Dimensions | | | | | |
| Height | h | [mm] | 165 | 165 | 165 |
| Width | b | [mm] | 70 | 70 | 70 |
| Depth | t | [mm] | 162 | 162 | 162 |
| Mass | | | | | |
| | m | [kg] | 1.2 | 1.2 | 1.2 |

¹⁾ Technically possible cable lengths, irrespective of EMC requirements

Inverter Drives 8400 BaseLine



Technical data

Rated data 400 V

► Unless otherwise specified, the data refers to the default setting.


Data / Device

Operation with rated data: rated output current $I_{N,out}$ at mains voltage 400 V, switching frequency 8 kHz variable and max. ambient temperature 45 °C (default setting).

Output currents I_{out} apply to:

Ambient temperature 45 °C operating with constant switching frequency 2 kHz or 4 kHz.

Ambient temperature 40 °C operating with constant switching frequency 8 kHz or 16 kHz.

| | | |  | | | |
|-----------------------------|-------------|------|--|-----------------|-----------------|-----------------|
| Typical motor power | | | | | | |
| 4-pole asynchronous motor | P | [kW] | 1.10 | 1.50 | 2.20 | 3.00 |
| Product key | | | | | | |
| Inverter | | | E84AV□□□1124□□□ | E84AV□□□1524□□□ | E84AV□□□2224□□□ | E84AVB□□3024□□□ |
| Mains voltage range | | | 3/PE AC 180 V-0 % ... 550 V+0 %, 45 Hz-0 % ... 65 Hz+0 % | | | |
| | U_{AC} | [V] | | | | |
| Rated mains current | | | | | | |
| With mains choke | $I_{N,AC}$ | [A] | 3.2 | 3.6 | 5.0 | 7.1 |
| Without mains choke | $I_{N,AC}$ | [A] | 4.2 | 4.7 | 6.2 | 10.2 |
| Rated output current | | | | | | |
| | $I_{N,out}$ | [A] | 3.2 | 3.9 | 5.6 | 7.3 |
| Output current | | | | | | |
| 2 kHz | I_{out} | [A] | 3.2 | 3.9 | 5.6 | 7.3 |
| 4 kHz | I_{out} | [A] | 3.2 | 3.9 | 5.6 | 7.3 |
| 8 kHz | I_{out} | [A] | 3.2 | 3.9 | 5.6 | 7.3 |
| 16 kHz | I_{out} | [A] | 2.1 | 2.6 | 3.7 | 4.9 |

Data for 60 s overload

| | | | | | | |
|----------------------------|---------------|-----|-------|-----|-----|------|
| Max. output current | | | | | | |
| | $I_{max,out}$ | [A] | 4.8 | 5.9 | 8.4 | 11.0 |
| Overload time | | | 60.0 | | | |
| | t_{ol} | [s] | 60.0 | | | |
| Recovery time | | | 120.0 | | | |
| | t_{re} | [s] | 120.0 | | | |

Data for 3 s overload

| | | | | | | |
|---------------------------------------|---------------|-----|------|-----|-----|------|
| Max. short-time output current | | | | | | |
| | $I_{max,out}$ | [A] | 5.6 | 6.8 | 9.8 | 12.4 |
| Overload time | | | 3.0 | | | |
| | t_{ol} | [s] | 3.0 | | | |
| Recovery time | | | 12.0 | | | |
| | t_{re} | [s] | 12.0 | | | |


Inverter Drives 8400 BaseLine

Technical data



Rated data 400 V

► Unless otherwise specified, the data refers to the default setting.

| | | | | | | |
|--|------------|------|--|------------------|------------------|------------------|
| | | |  | | | |
| Typical motor power | | | | | | |
| 4-pole asynchronous motor | P | [kW] | 1.10 | 1.50 | 2.20 | 3.00 |
| Product key | | | | | | |
| Inverter | | | E84AV□□□□1124□□0 | E84AV□□□□1524□□0 | E84AV□□□□2224□□0 | E84AVB□□□3024□□0 |
| DC supply | | | | | | |
| | U_{DC} | [V] | DC 455 V -0 % ... 775 V +0 % | | | |
| Rated DC-bus current | | | | | | |
| | $I_{N,DC}$ | [A] | 5.1 | 5.8 | 7.6 | 10.0 |
| Power loss | | | | | | |
| | P_V | [kW] | 0.042 | 0.048 | 0.066 | 0.091 |
| Max. cable length ¹⁾ | | | | | | |
| Shielded motor cable | I_{max} | [m] | 50 | | | |

Brake chopper rated data

| | | | | | | |
|---|-------------|------|-------|-------|-------|------|
| Rated power, Brake chopper | | | | | | |
| | P_N | [kW] | 2.9 | 2.9 | 3.5 | 7.3 |
| Max. output power, Brake chopper | | | | | | |
| | $P_{max,1}$ | [kW] | 2.9 | 2.9 | 3.5 | 7.3 |
| Min. brake resistance | | | | | | |
| | R_{min} | [Ω] | 180.0 | 180.0 | 150.0 | 82.0 |

Dimensions and weights

| | | | | | |
|-------------------|---|------|-----|-----|-----|
| Dimensions | | | | | |
| Height | h | [mm] | 165 | 165 | 215 |
| Width | b | [mm] | 70 | 70 | 70 |
| Depth | t | [mm] | 162 | 162 | 162 |
| Mass | | | | | |
| | m | [kg] | 1.4 | 1.4 | 1.9 |

¹⁾ Technically possible cable lengths, irrespective of EMC requirements

Inverter Drives 8400 BaseLine

Technical data



Inverter Drives 8400 BaseLine



Interfaces

Mains connection

- ▶ The mains fuse and cable cross-section specifications are for a mains connection of 1 x 230V or 3 x 400V.
- ▶ Class gG/gI fuses or class gRL semiconductor fuses.
- ▶ The cable cross-sections apply to PVC-insulated copper cables.
- ▶ Use for installation with UL-approved cables, fuses and brackets.

Operation with mains choke

| Typical motor power | Mains voltage | Product key | Circuit breaker | Fuse | | Mains connection |
|---------------------------|---------------------|------------------|-----------------|------------|-----|----------------------------------|
| | | | | EN 60204-1 | UL | |
| 4-pole asynchronous motor | | Inverter | | | | Cross-section (with mains choke) |
| P | U _{AC} | | I | I | I | q |
| [kW] | [V] | | [A] | [A] | [A] | [mm ²] |
| 0.25 | 1 AC 180 ... 264 | E84AV□□□2512□□□0 | C6 | 6 | 6 | 1.0 |
| 0.37 | | E84AV□□□3712□□□0 | | | 10 | |
| 0.55 | | E84AV□□□5512□□□0 | C10 | 10 | 15 | 1.5 |
| 0.75 | | E84AV□□□7512□□□0 | | | 20 | |
| 1.10 | | E84AV□□□1122□□□0 | C16 | 16 | 25 | 2.5 |
| 1.50 | | E84AV□□□1522□□□0 | | | 30 | |
| 2.20 | | E84AV□□□2222□□□0 | C20 | 20 | 30 | 4.0 |
| 0.37 | 3 AC 320 ... 550 | E84AV□□□3714□□□0 | C6 | 6 | 6 | 1.0 |
| 0.55 | | E84AV□□□5514□□□0 | | | | |
| 0.75 | | E84AV□□□7514□□□0 | | | | |
| 1.10 | | E84AV□□□1124□□□0 | C10 | 10 | 10 | 1.5 |
| 1.50 | | E84AV□□□1524□□□0 | | | | |
| 2.20 | | E84AV□□□2224□□□0 | C10 | 10 | 15 | 1.5 |
| 3.00 | | E84AV□□□3024□□□0 | | | | |

4.8

Operation without mains choke

| Typical motor power | Mains voltage | Product key | Circuit breaker | Fuse | | Mains connection |
|---------------------------|---------------------|------------------|-----------------|------------|-----|-------------------------------------|
| | | | | EN 60204-1 | UL | |
| 4-pole asynchronous motor | | Inverter | | | | Cross-section (without mains choke) |
| P | U _{AC} | | I | I | I | q |
| [kW] | [V] | | [A] | [A] | [A] | [mm ²] |
| 0.25 | 1 AC 180 ... 264 | E84AV□□□2512□□□0 | C6 | 6 | 6 | 1.0 |
| 0.37 | | E84AV□□□3712□□□0 | | | 10 | |
| 0.55 | | E84AV□□□5512□□□0 | C10 | 10 | 15 | 1.5 |
| 0.75 | | E84AV□□□7512□□□0 | | | 20 | |
| 1.10 | | E84AV□□□1122□□□0 | C16 | 16 | 25 | 2.5 |
| 1.50 | | E84AV□□□1522□□□0 | | | 30 | |
| 2.20 | | E84AV□□□2222□□□0 | C25 | 25 | 30 | 4.0 |
| 0.37 | 3 AC 320 ... 550 | E84AV□□□3714□□□0 | C6 | 6 | 6 | 1.0 |
| 0.55 | | E84AV□□□5514□□□0 | | | | |
| 0.75 | | E84AV□□□7514□□□0 | | | | |
| 1.10 | | E84AV□□□1124□□□0 | C10 | 10 | 10 | 1.5 |
| 1.50 | | E84AV□□□1524□□□0 | | | | |
| 2.20 | | E84AV□□□2224□□□0 | C16 | 16 | 15 | 2.5 |
| 3.00 | | E84AV□□□3024□□□0 | | | | |

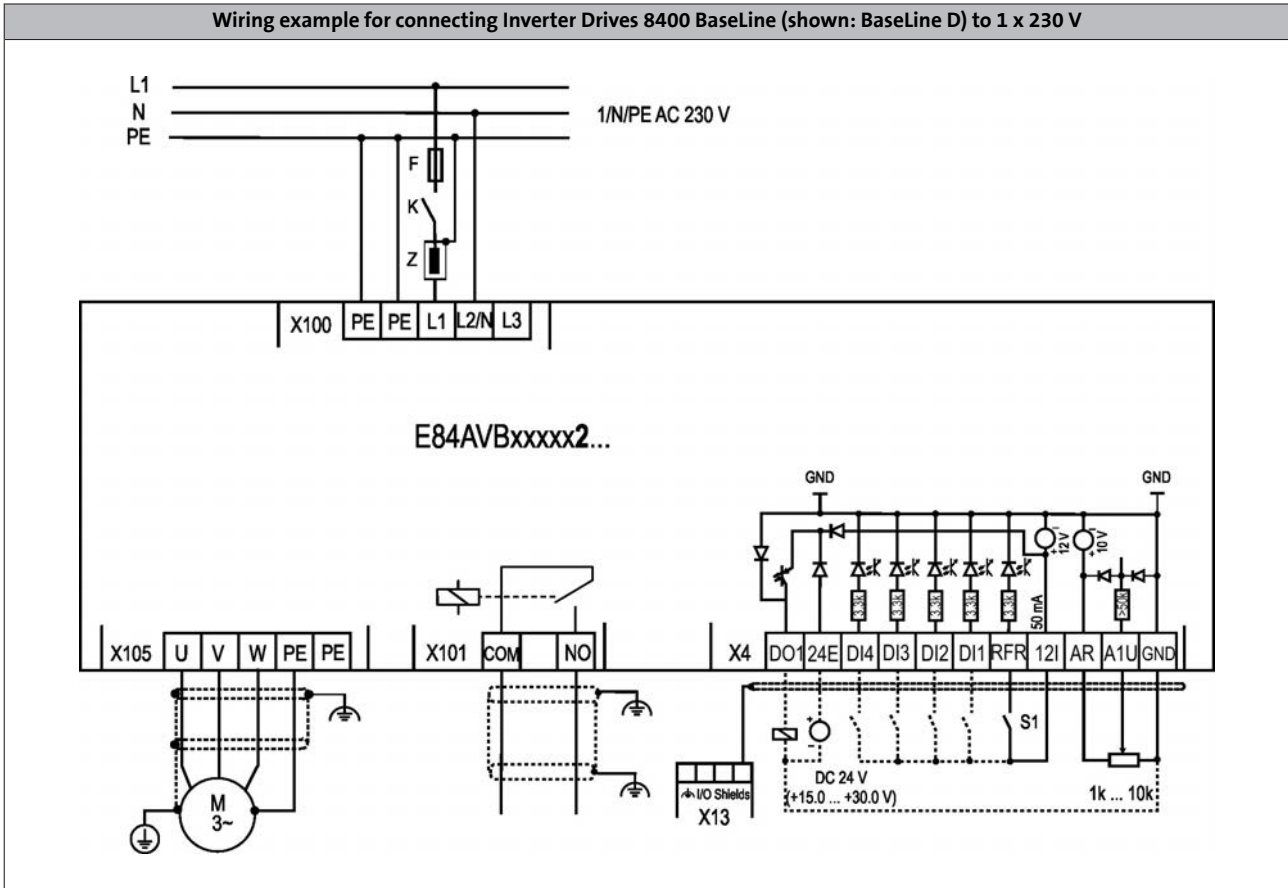
Inverter Drives 8400 BaseLine

Interfaces



Connection diagrams

Wiring example for connecting Inverter Drives 8400 BaseLine (shown: BaseLine D) to 1 x 230 V



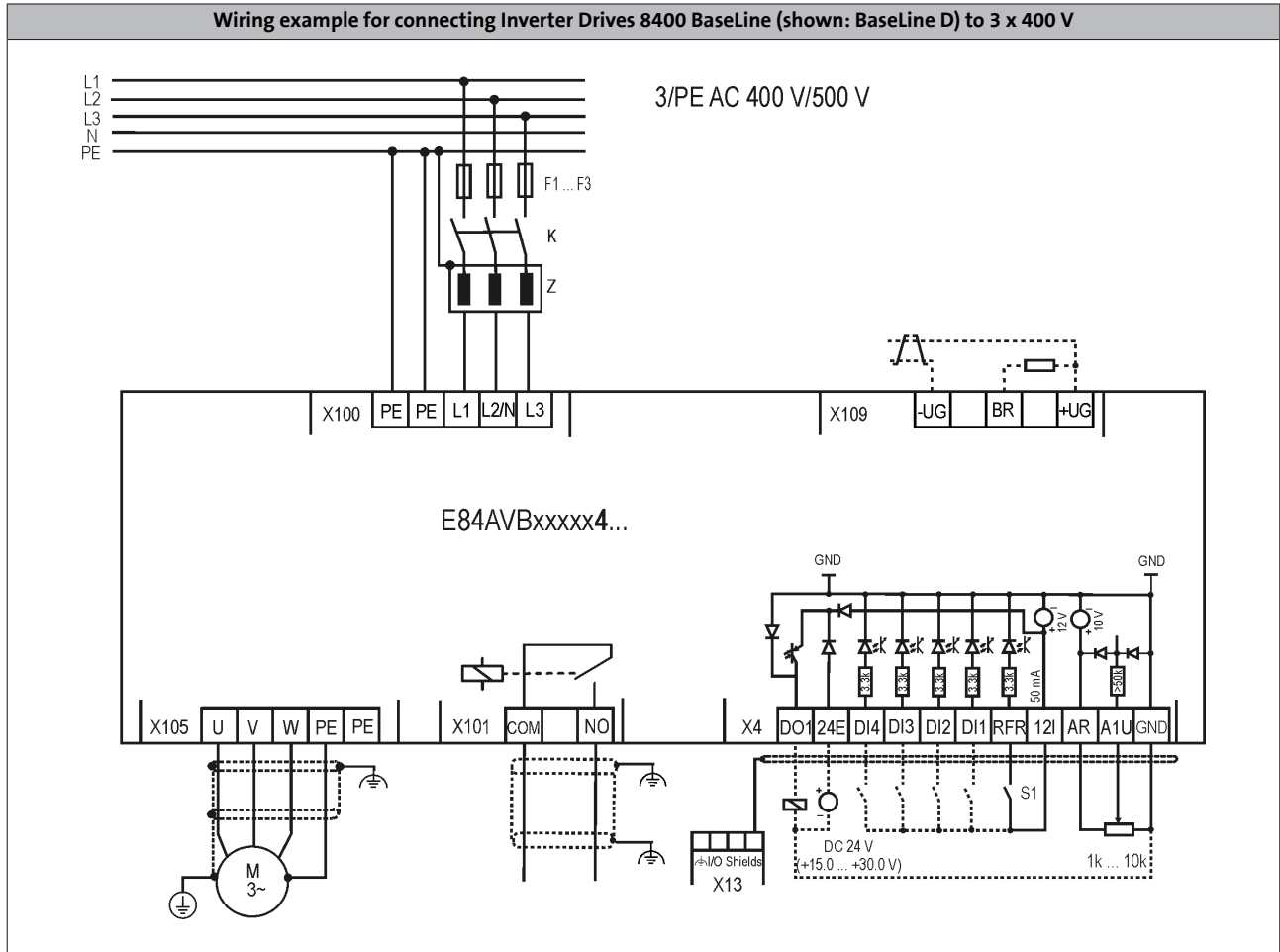
4.8

Inverter Drives 8400 BaseLine

Interfaces



Connection diagrams



Inverter Drives 8400 BaseLine

Interfaces



Control connections

| | |
|------------------------|---|
| Mode | 8400 BaseLine |
| Analog inputs | |
| Number | 1 Switchable: voltage or current input |
| Resolution | 10 bits |
| Value range | 0 ... 10V, 0/4 ... 20mA |
| Digital inputs | |
| Number | 5 |
| Switching level | PLC (IEC 61131-2) |
| Max. input current | 11 mA |
| Digital outputs | |
| Number | 1 |
| Switching level | PLC (IEC 61131-2) |
| Max. output current | 50 mA |
| Relay | |
| Number | 1 |
| Contact | NO contact |
| AC connection | 250V, 3A |
| DC connection | 24V, 2A ... 240V, 0.16A |
| Interfaces | |
| CANopen | functional insulated Max. baud rate 1000 kbps integrated (BaseLine C) |

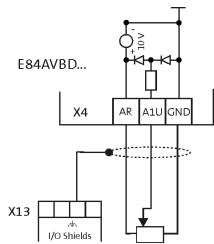
Inverter Drives 840 BaseLine

Interfaces

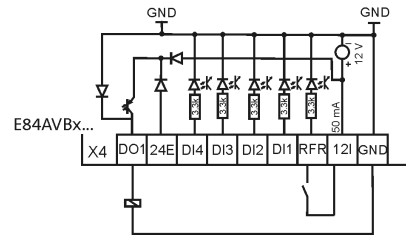


Control connections

Connection of analog inputs and outputs

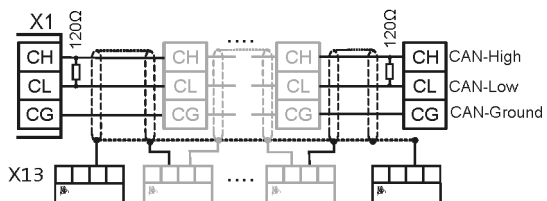


Connection of digital inputs and outputs



CANopen connection

EDSCAN



Inverter Drives 8400 BaseLine

Interfaces



Memory module

All drive settings for the 8400 are stored on the memory module, which is a pluggable memory chip. The memory module ensures that drives can be replaced quickly and without errors being made.

| Mode | Features | Product key |
|---------------|--|-------------|
| Memory module | <ul style="list-style-type: none">• For 8400 BaseLine, 8400 motec• Packaging unit: 12 items | E84AYM20S/M |

- ▶ Each inverter is equipped with a memory module in the factory

Inverter Drives 8400 BaseLine

Accessories



Brake resistors

An external brake resistor is required to brake high moments of inertia or in the event of prolonged operation in generator mode; this resistor converts braking energy into heat.

The brake resistors recommended in the table below have been dimensioned for approx. 1.5 times the regenerative power, with a cycle time of 15/135 s (brake/rest ratio). These brake resistors generally meet the usual requirements of standard applications.

The brake resistors are fitted with a thermostat (potential-free NC contact).



ERBM...(IP50) brake resistor

| Typical motor power | Mains voltage | Product key | | Rated resistance | Rated power | Thermal capacity | Dimensions | Mass |
|---------------------------|--------------------|-----------------|----------------|------------------|----------------|------------------|-----------------|------|
| | | Inverter | Brake resistor | | | | | |
| 4-pole asynchronous motor | | | | | | | | |
| P | U _{AC} | | | R _N | P _N | C _{th} | h x b x t | m |
| [kW] | [V] | | | [Ω] | [kW] | [KWs] | [mm] | [kg] |
| 0.37 | 3 AC 320... 550 | E84AV□□□3714□□0 | ERBM390R100W | 390.0 | 0.10 | 15.0 | 235 x 20.6 x 40 | 0.4 |
| 0.55 | | E84AV□□□5514□□0 | | | | | | |
| 0.75 | | E84AV□□□7514□□0 | | | | | | |
| 1.10 | | E84AV□□□1124□□0 | ERBP180R200W | 180.0 | 0.20 | 30.0 | 240 x 41 x 122 | 1.0 |
| 1.50 | | E84AV□□□1524□□0 | | | | | | |
| 2.20 | | E84AV□□□2224□□0 | ERBP180R300W | 180.0 | 0.30 | 45.0 | 320 x 41 x 122 | 1.4 |
| 3.00 | | E84AV□□□3024□□0 | | | | | | |

► Brake resistor connection requires a connector (product key: EWS0074/M).

- ▶ Data sheet on ERBM brake resistors
DS_ZB_ERBM_0001
Available for download at www.lenze.de/dsc
- ▶ Data sheet on ERBP brake resistors
DS_ZB_ERBP_0001
Available for download at lenze.de/dsc

- ▶ Data sheet on ERBS brake resistors
DS_ZB_ERBS_0001
Available for download at www.lenze.com/dsc

Inverter Drives 8400 BaseLine

Accessories



Mains chokes

A mains choke is an inductive resistor which is connected in the mains cable of the power supply module. The use of a mains choke provides the following advantages:

- **Fewer effects on the mains:**
The wave form of the mains current is a close approximation to a sine wave.
- **Reduction in the effective mains current:**
Reduction of mains, cable and fuse loads

Mains chokes can be used without restrictions in conjunction with RFI filters and/or sinusoidal filters.

Please note:

: The use of a mains choke slightly reduces the mains voltage at the input of the inverter - the typical voltage drop across the mains choke at the rated values is around 4%.



Mains choke

| Typical motor power | Mains voltage | Product key | | Rated current | Dimensions | Mass |
|---------------------------|---------------------|-----------------|----------------|---------------|-----------------------|------|
| | | Inverter | Mains choke | | | |
| 4-pole asynchronous motor | | | | | | |
| P | U_{AC} | | | I_N | $h \times b \times t$ | m |
| [kW] | [V] | | | [A] | [mm] | [kg] |
| 0.25 | 1 AC 180 ... 264 | E84AV□□□2512□□□ | ELN1-0900H005 | 5.00 | 75 x 66 x 82 | 1.1 |
| 0.37 | | E84AV□□□3712□□□ | | | | |
| 0.55 | | E84AV□□□5512□□□ | ELN1-0500H009 | 9.00 | | |
| 0.75 | | E84AV□□□7512□□□ | | | | |
| 1.10 | | E84AV□□□1122□□□ | ELN1-0250H018 | 18.0 | | |
| 1.50 | | E84AV□□□1522□□□ | | | | |
| 2.20 | E84AV□□□2222□□□ | | | | | |
| 0.37 | 3 AC 320 ... 550 | E84AV□□□3714□□□ | EZAELN3002B153 | 2.00 | 56 x 77 x 100 | 0.5 |
| 0.55 | | E84AV□□□5514□□□ | EZAELN3004B742 | 4.00 | 60 x 95 x 114 | 1.3 |
| 0.75 | | E84AV□□□7514□□□ | | | | |
| 1.10 | | E84AV□□□1124□□□ | EZAELN3006B492 | 6.00 | 69 x 95 x 117 | 1.5 |
| 1.50 | | E84AV□□□1524□□□ | | | | |
| 2.20 | | E84AV□□□2224□□□ | EZAELN3008B372 | 8.00 | 85 x 120 x 137 | 1.9 |
| 3.00 | | E84AV□□□3024□□□ | | | | |

Inverter Drives 8400 BaseLine



Accessories


Brake switch


The brake switch consists of a rectifier and an electronic circuit breaker for the switching of an electromechanical brake switch. The brake switch is mounted on the control cabinet plate by means of two screws. Control is performed using a digital output on the inverter.



Brake switch

| Mode | Features | Product key |
|-------------------------|--|-------------|
| Half-wave rectification | <ul style="list-style-type: none">• Input voltage: AC 320 ... 550 V• Output voltage: DC 180 V (at AC 400 V), DC 225 V (at AC 500 V)• Max. brake current: DC 0.61 A• IP00 degree of protection | E82ZWBRE |
| Bridge rectification | <ul style="list-style-type: none">• Input voltage: AC 180 ... 317 V• Output voltage: DC 205 V (at AC 230 V)• Max. brake current: DC 0.54 A• IP00 degree of protection | E82ZWBRB |

 Data sheet on E82ZWBRE brake switch
DS_Brake_8400_0001
Available for download at www.lenze.de/dsc

 Data sheet on E82ZWBRB brake switch
DS_Brake_8400_0002
Available for download at www.lenze.de/dsc

Inverter Drives 8400 BaseLine



Accessories

USB diagnostic adapter

The operation, parameter setting and diagnostics of the Inverter Drives 8400 and the Servo Drives 9400 via the L-force diagnostics is made with the keypad X400 or a PC. The connection of a PC can be made via a USB interface and the USB diagnostic adapter.


For connecting the USB diagnostic adapter with the L-force diagnostics interface (DIAG) at the inverter, three different connecting cables are separately available in the lengths 2.5 m, 5 m and 10 m. The connection can be established during operation. The engineering tools EASY Starter or Engineer can be used to carry out the operation, parameter setting or diagnostics of the inverters. Both tools have simple intuitive surfaces. This enables a quick and easy commissioning.

Optionally to the USB diagnostic adapter, the PC system bus adapter can be used. For this purpose, a CANopen interface must be available at the inverter.



USB diagnostic adapter incl. connecting cable to the PC

- The engineering tools EASY Starter or Engineer are used for operation, parameter setting and diagnostics of the inverters.

| Mode | | Features | Product key |
|------------------------|--|---|-------------|
| USB diagnostic adapter |  | <ul style="list-style-type: none"> • Input-side voltage supply via USB connection on PC • Output-side voltage supply via inverter's diagnostic interface • Diagnostic LEDs • Electrical isolation of PC and inverter • Hot-pluggable | E94AZCUS |

4.8

Connecting cables for USB diagnostic adapter

| Mode | Features | Product key |
|---|-----------------|-------------|
| Connecting cable for USB diagnostic adapter | • Length: 2.5 m | EWL0070 |
| | • Length: 5 m | EWL0071 |
| | • Length: 10 m | EWL0072 |

Inverter Drives 8400 BaseLine

Accessories



PC system bus adapter

Instead of a PC, the 8400 inverter drives can alternatively be operated, parameterised and diagnosed using the CANopen interface and a PC system bus adapter, which is required instead of a USB diagnostic adapter. This adapter plugs into the parallel interface or the USB connection of the PC. The corresponding drivers are installed automatically. Depending on the version, the adapter is supplied with voltage via the DIN, PS2 or USB connection of the PC. The CANopen interface is integrated or available with a variant (BaseLine C).

Advantage:

- Operation, parameterisation and diagnostics in parallel with the keypad
- In interconnected systems, multiple inverters can be addressed simultaneously from one point (remote parameterisation via CANopen)



EMF2173IBV003 adapter

| Mode | Features | Product key |
|-----------------------|--|---------------|
| PC system bus adapter | • Voltage supply via DIN port on PC | EMF2173IB |
| | • Voltage supply via PS2 connection on PC | EMF2173IBV002 |
| | • Voltage supply via PS2 connection on PC • Electrical isolation from the bus | EMF2173IBV003 |
| | • Voltage supply via USB port on PC • Electrical isolation from the bus | EMF2177IB |
| | | |

Setpoint potentiometer

The setpoint selection (e.g. speed) can be made via an external potentiometer. The setpoint potentiometer is connected to the inverter's analog input terminals. A scale and a rotary knob are also available.



Setpoint potentiometer with scale and rotary knob

| Mode | Product key |
|-------------------------------------|----------------|
| 10 kOhm / 1 Watt potentiometer | ERPD0010K0001W |
| Rotary knob, 36 mm diameter | ERZ0001 |
| Scale 0 ... 100%, 62 mm diameter | ERZ0002 |

Inverter Drives 8400 BaseLine

Accessories



