

L-force

Inverter Drives 8400



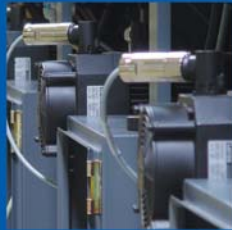
Precisely tailored to your application



Lenze

This is what we stand for.

You want to implement your machine and plant concepts efficiently and easily or optimise existing concepts to reduce costs? Then, Lenze is the partner you are looking for. For more than 60 years, drive and automation systems have been our core competence.



Drive and automation technology set in motion by Lenze – for example in logistics centres, in the textile and printing industry, in the automotive industry or as the driving force behind robots.

Lenze | about us

We can offer you automation solutions including control, visualisation and drive technology from a single source. Our drive systems will improve the performance of your machines. From project planning to commissioning, we have the know-how, whilst our international sales and service network can provide you with expert help and advice at any time.

Cut your process costs and increase your ability to compete. Let us analyse your drive technology tasks and support you with made-to-measure solutions. We can take an integrated approach to projects thanks to the scalability of our products and the scope of the overall portfolio. We can get the best from your machines and systems.



At your side all over the world – with thorough and professional support from our motivated team.

L-force | Your future is our drive

L-force - your future is our drive

L-force is our new product philosophy introduced in response to the need to reduce costs, save time and increase efficiency. This generation of drive and automation technology sets innovation, flexibility, usability and system culture in perfect harmony.

L-force is innovation

In order to offer you more options and (added) value, we are constantly working to improve our solution still further.

L-force means flexibility

Performance, functional range, software, technical services and after-sales service - you get exactly the combination you need.

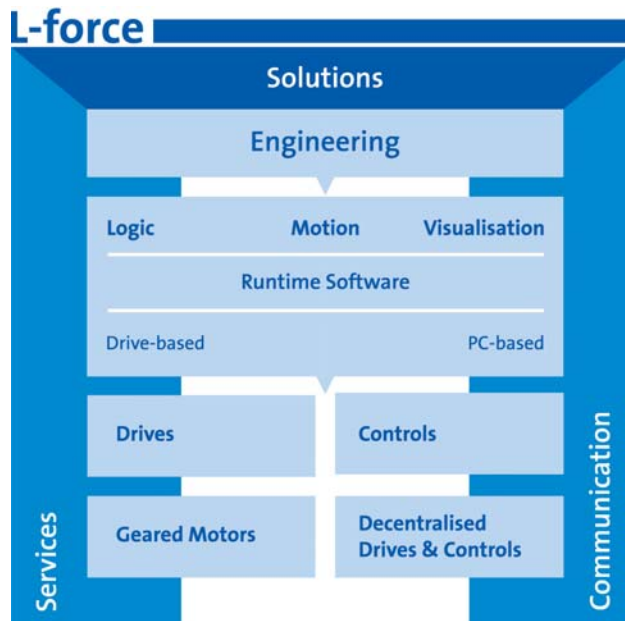
L-force means usability

Commissioning is made easier thanks to preconfigured solutions and simple, function-based engineering.

L-force means system

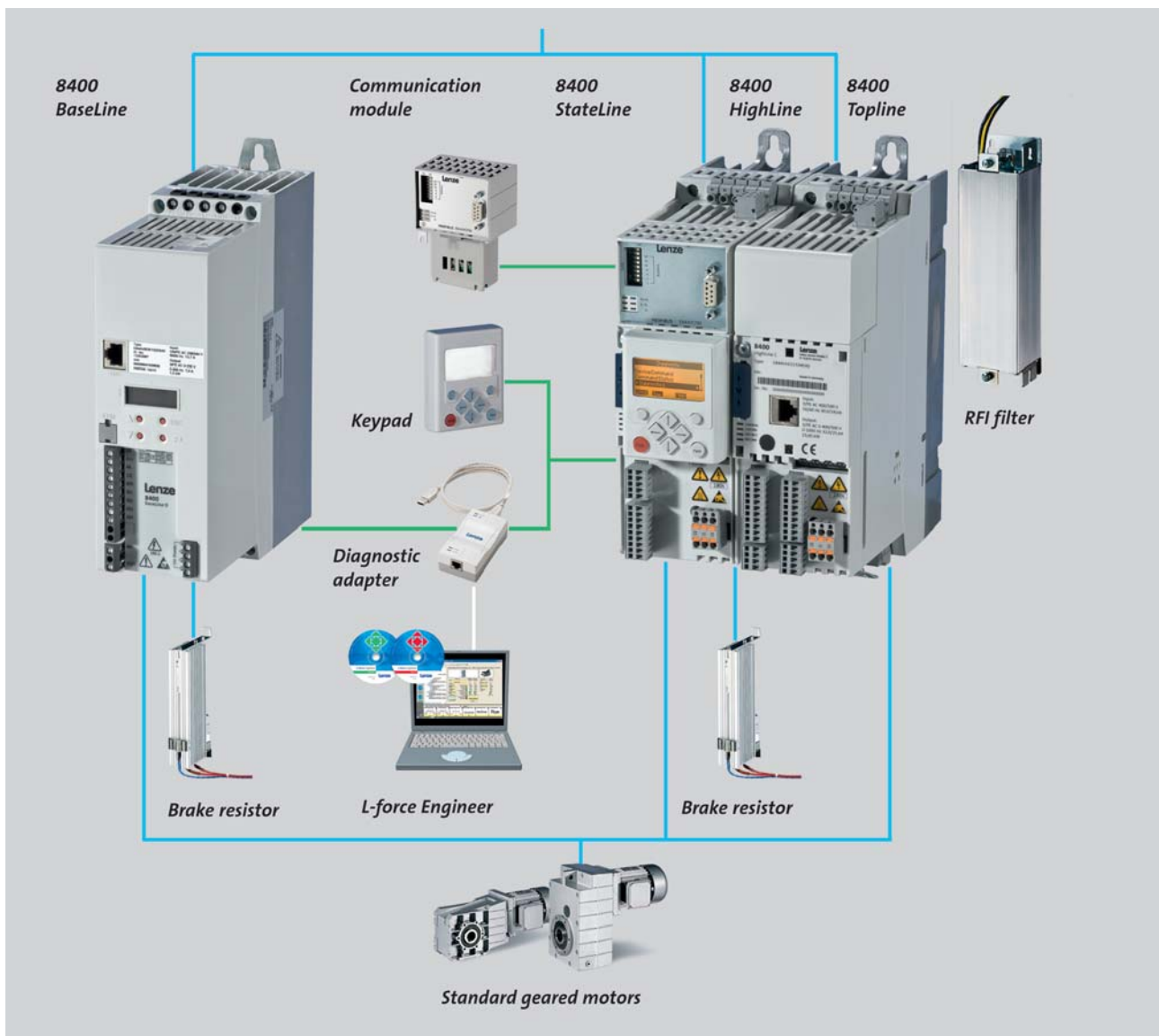
With L-force, everything is perfectly matched.

Let us help you shape your future.



L-force is an integrated range of components, solutions, systems and technical services. The overview shows the overall portfolio along with the individual product/solution segments.

System overview | 8400 Inverter Drives



Other catalogues

Frequency inverters and accessories for the L-force Inverter Drives 8400 series in the power range from 0.25 to 45 kW can be found in this catalogue. Additional components and system solutions can be found in the following catalogues:

- ▶ smd, 8200 vector, 8200 motec and 9300 vector frequency inverters up to 90 kW can be found in the inverters catalogue
- ▶ Servo Drives 9400 up to 400 kW can be found in the Servo Drives 9400 catalogue.
- ▶ 9300 servo inverter and ECS servo system up to 75 kW are shown in the catalogue Servo Inverters
- ▶ Controllers, industrial PCs, I/O systems and monitor panels are shown in the catalogues Controller-based Automation and PC based Automation.
- ▶ Standard motors are shown in the catalogue Three-phase Motors.
- ▶ Standard geared motors are shown in the catalogue G-motion const.

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L-force Engineer

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8400 Inverter Drives

Product information

Product key

E84AV S C E 751 2 S X x

Design

- BD – BaseLine D (0.25 ... 3.0 kW)
- BC – BaseLine C (0.25 ... 3.0 kW)¹⁾
- SC – StateLine C (0.25 ... 45.0 kW)¹⁾
- HC – HighLine C (0.25 ... 45.0 kW)¹⁾
- TC – TopLine C (0.55 ... 45.0 kW)¹⁾

Mounting type

- E – Built-in unit
- D – Push-through technique (0.25 ... 15.0 kW)²⁾
- C – Cold plate technology (0.25 ... 15.0 kW)²⁾

Power

251 – 0.25 kW	552 – 5.5 kW
371 – 0.37 kW	752 – 7.5 kW
551 – 0.55 kW	113 – 11.0 kW
751 – 0.75 kW	153 – 15.0 kW
112 – 1.1 kW	183 – 18.5 kW
152 – 1.5 kW	223 – 22.0 kW
222 – 2.2 kW	303 – 30.0 kW
302 – 3.0 kW	373 – 37.0 kW
402 – 4.0 kW	453 – 45.0 kW

Voltage class

- 2 – 230/240 V, 1/N/PE AC (0.25 ... 2.2 kW)
- 4 – 400/500 V, 3/PE AC (0.37 ... 45.0 kW)

Ambient conditions

- S – Standard (0.25 ... 15.0 kW)
- V – Harsh environment (coated printed circuit boards, 0.25 ... 45.0 kW)²⁾

Safety engineering

- X – Without safety engineering
- B – With safety engineering (STO)²⁾

¹⁾ CANopen on board

²⁾ 8400 StateLine C, HighLine C and TopLine C





Equipment

Pluggable mains connection*

Pluggable connection DC-bus connection
(400 V types)

Pluggable relay connection*

Communication module*
optional

Safety engineering (STO)*
optional

Memory module
▶ pluggable
▶ contains all drive data

L-force diagnostics interface
for USB adapter with PC connection or keypad

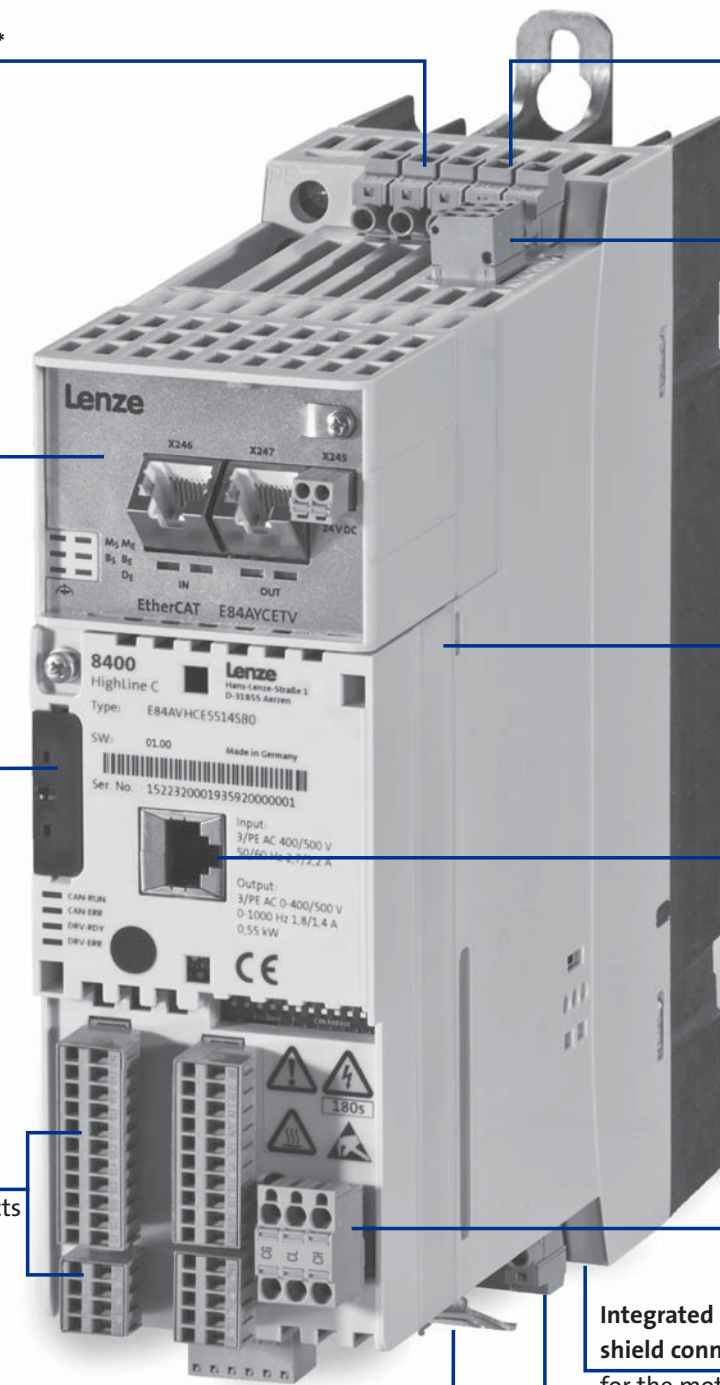
Pluggable control terminals*
with spring contacts

CANopen on board
▶ DS301-compliant
▶ T plug

Integrated shield connection*
for the motor cable

Integrated shield connection
for control cables

Pluggable motor connection*



* for 8400 StateLine, HighLine and TopLine



8400 Inverter Drives

Product information

List of abbreviations

b	[mm]	Dimensions
C_{th}	[kW]	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)



About this catalogue

This catalogue contains all the components that make up the Inverter Drives 8400 product range and is a document that you can use to select and order your products. You can find comprehensive project planning information in the Operating Instructions and System Manuals for the relevant products. The same product range is also covered in the DSC electronic catalogue, which is available on CD or online at: www.lenze.com/dsc

You can also download additional information (e.g. rated data) for certain components from the Internet. These components are marked with the following arrow symbol and a corresponding identifier printed in bold.

→ Rated data and dimension sheets

DS_GD_8400_0001

Available for download at www.lenze.de/dsc

Just enter this identifier (e.g. **DS_8400_0001**) as the search term and you will get the information as a PDF file.

Inverters and accessories

All components of the 8400 Inverter Drive range can be selected easily and quickly via a uniform product key.

For improved clarity, different drive models are represented by a wildcard.

- ▶ □ is used, for example, to group the various versions, e.g. E84AV□□E7512SX0, with □ acting as a wildcard for BC (BaseLine C), BD (BaseLine D), SC (StateLine C), HC (HighLine C) or TC (TopLine C).



8400 Inverter Drives

Product information

The Rightsizing principle

We call it Rightsizing: The Inverter Drives 8400 have been designed for consistent process optimisation – throughout all phases of the value-added chain. They reduce your outlay from selection onwards, via project planning, production and commissioning and beyond to service.

Rightsized for a diverse range of applications

Do you want to control or regulate motors, or achieve positioning with or without feedback? Then select the inverter that precisely meets your requirements from the Inverter Drives 8400 scaled range. What's more, that is all from a power range of 0.25 kW to 45 kW.

Rightsized for increased productivity

The functionality and drive behaviour of the 8400 series – BaseLine, StateLine, HighLine and TopLine – develop consistently from one to the next which makes your selection process simple. The diagnostics connections and tools, operation and parameter settings are all identical across each design. The strengths of the 8400 series really prove their superiority when you use different models in your application.

Rightsized for the future

Upgrades at a later date are no problem. If the features of a StateLine no longer suffice, you can easily replace it with a HighLine – without having to redesign your control cabinet. Combined with environmentally-friendly production, compliant with ISO 14001 and RoHS – this makes the series future-proof.

Rightsized for quick start-up

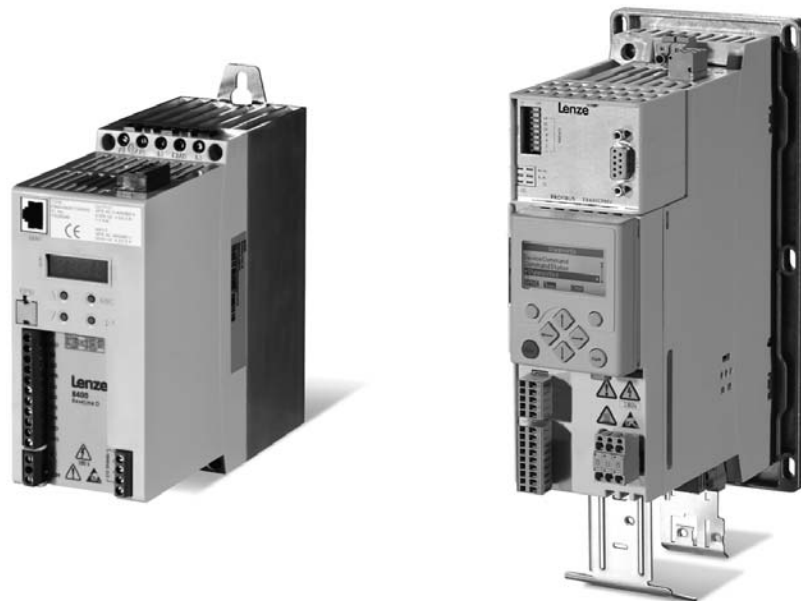
The inverters are supplied complete with integrated shield connections. This reduces the time required to prepare for and carry out assembly work. Simply select predefined applications to tailor the frequency inverter to meet the requirements of your application. In the simplest case scenario, all you need to do is set two parameters: "Application" and "Setpoint source".

Rightsized for optimum operation

When developing human machine interfaces we never lose sight of the importance of the human element. Whether you are working with a keypad or on a PC, you can rely on the support of intuitive user menus.

Rightsized for rapid service

Diagnostics and parameter setting by means of remote maintenance mean that service can be provided quickly and cost-effectively, wherever you are in the world. Thanks to the memory module, integrated shield connections and pluggable terminals, drives can be replaced quickly, thereby reducing machine downtimes.



8400 BaseLine, StateLine (here, with Cold Plate technology), HighLine and TopLine



Four versions, clearly scaled

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.

8400 StateLine - for controlled motion

The 8400 StateLine has been designed specifically for drives with or without speed feedback and is used wherever networking via bus systems is required. Furthermore, integrated brake handling contributes to a significant reduction in wear on service brakes. Even very frequent mains switching is unable to ruffle the feathers of the StateLine, as the input circuit is protected against overload.

The 8400 StateLine takes over applications whose complex requirements go beyond the capabilities of the BaseLine. It is also ideal for applications such as palletizers, extruders, filling systems or travelling/variable speed drives.

8400 HighLine - for positioning tasks

In addition to the possibilities of the 8400 StateLine, the 8400 HighLine has an integrated point-to-point positioning system. This makes it possible to store, among other things, 15 selectable position destinations, including the associated travel profile, e.g. acceleration, in the inverter. The higher-level control systems selects these position sets and stipulates the sequence of events. The incremental encoder signal is evaluated via two digital inputs, although, in many applications, feedback can be dispensed with.

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

8400 TopLine - for servo applications

8400 TopLine – the inverter with servo qualities within the 8400 series. Equipped with everything needed for a high dynamic response and precision in complex applications. In addition to a resolver input, for example, there is also a multiple encoder input that is a very useful addition to the spectrum of usable feedback systems. In addition, not only asynchronous motors but also the more dynamic synchronous motors are supported.

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

The 8400 TopLine is particularly recommended for pick -and- place applications.





8400 Inverter Drives

Product information

Functions and features

Mode	8400 BaseLine	8400 StateLine
Control types, motor control	V/f control without encoder (linear or square-law) Sensorless vector control (torque/speed)	V/f control without encoder (linear or square-law) Sensorless vector control (torque/speed) V/f control with encoder
Basic functions	Application-oriented commissioning (predefined application) Freely assignable user menu Data logger DC brake function Flying restart circuit S-shaped ramps for smooth acceleration Max. output frequency 300 Hz PID controller 3 fixed frequencies 180 % overload current (3 s)	Application-oriented commissioning (predefined application) Freely assignable user menu Data logger DC brake function Flying restart circuit S-shaped ramps for smooth acceleration Max. output frequency 1000 Hz PID controller 15 fixed frequencies 200% overload current (3 s) "VFC eco" energy-saving function ¹⁾ Parameter change-over Masking frequencies Switch-off positioning (without encoder) Braking operation without brake resistor Brake management for brake control with low rate of wear Inversion of motor phase sequence Logical functions, comparator, counter, arithmetic function Function block interconnection for input and output signals
Monitoring and protective measures	Short circuit Earth fault Overvoltage Motor stalling I ² x t monitoring	Short circuit Earth fault Overvoltage Motor stalling I ² x t monitoring Motor phase failure Mains phase failure Protection against restart for cyclic mains switching Motor overtemperature (input for PTC or thermal contact)
Diagnostics		
Diagnostic interface	Integrated For USB diagnostic adapter in PC connection	Integrated For USB diagnostic adapter with PC connection or X400 keypad
Status display	4 LEDs	4 LEDs
Braking operation		
Brake chopper	Integrated (400 V types)	Integrated
Brake resistor	External (400 V types)	External

¹⁾ In preparation



Functions and features

Mode	8400 HighLine	8400 TopLine
Control types, motor control	V/f control without encoder (linear or square-law) Sensorless vector control (torque/speed) V/f control with encoder Servo control (asynchronous motor)	V/f control without encoder (linear or square-law) Sensorless vector control (torque/speed) V/f control with encoder Servo control (asynchronous motor) Servo control (synchronous motor)
Basic functions	Application-oriented commissioning (predefined application) Freely assignable user menu Data logger DC brake function Flying restart circuit S-shaped ramps for smooth acceleration Max. output frequency 1000Hz PID controller 15 fixed frequencies 200% overload current (3 s) "VFC eco" energy-saving function Parameter change-over Masking frequencies Switch-off positioning (without encoder) Braking operation without brake resistor Brake management for brake control with low rate of wear Inversion of motor phase sequence Logical functions, comparator, counter, arithmetic function Function block interconnection for input and output signals Free function block interconnection Point-to-point positioning	Application-oriented commissioning (predefined application) Freely assignable user menu Data logger DC brake function Flying restart circuit S-shaped ramps for smooth acceleration Max. output frequency 1000Hz PID controller 15 fixed frequencies 200% overload current (3 s) "VFC eco" energy-saving function Parameter change-over Masking frequencies Switch-off positioning (without encoder) Braking operation without brake resistor Brake management for brake control with low rate of wear Inversion of motor phase sequence Logical functions, comparator, counter, arithmetic function Function block interconnection for input and output signals Free function block interconnection Point-to-point positioning
Monitoring and protective measures	Short circuit Earth fault Overvoltage Motor stalling I ² x t monitoring Motor phase failure Mains phase failure Protection against restart for cyclic mains switching Motor overtemperature (input for PTC or thermal contact)	Short circuit Earth fault Overvoltage Motor stalling I ² x t monitoring Motor phase failure Mains phase failure Protection against restart for cyclic mains switching Motor overtemperature (input for PTC or thermal contact, KTY evaluation)
Diagnostics		
Diagnostic interface	Integrated For USB diagnostic adapter with PC connection or X400 keypad	Integrated For USB diagnostic adapter with PC connection or X400 keypad
Status display	4 LEDs	6 LEDs
Braking operation		
Brake chopper	Integrated	Integrated
Brake resistor	External	External



8400 Inverter Drives

Product information

Control connections

Mode	8400 BaseLine	8400 StateLine
Analog inputs		
Number	1	1
Resolution	Switchable: voltage or current input	Optional: voltage or current input
Value range	10 bits	10 bits
	0 ... 10V, 0/4 ... 20mA	0 ... +/- 10V, 0/4 ... 20 mA
Analog outputs		
Number		1
Resolution		10 bits
Value range		0 ... 10V
Digital inputs		
Number	5	5
Switching level	PLC (IEC 61131-2)	PLC (IEC 61131-2)
Max. input current	11mA	11mA
Function		
Digital outputs		
Number	1	1
Switching level	PLC (IEC 61131-2)	PLC (IEC 61131-2)
Max. output current	50mA	50mA
Relay		
Number	1	1
Contact	NO contact	Changeover contact
AC connection	250V, 3A	250V, 3A
DC connection	24V, 2A ... 240V, 0.16A	24V, 2A ... 240V, 0.16A
External DC supply¹⁾		
Rated voltage		24 V
Interfaces		
CANopen	Integrated (BaseLine C) Functional insulation Max. baud rate 500 kbps	Integrated Functional insulation Max. baud rate 500 kbps
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
Resolver input		

¹⁾ For mains-independent control electronics supply

→ Circuit diagrams

DS_SP_8400_0001

Available for download at www.lenze.de/dsc



Control connections

Mode	8400 HighLine	8400 TopLine
Analog inputs		
Number	2 Optional: voltage or current input	2 Optional: voltage or current input
Resolution	10 bits	10 bits + sign
Value range	0 ... +/- 10V, 0/4 ... 20 mA	0 ... +/- 10V, 0/4 ... 20 mA
Analog outputs		
Number	2 Optional: voltage or current output	2 Optional: voltage or current output
Resolution	10 bits	10 bits
Value range	0 ... 10V, 0/4 ... 20 mA	0 ... 10V, 0/4 ... 20 mA
Digital inputs		
Number	8	8
Switching level	PLC (IEC 61131-2)	PLC (IEC 61131-2)
Max. input current	11 mA	11 mA
Function	2 inputs, can optionally be used as a frequency input (10 kHz, 2-track)	2 inputs, can optionally be used as a frequency input (10 kHz, 2-track)
Digital outputs		
Number	4	4
Switching level	PLC (IEC 61131-2)	PLC (IEC 61131-2)
Max. output current	1 x 2.5A, (basic insulation, with spark suppressor, e.g. for 24 V service brake) 3 x 50 mA	1 x 2.5A, (basic insulation, with spark suppressor, e.g. for 24 V service brake) 3 x 50 mA
Relay		
Number	1	1
Contact	Changeover contact	Changeover contact
AC connection	250V, 3A	250V, 3A
DC connection	24V, 2A ... 240V, 0.16A	24V, 2A ... 240V, 0.16A
External DC supply		
Rated voltage	24 V	24 V
Interfaces		
CANopen	Integrated Functional insulation Max. baud rate 1000 kbps	Integrated Functional insulation Max. baud rate 1000 kbps
Extensions	Optional Communication module	Optional Communication module
Safety engineering	Optional "Safe Torque Off (STO)"	Optional "Safe Torque Off (STO)"
Drive interface		
Encoder input	Via 2 digital inputs, HTL, 2-track 100 kHz, Can also be used as a frequency input	Via 2 digital inputs, HTL, 2-track 100 kHz, Can also be used as a frequency input Sub-D, 15-pin Multiple encoder input for: TTL incremental encoder, SSI absolute value encoder (single-turn/multi-turn)
Resolver input		Sub-D, 9-pin

¹⁾ For mains-independent control electronics supply

→ Circuit diagrams
DS_SP_8400_0001
 Available for download at www.lenze.de/dsc



8400 Inverter Drives

Product information

Standards and operating conditions

Mode Product			8400 BaseLine	8400 StateLine	8400 HighLine	8400 TopLine
Conformity Type			CE: Low-Voltage Directive 2006/95/EC			
Approval UL 508C ¹⁾			Power Conversion Equipment (File-No. E170350)	Power Conversion Equipment (file no. E132659)		
Certification			GOST-R			
Enclosure EN 60529 ²⁾ NEMA 250			IP20 Type 1			
Climatic conditions Storage (EN 60721-3-1) Transport (EN 60721-3-2) Operation (EN 60721-3-3) Power reduction above 45 °C			1K3 (temperature: -25 °C ... +60 °C) 2K3 (temperature: -25 °C ... +70 °C) 3K3 (temperature: -10°C ... +55°C) 2.5% / K			
Site altitude Amsl power reduction above 1000 m	H_{max}	[m] [%/1000 m]	4000 5.00			
Vibration resistance Transport (EN 60721-3-2) Operation (EN 61800-5-1) Operation (Germanischer Lloyd)			2M2 10 Hz ≤ f ≤ 57 Hz: ± 0.075 mm amplitude, 57 Hz ≤ f ≤ 150 Hz: 1.0 g 5 Hz ≤ f ≤ 13.2 Hz ± 1 mm amplitude, 13.2 Hz ≤ f ≤ 100 Hz: 0.7 g			

¹⁾ In preparation for 30, 37 and 45 kW

²⁾ Mounted and ready-to-use

Mode Product			8400 BaseLine	8400 StateLine	8400 HighLine	8400 TopLine
Supply form			Systems with earthed star point (TN and TT systems)	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: cable-guided, category C2 up to 25 m shielded motor cable ³⁾			
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			


³⁾ Depending on the drive, shielded motor cable up to 50 m is possible




Rated data

- ▶ The data is valid for operation at 230 V AC.
- ▶ Unless otherwise specified, the data refers to the default setting.

→ Rated data and dimension sheets
DS_GD_8400_0001
 Available for download at www.lenze.de/dsc

				
Typical motor power 4-pole asynchronous motor	P	[kW]	0.25	0.37
Product key ¹⁾ Inverter			E84AV□□□2512□□0	E84AV□□□3712□□0
Mains voltage range	U_{AC}	[V]	1/PE AC 180 V-0 % ... 264 V+0 %, 45 Hz-0 % ... 65 Hz+0 %	
Rated output current ²⁾	I_{N, out}	[A]	1.70	2.40
Max. cable length ³⁾ Unshielded motor cable	I_{max}	[m]	100	
Shielded motor cable	I_{max}	[m]	50	

1) →  8 - See product key

2) Overload: 150% * I_{N, out} for 60 s, 200% (BaseLine 180%) * I_{N, out} for 3 s

3) Technically possible cable lengths, irrespective of EMC requirements

Dimensions

Dimensions - BaseLine

Dimensions				
Height	h	[mm]	165	165
Width	b	[mm]	70	70
Depth ⁴⁾	t	[mm]	144	144

4) Depth of 8400 BaseLine with CANopen (BaseLine C), additional 8 mm

Dimensions - built-in unit StateLine, HighLine

Dimensions				
Height	h	[mm]	165	165
Width	b	[mm]	70	70
Depth ⁵⁾	t	[mm]	199	199

5) 8400 StateLine, HighLine and TopLine depth increases by 20 mm with safety engineering



8400 Inverter Drives

Inverter

Rated data

- ▶ The data is valid for operation at 230 V AC.
- ▶ Unless otherwise specified, the data refers to the default setting.

→ Rated data and dimension sheets
DS_GD_8400_0001
 Available for download at www.lenze.de/dsc

Typical motor power 4-pole asynchronous motor	P	[kW]	0.55	0.75
Product key ¹⁾ Inverter			E84AV□□□5512□□0	E84AV□□□7512□□0
Mains voltage range	U_{AC}	[V]	1/PE AC 180 V-0 % ... 264 V+0 %, 45 Hz-0 % ... 65 Hz+0 %	
Rated output current ²⁾	I_{N, out}	[A]	3.00	4.00
Max. cable length ³⁾ Unshielded motor cable	I_{max}	[m]	100	
Shielded motor cable	I_{max}	[m]	50	

¹⁾ → 8 - See product key

²⁾ Overload: 150% * I_{N, out} for 60 s, 200% (BaseLine 180%) * I_{N, out} for 3 s

³⁾ Technically possible cable lengths, irrespective of EMC requirements

Dimensions

Dimensions - BaseLine

Dimensions				
Height	h	[mm]	165	165
Width	b	[mm]	70	70
Depth ⁴⁾	t	[mm]	162	162

⁴⁾ Depth of 8400 BaseLine with CANopen (BaseLine C), additional 8 mm

Dimensions - built-in unit StateLine, HighLine

Dimensions				
Height	h	[mm]	215	215
Width	b	[mm]	70	70
Depth ⁵⁾	t	[mm]	199	199

⁵⁾ 8400 StateLine, HighLine and TopLine depth increases by 20 mm with safety engineering

Dimensions, TopLine built-in unit


Dimensions				
Height	h	[mm]	215	215
Width	b	[mm]	70	70
Depth ⁵⁾	t	[mm]	214	214




Rated data

- ▶ The data is valid for operation at 230 V AC.
- ▶ Unless otherwise specified, the data refers to the default setting.

→ Rated data and dimension sheets
DS_GD_8400_0001
 Available for download at www.lenze.de/dsc

					
Typical motor power 4-pole asynchronous motor	P	[kW]	1.10	1.50	2.20
Product key ¹⁾ Inverter			E84AV□□□1122□□0	E84AV□□□1522□□0	E84AV□□□2222□□0
Mains voltage range	U_{AC}	[V]	1/PE AC 180 V-0 % ... 264 V+0 %, 45 Hz-0 % ... 65 Hz+0 %		
Rated output current ²⁾	I_{N, out}	[A]	5.50	7.00	9.50
Max. cable length ³⁾ Unshielded motor cable	I_{max}	[m]		100	
Shielded motor cable	I_{max}	[m]		50	

¹⁾ →  8 - See product key

²⁾ Overload: 150% * I_{N, out} for 60 s, 200% (BaseLine 180%) * I_{N, out} for 3 s

³⁾ Technically possible cable lengths, irrespective of EMC requirements

Dimensions

Dimensions - BaseLine

Dimensions	h	[mm]			
Height	h	[mm]	165	215	215
Width	b	[mm]	70	70	70
Depth ⁴⁾	t	[mm]	162	162	162

⁴⁾ Depth of 8400 BaseLine with CANopen (BaseLine C), additional 8 mm

Dimensions - built-in unit StateLine, HighLine

Dimensions	h	[mm]			
Height	h	[mm]	270	270	270
Width	b	[mm]	70	70	70
Depth ⁵⁾	t	[mm]	199	199	199

⁵⁾ 8400 StateLine, HighLine and TopLine depth increases by 20 mm with safety engineering

Dimensions, TopLine built-in unit

Dimensions	h	[mm]			
Height	h	[mm]	270	270	270
Width	b	[mm]	70	70	70
Depth ⁵⁾	t	[mm]	214	214	214



8400 Inverter Drives

Inverter

Rated data

- ▶ The data is valid for operation at 400 V AC.
- ▶ Unless otherwise specified, the data refers to the default setting.

→ Rated data and dimension sheets
DS_GD_8400_0002
 Available for download at www.lenze.de/dsc

Typical motor power 4-pole asynchronous motor	P	[kW]	0.37	0.55	0.75
Product key ¹⁾			E84AV□□□3714□□0	E84AV□□□5514□□0	E84AV□□□7514□□0
Mains voltage range	U _{AC}	[V]	3/PE AC 320 V-0 % ... 550 V+0 %, 45 Hz-0 % ... 65 Hz+0 %		
DC supply ³⁾	U _{DC}	[V]	DC 455 V -0 % ... 775 V +0 %		
Rated output current ²⁾	I _{N, out}	[A]	1.30	1.80	2.40
Max. cable length ⁴⁾ Unshielded motor cable	I _{max}	[m]	100		
Shielded motor cable	I _{max}	[m]	50		

¹⁾ → 8 - See product key

²⁾ Overload: 150% * I_{N, out} for 60 s, 200% (BaseLine 180%) * I_{N, out} for 3 s

³⁾ 8400 BaseLine only with connector (order designation: EWS0074/M)

⁴⁾ Technically possible cable lengths, irrespective of EMC requirements

Dimensions

Dimensions - BaseLine

Dimensions					
Height	h	[mm]	165	165	165
Width	b	[mm]	70	70	70
Depth ⁵⁾	t	[mm]	165	165	165

⁵⁾ Depth of 8400 BaseLine with CANopen (BaseLine C), additional 8 mm

Dimensions - built-in unit StateLine, HighLine

Dimensions					
Height	h	[mm]	215	215	215
Width	b	[mm]	70	70	70
Depth ⁶⁾	t	[mm]	199	199	199

⁶⁾ 8400 StateLine, HighLine and TopLine depth increases by 20 mm with safety engineering

Dimensions, TopLine built-in unit

Dimensions					
Height	h	[mm]	215	215	215
Width	b	[mm]	70	70	70
Depth ⁶⁾	t	[mm]	214	214	214



Rated data

- ▶ The data is valid for operation at 400 V AC.
- ▶ Unless otherwise specified, the data refers to the default setting.

→ Rated data and dimension sheets
DS_GD_8400_0002
 Available for download at www.lenze.de/dsc

Typical motor power 4-pole asynchronous motor	P	[kW]	1.10	1.50	2.20	3.00
Product key ¹⁾			E84AV□□□1124□□0	E84AV□□□1524□□0	E84AV□□□2224□□0	E84AVB□□3024□□0 E84AV□□□3024□□S
Mains voltage range	U _{AC}	[V]	3/PE AC 320 V-0 % ... 550 V+0 %, 45 Hz-0 % ... 65 Hz+0 %			
DC supply ³⁾	U _{DC}	[V]	DC 455 V -0 % ... 775 V +0 %			
Rated output current ²⁾	I _{N, out}	[A]	3.20	3.90	5.90	7.30
Max. cable length ⁴⁾ Unshielded motor cable	I _{max}	[m]	100			
Shielded motor cable	I _{max}	[m]	50			

1) → 8 - See product key

2) Overload: 150% * I_{N, out} for 60 s, 200% (BaseLine 180%) * I_{N, out} for 3 s

3) 8400 BaseLine only with connector (order designation: EWS0074/M)

4) Technically possible cable lengths, irrespective of EMC requirements

Dimensions

Dimensions - BaseLine

Dimensions						
Height	h	[mm]	165	165	215	215
Width	b	[mm]	70	70	70	70
Depth ⁵⁾	t	[mm]	162	162	162	162

⁵⁾ Depth of 8400 BaseLine with CANopen (BaseLine C), additional 8 mm

Dimensions - built-in unit StateLine, HighLine

Dimensions						
Height	h	[mm]	270	270	270	270
Width	b	[mm]	70	70	70	70
Depth ⁶⁾	t	[mm]	199	199	199	199

⁶⁾ 8400 StateLine, HighLine and TopLine depth increases by 20 mm with safety engineering

Dimensions, TopLine built-in unit

Dimensions						
Height	h	[mm]	270	270	270	270
Width	b	[mm]	70	70	70	70
Depth ⁶⁾	t	[mm]	214	214	214	214




8400 Inverter Drives


Inverter

Rated data

- ▶ The data is valid for operation at 400 V AC.
- ▶ Unless otherwise specified, the data refers to the default setting.

→ Rated data and dimension sheets
DS_GD_8400_0002
 Available for download at www.lenze.de/dsc

				
Typical motor power 4-pole asynchronous motor	P	[kW]	4.00	5.50
Product key ¹⁾			E84AV□□□4024□□0	E84AV□□□5524□□0
Mains voltage range	U_{AC}	[V]	3/PE AC 320 V-0 % ... 550 V+0 %, 45 Hz-0 % ... 65 Hz+0 %	
DC supply	U_{DC}	[V]	DC 455 V -0 % ... 775 V +0 %	
Rated output current ²⁾	I_{N, out}	[A]	9.50	13.0
Max. cable length ³⁾				
Unshielded motor cable	I_{max}	[m]	100	
Shielded motor cable	I_{max}	[m]	50	

¹⁾ →  8 - See product key

²⁾ Overload: 150% * I_{N, out} for 60 s, 200% (Baseline 180%) * I_{N, out} for 3 s

³⁾ Technically possible cable lengths, irrespective of EMC requirements

Dimensions

Dimensions - built-in unit StateLine, HighLine

Dimensions				
Height	h	[mm]	270	270
Width	b	[mm]	140	140
Depth ⁴⁾	t	[mm]	199	199

⁴⁾ 8400 StateLine, HighLine and TopLine depth increases by 20 mm with safety engineering

Dimensions, TopLine built-in unit


Dimensions				
Height	h	[mm]	270	270
Width	b	[mm]	140	140
Depth ⁴⁾	t	[mm]	214	214




Rated data

- ▶ The data is valid for operation at 400 V AC.
- ▶ Unless otherwise specified, the data refers to the default setting.

→ Rated data and dimension sheets
DS_GD_8400_0002
 Available for download at www.lenze.de/dsc

					
Typical motor power 4-pole asynchronous motor	P	[kW]	7.50	11.0	15.0 ³⁾
Product key¹⁾			E84AV□□□7524□□0	E84AV□□□1134□□0	E84AV□□□1534□□0
Mains voltage range	U _{AC}	[V]	3/PE AC 320 V-0 % ... 550 V+0 %, 45 Hz-0 % ... 65 Hz+0 %		
DC supply	U _{DC}	[V]	DC 455 V -0 % ... 775 V +0 %		
Rated output current²⁾	I _{N, out}	[A]	16.5	23.5	32.0
Max. cable length⁴⁾					
Unshielded motor cable	I _{max}	[m]		100	
Shielded motor cable	I _{max}	[m]		50	

¹⁾ →  8 - See product key

²⁾ Overload: 150% * I_r for 60 s, 200% * I_r for 3 s

³⁾ Operation only permitted with mains choke

⁴⁾ Technically possible cable lengths, irrespective of EMC requirements

Dimensions

Dimensions - built-in unit StateLine, HighLine

Dimensions					
Height	h	[mm]	325	325	325
Width	b	[mm]	140	140	140
Depth ⁵⁾	t	[mm]	199	199	199

⁵⁾ 8400 StateLine, HighLine and TopLine depth increases by 20 mm with safety engineering

Dimensions, TopLine built-in unit

Dimensions					
Height	h	[mm]	325	325	325
Width	b	[mm]	140	140	140
Depth ⁵⁾	t	[mm]	214	214	214



8400 Inverter Drives

Inverter

Rated data

- ▶ The data is valid for operation at 400 V AC.
- ▶ Unless otherwise specified, the data refers to the default setting.

→ Rated data and dimension sheets
DS_GD_8400_0002
 Available for download at www.lenze.de/dsc

Typical motor power 4-pole asynchronous motor	P	[kW]	18.5	22.0³⁾
Product key¹⁾			E84AV□□□1834□□0	E84AV□□□2234□□0
Mains voltage range	U _{AC}	[V]	3/PE AC 320 V-0 % ... 550 V+0 %, 45 Hz-0 % ... 65 Hz+0 %	
DC supply	U _{DC}	[V]	DC 455 V -0 % ... 775 V +0 %	
Rated output current²⁾	I _{N, out}	[A]	39.0	47.0
Max. cable length⁴⁾				
Unshielded motor cable	I _{max}	[m]	100	
Shielded motor cable	I _{max}	[m]	100	

¹⁾ → 8 - See product key

²⁾ Overload: 150% * I_r for 60 s, 200% * I_r for 3 s

³⁾ Operation only permitted with mains choke or mains filter

⁴⁾ Technically possible cable lengths, irrespective of EMC requirements

Dimensions

Dimensions - built-in unit StateLine, HighLine

Dimensions				
Height	h	[mm]	350	350
Width	b	[mm]	204	204
Depth ⁵⁾	t	[mm]	250	250

⁵⁾ 8400 StateLine, HighLine and TopLine depth increases by 20 mm with safety engineering

Dimensions, TopLine built-in unit


Dimensions				
Height	h	[mm]	350	350
Width	b	[mm]	204	204
Depth	t	[mm]	265	265




Rated data

- ▶ The data is valid for operation at 400 V AC.
- ▶ Unless otherwise specified, the data refers to the default setting.

→ Rated data and dimension sheets
DS_GD_8400_0002
 Available for download at www.lenze.de/dsc

					
Typical motor power 4-pole asynchronous motor	P	[kW]	30.0 ³⁾	37.0 ³⁾	45.0 ³⁾
Product key¹⁾			E84AV□□□3034□□0	E84AV□□□3734□□0	E84AV□□□4534□□0
Mains voltage range	U _{AC}	[V]	3/PE AC 320 V-0 % ... 550 V+0 %, 45 Hz-0 % ... 65 Hz+0 %		
DC supply	U _{DC}	[V]	DC 455 V -0 % ... 775 V +0 %		
Rated output current²⁾	I _{N, out}	[A]	61.0	76.0	89.0
Max. cable length⁴⁾					
Unshielded motor cable	I _{max}	[m]		100	
Shielded motor cable	I _{max}	[m]		100	

¹⁾ →  8 - See product key

²⁾ Overload: 150% * I_r for 60 s, 200% * I_r for 3 s

³⁾ Operation only permitted with mains choke

⁴⁾ Technically possible cable lengths, irrespective of EMC requirements

Dimensions

Dimensions - built-in unit StateLine, HighLine

Dimensions					
Height	h	[mm]	450	450	450
Width	b	[mm]	250	250	250
Depth ⁵⁾	t	[mm]	250	250	250

⁵⁾ 8400 StateLine, HighLine and TopLine depth increases by 20 mm with safety engineering

Dimensions, TopLine built-in unit

Dimensions					
Height	h	[mm]	450	450	450
Width	b	[mm]	250	250	250
Depth	t	[mm]	265	265	265



8400 Inverter Drives

Inverter

Dimensions

Dimensions - Cold Plate technology StateLine, HighLine

Product key	Typical motor power	Dimensions		
		Height, including fastening	Width, including fastening	Depth
Inverter	4-pole asynchronous motor			
	P	h	b	t
	[kW]	[mm]	[mm]	[mm]
E84AV□□□2512□□0	0.25	186	102	185
E84AV□□□3712□□0	0.37			
E84AV□□□5512□□0	0.55	236	173	163
E84AV□□□7512□□0	0.75			
E84AV□□□1122□□0	1.10	295	137	141
E84AV□□□1522□□0	1.50			
E84AV□□□2222□□0	2.20	321	174	164
E84AV□□□3714□□0	0.37			
E84AV□□□5514□□0	0.55	236	102	141
E84AV□□□7514□□0	0.75			
E84AV□□□1124□□0	1.10	295	137	141
E84AV□□□1524□□0	1.50			
E84AV□□□2224□□0	2.20	321	174	164
E84AV□□□3024□□S	3.00			
E84AV□□□4024□□0	4.00	360	231	164
E84AV□□□5524□□0	5.50			
E84AV□□□7524□□0	7.50	390	231	164
E84AV□□□1134□□0	11.0			
E84AV□□□1534□□0	15.0	390	231	164
E84AV□□□1834□□0	18.5			
E84AV□□□2234□□0	22.0			

- ▶ 8400 StateLine, HighLine and TopLine depth increases by 20 mm with safety engineering

Dimensions, TopLine cold plate technology

Product key	Typical motor power	Dimensions		
		Height, including fastening	Width, including fastening	Depth
Inverter	4-pole asynchronous motor			
	P	h	b	t
	[kW]	[mm]	[mm]	[mm]
E84AV□□□5512□□0	0.55	236	102	178
E84AV□□□7512□□0	0.75			
E84AV□□□1122□□0	1.10	295	173	178
E84AV□□□1522□□0	1.50			
E84AV□□□2222□□0	2.20	236	102	178
E84AV□□□3714□□0	0.37			
E84AV□□□5514□□0	0.55	295	137	178
E84AV□□□7514□□0	0.75			
E84AV□□□1124□□0	1.10	321	174	156
E84AV□□□1524□□0	1.50			
E84AV□□□2224□□0	2.20	360	231	179
E84AV□□□3024□□S	3.00			
E84AV□□□4024□□0	4.00	390	231	179
E84AV□□□5524□□0	5.50			
E84AV□□□7524□□0	7.50	390	231	179
E84AV□□□1134□□0	11.0			
E84AV□□□1534□□0	15.0	390	231	179
E84AV□□□1834□□0	18.5			
E84AV□□□2234□□0	22.0			



Dimensions

Dimensions of push-through technique for StateLine, HighLine

Product key	Typical motor power	Dimensions		
		Height, including fastening	Width, including fastening	Depth (on control cabinet side)
Inverter	4-pole asynchronous motor			
	P	h	b	t
	[kW]	[mm]	[mm]	[mm]
E84AV□□□2512□□0	0.25	186	102	185
E84AV□□□3712□□0	0.37			
E84AV□□□5512□□0	0.55	236	137	163
E84AV□□□7512□□0	0.75			
E84AV□□□1122□□0	1.10	295	102	141
E84AV□□□1522□□0	1.50			
E84AV□□□2222□□0	2.20	321	174	156
E84AV□□□3714□□0	0.37			
E84AV□□□5514□□0	0.55	360	174	156
E84AV□□□7514□□0	0.75			
E84AV□□□1124□□0	1.10	360	174	156
E84AV□□□1524□□0	1.50			
E84AV□□□2224□□0	2.20	360	174	156
E84AV□□□3024□□0	3.00			
E84AV□□□4024□□0	4.00	360	174	156
E84AV□□□5524□□0	5.50			
E84AV□□□7524□□0	7.50	360	174	156
E84AV□□□1134□□0	11.0			
E84AV□□□1534□□0	15.0			

Dimensions, TopLine push-through technique

Product key	Typical motor power	Dimensions		
		Height, including fastening	Width, including fastening	Depth (on control cabinet side)
Inverter	4-pole asynchronous motor			
	P	h	b	t
	[kW]	[mm]	[mm]	[mm]
E84AV□□□5512□□0	0.55	236	102	178
E84AV□□□7512□□0	0.75			
E84AV□□□1122□□0	1.10	295	137	178
E84AV□□□1522□□0	1.50			
E84AV□□□2222□□0	2.20	236	102	156
E84AV□□□3714□□0	0.37			
E84AV□□□5514□□0	0.55	295	137	156
E84AV□□□7514□□0	0.75			
E84AV□□□1124□□0	1.10	321	174	156
E84AV□□□1524□□0	1.50			
E84AV□□□2224□□0	2.20	360	174	156
E84AV□□□3024□□0	3.00			
E84AV□□□4024□□0	4.00	360	174	156
E84AV□□□5524□□0	5.50			
E84AV□□□7524□□0	7.50	360	174	156
E84AV□□□1134□□0	11.0			
E84AV□□□1534□□0	15.0			

- ▶ 8400 StateLine, HighLine and TopLine depth increases by 20 mm with safety engineering



8400 Inverter Drives

Inverter

Weights

The tables below show the weights of frequency inverters without a communication module for built-in units.

Different product versions result in the following additional masses:
 push-through technique version: 0.100 kg.
 safety engineering version: 0.100 kg

Mode	Product key	Mass
		m
		[kg]
8400 BaseLine	E84AV□□□2512□□0	1.2
	E84AV□□□3712□□0	
	E84AV□□□5512□□0	
	E84AV□□□7512□□0	
	E84AV□□□1122□□0	1.4
	E84AV□□□1522□□0	1.9
	E84AV□□□2222□□0	
	E84AV□□□3714□□0	1.2
	E84AV□□□5514□□0	
	E84AV□□□7514□□0	
	E84AV□□□1124□□0	
	E84AV□□□1524□□0	1.4
	E84AV□□□2224□□0	1.9
	E84AVB□□3024□□0	2.1



Mode	Product key	Mass
		m
		[kg]
8400 Stateline 8400 HighLine	E84AV□□□2512□□0	1.3
	E84AV□□□3712□□0	
	E84AV□□□5512□□0	1.8
	E84AV□□□7512□□0	
	E84AV□□□1122□□0	2.1
	E84AV□□□1522□□0	
	E84AV□□□2222□□0	1.8
	E84AV□□□3714□□0	
	E84AV□□□5514□□0	
	E84AV□□□7514□□0	
	E84AV□□□1124□□0	2.1
	E84AV□□□1524□□0	
	E84AV□□□2224□□0	4.4
	E84AV□□□3024□□S	
	E84AV□□□4024□□0	
	E84AV□□□5524□□0	
	E84AV□□□7524□□0	5.8
	E84AV□□□1134□□0	
	E84AV□□□1534□□0	12.0
	E84AV□□□1834□□0	
	E84AV□□□2234□□0	17.2
E84AV□□□3034□□0		
E84AV□□□3734□□0		
E84AV□□□4534□□0		

Mode	Product key	Mass
		m
		[kg]
8400 TopLine	E84AV□□□5512□□0	2.0
	E84AV□□□7512□□0	
	E84AV□□□1122□□0	2.3
	E84AV□□□1522□□0	
	E84AV□□□2222□□0	2.0
	E84AV□□□3714□□0	
	E84AV□□□5514□□0	
	E84AV□□□7514□□0	
	E84AV□□□1124□□0	2.3
	E84AV□□□1524□□0	
	E84AV□□□2224□□0	4.6
	E84AV□□□3024□□S	
	E84AV□□□4024□□0	
	E84AV□□□5524□□0	
	E84AV□□□7524□□0	6.0
	E84AV□□□1134□□0	
	E84AV□□□1534□□0	12.2
	E84AV□□□1834□□0	
E84AV□□□2234□□0	17.4	
E84AV□□□3034□□0		
E84AV□□□3734□□0		
E84AV□□□4534□□0		



Safety system (STO)

The 8400 StateLine, HighLine and TopLine versions are optionally fitted with the safety system "Safe Torque Off STO". This helps you to reduce the amount of work involved in controlling the equipment, save space in the control cabinet and keep wiring to a minimum. The safety system is certified to EN ISO 13849-1 (Cat. 4, PL e), EN 61508/EN 62061 (SIL 3).

As an option, the inverters can be ordered with integrated safety system (STO). The product key of the inverter (see p. 8) has a "B" at the 14th position in this case.

Example: a StateLine 230 V, 0,55 kW, built-in unit with safety system: E84AVSCE5512SB0



8400 StateLine with safety engineering

Memory module

All drive settings for the 8400 are stored on the memory module, which is a pluggable memory chip. You can copy the settings to other memory modules. The advantage for you: much faster commissioning, particularly in series production. Furthermore, 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 ▶ Packaging unit: 12 items 	E84AYM20S/M
	<ul style="list-style-type: none"> ▶ For 8400 StateLine, HighLine and TopLine ▶ Packaging unit: 5 items 	E84AYM10S/M

- ▶ Each inverter is fitted with a memory module ex works

Memory module copier

The memory module copier is a copying system for all memory modules from Lenze. With the help of simple optical user guidance, the data of a module are copied quickly and reliably to another memory module.



Memory module copier

Mode	Features	Product key
Memory module copier	<ul style="list-style-type: none"> ▶ Operation via power supply unit or battery ▶ User guidance by means of LEDs ▶ Usable for 8400 inverter drives, 9400 servo drives as well as smd and SMV frequency inverters 	EZAEDE1000



8400 Inverter Drives

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					
P	U _{AC}			R _N	P _N	C _{th}	h x b x t	m
[kW]	[V]			[Ω]	[W]	[KWs]	[mm]	[kg]
0.25	1 AC 180 ... 264	E84AV□□□2512□□□	ERBM180R050W	180.0	50.0	8	175 x 21 x 40	0.3
0.37		E84AV□□□3712□□□						
0.55		E84AV□□□5512□□□	ERBM100R100W	100.0	100.0	15	240 x 80 x 95	0.5
0.75		E84AV□□□7512□□□						
1.10		E84AV□□□1122□□□	ERBP033R200W	33.0	200.0	30	240 x 41 x 122	1.0
1.50		E84AV□□□1522□□□						
2.20		E84AV□□□2222□□□	ERBP033R300W		300.0	45	320 x 41 x 122	1.4
0.37	3 AC 320 ... 550	E84AV□□□3714□□□	ERBM390R100W	390.0	100.0	15	235 x 21 x 40	0.4
0.55		E84AV□□□5514□□□						
0.75		E84AV□□□7514□□□						
1.10		E84AV□□□1124□□□	ERBP180R200W	180.0	200.0	30	240 x 41 x 122	1.0
1.50		E84AV□□□1524□□□						
2.20		E84AV□□□2224□□□						

► The 8400 BaseLine (400 V drives) requires a connector in order to connect the brake resistor (order designation: 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 ERBP brake resistors
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Brake resistors

For standard applications, we recommend the following combinations:

- E84AV□□□3024□□0 and ERBP180R300W
- E84AV□□□4024□□0 and ERBS047R400W
- E84AV□□□5524□□0 and ERBS047R800W
- E84AV□□□7524□□0 and ERBS027R01K2
- E84AV□□□1134□□0 and ERBS027R01K2
- E84AV□□□1534□□0 and ERBS018R01K4
- E84AV□□□1834□□0 and ERBS015R02K4
- E84AV□□□2234□□0 and ERBS015R02K4.



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

With regard to the E84AV inverter□□□3024□□0, only the ERBP180R300W brake resistor can be used for 8400 BaseLine.

Further possible combinations:

Typical motor power	Mains voltage	Product key		Rated resistance	Rated power	Thermal capacity	Dimensions	Mass	
4-pole asynchronous motor		Inverter	Brake resistor						
P [kW]	U _{AC} [V]			R _N [Ω]	P _N [W]	C _{th} [KW/s]	h x b x t [mm]	m [kg]	
3.00	3 AC 320 ... 550	E84AV□□□3024□□0 E84AV□□□3024□□S	ERBP180R300W	180.0	300.0	45	320 x 41 x 122	1.4	
			ERBP082R200W	82.0	200.0	30		1.0	
			ERBS082R780W		780.0	117	666 x 124 x 122	4.0	
4.00		E84AV□□□4024□□0	ERBP047R200W	47.0	200.0	30	320 x 41 x 122	1.0	
			ERBS047R400W		400.0	60	400 x 110 x 105	2.3	
			ERBS047R800W		800.0	120	710 x 110 x 105	3.9	
ERBP047R200W		200.0	30		320 x 41 x 122	1.0			
ERBS047R400W		400.0	60		400 x 110 x 105	2.3			
5.50		E84AV□□□5524□□0	ERBS047R800W	800.0	120	710 x 110 x 105	3.9		
			E84AV□□□7524□□0	ERBP027R200W	27.0	200.0	30	320 x 41 x 122	1.0
				ERBS027R600W		600.0	90	550 x 110 x 105	3.1
ERBS027R01K2		1200.0		180		1020 x 110 x 105	5.6		
7.50		E84AV□□□7524□□0	ERBP027R200W	200.0		30	320 x 41 x 122	1.0	
			ERBS027R600W	600.0		90	550 x 110 x 105	3.1	
			ERBS027R01K2	1200.0	180	1020 x 110 x 105	5.6		
11.0	E84AV□□□1134□□0	ERBP027R200W	27.0	200.0	30	320 x 41 x 122	1.0		
		ERBS027R600W		600.0	90	550 x 110 x 105	3.1		
		ERBS027R01K2		1200.0	180	1020 x 110 x 105	5.6		
15.0	E84AV□□□1534□□0	ERBS018R800W		18.0	800.0	120	710 x 110 x 105	3.9	
		ERBS018R01K4			1400.0	210	1110 x 110 x 105	6.2	
		ERBS018R02K8	2800.0		420	1110 x 200 x 105	12.0		
18.5	E84AV□□□1834□□0	ERBS015R800W	15.0	800.0	120	710 x 110 x 105	3.9		
		ERBS015R01K2		1200.0	180	1020 x 110 x 105	5.6		
		ERBS015R02K4		2400.0	420	1020 x 200 x 105	10.0		
22.0	E84AV□□□2234□□0	ERBS015R800W		15.0	800.0	120	710 x 110 x 105	3.9	
		ERBS015R01K2			1200.0	180	1020 x 110 x 105	5.6	
		ERBS015R02K4	2400.0		420	1020 x 200 x 105	10.0		
30.0	E84AV□□□3034□□0	ERBG075D01K9	7.5	1900.0	285	486 x 236 x 302	9.5		
37.0	E84AV□□□3734□□0								
45.0	E84AV□□□4534□□0								

- The 8400 BaseLine (400 V drives) requires a connector in order to connect the brake resistor (order designation: EWS0074/M).



8400 Inverter Drives Accessories

Mains chokes

A mains choke is an inductor that is connected to the mains cable of the inverter. Using a mains choke offers the following advantages:

- ▶ **Less system perturbation:**
The wave form of the mains current is a closer approximation of a sine wave.
- ▶ **Reduced r.m.s. mains current:**
Reduction in mains, cable and fuse load

A mains choke can be used without restriction together with RFI filters and/or sinusoidal filters.



Mains choke

Please note:

Using a mains choke slightly reduces the mains voltage at the inverter input - the typical voltage drop on the mains choke at the rated point is approximately 5%.

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	96 x 96 x 90	2.1
1.50		E84AV□□□1522□□□				
2.20		E84AV□□□2222□□□				
0.37		3 AC 320 ... 550	E84AV□□□3714□□□	ELN3-1500H003-001	2.50	105 x 129 x 61
0.55	E84AV□□□5514□□□					
0.75	E84AV□□□7514□□□					
1.10	E84AV□□□1124□□□		ELN3-0680H006-001	6.10	122 x 148 x 61	2.0
1.50	E84AV□□□1524□□□					
2.20	E84AV□□□2224□□□					
3.00	E84AV□□□3024□□□		ELN3-0500H007-001	7.00	122 x 148 x 63	2.6
	E84AV□□□3024□□□ ¹⁾					
4.00	E84AV□□□4024□□□		ELN3-0250H013-001	13.0	142 x 178 x 90	5.3
5.50	E84AV□□□5524□□□		ELN3-0170H017-001	17.0	140 x 178 x 75	3.9
7.50	E84AV□□□7524□□□		ELN3-0150H024-001	24.0	170 x 219 x 111	8.2
11.0	E84AV□□□1134□□□		ELN3-0088H035-001	35.0	225 x 219 x 135	10.2
15.0	E84AV□□□1534□□□ ¹⁾					
18.5	E84AV□□□1834□□□		ELN3-0075H045-001	45.0	10.4	
22.0	E84AV□□□2234□□□ ²⁾		ELN3-0055H055-001	55.0	270 x 267 x 130	13.2
30.0	E84AV□□□3034□□□ ¹⁾		ELN3-0038H085-001	85.0	270 x 267 x 175	20.6
37.0	E84AV□□□3734□□□ ¹⁾					
45.0	E84AV□□□4534□□□ ¹⁾					

¹⁾ Operation only permitted with mains choke

²⁾ Operation only permitted with mains choke or mains filter



Interference suppression

RFI filters and mains filters are used to ensure compliance with EMC requirements in accordance with the European standard EN 61800-3. This standard specifies EMC requirements for electric drive systems in different categories. A mains filter consists of an RFI filter and a mains choke.

Category C1 is used in public grids (residential areas). Category C1 is in line with EN 55011 with regard to the limit values of Class B.

Category C2 is used in industrial areas and, according to the opinion of the user, in residential areas as well. Category C2 is in line with EN 55011 with regard to the limit values of Class A.

In the case of increased requirements regarding emitted interference that cannot be satisfied with the radio interference suppression measures integrated in the inverter, external filters can be used. The filters are suitable as side-mounted filters or footprint filters.

Three different filters are available:

An RFI filter LL (Low Leakage)

- ▶ leakage current < 3.5 mA with a 5 m shielded motor cable enables installation in movable systems
- ▶ Category C1 with 5 m shielded motor cable



RFI filter

RFI filters SD (Short Distance)

- ▶ with a low leakage current, e.g. for operation connected to a 30 mA earth-leakage circuit breaker with a 25 m shielded motor cable
- ▶ Category C1 with 25 m shielded motor cable
- ▶ Category C2 with 50 m shielded motor cable

RFI filter LD and mains filter LD (Long Distance)

- ▶ Category C1 with 50 m shielded motor cable
- ▶ Category C2 with 100 m shielded motor cable (only in the case of 400 V devices, up to 15 kW only with sine filter)
- ▶ RFI filters LD are suitable for operation connected to a 300 mA earth-leakage circuit breaker with a 50 m shielded motor cable

Note:

The indicated motor cable lengths are maximum lengths.

Typical motor power	Mains voltage	Product key		Rated current	Dimensions	Mass			
4-pole asynchronous motor		Inverter ¹⁾	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				E84AZESR3712SD		
							E84AZESR3712LD		
		E84AZESR3712LL							
0.55		E84AV□□□5512□□0	E84AZESR3712SD				6.00	262 x 70 x 60	1.0
			E84AZESR3712LD						
			E84AZESR3712LL						
0.75		E84AV□□□7512□□0	E84AZESR7512SD	9.00	262 x 70 x 60	1.0			
			E84AZESR7512LD						
			E84AZESR7512LL						
				E84AZESR7512SD					
				E84AZESR7512LD					

¹⁾ 8400 StateLine, HighLine and TopLine



8400 Inverter Drives

Accessories

Interference suppression

Typical motor power 4-pole asynchronous motor	Mains voltage	Product key		Rated current	Dimensions	Mass			
		Inverter ¹⁾	RFI filter						
P	U _{AC}			I _N	h x b x t	m			
[kW]	[V]			[A]	[mm]	[kg]			
1.10	1 AC 180 ... 264	E84AV□□□1122□□0	E84AZESR2222LL	22.0	317 x 70 x 60	1.4			
			E84AZESR2222SD			1.7			
			E84AZESR2222LD			1.5			
1.50		E84AV□□□1522□□0	E84AZESR2222LL			1.4			
			E84AZESR2222SD			1.7			
			E84AZESR2222LD			1.5			
2.20		E84AV□□□2222□□0	E84AZESR2222LL			1.4			
			E84AZESR2222SD			1.7			
			E84AZESR2222LD			1.5			
0.37	3 AC 320 ... 550	E84AV□□□3714□□0	E84AZESR7514SD	3.30	262 x 70 x 60	1.1			
			E84AZESR7514LD						
0.55		E84AV□□□5514□□0	E84AZESR7514SD						
			E84AZESR7514LD						
0.75		E84AV□□□7514□□0	E84AZESR7514SD						
			E84AZESR7514LD						
1.10		E84AV□□□1124□□0	E84AZESR2224SD				7.30	317 x 70 x 60	1.5
			E84AZESR2224LD						1.4
1.50		E84AV□□□1524□□0	E84AZESR2224SD						1.5
			E84AZESR2224LD						1.4
2.20		E84AV□□□2224□□0	E84AZESR2224SD						1.5
			E84AZESR2224LD						1.4
4.00	E84AV□□□4024□□0	E84AZESR5524SD	18.0	306 x 140 x 60	3.1				
		E84AZESR5524LD			2.2				
5.50	E84AV□□□5524□□0	E84AZESR5524SD			3.1				
		E84AZESR5524LD			2.2				
7.50	E84AV□□□7524□□0								
11.0	E84AV□□□1134□□0	E84AZESR1534LD			29.0	361 x 140 x 60			3.3
15.0	E84AV□□□1534□□0								
18.5	E84AV□□□1834□□0	E84AZESR1834LD			50.4	365 x 205 x 90	7.5		

Typical motor power 4-pole asynchronous motor	Mains voltage	Product key		Rated current	Dimensions	Mass
		Inverter ¹⁾	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□□□2234□□0	E84AZESM2234LD	42.0	365 x 205 x 90	14.0

¹⁾ 8400 Stateline, HighLine and TopLine

→ Data sheet on RFI filters
DS_ZB_SR_0001
 Available for download at www.lenze.de/dsc



24 V power supply unit

External power supply units are available as an alternative external power source for the control electronics of the 8400 StateLine, HighLine or TopLine. The advantages of an external power supply are that the inverter can be parameterised and diagnosed with the mains input deenergised.



24 V power supply unit

Rated data

Product key			EZV1200-000	EZV2400-000	EZV4800-000	EZV1200-001	EZV2400-001	EZV4800-001
Rated voltage AC	$U_{N,AC}$	[V]	230			400		
Rated mains current	$I_{N,AC}$	[A]	0.84	1.20	2.30	0.34	0.57	1.00
Output voltage	U_{out}	[V]	DC 22.5 ...28.5					
Rated current	I_N	[A]	5.00	10.0	20.0	5.00	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

Brake switch

The brake switch consists of a rectifier and an electronic circuit breaker for the switching of an electromechanical brake. The brake switch is mounted on the control cabinet plate by means of two screws. Control is carried out via a digital output of 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 ▶ Enclosure: IP00 	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 	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



8400 Inverter Drives Accessories

USB diagnostic adapter

On the Inverter Drives 8400, operation, parameterisation and diagnostics via the L-force diagnostic interface are carried out using the X400 keypad or a PC. The use of a PC requires the USB diagnostic adapter. A connecting cable is supplied to make the connection to the USB port on the PC.


Connecting cables in three different lengths of 2.5 m, 5 m and 10 m can be purchased separately to connect the USB diagnostic adapter to the L-force diagnostic interface (DIAG) on the inverter. Connection during operation is possible.

The software drivers required for the operation of the adapter are installed automatically when the Lenze software (L-force Engineer) is installed.

- ▶ On the 8400 BaseLine C, StateLine C, HighLine C and TopLine C, the integrated CANopen interface can be used in conjunction with a PC system bus adapter to provide an alternative method to operation, parameterisation and diagnostics with the PC and the L-force Engineer software.



USB diagnostic adapter incl. connecting cable to the PC

Mode		Features	Slot	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 diagnostic interface of the inverter ▶ Diagnostic LED ▶ Electrical isolation of PC and inverter ▶ Hot-pluggable 	DIAG	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




X400 keypad

The keypad can be used as an alternative to a PC for local operation, parameter setting or diagnostics. Data can be accessed quickly via structured menus and a plain text display. The 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 ▶ Hot-pluggable ▶ Useable for L-force Inverter Drives 8400 and Servo Drives 9400 	DIAG	EZAEBK1001

- ▶ Inverter Drives 8400 can be purchased with a keypad attached. To order the products in this ready-made format, please complete the inverter product key as follows when placing your order: E84AV ... 0-**XXKXX**

Diagnosis terminal X400

Mode		Features	Slot	Product key
Diagnosis terminal X400		<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 enclosure, IP65 for control cabinet installation on front face ▶ Useable for L-force Inverter Drives 8400 and Servo Drives 9400 	DIAG	EZAEBK2001



8400 Inverter Drives Accessories

PC system bus adapter

On the 8400 BaseLine C, StateLine C, HighLine C and TopLine C, the integrated CANopen interface used in conjunction with a PC system bus adapter provides an alternative method to operation, parameterisation and diagnostics with the PC and the L-force Engineer software. A PC system bus adapter is required instead of a USB diagnostic adapter. This adapter plugs into the parallel interface or the USB port on the PC. The corresponding drivers are installed automatically. Depending on the design, the voltage supply for the adapter is provided via the DIN or PS2 connection, or via the USB port on the PC.

Advantage:

- ▶ Operation, parameterisation and diagnostics in parallel to the keypad
- ▶ In networked systems, multiple inverters can be addressed in parallel from a single station (remote parameterisation).



EMF21731BV003 adapter

Mode	Features	Product key
PC system bus adapter	▶ Voltage supply via DIN port on PC	EMF21731B
	▶ Voltage supply via PS2 connection on PC	EMF21731BV002
	▶ Voltage supply via PS2 connection on PC	EMF21731BV003
	▶ Electrical isolation from the bus	
	▶ Voltage supply via USB port on PC	EMF21771B
▶ Electrical isolation from the bus		

Shield connection

A shield mounting connects the shield of the motor cable to the shield connection of the inverter.

Mode	Features	Product key
Metal cable tie	<ul style="list-style-type: none"> ▶ Cable diameter: 8...30 mm ▶ Packaging unit: 50 items 	EZAMBKBM
Fixing clip	<ul style="list-style-type: none"> ▶ Cable diameter: 4...10 mm ▶ Packaging unit: 20 items 	EZAMBHXM007/M
Wire clamp	<ul style="list-style-type: none"> ▶ Cable diameter: 4...15 mm ▶ Packaging unit: 10 items 	EZAMBHXM006/M
	<ul style="list-style-type: none"> ▶ Cable diameter: 10...20 mm ▶ Packaging unit: 10 items 	EZAMBHXM003/M
	<ul style="list-style-type: none"> ▶ Cable diameter: 15...28 mm ▶ Packaging unit: 10 items 	EZAMBHXM004/M
	<ul style="list-style-type: none"> ▶ Cable diameter: 20...37 mm ▶ Packaging unit: 10 items 	EZAMBHXM005/M



Setpoint potentiometer

The setpoint (e.g. speed) can be selected using an external potentiometer.
The setpoint potentiometer is connected to the inverter's input terminals. A scale and a rotary knob can also be supplied.



Setpoint potentiometer with scale and rotary knob

Mode	Product key
Potentiometer 10 kOhm/1 W	ERPD0010K0001W
Rotary knob, 36 mm diameter	ERZ0001
Scale 0 ... 100%, 62 mm diameter	ERZ0002

Other accessories

Lenze also supplies a whole range of accessories for the 8400 inverter drives. In the catalogues Controller-based Automation and PC-based Automation, you can find

- ▶ controllers and industrial PCs,
- ▶ I/O systems
- ▶ human machines interfaces

Prepared system cables for connecting motors, fans and feedback can be found in the manual "System Cables and Connectors" in the Lenze library on CD or online at <http://www.lenze.com> under "Technical documentation".




8400 Inverter Drives Modules

Communication module PROFIBUS

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



Communication module PROFIBUS

Mode		Features	Slot	Product key
Communication module				
PROFIBUS		<ul style="list-style-type: none"> ▶ 5 LEDs for status display ▶ Address can be set by means of a DIP switch ▶ Electrically isolated from the bus ▶ Sub-D connection ▶ Suitable for Inverter Drives 8400 StateLine, High-Line and TopLine 	MCI	E84AYCPMV/S

- ▶ Inverter Drives 8400 can be purchased with a PROFIBUS communication module attached. To order the products in this ready-made format, please complete the inverter product key as follows when placing your order: E84AV ... 0-PMXXX

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



Communication module PROFIBUS

Product key			E84AYCPMV/S
Communication Medium			RS 485
Communication profile			PROFIBUS-DP-V0 PROFIBUS-DP-V1
Device profile			PROFIDrive, version 3
Baud rate		[kBit / s]	9.6 ... 12 000 (automatic detection)
Node			Slave
Network topology			with repeater: Line or tree without repeater: Line
Process data words (PCD)			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	I_{max}	[m]	1200 (depending on the baud rate and the cable type used)




8400 Inverter Drives Modules

Communication module EtherCAT

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



Communication module EtherCAT

Mode		Features	Slot	Product key
Communication module				
EtherCAT		<ul style="list-style-type: none"> ▶ Distributed clock ▶ 2 RJ45 connections with LEDs for link/activity ▶ 5 LEDs for status display ▶ Connection option for separate 24 V supply ▶ Suitable for Inverter Drives 8400 StateLine, High-Line and TopLine 	MCI	E84AYCETV/S

- ▶ Inverter Drives 8400 can be purchased with an EtherCAT communication module attached. To order the products in this ready-made format, please complete the inverter product key as follows when placing your order: E84AV ... 0-ETXXX

Standards and operating conditions

Product key				E84AYCETV/S
Mode Communication module				EtherCAT
Enclosure EN 60529				IP20
Climatic conditions Storage (EN 60721-3-1) Transport (EN 60721-3-2) Operation (EN 60721-3-3)				1K3 (temperature: -25 °C ... +60 °C) 2K3 (temperature: -25 °C ... +70 °C) 3K3 (temperature: -10°C ... +55°C)
Insulation voltage to reference earth/PE EN 61800-5-1	U_{AC}	[V]		50.0



Communication module EtherCAT

Product key			E84AYCETV/S
Communication Medium Communication profile			CAT5e S/FTP according to ISO/ICE11801 (2002) CoE (CANopen over EtherCAT)
Baud rate		[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	I_{\max}	[m]	100




8400 Inverter Drives Modules

Communication module PROFINET

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



Communication module PROFINET

Mode		Features	Slot	Product key
Communication module				
PROFINET		<ul style="list-style-type: none"> ▶ 2 RJ45 connections with LEDs for link/activity ▶ 5 LEDs for status display ▶ Connection option for separate 24 V supply ▶ Suitable for Inverter Drives 8400 StateLine, High-Line and TopLine 	MCI	E84AYCERV/S

- ▶ Inverter Drives 8400 can be purchased with a PROFINET communication module attached. To order the products in this ready-made format, please complete the inverter product key as follows when placing your order: E84AV ... 0-ERXXX

Standards and operating conditions

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



Communication module PROFINET

Product key			E84AYCERV/S
Communication Medium Communication profile			CAT5e S/FTP according to ISO/ICE11801 (2002) PROFINET RT Conf. Class B
Baud rate		[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

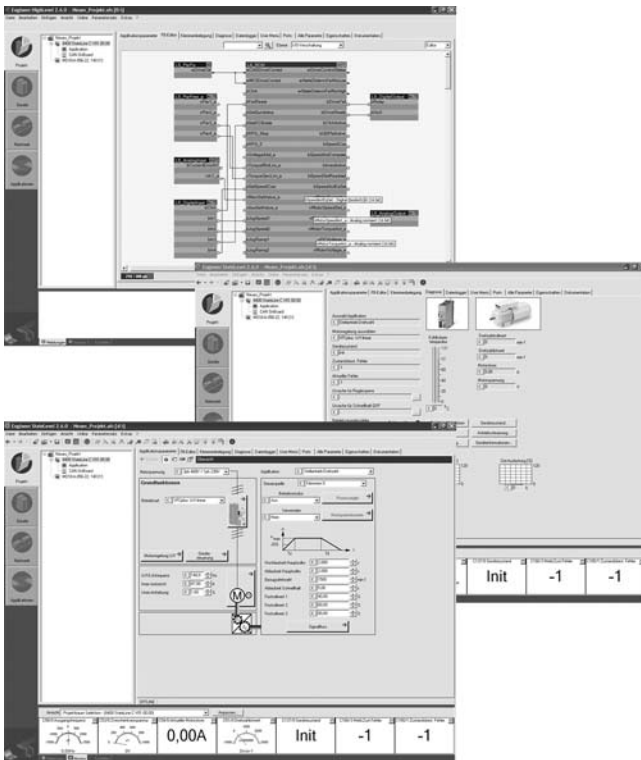
General information

The L-force Engineer is the engineering tool for the configuration, commissioning and diagnostics of all L-force products. With its intuitive user interface and transparent dialog boxes, the L-force Engineer has been tailored to meet the needs of the user.

The main navigation structure sorts essential functions into various transparent views. Graphical interfaces simplify the configuration and parameterisation processes for the devices. Multi-device engineering comes naturally with the L-force Engineer StateLevel and HighLevel.

The following options are available:

- ▶ **Engineer StateLevel**
Featuring all the necessary diagnostic functions, this product is ideal for service engineers and commissioners. Smaller projects involving up to five target systems can be implemented using this free version of the software.
- ▶ **Engineer HighLevel**
Engineer HighLevel is the full version of the software. Single user, multiple user, corporate or buyout licences are available.
In addition to the functional scope supported by the Engineer StateLevel, this version includes functions for large-scale projects. You can set up networks, interconnect communication and use the function block editor, to name but a few of the available features. The Engineer project even supports machine documentation. In short, you have access to a central source where you can find everything you need, whenever you need it – in next to no time.



User interfaces of L-force Engineer



Functions and features

The following table describes functions and features of L-force Engineer:

Since not all functions can be accessed by every drive, the engineering software appears differently, depending on the selected drive.

Mode	L-force Engineer StateLevel, freeware	L-force Engineer HighLevel
Drives and components	8400 Inverter Drives Servo Drives 9400 I/O system 1000, I/O system IP20 Lenze motors User motors	8400 Inverter Drives Servo Drives 9400 I/O system 1000, I/O system IP20 Lenze motors User motors
Project creation	Limitation to 5 target systems	Unlimited
Project documentation		Stored in project
Parameter setting	Graphics-based Parameter list	Graphics-based Parameter list
Networks and communication		CAN network configuration Network configuration for ETHERNET Powerlink Communication interconnection Port editor (communication interface) Creation of machine application
Configuration		Function block editor
Diagnostics Status display	Terminal display/diagnostics overview Monitor window Logbook of all error messages Online values in graphics-based parameterisation Online/offline comparison Oscilloscope: 2-channel	Terminal display/diagnostics overview Monitor window Logbook of all error messages Online values in graphics-based parameterisation Online values in function block editor Network diagnostics Online/offline comparison Oscilloscope: 8-channel



Data access/communication

The following table describes the communication paths of the engineering software to the connected drives. Some drives do not support all communication paths, so that some communication paths may not be possible.

Communication	
CAN	USB connection via USB system bus adapter EMF2177IB Parallel interface with system bus adapter EMF2173IB
L-force diagnostic interface	USB connection with diagnostic adapter E94AZCUS

System requirements

System requirements for L-force Engineer State-Level/HighLevel

The following minimum hardware and software requirements must be met in order to be able to work with the L-force Engineer:

- ▶ Microsoft®Windows® 2000 SP4 or higher + Rollup pack1 /XP 32 bit SP3 or higher / Windows 7 32 bit
- ▶ IBM-compatible PC with Intel® Pentium® processor 1.4 GHz (projects up to a maximum of 5 axes 750 MHz and higher)
- ▶ Min. 1 MB main memory (RAM), (projects up to a maximum of 5 axes min. 512 MB)
- ▶ Min. 2 GB free hard disk space
- ▶ Min. 1.024 x 768 pixels screen resolution with 256 display colours
- ▶ Mouse
- ▶ CD-ROM drive
- ▶ Free slots/ports meeting the requirements of the individual fieldbus interface module



Overview of licences

Single user licence

Single user licences are always supplied with the software product on CD-ROM. The purchaser is entitled to install the software product on his/her PC. Multiple installations on different PCs are not permitted.

Multiple user licence

Some software products can be supplied with multiple user licences. When you purchase this licence, you acquire the right to install a specific software product (CD-ROM with single user licence) on the number of machines for which licences have been purchased. A legally valid single user licence must be held before multiple user licences can be purchased.

Corporate licence

Software products with corporate licences need only be purchased once. These products may be installed on multiple machines within a company on a single site. In such cases, additional multiple user licences are not required.

Buyout licence

A buyout licence permits multiple installations of the software within a company on a single site. Purchasers of buyout licences are also entitled to issue sublicences for machines in which Lenze devices are installed.

Selection and order data

Mode	Features	Product key
L-force Engineer StateLevel, freeware	<ul style="list-style-type: none"> ▶ Order free of charge ▶ Download via the Internet ▶ Languages: German/English/French 	Download free of charge
L-force Engineer HighLevel, single user licence	<ul style="list-style-type: none"> ▶ CD-ROM included in scope of supply ▶ Installation on one PC ▶ Includes GDC, GD Loader and GD Oscilloscope ▶ Languages: German/English/French 	ESPEVEHXAOEC1
L-force Engineer HighLevel, multiple user licence	<ul style="list-style-type: none"> ▶ CD-ROM not included in scope of supply ▶ Multiple installations on the number of machines for which licences have been purchased ▶ The basis is a single user licence 	ESPEVEHNNMML1
L-force Engineer HighLevel, corporate licence	<ul style="list-style-type: none"> ▶ CD-ROM not included in scope of supply ▶ Multiple installations within a company at one location ▶ The basis is a single user licence 	ESPEVEHNNNFL1
L-force Engineer HighLevel, buyout licence	<ul style="list-style-type: none"> ▶ CD-ROM not included in scope of supply ▶ Multiple installations within a company at one location ▶ Issuing of sublicences in conjunction with Lenze drives installed in a machine ▶ The basis is a single user licence 	ESPEVEHNNNBL1
Upgrade from GDC to L-force Engineer HighLevel single user licence	<ul style="list-style-type: none"> ▶ CD-ROM included in scope of supply ▶ Installation on one PC ▶ The basis is a GDC licence ▶ Languages: German/English/French 	ESPEGEHXAOEC1
Upgrade from GDC to L-force Engineer HighLevel multiple user licence	<ul style="list-style-type: none"> ▶ Multiple installations on the number of machines for which licences have been purchased ▶ CD-ROM included in scope of supply ▶ The basis is a GDC and Engineer HighLevel single user licence 	ESPEGEHNNMML1
Upgrade from GDC to L-force Engineer HighLevel company licence	<ul style="list-style-type: none"> ▶ CD-ROM not included in scope of supply ▶ Multiple installations within a company at one location ▶ The basis is a GDC and Engineer HighLevel single user licence 	ESPEGEHNNNFL1
Upgrade from GDC to L-force Engineer HighLevel buyout licence	<ul style="list-style-type: none"> ▶ CD-ROM not included in scope of supply ▶ Multiple installations within a company at one location ▶ Issuing of sublicences in conjunction with Lenze drives installed in a machine ▶ The basis is a GDC and Engineer HighLevel single user licence 	ESPEGEHNNNBL1







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