

# Automation systems Drive solutions

Controls

**Inverters**

Motors

Gearboxes

Engineering tools



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# 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 easy principle to meet the ever more specialised customer requirements in the field of machine building 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.

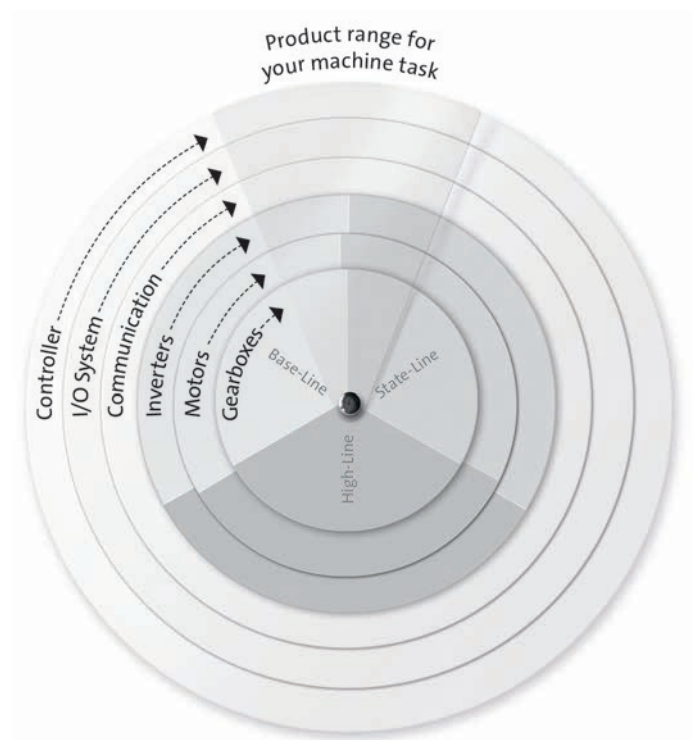
Lenze's extensive L-force product portfolio follows a very simple principle. The functions of our finely scaled products are assigned to the three lines Base-Line, State-Line or High-Line.

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:**

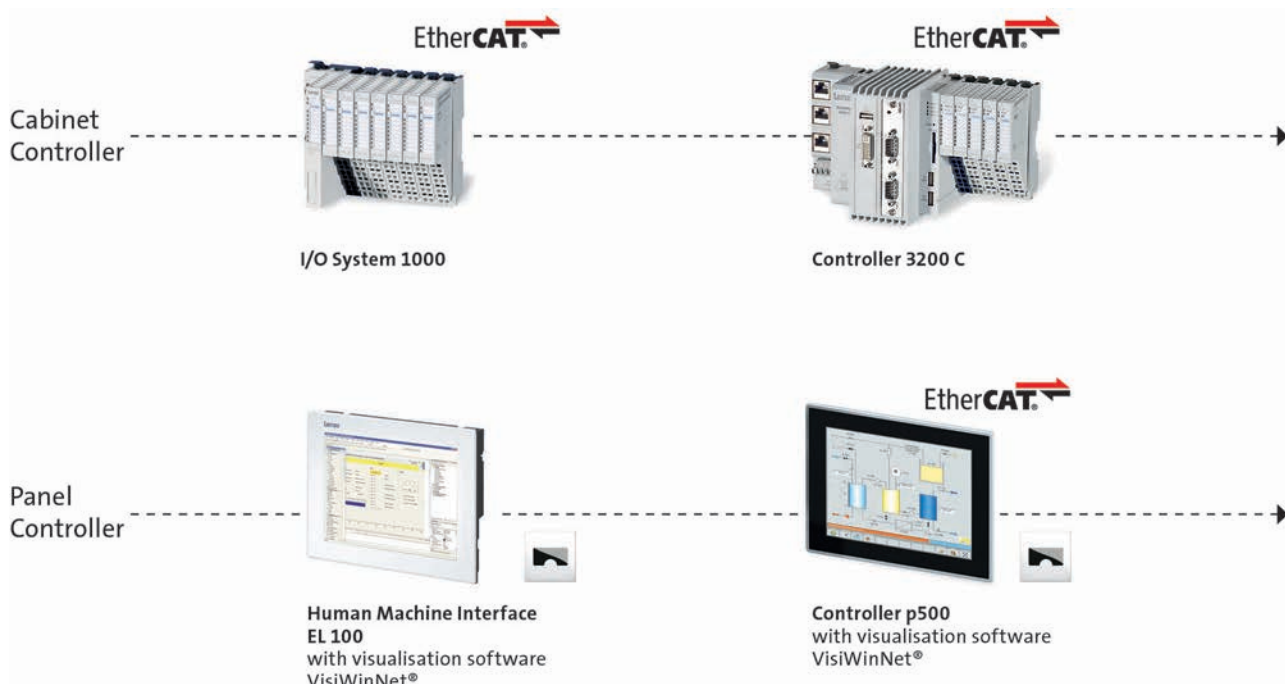
- Easy handling
- High quality and durability
- Reliable technologies in tune with the latest developments

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!

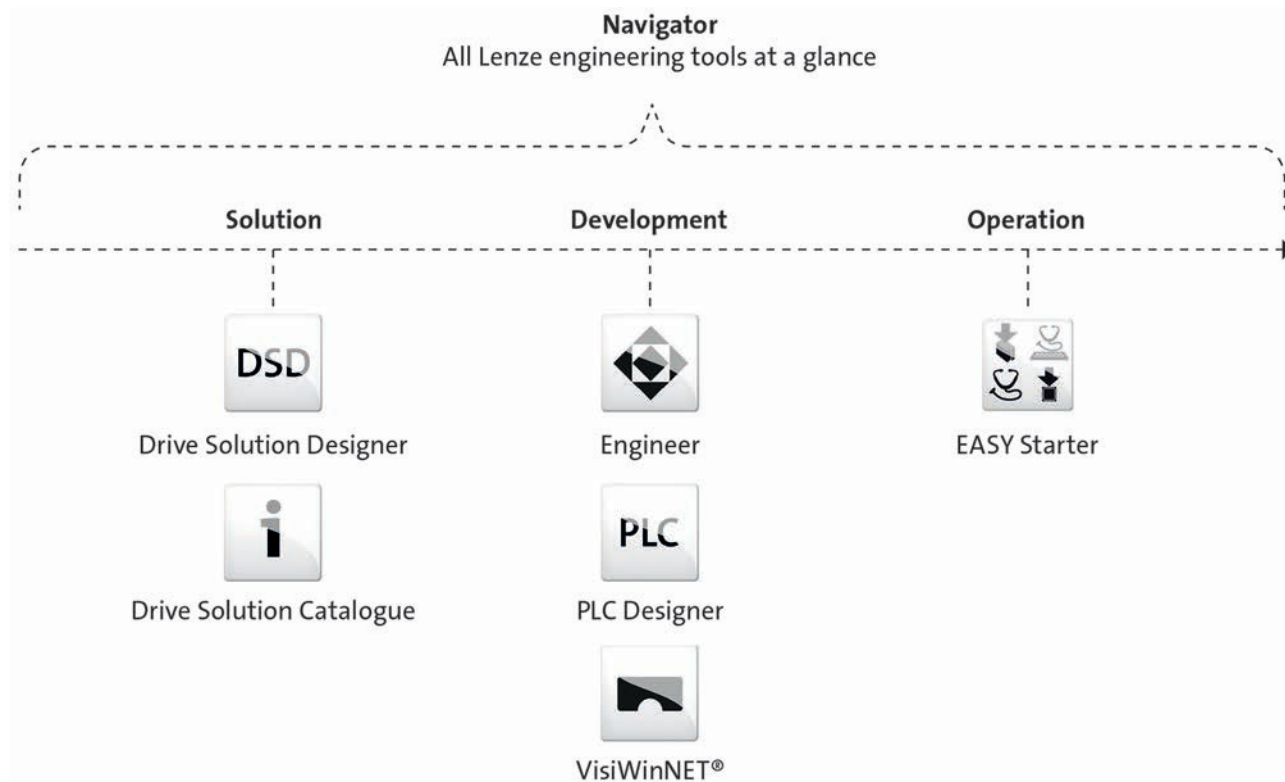


# L-force product portfolio

## Controls

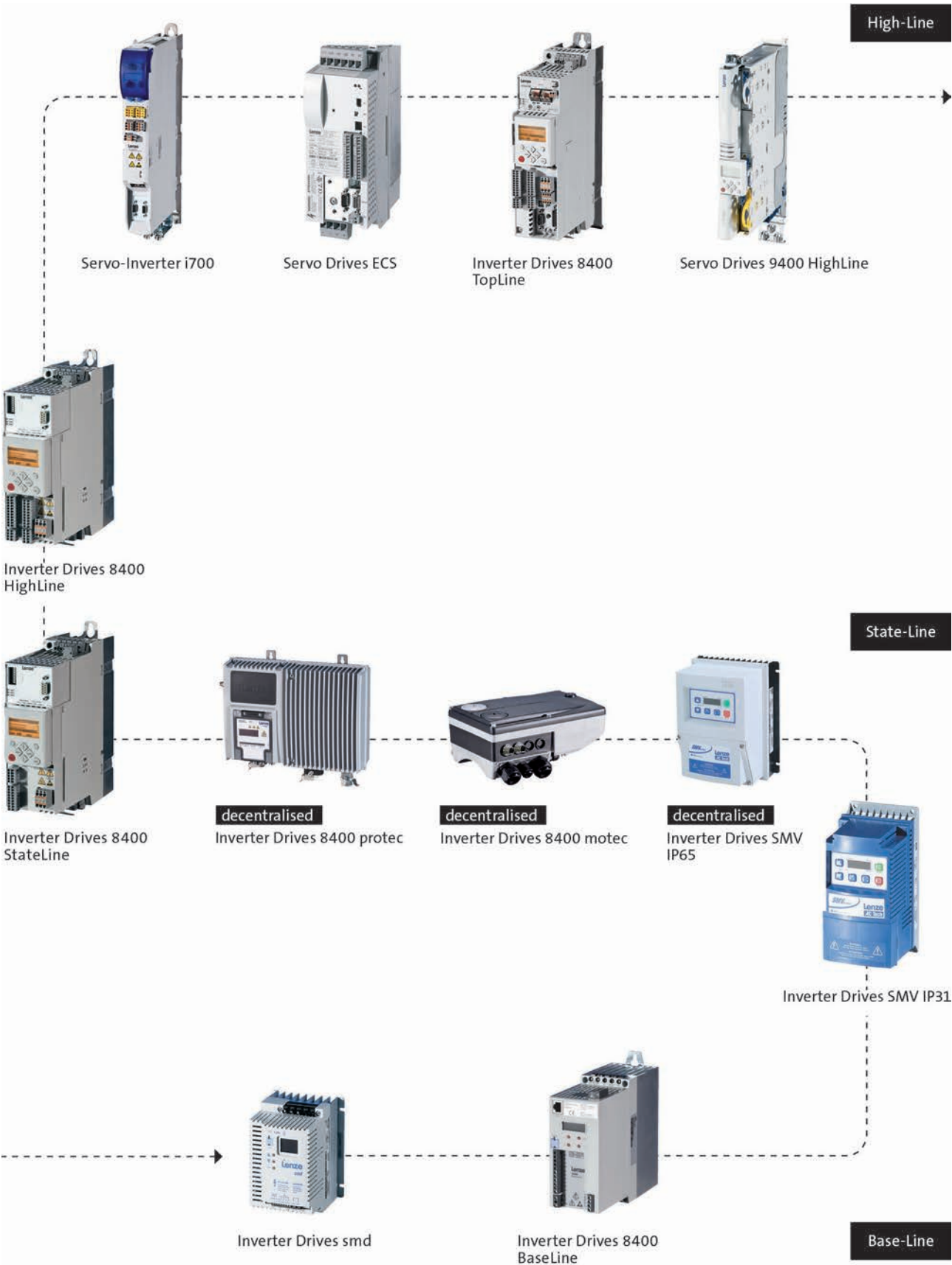


## Engineering tools



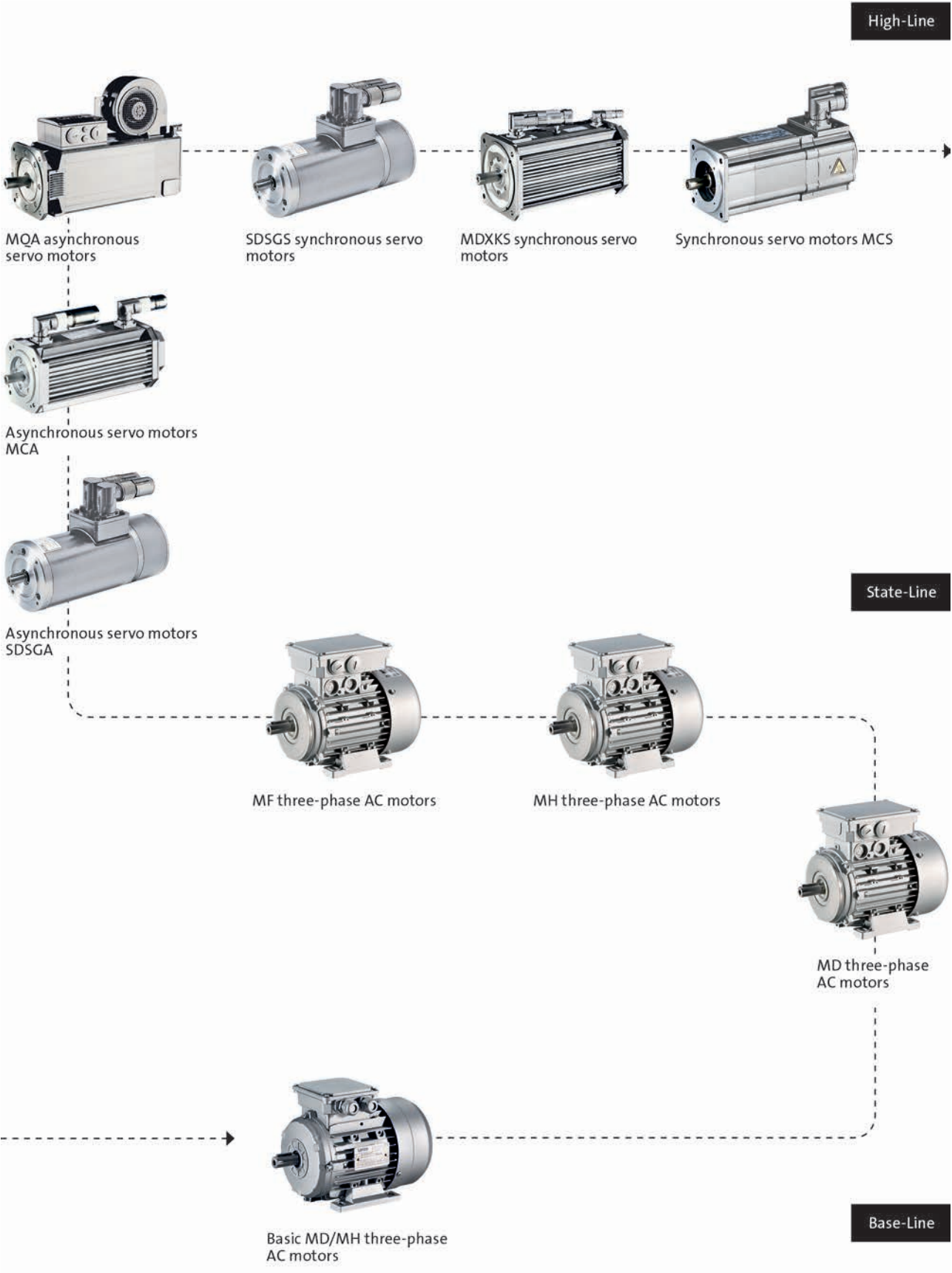
# L-force product portfolio

## Inverters



# L-force product portfolio

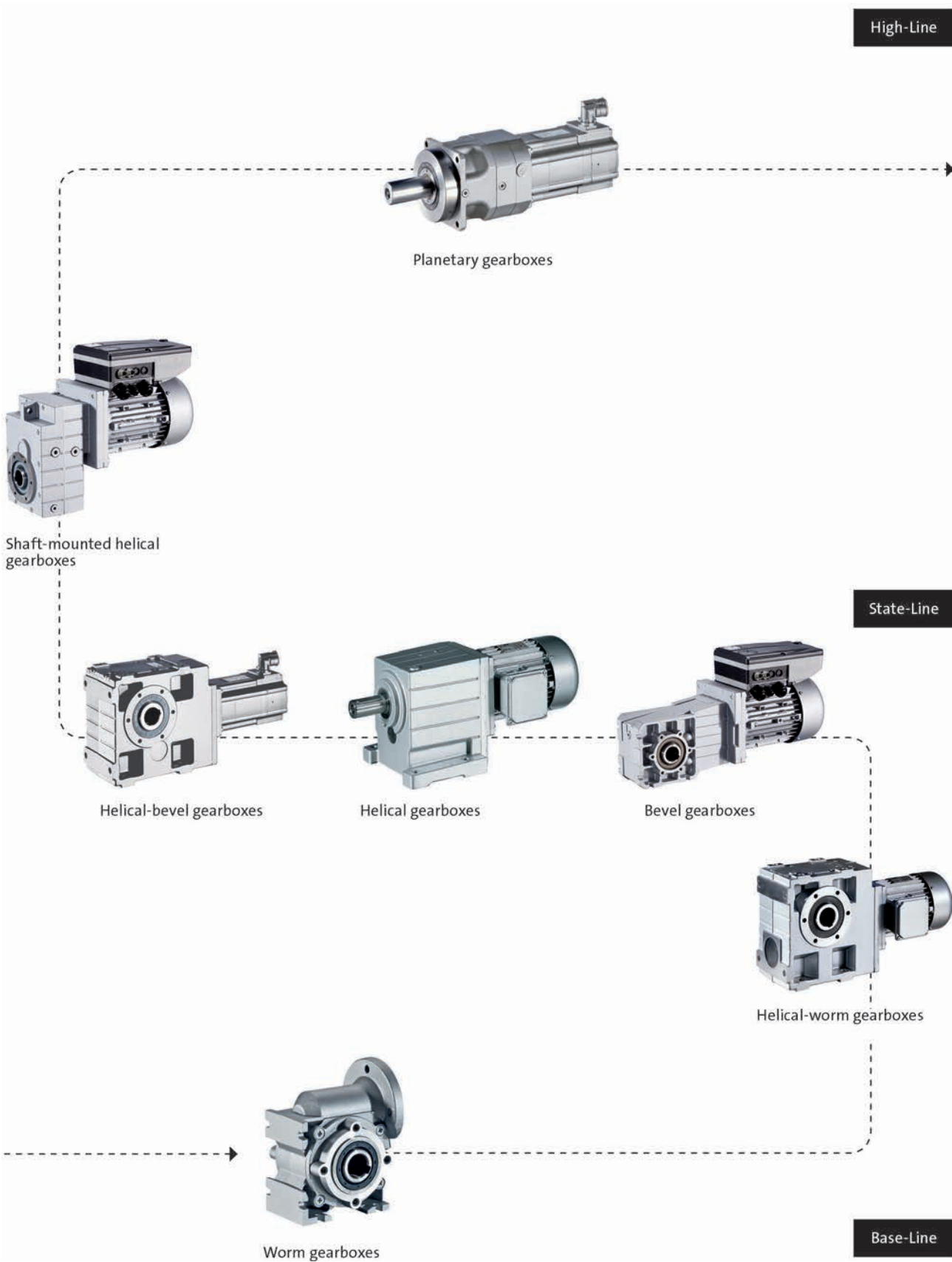
## Motors





# L-force product portfolio

## Gearboxes





Inverters

# Inverter Drives 8400 BaseLine

0.25 ... 3.0 kW





# Inverter Drives 8400 BaseLine

## Contents



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# Inverter Drives 8400 BaseLine

## General information



### Product key

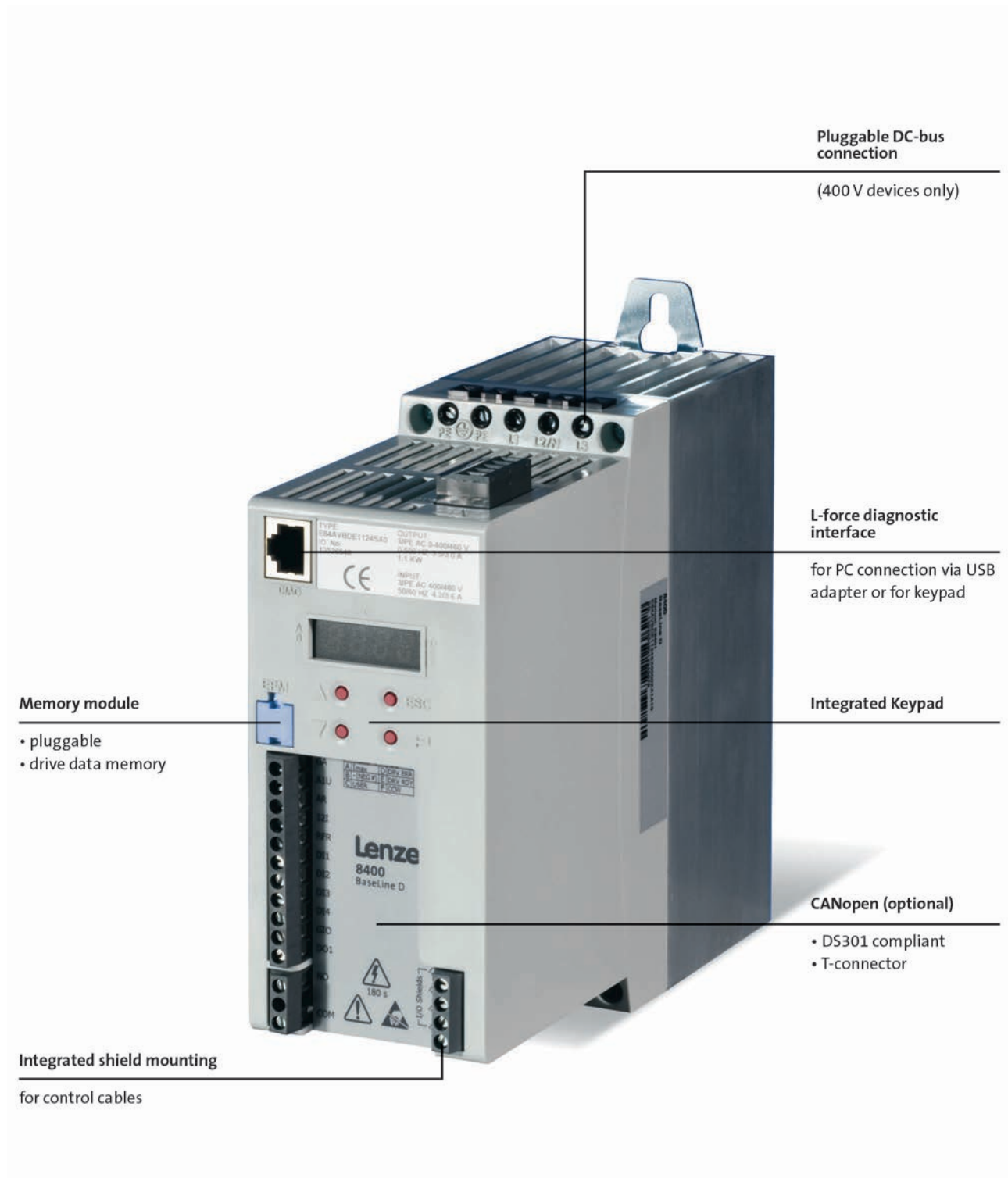
	E84AV	S	C	E	751	2	S	X	0	-	PM K XX
<b>Design</b>											
BD – BaseLine											
BC – BaseLine											
SC – StateLine											
HC – HighLine											
TC – TopLine											
<b>Mounting type</b>											
E – Installation											
D – Push-trough technique (0.25 ... 15.0 kW)											
C – Cold plate technique (0.25 ... 45.0 kW)											
<b>Power</b>											
251 – 0.25 kW											
371 – 0.37 kW											
551 – 0.55 kW											
751 – 0.75 kW											
112 – 1.1 kW											
152 – 1.5 kW											
222 – 2.2 kW											
302 – 3.0 kW											
402 – 4.0 kW											
552 – 5.5 kW											
752 – 7.5 kW											
113 – 11.0 kW											
153 – 15.0 kW											
183 – 18.5 kW											
223 – 22.0 kW											
303 – 30.0 kW											
373 – 37.0 kW											
453 – 45.0 kW											
<b>Voltage class</b>											
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)											
<b>Ambient conditions</b>											
S – Standard (0.25 ... 15.0 kW)											
V – Rough environment (coated printed circuit boards, 0.25 ... 45.0 kW)											
<b>Drive-based safety</b>											
X – No drive-based safety											
B – With drive-based safety (STO)											
<b>Version identifier</b>											
0 or S											
<b>Extensions</b>											
Communication module and/or keypad connected											
ET <input type="checkbox"/> XX EtherCAT											
EC <input type="checkbox"/> XX Ethernet POWERLINK											
PM <input type="checkbox"/> XX PROFIBUS											
ER <input type="checkbox"/> XX PROFINET											
<input type="checkbox"/> K XX Keypad											

# Inverter Drives 8400 BaseLine

## General information



## Equipment



4.10

# Inverter Drives 8400 BaseLine

## General information



### List of abbreviations

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

<b>Mode</b>	8400 BaseLine
<b>Control types, motor control</b>	V/f control without feedback (linear or square-law) Sensorless vector control (torque/speed)
<b>Basic functions</b>	Application-oriented commissioning 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
<b>Monitoring and protective measures</b>	Short circuit Earth fault Overvoltage Motor stalling $I^2 \times t$ -Motor monitoring
<b>Diagnostics</b>	
Diagnostic interface	Integrated For USB diagnostic adapter in PC connection
Status display	4 LEDs
<b>Braking operation</b>	
Brake chopper	Integrated (400 V types)
Brake resistor	External (400 V types)

4.10

# Inverter Drives 8400 BaseLine

Technical data



# Inverter Drives 8400 BaseLine

Technical data



## Standards and operating conditions

<b>Mode</b>			
Product			8400 BaseLine
<b>Conformity</b>			
CE			Low-Voltage Directive 2006/95/EG
<b>Approval</b>			
UL 508C			Power Conversion Equipment (File No. E170350)
CSA			
<b>Certification</b>			
			GOST-R
<b>Degree of protection</b>			
EN 60529 <sup>2)</sup>			IP20
NEMA 250			Type 1
<b>Climatic conditions</b>			
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
<b>Site altitude</b>			
Amsl	H <sub>max</sub>	[m]	4000
Current derating at over 1000 m		[%/1000 m]	5
<b>Vibration resistance</b>			
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

4.10

<b>Mode</b>	
Product	8400 BaseLine
<b>Supply form</b>	
	Systems with earthed star point (TN and TT systems)
<b>Noise emission</b>	
EN 61800-3	Integrated RFI suppression: category C2 up to 25 m shielded motor cable <sup>-1)</sup>
<b>Insulation resistance</b>	
EN 61800-5-1	Overvoltage category III über 2000 m über NN Überspannungskategorie II
<b>Degree of pollution</b>	
EN 61800-5-1	2
<b>Protective insulation of control circuits</b>	
EN 61800-5-1	Safe mains isolation: double/reinforced insulation

<sup>1)</sup> 1 - Please also refer to the Motor connection section

<sup>2)</sup> 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.

						
<b>Typical motor power</b>						
4-pole asynchronous motor	P	[kW]	0.25	0.37	0.55	0.75
<b>Product key</b>						
Inverter			E84AV□□□2512□□□	E84AV□□□3712□□□	E84AV□□□5512□□□	E84AV□□□7512□□□
<b>Mains voltage range</b>			1/N/PE AC 180 V-0 % ... 264 V+0 %, 45 Hz-0 % ... 65 Hz+0 %			
	$U_{AC}$	[V]				
<b>Rated mains current</b>						
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
<b>Rated output current</b>						
	$I_{N, out}$	[A]	1.7	2.4	3.0	4.0
<b>Output current</b>						
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

#### Data for 60 s overload

<b>Max. output current</b>						
	$I_{max, out}$	[A]	2.6	3.6	4.5	6.0
<b>Overload time</b>						
	$t_{ol}$	[s]	60.0			
<b>Recovery time</b>						
	$t_{re}$	[s]	120.0			

#### Data for 3 s overload

<b>Max. short-time output current</b>						
	$I_{max, out}$	[A]	3.4	4.8	6.0	8.0
<b>Overload time</b>						
	$t_{ol}$	[s]	3.0			
<b>Recovery time</b>						
	$t_{re}$	[s]	12.0			



# 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			E84AV□□□2512□□0	E84AV□□□3712□□0	E84AV□□□5512□□0	E84AV□□□7512□□0
Power loss						
	P <sub>V</sub>	[kW]	15.0	17.0	23.0	30.0
Max. cable length <sup>1)</sup>						
Shielded motor cable	l <sub>max</sub>	[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

<sup>1)</sup> 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.

					
<b>Typical motor power</b>					
4-pole asynchronous motor	P	[kW]	1.10	1.50	2.20
<b>Product key</b>					
Inverter			E84AV□□□1122□□0	E84AV□□□1522□□0	E84AV□□□2222□□0
<b>Mains voltage range</b>			1/N/PE AC 180 V-0 % ... 264 V+0 %, 45 Hz-0 % ... 65 Hz+0 %		
	$U_{AC}$	[V]			
<b>Rated mains current</b>					
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
<b>Rated output current</b>					
	$I_{N, out}$	[A]	5.5	7.0	9.5
<b>Output current</b>					
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

#### Data for 60 s overload

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

#### Data for 3 s overload

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




# Inverter Drives 8400 BaseLine

## Technical data



### Rated data 230 V

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

					
<b>Typical motor power</b>					
4-pole asynchronous motor	P	[kW]	1.10	1.50	2.20
<b>Product key</b>					
Inverter			E84AV□□□1122□□0	E84AV□□□1522□□0	E84AV□□□2222□□0
<b>Power loss</b>					
	P <sub>V</sub>	[kW]	43.0	54.0	76.0
<b>Max. cable length <sup>1)</sup></b>					
Shielded motor cable	l <sub>max</sub>	[m]	50		

### Dimensions and weights

<b>Dimensions</b>					
Height	h	[mm]	165	215	215
Width	b	[mm]	70	70	70
Depth	t	[mm]	162	162	162
<b>Mass</b>					
	m	[kg]	1.4	1.9	1.9

<sup>1)</sup> 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.

					
<b>Typical motor power</b>					
4-pole asynchronous motor	P	[kW]	0.37	0.55	0.75
<b>Product key</b>					
Inverter			E84AV□□□3714□□0	E84AV□□□5514□□0	E84AV□□□7514□□0
<b>Mains voltage range</b>					
	$U_{AC}$	[V]	3/PE AC 180 V-0 % ... 550 V+0 %, 45 Hz-0 % ... 65 Hz+0 %		
<b>Rated mains current</b>					
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
<b>Rated output current</b>					
	$I_{N, out}$	[A]	1.3	1.8	2.4
<b>Output current</b>					
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

#### Data for 60 s overload

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

#### Data for 3 s overload

<b>Max. short-time output current</b>					
	$I_{max, out}$	[A]	2.3	3.2	4.2
<b>Overload time</b>					
	$t_{ol}$	[s]	3.0		
<b>Recovery time</b>					
	$t_{re}$	[s]	12.0		


# Inverter Drives 8400 BaseLine

## Technical data



### Rated data 400 V

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

					
<b>Typical motor power</b>					
4-pole asynchronous motor	P	[kW]	0.37	0.55	0.75
<b>Product key</b>					
Inverter			E84AV□□□3714□□0	E84AV□□□5514□□0	E84AV□□□7514□□0
<b>DC supply</b>					
	U <sub>DC</sub>	[V]	DC 455 V -0 % ... 775 V +0 %		
<b>Rated DC-bus current</b>					
	I <sub>N, DC</sub>	[A]	2.2	2.8	3.6
<b>Power loss</b>					
	P <sub>V</sub>	[kW]	15.0	22.0	29.0
<b>Max. cable length<sup>1)</sup></b>					
Shielded motor cable	I <sub>max</sub>	[m]	50		

### Brake chopper rated data

<b>Rated power, Brake chopper</b>					
	P <sub>N</sub>	[kW]	1.3	1.3	1.3
<b>Max. output power, Brake chopper</b>					
	P <sub>max, 1</sub>	[kW]	1.3	1.3	1.3
<b>Min. brake resistance</b>					
	R <sub>min</sub>	[Ω]	390.0	390.0	390.0

### Dimensions and weights

<b>Dimensions</b>					
Height	h	[mm]	165	165	165
Width	b	[mm]	70	70	70
Depth	t	[mm]	162	162	162
<b>Mass</b>					
	m	[kg]	1.2	1.2	1.2

<sup>1)</sup> 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.

						
<b>Typical motor power</b>						
4-pole asynchronous motor	P	[kW]	1.10	1.50	2.20	3.00
<b>Product key</b>						
Inverter			E84AV□□□1124□□□	E84AV□□□1524□□□	E84AV□□□2224□□□	E84AVB□□3024□□□
<b>Mains voltage range</b>						
	$U_{AC}$	[V]	3/PE AC 180 V-0 % ... 550 V+0 %, 45 Hz-0 % ... 65 Hz+0 %			
<b>Rated mains current</b>						
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
<b>Rated output current</b>						
	$I_{N, out}$	[A]	3.2	3.9	5.6	7.3
<b>Output current</b>						
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

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

#### Data for 3 s overload

<b>Max. short-time output current</b>						
	$I_{max, out}$	[A]	5.6	6.8	9.8	12.4
<b>Overload time</b>						
	$t_{ol}$	[s]	3.0			
<b>Recovery time</b>						
	$t_{re}$	[s]	12.0			


# Inverter Drives 8400 BaseLine

Technical data



## Rated data 400 V

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

						
<b>Typical motor power</b>						
4-pole asynchronous motor	P	[kW]	1.10	1.50	2.20	3.00
<b>Product key</b>						
Inverter			E84AV□□□1124□□0	E84AV□□□1524□□0	E84AV□□□2224□□0	E84AVB□□3024□□0
<b>DC supply</b>						
	U <sub>DC</sub>	[V]	DC 455 V -0 % ... 775 V +0 %			
<b>Rated DC-bus current</b>						
	I <sub>N, DC</sub>	[A]	5.1	5.8	7.6	10.0
<b>Power loss</b>						
	P <sub>V</sub>	[kW]	42.0	48.0	66.0	91.0
<b>Max. cable length<sup>1)</sup></b>						
Shielded motor cable	I <sub>max</sub>	[m]	50			

## Brake chopper rated data

<b>Rated power, Brake chopper</b>						
	P <sub>N</sub>	[kW]	2.9	2.9	3.5	7.3
<b>Max. output power, Brake chopper</b>						
	P <sub>max, 1</sub>	[kW]	2.9	2.9	3.5	7.3
<b>Min. brake resistance</b>						
	R <sub>min</sub>	[Ω]	180.0	180.0	150.0	82.0

## Dimensions and weights

<b>Dimensions</b>					
Height	h	[mm]	165	165	215
Width	b	[mm]	70	70	70
Depth	t	[mm]	162	162	162
<b>Mass</b>					
	m	[kg]	1.4	1.4	1.9

<sup>1)</sup> Technically possible cable lengths, irrespective of EMC requirements

# Inverter Drives 8400 BaseLine

## Technical data



### 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	
4-pole asynchronous motor		Inverter		EN 60204-1	UL	Cross-section (with mains choke)	
P	U <sub>AC</sub>		I	I	I	q	
[kW]	[V]		[A]	[A]	[A]	[mm2]	
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			10		
0.75		E84AV□□□7514□□0					
1.10		E84AV□□□1124□□0					
1.50		E84AV□□□1524□□0	C10	10	15	1.5	
2.20		E84AV□□□2224□□0					
3.00		E84AV□□□3024□□0					

### Operation without mains choke

Typical motor power	Mains voltage	Product key	Circuit breaker	Fuse		Mains connection
4-pole asynchronous motor		Inverter		EN 60204-1	UL	Cross-section (without mains choke)
P	U <sub>AC</sub>		I	I	I	q
[kW]	[V]		[A]	[A]	[A]	[mm2]
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	C20	20	30	4.0
2.20		E84AV□□□2222□□0	C25	25	30	
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				
3.00		E84AV□□□3024□□0	C16	16	15	2.5

# Inverter Drives 8400 BaseLine

Technical data



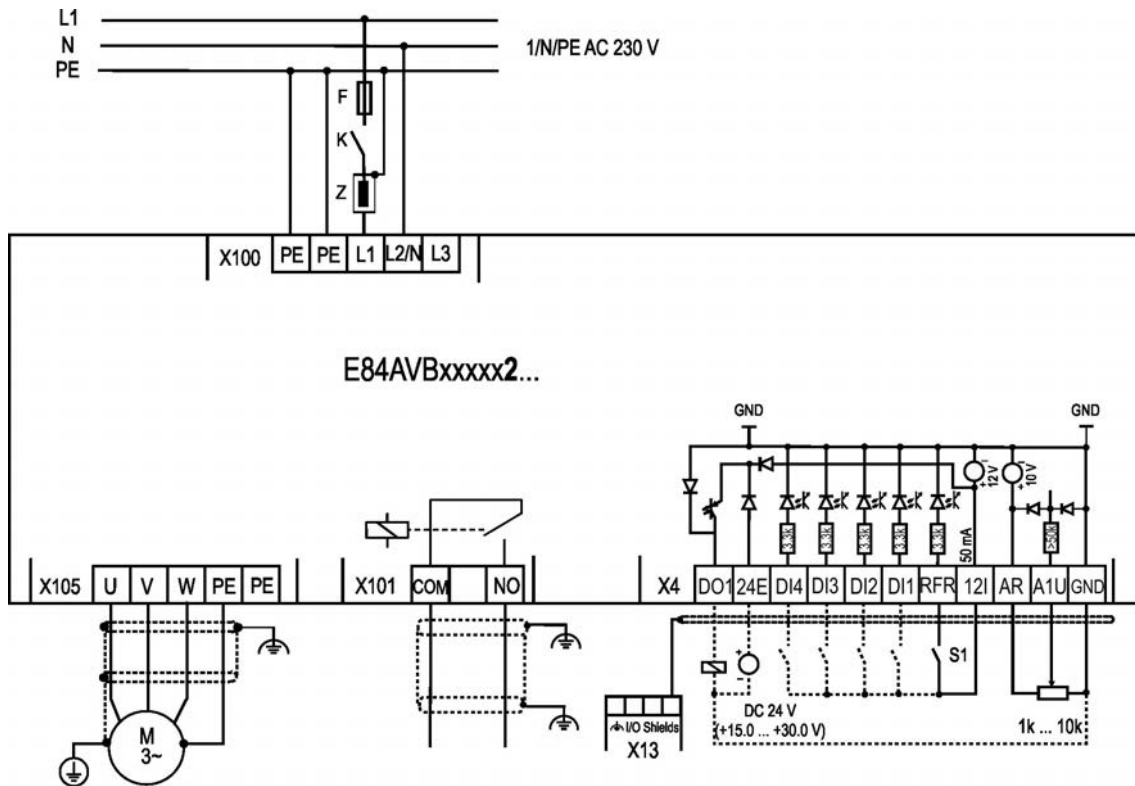
# Inverter Drives 8400 BaseLine

Technical data



## Connection plans

Wiring example for connecting Inverter Drives 8400 BaseLine (shown: BaseLine D) to 1 x 230 V



4.10

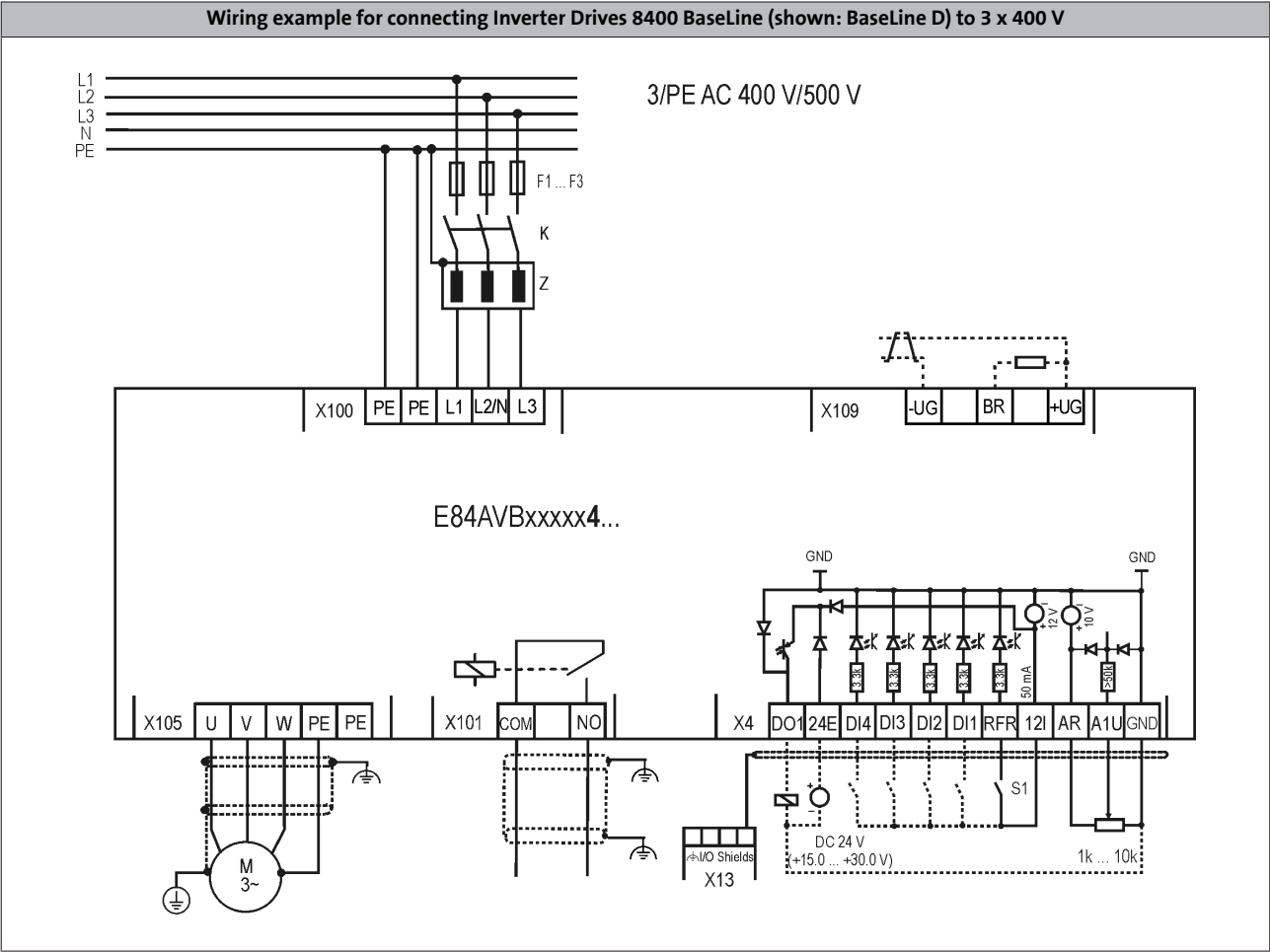


# Inverter Drives 8400 BaseLine

Technical data



## Connection plans



# Inverter Drives 8400 BaseLine

Technical data



## Control connections

Mode	8400 BaseLine
Analog inputs	
Number	1 Switchable: voltage or current input
Resolution	10 bits
Value range	0 ... 10 V, 0/4 ... 20 mA
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	250 V, 3 A
DC connection	24 V, 2 A ... 240 V, 0.16 A
Interfaces	
CANopen	functional insulated Max. baud rate 1000 kbps Integriert (BaseLine C)

4.10

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**EDSCAN**

The diagram illustrates the EDSCAN CAN bus architecture. It shows a series of CAN nodes connected in a daisy-chain configuration. Each node consists of a 3-pin connector (CH, CL, CG) and a 120Ω termination resistor. The nodes are labeled X1, ..., Xn, ..., X13. The CAN-High (CH) and CAN-Low (CL) lines are connected in a daisy-chain, while the CAN-Ground (CG) line is connected to a common ground. The diagram also shows the internal structure of the nodes, including the CAN controller and transceiver.

## 4.10

# Inverter Drives 8400 BaseLine

## Modules



### 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"><li>• For 8400 BaseLine, 8400 motec</li><li>• Packaging unit: 12 items</li></ul>	E84AYM20S/M

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



## 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	
4-pole asynchronous motor		Inverter	Brake resistor						
P	U <sub>AC</sub>			R <sub>N</sub>	P <sub>N</sub>	C <sub>th</sub>	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	100.0	15	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	200.0	30	240 x 41 x 122	1.0	
1.50		E84AV□□□1524□□0							
2.20		E84AV□□□2224□□0	ERBP180R300W		300.0	45	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](http://www.lenze.de/dsc)
- ▶ Data sheet on ERBP brake resistors  
**DS\_ZB\_ERBP\_0001**  
Available for download at [lenze.de/dsc](http://lenze.de/dsc)

- ▶ Data sheet on ERBP brake resistors  
**DS\_ZB\_ERBP\_0001**  
Available for download at [lenze.de/dsc](http://lenze.de/dsc)
- ▶ Data sheet on ERBS brake resistors  
**DS\_ZB\_ERBS\_0001**  
Available for download at [www.lenze.com/dsc](http://www.lenze.com/dsc)



### Mains chokes

A mains choke is an inductive resistor which is connected in the mains cable of the inverter. 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 5%.

Typical motor power	Mains voltage	Product key		Rated current	Dimensions	Mass
4-pole asynchronous motor		Inverter	Mains choke			
P	U <sub>AC</sub>			I <sub>N</sub>	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	1.2
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

# Inverter Drives 8400 BaseLine

## 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								
AC	U <sub>N, AC</sub>	[V]	230			400		
Rated mains current								
	I <sub>N, AC</sub>	[A]	0.8	1.2	2.3	0.3	0.6	1.0
Output voltage								
	U <sub>out</sub>	[V]	DC 22.5 ...28.5					
Rated current								
	I <sub>N</sub>	[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 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"><li>Input voltage: AC 320 ... 550 V</li><li>Output voltage: DC 180 V (at AC 400 V), DC 225 V (at AC 500 V)</li><li>Max. brake current: DC 0.61 A</li><li>Enclosure: IP00</li></ul>	E82ZWBRE
Bridge rectification	<ul style="list-style-type: none"><li>Input voltage: AC 180 ... 317 V</li><li>Output voltage: DC 205 V (at AC 230 V)</li><li>Max. brake current: DC 0.54 A</li><li>Enclosure: IP00</li></ul>	E82ZWBRB

▶ Data sheet on E82ZWBRE brake switch  
**DS\_Brake\_8400\_0001**  
Available for download at [www.lenze.de/dsc](http://www.lenze.de/dsc)

▶ Data sheet on E82ZWBRB brake switch  
**DS\_Brake\_8400\_0002**  
Available for download at [www.lenze.de/dsc](http://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"><li>• Input-side voltage supply via USB connection on PC</li><li>• Output-side voltage supply via inverter's diagnostic interface</li><li>• Diagnostic LEDs</li><li>• Electrical isolation of PC and inverter</li><li>• Hot-pluggable</li></ul>	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





### 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	EMF2173IBV003
	• Electrical isolation from the bus	
	• Voltage supply via USB port on PC	EMF2177IB
	• Electrical isolation from the bus	

### Setpoint potentiometer

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

The setpoint potentiometer is connected to the analogue input terminal of the inverter. A scale and a rotary knob are also available.



Setpoint potentiometer with scale and rotary knob

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

# Inverter Drives 8400 BaseLine

Accessories





Web version

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**Lenze**