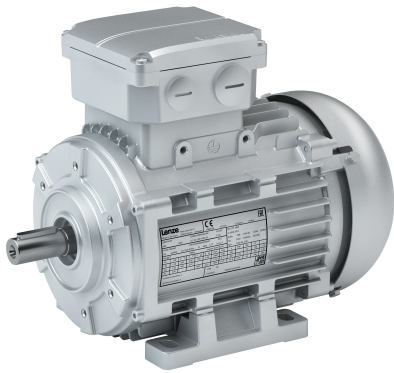




Three-phase AC motors

IE2 three-phase AC motor m550-H Version B

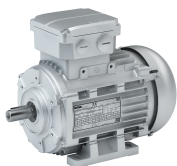
IE3 three-phase AC motor m550-P Version B

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About this document

WARNING!

Read this documentation carefully before starting any work.

► Please observe the safety instructions!

Document description

This document is intended for skilled personnel who work with the products described.

The data and information compiled in this document serve to support you in the electrical and mechanical installation and commissioning.

- The document is only valid together with the complete documentation of the product!
- For safety-rated attachments observe the enclosed operating instructions of the manufacturer!
- The document includes safety instructions which must be observed.
- All persons working on and with the drives must have the documentation at hand during work and observe the information and notes relevant for it.
- The documentation must always be complete and in a perfectly readable state.

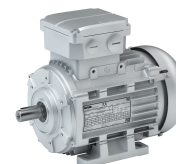
Further documents



Information and tools with regard to the Lenze products can be found on the Internet: www.Lenze.com → Downloads

About this document

Notations and conventions



Notations and conventions

Conventions are used in this document to distinguish between different types of information.

Numeric notation		
Decimal separator	Point	Generally shown as a decimal point. Example: 1 234.56
Warnings		
UL Warnings	UL	Are used in English and French.
UR warnings	UR	
Text		
Engineering Tools	" "	Software Example: "Engineer", "EASY Starter"
Icons		
Page reference		Reference to another page with additional information. Example:  16 = see page 16
Documentation reference		Reference to other documentation with additional information. Example:  EDKxxx = see documentation EDKxxx

Layout of the safety instructions

DANGER!

Indicates an extremely hazardous situation. Failure to comply with this instruction will result in severe irreparable injury and even death.

WARNING!

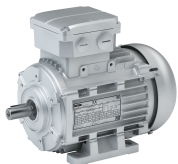
Indicates an extremely hazardous situation. Failure to comply with this instruction may result in severe irreparable injury and even death.

CAUTION!

Indicates a hazardous situation. Failure to comply with this instruction may result in slight to medium injury.

NOTICE

Indicates a material hazard. Failure to comply with this instruction may result in material damage.



Safety instructions

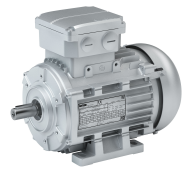
Disregarding the following basic safety measures and safety information may lead to severe personal injury and damage to property!

Observe all specifications of the corresponding documentation supplied. This is the precondition for safe and trouble-free operation and for obtaining the product features specified.

Please observe the specific safety information in the other sections!

Safety instructions

Basic safety instructions



Basic safety instructions

DANGER!

Dangerous electrical voltage

Possible consequences: Death or severe injuries from electric shock

- ▶ Any work on the device must only be carried out in a deenergized state.
- ▶ After switching off the mains voltage, observe the signs on the product.

Product

- The product must only be used as directed.
- Never commission the product in the event of visible damage.
- The product must never be technically modified.
- Never commission the product before assembly has been completed.
- The product must never be operated without required covers.
- Connect/disconnect all pluggable terminals only in de-energized condition.
- Only remove the product from the installation in the deenergized state.

Personnel

Only qualified and skilled personnel are allowed to work with the product. IEC 60364 and/or CENELEC HD 384 define the qualifications of these persons as follows:

- They are familiar with the installation, mounting, commissioning, and operation of the product.
- They possess the appropriate qualifications for their tasks.
- They are familiar with all regulations for the prevention of accidents, directives, and laws applicable at the location and are able to apply them.

Electrical connection

When working on energized products, comply with the applicable national accident prevention regulations.

The electrical installation work must be carried out according to the appropriate regulations (e.g. cable cross-sections, fusing, PE conductor connection). Additional information can be obtained from the documentation.

The documentation contains notes about installation according to EMC regulations. Also observe these notes for CE-marked products. The manufacturer of the system or machine is responsible for adherence to the limits required in connection with EMC legislation.

Operation

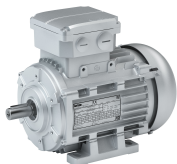
Where appropriate, you must equip the system with additional monitoring and protective devices. Comply with the safety regulations and other regulations applicable at the place of operation.

After disconnecting the product from the supply voltage, do not touch live device parts and power terminals immediately because capacitors may be charged. Observe the corresponding information labels on the product.

Dirt or dust deposits impede the heat dissipation and cooling. Remove any such deposits where appropriate at regular intervals.

Process engineering

The procedural notes and circuit details described are only proposals. It is up to the user to check whether they can be adapted to the particular applications. Lenze does not take any responsibility for the suitability of the procedures and circuit proposals described.



Application as directed

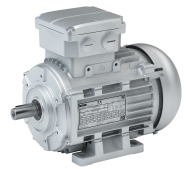
- The harmonized standards of the series IEC/EN60034 are used.
- The product must only be actuated under the operating conditions and power limits specified in this documentation.
- The product meets the protection requirements of 2014/35/EU: Low-Voltage Directive.
- The product is not classed as a machine under 2006/42/EU: Machinery Directive.
- No machine is to be commissioned or put into operation as intended in conjunction with the product until it has been determined that the machine meets the regulations of EC Directive 2006/42/EU: Machinery Directive; observe EN 60204-1.
- Commissioning or putting into operation as intended is only permitted in compliance with the EMC Directive 2014/30/EU.
- The product is not a household appliance. Instead, it is a component that is intended exclusively for further use in the context of commercial or professional use as defined by EN 61000-3-2.
- The product can be used according to the technical data if the drive systems have to comply with categories in accordance with EN 61800-3.
- Do not use the built-in brakes as fail-safe brakes. Disruptive factors that cannot be influenced may cause the braking torque to be reduced.
- The product may be operated with or without an inverter.

Foreseeable misuse

- Use in potentially explosive areas
- Use in aggressive environments
- Use under water
- Use under radiation
- Use in generator mode

Safety instructions

Residual hazards



Residual hazards

Even if notes given are taken into consideration and protective measures are implemented, the occurrence of residual risks cannot be fully prevented.

The user must take the residual hazards mentioned into consideration in the risk assessment for his/her machine/system.

If the above is disregarded, this can lead to severe injuries to persons and damage to property!

Product

Observe the warning labels on the product!



Dangerous electrical voltage:

Before working on the product, make sure there is no voltage applied to the power terminals!

After mains disconnection, the power terminals will still carry the hazardous electrical voltage for the time given next to the symbol!



High leakage current:

Carry out fixed installation and PE connection in compliance with:

EN 61800-5-1 / EN 60204-1

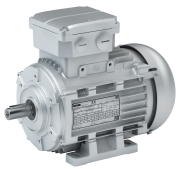


Hot surface:

Use personal protective equipment or wait until the device has cooled down!

Protection of persons

- The product does not provide any safety-related functions.
 - A higher-level safety system must be implemented.
 - Provide additional monitoring and protective equipment complying with the safety regulations applicable in each case.
- The power terminals may carry voltage in the switched-off state or when the motor is stopped.
 - Before working, check whether all power terminals are deenergized.
- Voltages may occur on the drive components (e.g. capacitive, caused by inverter supply).
 - Careful earthing must be carried out at the marked positions of the components.
- There is a risk of burns from hot surfaces!
 - Provide protection against accidental contact.
 - Use personal protective equipment or wait until the device has cooled down!
 - Prevent contact with flammable substances.
- Risk of injury from rotating parts.
 - Before working on the drive system, ensure that the motor is at a standstill.
- There is a danger of unintentional start-up or electric shocks!
- Installed brakes are no fail-safe brakes.
 - torque may be reduced by disruptive factors that cannot be influenced such as ingressing oil.

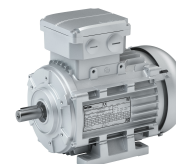


Motor protection

- Version with plug:
 - Never disconnect the plug when energized. The plug could be destroyed.
 - Switch off the voltage supply or disable the inverter prior to disconnecting the plug.
- Installed thermal detectors are no full protection for the machine.
 - Limit the maximum current if necessary. Parameterize the inverter so that it will be switched off after several seconds of operation with $I > I_{\text{rated}}$ especially if there is a danger of blocking.
 - The integrated overload protection does not prevent overloading under all conditions.
- The fuses are no motor protection.
 - Use a current-dependent motor protection switch.
 - Use the built-in thermal detectors.
- Excessively high torques cause a fracture of the motor shaft.
 - Do not exceed the maximum torques according to the technical data on the nameplate.
- Lateral forces on the motor shaft are possible.
 - Align the shafts of motor and driven machine exactly to each other.

Product information

Identification of the products
Nameplates



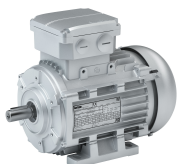
Product information

Identification of the products

Nameplates

Lenze										3			
2		1		4						5			
6.1		6.2		6.3		14							
6.4		6.5		6.6		6.7		15					
7.1		7.2		7.3		Brake		16.1		16.2			
7.4		7.5		SF		7.6		7.7		7.8			
8		9		10		ACH		18					
Hz		kW		V $\sqrt{3}$		A $\sqrt{3}$		V Δ		A Δ			
r/min													
C86		M2		n2		c							
11.1		11.2		11.3		11.4		11.5		11.6			
11.7		11.8		11.9		12		13.1		13.2			
13.3													
19						20		21					
						22		23					

Position	Contents	Position	Contents
1	Manufacturer	12	Motor code for Lenze frequency inverter
2	Country of production	13	Gearbox output data
3	Approvals	13.1	Output torque
4	Standards	13.2	Output speed
5	Motor type	13.3	Load capacity
6	Gearbox data	14	Temperature monitoring
6.1	Product name	15	Feedback
6.2	Product code	16	Brake
6.3	Gearbox ratio	16.1	Size
6.4	Position: Shaft, flange, terminal box/motec	16.2	Supply voltage
6.5	Mounting position	16.3	Power
6.6	Lubricant	16.4	Braking torque
6.7	Lubricant quantity	17	Blower
7	Motor data	17.1	Rated voltage
7.1	Product name	17.2	Rated frequency
7.2	Product key	17.3	Rated power
7.3	Degree of protection	18	Anti-condensation heater
7.4	Efficiency class	19	Customer data
7.5	Operating mode	20	Year of manufacture / week of manufacture
7.6	Rated frequency	21	Country of production, code
7.7	Service factor	22	Material number
7.8	Class of insulation	23	Serial number
8	Ambient temperature	24	Bar code
9	Weight		
10	UL product category		
11	Motor data at rated frequency		
11.1	Rated frequency		
11.2	Rated power		
11.3	Rated voltage		
11.4	Rated current		
11.5	Rated voltage		
11.6	Rated current		
11.7	Rated speed		
11.8	Power factor		
11.9	Efficiency		



Product information

Identification of the products
Product codes

Product codes

Motor product code

Example		M	55	B	H	063	S	04	5	E	0	0	C	C
Product type	Motor	M												
Product family			55											
Generation				B										
Efficiency class	IE2				H									
	IE3				P									
Size						063 071 080 100 112 132 160 180								
Overall length	Briefly						S							
	Medium						M							
	Long						L							
Number of poles	4-pole							04						
Degree of protection	IP54/IP55								5					
	IP65/IP66								6					
Cooling	Self-ventilation									E				
	Forced ventilation									F				
Brake	Without										0			
	Spring-applied brake										F			
Feedback	Without											0		
	Absolute value encoders											A		
	Incremental encoders											E		
	Resolvers											R		
Approvals	None												N	
	CE												C	
	CE UL												R	
	CE CCC												3	
	CE CSA												S	
	CE UL-CSA												U	
	CE UL-CSA CCC												W	
	CCC												4	
	UL-CSA												V	
	UL-CSA CCC												Y	
Design types	Internal key													C

Product information

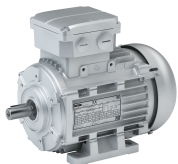
Identification of the products

Product codes



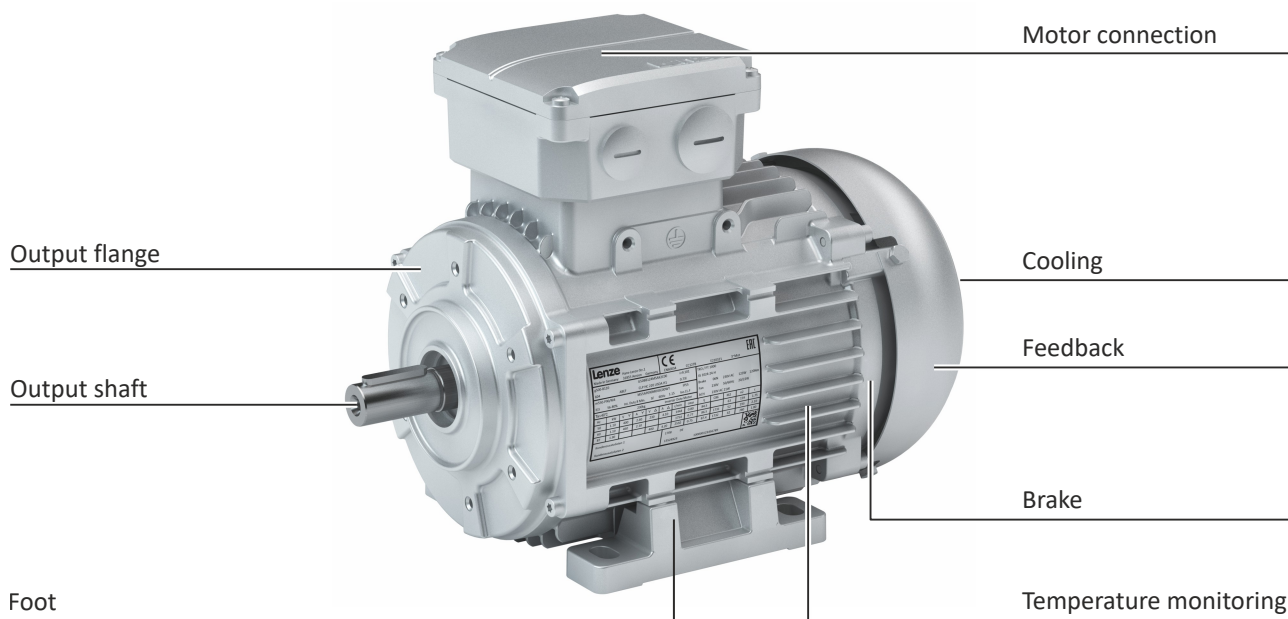
Product code feedbacks

Example		AS	1024	-	8V	-	K	2	
Meaning	Variant	Product code							
Product family	Resolver	RS							
	Resolver for safety function	RV							
	Incremental encoder	IG							
	Incremental encoder with commutation signal	IK							
	Singleturn absolute value encoder	AS							
	Multiturn absolute value encoder	AM							
Number	2-pole resolver for servo motors		0						
	2-pole resolver for three-phase AC motors		1						
	Number of pole pairs for resolvers		2						
			3						
			4						
			...						
	Number of steps / increments per revolution		20						
			32						
			128						
			512						
		1024							
		2048							
		...							
Supply voltage					5V 8V 15V 24V ...				
Interface or signal level	Standard								
	TTL						T		
	HTL (for incremental encoders)						H		
	Hiperface (for absolute value encoders)						H		
	EnDat						E		
	sin/cos 1 Vss						S		
	Digital						D		
	For safety function								
	TTL						U		
	HTL (for incremental encoders)						K		
	Hiperface (for absolute value encoders)						K		
	EnDat						F		
	sin/cos 1 Vss						V		
	Digital						D		
	Safety integration level (SIL)								1 2 3 4



Features

The following figure provides an overview of the elements and connections on the product. Their position, size and appearance may vary.

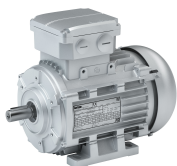




Storage

Storage up to one year:

- If possible, in the manufacturer's packaging
- In dry, low-vibration environment without aggressive atmosphere
- Protect against dust and impacts
- Observe the climatic conditions according to the technical data
 - [► Environmental conditions](#)  43



Mechanical installation

Important notes

- Install the product according to the information in the chapter "Standards and operating conditions".
 - ▶ [Standards and operating conditions](#) 42
- The technical data and the data regarding the supply conditions can be found on the nameplate and in this documentation.
- Ambient media – especially chemically aggressive ones – may damage shaft sealing rings, lacquers and plastics.
- Lenze offers special surface and corrosion protection in this case.

Transport

- Ensure appropriate handling.
- Make sure that all component parts are securely mounted. Secure or remove loose component parts.
- Only use safely fixed transport aids (e.g., eye bolts or support plates).
- Do not damage any components during transport.
- Avoid electrostatic discharges on electronic components and contacts.
- Avoid impacts.
- Check the carrying capacity of the hoists and load handling devices. The weights can be found in the shipping documents.
- Secure the load against tipping and falling down.
- Standing beneath suspended loads is prohibited.



The transport weights can be found in the shipping documents!

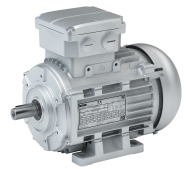
Preparation

- Protect shaft sealing rings from contact with solvents.
- Remove protection covers from shafts.
- Thoroughly remove anticorrosion agents from the shaft and from flange faces.
- Draw the transmission elements onto the output shaft only by using the centering thread.
- Align the output shaft and transmission elements exactly to avoid tensions.
- Mount belt pulleys, sprockets, or gear wheels as close as possible to the shaft shoulder in order to keep the bending load of the shaft and the bearing forces at a minimum level.
- Tighten all screw connections with the specified torques and secure them with standard screw locking adhesive.
- Check paint for damage and repair professionally.

Thread		M3	M4	M5	M6	M8	M10	M12	M16	M20	M24	M27	M30
Strength		Tightening torque Nm $\pm 10\%$											
4.8	Nm	0.7	1.4	2.8	4.8	12	23	–	–	–	–	–	–
8.8	Nm	1.3	3.0	5.9	10.1	24.6	48	84	206	415	714	1050	1428
10.9	Nm	1.9	4.6	8.6	14.9	36.1	71	123	302	592	1017	1496	2033

Mechanical installation

Installation



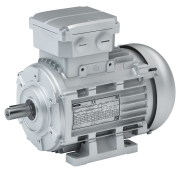
Installation

- The mounting surfaces must be plane, torsionally rigid and free from vibrations.
- The mounting areas must be suited to absorb the forces and torques generated during operation.
- Ensure an unhindered ventilation.
- For versions with a fan, keep a minimum distance of 10 % from the outside diameter of the fan cover in intake direction.

Dimensions



Dimensions are contained in the configuration document.



Mounting

Transmission elements

- Fit or remove transmission elements only using suitable equipment.
- For fitting the transmission elements use the center hole in the shaft.
- Avoid impacts and shocks.
- In case of a belt drive, tension the belt in a controlled manner according to manufacturer information.
- Be sure to carry out mounting in a manner free from distortion.
- Compensate minor inaccuracies by suitable flexible couplings.

Fastening

- Use screws with a minimum property class of 8.8.
- Observe prescribed tightening torques.
- Secure against unintended loosening.
- For alternating loads, we recommend applying anaerobic curing adhesive between flange and mounting surface.

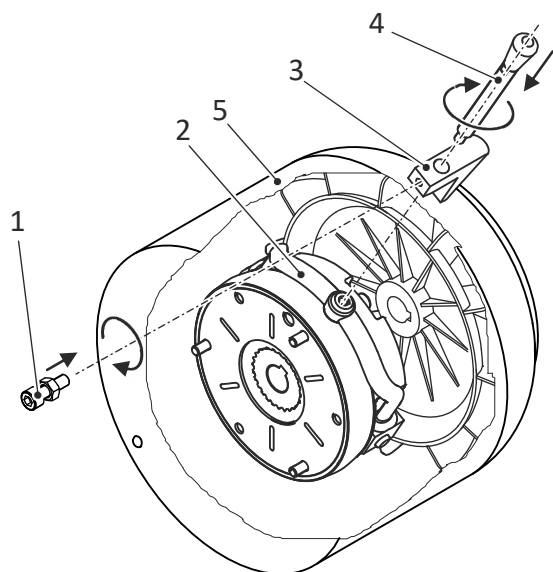
Mechanical installation

Mounting
Product extensions



Product extensions

Assembly of lockable manual release lever in operating position

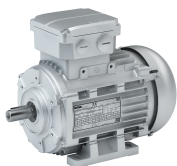


- 1 Cheese head screw with hexagon nut
- 2 Manual release shackle
- 3 Terminal block

- 4 Manual release lever
- 5 Fan cover

How to mount the manual release lever

1. Screw the cheese head screw with hexagon nut (1) loosely into the terminal block (3).
2. Push the terminal block (3) over the manual release lever (4).
3. Guide the manual release lever with terminal block (3+4) through the slot in the fan cover (5) and screw it into the threaded hole in the manual release shackle (4).
4. Tighten the manual release lever (4) to the prescribed torque.
5. Align the terminal block (3) (see fig.) and insert it from above into the slot of the fan cover (5) up to the stop.
6. Tighten the cheese head screw (1) to the specified torque and counter with hexagon head screw.

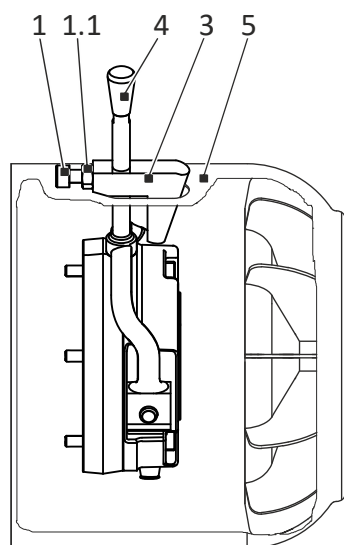


Handling of lockable manual release lever

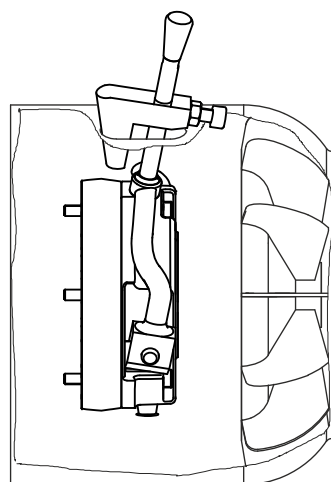
NOTICE

- ▶ Only lock the hand release in the service position for service work!
- ▶ The manual release must not be locked in the service position during operation, otherwise the brake could be damaged!
- ▶ Always secure the terminal block against loosening in every position with cheese head screw and nut!

Operating position, brake is not released



Service position, brake is released

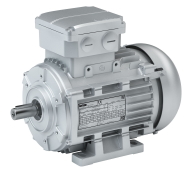


- 1 Cheese head screw with hexagon nut
- 3 Terminal block

- 4 Manual release lever
- 5 Fan cover

How to lock the manual release lever:

1. Loosen hexagon nut (1.1) and cheese head screw (1).
2. Pull the terminal block (3) out of the slot in the fan cover and turn it by 180°.
3. Actuate the manual release lever (4) and bring it into the service position, pushing the terminal block (3) under slight pressure into the slot of the fan cover (5).
4. Tighten the cheese head screw (1) to the specified torque and counter with hexagon head screw (1.1).



Electrical installation

Important notes

DANGER!

Risk of injury and risk of burns from dangerous voltage

Power terminals may also carry voltage in the switched-off state or when the motor is stopped and may cause life-threatening cardiac arrhythmia and serious burns.

- ▶ Disconnect the product from the mains.
- ▶ Check that the power terminals are deenergized before starting work.

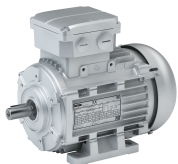
- When working on energized products, comply with the applicable national accident prevention regulations.
- The electrical installation must be carried out according to the appropriate regulations (e.g. cable cross-sections, fuses, PE connection).
- The manufacturer of the system or machine is responsible for adherence to the limits required in connection with EMC legislation.

Preparation

EMC-compliant wiring



The EMC-compliant wiring is described in detail in the documentation of the Lenze inverters.



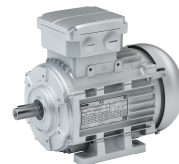
Motor connection

To connect the motor correctly, you must follow:

- The notes in the terminal box of the motor.
- The notes in the configuration document of the motor.
- The technical data on the motor nameplate.

Electrical installation

Motor connection
Connection via terminal box



Connection via terminal box

Observe the notes on wiring, data on the nameplate, and the connection diagram in the terminal box.

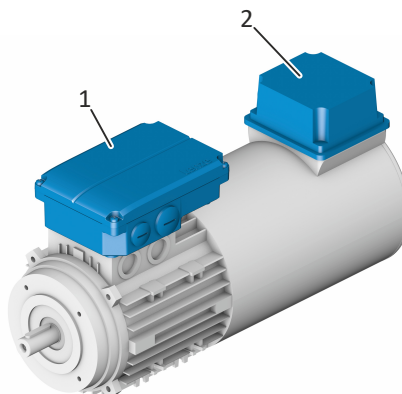
The connection must ensure a continuous and safe electrical supply:

- No protruding wire ends
- Use assigned cable end fittings
- Ensure good electrical conductivity of the contact (remove paint residues) if an additional PE connection is used
- Establish a safe protective earth connection
- After the connection is completed, make sure that all connections on the terminal board are firmly tightened
- The terminal box has to be free of foreign bodies, dirt, and humidity
- All unused cable entries and the terminal box itself must be sealed so that they are dust-tight and waterproof

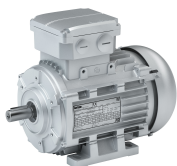
The smallest air gaps between uncoated, live parts and against earth must not fall below the following values:

Minimum requirements for basic insulation according to IEC/EN 60664-1 (CE)	Higher requirements for UL design	Motor diameter
3.87 mm	6.4 mm	<178 mm
	9.5 mm	> 178 mm

Position of the connections



Note	Meaning	Note
1	Power connection Brake connection PE connection Feedback connection Connection of temperature monitoring	
2	Blower connection	If required, the terminal box cover can be rotated step by step by 90 ° after loosening the screws on the terminal box.



Electrical installation

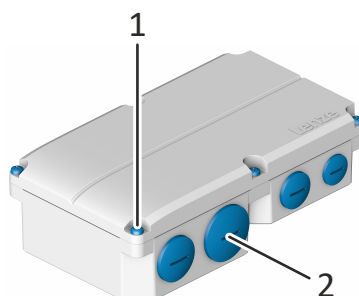
Motor connection
Connection via terminal box

Tightening torques for cover screw connections and cable glands



The opening cutouts for the cable glands are closed with plugs.

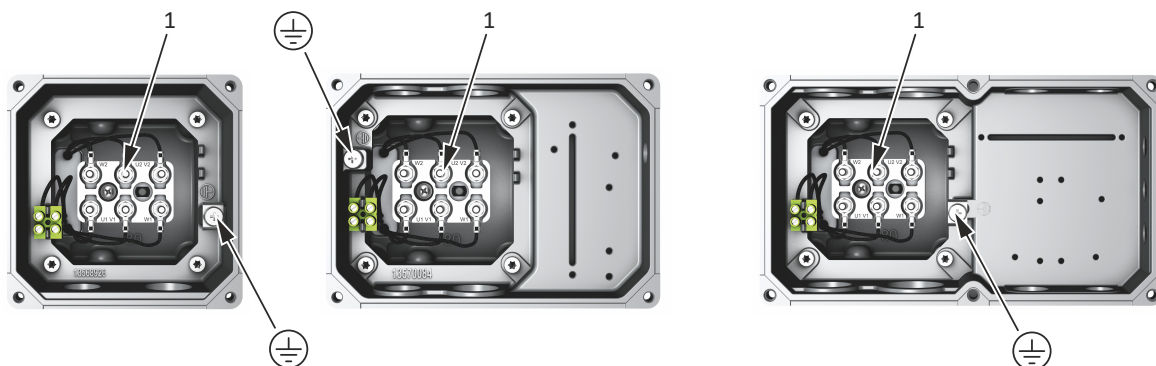
In the case of the blower terminal box, the opening is only arranged on one side. If required, the terminal box can be rotated step by step by 90 ° after loosening the screws in the terminal box.



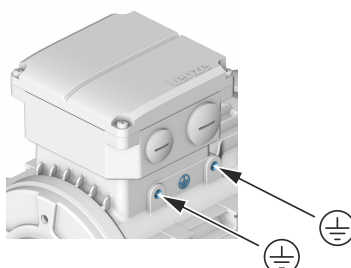
Cover screw connections, position 1								
Thread diameter		M4		M5		M6		
Tightening torques ±10 %	Nm	2.2		3.5		4.5		

Cable glands, position 2								
Cable glands		M12x1.5	M16x1.5	M20x1.5	M25x1.5	M32x1.5	M40x1.5	M50x1.5
Tightening torques ±10 %								
Plastics	Nm	0.7	1.0	1.0	2.5	3.0	3.0	3.0
Metal	Nm	3.0	3.0	4.0	6.0	8.0	10	14

Tightening torques for tightening bolts and PE screw



2. Grounding point at the motor

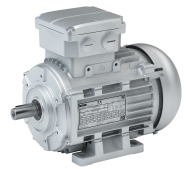


Tightening bolt, position 1				
Motor		m550-H/P63 ... 80	m550-P90 ... 112	m550-P132 ... 160
Tightening torques ±10 %	Nm	1.5	2.0	3.5

PE screw		
Thread diameter		M5
Tightening torques ±10 %	Nm	3.5

Electrical installation

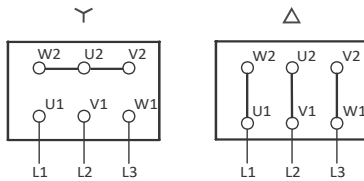
Motor connection
Connection via terminal box



Power connection

Bridge arrangement

Y/Δ circuit

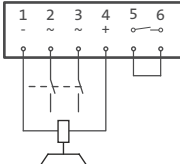


Contact	Name	Meaning
PE	PE	PE conductor
U1	L1	Motor winding phase
V1	L2	
W1	L3	

DC brake connection

Contact	Name	Meaning
BD1	+	Brake +
BD2	-	Brake -

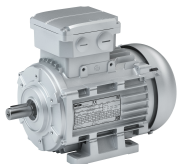
Connection of brake AC

Connection via rectifiers			
Contact	Name	Meaning	
~	L1	Mains	
~	N		
+	+	Holding brake (factory-wired)	
-	-		
		Switching contact - DC switching	

Feedback connection

Resolver		
Contact	Name	Meaning
B1	+Ref	Transformer windings (reference windings)
B2	-Ref	
B3	+VCC ETS	Power supply: electronic nameplate (Only for model with electronic nameplate ETS)
B4	+COS	Cosine stator winding
B5	-COS	
B6	+SIN	Sine stator winding
B7	-SIN	
B8		Not assigned

Incremental encoder HTL/TTL		
Contact	Name	Meaning
+	+ UB	Supply +
-	GND	Mass
A	A/+COS	Track A / + COS
A ⁻	A ⁻ /Ref COS	Track A inverse / - COS
B	B/+SIN	Track B / + SIN
B ⁻	B ⁻ /Ref SIN	Track B inverse/-SIN
0	0	Zero track / + RS485
0 ⁻	0 ⁻	Zero track inverse / - RS485



Electrical installation

Motor connection
Connection via terminal box

Incremental encoder SinCos absolute value encoder with Hiperface®		
Contact	Designation	Meaning
B1	+ UB	Supply +
B2	GND	Mass
B3	A	Track A/+COS
B4	A ⁻	Track A inverse/-COS
B5	B	Track B/+SIN
B6	B ⁻	Track B inverse/-SIN
B7	Z	Zero track/+RS485
B8	Z ⁻	Zero track inverse/-RS485
B10		Incremental encoder shield

Connection of temperature monitoring

Contact	Name	Meaning
TB1		Thermal contact TCO
TB2		
1TP1		PTC thermistor 150
1TP2		
2TP1		PTC thermistor 130
2TP2		
R1	+	Thermal detectors PT1000 +
R2	-	Thermal detectors PT1000 -

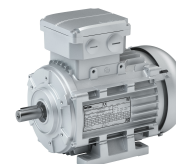
Blower connection

1-phase			
Contact	Name	Meaning	
PE	PE	PE conductor	
U1	L1	Mains connection	
U2	N		

three-phase			
Contact	Name	Meaning	Note
PE	PE	PE conductor	
U1	L1	Mains connection	Pay attention to the direction of rotation! Swap L1 and L2 if the direction of rotation is incorrect.
V1	L2		
W1	L3		

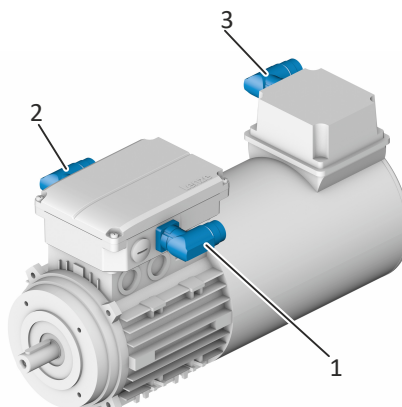
Electrical installation

Motor connection
Connection via ICN connector



Connection via ICN connector

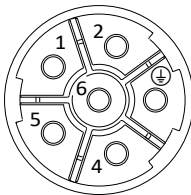
Position of the connections

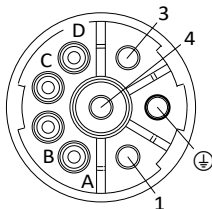


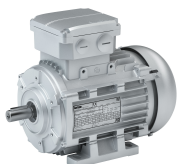
Position	Meaning	Note
1	ICN-M23 connector, 6-pole - Power connection - Brake connection - PE connection In addition to ICN-M23 connector , 8-pole: - Motor temperature monitoring connection TKO or PT1000	-
2	ICN-M23 connector - Feedback connection - PT1000 temperature sensor connection	-
3	ICN-M17 connector Blower connection	If required, the terminal box can be rotated step by step by 90 ° after loosening the screws in the terminal box.

Power and brake connection

ICN-M23 connector assignment 6-pin		
Contact	Name	Meaning
1	BD1	DC +/AC holding brake
2	BD2	DC -/AC holding brake
PE	PE	PE conductor
4	V	Power phase U
5	V	Power phase V
6	W	Power phase W



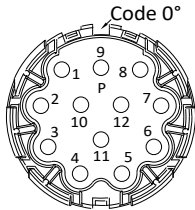
ICN-M23 connector assignment 8-pin			
Contact	Name	Meaning	Figure
1	V	Power phase U	
PE	PE	PE conductor	
3	W	Power phase W	
4	V	Power phase V	
A	TB1 / TP1 / R1	Temperature monitoring: TCO	
B	TB2 / TP2 / R2	Temperature monitoring: TCO	
C	BD1 / BA1	DC +/AC brake ≤ 230 V	
D	BD2 / BA2	DC -/AC brake ≤ 230 V	



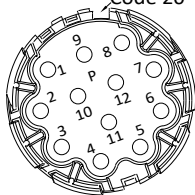
Electrical installation

Motor connection
Connection via ICN connector

Feedback and temperature monitoring connection

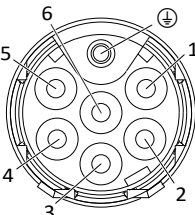
ICN-M23 connector assignment Resolvers			
Contact	Name	Meaning	
1	+ Ref	Transformer windings	
2	- Ref		
3	+VCC ENP	Supply: Electronic nameplate (Only for motors and inverters which support this function)	
4	+ Cos	Stator windings cosine	
5	- Cos		
6	+ Sin	Stator windings Sine	
7	- Sin		
8		Not assigned	
9			
10	Shield	Encoder housing shield	
11	+	Temperature monitoring: PT1000	
12	-		

ICN-M23 connector assignment Incremental and SinCos absolute value encoder Hiperface®		
Contact	Name	Meaning
1	B	Track B / + SIN
2	A ⁻	Track A inverse / - COS
3	A	Track A / + COS
4	+ UB	Supply +
5	GND	Mass
6	Z ⁻	Zero track inverse / - RS485
7	Z	Zero track / + RS485
8		Not assigned
9	B ⁻	Track B inverse/-SIN
10	Shield	Encoder housing shield
11	+	Temperature monitoring: PT1000
12	-	



Blower connection

Pin assignment ICN-M17 Single-phase		
Contact	Name	Meaning
PE	PE	PE conductor
1	U1	Fan
2	U2	
3		Not assigned
4		
5		
6		

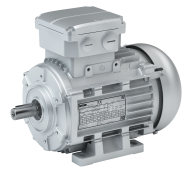


Pin assignment ICN-M17 3-phase			
Contact	Name	Meaning	Illustration
PE	PE	PE conductor	
1	V	Power phase U	
2		Not assigned	
3	V	Power phase V	
4		Not assigned	
5			
6	W	Power phase W	

Electrical installation

Motor connection

Connection via ICN connector



Assembly of ICN connectors

NOTICE

Live cables!

Possible destruction of the connector.

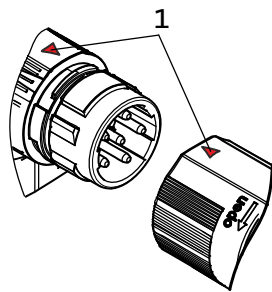
- ▶ Never remove connector when voltage is being applied!
- ▶ Disable inverter before removing the connector!

NOTICE

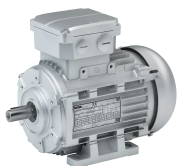
Loss of the protection class due to incorrect mounting!

Malfunctions may occur.

- ▶ ICN connector with screwed connection: Do not remove O-ring
- ▶ ICN connector with SpeedTec bayonet lock: remove O-ring and dispose of it.



1. When connecting the connector to the motor connector, make sure that the aids to orientation (pos. 1) are facing each other.
2. Tighten the box nut of the connector!



Electrical installation

Motor connection
Connection via HAN connector

Connection via HAN connector

The power, brake and temperature monitoring can be connected in the HAN connector.

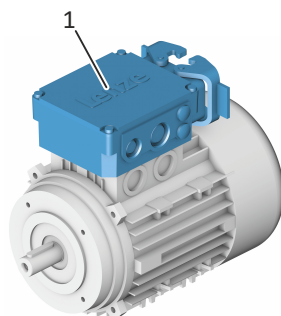
The designs HAN 10E or HAN modular with two power modules (16 A or 40 A) are available.



The HAN 10E connector is only available for motors with the connection method Y/Δ.

An additional rectifier can be connected with HAN modular.

Position of the connections



Note	Meaning
1	Power connection Brake connection PE connection Connection of temperature monitoring Additionally for HAN-Modular: • Rectifier connection

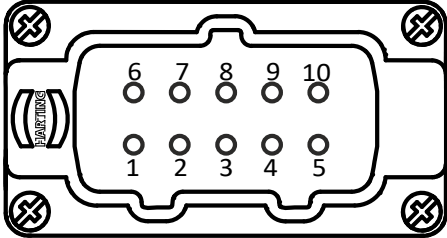
HAN 10E connector



The motor connection is specified in the counter plug.

The connector is only suitable for motors with the connection method Y/Δ.

Bridge arrangement in the mating connector HAN 10E		
Contact	Name	Meaning
6-7-8	y	Circuit
1-6	Δ	
2-7		
3-8		

HAN 10E pin assignment			
Contact		Meaning	Illustration
1	U1	Motor winding phase	
2	V1		
3	W1		
4	+/-AC	Brake	
5	-/AC		
6	W2	Motor winding phase	
7	U2		
8	V2		
9	TCO/+PT1000	Temperature monitoring	
10	TCO/-PT1000		

HAN modular connector

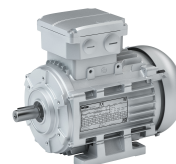


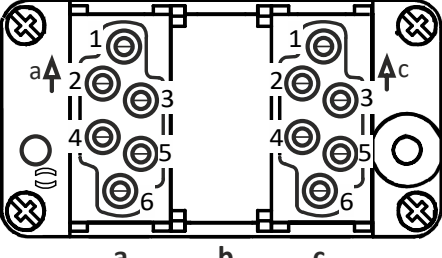
The motor connection is specified in the terminal box.

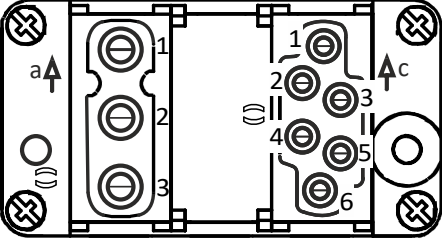
Electrical installation

Motor connection

Connection via M12 connector

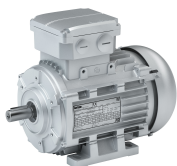


HAN modular 16 A pin assignment					
Module	Contact	Name	Meaning	Illustration	
a	1	U1	Motor winding phase		
	2	V1			
	3	W1			
b			Blank module		
c	1	TCO +PT1000	Temperature monitoring		
	2	+/-AC	Brake		
	3	-/AC	Rectifier		
	4	Switching contact			
	5				
	6	TCO -PT1000	Temperature monitoring		

HAN modular 40 A pin assignment					
Module	Contact	Name	Meaning	Illustration	
a	1	U1	Motor winding phase		
	2	V1			
	3	W1			
b			Blank module		
c	1	TCO +PT1000	Temperature monitoring		
	2	+/-AC	Brake		
	3	-/AC	Rectifier		
	4	Switching contact			
	5				
	6	TCO -PT1000	Temperature monitoring		

Connection via M12 connector

M12 pin assignment Incr. encoder IG128-24V-H			
Contact	Name	Meaning	
1	+ U _B	Supply +	
2	B	Track B	
3	GND	Mass	
4	A	Track A	



Commissioning

Important notes

Temperature ranges

The following temperature ranges are available matched to your ambient conditions:

- Default
- Deep-freeze
- Wide range

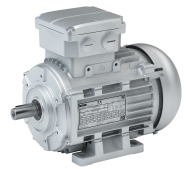


Check the ambient temperature shown on the nameplate.

► [Nameplates](#)  12

Pay attention to the notes on the temperature ranges!

Temperature ranges	
Default	
Ambient temperature	0 °C ... +40 °C
Note	At an ambient temperature generally over +30 °C: • A check of the application case by Lenze is required.
Deep-freeze	
Ambient temperature	-30 °C ... +10 °C
Note	When starting a cold motor at below -20 °C, you have to expect an increased starting torque on account of the higher viscosity of the roller bearing grease. • Take a starting torque reserve for the motor of around 20 % into account during the configuration. Commissioning at over +10 °C: • Operate the drive with max. 50 % of the rated torque to avoid any shortening of the service life.
Wide range	
Ambient temperature	-30 °C ... +40 °C
Note	When starting a cold motor at below -20 °C, you have to expect an increased starting torque on account of the higher viscosity of the roller bearing grease. • Take a starting torque reserve for the motor of around 30 % into account during the configuration. At an ambient temperature generally over +30 °C: • A check of the application case by Lenze is required. At a temperature constantly between -30 °C and -25 °C, the service life is up to 20 % lower than with the deep-freeze package.



Before initial switch-on

- That the drive does not show any visible signs of damage.
- Is the mechanical fixing o.k.?
- Is the electrical connection ok?
- Are all rotating parts and surfaces that may become hot protected against contact?
- Is the featherkey radially secured during the test run without output elements?
- Have all screwed connections of the mechanical and electrical parts been tightened?
- Is it ensured that the cooling air can be freely supplied and discharged?
- Has the PE conductor been connected correctly?
- Are the protective devices against overheating (e.g. thermal sensor evaluation) working?
- Has the inverter been parameterized suitably for the motor?
- Is the phase sequence of the motor connection correct?
- Is a protection against contact provided in front of rotating parts and in front of surfaces that can get hot?
- Is the contact of good electrical conductivity if a PE connection on the motor housing is used?

After a long period of downtime or after overhauling the motor, check the insulation resistance prior to initial switch-on, as condensation may have formed.

- If the values measured are $\leq 1 \text{ k}\Omega$ per volt of the rated voltage, the insulation resistance is inadequate and no voltage is to be applied.
- Dry the winding until the insulation resistance is $> 1 \text{ k}\Omega$ per volt of the rated voltage.

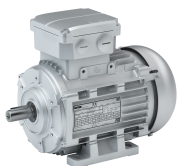
Functional test

After commissioning, check all individual functions of the drive:

- Rotating direction in decoupled state
- Torque behavior and current consumption
- Function of the feedback system
- Brake function

During operation, carry out inspections on a regular basis. Pay special attention to:

- Unusual noises
- Irregular running
- Increased vibration
- Loose fixing elements
- Condition of electrical cables
- Speed variations
- Deposits on the drive and in the cooling channels



Maintenance

⚠ WARNING!

Risk of injury due to non-compliance with the following safety measures

Disregarding the following safety measures may lead to severe personal injury and damage to property.

- ▶ Only work on the drive system when it is de-energised.
- ▶ Wait for the surfaces to cool down.
- ▶ Put the drive system in a load-free state or secure any loads acting on the drive.
- ▶ Protect the motors against the ingress of foreign bodies.

Feedback

⚠ DANGER!

Any work on the safety encoder which has not been executed professionally will cause a loss of the safety functions.

Possible consequences: damage to property and/or injury to persons.

- ▶ The safety encoder may only be repaired or replaced by the Lenze service or its authorised persons.

Maintenance intervals

Motor

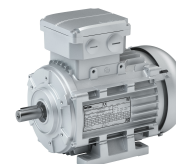
Time interval	Measures	Description of the operations
Every 6 months	Clean motor	Remove dirt and dust deposits. To be inspected more frequently in the case of heavy dirt accumulation.
After 3 hours, then every 2 years	Check fastening elements	Check all fixing screws on the motor (foot and flange fixing ...) for tightness.

Spring-applied brake

NOTICE

- ▶ A maintenance concept adapted to the operating conditions and the stresses to which the brakes are subjected must be drawn up for every application.

Application brake	Holding brake with emergency stop	Description of the operations
• According to service life calculation • Otherwise every six months • After 4,000 operating hours at the latest	• At least every two years • Standard brake: After 1 million cycles at the latest • LongLife design: After 10 million cycles at the latest • Provide shorter intervals in the case of frequent emergency stops	• Remove contamination by oil and grease with brake cleaner, if necessary replace the brake after clarifying the cause. • Remove dirt and particles in the air gap between stator and armature plate. • Check ventilation function and activation/deactivation • Check air gap (if required, re-adjust it) • Measure rotor thickness (if required, replace rotor) • Check for thermal damage of the armature plate or flange (tarnished in dark blue)



Maintenance work

Maintenance work at the spring-applied brake

NOTICE

- ▶ Brakes with defective armature plates, springs or flanges must be completely replaced.
- ▶ Before carrying out maintenance work, identify the brake and motor protection type from the nameplate.

▶ Nameplates 12



Before working on the brake, remove the integral fan cover or blower cover on the motor.

How to remove the fan cover:

1. Loosen and remove screws at the cover circumference.
2. If necessary, disconnect the connecting cable on the blower cover.
3. Remove fan cover.

Release brake and check voltage

DANGER!

Risk of injury due to rotary parts.

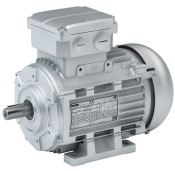
- ▶ Do not touch rotating components.

DANGER!

Risk of injury by electric shock.

- ▶ Do not touch live connections.

1. Check the function of the brake while the drive is running: The armature plate must be tightened and the rotor must move free of residual torque.
2. Measure the DC voltage on the brake.
 - Compare the measured DC voltage with the voltage specification on the nameplate. A deviation up to $\pm 10\%$ is permissible.
 - When using bridge/half-wave rectifiers: After switching over to one-way voltage, the measured DC voltage may drop to 45% of the voltage indicated on the nameplate.



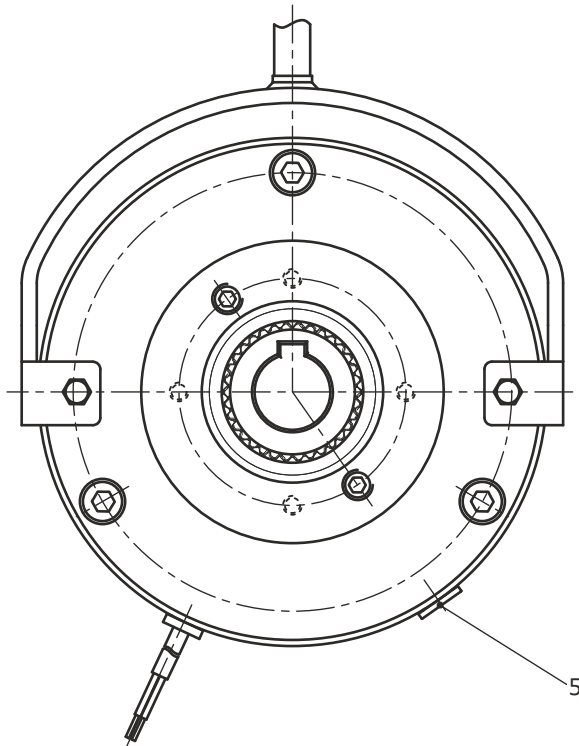
Check and adjust air gap

DANGER!

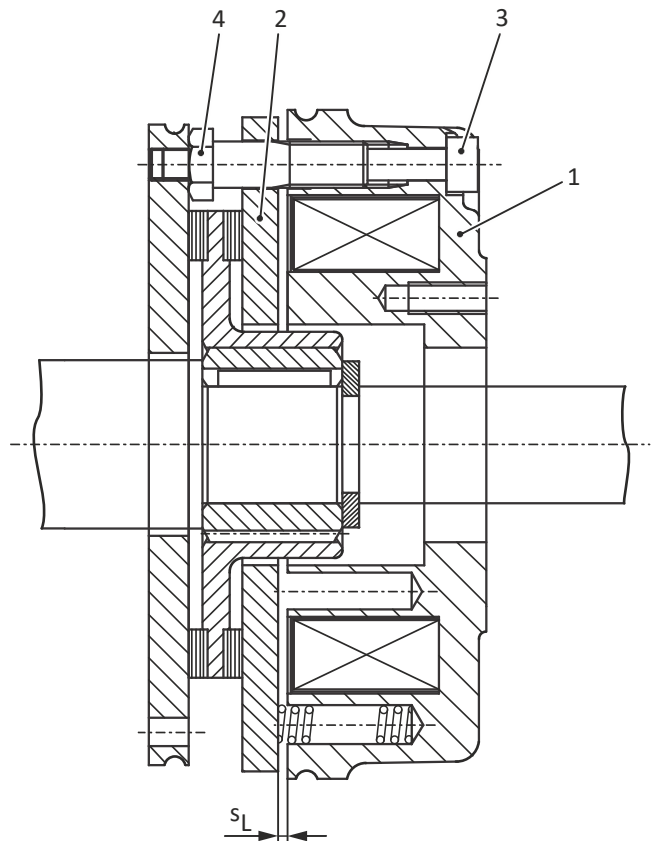
Risk of injury due to rotary parts.

► The motor must not be running when checking the air gap.

Spring-applied brake ABR IP65/66



Spring-applied brake HBR IP54/55
Spring-applied brake ABR IP54/55



- 1 Stator
- 2 Armature plate
- 3 Cheese head screw

- 4 Sleeve bolt with hexagon
- 5 Sealing plug
- s_L Air gap

How to check the air gap:

1. Do not energize the brake.
2. For brake ABR IP65/66: Lever out the sealing plug (5) on the circumference of the brake and check the air gap s_L through the bore. After checking, push the sealing plug back in, taking care not to tilt the plug.
3. Measure the air gap s_L between stator (1) and armature plate (2) in the vicinity of the cap screws (3) using a surface feeler gauge.
4. Compare the air gap with the value for the maximum permissible air gap $s_{L,max}$.
5. Set air gap to $s_{L,N}$.

How to set the air gap on the ABR IP54/55 brake

1. Loosen cheese head screws (3) with an Allen key.
2. Screw the sleeve bolts (4) further into the stator (1) using an open-end wrench. 1/6 revolution reduces the air gap by approx. 0.15 mm.
3. Tighten the cheese head screws (10) to the prescribed torque.



4. Measure the air gap s_L between stator (1) and armature plate (2) in the vicinity of the cap screws (3) using a surface feeler gauge.

NOTICE

- With the holding brake HBR and application brake ABR (motor protection class IP65/66) the air gap cannot be adjusted! If the air gap $s_{L,max}$ is reached, the brakes must be replaced.

Holding brake HBR

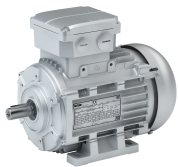
Brake	Braking torque is static	Air gap	
		$s_{L,max}$	$s_{L,N}$
	Nm	mm	mm
HBR 06	4	0.6	0.2 ±0.1
HBR 08	8	0.6	
HBR 10	16	0.7	0.3 ±0.1
	23	0.5	
HBR 12	32	0.8	
HBR 14	60	0.8	
HBR 16	80	0.9	
HBR 18	150	0.6	0.4 $\begin{smallmatrix} +0.10 \\ -0.05 \end{smallmatrix}$

Application brake ABR, protection class IP54/55

Brake	Tightening torque	Air gap		
		$s_{L,max}$		$s_{L,N}$
		Service brake	Holding brake	mm
	Nm	mm		mm
ABR 06	3.0	0.50	0.30	0.2 $\begin{smallmatrix} +0.10 \\ -0.05 \end{smallmatrix}$
ABR 08	5.9			
ABR 10	10.1			
ABR 12	10.1	0.75	0.45	0.3 $\begin{smallmatrix} +0.10 \\ -0.05 \end{smallmatrix}$
ABR 14	24.6			
ABR 16	24.6			
ABR 18	24.6	1.00	0.60	0.4 $\begin{smallmatrix} +0.10 \\ -0.05 \end{smallmatrix}$
ABR 20	48.0			

Application brake ABR, protection class IP65/66

Brake	Tightening torque	Air gap		
		$s_{L,max}$		$s_{L,N}$
		Service brake	Holding brake	mm
	Nm	mm		mm
ABR 06	3.0	0.50	0.30	0.2 $\begin{smallmatrix} +0.08 \\ -0.05 \end{smallmatrix}$
ABR 08	5.9	0.50	0.30	0.2 $\begin{smallmatrix} +0.08 \\ -0.05 \end{smallmatrix}$
ABR 10	10.1	0.50	0.30	0.2 $\begin{smallmatrix} +0.13 \\ -0.05 \end{smallmatrix}$
ABR 12	10.1	0.60	0.45	0.3 $\begin{smallmatrix} +0.08 \\ -0.10 \end{smallmatrix}$
ABR 14	24.6	0.75	0.45	0.3 ±0.1
ABR 16	24.6	0.80	0.50	0.3 $\begin{smallmatrix} +0.15 \\ -0.05 \end{smallmatrix}$
ABR 18	24.6	1.0	0.65	0.4 $\begin{smallmatrix} +0.20 \\ -0.10 \end{smallmatrix}$



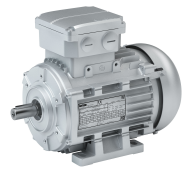
Repair

NOTICE

We recommend having all repairs carried out by the Lenze service department.

If faults occur during the operation of the drive system:

- First check the possible causes of malfunction according to the [► Diagnostics and fault elimination](#)  40
- If the fault cannot be remedied using one of the measures listed, please contact the Lenze service department. The contact data can be found on the rear of this documentation.

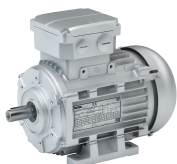


Diagnostics and fault elimination

Malfunctions

If faults occur during the operation of the drive, the table below helps you to identify the causes. If it is not possible to remedy the fault using the measures listed, please contact the Lenze service department.

Error	Possible causes	Remedy
Motor too hot Can only be evaluated by measuring the surface temperature: - Non-ventilated motors >140 °C - Externally ventilated or self-ventilated motors > 110 °C	Insufficient cooling air, blocked air ducts.	Ensure unimpeded circulation of cooling air
	Preheated cooling air	Ensure a sufficient supply of fresh cooling air
	Overload, with normal mains voltage the current is too high and the speed too low	Use larger drive (determined by power measurement)
	Rated operating mode (S1 to S8 IEC/EN 60034-1) exceeded	Adjust rated operating mode to the specified operating conditions. Determination of correct drive by expert or Lenze customer service
	Loose contact in supply cable (temporary single-phase operation!)	Tighten loose contact
	Fuse has blown (single-phasing!)	Replace fuse
	Overload of the drive	Check load and, if necessary, reduce by means of longer ramp-up times Check winding temperature
	Heat dissipation impeded by deposits	Clean surface and cooling fins of the drives
Motor suddenly stops and does not restart	Overload monitoring of the inverter is activated	Check inverter settings
		Reduce load caused by longer acceleration times
Incorrect direction of rotation of the motor, correct display on the inverter	Motor cable with reverse polarity	Check and correct polarity
	Polarity of encoder cable reversed	
Motor rotates normally but does not reach the expected torque	Motor cable interchanged cyclically Not all motor phases connected	Connect the phases at the motor cable connection correctly
Motor turns in one direction at maximum speed in an uncontrolled manner	Motor cable interchanged cyclically	Check motor connection and, if necessary, correct
	Polarity of encoder cable reversed	Check encoder connection and, if necessary, correct
Motor slowly rotates in one direction and is not influenced by the inverter	Polarity of motor cable and encoder cable reversed	Check and correct polarity
Irregular running	Insufficient shielding of motor or resolver cable	Checking shielding and earth connection
	Inverter gain too large	Adjust the gains of the controllers (see operating instructions for the inverter)
Vibrations	Insufficiently balanced coupling elements or machine	Rebalance
	Inadequate alignment of drive train	Realign machine unit, check foundation, if necessary.
	Loose fixing screws	Check and tighten screw connections
Running noises	Foreign particles inside the motor	Repair by the manufacturer, if necessary
	Bearing damage	
Surface temperature > 140 °C	Overload of the drive	Check load and, if necessary, reduce by means of longer ramp-up times.
		Check winding temperature
	Heat dissipation impeded by deposits	Clean surface and cooling fins of the drives.

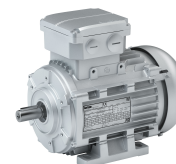


For resistance measurement, observe the data on the brake nameplate.

Trouble	Possible cause	Remedy
Brake does not release, Air gap is not zero	Coil is interrupted	Measure the resistance of the coil with a multimeter: • Compare measured resistance with rated resistance. • If resistance is too high, replace the spring-applied brake completely
	Coil has interturn fault or short circuit to ground	Measure the resistance of the coil with a multimeter: • Compare measured resistance with rated resistance. • If the resistance is too low, replace the stator completely. Check coil for short circuit to ground with a multimeter: • Replace the spring-applied brake completely in case of short circuit to ground.
	Wiring defective or incorrect	Check and correct wiring: • Check cable for continuity with a multimeter. • Replace defective cable.
	Rectifier defective or incorrect	Measure the DC voltage at the rectifier with a multimeter. If DC voltage is zero: • Measure AC voltage at the rectifier. • If AC voltage is zero: • Switch on voltage • Check fuse • Check wiring If AC voltage is ok: • Check rectifier • Replace defective rectifier Check coil for interturn fault or short circuit to ground If the rectifier is repeatedly faulty, replace the spring-applied brake completely, even if no interturn fault or short circuit to earth can be measured. The error may only occur when the temperature rises.
	Microswitch wired incorrectly	Check and correct wiring of microswitch.
	Microswitch incorrectly set	Replace stator completely and complain to the manufacturer about the setting of the microswitch.
	Air gap s_L too large	Readjust air gap
Rotor cannot rotate freely	Air gap s_L too small	Check air gap s_L and readjust if necessary.
Rotor thickness too small	Rotor was not replaced in time	Replace rotor
Voltage too high	Brake voltage does not match rectifier	Adjust rectifier and brake voltage to each other.
Voltage too low	Brake voltage does not match rectifier	Adjust rectifier and brake voltage to each other.
	Diode in rectifier defective	Replace defective rectifier with suitable undamaged rectifier
AC voltage is not mains voltage	Fuse is missing or defective	Select a connection where the fuse is not removed and is ok.

Technical data

Standards and operating conditions
Conformities and approvals



Technical data

Standards and operating conditions

Conformities and approvals

Conformities		
CE	2006/42/EC	Machinery Directive, only relevant for (permissible) safety components, such as encoder or brake
	2009/125/EC	ErP Directive and associated regulations on the ecodesign of electric motors
	2011/65/EU	RoHS Directive
	2014/30/EU	EMC Directive (reference: CE-typical drive system)
	2014/35/EU	Low-Voltage Directive
EAC	TP TC 020/2011	Eurasian conformity: Electromagnetic compatibility of technical means
	TP TR 004/2011	Eurasian conformity: Safety of low voltage equipment

Approvals		
cULus	CSA 22.1 No. 100	CSA Standard for motors and generators - does not apply to 8400 motec
	CSA C390	Energy Efficiency Test Methods for Three-Phase Induction Motors - does not apply to 8400 motec
	e-CFR 431	Energy Efficiency Program for Certain Commercial and Industrial Equipment - does not apply to 8400 motec
	UL 1004-1	UL Standard for Rotating Electrical Machines - does not apply to 8400 motec
	UL 1004-8	UL Standard for Inverter Duty Motors - does not apply to 8400 motec
CUR	CSA 22.1 No. 100	CSA Standard for motors and generators - only applies to 8400 motec
	UL 1004-1	UL Standard for Rotating Electrical Machines - only applies to 8400 motec
	UL 1004-8	UL Standard for Inverter Duty Motors - only applies to 8400 motec
GB	GB 12350	GB Standard: Safety requirements of small-power motors
	GB 18613	GB Standard: Minimum allowable values of energy efficiency and energy efficiency grades for small and medium three-phase asynchronous motors - does not apply to 8400 motec
	GB/T 26572	GB Standard: Requirements on concentration limits for certain restricted substances in electrical and electronic products

Protection of persons and device protection

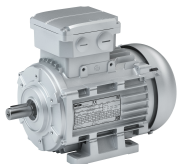
Degree of protection			
EN	EN 60529, EN 60034-5	IP54	Information applies to the mounted and ready-for-use state
		IP55	
		IP65	
		IP66	

Temperature class			
Utilization	EN 60034-1	B (130 °C)	Utilization
Insulation system		F (155 °C)	Insulation system

Permissible voltage		
IVIC C	IEC 60034-18-41	at 500 V

EMC data

Noise emission			
Fulfils requirements according to	EN 60034-1	A final overall assessment of the drive system is indispensable	
Noise immunity			
-	EN 60034-1	Requirements met	A final overall assessment of the drive system is indispensable



Technical data

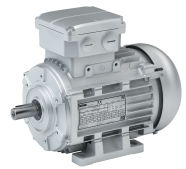
Standards and operating conditions
Environmental conditions

Environmental conditions

Energy efficiency			
High efficiency	EN 60034-30-1	Class IE2	
Premium high efficiency		Class IE3	
Climate			
Storage	EN 60721-3-1	1K3 (-25 ... +60°C)	
Transport	EN 60721-3-2	2K3 (-25 ... +70°C)	
Operation	EN 60721-3-3	3K3 (0 ... +40 °C)	
	-	-30 ... +10 °C	Depending on the temperature range! Observe ambient temperature data on the nameplate!
	-	-30 ... +40 °C	
Site altitude			
0 ... 1000 m amsl	-	-	-
1000 ... 4000 m amsl		Reduce power by 5 %/1000 m	
Air humidity			
Air humidity	-	Without condensation; average relative humidity 85%	

Technical data

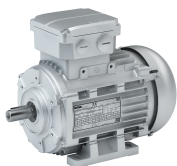
Rated data



Rated data

Rated data 50 Hz

Motor			M55BH				
			063S04	063M04	063L04	071M04	071L04
Rated power	P_{rated}	kW	0.12	0.18	0.25	0.37	0.55
Rated speed	n_{rated}	rpm	1415	1400	1390	1425	1430
Max. speed	n_{max}	rpm	4500	4500	4500	4500	4500
Rated voltage							
Dreieck	$V_{\text{rated}, \Delta}$	V	230	230	230	230	230
Stern	$V_{\text{rated}, Y}$	V	400	400	400	400	400
Rated current							
230 V	$I_{\text{rated}, \Delta}$	A	0.710	0.940	1.18	1.71	2.34
400 V	$I_{\text{rated}, Y}$	A	0.410	0.540	0.680	0.990	1.35
Starting current	I_a	A	1.40	1.94	2.60	4.23	6.32
Rated torque	M_{rated}	Nm	0.810	1.23	1.72	2.48	3.67
Starting torque	M_a	Nm	1.54	2.46	3.44	4.45	6.95
Stalling torque	M_b	Nm	1.94	2.83	3.78	6.92	11.3
Power factor	$\cos \varphi$		0.68	0.72	0.76	0.74	0.76
Efficiency							
at 50% P_{rated}	η		0.549	0.625	0.695	0.695	0.758
at 75% P_{rated}	η		0.591	0.647	0.685	0.727	0.771
at 100% P_{rated}	η		0.591	0.647	0.685	0.727	0.771
Moment of inertia	J	kgcm ²	2.4	2.9	3.7	9.1	13.3
Weight	m	kg	4.32	4.77	5.77	7.77	8.97



Technical data

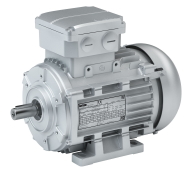
Rated data

Motor			M55BP					
			080M04	090M04	090L04	100M04	100L04	112M04
Rated power	P_{rated}	kW	0.75	1.1	1.5	2.2	3	4
Rated speed	n_{rated}	rpm	1455	1465	1465	1470	1470	1470
Max. speed	$n_{\text{max.}}$	rpm	4500	4500	4500	4500	4500	4500
Rated voltage								
Dreieck	$V_{\text{rated}, \Delta}$	V	230	230	230	230	230	230
Stern	$V_{\text{rated}, Y}$	V	400	400	400	400	400	400
Rated current								
230 V	$I_{\text{rated}, \Delta}$	A	2.77	4.00	5.51	7.72	10.6	13.5
400 V	$I_{\text{rated}, Y}$	A	1.60	2.31	3.18	4.46	6.10	7.82
Starting current	I_a	A	8.91	16.4	22.5	35.8	47.1	58.3
Rated torque	M_{rated}	Nm	4.92	7.17	9.78	14.3	19.5	26.0
Starting torque	M_a	Nm	7.38	14.4	20.6	31.3	43.1	44.1
Stalling torque	M_b	Nm	16.2	25.2	34.3	49.8	66.6	83.1
Power factor	$\cos \varphi$		0.84	0.83	0.82	0.83	0.84	0.86
Efficiency								
at 50% P_{rated}	η		0.826	0.844	0.851	0.879	0.883	0.898
at 75% P_{rated}	η		0.825	0.841	0.853	0.867	0.877	0.886
at 100% P_{rated}	η		0.825	0.841	0.853	0.867	0.877	0.886
Moment of inertia	J	kgcm ²	27.2	53.8	58.3	123	130.3	198
Weight	m	kg	12.28	17.33	18.43	30.41	31.61	40.38

Motor			M55BP					
			132M04	132L04	160M04	160L04	180M04	180L04
Rated power	P_{rated}	kW	5.5	7.5	11	15	18.5	22
Rated speed	n_{rated}	rpm	1480	1480	1485	1485	1485	1480
Max. speed	$n_{\text{max.}}$	rpm	4500	4500	4500	4500	4500	4500
Rated voltage								
Dreieck	$V_{\text{rated}, \Delta}$	V	230	230	230	230	230	230
Stern	$V_{\text{rated}, Y}$	V	400	400	400	400	400	400
Rated current								
230 V	$I_{\text{rated}, \Delta}$	A	18.3	25.4	36.0	49.2	57.6	67.2
400 V	$I_{\text{rated}, Y}$	A	10.6	14.6	20.8	28.4	33.3	38.8
Starting current	I_a	A	84.9	117	163	228	315	312
Rated torque	M_{rated}	Nm	35.5	48.4	70.7	96.5	119	142
Starting torque	M_a	Nm	53.3	77.6	98.9	144	251	241
Stalling torque	M_b	Nm	131	179	226	308	465	467
Power factor	$\cos \varphi$		0.86	0.85	0.86	0.849	0.893	0.906
Efficiency								
at 50% P_{rated}	η		0.903	0.908	0.920	0.928	0.932	0.937
at 75% P_{rated}	η		0.896	0.904	0.914	0.921	0.926	0.930
at 100% P_{rated}	η		0.896	0.904	0.914	0.921	0.926	0.930
Moment of inertia	J	kgcm ²	470.6	485.9	1360	1550	2330	2400
Weight	m	kg	61.82	64.26	168.4	183.2	168.4	183.2

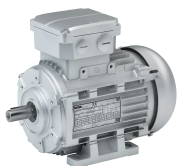
Technical data

Rated data



Rated data 60 Hz

Motor			M55BH				
			063S04	063M04	063L04	071M04	071L04
Rated power	P_{rated}	kW	0.12	0.18	0.25	0.37	0.55
Rated speed	n_{rated}	rpm	1725	1715	1710	1735	1740
Max. speed	$n_{\text{max.}}$	rpm	4500	4500	4500	4500	4500
Rated voltage							
Stern	$V_{\text{rated, Y}}$	V	460	460	460	460	460
Rated current							
460 V	$I_{\text{rated, Y}}$	A	0.370	0.480	0.600	0.880	1.21
Starting current	I_{a}	A	1.47	2.07	2.68	4.28	6.32
Rated torque	M_{rated}	Nm	0.700	1.00	1.40	2.00	3.00
Starting torque	M_{a}	Nm	1.54	2.32	3.08	3.88	5.74
Stalling torque	M_{b}	Nm	2.01	2.83	3.78	6.94	10.9
Power factor	$\cos \varphi$		0.62	0.67	0.71	0.7	0.73
Efficiency							
at 50% P_{rated}	η		0.564	0.640	0.704	0.708	0.762
at 75% P_{rated}	η		0.637	0.680	0.700	0.720	0.755
at 100% P_{rated}	η		0.640	0.680	0.700	0.720	0.755
Moment of inertia	J	kgcm ²	2.4	2.9	3.7	9.1	13.3
Weight	m	kg	4.32	4.77	5.77	7.77	8.97



Technical data

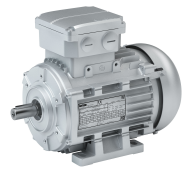
Rated data

Motor			M55BP					
			080M04	090M04	090L04	100M04	100L04	112M04
Rated power	P_{rated}	kW	0.75	1.1	1.5	2.2	3	4
Rated speed	n_{rated}	rpm	1760	1770	1770	1775	1770	1775
Max. speed	$n_{\text{max.}}$	rpm	4500	4500	4500	4500	4500	4500
Rated voltage								
Stern	$V_{\text{rated, Y}}$	V	460	460	460	460	460	460
Rated current								
460 V	$I_{\text{rated, Y}}$	A	1.40	2.02	2.78	3.93	5.31	6.82
Starting current	I_{a}	A	8.71	16.2	22.0	35.6	46.1	57.2
Rated torque	M_{rated}	Nm	4.10	5.90	8.10	11.8	16.2	21.5
Starting torque	M_{a}	Nm	6.09	12.5	17.8	27.3	37.1	38.7
Stalling torque	M_{b}	Nm	15.8	23.8	32.4	46.2	62.9	79.6
Power factor	$\cos \varphi$		0.82	0.81	0.8	0.82	0.82	0.85
Efficiency								
at 50% P_{rated}	η		0.831	0.846	0.855	0.880	0.885	0.901
at 75% P_{rated}	η		0.852	0.865	0.865	0.895	0.895	0.895
at 100% P_{rated}	η		0.855	0.865	0.865	0.895	0.895	0.895
Moment of inertia	J	kgcm ²	27.2	53.8	58.3	123	130.3	198
Weight	m	kg	12.28	17.33	18.43	30.41	31.61	40.38

Motor			M55BP					
			132M04	132L04	160M04	160L04	180M04	180L04
Rated power	P_{rated}	kW	5.5	7.5	11	15	18.5	22
Rated speed	n_{rated}	rpm	1780	1780	1785	1785	1785	1780
Max. speed	$n_{\text{max.}}$	rpm	4500	4500	4500	4500	4500	4500
Rated voltage								
Stern	$V_{\text{rated, Y}}$	V	460	460	460	460	460	460
Rated current								
460 V	$I_{\text{rated, Y}}$	A	9.26	12.8	18.2	24.7	29.0	33.8
Starting current	I_{a}	A	81.3	112	156	216	305	304
Rated torque	M_{rated}	Nm	29.5	40.2	58.8	80.2	99.0	118
Starting torque	M_{a}	Nm	44.2	64.5	82.1	120	208	212
Stalling torque	M_{b}	Nm	121	169	205	281	425	423
Power factor	$\cos \varphi$		0.85	0.83	0.85	0.843	0.885	0.901
Efficiency								
at 50% P_{rated}	η		0.902	0.909	0.919	0.926	0.929	0.936
at 75% P_{rated}	η		0.914	0.917	0.924	0.930	0.936	0.936
at 100% P_{rated}	η		0.917	0.917	0.924	0.930	0.936	0.936
Moment of inertia	J	kgcm ²	470.6	485.9	1360	1550	2330	2400
Weight	m	kg	61.82	64.26	168.4	183.2	168.4	183.2

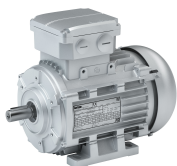
Technical data

Rated data



Rated data 87 Hz

Motor			M55BH				
			063S04	063M04	063L04	071M04	071L04
Rated power	P_{rated}	kW	0.21	0.33	0.45	0.66	1
Rated speed	n_{rated}	rpm	2525	2505	2500	2535	2540
Max. speed	$n_{\text{max.}}$	rpm	4500	4500	4500	4500	4500
Max. torque	$M_{\text{max.}}$	Nm	3.20	4.90	6.90	9.90	14.7
Rated voltage							
Dreieck	$V_{\text{rated}, \Delta}$	V	400	400	400	400	400
Rated current							
400 V	$I_{\text{rated}, \Delta}$	A	0.740	0.970	1.19	1.75	2.42
Rated torque	M_{rated}	Nm	0.794	1.26	1.72	2.49	3.76
Power factor	$\cos \varphi$		0.6	0.68	0.72	0.7	0.74
Efficiency							
at 50% P_{rated}	η		0.598	0.675	0.729	0.730	0.781
at 75% P_{rated}	η		0.670	0.726	0.768	0.777	0.816
at 100% P_{rated}	η		0.702	0.744	0.776	0.792	0.826
Moment of inertia	J	kgcm ²	2.4	2.9	3.7	9.1	13.3
Weight	m	kg	4.32	4.77	5.77	7.77	8.97

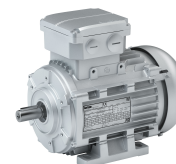


Technical data

Rated data

Motor			M55BP					
			080M04	090M04	090L04	100M04	100L04	112M04
Rated power	P _{rated}	kW	1.35	1.9	2.6	3.9	5.2	7.35
Rated speed	n _{rated}	rpm	2565	2575	2575	2580	2580	2580
Max. speed	n _{max.}	rpm	4500	4500	4500	4500	4500	4500
Max. torque	M _{max.}	Nm	19.7	28.7	39.1	57.2	78.0	104
Rated voltage								
Dreieck	V _{rated, Δ}	V	400	400	400	400	400	400
Rated current								
400 V	I _{rated, Δ}	A	2.82	3.94	5.48	7.83	10.4	14.1
Rated torque	M _{rated}	Nm	5.03	7.05	9.64	14.4	19.2	27.2
Power factor	cos φ		0.83	0.82	0.8	0.83	0.82	0.86
Efficiency								
at 50% P _{rated}	η		0.845	0.855	0.864	0.889	0.893	0.909
at 75% P _{rated}	η		0.865	0.878	0.883	0.904	0.906	0.917
at 100% P _{rated}	η		0.868	0.882	0.886	0.906	0.907	0.913
Moment of inertia	J	kgcm ²	27.2	53.8	58.3	123	130.3	198
Weight	m	kg	12.28	17.33	18.43	30.41	31.61	40.38

Motor			M55BP					
			132M04	132L04	160M04	160L04	180M04	180L04
Rated power	P _{rated}	kW	9.6	13.1	19.2	26.3	32.2	38.5
Rated speed	n _{rated}	rpm	2590	2590	2595	2595	2590	2590
Max. speed	n _{max.}	rpm	4500	4500	4500	4500	4500	4500
Max. torque	M _{max.}	Nm	142	194	283	386	476	568
Rated voltage								
Dreieck	V _{rated, Δ}	V	400	400	400	400	400	400
Rated current								
400 V	I _{rated, Δ}	A	18.4	25.4	36.1	49.2	57.5	67.6
Rated torque	M _{rated}	Nm	35.4	48.3	70.7	96.8	119	142
Power factor	cos φ		0.85	0.84	0.85	0.847	0.892	0.906
Efficiency								
at 50% P _{rated}	η		0.908	0.914	0.922	0.929	0.932	0.939
at 75% P _{rated}	η		0.920	0.925	0.934	0.939	0.941	0.945
at 100% P _{rated}	η		0.922	0.925	0.935	0.940	0.942	0.944
Moment of inertia	J	kgcm ²	470.6	485.9	1360	1550	2330	2400
Weight	m	kg	61.82	64.26	168.4	183.2	168.4	183.2



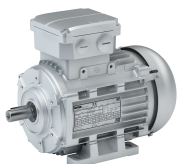
Ecodesign directive

Motor data according to the Ecodesign Directive (EC) 640/2009



The Ecodesign Directive (EC) No. 640/2009 stipulates the publication of the following technical data in the fixed sequence 1 ... 12!

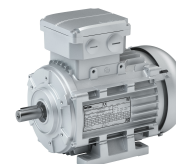
No.	Motor	M55BH				
		063S04	063M04	063L04	071M04	071L04
1	Rated efficiency at full load, as well as at 75% and 50% of the rated load and rated voltage, determined for a frequency of 50 Hz and an ambient reference temperature of 25 °C					
	Full load	59.1	64.7	68.5	72.7	77.1
	75%	59.1	64.7	68.5	72.7	77.1
	50%	54.9	62.5	69.5	69.5	75.8
2	Efficiency level					
		IE2				
3	Year of manufacture					
		Year and week of manufacture: ▶ Nameplates 12				
4	Name or trademark, official registration number, and manufacturer's place of establishment					
		Lenze Drives GmbH HR Lemgo B 6478 Breslauer Strasse 3 D-32699 Extertal GERMANY				
5	Model number of the product					
		M55BH				
		063S04	063M04	063L04	071M04	071L04
6	Number of motor poles					
		4	4	4	4	4
7	Rated output power in kW					
		0.12	0.18	0.25	0.37	0.55
8	Rated input frequency in Hz					
		50	50	50	50	50
9	Rated voltage in V					
		400	400	400	400	400
10	Rated speed in rpm					
		1415	1400	1390	1425	1430
11	Relevant information for disassembly, recycling or disposal after the final decommissioning					
12	Information regarding the range of operating conditions for which the motor is specially designed					
	i)	Altitudes above sea level				
			0 ... 1000 m 1000 ... 4000 m: Reduce the power by 5 %/1000 m			
	ii)	Minimum and maximum ambient air temperatures, also for motors with air cooling				
			-30 ... +40 °C			
	iii)	If appropriate, Cooling fluid temperature at the inlet of the product				
			Not relevant, since motors are not liquid-cooled			
	iv)	Maximum operating temperature				
			155 °C (temperature class F)			
	v)	Potentially explosive atmospheres				
		Operation in potentially explosive areas prohibited				



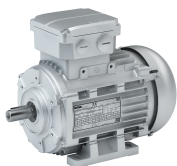
No.	Motor	M55BP					
		080M04	090M04	090L04	100M04	100L04	112M04
1	Rated efficiency at full load, as well as at 75% and 50% of the rated load and rated voltage, determined for a frequency of 50 Hz and an ambient reference temperature of 25 °C						
	Full load	82.5	84.1	85.3	86.7	87.7	88.6
	75%	82.5	84.1	85.3	86.7	87.7	88.6
	50%	82.6	84.4	85.1	87.9	88.3	89.8
2	Efficiency level						
		IE3					
3	Year of manufacture						
		Year and week of manufacture: ▶ Nameplates 12					
4	Name or trademark, official registration number, and manufacturer's place of establishment						
		Lenze Drives GmbH HR Lemgo B 6478 Breslauer Strasse 3 D-32699 Extertal GERMANY					
5	Model number of the product						
		M55BP					
6							
		080M04	090M04	090L04	100M04	100L04	112M04
6	Number of motor poles						
		4	4	4	4	4	4
7	Rated output power in kW						
		0.75	1.1	1.5	2.2	3	4
8	Rated input frequency in Hz						
		50	50	50	50	50	50
9	Rated voltage in V						
		400	400	400	400	400	400
10	Rated speed in rpm						
		1455	1465	1465	1470	1470	1470
11	Relevant information for disassembly, recycling or disposal after the final decommissioning						
12	Information regarding the range of operating conditions for which the motor is specially designed						
	i)	Altitudes above sea level					
			0 ... 1000 m 1000 ... 4000 m: Reduce the power by 5 %/1000 m				
	ii)	Minimum and maximum ambient air temperatures, also for motors with air cooling					
			-30 ... +40 °C				
	iii)	If appropriate, Cooling fluid temperature at the inlet of the product					
			Not relevant, since motors are not liquid-cooled				
	iv)	Maximum operating temperature					
			155 °C (temperature class F)				
	v)	Potentially explosive atmospheres					
			Operation in potentially explosive areas prohibited				

Technical data

Ecodesign directive



No.	Motor	M55BP					
		132M04	132L04	160M04	160L04	180M04	180L04
1	Rated efficiency at full load, as well as at 75% and 50% of the rated load and rated voltage, determined for a frequency of 50 Hz and an ambient reference temperature of 25 °C						
	Full load	89.6	90.4	91.4	92.1	92.6	93.0
	75%	89.6	90.4	91.4	92.1	92.6	93.0
	50%	90.3	90.8	92.0	92.8	93.2	93.7
2	Efficiency level						
		IE3					
3	Year of manufacture						
		Year and week of manufacture: ▶ Nameplates 12					
4	Name or trademark, official registration number, and manufacturer's place of establishment						
		Lenze Drives GmbH HR Lemgo B 6478 Breslauer Strasse 3 D-32699 Extertal GERMANY					
5	Model number of the product						
		M55BP					
6		132M04	132L04	160M04	160L04	180M04	180L04
	Number of motor poles	4	4	4	4	4	4
7	Rated output power in kW						
		5.5	7.5	11	15	18.5	22
8	Rated input frequency in Hz						
		50	50	50	50	50	50
9	Rated voltage in V						
		400	400	400	400	400	400
10	Rated speed in rpm						
		1480	1480	1485	1485	1485	1480
11	Relevant information for disassembly, recycling or disposal after the final decommissioning						
12	Information regarding the range of operating conditions for which the motor is specially designed						
	i)	Altitudes above sea level					
			0 ... 1000 m 1000 ... 4000 m: Reduce the power by 5 %/1000 m				
	ii)	Minimum and maximum ambient air temperatures, also for motors with air cooling					
			-30 ... +40 °C				
	iii)	If appropriate, Cooling fluid temperature at the inlet of the product					
			Not relevant, since motors are not liquid-cooled				
	iv)	Maximum operating temperature					
			155 °C (temperature class F)				
	v)	Potentially explosive atmospheres					
			Operation in potentially explosive areas prohibited				



Environmental notes and recycling

Lenze has been certified according to the global environmental management standard (DIN EN) ISO 14001 for many years. As part of our environmental policy and the associated climate responsibility, please observe the following information on hazardous substances and the recycling of Lenze products and their packaging:



Lenze products are subject in part to EU Directive 2011/65/EU on the restriction of the use of certain hazardous substances in electrical and electronic devices (RoHS). This is documented accordingly in the EU Declaration of Conformity and with the CE mark.



Lenze products are not subject to EU Directive 2012/19/EU on waste electrical and electronic equipment (WEEE), but do sometimes contain batteries/rechargeable batteries in accordance with EU Directive 2006/66/EC (Battery Directive). The separate from domestic waste disposal route is shown by the corresponding labeling with the "crossed-out garbage can".

Any batteries/rechargeable batteries included are designed for the service life of the product and do not have to be replaced or otherwise removed by the end user.



Lenze products are usually sold with cardboard or plastic packaging. This packaging corresponds to EU Directive 94/62/EC on packaging and packaging waste (Packaging Directive). The required waste disposal route is shown by material-specific labeling with the "recycling triangle". Example: "21 - Miscellaneous cardboard"

REACH

Lenze products are subject to the European Regulation EC No. 1907/2006 (REACH chemical regulation). When used as intended, exposure of substances to humans, animals and the environment is excluded.

Lenze products are industrial electrical and electronic products and are to be disposed of professionally. Both the mechanical and electrical components, such as electric motors, gearboxes, or inverters, contain valuable raw materials that can be recycled and reused. Proper recycling and thus maintaining the highest possible reusable materials cycle is therefore important and sensible from an economic and ecological point of view.

- Always coordinate professional waste disposal with your local waste disposal company.
- Separate mechanical and electrical components, packaging, hazardous waste (e.g. gearbox oils), and batteries/rechargeable batteries wherever possible.
- Dispose of the separated waste in an environmentally friendly and proper way (not with household waste or municipal bulky waste).



More information on Lenze's environmental and climate responsibility, as well as on the topic of energy efficiency, can be found on the Internet:

www.Lenze.com → search word: "Sustainability"

What?	Material	Where?
Pallets	Wood	Return to manufacturer, freight forwarder or reusable materials collection system
Packaging material	Paper, cardboard, pasteboard	Reusable materials collection system
	Plastics	
Products		
Electronic devices	Metals and plastics	Material/recycling center
Gearboxes and motors		
Substances hazardous to water		
Lubricants	Oil	Observe disposal in accordance with the law!
	Bold	Dispose of via a company authorized to receive!
Dry-cell batteries/rechargeable batteries		Return system

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Fax +49 5154 82-1112
service.de@lenze.com

EDK84DGDVBxxx4
13546838



L-force *Drives*

Montageanleitung

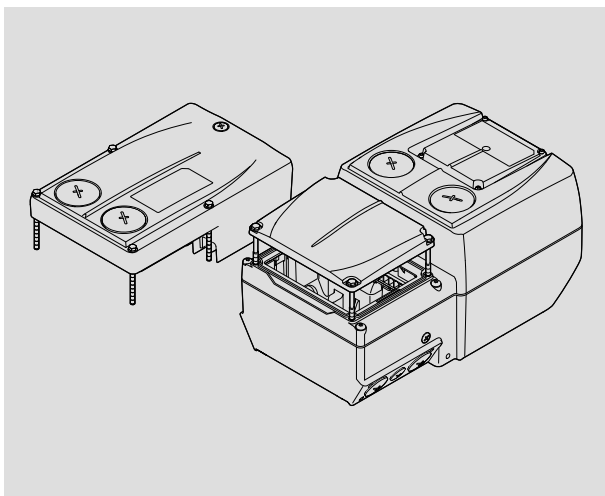
Mounting Instructions

Instructions de montage

Instrucciones para el montaje

Istruzioni per il montaggio

8400 motec *0.37 ... 7.5 kW*



E84DGDVBxxx4

Drive Unit

Lenze



Lesen Sie zuerst diese Anleitung, bevor Sie mit den Arbeiten beginnen!
Beachten Sie die enthaltenen Sicherheitshinweise.



Please read these instructions before you start working!
Follow the enclosed safety instructions.



Veuillez lire attentivement cette documentation avant toute action !
Les consignes de sécurité doivent impérativement être respectées.



Lea las instrucciones antes de empezar a trabajar.
Observe las instrucciones de seguridad indicadas.



Prima di usare l'apparecchiatura, leggere le istruzioni contenute in questo manuale.
Osservare le note di sicurezza.



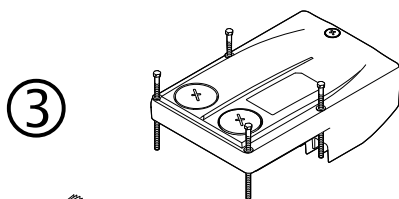
Warnings!

Operation of this equipment requires detailed installation and operation instructions provided in the Hardware manual intended for use with this product. This information is provided on the CD-ROM included in the container this device was packaged in. It should be retained with this device at all times. A hard copy of this information may be ordered by phone or e-mail, printed on the back of this document.

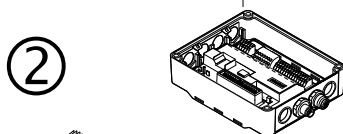


Avertissements !

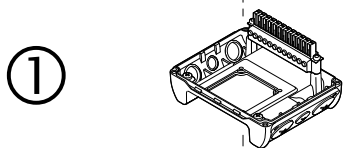
Pour assurer le bon fonctionnement de cet équipement, se conformer aux instructions d'installation et de mise en service contenues dans le manuel correspondant et régissant l'utilisation de ce produit. Ces informations sont contenues sur le CD-ROM compris dans l'emballage livré, qui doit être consultable à tout moment. Une version papier de ces informations peut être commandée par téléphone ou par mail (coordonnées figurant au dos du présent document).



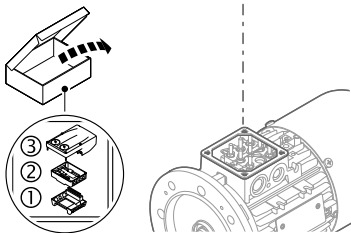
EDK84DGDVBxxx4



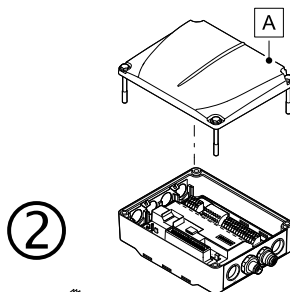
EDK84DGFCxxx



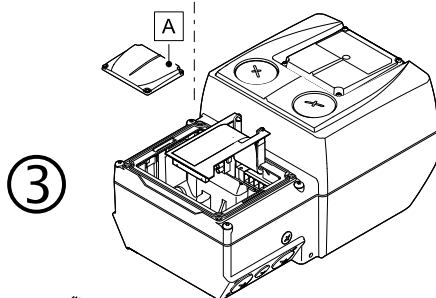
EDK84DGVNxE



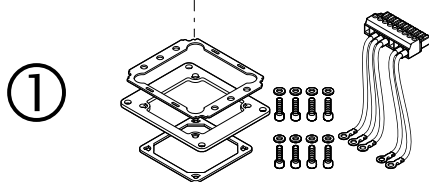
E84DG023a



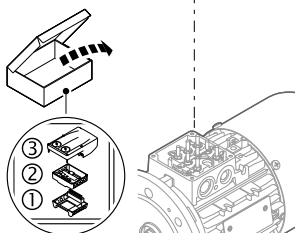
EDK84DGFCxxx



EDK84DGDVBxxx4



EDK84DGVN4E



E84DG023b

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1

Über diese Dokumentation

1.1

Dokumenthistorie

Materialnummer	Version			Beschreibung
13546838	8.3	01/2019	TD15	DE/EN/FR/ES/IT (nur PDF)
13546836	8.2	12/2018	TD15	Ergänzung von Funktionsbeschreibungen
13546838	8.1	12/2017	TD15	DE/EN/FR/ES/IT (nur PDF)
13546836	8.0	12/2017	TD15	Ergänzung von Funktionsbeschreibungen Korrekturen UL
13523272	7.1	12/2016	TD29	DE/EN/FR/ES/IT (nur PDF)
13523101	7.0	11/2016	TD29	Ergänzung von Funktionsbeschreibungen, Fehlerkorrekturen, Überarbeitung der Doku- mentstruktur
13482775	6.1	02/2015	TD29	DE/EN/FR/ES/IT (nur PDF)
13478084	6.0	12/2014	TD15	Korrekturen UL
13410321	5.3	07/2014	TD15	DE/EN/FR/ES/IT (nur PDF)
13410320	5.2	07/2014	TD15	UL-Hinweise in französischer Sprache für Ca- nada EAC-Konformität
13410321	5.1	06/2012	TD15	allgemeine Korrekturen, DE/EN/FR/ES/IT (nur PDF)
13410320	5.0	06/2012	TD15	allgemeine Korrekturen
13392616	4.1	12/2011	TD15	Erweiterung 4 ... 7.5 kW, DE/EN/FR/ES/IT (nur PDF)
13392614	4.0	11/2011	TD15	Erweiterung 4 ... 7.5 kW
13373549	3.0	04/2011	TD15	Erweiterung 2.2 ... 3 kW, PROFINET, EtherCAT
13371646	2.0	02/2011	TD15	allgemeine Korrekturen
13336813	1.5	09/2010	TD15	Erstausgabe DE/EN/FR/ES/IT (nur PDF)
13336813	1.0	08/2010	TD15	Erstausgabe DE/EN



Tipp!

Informationen und Hilfsmittel rund um die Lenze-Produkte finden Sie im Download-Bereich unter

www.lenze.com

1.2 Zielgruppe

Diese Dokumentation richtet sich an qualifiziertes Fachpersonal nach IEC 60364.

Qualifiziertes Fachpersonal sind Personen, die für die auszuführenden Tätigkeiten bei der Aufstellung, Montage, Inbetriebsetzung und dem Betrieb des Produkts über entsprechende Qualifikationen verfügen.

1.3

Informationen zur Gültigkeit

Diese Anleitung ist gültig für Antriebsregler 8400 motec mit der Typenbezeichnung:

Typenbezeichnung	ab HW	ab SW
E84DGDVBxxx4	VA	01.00

Weitere Informationen zum Typenschlüssel enthält das Kapitel Produktbeschreibung im Gerätehandbuch 8400 motec. (📖 EDS84DG752)

1.4

Verwendete Konventionen

Diese Dokumentation verwendet folgende Konventionen zur Unterscheidung verschiedener Arten von Information:

Informationsart	Auszeichnung	Beispiele/Hinweise
Zahlenschreibweise		
Dezimaltrennzeichen	Punkt	Es wird generell der Dezimalpunkt verwendet. Zum Beispiel: 1234.56
Warnhinweise		
UL-Warnhinweise		Werden in englischer und französischer Sprache verwendet.
UR-Warnhinweise		
Textauszeichnung		
Programmname	» «	PC-Software Zum Beispiel: »Engineer«, »Global Drive Control« (GDC)
Symbole		
Seitenverweis		Verweis auf eine andere Seite mit zusätzlichen Informationen Zum Beispiel:  16 = siehe Seite 16
Dokumentationsverweis		Verweis auf eine andere Dokumentation mit zusätzlichen Informationen Zum Beispiel:  EDKxxx = siehe Dokumentation EDKxxx

1.5 Verwendete Hinweise

Um auf Gefahren und wichtige Informationen hinzuweisen, werden in dieser Dokumentation folgende Piktogramme und Signalwörter verwendet:

Sicherheitshinweise

Aufbau der Sicherheitshinweise:



Gefahr!

(kennzeichnet die Art und die Schwere der Gefahr)

Hinweistext

(beschreibt die Gefahr und gibt Hinweise, wie sie vermieden werden kann)

Piktogramm und Signalwort	Bedeutung
 Gefahr!	Gefahr von Personenschäden durch gefährliche elektrische Spannung Hinweis auf eine unmittelbar drohende Gefahr, die den Tod oder schwere Verletzungen zur Folge haben kann, wenn nicht die entsprechenden Maßnahmen getroffen werden.
 Gefahr!	Gefahr von Personenschäden durch eine allgemeine Gefahrenquelle Hinweis auf eine unmittelbar drohende Gefahr, die den Tod oder schwere Verletzungen zur Folge haben kann, wenn nicht die entsprechenden Maßnahmen getroffen werden.
 Stop!	Gefahr von Sachschäden Hinweis auf eine mögliche Gefahr, die Sachschäden zur Folge haben kann, wenn nicht die entsprechenden Maßnahmen getroffen werden.

Anwendungshinweise

Piktogramm und Signalwort	Bedeutung
 Hinweis!	Wichtiger Hinweis für die störungsfreie Funktion
 Tipp!	Nützlicher Tipp für die einfache Handhabung
	Verweis auf andere Dokumentation

Spezielle Sicherheitshinweise und Anwendungshinweise

Piktogramm und Signalwort	Bedeutung
 Warnings!	Sicherheitshinweis oder Anwendungshinweis für den Betrieb nach UL- oder CSA-Anforderungen.
 Warnings!	Die Maßnahmen sind erforderlich, um die Anforderungen nach UL oder CSA zu erfüllen.

2 Sicherheitshinweise

2.1 Allgemeine Sicherheitshinweise



Gefahr!

Gefährliche elektrische Spannung

- ▶ Die Leistungsanschlüsse führen bis zu 3 Minuten nach Netz-Ausschalten gefährliche elektrische Spannung.

Mögliche Folgen:

- ▶ Tod oder schwere Verletzungen beim Berühren der Leistungsanschlüsse.

Schutzmaßnahmen:

- ▶ Vor Arbeiten am Gerät Netzspannung ausschalten und mindestens 3 Minuten warten.
- ▶ Prüfen, ob alle Leistungsanschlüsse spannungsfrei sind.

Warnung durch Symbole

Symbol	Beschreibung
	Lange Entladezeit: Alle Leistungsklemmen führen bis zu 3 Minuten nach Netz-Ausschalten gefährliche Spannung!
	Hoher Ableitstrom: Festinstallation und PE-Anschluss nach EN 61800-5-1 ausführen!
	Elektrostatisch gefährdete Bauelemente: Vor Arbeiten am Gerät muss sich das Personal von elektrostatischen Aufladungen befreien!
	Heiße Oberfläche: Persönliche Schutzausrüstung verwenden oder Abkühlung abwarten!

Beachten Sie auch weitere wichtige Informationen zur Geräte- und Sicherheitstechnik auf der beiliegenden CD-ROM!

**Warnings!**

- ▶ Use Class 1 wire only.
- ▶ Intended for use with 75 °C wire.
- ▶ Intended for use with copper conductors only.
- ▶ Suitable for use in a surrounding air temperature of 45 °C, and
 - additionally 55 °C when de-rating rules are followed.
- ▶ Hot surface. Risk of burn.
- ▶ Should this device be mounted on a motor, the combination needs to be suitable for the type rating.
- ▶ The supply terminals are to be tightened to:
 - For model suffix's 371, 551, 751, 112, 152 tighten to 4.4 - 5.3 lb-in.
 - For model suffix's 222, and 302, tighten to 7 lb-in.
- ▶ These devices are suitable for use on a circuit capable of delivering not more than 200 000 rms Symmetrical Amperes, 480 V maximum
 - When protected by CC, R, T, or J class fuses or
 - When protected by a circuit breaker having an interrupting rating not less than 200 000 rms symmetrical amperes, 480 V maximum.
- ▶ These devices are suitable for motor group installation on a circuit capable of delivering not more than 200 000 rms Symmetrical Amperes, 480 V maximum
 - When protected by CC, R, T, or J class fuses or
 - When protected by a circuit breaker having an interrupting rating not less than 200 000 rms symmetrical amperes, 480 V maximum.
- ▶ Use fuses and circuit breakers only.

...

**Warnings!**

...

- ▶ Integral solid state short circuit protection does not provide branch circuit protection. Branch circuit protection must be provided in accordance with the National Electrical Code and any additional local codes.
- ▶ The opening of branch circuit protective devices may be an indication that a fault current has been interrupted. To reduce the risk of fire or electric shock, current carrying parts and other components, the controller should be examined and replaced if damaged.
- ▶ These devices provide overload protection rated for 125 % of the rated FLA.

CAUTION!

- ▶ Risk of electric shock. Please allow 180 s for the internal capacitors to discharge.

Sicherheitshinweise für die Installation nach UL/CSA**Original - Französisch****Avertissements !**

- ▶ Utiliser exclusivement des conducteurs Class 1.
- ▶ Utiliser des conducteurs 75 °C.
- ▶ Utiliser exclusivement des conducteurs en cuivre.
- ▶ Convient à une utilisation à une température ambiante maximale de 45 °C ainsi que
 - 55 °C en cas d'application des règles de réduction de puissance.
- ▶ Température élevée en surface. Risque de brûlure.
- ▶ En cas de montage de l'équipement sur le moteur, la combinaison doit être conforme à la qualification du type.
- ▶ Couples de serrage des bornes réseau :
 - Pour les types contenant le suffixe 371, 551, 751, 112, 152 : 0,5 à 0,6 Nm.
 - Pour les types contenant le suffixe 222 et 302 : 0,8 Nm.
- ▶ Convient aux circuits non susceptibles de délivrer plus de 200 000 ampères symétriques eff., maximum 480 V
 - Protection par des fusibles CC de calibre R, T ou J ; ou
 - Protection par disjoncteur à pouvoir de coupure nominal d'au moins 200 000 ampères symétriques eff., maximum 480 V.
- ▶ Convient aux installations de groupe moteur sur des circuits non susceptibles de délivrer plus de 200 000 ampères symétriques eff., maximum 480 V
 - Protection par des fusibles CC de calibre R, T ou J ; ou
 - Protection par disjoncteur à pouvoir de coupure nominal d'au moins 200 000 ampères symétriques eff., maximum 480 V.
- ▶ Utiliser exclusivement des fusibles et des disjoncteurs.

...

**Avertissements !**

...

- ▶ La protection statique intégrée n'offre pas la même protection qu'un disjoncteur. Une protection par disjoncteur externe doit être fournie, conformément au National Electrical Code et aux autres dispositions applicables au niveau local.
- ▶ Le déclenchement des dispositifs de protection du circuit de dérivation peut être dû à une coupure qui résulte d'un courant de défaut. Pour limiter le risque d'incendie ou de choc électrique, examiner les pièces porteuses de courant et les autres éléments du contrôleur ; les remplacer s'ils sont endommagés.
- ▶ Ces équipements intègrent une protection contre les surcharges conçue pour se déclencher à 125 % de l'intensité assignée à pleine charge.

ATTENTION !

- ▶ Risque de choc électrique. Patientez 180 s pour permettre aux condensateurs internes de se décharger.

3

Technische Daten

3.1

Allgemeine Daten und Einsatzbedingungen

Konformität und Approbation			
Konformität			
CE	2014/35/EU	Niederspannungsrichtlinie	
EAC	TP TC 004/2011 (TR ZU 004/2011)	Über die Sicherheit von Niederspannungs- ausrüstung	Eurasische Konformität TR ZU: Technische Regulie- rung der Zollunion
EAC	TP TC 020/2011 (TR ZU 020/2011)	Elektromagnetische Verträglichkeit von technischen Erzeugnis- sen	Eurasische Konformität TR ZU: Technische Regulie- rung der Zollunion
Approbation			
UR	UL 508C	Power Conversion Equipment, File No. E170350	
cUR	C22.2 No 274-13		
Approbation Wandmontage			
cUL _{US}	UL 508C C22.2 No 274-13	Power Conversion Equipment, File No. E132659	

Personenschutz und Geräteschutz			
Schutzart		- Nicht benutzte Bohrungen für Kabelverschraubungen mit Blindstopfen verschließen! - Nicht benutzte Steckverbinder mit Schutzkappen oder Blindsteckern verschließen!	
	EN 60529	8400 motec Set Wandmontage ohne Schalter	IP65
		Wandmontage mit Serviceschalter / mit Serviceschalter und Bedienelementen	IP54
		Wandmontage mit Serviceschalter und Schutzfunktion	IP64
	NEMA 250	8400 motec Set	Typ 4X (Innenbereich)
		Wandmontage ohne Schalter	
		0.37 ... 3.0 kW	Typ 12
		4.0 ... 7.5 kW	Typ 4X (Innenbereich)
		Wandmontage mit Schalter	
		0.37 ... 3.0 kW	Typ 12
(Erd-) Ableitstrom	EN 61800-5-1	> 3.5 mA AC, > 10 mA DC	Bestimmungen und Sicherheitshinweise beachten!
Summen-Fehlerstrom		In TN-Netzen dürfen folgende Fehlerstrom-Schutzschalter eingesetzt werden:	
Motormontage		0.37 ... 3.0 kW	30 mA, Typ B
		4.0 ... 7.5 kW, $f_{ch} = 8/16$ kHz	30 mA, Typ B
		4.0 ... 7.5 kW, $f_{ch} = 4$ kHz	300 mA, Typ B
Wandmontage und Lenze-Systemleitung ≤ 3 m		0.37 ... 3.0 kW	30 mA, Typ B
		4.0 ... 7.5 kW, $f_{ch} = 8/16$ kHz	30 mA, Typ B
		4.0 ... 7.5 kW, $f_{ch} = 4$ kHz	300 mA, Typ B
Wandmontage und Lenze-Systemleitung > 3 m		0.37 ... 7.5 kW	300 mA, Typ B
zusätzlicher Potenzialausgleich		M5-Gewinde mit Klemme in der WU für den Anschluss einer 16 mm ² PE-Leitung	
Isolierung von Steuer-schaltkreisen	EN 61800-5-1	Sichere Trennung vom Netz durch doppelte (verstärkte) Isolierung	
Isolationsfestigkeit	EN 61800-5-1	<2000 m ü. NN: Überspannungskategorie III	
		>2000 m ü. NN: Überspannungskategorie II	

Personenschutz und Geräteschutz			
Kurzschlussfestigkeit	EN 61800-5-1	Anschluss:	
		Motor	bedingt, der Regler wird gesperrt, Fehlerquittierung erforderlich
		Motorhaltebremse, Bremswiderstand	nein
		PTC, Steueranschlüsse	voll
Erdschlussfestigkeit	EN 61800-5-1	Anschluss:	
		Motor (bei Reglerfreigabe)	bedingt, der Regler wird gesperrt, Fehlerquittierung erforderlich
		Motor (im Betrieb)	nein
		Bremswiderstand, PTC	nein
Schutzmaßnahmen gegen		• motorseitigen Kurzschluss beim Einschalten und während des Betriebs • Kippen des Motors • Motor-Übertemperatur – Eingang für PTC oder Thermokontakt – I²t-Überwachung	
Zyklisches Netzschalten		• Schaltungen/Minute	3
		• Schaltungen/Stunde	max. 20
		• Schaltpause	Auf ein 3-maliges Netzschalten in einer Minute, muss eine Schaltpause von 9 min folgen.
Einschaltstrom		$\leq 2 \times I_N$	

Anschlussbedingungen

Netzanschluss

Netzsystem

TT, TN (mit geerdetem Sternpunkt)		Betrieb uneingeschränkt erlaubt.
IT		Die für IT-Netze beschriebene Maßnahme anwenden (IT-Schraube entfernen). Die Einhaltung der EMV-Anforderungen für die Störaussendung (EN 61800-3) für die Maschine/ Anlage liegt in der Verantwortung des Maschinen-/ Anlagenherstellers! Der Betrieb mit integrierter Sicherheitstechnik ist nicht zulässig.

Motoranschluss

Motoren	EN 60034	Nur für den Umrichterbetrieb geeignete Motoren einsetzen. Isolationsfestigkeit: min. $\dot{u} \geq 1.5 \text{ kV}$, min. $du/dt \geq 5 \text{ kV}/\mu\text{s}$
Länge der Motorlei- tung		< 20 m (Lenze-Systemleitung, geschirmt)

Umgebungsbedingungen

Klimatisch

Lagerung	IEC/EN 60721-3-1	1K3 (-30 ... +60 °C)
Transport	IEC/EN 60721-3-2	2K3 (-30 ... +75 °C)
Betrieb	IEC/EN 60721-3-3	3K3 (-30 ... +55 °C) Betrieb bei 4 kHz: > +45 °C den Ausgangs-Bemes- sungsstrom um 2,5 %/°C reduzieren. Betrieb bei 8/16 kHz: > +40 °C den Ausgangs-Bemes- sungsstrom um 2,5 %/°C reduzieren.
Aufstellhöhe		< 4000 m üNN > 1000 m üNN den Ausgangs-Bemessungsstrom um 5 %/ 1000 m reduzieren.
Verschmutzung	IEC/EN 61800-5-1	Verschmutzungsgrad 2

Mechanisch

Rüttelfestigkeit ($9.81 \text{ m/s}^2 = 1 \text{ g}$)

Motormontage	Germanischer Lloyd	Allgemeine Bedingungen: beschleunigungsfest bis 2 g	
	IEC/EN 60721-3-3	3M6	
Wandmontage mit E84DZMAWE1	Germanischer Lloyd	Allgemeine Bedingungen: beschleunigungsfest bis 2 g	
	IEC/EN 60721-3-3	3M6	

Montagebedingungen			
Einbauort			
Motormontage		Standard	
Wandmontage		mit optionalem Wandadapter	In Nischen die Konvektionskühlung gewährleisten!
Einbaulage			
Wandmontage			
0.37 ... 3.0 kW		vertikal mit Kühlrippen oben, gedreht, horizontal	• Derating beachten, siehe Gerätehandbuch 8400 motec (□ EDS84DG752) • Anreihen mehrerer Geräte nur seitlich, damit die Konvektionskühlung gewährleistet bleibt!
4.0 ... 7.5 kW		beliebig	
Steuerung			
Steuerungsverfahren			
	VFCplus: • U/f-Steuerung (linear oder quadratisch), VFC closed loop: • VFCplus mit zusätzlicher Drehzahlrückführung VFC eco: • U/f-Steuerung, energetisch optimiert SLVC: • Sensorlose Vektorregelung Drehmoment/Drehzahl SLPSM: • Sensorlose Regelung für Synchronmotoren		
Schaltfrequenz			
	4 kHz, 8 kHz, 16 kHz		

3.2 Bemessungsdaten

Eingangsdaten

Netz	Spannung U_{LN} [V]	Spannungsbereich U_{LN} [V]	Frequenzbereich f [Hz]
3/PE AC	400	320 - 0 % ... 440 + 0 %	45 - 0 % ... 65 + 0 %
3/PE AC	480	432 - 0 % ... 528 + 0 %	45 - 0 % ... 65 + 0 %

	Spannung [V]	Frequenz [Hz]	Bemessungsstrom [A]		Phasen- zahl
			bis +45 °C ①	bis +55 °C ①	
E84DGDVB3714	400/480	50/60	1.3/1.1	1.0/0.8	3
E84DGDVB5514	400/480	50/60	1.8/1.5	1.4/1.1	3
E84DGDVB7514	400/480	50/60	2.4/2.0	1.8/1.5	3
E84DGDVB1124	400/480	50/60	3.2/2.7	2.4/2.0	3
E84DGDVB1524	400/480	50/60	3.8/3.1	2.9/2.3	3
E84DGDVB2224	400/480	50/60	5.6/4.6	4.2/3.5	3
E84DGDVB3024	400/480	50/60	7.2/5.9	5.4/4.4	3
E84DGDVB4024	400/480	50/60	9.3/7.7	7.0/5.8	3
E84DGDVB5524	400/480	50/60	12.8/10.6	9.6/8.0	3
E84DGDVB7524	400/480	50/60	16.3/13.5	12.3/10.1	3

① Umgebungstemperatur, Schaltfrequenz 4 kHz

Ausgangsdaten

	Spannung [V]	Frequenz [Hz]	Bemessungsstrom [A]		Phasen- zahl
			bis +45 °C ①	bis +55 °C ①	
E84DGDVB3714	0 ... 400/480	0 ... 300	1.3/1.1	1.0/0.8	3
E84DGDVB5514	0 ... 400/480	0 ... 300	1.8/1.5	1.4/1.1	3
E84DGDVB7514	0 ... 400/480	0 ... 300	2.4/2.0	1.8/1.5	3
E84DGDVB1124	0 ... 400/480	0 ... 300	3.2/2.7	2.4/2.0	3
E84DGDVB1524	0 ... 400/480	0 ... 300	3.9/3.2	2.9/2.4	3
E84DGDVB2224	0 ... 400/480	0 ... 300	5.6/4.7	4.2/3.5	3
E84DGDVB3024	0 ... 400/480	0 ... 300	7.3/6.0	5.4/4.5	3
E84DGDVB4024	0 ... 400/480	0 ... 300	9.5/7.9	7.1/5.9	3
E84DGDVB5524	0 ... 400/480	0 ... 300	13.0/10.8	9.8/8.1	3
E84DGDVB7524	0 ... 400/480	0 ... 300	16.5/13.7	12.4/10.3	3

① Umgebungstemperatur, Schaltfrequenz 4 kHz

4 Mechanische Installation

4.1 Vorbereitung

Die Montage und Verdrahtung der Wiring Unit und Communication Unit entsprechend der Montageanleitungen muss abgeschlossen sein.



Tipp!

Bevor Sie die Montage des 8400 motec fortführen und abschließen können, sind Entscheidungen zur Parametrierung und Inbetriebnahme zu treffen.

Soll der Antriebsregler mit DIP1, DIP2, P2 oder P3 voreingestellt werden?

- ▶ Einstellungen nach Anforderungen vornehmen.
 - Das Kapitel Einstellungen enthält die notwendigen Information. (📖 27)
- ▶ Drive Unit montieren. (📖 23)

Soll der Antriebsregler mit L-Force »Engineer« oder mit einem Handterminal parametrierung werden?

- ▶ Drive Unit montieren. (📖 23)

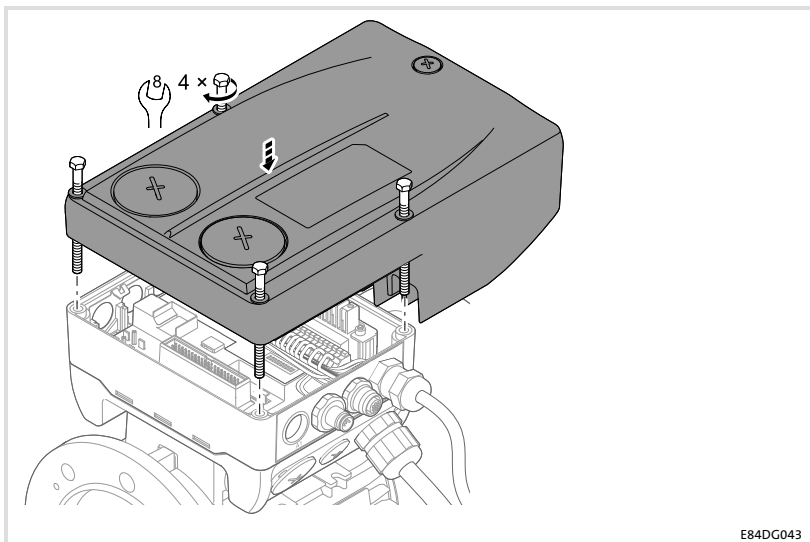
Ist der Antriebsregler Bestandteil eines Motors oder Getriebemotors?

- ▶ Der Antriebsregler ist in Abstimmung mit Motor und Getriebe werkseitig eingestellt.
 - Werkseitige Einstellungen nicht verändern!
- ▶ Drive Unit montieren. (📖 23)

4.2 Montage

0.37 ... 3 kW

Setzen Sie die Drive Unit -ohne zu verkanten- auf die vorher montierte Communication Unit auf. Befestigen Sie die Drive Unit mit den gelieferten vier Schrauben (Drehmoment: 5.0 Nm/44 lb-in).



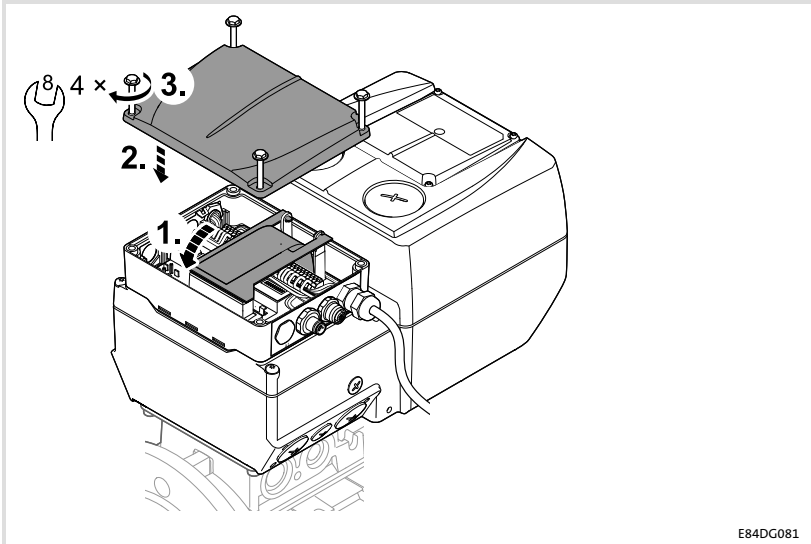
E84DG043

4 ... 7.5 kW

Die Drive Unit wurde bereits mit der Wiring Unit montiert.

So schließen Sie die Montage ab:

1. Die klappbare Buchsenleiste zur CU drehen und vorsichtig in den Gegenstecker drücken.
2. Deckel der DU auf die Communication Unit setzen und
3. mit den vier Schrauben befestigen (Drehmoment: 1.5 Nm/14 lb-in).



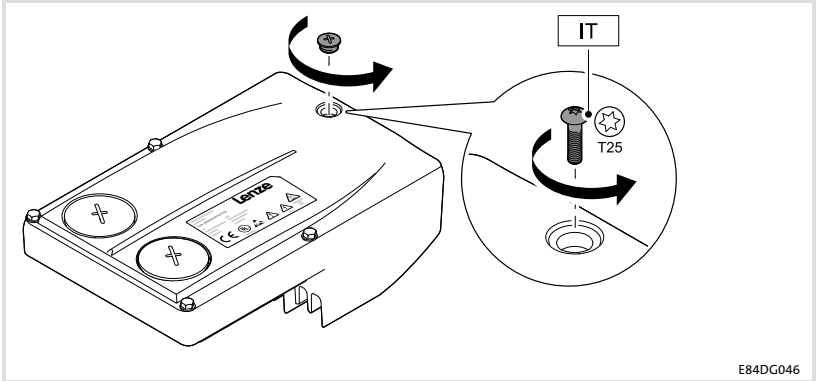
4.3 Maßnahme bei Einsatz in IT-Netzen

Wird der Antrieb in einem IT-Netz installiert, müssen interne Filter vom Schutzleiter getrennt werden.

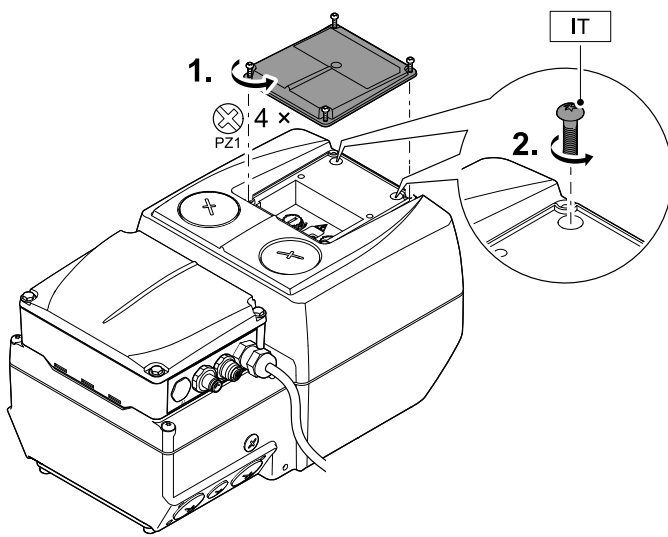
So gehen Sie vor:

1. Bei bereits montiertem Antriebsregler: Netzspannung abschalten!
2. IT-Schraube zugänglich machen.
 - Geräte bis 3 kW: Kleine Verschlusskappe auf der Oberseite herausdrehen.
 - Geräte ab 4 kW: Kleinen Deckel auf der Oberseite abnehmen.
3. Die Schraube(n) herausdrehen und entfernen.
4. Verschlusskappe hinein drehen oder Deckel anbringen.

0.37 ... 3 kW



4 ... 7.5 kW



E84DG084

5 Einstellungen



Stop!

Automatischer Motoranlauf

Im "Local mode" ist die Autostart-Option "Sperre bei Netzein" nicht gesetzt. Der Motor läuft mit dem Netzeinschalten an, wenn die Reglerfreigabe RFR gebrückt oder gesetzt ist.

("Local mode" => DIP1/1 = ON und DIP2/5-7 = OFF)

Mögliche Folgen:

- ▶ Gefahren oder Schäden durch den unerwarteten Motoranlauf.

Schutzmaßnahmen:

- ▶ Bei der Inbetriebnahme den Motor vom Antriebsstrang entkoppeln.
- ▶ Ersetzen der werkseitigen Brücke an RFR durch einen Schließer.
- ▶ Reglerfreigabe nicht setzen.

Für die erste Inbetriebnahme können Sie Einstellungen per DIP-Schalter und Potentiometer vornehmen. Die Einstellungen müssen vor Montage der Drive Unit vorgenommen werden, da die Einstellelemente von außen nicht zugänglich sind.

Ab Softwareversion 07.00.00 können Sie mit DIP2/8 zwei unterschiedliche Vorbelegungen von DIP1, DIP2, P1, P2 und P3 einstellen:

- ▶ DIP2/8 = OFF: DIP-Schalter-/ Potibelegung 0
- ▶ DIP2/8 = ON: DIP-Schalter-/ Potibelegung 1

Bis Softwareversion 07.00.00 ist nur die DIP-Schalter-/ Potibelegung 0 verfügbar.

Ab Softwareversion 08.00.00 und bei Verwendung eines POWERLINK Kommunikationsmoduls können Sie mit DIP1/1 die IP-Adresseinstellung beeinflussen:

- ▶ DIP1/1 = OFF: DIP1/2 ... DIP1/8, P1, P2 und P3 sind inaktiv, DIP2 dient der IP-Adresseinstellung für POWERLINK
- ▶ DIP1/1 = ON: DIP-Schalterfunktion und Potibelegung gemäß Beschreibung, IP-Adresseinstellung aus Codestelle C13899

Detaillierte Informationen enthält das Kommunikationshandbuch POWERLINK (EDS84DMOTPL).

Des Weiteren ist die DIP-Schalter-/ Poti-Belegung 2 verfügbar.

Voraussetzung:

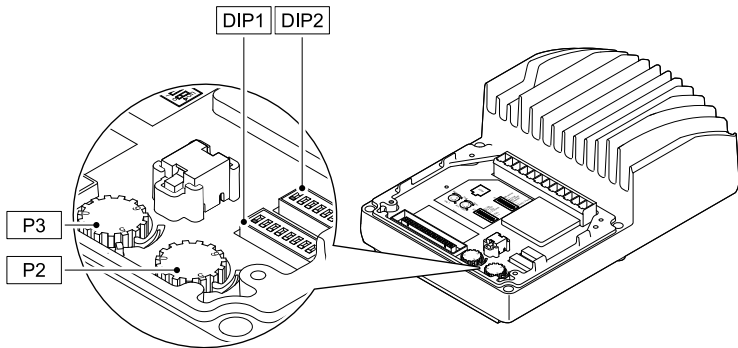
- ▶ Geräte mit Typenbezeichnung E84DGDVBxxx4xxP
- ▶ Geräte ab Softwarerevision 09.00.00
- ▶ Geräte im Leistungsbereich 0.37 kW ... 3.0 kW

Einstellelemente 0.37 ... 3 kW

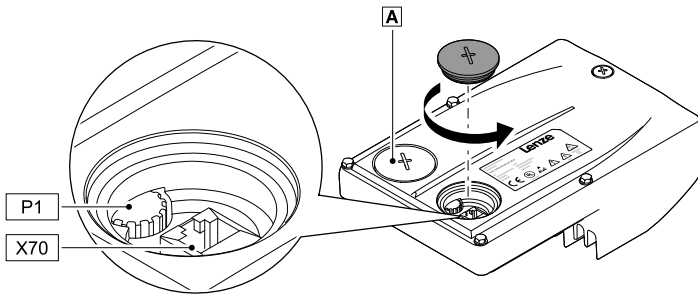
Auf der Innenseite der Drive Unit finden Sie die Einstellelemente.

Vorgenommene Einstellungen durch DIP1, DIP2, P2, P3 und P1 müssen mit DIP1/1 aktiviert werden. Die Einstellungen werden bei jedem Netzeinschalten erneut übernommen. Zwischenzeitliche Änderungen an Parametern können dadurch überschrieben werden.

0.37 ... 3 kW



E84DG041



E84DG044

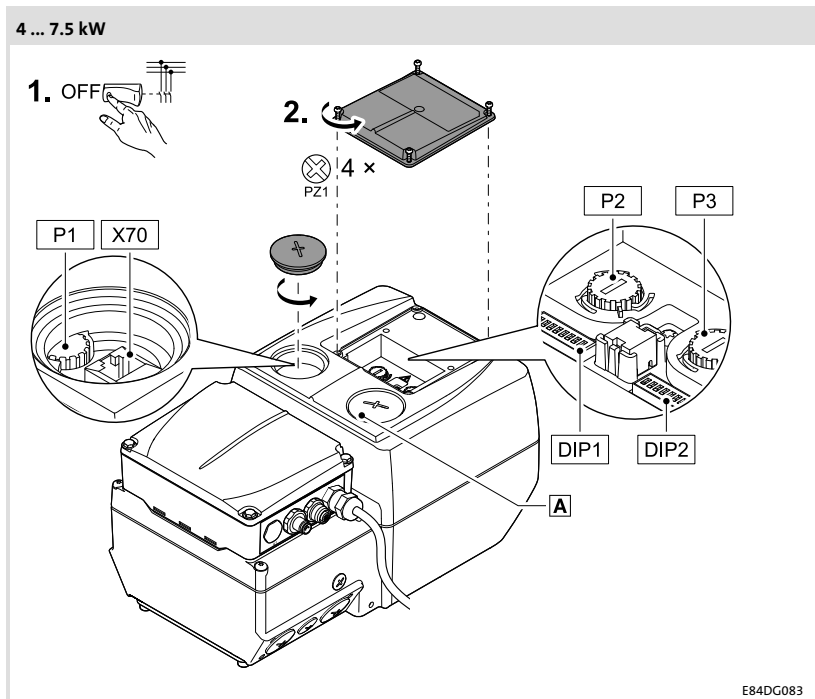
	Bezeichnung
DIP1	DIP-Schalter zur Inbetriebnahme
DIP2	
P1	Einstellung "Top Cover: Speed ... %"
P2	Einstellung "Speed ... %", (Drehzahl)
P3	Einstellung "Ramp ... s", (Auf- / Ablaufzeit)
X70	Anschluss für USB-Diagnoseadapter E94AZCUS oder Handterminal
A	LED-Statusanzeige

Einstellelemente 4 ... 7.5 kW

Auf der Oberseite der Drive Unit finden Sie die Einstellelemente.

- ▶ Spannungsfreiheit sicherstellen und gegen Wiedereinschalten sichern.
- ▶ Kleinen Deckel auf der Oberseite abnehmen.

Vorgenommene Einstellungen durch DIP1, DIP2, P2, P3 und P1 müssen mit DIP1/1 aktiviert werden. Die Einstellungen werden bei jedem Netzeinschalten erneut übernommen. Zwischenzeitliche Änderungen an Parametern können dadurch überschrieben werden.



	Bezeichnung
DIP1	DIP-Schalter zur Inbetriebnahme
DIP2	
P1	Einstellung "Top Cover: Speed ... %"
P2	Einstellung "Speed ... %", (Drehzahl)
P3	Einstellung "Ramp ... s", (Auf- / Ablaufzeit)
X70	Anschluss für USB-Diagnoseadapter E94AZCUS oder Handterminal
A	LED-Statusanzeige

5.1 DIP-Schalter-/ Potibelegung 0

Einstellungen mit DIP1 (Lenze-Einstellung **fett**)

DIP1		Schalter							
Beschreibung		1	2	3	4	5	6	7	8
DIP1, DIP2, P1, P2 und P3 aktiv	aktiv	ON							
	inaktiv	OFF							
Drehrichtung	links		ON						
	rechts		OFF						
Regelung	quadratisch			ON					
	linear			OFF					
Fangschaltung	aktiv				ON				
	inaktiv				OFF				
reserviert	-					OFF	OFF	OFF	
Gerätezustand	Drive Ready: NO/COM = Closed								ON
	Drive Fail: DO1 = HIGH								
Gerätezustand	Drive Ready: DO1 = HIGH								OFF
	Drive Fail: NO/COM = Closed								

Einstellungen mit DIP2

(Lenze-Einstellung **fett**)

DIP2		Schalter							
Beschreibung		1	2	3	4	5	6	7	8
Motorbemes- sungsfrequenz / Bezugsdrehzahl	50 Hz ∇ / 1500 min-1	OFF	OFF						
	60 Hz ∇ / 1800 min-1	ON	OFF						
	87 Hz Δ / 2610 min-1	OFF	ON						
	120 Hz ∇ / 3600 min-1	ON	ON						
Modus analoger Eingang	0 ... 10 V			OFF	OFF				
	0 ... 20 mA			ON	OFF				
	4 ... 20 mA			OFF	ON				
	nicht zulässig			ON	ON				
Steuermodus Technologieap- plikation	9 (Local mode)					OFF	OFF	OFF	
	10 (Klemmen 0)					ON	OFF	OFF	
	12 (Klemmen 2)					OFF	ON	OFF	
	14 (Klemmen 11)					ON	ON	OFF	
	16 (Klemmen 16)					OFF	OFF	ON	
	reserviert					ON	OFF	ON	
	reserviert					OFF	ON	ON	
	40 (MCI)					ON	ON	ON	
reserviert	-								OFF

Steuermodi DIP2/5-7	Beschreibung (Dix → High)										
9 (Local mode)	Die Steuerung der Technologieapplikation erfolgt lokal über Elemente am Antriebsregler und die digitalen Eingangsklemmen: ⚠ Bei Netzeinschalten läuft der Motor automatisch an, wenn RFR gebrückt oder gesetzt ist! <table> <tr> <td>DI1 Sollwert von P2 (Speed)</td><td>Festsollwert 3</td></tr> <tr> <td>DI2 Festsollwert 2</td><td></td></tr> <tr> <td>DI3 Gleichstrombremse aktivieren</td><td></td></tr> <tr> <td>DI4 Drehrichtungswchsel (nicht möglich, wenn DIP1/2 = on (links) ist)</td><td></td></tr> <tr> <td>DI5 Haltebremse manuell lüften (Betriebsmodus nach Einstellung C02580)</td><td></td></tr> </table>	DI1 Sollwert von P2 (Speed)	Festsollwert 3	DI2 Festsollwert 2		DI3 Gleichstrombremse aktivieren		DI4 Drehrichtungswchsel (nicht möglich, wenn DIP1/2 = on (links) ist)		DI5 Haltebremse manuell lüften (Betriebsmodus nach Einstellung C02580)	
DI1 Sollwert von P2 (Speed)	Festsollwert 3										
DI2 Festsollwert 2											
DI3 Gleichstrombremse aktivieren											
DI4 Drehrichtungswchsel (nicht möglich, wenn DIP1/2 = on (links) ist)											
DI5 Haltebremse manuell lüften (Betriebsmodus nach Einstellung C02580)											
10 (Klemmen 0)	Die Steuerung der Technologieapplikation erfolgt über die digitalen Eingangs-klemmen des Antriebsreglers: <table> <tr> <td>DI1 Festsollwert 1</td><td>Festsollwert 3</td></tr> <tr> <td>DI2 Festsollwert 2</td><td></td></tr> <tr> <td>DI3 Gleichstrombremse aktivieren</td><td></td></tr> <tr> <td>DI4 Drehrichtungswchsel</td><td></td></tr> <tr> <td>DI5 Haltebremse manuell lüften (Betriebsmodus nach Einstellung C02580)</td><td></td></tr> </table>	DI1 Festsollwert 1	Festsollwert 3	DI2 Festsollwert 2		DI3 Gleichstrombremse aktivieren		DI4 Drehrichtungswchsel		DI5 Haltebremse manuell lüften (Betriebsmodus nach Einstellung C02580)	
DI1 Festsollwert 1	Festsollwert 3										
DI2 Festsollwert 2											
DI3 Gleichstrombremse aktivieren											
DI4 Drehrichtungswchsel											
DI5 Haltebremse manuell lüften (Betriebsmodus nach Einstellung C02580)											
12 (Klemmen 2)	Die Steuerung der Technologieapplikation erfolgt über die digitalen Eingangs-klemmen des Antriebsreglers: <table> <tr> <td>DI1 Festsollwert 1</td><td>Festsollwert 3</td></tr> <tr> <td>DI2 Festsollwert 2</td><td></td></tr> <tr> <td>DI3 Schnellhalt</td><td></td></tr> <tr> <td>DI4 Drehrichtungswchsel</td><td></td></tr> <tr> <td>DI5 Haltebremse manuell lüften (Betriebsmodus nach Einstellung C02580)</td><td></td></tr> </table>	DI1 Festsollwert 1	Festsollwert 3	DI2 Festsollwert 2		DI3 Schnellhalt		DI4 Drehrichtungswchsel		DI5 Haltebremse manuell lüften (Betriebsmodus nach Einstellung C02580)	
DI1 Festsollwert 1	Festsollwert 3										
DI2 Festsollwert 2											
DI3 Schnellhalt											
DI4 Drehrichtungswchsel											
DI5 Haltebremse manuell lüften (Betriebsmodus nach Einstellung C02580)											
14 (Klemmen 11)	Die Steuerung der Technologieapplikation erfolgt über die digitalen Eingangs-klemmen des Antriebsreglers: <table> <tr> <td>DI1 Drehrichtungswchsel</td><td></td></tr> <tr> <td>DI2 Gleichstrombremse aktivieren</td><td></td></tr> <tr> <td>DI3 Motorpotentiometer: Drehzahl höher</td><td></td></tr> <tr> <td>DI4 Motorpotentiometer: Drehzahl tiefer</td><td></td></tr> <tr> <td>DI5 Haltebremse manuell lüften (Betriebsmodus nach Einstellung C02580)</td><td></td></tr> </table>	DI1 Drehrichtungswchsel		DI2 Gleichstrombremse aktivieren		DI3 Motorpotentiometer: Drehzahl höher		DI4 Motorpotentiometer: Drehzahl tiefer		DI5 Haltebremse manuell lüften (Betriebsmodus nach Einstellung C02580)	
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DI1 Festsollwert 1	Festsollwert 3										
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DI4 Linkslauf/Schnellhalt											
DI5 Haltebremse manuell lüften (Betriebsmodus nach Einstellung C02580)											
40 (MCI)	Die Steuerung der Technologieapplikation erfolgt per Feldbuskommunikation. Abhängig von der vorhandenen Communication Unit										

Einstellungen mit P2

(Lenze-Einstellung **fett**)

Mit P2 stellen Sie in 10 Stufen die Motorsolldrehzahl prozentual der Bemessungsdrehzahl in C00011 ein (Drehzahl-Festsollwert). Der Festsollwert wird nur aktiviert, wenn im "Local mode" der Eingang DI1 gesetzt wird.

P2	Beschreibung	Stellung									
		0	1	2	3	4	5	6	7	8	9
	Motordrehzahl in Prozent der Einstellung Bemessungsdrehzahl C00011 [%]	0	11	22	33	44	55	66	77	88	100

Einstellungen mit P3

(Lenze-Einstellung **fett**)

Mit P3 stellen Sie die Hoch- und Ablaufzeit des Motors ein.

P3	Beschreibung	Stellung									
		0	1	2	3	4	5	6	7	8	9
	Hoch- und Ablaufzeit des Motors in Sekunden [s]	0.1	0.5	1	2	5	10	20	30	60	120

Einstellungen mit P1

(Lenze-Einstellung **fett**)

Während des Betriebs können Sie mit P1 stufenlos die Motordrehzahl prozentual der Bemessungsdrehzahl in C00011 einstellen, sofern kein Drehzahl-Festsollwert P2 über DI1 aktiv ist.

Verschlussdeckel entfernen, um Potentiometer P1 einstellen zu können.

- Verschlussdeckel nach dem Einstellen wieder aufschrauben, um den Schutzgrad des Antriebsreglers zu gewährleisten.

P1	Beschreibung	Stellung		
		0	...	9
	Motordrehzahl in Prozent der Nenndrehzahl C00011 [%]	0	...	100

5.2 DIP-Schalter-/ Potiabelegung 1

(ab Softwareversion 07.00.00)

Einstellungen mit DIP1

(Lenze-Einstellung **fett**)

DIP1		Schalter							
Beschreibung		1	2	3	4	5	6	7	8
DIP1, DIP2, P1, P2, P3	aktiv	ON							
	inaktiv	OFF							
Motorleistung	Motorleistung > Inverterleistung		ON						
	Motorleistung = Inverterleistung		OFF						
Regelung	VFCplus ECO			ON					
	VFCplus linear			OFF					
Bremsenansteuerung / Fangen	Bremsenansteuerung aus, Fangen aus				OFF	OFF			
	Bremsenansteuerung aus, Fangen ein				ON	OFF			
	Bremsenansteuerung automatisch Horizontal, Fangen aus				OFF	ON			
	Bremsenansteuerung automatisch Vertikal, Fangen aus				ON	ON			
Anbauichtung Motor	invertiert						ON		
	nicht invertiert						OFF		
Funktion P1	Festsollwert 3 wird immer mit P1 beschrieben							ON	
	Festsollwert 3 wird bei Netzeinschalten einmalig mit P1 beschrieben							OFF	
Parameter laden nach Netzeinschalten	Parameter aus Memory Modul laden								ON
	Parameter der Lenze-Einstellung laden								OFF

Einstellungen mit DIP2

(Lenze-Einstellung **fett**)

DIP2		Schalter							
Beschreibung		1	2	3	4	5	6	7	8
Motorbemes- sungsfrequenz / Bezugsdrehzahl	50 Hz Υ / 1500 min-1	OFF	OFF						
	60 Hz Υ / 1800 min-1	ON	OFF						
	87 Hz Δ / 2610 min-1	OFF	ON						
	120 Hz Υ / 3600 min-1	ON	ON						
Konfiguration Applikation	Stellantrieb Drehzahl (1000)			OFF	OFF				
	AC-Drive Profil (1100)			ON	OFF				
	Abschaltpositionierung (3000)			OFF	ON				
	reserviert			ON	ON				
Steuermodus Technologieap- plikation	9 (Local mode)					OFF	OFF	OFF	
	10 (Klemmen 0)					ON	OFF	OFF	
	12 (Klemmen 2)					OFF	ON	OFF	
	14 (Klemmen 11)					ON	ON	OFF	
	16 (Klemmen 16)					OFF	OFF	ON	
	reserviert					ON	OFF	ON	
	41 (AS-Interface)					OFF	ON	ON	
	40 (MCI/CAN)					ON	ON	ON	
Auswahl DIP- Schalter- /Poti- belegung	DIP-Schalter-/ Potibelegung 0								OFF
	DIP-Schalter-/ Potibelegung 1								ON

Steuermodi DIP2/5-7	Beschreibung (Dix → High)										
9 (Local mode)	Die Steuerung der Technologieapplikation erfolgt lokal über Elemente am Antriebsregler und die digitalen Eingangsklemmen:  Bei Netzeinschalten läuft der Motor automatisch an, wenn RFR gebrückt oder gesetzt ist! <table> <tr> <td>DI1 Sollwert von P2 (Speed)</td><td rowspan="2">Festsollwert 3</td></tr> <tr> <td>DI2 Festsollwert 2</td></tr> <tr> <td>DI3 Gleichstrombremse aktivieren</td><td></td></tr> <tr> <td>DI4 Drehrichtungswechsel (nicht möglich, wenn DIP1/2 = on (links) ist)</td><td></td></tr> <tr> <td>DI5 Haltebremse manuell lüften (Betriebsmodus nach Einstellung C02580)</td><td></td></tr> </table>	DI1 Sollwert von P2 (Speed)	Festsollwert 3	DI2 Festsollwert 2	DI3 Gleichstrombremse aktivieren		DI4 Drehrichtungswechsel (nicht möglich, wenn DIP1/2 = on (links) ist)		DI5 Haltebremse manuell lüften (Betriebsmodus nach Einstellung C02580)		
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DI5 Haltebremse manuell lüften (Betriebsmodus nach Einstellung C02580)											
10 (Klemmen 0)	Die Steuerung der Technologieapplikation erfolgt über die digitalen Eingangsklemmen des Antriebsreglers: <table> <tr> <td>DI1 Festsollwert 1</td><td rowspan="2">Festsollwert 3</td></tr> <tr> <td>DI2 Festsollwert 2</td></tr> <tr> <td>DI3 Gleichstrombremse aktivieren</td><td></td></tr> <tr> <td>DI4 Drehrichtungswechsel</td><td></td></tr> <tr> <td>DI5 Haltebremse manuell lüften (Betriebsmodus nach Einstellung C02580)</td><td></td></tr> </table>	DI1 Festsollwert 1	Festsollwert 3	DI2 Festsollwert 2	DI3 Gleichstrombremse aktivieren		DI4 Drehrichtungswechsel		DI5 Haltebremse manuell lüften (Betriebsmodus nach Einstellung C02580)		
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DI1 Festsollwert 1	Festsollwert 3										
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DI3 Rechtslauf/Schnellhalt											
DI4 Linkslauf/Schnellhalt											
DI5 Haltebremse manuell lüften (Betriebsmodus nach Einstellung C02580)											
40 (MCI)	Die Steuerung der Technologieapplikation erfolgt per Feldbuskommunikation. Abhängig von der vorhandenen Communication Unit										

Einstellungen mit P2(Lenze-Einstellung **fett**)

Mit P2 können Sie verschiedene Festsollwerte in C00039/1 und C00039/2 schreiben.

P2		Stellung									
Beschreibung		0	1	2	3	4	5	6	7	8	9
Festsollwert 1 in C00039/1 schreiben	[%]	5	10	15	20	25	30	35	40	45	50
Festsollwert 2 in C00039/2 schreiben	[%]	10	20	30	40	50	60	70	80	90	100

Einstellungen mit P3(Lenze-Einstellung **fett**)

Mit P3 können Sie verschiedene Hoch-/ Ablaufzeiten in C00012/C00013 mit verschiedenen Ablaufzeiten für den Schnellhalt in C00105 schreiben.

P3		Stellung									
Beschreibung		0	1	2	3	4	5	6	7	8	9
Hoch-/ Ablaufzeit in C00012/C00013 schreiben	[s]	0.1	0.5	0.7	1	1.5	2	5	10	30	60
Ablaufzeit Schnellhalt in C00105 schreiben	[s]	0.1	0.2	0.5	0.7	1	1.5	2	5	10	30

Einstellungen mit P1(Lenze-Einstellung **fett**)

Mit P1 schreiben Sie einen Drehzahl-Festsollwert in C00039/3. Abhängig von der Schalterstellung DIP1/7 wird C00039/3 einmalig bei Netzeinschalten oder permanent beschrieben.

Verschlussdeckel entfernen, um Potentiometer P1 einstellen zu können.

- Verschlussdeckel nach dem Einstellen wieder aufschrauben, um den Schutzgrad des Antriebsreglers zu gewährleisten.

P1		Stellung		
Beschreibung		0	...	9
Festsollwert 3 in C00039/3 schreiben	[%]	0	...	100

5.3 DIP-Schalter-/ Potibelegung 2

(ab Softwareversion 09.00.00)
Geräte mit der Typenbezeichnung E84DGDVBxxx4xxP verfügen nur über Einstellmöglichkeiten mit Potentiometer P1.

Einstellungen mit P1

(Lenze-Einstellung **fett**)
Mit P1 schreiben Sie einen Drehzahl-Festsollwert in C00039/3. C00039/3 wird kontinuierlich beschrieben.
Verschlussdeckel entfernen, um Potentiometer P1 einstellen zu können.
► Verschlussdeckel nach dem Einstellen wieder aufschrauben, um den Schutzgrad des Antriebsreglers zu gewährleisten.

P1	Stellung		
	0	...	9
Beschreibung			
Festsollwert 3 in C00039/3 schreiben [%]	0	...	100

Inbetriebnahme**Vor dem ersten Einschalten**

- ▶ Die Wiring Unit ist gemäß Anleitung montiert und verdrahtet,
 - direkt auf einem Motorklemmflansch oder
 - mit dem Wandadapter auf einer geeigneten Fläche nahe des Motors.
- ▶ Anschlüsse mit Netz, Motor, Haltebremsen usw. sind hergestellt.
- ▶ Die Communication Unit wurde montiert und entsprechend der geplanten Anwendung verdrahtet.
 - Eingangs- und Ausgangssignale
 - Sicherer Eingang
 - Feldbus
 (je nach Ausführung nur optional vorhanden)
- ▶ Bei Bedarf wurden die Grundeinstellungen für "Local mode" vorgenommen.
 - DIP-Schalter
 - Potentiometer
- ▶ Die Drive Unit wurde montiert und verschraubt.
- ▶ Vorhandene Steuerfunktionen sinnvoll einsetzen, z. B.
 - Reglerfreigabe sperren
 - Geschwindigkeitseinstellung auf minimal einstellen
 - Sicherheitseinrichtung aktivieren
- ▶ Der Einsatz eines Bremswiderstandes wurde geprüft.
 - Bei dynamischen Belastungen oder schwierigen Regelverhältnissen wird für die Geräte E84DGDVB4024 ... 7524 (4 ... 7.5 kW) immer der Einsatz des internen Bremswiderstandes E84DZEW47R0001 empfohlen.



Gefahr!

Hohes Gefahrenpotential während der Inbetriebnahme

Durch fehlerhafte Einstellungen kann es zu unerwarteten und gefährlichen Motor- und Anlagenbewegungen kommen.

Mögliche Folgen:

- ▶ Sachschäden
- ▶ Personenschäden

Schutzmaßnahmen:

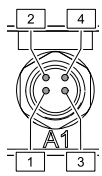
- ▶ Gefahrenbereich räumen
- ▶ Sicherheitsvorschriften und Sicherheitsabstände einhalten

6.2 Inbetriebnahmeschritte

Gehen Sie schrittweise vor:

- ▶ Netz einschalten
- ▶ Statusanzeige beobachten
 - Nach kurzer Initialisierungszeit muss die Anzeige grün blinken.
- ▶ Anforderungen der Sicherheitsfunktion deaktivieren
- ▶ Reglerfreigabe setzen
 - Der Motor muss nach der eingestellten Anlaufzeit mit der eingestellten Geschwindigkeit drehen.
- ▶ Erste Prüfung des erwartungsgemäßen Verhaltens:
 - Drehrichtung?
 - Anlaufzeit?
 - Geschwindigkeit?
 - Geschwindigkeitsregelung?
- ▶ Prüfung optionaler Steuerungsfunktionen:
 - Funktioniert die analoge Sollwertvorgabe?
 - Funktionieren digitale Steuersignale, z. B. Endschalter?
 - Funktioniert die angeschlossene Motorhaltebremse?
 - Funktioniert die Drehrichtungsumschaltung?
 - Funktioniert die Anforderung der Sicherheitsfunktion?
 - Funktionieren Steuersignale über Feldbus?
- ▶ Antrieb abschalten
 - Geschwindigkeit reduzieren
 - Reglerfreigabe sperren
 - Netz ausschalten

Abhängig vom Bussystem der Communication Unit werden Zustände mit einer LED-Anzeige signalisiert. Ausführliche Informationen enthält das Kommunikationshandbuch zum verwendeten Bussystem.

LED	1 (green)		2 (green)	3 (red)	4 (red)
	PROFIBUS	BUS STATE	MODULE STATE	BUS ERROR	MODULE ERROR
	AS-i	SLAVE 1 READY	SLAVE 2 READY	SLAVE 1 ERROR	SLAVE 2 ERROR
	EtherCAT	RUN	LINK/ACTIVITY	ERROR	LINK/ACTIVITY (green)
	PROFINET	BUS READY	LINK/ACTIVITY 1 (yellow)	BUS ERROR	LINK/ACTIVITY 2 (yellow)
	EtherNet/IP	MODULE STATE		NETWORK STATE	
E84DG056_b			(red)	(green)	

6.3 Inbetriebnahme mit Handterminal

Mit dem Handterminal X400 können Sie schnell und einfach Parameter einstellen und sich aktuelle Istwerte und Gerätezustände über die entsprechenden Anzeigeparameter anzeigen lassen. Das Handterminal ist hierzu auf die Diagnoseschnittstelle X70 auf der Geräteoberseite aufzustecken.



Gefahr!

Unkontrollierte Motorbewegung möglich

Die Veränderung eines Parameters hat im Allgemeinen eine sofortige Reaktion des Antriebsreglers zur Folge.

Mögliche Folgen:

- ▶ Bei freigegebenem Antriebsregler kann dies zu unerwünschtem Verhalten an der Motorwelle führen.

Schutzmaßnahmen:

- ▶ Veränderungen in kleinen Schritten vornehmen und Reaktion abwarten.
- ▶ Ausnahmen bilden bestimmte Gerätebefehle oder Einstellungen, die das Antriebsverhalten in einen kritischen Zustand bringen könnten. Solche Parameteränderungen sind nur bei gesperrtem Antriebsregler möglich, andernfalls erfolgt eine entsprechende Fehlermeldung.



Hinweis!

Das Handterminal darf während des Betriebs aufgesteckt und abgezogen werden.



Weitere Informationen

Ausführliche Informationen zum Handterminal finden Sie in der Betriebsanleitung zum Keypad & Handterminal X400.

6.3.1

Menüstruktur

Das Hauptmenü des Handterminals enthält folgende Einträge:

Menüeintrag	Funktion
User Menu	Anzeige einer Auswahl häufig benötigter Parameter
Code List	Anzeige der Parameterliste mit allen Parametern
Go To Parameter	Direkt einen bestimmten Parameter aufrufen
Parameter Transfer	
User Menu Configuration	
Keypad	

6.3.2

User Menü

Das User menu ist in C00517 frei konfigurierbar und enthält in der Lenze-Einstellung folgende Parameter:

Parameter	Name	Info	Lenze-Einstellung
C00011	Appl.: Bezugsdrehzahl	Einstellung der Bezugsdrehzahl	1500 min-1
C00012	Hochlaufzeit Hauptsollw.	FB L_NSet_1: Hochlaufzeit des Rampengenerators für den Drehzahl-Hauptsollwert	2.0 s
C00013	Ablaufzeit Hauptsollw.	FB L_NSet_1: Ablaufzeit des Rampengenerators für den Drehzahl-Hauptsollwert	2.0 s
C00015	VFC: U/f-Eckfrequenz	U/f-Eckfrequenz für Motorregelung VFCplus	50 Hz
C00016	VFC: Umin-Anhebung	Anhebung der U/f-Spannungskennlinie im Bereich kleiner Drehzahlen bzw. Frequenzen für Motorregelung VFCplus	2.6 %
C00022	Imax motorisch	Maximaler motorischer Strom für alle Motorregelungsarten	5.8 A
C00039/1	Festsollwert 1 (L_NSet_1 n-Fix)	FB L_NSet_1: Drehzahl-Festsollwerte (Jog-Werte) für den Sollwertgenerator Festsollwert 1	40.0 %
C00039/2	Festsollwert 2	Festsollwert 2	60.0 %
C00051	MCTRL: Drehzahlstwert	Drehzahlstwert der Motorwelle	—
C00053	Zwischenkreisspannung	Aktuelle Zwischenkreisspannung	—
C00054	Motorstrom	Aktueller Motorstroms/Ausgangsstroms des Umrichters	—
C00061	Kühlkörpertemperatur	Aktuelle Kühlkörpertemperatur	—
C00087	Motor-Bemessungsdrehzahl	Dieser Wert ist dem Motor-Typenschild zu entnehmen. Nach Auswahl des verwendeten Motors aus dem Motorkatalog kann der passende Wert automatisch eingetragen werden.	1320 min-1
C00099	Firmware-Version	Firmware-Version des Geräts als Zeichenfolge	—
C00105	Ablaufzeit Schnellhalt	Die eingestellte Ablaufzeit bestimmt die Rampensteilheit beim Schnellhalt	5.0 s
C00120	Schwelle Motorüberlast (I ² xt)	Ansprechschwelle für die Fehlermeldung "OC6: Motorüberlast (I ² xt)"	100 %
C00137	Gerätezustand	Aktueller Gerätezustand	—
C00166/3	Meld.Zust.Fehler	Textuelle Meldung des aktuell anstehenden Fehlers	—
C00173	Netzspannung	Auswahl der verwendeten Netzspannung, mit der das Gerät betrieben wird.	0: "3ph 400V"
C00200	Firmware-Produkttyp		—

— Nur Anzeige

6.3.3

Inbetriebnahmeschritte**Hinweis!**

An der Diagnoseschnittstelle X70 sind anschließbar:

- ▶ USB Diagnoseadapter (E94AZCUS)
- ▶ Handterminal X400 (EZAEBK200x)
 - Die Funktionen von Handterminal und Keypad X400 (EZAEBK100x) sind identisch.

Für den Antrieb müssen nur einige Parameter angepasst werden. Danach lässt sich die Antriebsapplikation im voreingestellten Steuermodus "Klemmen 0" sofort über die digitalen und analogen Eingänge steuern. Im Steuermodus "Keypad" lässt sich alternativ das Keypad für die Vorgabe der erforderlichen Sollwerte und Steuersignale verwenden.

So gehen Sie vor:

1. Leistungsanschlüsse verdrahten.
 - Nehmen Sie die dem Antriebsregler beiliegende Montageanleitung zu Hilfe, um die Leistungsanschlüsse entsprechend den Erfordernissen Ihres Gerätes richtig auszuführen.
2. Steueranschlüsse verdrahten.
 - Die vorkonfigurierte I/O-Anbindung lässt sich über Konfigurationsparameter ändern. Siehe Kapitel "Anwenderdefinierte Klemmenbelegung".
 - Belegung im voreingestellten Steuermodus "Klemmen 0":

Klemme	Funktion		Info
A1U	Sollwertvorgabe		10 V ≙ 1500 min ⁻¹ (bei 4-poligem Motor) generell: 10 V ≙ 100 % Bezugsdrehzahl (C00011)
DI1	JOG 1	JOG 3	Auswahl Festsollwerte 1 ... 3 • Liegen beide Eingänge auf LOW-Pegel, ist die Sollwertvorgabe über den analogen Eingang A1U aktiv.
DI2	JOG 2		
DI3	DCB		Manuelle Gleichstrombremsung (DCB) • Bei HIGH-aktiven Eingängen ist die Gleichstrombremsung aktiv, solange DI3 auf HIGH-Pegel liegt. • Nach Ablauf der Haltezeit (C00107) setzt der Regler Impulssperre (CINH). Gleichstrombremsung (► 110)
DI4	R/L		LOW-Pegel: Rechtslauf HIGH-Pegel: Linkslauf
DI5	Haltebremse		Haltebremse öffnen/schließen • Bremsmodi C02580

3. Schalter auf Unterseite der Drive Unit kontrollieren:
DIP1/1 muss in Stellung "OFF" sein (Lenze-Einstellung), damit ein Überschreiben der Parameter mittels »Engine«, per Keypad oder über Feldbus möglich ist.
4. Für Feldbuskommunikation ggf. erforderliche Kommunikationseinstellungen über den DIP-Schalter auf der Communication Unit vornehmen.
Die Kommunikationseinstellungen sind abhängig vom verwendeten Feldbus.
5. Antriebsregler mittels der 4 Schrauben befestigen.
6. Spannungsversorgung des Antriebsreglers einschalten.
7. Keypad anschließen.
 - Abdeckkappe der Diagnoseschnittstelle auf der Geräteoberseite entfernen und Keypad an die Diagnoseschnittstelle anschließen.
 - Nach dem Aufstecken des Keypads erfolgt der Verbindungsaufbau mit dem Antriebsregler. Der Vorgang ist abgeschlossen, wenn C00051 im Display erscheint.

Keypad-Anzeige	Aktion
MCTRL: Act speed val. C00051 0 rpm	Mit linker Funktionstaste  in das Hauptmenü wechseln.

8. Lenze-Einstellung in den Antriebsregler laden.

- Hierzu steht der Gerätebefehl "Lenze-Einstellung laden" zur Verfügung, der sich über die Codestelle C00002/1 mit dem Keypad ausführen lässt:

**Hinweis!**

Mit dem Befehl "Lenze-Einstellungen laden" werden zuvor geänderte Werte überschrieben. Voreinstellungen für einen spezifischen Motor, z. B. durch Lenze bei Motormontage mit Getriebemotor, werden zurückgesetzt.

Keypad-Anzeige	Aktion
Par1 8400 motec User-Menü	A Mit Navigationstaste  im Hauptmenü das Menü auswählen. B Mit Navigationstaste  in das Menü wechseln.
Load Lenze setting <i>C00002/1</i>	A Mit linker Funktionstaste EDIT in den Editiermodus für C00002/1 wechseln. B Mit Navigationstaste  in der Auswahlliste den Eintrag "1: On/Start" auswählen. C Mit rechter Funktionstaste OK die durchgeführte Änderung übernehmen und den Editiermodus verlassen. – Der Ladevorgang kann einige Sekunden dauern.

9. Antriebsregler freigeben: Klemme RFR auf HIGH legen.

- Bei Auslieferung ist die Klemme RFR gebrückt (Reglerfreigabe).
- Ist in C00142 die Autostart-Option "Sperrung bei Gerät ein" aktiviert und bei Netzeinschalten liegt Reglerfreigabe vor, bleibt der Antriebsregler im Zustand "ReadyToSwitchOn" stehen. Für einen Wechsel in den Zustand "SwitchedOn" muss die Reglerfreigabe zunächst aufgehoben werden. Erst mit anschließender Reglerfreigabe wird in den Zustand "OperationEnabled" gewechselt.
- Ist in C00142 die Autostart-Option "Sperrung bei Gerät ein" deaktiviert, wird nach Netzeinschalten bei vorliegender Reglerfreigabe direkt vom Zustand "ReadyToSwitchOn" in den Zustand "SwitchedOn" und weiter in den Zustand "OperationEnabled" gewechselt.



Gefahr!

Ist die Autostart-Option "Sperrung bei Gerät ein" deaktiviert, kann der Motor bei vorliegender Reglerfreigabe nach Netzeinschalten direkt loslaufen!

10. Drehzahl vorgeben:

- Im Steuermodus "Klemmen 0" durch Vorgabe einer Spannung am analogen Eingang oder durch Auswahl eines Festsollwertes über die digitalen Eingänge DI1/DI2.
- Im Steuermodus "Keypad" erfolgt die Vorgabe des Drehzahl-Hauptsollwertes und der Steuersignale über folgende Parameter:

Parameter	Name	Info	Lenze-Einstellung
C00728/3	nMainSet-Value_a	Hauptsollwert für die Applikation 100 % = Bezugsdrehzahl (C00011)	0.00 %
C00727/3	bSetSpeedCcw	Drehrichtungswechsel "0": Rechtslauf "1": Linkslauf	0
C00727/4	bJogSpeed1	Auswahl Festsollwert 1 "0": Hauptsollwert (C00728/3) aktiv. "1": Festsollwert 1 (C00039/1) aktiv.	0

11. Ggf. weitere Parameter anpassen.

12. Parametereinstellungen mit Funktionstaste **SAVE** netzausfallsicher im Speichermodul speichern.

6.3.4

SET-Modus

Im SET-Modus wird der Antriebsregler über das Handterminal gesteuert. Sie können den Drehzahlsollwert ändern und den Antriebsregler freigeben oder sperren (RFR/run). Andere Sollwertquellen werden ignoriert.

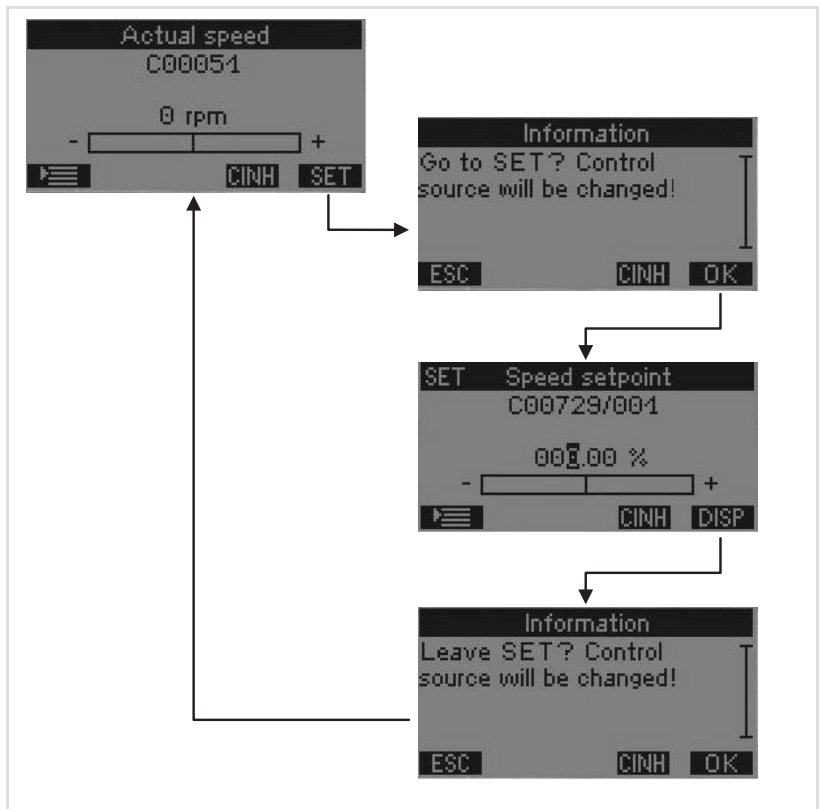
- ▶ SET-Modus aktivieren: Softkey-Taste "DISP" betätigen und mit Softkey-Taste "OK" bestätigen.
- ▶ SET-Modus verlassen: Softkey-Taste "DISP" betätigen und mit Softkey-Taste "OK" bestätigen.



Hinweis!

Der SET-Modus lässt sich nur im Gerätezustand "OperationEnabled" aktivieren (Reglersperre ist aufgehoben, grüne LED am Antriebsregler ist dauerhaft an).

- ▶ Die Reglersperre wird im Keypad nur signalisiert. In C00158 wird die Ursache für die Reglersperre detailliert angezeigt (📖 Referenzhandbuch 8400 motec).



Parametrierung

Durch Parametrierung können Sie den Antriebsregler auf verschiedene Anforderungen von Anwendungen optimal einstellen.

Die Parametrierung kann auf folgende Arten erfolgen:

Parametrierung mit L-force »Engineer«

- ▶ Umfangreiche Einstellungen Online per Software
 - Die sichere Parametrierung wird unterstützt durch die Lenze PC-Software »Engineer«, ab Version 02.23.
 - Die Parametrierung ist im Softwarehandbuch zum Sicherheitsmodul SM302 beschrieben.
 - Erfordert Software und USB-Diagnoseadapter.

Parametrierung mit Handterminal/Keypad

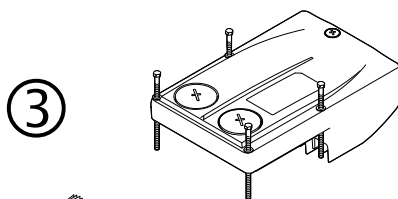
- ▶ Einstellung bestimmter Parameter durch erfahrene Anwender
 - Erfordert ein für 8400 motec geeignetes Handterminal
 - Die Parametrierung ist in der Betriebsanleitung EZAEBK000X zum Keypad 400 beschrieben.



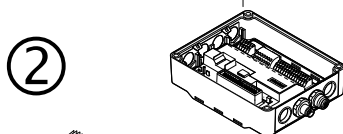
Hinweis!

Parametereinstellungen netzausfallsicher speichern

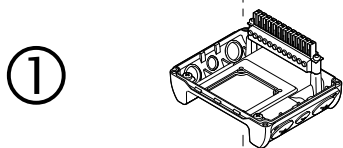
Damit im Gerät vorgenommene Parametereinstellungen nicht durch ein Netzschalten verloren gehen, müssen Sie den Parametersatz explizit im Gerät netzausfallsicher speichern.



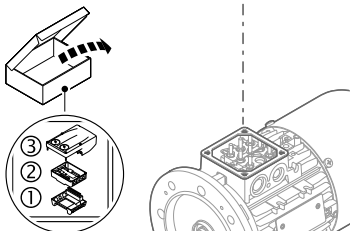
EDK84DGDVBxxx4



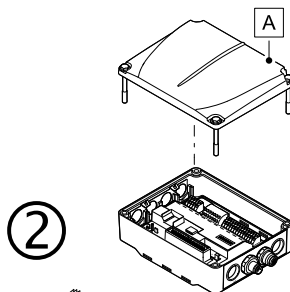
EDK84DGFCxxx



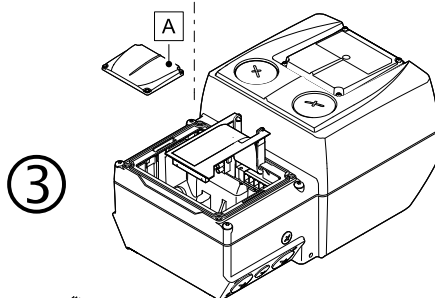
EDK84DGVNxE



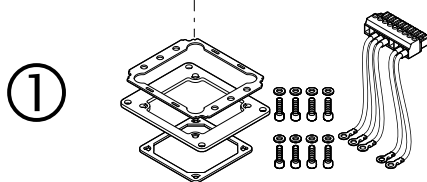
E84DG023a



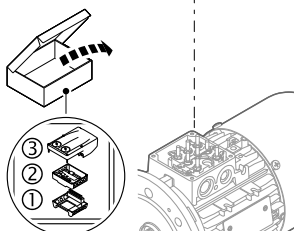
EDK84DGFCxxx



EDK84DGDVBxxx4



EDK84DGVN4E



E84DG023b

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1 About this documentation

Document history

1 About this documentation

1.1 Document history

Material number	Version			Description
13546838	8.3	01/2019	TD15	DE/EN/FR/ES/IT (only PDF)
13546836	8.2	12/2018	TD15	Supplement of functional descriptions
13546838	8.1	12/2017	TD15	DE/EN/FR/ES/IT (only PDF)
13546836	8.0	12/2017	TD15	Supplement of functional descriptions UL corrections
13523272	7.1	12/2016	TD29	DE/EN/FR/ES/IT (only PDF)
13523101	7.0	11/2016	TD29	Supplement of functional descriptions, error corrections, revision of the document structure
13482775	6.1	02/2015	TD29	DE/EN/FR/ES/IT (only PDF)
13478084	6.0	12/2014	TD15	UL corrections
13410321	5.3	07/2014	TD15	DE/EN/FR/ES/IT (only PDF)
13410320	5.2	07/2014	TD15	UL notes in French for Canada EAC conformity
13410321	5.1	06/2012	TD15	General corrections, DE/EN/FR/ES/IT (only PDF)
13410320	5.0	06/2012	TD15	General corrections
13392616	4.1	12/2011	TD15	Extension 4 ... 7.5 kW, DE/EN/FR/ES/IT (only PDF)
13392614	4.0	11/2011	TD15	Extension 4 ... 7.5 kW
13373549	3.0	04/2011	TD15	Extension 2.2 ... 3 kW, PROFINET, EtherCAT
13371646	2.0	02/2011	TD15	General corrections
13336813	1.5	09/2010	TD15	First edition DE/EN/FR/ES/IT (only PDF)
13336813	1.0	08/2010	TD15	First edition DE/EN



Tip!

Information and tools concerning the Lenze products can be found in the download area at

www.lenze.com

1.2 Target group

This documentation is directed at qualified skilled personnel according to IEC 60364.

Qualified skilled personnel are persons who have the required qualifications to carry out all activities involved in installing, mounting, commissioning, and operating the product.

1.3

Validity information

These instructions apply to 8400 motec inverters with the following type designation:

Type designation	From HW	From SW
E84DGDVBxxx4	VA	01.00

More information on the type code can be found in the "Product description" chapter in the 8400 motec hardware manual. ( EDS84DG752)

1.4

Conventions used

This documentation uses the following conventions to distinguish between different types of information:

Type of information	Identification	Examples/notes
Spelling of numbers		
Decimal separator	Point	In general, the decimal point is used. For instance: 1234.56
Warnings		
UL warnings		Given in English and French
UR warnings		
Text		
Program name	» «	PC software For example: »Engineer«, »Global Drive Control« (GDC)
Icons		
Page reference		Reference to another page with additional information For instance:  16 = see page 16
Documentation reference		Reference to another documentation with additional information For example:  EDKxxx = see documentation EDKxxx

1.5

Notes used

The following pictographs and signal words are used in this documentation to indicate dangers and important information:

Safety instructions

Structure of safety instructions:

**Danger!**

(characterises the type and severity of danger)

Note

(describes the danger and gives information about how to prevent dangerous situations)

Pictograph and signal word	Meaning
 Danger!	Danger of personal injury through dangerous electrical voltage. Reference to an imminent danger that may result in death or serious personal injury if the corresponding measures are not taken.
 Danger!	Danger of personal injury through a general source of danger. Reference to an imminent danger that may result in death or serious personal injury if the corresponding measures are not taken.
 Stop!	Danger of property damage. Reference to a possible danger that may result in property damage if the corresponding measures are not taken.

Application notes

Pictograph and signal word	Meaning
 Note!	Important note to ensure troublefree operation
 Tip!	Useful tip for simple handling
	Reference to another documentation

Special safety instructions and application notes

Pictograph and signal word	Meaning
 Warnings!	Safety note or application note for the operation according to UL or CSA requirements.
 Warnings!	The measures are required to meet the requirements according to UL or CSA.

2 Safety instructions

2.1 General safety instructions



Danger!

Dangerous voltage

- ▶ The power terminals carry dangerous voltages for up to 3 minutes after mains disconnection.

Possible consequences:

- ▶ Death or severe injury if the power terminals are touched.

Protective measures:

- ▶ Switch off the mains voltage and wait at least 3 minutes before starting to work on the device.
- ▶ Check that all power terminals are deenergised.

Warning by symbols

Icon	Description
	Long discharge time: All power terminals remain live for up to 3 minutes after mains disconnection!
	High leakage current: Carry out fixed installation and PE connection in accordance with EN 61800-5-1!
	Electrostatic sensitive devices: Before working on the device, the staff must ensure to be free of electrostatic charge!
	Hot surface: Use personal protective equipment or wait until devices have cooled down!

Please also observe more important information on device and safety technology provided on the enclosed CD-ROM!

2.2 Safety instructions for the installation according to UL/CSA

Original - English



Warnings!

- ▶ Use Class 1 wire only.
- ▶ Intended for use with 75 °C wire.
- ▶ Intended for use with copper conductors only.
- ▶ Suitable for use in a surrounding air temperature of 45 °C, and
 - additionally 55 °C when de-rating rules are followed.
- ▶ Hot surface. Risk of burn.
- ▶ Should this device be mounted on a motor, the combination needs to be suitable for the type rating.
- ▶ The supply terminals are to be tightened to:
 - For model suffix's 371, 551, 751, 112, 152 tighten to 4.4 - 5.3 lb-in.
 - For model suffix's 222, and 302, tighten to 7 lb-in.
- ▶ These devices are suitable for use on a circuit capable of delivering not more than 200 000 rms Symmetrical Amperes, 480 V maximum
 - When protected by CC, R, T, or J class fuses or
 - When protected by a circuit breaker having an interrupting rating not less than 200 000 rms symmetrical amperes, 480 V maximum.
- ▶ These devices are suitable for motor group installation on a circuit capable of delivering not more than 200 000 rms Symmetrical Amperes, 480 V maximum
 - When protected by CC, R, T, or J class fuses or
 - When protected by a circuit breaker having an interrupting rating not less than 200 000 rms symmetrical amperes, 480 V maximum.
- ▶ Use fuses and circuit breakers only.

...



Warnings!

...

- ▶ Integral solid state short circuit protection does not provide branch circuit protection. Branch circuit protection must be provided in accordance with the National Electrical Code and any additional local codes.
- ▶ The opening of branch circuit protective devices may be an indication that a fault current has been interrupted. To reduce the risk of fire or electric shock, current carrying parts and other components, the controller should be examined and replaced if damaged.
- ▶ These devices provide overload protection rated for 125 % of the rated FLA.

CAUTION!

- ▶ Risk of electric shock. Please allow 180 s for the internal capacitors to discharge.

Safety instructions for the installation according to UL/CSA

Original - French



Warnings!

- ▶ Use Class 1 wire only.
- ▶ Intended for use with 75 °C wire.
- ▶ Intended for use with copper conductors only.
- ▶ Suitable for use in a surrounding air temperature of 45 °C, and
 - additionally 55 °C when de-rating rules are followed.
- ▶ Hot surface. Risk of burn.
- ▶ Should this device be mounted on a motor, the combination needs to be suitable for the type rating.
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...



Warnings!

...

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- ▶ These devices provide overload protection rated for 125 % of the rated FLA.

CAUTION!

- ▶ Risk of electric shock. Please allow 180 s for the internal capacitors to discharge.

3

Technical data

3.1

General data and operating conditions

Conformity and approval			
Conformity			
CE	2014/35/EC	LowVoltage Directive	
EAC	TP TC 004/2011 (TR CU 004/2011)	On safety of low voltage equipment	Eurasian Conformity TR CU: Technical Regulation of Customs Union
EAC	TP TC 020/2011 (TR CU 020/2011)	Electromagnetic compatibility of technical means	Eurasian Conformity TR CU: Technical Regulation of Customs Union
Approval			
UR	UL 508C	Power Conversion Equipment, File No. E170350	
cUR	C22.2 No 274-13		
Approval wall mounting			
cUL _{US}	UL 508C C22.2 No 274-13	Power Conversion Equipment, File No. E132659	

Protection of persons and equipment			
Enclosure		- Seal unused bore holes for cable glands by means of blanking plugs! - Seal unused connectors by means of protection covers or blanking plugs!	
	EN 60529	8400 motec Set Wall mounting without switch	IP65
		Wall mounting with service switch / with service switch and control elements	IP54
		Wall mounting with service switch and protective function	IP64
	NEMA 250	8400 motec Set	Type 4X (interior)
		Wall mounting without switch	
		0.37 ... 3.0 kW	Type 12
		4.0 ... 7.5 kW	Type 4X (interior)
(Earth) leakage current	EN 61800-5-1	Wall mounting with switch	
		0.37 ... 3.0 kW	Type 12
Total fault current		In TN systems the following earth-leakage circuit breakers can be used:	
Motor mounting		0.37 ... 3.0 kW	30 mA, type B
		4.0 ... 7.5 kW, $f_{ch} = 8/16$ kHz	30 mA, type B
		4.0 ... 7.5 kW, $f_{ch} = 4$ kHz	300 mA, type B
Wall mounting and Lenze system cable ≤ 3 m		0.37 ... 3.0 kW	30 mA, type B
		4.0 ... 7.5 kW, $f_{ch} = 8/16$ kHz	30 mA, type B
		4.0 ... 7.5 kW, $f_{ch} = 4$ kHz	300 mA, type B
Wall mounting and Lenze system cable > 3 m		0.37 ... 7.5 kW	300 mA, type B
Additional equipotential bonding		M5 thread with terminal in the WU for connection of a 16 mm ² PE cable	
Protective insulation of control circuits	EN 61800-5-1	Safe isolation from mains by double (reinforced) insulation	
Insulation resistance	EN 61800-5-1	<2000 m amsl: overvoltage category III	
		>2000 m amsl: overvoltage category II	

Protection of persons and equipment			
Short-circuit strength	EN 61800-5-1	Connection:	
		Motor	To a limited extent, the controller is inhibited, error acknowledgement required
		Motor holding brake, brake resistor	No
		PTC, control terminals	Full
Earth-fault strength	EN 61800-5-1	Connection:	
		Motor (at controller enable)	To a limited extent, the controller is inhibited, error acknowledgement required
		Motor (during operation)	No
		Brake resistor, PTC	No
Protective measures against		• Short circuit on the motor side at switch-on and during operation • Motor stalling • Motor overtemperature – Input for PTC or thermal contact – I²t monitoring	
Cyclic mains switching		• Switchings/minute	3
		• Switchings/hour	Max. 20
		• Switching pause	After switching the mains 3 times in one minute, there must be a switching pause of 9 minutes.
Starting current		$\leq 2 \times I_N$	

Supply conditions

Mains connection

Power system

TT, TN (with an earthed neutral)		Operation permitted without restrictions.
IT		Implement the measure described for IT systems (remove IT screw). The machine/system manufacturer is responsible for compliance with EMC requirements for noise emission (EN 61800-3) for the machine/plant! Operation with an integrated safety system is not permissible.

Motor connection

Motors	EN 60034	Only use motors suitable for inverter operation. Insulation resistance: at least $\hat{u} \geq 1.5$ kV, at least $du/dt \geq 5$ kV/ μ s
Length of the motor cable		< 20 m (Lenze system cable, shielded)

Ambient conditions

Climatic

Storage	IEC/EN 60721-3-1	1K3 (-30 ... +60 °C)
Transport	IEC/EN 60721-3-2	2K3 (-30 ... +75 °C)
Operation	IEC/EN 60721-3-3	3K3 (-30 ... +55 °C) Operation at 4 kHz: > +45 °C: Reduce the rated output current by 2.5 %/°C. Operation at 8/16 kHz: > +40 °C: Reduce the rated output current by 2.5 %/°C.
Site altitude		< 4000 m amsl Above 1000 m amsl reduce the rated output current by 5 %/ 1000 m.
Pollution	IEC/EN 61800-5-1	Degree of pollution 2

Mechanical

Vibration resistance (9.81 m/s² = 1 g)

Motor mounting	Germanischer Lloyd	General conditions: Acceleration resistant up to 2 g	
	IEC/EN 60721-3-3	3M6	
Wall mounting with E84DZMAWE1	Germanischer Lloyd	General conditions: Acceleration resistant up to 2 g	
	IEC/EN 60721-3-3	3M6	

Mounting conditions			
Mounting place			
Motor mounting		Standard	
Wall mounting		With optional wall adapter	Ensure convection cooling in the niches!
Mounting position			
Wall mounting			
0.37 ... 3.0 kW		Vertically with cooling ribs at the top, rotated, horizontally	• Observe derating, see Hardware manual 8400 motec (EDS84DG752) • Arrangement of several devices only to the sides, so that the convection cooling remains ensured!
4.0 ... 7.5 kW		Optional	

Control	
Control method	
	VFCplus: • V/f control (linear or square-law) VFC closed loop: • VFCplus with additional speed feedback VFC eco: • V/f control, energetically optimised SLVC: • Sensorless vector control - torque/speed SLPSM: • Sensorless control for synchronous motors
Switching frequency	
	4 kHz, 8 kHz, 16 kHz

3.2 Rated data

Input data

Mains	Voltage U _{Lrated} [V]	Voltage range U _{Lrated} [V]	Frequency range f [Hz]
3/PE AC	400	320 - 0 % ... 440 + 0 %	45 - 0 % ... 65 + 0 %
3/PE AC	480	432 - 0 % ... 528 + 0 %	45 - 0 % ... 65 + 0 %

	Voltage [V]	Frequency [Hz]	Rated current [A]		Number of phases
			up to +45 °C ①	up to +55 °C ①	
E84DGDVB3714	400/480	50/60	1.3/1.1	1.0/0.8	3
E84DGDVB5514	400/480	50/60	1.8/1.5	1.4/1.1	3
E84DGDVB7514	400/480	50/60	2.4/2.0	1.8/1.5	3
E84DGDVB1124	400/480	50/60	3.2/2.7	2.4/2.0	3
E84DGDVB1524	400/480	50/60	3.8/3.1	2.9/2.3	3
E84DGDVB2224	400/480	50/60	5.6/4.6	4.2/3.5	3
E84DGDVB3024	400/480	50/60	7.2/5.9	5.4/4.4	3
E84DGDVB4024	400/480	50/60	9.3/7.7	7.0/5.8	3
E84DGDVB5524	400/480	50/60	12.8/10.6	9.6/8.0	3
E84DGDVB7524	400/480	50/60	16.3/13.5	12.3/10.1	3

① Ambient temperature, switching frequency 4 kHz

Output data

	Voltage [V]	Frequency [Hz]	Rated current [A]		Number of phases
			up to +45 °C ①	up to +55 °C ①	
E84DGDVB3714	0 ... 400/480	0 ... 300	1.3/1.1	1.0/0.8	3
E84DGDVB5514	0 ... 400/480	0 ... 300	1.8/1.5	1.4/1.1	3
E84DGDVB7514	0 ... 400/480	0 ... 300	2.4/2.0	1.8/1.5	3
E84DGDVB1124	0 ... 400/480	0 ... 300	3.2/2.7	2.4/2.0	3
E84DGDVB1524	0 ... 400/480	0 ... 300	3.9/3.2	2.9/2.4	3
E84DGDVB2224	0 ... 400/480	0 ... 300	5.6/4.7	4.2/3.5	3
E84DGDVB3024	0 ... 400/480	0 ... 300	7.3/6.0	5.4/4.5	3
E84DGDVB4024	0 ... 400/480	0 ... 300	9.5/7.9	7.1/5.9	3
E84DGDVB5524	0 ... 400/480	0 ... 300	13.0/10.8	9.8/8.1	3
E84DGDVB7524	0 ... 400/480	0 ... 300	16.5/13.7	12.4/10.3	3

① Ambient temperature, switching frequency 4 kHz

4 Mechanical installation

4.1 Preparation

The installation and wiring of the Wiring Unit and Communication Unit in compliance with the mounting instructions must have been completed.



Tip!

Before you are able to continue and complete the installation of 8400 motec, you have to take some decisions regarding the parameter setting and commissioning.

Is the inverter to be preset with DIP1, DIP2, P2, or P3?

- ▶ Carry out settings as specified.
 - The "Settings" chapter contains the necessary information. (📖 77)
- ▶ Mount Drive Unit. (📖 73)

Is the inverter to be parameterised with L-Force »Engineer« or using a diagnosis terminal?

- ▶ Mount Drive Unit. (📖 73)

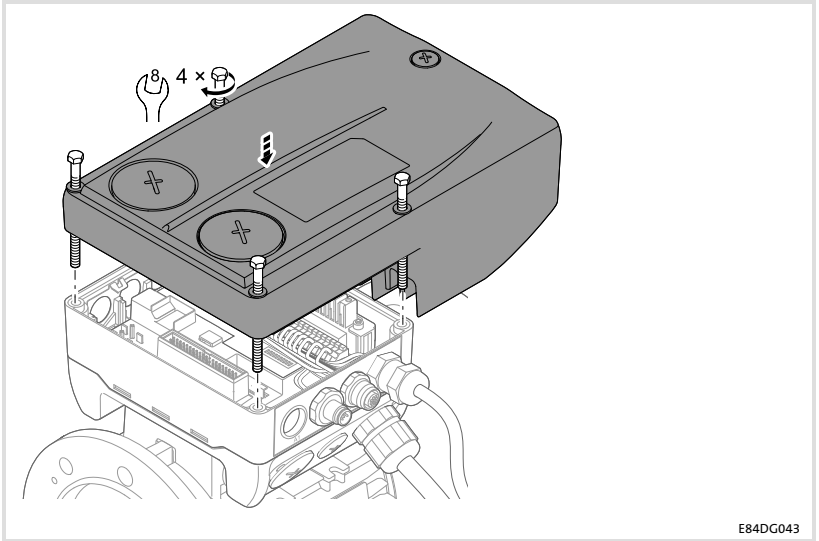
Is the inverter part of a motor or geared motor?

- ▶ The inverter is set by the factory, complying with the motor and gearbox.
 - Do not change factory settings!
- ▶ Mount Drive Unit. (📖 73)

4.2 Mounting

0.37 ... 3 kW

Position the drive unit exactly onto the previously mounted communication unit. Fasten the drive unit with the four provided screws (torque: 5.0 Nm/44 lb-in).



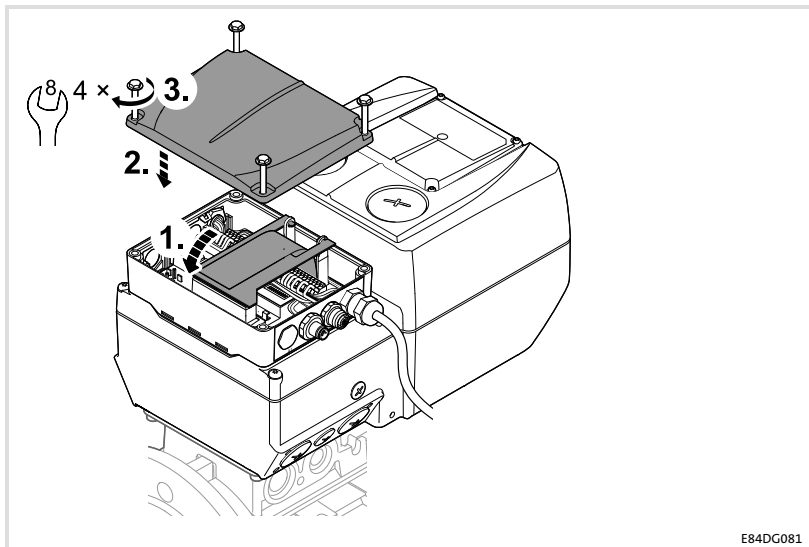
E84DG043

4 ... 7.5 kW

The drive unit has already been mounted with the wiring unit.

How to complete the mounting procedure:

1. Turn the hinged socket connector towards the CU and carefully insert it into the counter plug.
2. Place the cover of the DU on the communication unit and
3. Fit it using the four screws (torque: 1.5 Nm/14 lb-in).



E84DG081

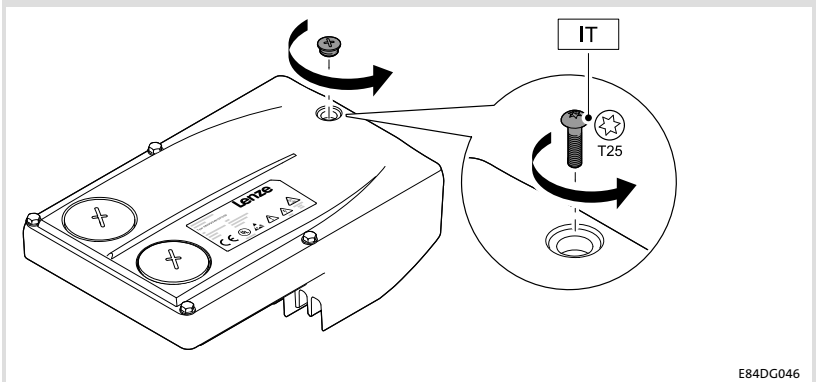
4.3 Measures when drive is used in IT systems

If the drive is mounted within an IT system, internal filters must be separated from the PE conductor.

How to proceed:

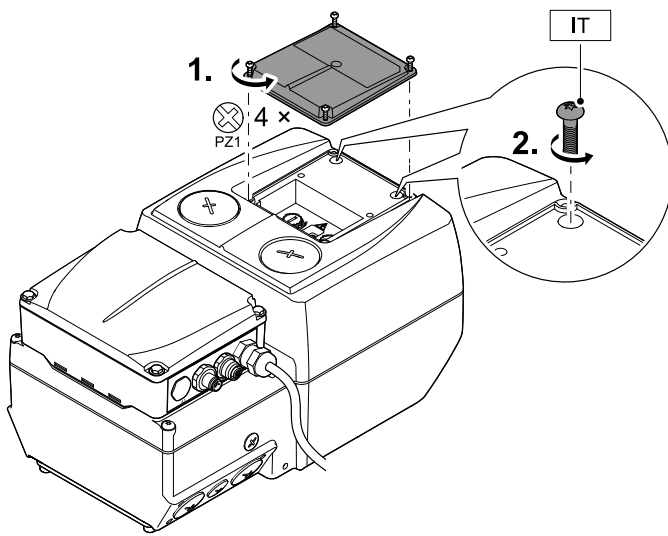
1. If the controller has already been mounted: switch off mains voltage!
2. Make IT screw accessible.
 - Devices up to 3 kW: unscrew small cap on the top.
 - Devices from 4 kW: remove small cover on the top.
3. Unscrew and remove the screw(s).
4. Screw the cap on or fit the cover.

0.37 ... 3 kW



E84DG046

4 ... 7.5 kW



E84DG084

5 Settings



Stop!

Automatic motor start

In "Local mode" The auto-start option "Inhibit at power-on" is not set. When the mains is connected, the motor starts if the controller enable RFR is bridged or set.

("Local mode" => DIP1/1 = ON and DIP2/5-7 = OFF)

Possible consequences:

- ▶ Danger or damages through unexpected motor start.

Protective measures:

- ▶ Decouple the motor from the drive train during commissioning phase.
- ▶ Replace the factory-set bridge at RFR by an NO contact.
- ▶ Do not set controller enable.

For initial commissioning, settings can be made via DIP switch and potentiometer. The settings must be made before mounting the drive unit since the setting elements cannot be accessed from the outside.

From software version 07.00.00 onwards, you can use DIP2/8 to set two different pre-assignments of DIP1, DIP2, P1, P2, and P3:

- ▶ DIP2/8 = OFF: DIP switch/ potentiometer assignment 0
- ▶ DIP2/8 = ON: DIP switch/ potentiometer assignment 1

Up to software version 07.00.00, only DIP switch/ potentiometer assignment 0 is available.

From software version 08.00.00 onwards and when using a POWERLINK communication module, you can influence the IP address setting with DIP1/1:

- ▶ DIP1/1 = OFF: DIP1/2 ... DIP1/8, P1, P2 and P3 are inactive, DIP2 serves to set the IP addresses for POWERLINK
- ▶ DIP1/1 = ON: DIP switch function and potentiometer assignment as described, IP address setting from code C13899

Detailed information can be found in the POWERLINK (EDS84DMOTPL) communication manual.

Moreover, the DIP switch/potentiometer assignment 2 is available.

Precondition:

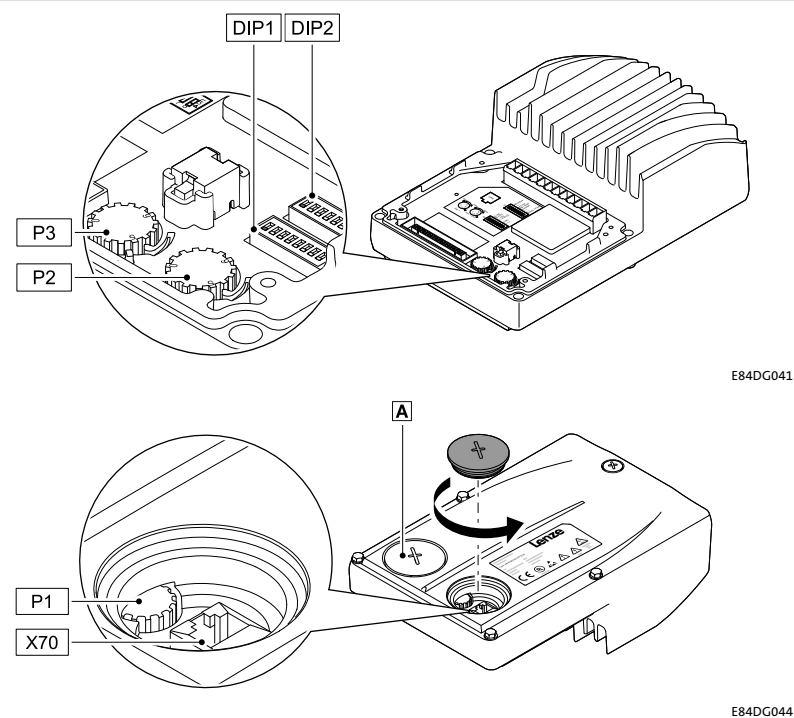
- ▶ Devices with E84DGDVBxxx4xxP type designation
- ▶ Devices from software version 09.00.00
- ▶ Devices in the power range 0.37 kW ... 3.0 kW

Setting elements 0.37 ... 3 kW

The setting elements are located on the inner side of the drive unit.

Settings carried out via DIP1, DIP2, P2, P3, and P1 must be activated with DIP1/1. The settings are accepted again at every mains connection. Thus, changes on parameters made in the meantime may be overwritten.

0.37 ... 3 kW



	Name
DIP1	DIP switch for commissioning
DIP2	
P1	Setting "Top Cover: Speed ... %"
P2	Setting "Speed ... %", (speed)
P3	Setting "Ramp ... s", (acceleration/deceleration time)
X70	Connection for E94AZCUS USB diagnostic adapter or diagnosis terminal
A	LED status display

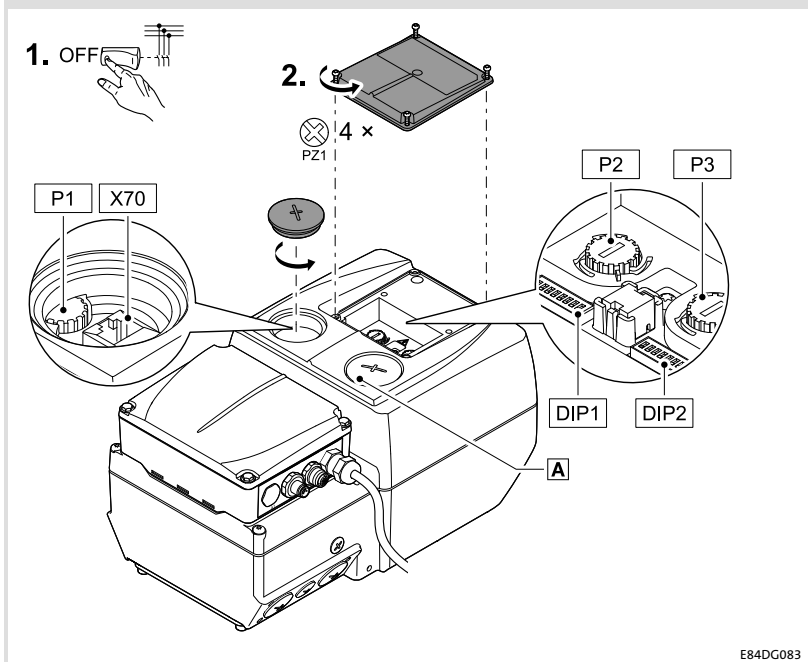
Setting elements 4 ... 7.5 kW

The setting elements are located on the top of the drive unit.

- ▶ Provide for isolation from supply and secure to prevent a restart.
- ▶ Remove small cover on the top.

Settings carried out via DIP1, DIP2, P2, P3, and P1 must be activated with DIP1/1. The settings are accepted again at every mains connection. Thus, changes on parameters made in the meantime may be overwritten.

4 ... 7.5 kW



E84DG083

	Name
DIP1	DIP switch for commissioning
DIP2	
P1	Setting "Top Cover: Speed ... %"
P2	Setting "Speed ... %", (speed)
P3	Setting "Ramp ... s", (acceleration/deceleration time)
X70	Connection for E94AZCUS USB diagnostic adapter or diagnosis terminal
A	LED status display

5.1 DIP switch / potentiometer assignment 0

Settings with DIP1
(Lenze setting **bold)**

DIP1		Switch							
Description		1	2	3	4	5	6	7	8
DIP1, DIP2, P1, P2, and P3 active	Active	ON							
	Inactive	OFF							
Direction of rotation	left		ON						
	right		OFF						
Control	square-law			ON					
	linear			OFF					
Flying restart circuit	active				ON				
	inactive				OFF				
Reserved	-					OFF	OFF	OFF	
Device status	Drive Ready: NO/COM = Closed								ON
	Drive Fail: DO1 = HIGH								
Device status	Drive Ready: DO1 = HIGH								OFF
	Drive Fail: NO/COM = Closed								

Settings with DIP2

(Lenze setting **bold**)

DIP2		Switch							
Description		1	2	3	4	5	6	7	8
Rated motor frequency / reference speed	50 Hz ∇ / 1500 rpm	OFF	OFF						
	60 Hz ∇ / 1800 rpm	ON	OFF						
	87 Hz Δ / 2610 rpm	OFF	ON						
	120 Hz ∇ / 3600 rpm	ON	ON						
Analog input mode	0 ... 10 V			OFF	OFF				
	0 ... 20 mA			ON	OFF				
	4 ... 20 mA			OFF	ON				
	Not permissible			ON	ON				
Control mode - technology application	9 (Local mode)					OFF	OFF	OFF	
	10 (terminals 0)					ON	OFF	OFF	
	12 (terminals 2)					OFF	ON	OFF	
	14 (terminals 11)					ON	ON	OFF	
	16 (terminals 16)					OFF	OFF	ON	
	Reserved					ON	OFF	ON	
	Reserved					OFF	ON	ON	
	40 (MCI)					ON	ON	ON	
Reserved	-								OFF

Control modes DIP2/5-7	Description (Dlx→ High)															
9 (local mode)	The technology application is controlled locally via elements on the inverter and the digital input terminals: ⚠ At mains connection the motor starts up automatically if RFR is bridged or set! <table><tr><td>DI1</td><td>Setpoint of P2 (speed)</td><td rowspan="2">Preset setpoint 3</td></tr><tr><td>DI2</td><td>Preset setpoint 2</td></tr><tr><td>DI3</td><td colspan="2">Activate DC injection brake</td></tr><tr><td>DI4</td><td colspan="2">Change of direction of rotation (not possible if DIP1/2 = on (set to the left))</td></tr><tr><td>DI5</td><td colspan="2">Release holding brake manually (operating mode after setting C02580)</td></tr></table>	DI1	Setpoint of P2 (speed)	Preset setpoint 3	DI2	Preset setpoint 2	DI3	Activate DC injection brake		DI4	Change of direction of rotation (not possible if DIP1/2 = on (set to the left))		DI5	Release holding brake manually (operating mode after setting C02580)		
DI1	Setpoint of P2 (speed)	Preset setpoint 3														
DI2	Preset setpoint 2															
DI3	Activate DC injection brake															
DI4	Change of direction of rotation (not possible if DIP1/2 = on (set to the left))															
DI5	Release holding brake manually (operating mode after setting C02580)															
10 (terminals 0)	The technology application is controlled via the digital input terminals of the inverter: <table><tr><td>DI1</td><td>Preset setpoint 1</td><td rowspan="2">Preset setpoint 3</td></tr><tr><td>DI2</td><td>Preset setpoint 2</td></tr><tr><td>DI3</td><td colspan="2">Activate DC injection brake</td></tr><tr><td>DI4</td><td colspan="2">Change of direction of rotation</td></tr><tr><td>DI5</td><td colspan="2">Release holding brake manually (operating mode after setting C02580)</td></tr></table>	DI1	Preset setpoint 1	Preset setpoint 3	DI2	Preset setpoint 2	DI3	Activate DC injection brake		DI4	Change of direction of rotation		DI5	Release holding brake manually (operating mode after setting C02580)		
DI1	Preset setpoint 1	Preset setpoint 3														
DI2	Preset setpoint 2															
DI3	Activate DC injection brake															
DI4	Change of direction of rotation															
DI5	Release holding brake manually (operating mode after setting C02580)															
12 (terminals 2)	The technology application is controlled via the digital input terminals of the inverter: <table><tr><td>DI1</td><td>Preset setpoint 1</td><td rowspan="2">Preset setpoint 3</td></tr><tr><td>DI2</td><td>Preset setpoint 2</td></tr><tr><td>DI3</td><td colspan="2">Quick stop</td></tr><tr><td>DI4</td><td colspan="2">Change of direction of rotation</td></tr><tr><td>DI5</td><td colspan="2">Release holding brake manually (operating mode after setting C02580)</td></tr></table>	DI1	Preset setpoint 1	Preset setpoint 3	DI2	Preset setpoint 2	DI3	Quick stop		DI4	Change of direction of rotation		DI5	Release holding brake manually (operating mode after setting C02580)		
DI1	Preset setpoint 1	Preset setpoint 3														
DI2	Preset setpoint 2															
DI3	Quick stop															
DI4	Change of direction of rotation															
DI5	Release holding brake manually (operating mode after setting C02580)															
14 (terminals 11)	The technology application is controlled via the digital input terminals of the inverter: <table><tr><td>DI1</td><td colspan="2">Change of direction of rotation</td></tr><tr><td>DI2</td><td colspan="2">Activate DC injection brake</td></tr><tr><td>DI3</td><td colspan="2">Motor potentiometer: speed higher</td></tr><tr><td>DI4</td><td colspan="2">Motor potentiometer: speed lower</td></tr><tr><td>DI5</td><td colspan="2">Release holding brake manually (operating mode after setting C02580)</td></tr></table>	DI1	Change of direction of rotation		DI2	Activate DC injection brake		DI3	Motor potentiometer: speed higher		DI4	Motor potentiometer: speed lower		DI5	Release holding brake manually (operating mode after setting C02580)	
DI1	Change of direction of rotation															
DI2	Activate DC injection brake															
DI3	Motor potentiometer: speed higher															
DI4	Motor potentiometer: speed lower															
DI5	Release holding brake manually (operating mode after setting C02580)															
16 (terminals 16)	The technology application is controlled via the digital input terminals of the inverter: <table><tr><td>DI1</td><td>Preset setpoint 1</td><td rowspan="2">Preset setpoint 3</td></tr><tr><td>DI2</td><td>Preset setpoint 2</td></tr><tr><td>DI3</td><td colspan="2">CW rotation/quick stop</td></tr><tr><td>DI4</td><td colspan="2">CCW rotation/quick stop</td></tr><tr><td>DI5</td><td colspan="2">Release holding brake manually (operating mode after setting C02580)</td></tr></table>	DI1	Preset setpoint 1	Preset setpoint 3	DI2	Preset setpoint 2	DI3	CW rotation/quick stop		DI4	CCW rotation/quick stop		DI5	Release holding brake manually (operating mode after setting C02580)		
DI1	Preset setpoint 1	Preset setpoint 3														
DI2	Preset setpoint 2															
DI3	CW rotation/quick stop															
DI4	CCW rotation/quick stop															
DI5	Release holding brake manually (operating mode after setting C02580)															

Control modes DIP2/5-7	Description (Dlx → High)
40 (MCI)	The technology application is controlled via fieldbus communication. Depending on the Communication Unit available

Settings with P2(Lenze setting **bold**)

With P2 you set the motor setpoint speed as a percentage of the rated speed in C00011 in 10 steps (preset speed setpoint). The preset setpoint is only activated if the DI1 input is set in "Local mode".

P2		Setting									
Description		0	1	2	3	4	5	6	7	8	9
Motor speed in percent of the rated speed	[%]	0	11	22	33	44	55	66	77	88	100
setting C00011											

Settings with P3(Lenze setting **bold**)

Use P3 to set the acceleration and deceleration time of the motor.

P3		Setting									
Description		0	1	2	3	4	5	6	7	8	9
Acceleration and deceleration time of the motor in seconds	[s]	0.1	0.5	1	2	5	10	20	30	60	120

Settings with P1(Lenze setting **bold**)

During operation you can use P1 to steplessly set the motor speed as a percentage of the rated speed in C00011 if no preset speed setpoint P2 is active via DI1.

Remove cap in order to be able to set potentiometer P1.

- Screw cap on again after the setting process, in order to ensure that the degree of protection of the inverter is provided.

P1		Setting		
Description		0	...	9
Motor speed in percent of the rated speed	[%]	0	...	100
C00011				

5.2

DIP switch / potentiometer assignment 1

(from software version 07.00.00 onwards)

Settings with DIP1

(Lenze setting **bold**)

DIP1		Switch							
Description		1	2	3	4	5	6	7	8
DIP1, DIP2, P1, P2, P3	Active	ON							
	Inactive	OFF							
Motor power	Motor power > inverter power		ON						
	Motor power = inverter power		OFF						
Control	VFCplus ECO			ON					
	VFCplus linear			OFF					
Brake control / restart on the fly	Brake control off, restart on the fly off				OFF	OFF			
	Brake control off, restart on the fly on				ON	OFF			
	Brake control automatically horizontally, restart on the fly off				OFF	ON			
	Brake control automatically vertically, restart on the fly off				ON	ON			
Motor mounting direction	Inverted						ON		
	Not inverted						OFF		
Function P1	Preset setpoint 3 is always written to with P1							ON	
	Preset setpoint 3 is written to once at mains connection with P1							OFF	
Load parameters after mains connection	Load parameters from memory module								ON
	Load parameters from the Lenze setting								OFF

Settings with DIP2(Lenze setting **bold**)

DIP2		Switch							
Description		1	2	3	4	5	6	7	8
Rated motor frequency / reference speed	50 Hz Υ / 1500 rpm	OFF	OFF						
	60 Hz Υ / 1800 rpm	ON	OFF						
	87 Hz Δ / 2610 rpm	OFF	ON						
	120 Hz Υ / 3600 rpm	ON	ON						
Configuration of application	Speed actuating drive (1000)			OFF	OFF				
	AC Drive Profile (1100)			ON	OFF				
	Switch-off positioning (3000)			OFF	ON				
	Reserved			ON	ON				
Control mode - technology application	9 (Local mode)					OFF	OFF	OFF	
	10 (terminals 0)					ON	OFF	OFF	
	12 (terminals 2)					OFF	ON	OFF	
	14 (terminals 11)					ON	ON	OFF	
	16 (terminals 16)					OFF	OFF	ON	
	Reserved					ON	OFF	ON	
	41 (AS-Interface)					OFF	ON	ON	
	40 (MCI/CAN)					ON	ON	ON	
Selection of DIP switch / potentiometer assignment	DIP switch / potentiometer assignment 0								OFF
	DIP switch / potentiometer assignment 1								ON

Control modes DIP2/5-7	Description (Dlx → High)															
9 (local mode)	The technology application is controlled locally via elements on the inverter and the digital input terminals:  At mains connection the motor starts up automatically if RFR is bridged or set! <table><tr><td>DI1</td><td>Setpoint of P2 (speed)</td><td rowspan="2">Preset setpoint 3</td></tr><tr><td>DI2</td><td>Preset setpoint 2</td></tr><tr><td>DI3</td><td colspan="2">Activate DC injection brake</td></tr><tr><td>DI4</td><td colspan="2">Change of direction of rotation (not possible if DIP1/2 = on (set to the left))</td></tr><tr><td>DI5</td><td colspan="2">Release holding brake manually (operating mode after setting C02580)</td></tr></table>	DI1	Setpoint of P2 (speed)	Preset setpoint 3	DI2	Preset setpoint 2	DI3	Activate DC injection brake		DI4	Change of direction of rotation (not possible if DIP1/2 = on (set to the left))		DI5	Release holding brake manually (operating mode after setting C02580)		
DI1	Setpoint of P2 (speed)	Preset setpoint 3														
DI2	Preset setpoint 2															
DI3	Activate DC injection brake															
DI4	Change of direction of rotation (not possible if DIP1/2 = on (set to the left))															
DI5	Release holding brake manually (operating mode after setting C02580)															
10 (terminals 0)	The technology application is controlled via the digital input terminals of the inverter: <table><tr><td>DI1</td><td>Preset setpoint 1</td><td rowspan="2">Preset setpoint 3</td></tr><tr><td>DI2</td><td>Preset setpoint 2</td></tr><tr><td>DI3</td><td colspan="2">Activate DC injection brake</td></tr><tr><td>DI4</td><td colspan="2">Change of direction of rotation</td></tr><tr><td>DI5</td><td colspan="2">Release holding brake manually (operating mode after setting C02580)</td></tr></table>	DI1	Preset setpoint 1	Preset setpoint 3	DI2	Preset setpoint 2	DI3	Activate DC injection brake		DI4	Change of direction of rotation		DI5	Release holding brake manually (operating mode after setting C02580)		
DI1	Preset setpoint 1	Preset setpoint 3														
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12 (terminals 2)	The technology application is controlled via the digital input terminals of the inverter: <table><tr><td>DI1</td><td>Preset setpoint 1</td><td rowspan="2">Preset setpoint 3</td></tr><tr><td>DI2</td><td>Preset setpoint 2</td></tr><tr><td>DI3</td><td colspan="2">Quick stop</td></tr><tr><td>DI4</td><td colspan="2">Change of direction of rotation</td></tr><tr><td>DI5</td><td colspan="2">Release holding brake manually (operating mode after setting C02580)</td></tr></table>	DI1	Preset setpoint 1	Preset setpoint 3	DI2	Preset setpoint 2	DI3	Quick stop		DI4	Change of direction of rotation		DI5	Release holding brake manually (operating mode after setting C02580)		
DI1	Preset setpoint 1	Preset setpoint 3														
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DI1	Change of direction of rotation															
DI2	Activate DC injection brake															
DI3	Motor potentiometer: speed higher															
DI4	Motor potentiometer: speed lower															
DI5	Release holding brake manually (operating mode after setting C02580)															
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DI1	Preset setpoint 1	Preset setpoint 3														
DI2	Preset setpoint 2															
DI3	CW rotation/quick stop															
DI4	CCW rotation/quick stop															
DI5	Release holding brake manually (operating mode after setting C02580)															

Control modes DIP2/5-7	Description (Dlx → High)
40 (MCI)	The technology application is controlled via fieldbus communication. Depending on the Communication Unit available

Settings with P2

(Lenze setting **bold**)

Use P2 to write different preset setpoints to C00039/1 and C00039/2.

P2		Setting									
Description		0	1	2	3	4	5	6	7	8	9
Write preset setpoint 1 to C00039/1	[%]	5	10	15	20	25	30	35	40	45	50
Write preset setpoint 2 to C00039/2	[%]	10	20	30	40	50	60	70	80	90	100

Settings with P3

(Lenze setting **bold**)

Use P3 to write different acceleration/deceleration times to C00012/C00013 including different deceleration times for quick stop to C00105.

P3		Setting									
Description		0	1	2	3	4	5	6	7	8	9
Write acceleration/deceleration time to C00012/C00013	[s]	0.1	0.5	0.7	1	1.5	2	5	10	30	60
Write deceleration time for quick stop to C00105	[s]	0.1	0.2	0.5	0.7	1	1.5	2	5	10	30

Settings with P1

(Lenze setting **bold**)

Use P1 to write a preset speed setpoint to C00039/3. Depending on the switch position of DIP1/7, C00039/3 is written to once or permanently at mains connection.

Remove cap in order to be able to set the P1 potentiometer.

- Screw cap on again after the setting process, in order to ensure the degree of protection of the inverter.

P1		Setting		
Description		0	...	9
Write preset setpoint 3 to C00039/3	[%]	0	...	100

5.3

DIP switch / potentiometer assignment 2

(from software version 09.00.00 onwards)
Devices with the E84DGDVBxxx4xxP type designation only provide setting options with potentiometer P1.

Settings with P1

(Lenze setting **bold**)
Use P1 to write a preset speed setpoint to C00039/3. C00039/3 is written continuously.
Remove cap in order to be able to set the P1 potentiometer.
► Screw cap on again after the setting process, in order to ensure the degree of protection of the inverter.

P1	Setting		
Description	0	...	9
Write preset setpoint 3 to C00039/3 [%]	0	...	100

6 Commissioning

6.1 Before switching on

- ▶ The wiring unit is mounted and wired as described in the instructions,
 - directly on a motor clamping flange or
 - with the wall adapter on a suitable surface near the motor.
- ▶ Connections with the mains, motor, holding brakes, etc. have been established.
- ▶ The communication unit has been mounted and wired according to the scheduled application.
 - Input and output signals
 - Safe input
 - Fieldbus(depending on the version, only optionally available)
- ▶ If required, the basic settings for "local mode" have been carried out.
 - DIP switch
 - Potentiometer
- ▶ The drive unit has been mounted and screwed together.
- ▶ Use available control functions reasonably, e.g.
 - Inhibit controller enable
 - Set speed adjustment to the minimum setting
 - Activate safety system
- ▶ The use of a brake resistor has been checked.
 - In the case of dynamic loads or difficult control conditions, the use of the internal E84DZEW47R0001 brake resistor is always recommended for devices E84DGDVB4024 ... 7524 (4 ... 7.5 kW).



Danger!

Great hazard potential during commissioning

Incorrect settings may cause unexpected and dangerous motor and system movements.

Possible consequences:

- ▶ Damage to material assets
- ▶ Injury to persons

Protective measures:

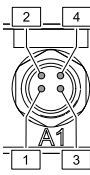
- ▶ Clear hazardous area
- ▶ Observe safety instructions and safety clearances

6.2 Commissioning steps

Proceed step by step:

- ▶ Switch on the mains
- ▶ Monitor status display
 - After a short initialisation time, the display must be blinking green.
- ▶ Deactivate requirements of the safety function
- ▶ Set controller enable
 - After the set starting time, the motor must rotate with the speed set.
- ▶ Initial check of the expected behaviour:
 - Direction of rotation?
 - Starting time?
 - Speed?
 - Speed control?
- ▶ Check of optional control functions:
 - Is the analog setpoint selection working?
 - Are the digital control signals, e.g. limit switches, working?
 - Is the connected motor holding brake working?
 - Is the function for changing over the rotating direction working?
 - Is the requirement with regard to the safety function working?
 - Are the control signals via fieldbus working?
- ▶ Switch off drive
 - Reduce speed
 - Inhibit controller enable
 - Switch off mains

Depending on the bus system of the communication unit, statuses are indicated by means of an LED display. Detailed information can be found in the communication manual for the bus system used.

LED	1 (green)	2 (green)	3 (red)	4 (red)
	PROFIBUS	BUS STATE	MODULE STATE	BUS ERROR
	AS-i	SLAVE 1 READY	SLAVE 2 READY	SLAVE 1 ERROR
	EtherCAT	RUN	LINK/ACTIVITY	ERROR
	PROFINET	BUS READY	LINK/ACTIVITY 1 (yellow)	BUS ERROR
	EtherNet/IP	MODULE STATE (red)		NETWORK STATE (green)
E84DG056_b				

6.3

Commissioning via the diagnosis terminal

The X400 diagnosis terminal serves to quickly and easily set parameters and display current actual values and device states by means of the corresponding display parameters. For this purpose, the diagnosis terminal must be plugged onto the X70 diagnostic interface on the top of the device.

**Danger!****Uncontrolled motor movement possible**

In general, changing a parameter causes an immediate response in the inverter.

Possible consequences:

- ▶ This may lead to undesirable behaviour on the motor shaft if the inverter has been enabled.

Protective measures:

- ▶ Make changes in small steps and wait for response.
- ▶ Certain device commands or settings which may cause critical states of drive behaviour constitute exceptions. Such parameter changes are only possible if the inverter is inhibited. Otherwise, a corresponding error message will be issued.

**Note!**

Plugging and unplugging the diagnosis terminal during operation is permissible.

**More information**

Detailed information regarding the diagnosis terminal can be found in the operating instructions for the X400 keypad & diagnosis terminal.

6.3.1 Menu structure

The main menu of the diagnosis terminal contains the following entries:

Menu item	Function
User menu	Display of a selection of frequently required parameters
Code list	Display of the parameter list with all parameters
Go to parameter	Directly calls a certain parameter
Parameter transfer	
User menu configuration	
Keypad	

6.3.2 User menu

The user menu can be freely configured in C00517 and contains the following parameters in the Lenze setting:

Parameters	Name	Info	Lenze setting
C00011	Appl.: Reference speed	Setting the reference speed	1500 rpm
C00012	Accel. time - main setpoint	FB L_NSet_1: Acceleration time of the ramp generator for the main speed setpoint	2.0 s
C00013	Decel. time - main setpoint	FB L_NSet_1: Deceleration time of the ramp generator for the main speed setpoint	2.0 s
C00015	VFC: V/f base frequency	V/f base frequency for VFCplus motor control	50 Hz
C00016	VFC: Vmin boost	Boost of the V/f voltage characteristic within the range of low speed or frequency values for the VFCplus motor control.	2.6 %
C00022	Imax in motor mode	Maximum current in motor mode for all motor control modes	5.8 A
C00039/1	Preset setpoint 1 (L_NSet_1 n-Fix)	FB L_NSet_1: Fixed speed setpoints (JOG values) for the setpoint generator Fixed setpoint 1	40.0 %
C00039/2	Fixed setpoint 2	Fixed setpoint 2	60.0 %
C00051	MCTRL: Actual speed value	Actual speed value of the motor shaft	–
C00053	DC-bus voltage	Actual DC-bus voltage	–
C00054	Motor current	Current motor current/output current of the inverter	–
C00061	Heatsink temperature	Current heatsink temperature	–
C00087	Rated motor speed	This value can be obtained from the motor nameplate. After the motor to be used has been selected from the motor catalogue, the suitable value can be entered automatically.	1320 rpm
C00099	Firmware version	Firmware version of the device as string	–
C00105	Decel. time - quick stop	The set deceleration time determines the ramp slope at quick stop	5.0 s
C00120	Motor overload threshold (I ² xt)	Operating threshold for the error message "OC6: Motor overload (I ² xt)"	100 %
C00137	Device status	Current device state	–
C00166/3	Mess. - status det. error	Textual message of the currently pending error	–
C00173	Mains voltage	Selection of the mains voltage for operating the device.	0: "3ph 400V"
C00200	Firmware product type		–

– Read only

6.3.3 Commissioning steps

**Note!**

The following can be connected to the X70 diagnostic interface:

- ▶ USB diagnostic adapter (E94AZCUS)
- ▶ X400 diagnosis terminal (EZAEBK200x)
 - The functions of the X400 diagnosis terminal and keypad (EZAEBK100x) are identical.

Only some parameters must be adapted for the drive. Then the drive application can be controlled immediately in the preset "Terminals 0" control mode via the digital and analog inputs. Alternatively, the keypad can be used for defining the required setpoints and control signals in the "Keypad" control mode.

How to proceed:

1. Wiring of power terminals
 - Make use of the mounting instructions supplied with the inverter to wire the power terminals according to the requirements of your device.
2. Wiring of control terminals.
 - The preconfigured I/O connection can be changed via configuration parameters. See chapter "User-defined terminal assignment".
 - Assignment in the preset "Terminals 0" control mode:

Commissioning

Commissioning via the diagnosis terminal

Commissioning steps

Terminal	Function		Info
A1U	Setpoint selection		10 V ≡ 1500 rpm (with 4-pole motor) general: 10 V ≡ 100 % reference speed (C00011)
DI1	JOG 1	JOG 3	Selection of preset setpoints 1 ... 3 ● If both inputs are on LOW level, the setpoint selection via the analog input A1U is active.
DI2	JOG 2		
DI3	DCB		Manual DC-injection braking (DCB) ● For HIGH-active inputs, DC-injection braking is active as long as DI3 is at HIGH level. ● After the hold time (C00107) has expired, the inverter sets pulse inhibit (CINH). DC-injection braking (►I 110)
DI4	R/L		LOW level: CW rotation HIGH level: CCW rotation
DI5	Holding brake		Open/close holding brake ● Braking modes C02580

3. Check switch at the bottom of the drive unit:
DIP1/1 must be "OFF" (Lenze setting) in order that the parameters can be overwritten via »Engineer«, keypad, or fieldbus.
4. If required, carry out communication settings via the DIP switch on the Communication Unit for fieldbus communication.
The communication settings depend on the fieldbus used.
5. Fasten the controller by means of the 4 screws.
6. Switch on voltage supply of the inverter.
7. Connect keypad.
 - Remove the cover of the diagnostic interface on the top of the device and connect the keypad to the diagnostic interface.
 - When the keypad has been connected, the connection to the inverter is established. This process is completed when C00051 is shown in the display.

Keypad display	Action
MCTRL: Act speed val. C00051 0 rpm	Use left function key  to change to main menu.

8. Load Lenze setting to inverter.
 - For this purpose, the device command "Load Lenze setting" is available which can be executed via code C00002/1 with the keypad:

**Note!**

With the "Load Lenze settings" command, values that have been changed previously are overwritten. Default settings for a specific motor, e.g. by Lenze for motor mounting with geared motor, are reset.

Keypad display	Action
Par1 8400 motec User menu	A Select the menu in the main menu using the  navigation key. B Change to the menu using the  navigation key.
Load Lenze setting <i>C00002/1</i>	A Use the left function key EDIT to change to the editing mode for C00002/1. B Use navigation key  to select the "1: On/Start" entry in the selection list. C Use the right function key OK to accept the executed change and quit the editing mode. – The load process may take a couple of seconds.

9. Enable inverter: Set RFR to HIGH potential.

- By default, the RFR terminal is bridged (controller enable).
- If the auto-start option "Inhibit at power-on" is activated in C00142 and the controller is enabled at mains connection, the controller remains in the "ReadyToSwitchOn" status. For changing to the "SwitchedOn" status, controller enable must first be deactivated. Only when the controller is enabled again afterwards, the status changes to "OperationEnabled":
- If the autostart option "Inhibit at power-on" is deactivated in C00142, the status directly changes from "ReadyToSwitchOn" to the "SwitchedOn" state and to the "OperationEnabled" state after mains connection when the controller is enabled.



Danger!

When the auto-start option "Inhibit at power-on" is deactivated, the motor can directly start after power-on if the controller is enabled!

10. Select speed:

- In the "Terminals 0" by selecting a voltage at the analog input or by selecting a fixed setpoint via the digital inputs DI1/DI2.
- In the "Keypad" control mode, the main speed setpoint and the control signals are predefined via the following parameters:

Parameters	Name	Info	Lenze setting
C00728/3	nMainSetValue_a	Main setpoint for the application 100 % = reference speed (C00011)	0.00 %
C00727/3	bSetSpeedCcw	Change of direction of rotation "0": CW rotation "1": CCW rotation	0
C00727/4	bJogSpeed1	Selection of fixed setpoint 1 "0": Main setpoint (C00728/3) active. "1": Fixed setpoint 1 (C00039/1) active.	0

11. If required, adapt further parameters.

12. Save parameter settings with function key **SAVE** safe against mains failure in the memory module.

6.3.4 SET mode

In SET mode, the inverter is controlled via the diagnosis terminal. You can change the speed setpoint and enable or inhibit the inverter (RFR/run). Other setpoint sources are ignored.

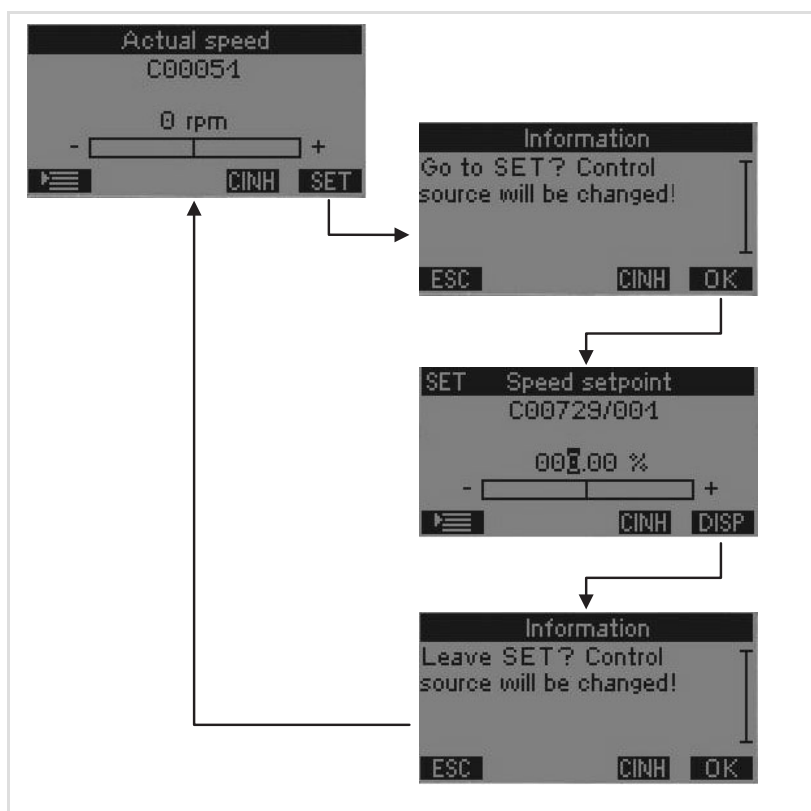
- ▶ Activate SET mode: press "DISP" softkey button and confirm with "OK" softkey button.
- ▶ Exit SET mode: press "DISP" softkey button and confirm with "OK" softkey button.



Note!

SET mode can only be activated in the "OperationEnabled" device state (controller inhibit is deactivated, green LED on the inverter is lit permanently).

- ▶ Controller inhibit is only indicated in the keypad. The cause of controller inhibit is shown in detail in C00158 (8400 motec reference manual).



7 Parameter setting

By means of the parameterisation process you can provide the inverter with optimum settings meeting various requirements for different applications. The parameterisation can be performed in the following ways:

Parameterisation with L-force »Engineer«

- ▶ Comprehensive settings made online by the use of software
 - Safe parameter setting is supported by the »Engineer« Lenze PC software, starting from version 02.23.
 - The parameterisation process is described in the software manual for the SM302 safety module.
 - Requires software and a USB diagnostic adapter.

Parameter setting using a diagnosis terminal/keypad

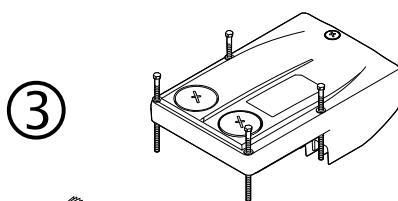
- ▶ Setting of specific parameters by experienced users
 - Requires a diagnosis terminal that is suitable for 8400 motec
 - The parameter setting procedure is described in the EZAEBK000X operating instructions for the 400 keypad.



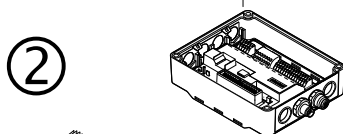
Note!

Save parameter settings safe against mains failure

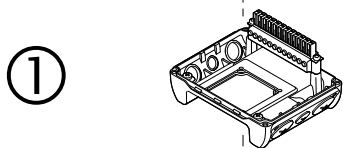
In order to prevent parameter settings carried out in the device from being lost by mains switching, you have to explicitly save the parameter set with mains failure protection in the device.



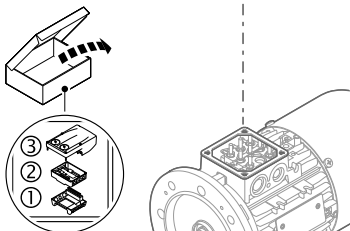
EDK84DGDVBxxx4



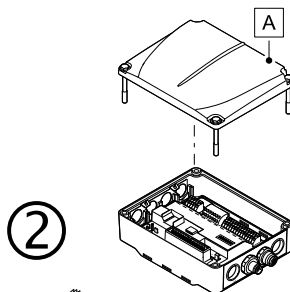
EDK84DGFCxxx



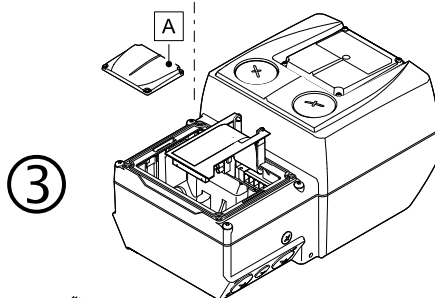
EDK84DGVNxE



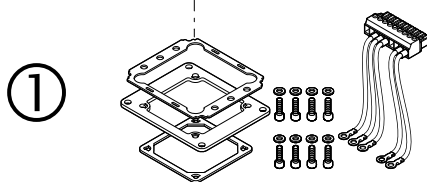
E84DG023a



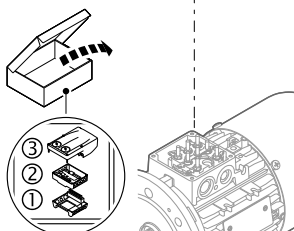
EDK84DGFCxxx



EDK84DGDVBxxx4



EDK84DGVN4E



E84DG023b

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1

Présentation du document

Historique du document

1

Présentation du document

1.1

Historique du document

N° de document	Version			Description
13546838	8.3	01/2019	TD15	DE/EN/FR/ES/IT (au format PDF uniquement)
13546836	8.2	12/2018	TD15	Ajout de descriptions de fonctions
13546838	8.1	12/2017	TD15	DE/EN/FR/ES/IT (au format PDF uniquement)
13546836	8.0	12/2017	TD15	Ajout de descriptions de fonctions Corrections UL
13523272	7.1	12/2016	TD29	DE/EN/FR/ES/IT (au format PDF uniquement)
13523101	7.0	11/2016	TD29	Ajout de descriptions de fonctions, correction d'erreurs, révision de la composition du document
13482775	6.1	02/2015	TD29	DE/EN/FR/ES/IT (au format PDF uniquement)
13478084	6.0	12/2014	TD15	Corrections UL
13410321	5.3	07/2014	TD15	DE/EN/FR/ES/IT (au format PDF uniquement)
13410320	5.2	07/2014	TD15	Remarques UL en langue française pour le Canada Conformité eurasienne
13410321	5.1	06/2012	TD15	Corrections générales, DE/EN/FR/ES/IT (au format PDF uniquement)
13410320	5.0	06/2012	TD15	Corrections générales
13392616	4.1	12/2011	TD15	Extension 4 ... 7.5 kW, DE/EN/FR/ES/IT (au format PDF uniquement)
13392614	4.0	11/2011	TD15	Extension 4 à 7,5 kW
13373549	3.0	04/2011	TD15	Extension de la plage de puissance : 2.2 ... 3 kW, intégration de PROFINET et de EtherCAT
13371646	2.0	02/2011	TD15	Corrections générales
13336813	1.5	09/2010	TD15	Première édition DE/EN/FR/ES/IT (au format PDF uniquement)
13336813	1.0	08/2010	TD15	Première édition DE/EN



Conseil !

Toutes les informations relatives aux produits Lenzé peuvent être téléchargées sur notre site à l'adresse suivante :

www.Lenze.com

1.2 Public visé

Cette documentation s'adresse à un personnel qualifié et habilité conformément à la norme CEI 60364.

On entend par "personnel qualifié et habilité" des personnes compétentes en matière d'installation, de montage, de mise en service et de fonctionnement du produit et possédant les qualifications correspondant à leurs activités.

1.3

Validité

Le présent document s’applique aux variateurs 8400 motec suivants :

Référence de commande	A partir de la version matérielle (HW)	A partir de la version logicielle (SW)
E84DGDVBxxx4	VA	01.00

Pour plus d’informations sur la codification des types, consulter le chapitre Description du produit dans le manuel de l’appareil 8400 motec. ( EDS84DG752)

1.4

Conventions utilisées

Pour distinguer les différents types d’information, cette documentation utilise les conventions suivantes :

Type d'information	Aperçu	Exemples/remarques
Représentation des chiffres		
Séparateur décimal	Point	Le point décimal est généralement utilisé. Exemple : 1234.56
Consignes préventives		
Consignes préventives UL		En anglais et en français
Consignes préventives UR		
Mise en évidence de textes spéciaux		
Nom de programme	» «	Logiciel pour PC Exemple : »Engineer«, »Global Drive Control« (GDC)
Pictogrammes		
Renvoi à la page		Renvoi à une autre page contenant des informations supplémentaires. Exemple :  16 = voir page 16
Renvoi à une documentation		Renvoi à une autre documentation contenant des informations supplémentaires. Exemple :  EDKxxx = voir la documentation EDKxxx

1.5 Consignes utilisées

Pour indiquer des risques et des informations importantes, la présente documentation utilise les mots et pictogrammes suivants :

Consignes de sécurité

Présentation des consignes de sécurité



Danger !

(Le pictogramme indique le type de risque.)

Explication

(L'explication décrit le risque et les moyens de l'éviter.)

Pictogramme et mot associé	Explication
 Danger !	Situation dangereuse pour les personnes en raison d'une tension électrique élevée Indication d'un danger imminent qui peut avoir pour conséquences des blessures mortelles ou très graves en cas de non-respect des consignes de sécurité correspondantes
 Danger !	Situation dangereuse pour les personnes en raison d'un danger d'ordre général Indication d'un danger imminent qui peut avoir pour conséquences des blessures mortelles ou très graves en cas de non-respect des consignes de sécurité correspondantes
 Stop !	Risques de dégâts matériels Indication d'un risque potentiel qui peut avoir pour conséquences des dégâts matériels en cas de non-respect des consignes de sécurité correspondantes

Consignes d'utilisation

Pictogramme et mot associé	Explication
 Remarque importante !	Remarque importante pour assurer un fonctionnement correct
 Conseil !	Conseil utile pour faciliter la mise en œuvre
	Renvoi à une autre documentation

Consignes de sécurité et d'utilisation spéciales

Pictogramme et mot associé	Description
 Avertissements !	Consigne de sécurité ou d'utilisation pour le fonctionnement selon les normes UL ou CSA.
 Avertissements !	Les mesures sont requises pour répondre aux exigences des normes UL ou CSA.

2 Consignes de sécurité

2.1 Consignes générales



Danger !

Tension électrique dangereuse

- Les raccordements de puissance sont susceptibles de véhiculer une tension dangereuse jusqu'à 3 minutes après une coupure réseau.

Risques encourus :

- Mort ou blessures graves en cas de contact avec les raccordements de puissance

Mesures de protection :

- Avant toute manipulation de l'appareil, couper la tension réseau et attendre 3 minutes au minimum.
- S'assurer que tous les raccordements de puissance sont hors tension.

Pictogrammes d'avertissement

Symbole	Description
	Temps de décharge prolongé : toutes les bornes de puissance sont sous tension jusqu'à 3 minutes après la coupure réseau !
	Courant de fuite important : prévoir une installation fixe et un raccordement PE selon EN 61800-5-1 !
	Composants sensibles aux décharges électrostatiques : toute personne manipulant l'appareil doit au préalable se débarrasser des décharges électrostatiques !
	Surface brûlante : utiliser votre équipement de protection personnelle ou attendre le refroidissement de l'appareil !

Veuillez également tenir compte des consignes importantes sur la technologie des appareils et les fonctions de sécurité comprises sur le cédérom joint !

2.2

Consignes de sécurité pour l'installation selon UL / CSA

Original - Anglais

**Warnings!**

- ▶ Utiliser exclusivement des conducteurs Class 1.
- ▶ Utiliser des conducteurs 75 °C.
- ▶ Utiliser exclusivement des conducteurs en cuivre.
- ▶ Convient à une utilisation à une température ambiante maximale de 45 °C ainsi que
 - 55 °C en cas d'application des règles de réduction de puissance.
- ▶ Température élevée en surface. Risque de brûlure.
- ▶ En cas de montage de l'équipement sur le moteur, la combinaison doit être conforme à la qualification du type.
- ▶ Couples de serrage des bornes réseau :
 - Pour les types contenant le suffixe 371, 551, 751, 112, 152 : 0,5 à 0,6 Nm.
 - Pour les types contenant le suffixe 222 et 302 : 0,8 Nm.
- ▶ Convient aux circuits non susceptibles de délivrer plus de 200 000 ampères symétriques eff., maximum 480 V
 - Protection par des fusibles CC de calibre R, T ou J ; ou
 - Protection par disjoncteur à pouvoir de coupure nominal d'au moins 200 000 ampères symétriques eff., maximum 480 V.
- ▶ Convient aux installations de groupe moteur sur des circuits non susceptibles de délivrer plus de 200 000 ampères symétriques eff., maximum 480 V
 - Protection par des fusibles CC de calibre R, T ou J ; ou
 - Protection par disjoncteur à pouvoir de coupure nominal d'au moins 200 000 ampères symétriques eff., maximum 480 V.
- ▶ Utiliser exclusivement des fusibles et des disjoncteurs.

...



Warnings!

...

- ▶ La protection statique intégrée n'offre pas la même protection qu'un disjoncteur. Une protection par disjoncteur externe doit être fournie, conformément au National Electrical Code et aux autres dispositions applicables au niveau local.
- ▶ Le déclenchement des dispositifs de protection du circuit de dérivation peut être dû à une coupure qui résulte d'un courant de défaut. Pour limiter le risque d'incendie ou de choc électrique, examiner les pièces porteuses de courant et les autres éléments du contrôleur ; les remplacer s'ils sont endommagés.
- ▶ Ces équipements intègrent une protection contre les surcharges conçue pour se déclencher à 125 % de l'intensité assignée à pleine charge.

ATTENTION !

- ▶ Risque de choc électrique. Patientez 180 s pour permettre aux condensateurs internes de se décharger.

Consignes de sécurité pour l'installation selon UL/CSA**Original - Français****Avertissements !**

- ▶ Utiliser exclusivement des conducteurs Class 1.
- ▶ Utiliser des conducteurs 75 °C.
- ▶ Utiliser exclusivement des conducteurs en cuivre.
- ▶ Convient à une utilisation à une température ambiante maximale de 45 °C ainsi que
 - 55 °C en cas d'application des règles de réduction de puissance.
- ▶ Température élevée en surface. Risque de brûlure.
- ▶ En cas de montage de l'équipement sur le moteur, la combinaison doit être conforme à la qualification du type.
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- ▶ Convient aux installations de groupe moteur sur des circuits non susceptibles de délivrer plus de 200 000 ampères symétriques eff., maximum 480 V
 - Protection par des fusibles CC de calibre R, T ou J ; ou
 - Protection par disjoncteur à pouvoir de coupure nominal d'au moins 200 000 ampères symétriques eff., maximum 480 V.
- ▶ Utiliser exclusivement des fusibles et des disjoncteurs.

...



Avertissements !

...

- ▶ La protection statique intégrée n'offre pas la même protection qu'un disjoncteur. Une protection par disjoncteur externe doit être fournie, conformément au National Electrical Code et aux autres dispositions applicables au niveau local.
- ▶ Le déclenchement des dispositifs de protection du circuit de dérivation peut être dû à une coupure qui résulte d'un courant de défaut. Pour limiter le risque d'incendie ou de choc électrique, examiner les pièces porteuses de courant et les autres éléments du contrôleur ; les remplacer s'ils sont endommagés.
- ▶ Ces équipements intègrent une protection contre les surcharges conçue pour se déclencher à 125 % de l'intensité assignée à pleine charge.

ATTENTION !

- ▶ Risque de choc électrique. Patientez 180 s pour permettre aux condensateurs internes de se décharger.

3

Spécifications techniques

3.1

Caractéristiques générales et conditions d'utilisation

Conformité et homologation			
Conformité			
CE	2014/35/CE	Directive Basse Tension	
EAC	TP TC 004/2011 (RT UD 004/2011)	Sécurité des équipements à basse tension	Conformité eurasienne RT UD : Règlement technique de l'Union Douanière
EAC	TP TC 020/2011 (RT UD 020/2011)	Compatibilité électromagnétique des équipements	Conformité eurasienne RT UD : Règlement technique de l'Union Douanière
Homologation			
UR	UL 508C	Power Conversion Equipment, dossier n° E170350	
cUR	C22.2 No 274-13		
Homologation Fixation murale			
cULus	UL 508C C22.2 No 274-13	Power Conversion Equipment, dossier n° E132659	
Protection des personnes et protection de l'appareil			
Indice de protection		- Les trous inutilisés destinés aux presse-étoupes à vis doivent être obturés par des tampons borgnes ! - Les connecteurs à fiches inutilisés doivent être obturés à l'aide de caches ou de fiches borgnes !	
	EN 60529	Kit 8400 motec Fixation murale sans commutateur	IP65
		Fixation murale avec commutateur de service / avec commutateur de service et éléments de commande	IP54
		Fixation-murale-avec-c ommutateur-de-service -et-fonction-de-protecti on	IP64
	NEMA 250	Kit 8400 motec	Type 4X (intérieur)
		Fixation murale sans commutateur 0,37 ... 3,0 kW	Type 12

Protection des personnes et protection de l'appareil			
		4,0 ... 7,5 kW	Type 4X (intérieur)
		Fixation murale avec commutateur	
		0,37 ... 3,0 kW	Type 12
Courant de fuite (sur PE)	EN 61800-5-1	> 3.5 mA CA, > 10 mA CC	Tenir compte des prescriptions et des consignes de sécurité !
Courant de défaut total		Les disjoncteurs différentiels suivants peuvent être utilisés dans les réseaux TN :	
Montage sur le moteur		0,37 ... 3,0 kW	30 mA, type B
		4,0 ... 7,5 kW, $f_{ch} = 8/16$ kHz	30 mA, type B
		4,0 ... 7,5 kW, $f_{ch} = 4$ kHz	300 mA, type B
Fixation murale câble système Lenze ≤ 3 m		0,37 ... 3,0 kW	30 mA, type B
		4,0 ... 7,5 kW, $f_{ch} = 8/16$ kHz	30 mA, type B
		4,0 ... 7,5 kW, $f_{ch} = 4$ kHz	300 mA, type B
Fixation murale et câble système Lenze > 3 m		0,37 ... 7,5 kW	300 mA, type B
Equilibrage de potentiel supplémentaire		Filetage M5 avec borne dans le module de câblage (Wiring Unit) pour le raccordement d'un câble PE 16 mm ²	
Isolement des circuits de commande	EN 61800-5-1	Séparation sûre du réseau grâce à l'isolement double (isolement renforcé)	
Résistance d'isolement	EN 61800-5-1	Altitude d'implantation < 2000 m : catégorie de surtension III	
		Altitude d'implantation > 2000 m : catégorie de surtension II	
Protection contre les courts-circuits	EN 61800-5-1	Raccordement :	
		Moteur	Protection conditionnée. Le variateur est bloqué. Un acquittement de défaut est nécessaire.
		Frein de parking, résistance de freinage	Non
		PTC, raccordements de commande	Protection complète

Protection des personnes et protection de l'appareil			
Protection contre les défauts de mise à la terre	EN 61800-5-1	Raccordement :	
		Moteur (au déblocage variateur)	Protection conditionnée. Le variateur est bloqué. Un acquittement de défaut est nécessaire.
		Moteur (pendant le fonctionnement)	Non
		Résistance de freinage, PTC	Non
Mesures de protection contre les phénomènes suivants :		• Court-circuit côté moteur à la mise sous tension et lors du fonctionnement • Décrochage moteur • Surtempérature du moteur – Entrée pour thermistor PTC ou contact thermique – Surveillance I²t	
Mises sous tension répétées		• Manœuvres/minut e	3
		• Manœuvres/heure	max. 20
		• Pause	Après 3 mises sous tension en une minute, prévoir une pause de 9 minutes.
Courant d'enclenchement		$\leq 2 \times I_N$	

Conditions électriques		
Alimentation réseau		
Type de réseau		
TT, TN (avec point neutre mis à la terre)		Utilisation autorisée sans restriction
IT		Appliquer la mesure requise décrite pour les réseaux IT (retirer la vis IT). La responsabilité du respect des exigences de CEM relatives aux perturbations radioélectriques (EN 61800-3) incombe au constructeur de la machine / l'installation ! Le fonctionnement avec système de sécurité intégré n'est pas autorisé.
Raccordement du moteur		
Moteurs	EN 60034	Utiliser impérativement des moteurs adaptés à une alimentation par le convertisseur. Résistance d'isolement : û ≥1.5 kV min., du/dt ≥5 kV/µs min.
Longueur du câble moteur		< 20 m (câble système Lenze blindé)

Conditions ambiantes			
Conditions climatiques			
Stockage	CEI/EN 60721-3-1	1K3 (-30 ... +60 °C)	
Transport	CEI/EN 60721-3-2	2K3 (-30 ... +75 °C)	
Fonctionnement	CEI/EN 60721-3-3	3K3 (-30 ... +55 °C) Fonctionnement avec 4 kHz : avec des températures > +45 °C, réduire le courant assigné de sortie de 2.5 %/°C. Fonctionnement avec 8/16 kHz : avec des températures > +40 °C, réduire le courant assigné de sortie de 2.5 %/°C.	
Altitude d'implantation		< 4000 m au-dessus du niveau de la mer > 1000 m au-dessus du niveau de la mer : réduire le courant assigné de sortie de 5 %/1000 m.	
Pollution ambiante admissible	CEI/EN 61800-5-1	Degré de pollution 2	
Conditions mécaniques			
Résistance aux chocs (9.81 m/s² = 1 g)			
Montage sur le moteur	Germanischer Lloyd	Conditions générales : résistance à l'accélération jusqu'à 2 g	
	CEI/EN 60721-3-3	3M6	
Fixation murale avec E84DZMAWE1	Germanischer Lloyd	Conditions générales : résistance à l'accélération jusqu'à 2 g	
	CEI/EN 60721-3-3	3M6	
Conditions de montage			
Emplacement de montage			
Montage sur le moteur		Standard	
Fixation murale		Avec un adaptateur mural (en option)	Assurer le refroidissement par convection dans les niches !
Position de montage			
Fixation murale			
0,37 ... 3,0 kW		vertical avec nervures de refroidissement en haut, tourné, horizontal	- Tenir compte de la réduction de puissance, voir Manuel de l'appareil 8400 motec (EDS84DG752) - Ne prévoir qu'une juxtaposition latérale de plusieurs appareils afin de garantir le refroidissement par convection !
4,0 ... 7,5 kW		quelconque	

Commande	
Mode de commande	VFCplus : • Commande U/f (linéaire ou quadratique) VFC en boucle fermée : • VFCplus avec bouclage vitesse supplémentaire VFC eco : • Commande U/f avec optimisation énergétique SLVC : • Commande vectorielle sans bouclage (couple/vitesse) SLPSM : • Commande sans bouclage pour moteurs synchrones
Fréquence de découpage	4 kHz, 8 kHz, 16 kHz

3.2 Caractéristiques assignées

Données d'entrée

Réseau	Tension U_{LN} [V]	Plage de tension U_{LN} [V]	Plage de fréquence f [Hz]
3/PE CA	400	320 - 0 % ... 440 + 0 %	45 - 0 % ... 65 + 0 %
3/PE CA	480	432 - 0 % ... 528 + 0 %	45 - 0 % ... 65 + 0 %

	Tension [V]	Fréquence [Hz]	Courant assigné [A]		Nombre de phases
			+45 °C max. ①	+55 °C max. ①	
E84DGDVB3714	400/480	50/60	1.3/1.1	1.0/0.8	3
E84DGDVB5514	400/480	50/60	1.8/1.5	1.4/1.1	3
E84DGDVB7514	400/480	50/60	2.4/2.0	1.8/1.5	3
E84DGDVB1124	400/480	50/60	3.2/2.7	2.4/2.0	3
E84DGDVB1524	400/480	50/60	3.8/3.1	2.9/2.3	3
E84DGDVB2224	400/480	50/60	5.6/4.6	4.2/3.5	3
E84DGDVB3024	400/480	50/60	7.2/5.9	5.4/4.4	3
E84DGDVB4024	400/480	50/60	9.3/7.7	7.0/5.8	3
E84DGDVB5524	400/480	50/60	12.8/10.6	9.6/8.0	3
E84DGDVB7524	400/480	50/60	16.3/13.5	12.3/10.1	3

① Température ambiante, fréquence de découpage 4 kHz

Données de sortie

	Tension [V]	Fréquence [Hz]	Courant assigné [A]		Nombre de phases
			+45 °C max. ①	+55 °C max. ①	
E84DGDVB3714	0 ... 400/480	0 ... 300	1.3/1.1	1.0/0.8	3
E84DGDVB5514	0 ... 400/480	0 ... 300	1.8/1.5	1.4/1.1	3
E84DGDVB7514	0 ... 400/480	0 ... 300	2.4/2.0	1.8/1.5	3
E84DGDVB1124	0 ... 400/480	0 ... 300	3.2/2.7	2.4/2.0	3
E84DGDVB1524	0 ... 400/480	0 ... 300	3.9/3.2	2.9/2.4	3
E84DGDVB2224	0 ... 400/480	0 ... 300	5.6/4.7	4.2/3.5	3
E84DGDVB3024	0 ... 400/480	0 ... 300	7.3/6.0	5.4/4.5	3
E84DGDVB4024	0 ... 400/480	0 ... 300	9.5/7.9	7.1/5.9	3
E84DGDVB5524	0 ... 400/480	0 ... 300	13.0/10.8	9.8/8.1	3
E84DGDVB7524	0 ... 400/480	0 ... 300	16.5/13.7	12.4/10.3	3

① Température ambiante, fréquence de découpage 4 kHz

4 Installation mécanique

4.1 Préparation

Le montage et le câblage du module de câblage (Wiring Unit) et du module de communication (Communication Unit) conformément aux instructions de montage doivent être achevés.



Conseil !

Avant de poursuivre et de terminer le montage du 8400 motec, des décisions sur le paramétrage et la mise en service doivent être prises.

Réglage par défaut du variateur à l'aide de DIP1, DIP2, P2 ou P3 ?

- ▶ Procéder aux réglages conformément aux exigences à remplir.
 - Le chapitre Réglages contient les renseignements nécessaires. (📖 127)
- ▶ Monter l'appareil de base (Drive Unit). (📖 123)

Paramétrage du variateur à l'aide du logiciel L-Force »Engineer« ou du clavier de commande avec support ?

- ▶ Monter l'appareil de base (Drive Unit). (📖 123)

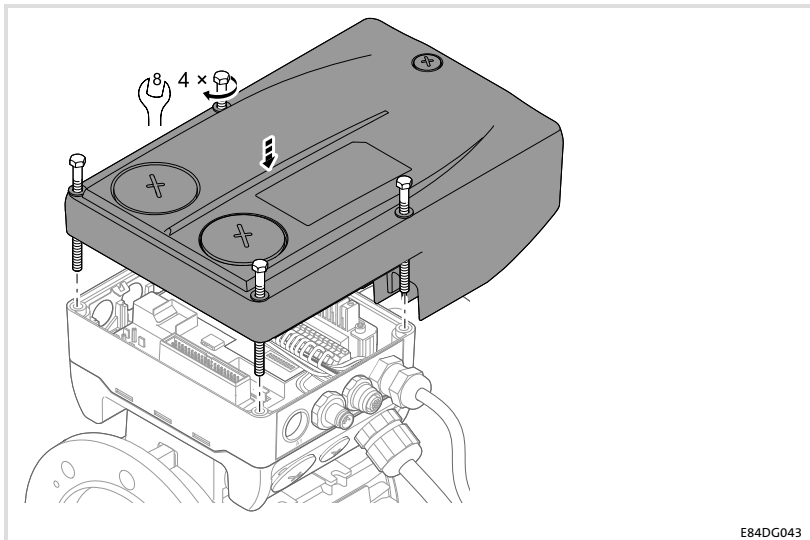
Variateur intégré dans le système d'entraînement (moteur ou motoréducteur) ?

- ▶ Le réglage du variateur réalisé à l'usine est adapté au moteur et au réducteur.
 - Ne pas modifier les réglages usine !
- ▶ Monter l'appareil de base (Drive Unit). (📖 123)

4.2 Montage

0.37 ... 3 kW

Positionner l'appareil de base (Drive Unit) sans le coincer sur le module de communication (Communication Unit) déjà montée. Fixer l'appareil de base (Drive Unit) à l'aide des quatre vis comprises dans l'emballage (couple : 5.0 Nm/44 lb-in).

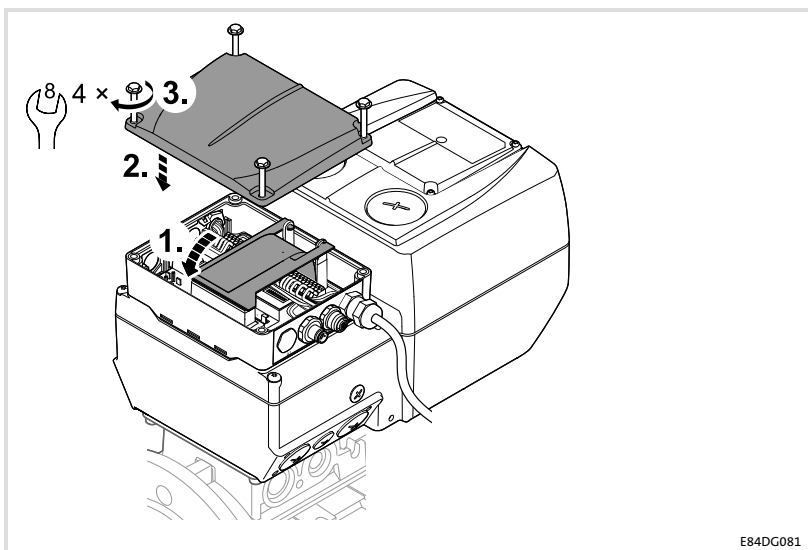


4 ... 7.5 kW

Le module de base (Drive Unit) a été monté avec le module de câblage (Wiring Unit).

Pour terminer le montage :

1. Saisir le connecteur femelle côté CU et l'enficher délicatement dans la prise prévue à cet effet.
2. Mettre le couvercle du module de base (DU) sur le module de communication (CU) et
3. le fixer à l'aide des quatre vis (couple : 1.5 Nm / 14 lb-in).



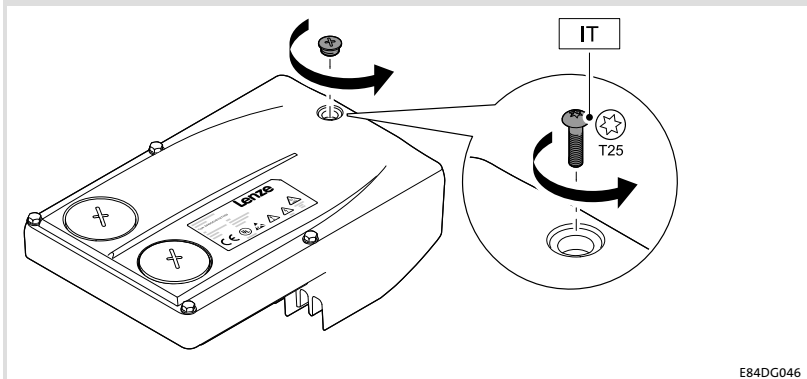
4.3 Mesure à prévoir lors de l'utilisation dans des réseaux IT

Lorsque le variateur est installé dans un réseau IT, les filtres internes doivent être séparés du conducteur de protection.

Procéder de la façon suivante :

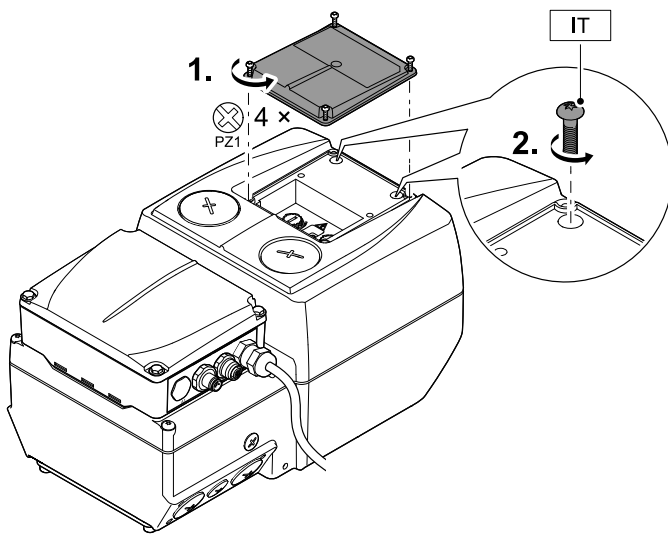
1. Si le variateur est déjà monté : couper la tension réseau !
2. Dégager la vis IT.
 - Appareils jusqu'à 3 kW : retirer le petit obturateur situé sur la face avant.
 - Appareils à partir de 4 kW : ôter le couvercle de la face avant.
3. Dévisser et ôter la/les vis.
4. Remettre l'obturateur ou le couvercle en place.

0.37 ... 3 kW



E84DG046

4 ... 7.5 kW



E84DG084

5 Réglages



Stop !

Démarrage moteur automatique

En mode "Local mode", l'option de démarrage automatique "Blocage en cas de réseau ON" n'est pas activée. A la mise sous tension, le moteur démarre si le déblocage variateur RFR est ponté ou activé.

("Local mode" => DIP1/1 = ON et DIP2/5-7 = OFF)

Risques encourus :

- Dangers ou endommagements dûs au démarrage moteur inopiné

Mesures de protection :

- Lors de la mise en service, découpler le moteur du système d'entraînement complet.
- Remplacer le pont installé par l'usine sur RFR par un contact à fermeture.
- Ne pas activer le déblocage variateur.

Lors de la première mise en service, les réglages peuvent être réalisés à l'aide des interrupteurs DIP et des potentiomètres. Les réglages doivent être effectués avant le montage de l'appareil de base (Drive Unit) puisque les éléments de réglages ne sont pas accessibles de l'extérieur.

À partir de la version logicielle 07.00.00, vous pouvez, avec DIP2/8, régler deux pré-affectations différentes de DIP1, DIP2, P1, P2 et P3 :

- DIP2/8 = OFF : affectation commutateur DIP/ potentiomètre 0
- DIP2/8 = ON : affectation commutateur DIP/ potentiomètre 1

Jusqu'à la version logicielle 07.00.00, seule l'affectation de commutateur DIP / potentiomètre 0 est disponible.

À partir de la version logicielle 08.00.00 et en utilisant le module de communication POWERLINK, l'interrupteur DIP1/1 permet de modifier le réglage de l'adresse IP :

- ▶ DIP1/1 = OFF : DIP1/2 ... DIP1/8, P1, P2 et P3 sont désactivés. DIP2 sert au réglage de l'adresse IP de POWERLINK.
- ▶ DIP1/1 = ON : fonctionnalité de l'interrupteur DIP et affectation du potentiomètre comme décrites dans la documentation, réglage de l'adresse IP en C13899.

Pour des informations détaillées, veuillez consulter le manuel de communication POWERLINK (EDS84DMOTPL).

Par ailleurs, l'affectation de commutateur DIP / potentiomètre 2 est disponible.

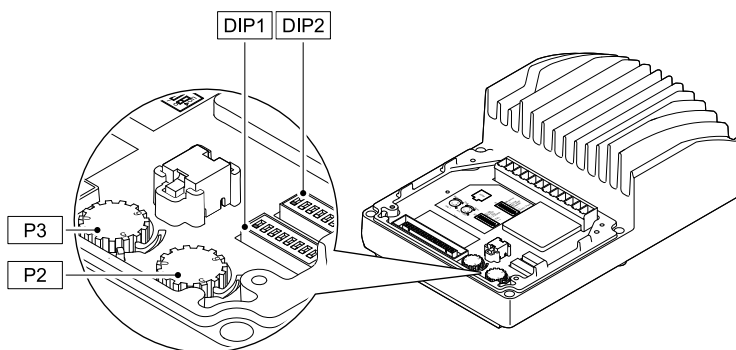
Conditions préalables :

- ▶ Appareils avec référence de commande E84DGDVBxxx4xxP
- ▶ Appareils à partir de la version logicielle 09.00.00
- ▶ Appareils pour la plage de puissance 0.37 kW ... 3.0 kW

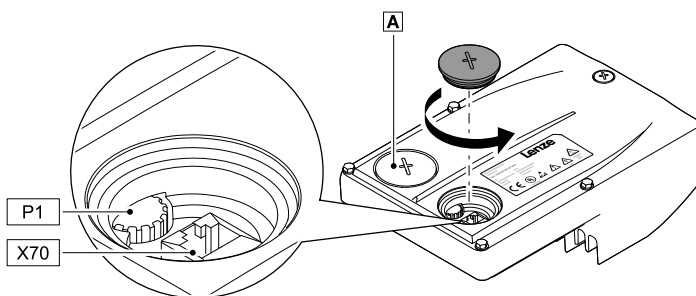
Éléments de réglage 0.37 ... 3 kW

Les éléments de réglage se situent à l'intérieur de l'appareil de base (Drive Unit). Les réglages réalisés à l'aide de DIP1, DIP2, P2, P3 et P1 doivent être activés via DIP1/1. Les réglages sont appliqués à chaque nouvelle mise sous tension. Les modifications des paramètres apportées entre-temps peuvent alors être remplacées.

0.37 ... 3 kW



E84DG041



E84DG044

	Désignation
DIP1	Commutateur DIP pour la mise en service
DIP2	
P1	Réglage "Top Cover: Speed ... %" (couvercle supérieur: vitesse)
P2	Réglage "Speed ... %", (vitesse)
P3	Réglage "Ramp ... s", (temps d'accélération/de décélération)
X70	Raccordement pour adaptateur de diagnostic USB E94AZCUS ou clavier de commande avec support
	Affichage d'état par LED

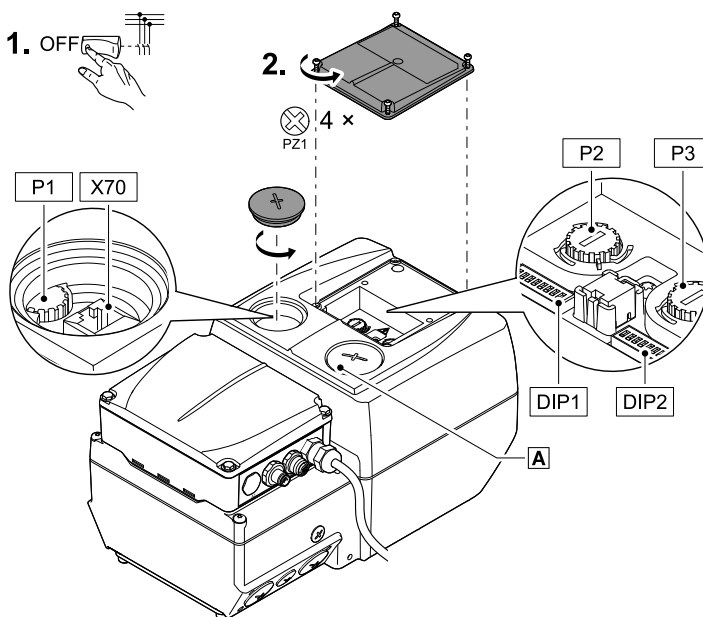
Éléments de réglage 4 ... 7.5 kW

Les éléments de réglage se situent sur la face avant du module de base (Drive Unit).

- S'assurer que la tension est coupée et qu'aucune mise sous tension imprévue n'est possible.
- Oter le petit couvercle sur la face avant.

Les réglages réalisés à l'aide de DIP1, DIP2, P2, P3 et P1 doivent être activés via DIP1/1. Les réglages sont appliqués à chaque nouvelle mise sous tension. Les modifications des paramètres apportées entre-temps peuvent alors être remplacées.

4 ... 7.5 kW



E84DG083

	Désignation
DIP1	Commutateur DIP pour la mise en service
DIP2	
P1	Réglage "Top Cover: Speed ... %" (couvercle supérieur: vitesse)
P2	Réglage "Speed ... %", (vitesse)
P3	Réglage "Ramp ... s", (temps d'accélération/de décélération)
X70	Raccordement pour adaptateur de diagnostic USB E94AZCUS ou clavier de commande avec support
	Affichage d'état par LED

5.1 Affectation du commutateur DIP / potentiomètre 0

Réglages avec DIP1

(Réglage Lenze **en gras**)

DIP1		Commutateur							
Description		1	2	3	4	5	6	7	8
DIP1, DIP2, P1, P2 et P3 activés	Activés	ON							
	Désactivés	OFF							
Sens de rotation	antihoraire		ON						
	horaire		OFF						
Régulation	quadratique			ON					
	linéaire			OFF					
Redémarrage à la volée	Activés				ON				
	Désactivés				OFF				
Réservé	-					OFF	OFF	OFF	
État de l'appareil	Drive Ready: NO/COM = Closed								ON
	Drive Fail: DO1 = HIGH								
État de l'appareil	Drive Ready: DO1 = HIGH								OFF
	Drive Fail: NO/COM = Closed								

Réglages avec DIP2

(Réglage Lenze en gras)

DIP2		Commutateur							
Description		1	2	3	4	5	6	7	8
Fréquence assignée du moteur / vitesse de référence	50 Hz Υ / 1500 min-1	OFF	OFF						
	60 Hz Υ / 1800 min-1	ON	OFF						
	87 Hz Δ / 2610 min-1	OFF	ON						
	120 Hz Υ / 3600 min-1	ON	ON						
Mode entrée analogique	0 ... 10 V			OFF	OFF				
	0 ... 20 mA			ON	OFF				
	4 ... 20 mA			OFF	ON				
	non autorisé			ON	ON				
Mode de commande "Application technologique"	9 (Local mode)					OFF	OFF	OFF	
	10 (bornier 0)					ON	OFF	OFF	
	12 (bornier 2)					OFF	ON	OFF	
	14 (bornier 11)					ON	ON	OFF	
	16 (bornier 16)					OFF	OFF	ON	
	Réservé					ON	OFF	ON	
	Réservé					OFF	ON	ON	
	40 (MCI)					ON	ON	ON	
Réservé	-								OFF

Modes de commande DIP2/5-7	Description (Dlx → HAUT)															
9 (Local mode)	L'application technologique est pilotée via les éléments de commande situés directement sur le variateur et via les bornes d'entrée numériques.  Après la mise sous tension, le moteur démarre automatiquement si RFR est ponté ou activé ! <table><tr><td>DI1</td><td>Consigne de P2 (Speed)</td><td rowspan="2">Consigne fixe 3</td></tr><tr><td>DI2</td><td>Consigne fixe 2</td></tr><tr><td>DI3</td><td colspan="2">Activer le frein CC</td></tr><tr><td>DI4</td><td colspan="2">Inversion du sens de rotation (non réalisable lorsque DIP1/2 = ON (sens antihoraire))</td></tr><tr><td>DI5</td><td colspan="2">Déblocage manuel du frein de parking (mode de fonctionnement selon le réglage en C02580)</td></tr></table>	DI1	Consigne de P2 (Speed)	Consigne fixe 3	DI2	Consigne fixe 2	DI3	Activer le frein CC		DI4	Inversion du sens de rotation (non réalisable lorsque DIP1/2 = ON (sens antihoraire))		DI5	Déblocage manuel du frein de parking (mode de fonctionnement selon le réglage en C02580)		
DI1	Consigne de P2 (Speed)	Consigne fixe 3														
DI2	Consigne fixe 2															
DI3	Activer le frein CC															
DI4	Inversion du sens de rotation (non réalisable lorsque DIP1/2 = ON (sens antihoraire))															
DI5	Déblocage manuel du frein de parking (mode de fonctionnement selon le réglage en C02580)															
10 (bornier 0)	L'application technologique est pilotée via les bornes d'entrée numériques du variateur. <table><tr><td>DI1</td><td>Consigne fixe 1</td><td rowspan="2">Consigne fixe 3</td></tr><tr><td>DI2</td><td>Consigne fixe 2</td></tr><tr><td>DI3</td><td colspan="2">Activer le frein CC</td></tr><tr><td>DI4</td><td colspan="2">Inversion du sens de rotation</td></tr><tr><td>DI5</td><td colspan="2">Déblocage manuel du frein de parking (mode de fonctionnement selon le réglage en C02580)</td></tr></table>	DI1	Consigne fixe 1	Consigne fixe 3	DI2	Consigne fixe 2	DI3	Activer le frein CC		DI4	Inversion du sens de rotation		DI5	Déblocage manuel du frein de parking (mode de fonctionnement selon le réglage en C02580)		
DI1	Consigne fixe 1	Consigne fixe 3														
DI2	Consigne fixe 2															
DI3	Activer le frein CC															
DI4	Inversion du sens de rotation															
DI5	Déblocage manuel du frein de parking (mode de fonctionnement selon le réglage en C02580)															
12 (bornier 2)	L'application technologique est pilotée via les bornes d'entrée numériques du variateur. <table><tr><td>DI1</td><td>Consigne fixe 1</td><td rowspan="2">Consigne fixe 3</td></tr><tr><td>DI2</td><td>Consigne fixe 2</td></tr><tr><td>DI3</td><td colspan="2">Arrêt rapide</td></tr><tr><td>DI4</td><td colspan="2">Inversion du sens de rotation</td></tr><tr><td>DI5</td><td colspan="2">Déblocage manuel du frein de parking (mode de fonctionnement selon le réglage en C02580)</td></tr></table>	DI1	Consigne fixe 1	Consigne fixe 3	DI2	Consigne fixe 2	DI3	Arrêt rapide		DI4	Inversion du sens de rotation		DI5	Déblocage manuel du frein de parking (mode de fonctionnement selon le réglage en C02580)		
DI1	Consigne fixe 1	Consigne fixe 3														
DI2	Consigne fixe 2															
DI3	Arrêt rapide															
DI4	Inversion du sens de rotation															
DI5	Déblocage manuel du frein de parking (mode de fonctionnement selon le réglage en C02580)															
14 (bornier 11)	L'application technologique est pilotée via les bornes d'entrée numériques du variateur. <table><tr><td>DI1</td><td colspan="2">Inversion du sens de rotation</td></tr><tr><td>DI2</td><td colspan="2">Activer le frein CC</td></tr><tr><td>DI3</td><td colspan="2">Potentiomètre motorisé : augmenter la vitesse</td></tr><tr><td>DI4</td><td colspan="2">Potentiomètre motorisé : réduire la vitesse</td></tr><tr><td>DI5</td><td colspan="2">Déblocage manuel du frein de parking (mode de fonctionnement selon le réglage en C02580)</td></tr></table>	DI1	Inversion du sens de rotation		DI2	Activer le frein CC		DI3	Potentiomètre motorisé : augmenter la vitesse		DI4	Potentiomètre motorisé : réduire la vitesse		DI5	Déblocage manuel du frein de parking (mode de fonctionnement selon le réglage en C02580)	
DI1	Inversion du sens de rotation															
DI2	Activer le frein CC															
DI3	Potentiomètre motorisé : augmenter la vitesse															
DI4	Potentiomètre motorisé : réduire la vitesse															
DI5	Déblocage manuel du frein de parking (mode de fonctionnement selon le réglage en C02580)															

Modes de commande DIP2/5-7	Description (Dix → HAUT)														
16 (bornier 16)	L'application technologique est pilotée via les bornes d'entrée numériques du variateur. <table><tr><td>DI1</td><td>Consigne fixe 1</td><td rowspan="2">Consigne fixe 3</td></tr><tr><td>DI2</td><td>Consigne fixe 2</td></tr><tr><td>DI3</td><td colspan="2">Sens horaire/arrêt rapide</td></tr><tr><td>DI4</td><td colspan="2">Sens antihoraire/arrêt rapide</td></tr><tr><td>DI5</td><td colspan="2">Déblocage manuel du frein de parking (mode de fonctionnement selon le réglage en C02580)</td></tr></table>	DI1	Consigne fixe 1	Consigne fixe 3	DI2	Consigne fixe 2	DI3	Sens horaire/arrêt rapide		DI4	Sens antihoraire/arrêt rapide		DI5	Déblocage manuel du frein de parking (mode de fonctionnement selon le réglage en C02580)	
DI1	Consigne fixe 1	Consigne fixe 3													
DI2	Consigne fixe 2														
DI3	Sens horaire/arrêt rapide														
DI4	Sens antihoraire/arrêt rapide														
DI5	Déblocage manuel du frein de parking (mode de fonctionnement selon le réglage en C02580)														
40 (MCI)	L'application technologique est pilotée via communication par bus de terrain. (en fonction du module de communication (Communication Unit) utilisé)														

Réglages avec P2

(Réglage Lenze **en gras**)

Avec P2, vous réglez en 10 étapes la vitesse de consigne du moteur en pourcentage de la vitesse assignée dans C00011 (consigne fixe de la vitesse). La consigne fixe est uniquement activée lorsque l'entrée DI1 est activée dans le mode « Local mode ».

P2	Position									
Description	0	1	2	3	4	5	6	7	8	9
Vitesse moteur en pourcentage de la vitesse assignée réglée C00011 [%]	0	11	22	33	44	55	66	77	88	100

Réglages avec P3

(Réglage Lenze **en gras**)

Avec P3, vous réglez le temps d'accélération et de décélération du moteur.

P3	Position									
Description	0	1	2	3	4	5	6	7	8	9
Temps d'accélération et de décélération du moteur en secondes [s]	0.1	0.5	1	2	5	10	20	30	60	120

Réglages avec P1

(Réglage Lenze **en gras**)

Pendant le fonctionnement, vous pouvez avec P1 régler en continu dans C00011 la vitesse moteur en pourcentage de la vitesse assignée, dans la mesure où aucune consigne fixe de vitesse P2 n'est activée sur DI1.

Retirer le couvercle afin de pouvoir régler le potentiomètre P1.

- Une fois le réglage effectué, revisser le couvercle afin de garantir l'indice de protection du variateur.

P1	Position		
Description	0	...	9
Vitesse moteur en pourcentage de la vitesse nominale réglée en C00011 [%]	0	...	100

5.2

Affectation du commutateur DIP / potentiomètre 1

(À partir de la version logicielle 07.00.00)

Réglages avec DIP1

(Réglage Lenze **en gras**)

DIP1		Commutateur							
Description		1	2	3	4	5	6	7	8
DIP1, DIP2, P1, P2, P3	Activés	ON							
	Désactivés	OFF							
Puissance moteur	Puissance moteur > puissance du variateur		ON						
	Puissance moteur = puissance du variateur		OFF						
Régulation	VFCplus ECO			ON					
	VFCplus linear			OFF					
Module de pilotage du frein / redémarrage à la volée	Module de pilotage du frein désactivé, redémarrage à la volée désactivé				OFF	OFF			
	Module de pilotage du frein désactivé, redémarrage à la volée activé				ON	OFF			
	Module de pilotage du frein automatiquement horizontal, redémarrage à la volée désactivé				OFF	ON			
	Module de pilotage du frein automatiquement vertical, redémarrage à la volée désactivé				ON	ON			
Sens de montage moteur	inversé						ON		
	non inversé						OFF		
Fonction P1	La consigne fixe 3 est toujours affectée avec P1							ON	
	La consigne fixe 3 est affectée une fois avec P1 après la mise sous tension							OFF	
Charger les paramètres après la mise sous tension	Charger les paramètres du module mémoire								ON
	Charger les paramètres du réglage Lenze								OFF

Réglages avec DIP2

(Réglage Lenze **en gras**)

DIP2		Commutateur							
Description		1	2	3	4	5	6	7	8
Fréquence assignée du moteur / vitesse de référence	50 Hz ∇ / 1500 min-1	OFF	OFF						
	60 Hz ∇ / 1800 min-1	ON	OFF						
	87 Hz Δ / 2610 min-1	OFF	ON						
	120 Hz ∇ / 3600 min-1	ON	ON						
Configuration application	Actionneur - vitesse (1000)			OFF	OFF				
	AC-Drive Profil (1100)			ON	OFF				
	Positionnement par décélération anticipée (3000)			OFF	ON				
	Réservé			ON	ON				
Mode de commande "Application technologique"	9 (Local mode)					OFF	OFF	OFF	
	10 (bornier 0)					ON	OFF	OFF	
	12 (bornier 2)					OFF	ON	OFF	
	14 (bornier 11)					ON	ON	OFF	
	16 (bornier 16)					OFF	OFF	ON	
	Réservé					ON	OFF	ON	
	41 (module AS-Interface)					OFF	ON	ON	
	40 (MCI/CAN)					ON	ON	ON	
Sélection de l'affectation du commutateur DIP / potentiomètre	Affectation du commutateur DIP / potentiomètre 0								OFF
	Affectation du commutateur DIP / potentiomètre 1								ON

Modes de commande DIP2/5-7	Description (Dlx → HAUT)															
9 (Local mode)	L'application technologique est pilotée via les éléments de commande situés directement sur le variateur et via les bornes d'entrée numériques.  Après la mise sous tension, le moteur démarre automatiquement si RFR est ponté ou activé ! <table><tr><td>DI1</td><td>Consigne de P2 (Speed)</td><td rowspan="2">Consigne fixe 3</td></tr><tr><td>DI2</td><td>Consigne fixe 2</td></tr><tr><td>DI3</td><td colspan="2">Activer le frein CC</td></tr><tr><td>DI4</td><td colspan="2">Inversion du sens de rotation (non réalisable lorsque DIP1/2 = ON (sens antihoraire))</td></tr><tr><td>DI5</td><td colspan="2">Déblocage manuel du frein de parking (mode de fonctionnement selon le réglage en C02580)</td></tr></table>	DI1	Consigne de P2 (Speed)	Consigne fixe 3	DI2	Consigne fixe 2	DI3	Activer le frein CC		DI4	Inversion du sens de rotation (non réalisable lorsque DIP1/2 = ON (sens antihoraire))		DI5	Déblocage manuel du frein de parking (mode de fonctionnement selon le réglage en C02580)		
DI1	Consigne de P2 (Speed)	Consigne fixe 3														
DI2	Consigne fixe 2															
DI3	Activer le frein CC															
DI4	Inversion du sens de rotation (non réalisable lorsque DIP1/2 = ON (sens antihoraire))															
DI5	Déblocage manuel du frein de parking (mode de fonctionnement selon le réglage en C02580)															
10 (bornier 0)	L'application technologique est pilotée via les bornes d'entrée numériques du variateur. <table><tr><td>DI1</td><td>Consigne fixe 1</td><td rowspan="2">Consigne fixe 3</td></tr><tr><td>DI2</td><td>Consigne fixe 2</td></tr><tr><td>DI3</td><td colspan="2">Activer le frein CC</td></tr><tr><td>DI4</td><td colspan="2">Inversion du sens de rotation</td></tr><tr><td>DI5</td><td colspan="2">Déblocage manuel du frein de parking (mode de fonctionnement selon le réglage en C02580)</td></tr></table>	DI1	Consigne fixe 1	Consigne fixe 3	DI2	Consigne fixe 2	DI3	Activer le frein CC		DI4	Inversion du sens de rotation		DI5	Déblocage manuel du frein de parking (mode de fonctionnement selon le réglage en C02580)		
DI1	Consigne fixe 1	Consigne fixe 3														
DI2	Consigne fixe 2															
DI3	Activer le frein CC															
DI4	Inversion du sens de rotation															
DI5	Déblocage manuel du frein de parking (mode de fonctionnement selon le réglage en C02580)															
12 (bornier 2)	L'application technologique est pilotée via les bornes d'entrée numériques du variateur. <table><tr><td>DI1</td><td>Consigne fixe 1</td><td rowspan="2">Consigne fixe 3</td></tr><tr><td>DI2</td><td>Consigne fixe 2</td></tr><tr><td>DI3</td><td colspan="2">Arrêt rapide</td></tr><tr><td>DI4</td><td colspan="2">Inversion du sens de rotation</td></tr><tr><td>DI5</td><td colspan="2">Déblocage manuel du frein de parking (mode de fonctionnement selon le réglage en C02580)</td></tr></table>	DI1	Consigne fixe 1	Consigne fixe 3	DI2	Consigne fixe 2	DI3	Arrêt rapide		DI4	Inversion du sens de rotation		DI5	Déblocage manuel du frein de parking (mode de fonctionnement selon le réglage en C02580)		
DI1	Consigne fixe 1	Consigne fixe 3														
DI2	Consigne fixe 2															
DI3	Arrêt rapide															
DI4	Inversion du sens de rotation															
DI5	Déblocage manuel du frein de parking (mode de fonctionnement selon le réglage en C02580)															
14 (bornier 11)	L'application technologique est pilotée via les bornes d'entrée numériques du variateur. <table><tr><td>DI1</td><td colspan="2">Inversion du sens de rotation</td></tr><tr><td>DI2</td><td colspan="2">Activer le frein CC</td></tr><tr><td>DI3</td><td colspan="2">Potentiomètre motorisé : augmenter la vitesse</td></tr><tr><td>DI4</td><td colspan="2">Potentiomètre motorisé : réduire la vitesse</td></tr><tr><td>DI5</td><td colspan="2">Déblocage manuel du frein de parking (mode de fonctionnement selon le réglage en C02580)</td></tr></table>	DI1	Inversion du sens de rotation		DI2	Activer le frein CC		DI3	Potentiomètre motorisé : augmenter la vitesse		DI4	Potentiomètre motorisé : réduire la vitesse		DI5	Déblocage manuel du frein de parking (mode de fonctionnement selon le réglage en C02580)	
DI1	Inversion du sens de rotation															
DI2	Activer le frein CC															
DI3	Potentiomètre motorisé : augmenter la vitesse															
DI4	Potentiomètre motorisé : réduire la vitesse															
DI5	Déblocage manuel du frein de parking (mode de fonctionnement selon le réglage en C02580)															

Modes de commande DIP2/5-7	Description (Dix → HAUT)	
16 (bornier 16)	L'application technologique est pilotée via les bornes d'entrée numériques du variateur.	
	DI1 Consigne fixe 1	Consigne fixe 3
	DI2 Consigne fixe 2	
	DI3 Sens horaire/arrêt rapide	
	DI4 Sens antihoraire/arrêt rapide	
	DI5 Débloccage manuel du frein de parking (mode de fonctionnement selon le réglage en C02580)	
40 (MCI)	L'application technologique est pilotée via communication par bus de terrain. (en fonction du module de communication (Communication Unit) utilisé)	

Réglages avec P2

(Réglage Lenze **en gras**)

Avec P2, vous pouvez affecter différentes consignes fixes dans C00039/1 et C00039/2.

P2		Position									
Description		0	1	2	3	4	5	6	7	8	9
Affecter la consigne fixe 1 dans C00039/1	[%]	5	10	15	20	25	30	35	40	45	50
Affecter la consigne fixe 2 dans C00039/2	[%]	10	20	30	40	50	60	70	80	90	100

Réglages avec P3

(Réglage Lenze **en gras**)

Avec P3, vous pouvez affecter différents temps d'accélération et de décélération dans C00012/C00013 et affecter différents temps de décélération pour l'arrêt rapide dans C00105.

P3		Position									
Description		0	1	2	3	4	5	6	7	8	9
Affecter le temps d'accélération/de décélération dans C00012/C00013	[s]	0.1	0.5	0.7	1	1.5	2	5	10	30	60
Affecter le temps de décélération pour arrêt rapide dans C00105	[s]	0.1	0.2	0.5	0.7	1	1.5	2	5	10	30

Réglages avec P1

(Réglage Lenze **en gras**)

Avec P1, vous affectez une vitesse de consigne fixe dans C00039/3. En fonction de la position du commutateur DIP1/7, C00039/3 sera affecté de manière unique lors de la mise sous tension ou de manière permanente.

Retirer le couvercle afin de pouvoir régler le potentiomètre P1.

- Une fois le réglage effectué, revisser le couvercle afin de garantir l'indice de protection du variateur.

P1	Position		
	0	...	9
Description			
Affecter la consigne fixe 3 dans C00039/3	0	...	100

5.3 Affectation du commutateur DIP / potentiomètre 2

(À partir de la version logicielle 09.00.00)
Les appareils avec référence de commande E84DGDVBxxx4xxP ne peuvent être réglés qu'à l'aide du potentiomètre P1.

Réglages avec P1
(Réglage Lenze **en gras**)

Avec P1, vous affectez une vitesse de consigne fixe dans C00039/3. C00039/3 sera affecté de manière permanente.
Retirer le couvercle afin de pouvoir régler le potentiomètre P1.
► Une fois le réglage effectué, revisser le couvercle afin de garantir l'indice de protection du variateur.

P1 Description	Position		
	0	...	9
Affecter la consigne fixe 3 dans C00039/3 [%]	0	...	100

Mise en service**Avant la première mise sous tension**

- ▶ Le module de câblage (Wiring Unit) est monté et câblé selon les indications fournies, soit
 - directement sur la bride de serrage moteur soit,
 - avec un adaptateur mural, sur une surface appropriée à proximité du moteur.
- ▶ Les raccordements au réseau, au moteur, aux freins de parking etc. sont établis.
- ▶ Le module de communication (Communication Unit) est monté et câblé conformément à l'application prévue.
 - Signaux d'entrée et de sortie
 - Entrée sûre
 - Bus de terrain
 (Uniquement disponible en option, selon la version.)
- ▶ Le cas échéant, les réglages de base du mode "Local mode" ont été réalisés.
 - Commutateurs DIP
 - Potentiomètres
- ▶ L'appareil de base (Drive Unit) est monté et câblé.
- ▶ Utiliser les fonctions de commande de façon appropriée. Exemples :
 - Activer le blocage variateur.
 - Régler la vitesse au minimum.
 - Activer le système de sécurité.
- ▶ Le fonctionnement avec résistance de freinage a été testé.
 - En cas de charges dynamiques ou de conditions de régulation difficiles, il est recommandé d'utiliser systématiquement la résistance de freinage intégrée E84DZEW47R0001 pour les appareils E84DGDVB4024 ... 7524 (4 ... 7,5 kW).



Danger !

Potentiel de danger accru pendant la mise en service

Des réglages erronés risquent de provoquer des mouvements inopinés et dangereux du moteur et de l'installation.

Risques encourus :

- ▶ Dommages matériels
- ▶ Dommages corporels

Mesures de protection :

- ▶ Évacuer la zone de danger.
- ▶ Respecter les consignes et les distances de sécurité.

6.2**Etapes de mise en service**

Effectuer les étapes suivantes :

- ▶ Mettre l'appareil sous tension.
- ▶ Observer l'affichage d'état.
 - Après un temps d'initialisation minimum, l'affichage vert doit clignoter.
- ▶ Désactiver les requêtes de la fonction de sécurité.
- ▶ Activer le déblocage variateur.
 - Après expiration du temps de démarrage réglé, le moteur doit tourner à la vitesse réglée.
- ▶ Premier contrôle du comportement attendu :
 - Sens de rotation ?
 - Temps de démarrage ?
 - Vitesse ?
 - Régulation de vitesse ?
- ▶ Contrôle des fonctions de commande en option :
 - Fonctionnalité correcte du réglage de la consigne analogique
 - Fonctionnalité correcte des signaux de commande numériques (exemple : fins de course)
 - Fonctionnalité correcte du frein de parking raccordé
 - Fonctionnalité correcte de l'inversion du sens de rotation
 - Fonctionnalité correcte de la requête de la fonction de sécurité
 - Fonctionnalité correcte des signaux de commande via bus de terrain
- ▶ Couper l'entraînement
 - Réduire la vitesse.
 - Activer le blocage variateur.
 - Couper le réseau.

L'affichage par LED permet de signaler des états en fonction du bus de l'unité de communication (Communication Unit). Pour des informations détaillées, consulter le manuel de communication du bus utilisé.

LED		1 (green)	2 (green)	3 (red)	4 (red)
	PROFIBUS	BUS STATE	MODULE STATE	BUS ERROR	MODULE ERROR
	AS-i	SLAVE 1 READY	SLAVE 2 READY	SLAVE 1 ERROR	SLAVE 2 ERROR
	EtherCAT	RUN	LINK/ACTIVITY	ERROR	LINK/ACTIVITY (green)
	PROFINET	BUS READY	LINK/ACTIVITY 1 (yellow)	BUS ERROR	LINK/ACTIVITY 2 (yellow)
	EtherNet/IP	MODULE STATE (red)		NETWORK STATE (green)	
E84DG056 b					

6.3

Mise en service avec clavier de commande avec support

Avec le clavier de commande avec support X400, vous pouvez régler des paramètres rapidement et facilement et afficher les valeurs réelles en cours ainsi que les états actuels de l'appareil via les paramètres d'affichage correspondants. Pour ce faire, brancher le clavier de commande avec support à l'interface de diagnostic X70 sur le haut de l'appareil.

**Danger !****Mouvement incontrôlé du moteur possible**

En règle générale, toute modification d'un paramètre entraîne une réaction immédiate du variateur.

Risques encourus :

- ▶ Si le variateur est débloqué, ceci peut entraîner des effets indésirables au niveau de l'arbre moteur.

Mesures de protection :

- ▶ Effectuer les modifications par petites étapes et attendre la réaction.
- ▶ Certaines commandes appareil ou des paramètres susceptibles d'entraîner un comportement critique de l'entraînement font exception. De telles modifications de paramètres ne sont prises en compte que si le variateur est bloqué, faute de quoi un message d'erreur s'affiche.

**Remarque importante !**

Le clavier de commande avec support peut être branché et retiré pendant le fonctionnement.

**Informations complémentaires**

Des informations complètes sur le clavier de commande avec support figurent dans les instructions de mise en service du clavier de commande et du clavier de commande avec support X400.

6.3.1 Navigation facilitée par menus

Le menu principal du clavier de commande avec support contient les commandes suivantes:

commande de menu	Fonction
User Menu (Menu utilisateur)	Affichage d'une sélection des paramètres souvent nécessaires
Code List (Liste de code)	Affichage de la liste de tous les paramètres
Go To Parameter (Accéder au paramètre)	Afficher directement un paramètre donné
Parameter Transfer (Transfert de paramètres)	
User Menu Configuration (Configuration menu utilisateur)	
Clavier de commande	

6.3.2 Menu utilisateur

Le menu utilisateur peut être librement configuré dans C00517 et contient les paramètres suivants dans la partie Réglage Lenze:

Paramètres	Désignation	Information	Réglage Lenze
C00011	Appl.: Vitesse de référence	Réglage de la vitesse de référence	1500 min-1
C00012	Tps accél. consigne principale	Bloc fonction L_NSet_1: temps d'accélération du générateur de rampes de la consigne de vitesse principale	2.0 s
C00013	Tps décél. consigne principale	Bloc fonction L_NSet_1: Temps de décélération du générateur de rampes de la consigne de vitesse principale	2.0 s
C00015	VFC: fréquence nominale U/f	fréquence nominale U/f pour régulation moteur VFCplus	50 Hz
C00016	VFC: Augmentation Umin	Augmentation de la courbe de tension U/f dans la plage des vitesses et/ou fréquences faibles pour la régulation moteur VFCplus	2.6 %
C00022	Imax (moteur)	Courant maximal (en mode moteur) pour tous les modes de régulation moteur	5,8 A
C00039/1	Consigne fixe 1 (L_NSet_1 n-Fix)	Bloc fonction L_NSet_1: Consignes de vitesse fixes (JOG) pour le générateur de consigne Consigne fixe 1	40.0 %
C00039/2	Consigne fixe 2	Consigne fixe 2	60.0 %
C00051	MCTRL: Vitesse réelle	Signal de vitesse réelle de l'arbre moteur	—
C00053	Tension du bus CC	Tension actuelle du bus CC	—

Paramètres	Désignation	Information	Réglage Lenze
C00054	Courant moteur	Courant de sortie/courant moteur actuel du variateur	–
C00061	Température radiateur	Température actuelle du radiateur	–
C00087	Vitesse moteur assignée	Cette valeur est indiquée sur la plaque signalétique moteur. Après sélection du moteur utilisé dans le catalogue de moteurs, la valeur adaptée peut être saisie automatiquement.	1320 min-1
C00099	Firmware: Version	Version Firmware de l'appareil sous la forme d'une suite de caractères	–
C00105	Temps d'arrêt rapide	Le temps de décélération réglé détermine la pente de la rampe d'arrêt rapide.	5.0 s
C00120	Seuil surcharge moteur (I ² xt)	Seuil de réponse du message d'erreur «OC6 : Surcharge moteur (I ² xt)»	100 %
C00137	État de l'appareil	État actuel de l'appareil	–
C00166/3	Mess.état.erreur	Message textuel de l'erreur actuellement activée	–
C00173	Tension réseau	Sélection de la tension réseau utilisée pour alimenter l'appareil	0: "3ph 400V"
C00200	Firmware: Type produit		–

– seulement en affichage

6.3.3 Opérations de mise en service



Remarque importante !

Vous pouvez raccorder les équipements suivants à l'interface de diagnostic X70 :

- ▶ adaptateur de diagnostic USB (E94AZCUS)
- ▶ clavier de commande avec support X400 (EZAEBK200x)
 - Les fonctions du clavier de commande avec support et du clavier de commande X400 (EZAEBK100x) sont identiques.

Pour l'entraînement, seuls quelques paramètres doivent être adaptés. Ensuite, l'application d'entraînement peut immédiatement être commandée dans le mode de commande par défaut "Bornes 0" via les entrées numériques et analogiques. Dans le mode "Clavier de commande", vous pouvez utiliser le clavier pour sélectionner les consignes fixes et les signaux de commande nécessaires.

Procéder de la façon suivante :

1. câbler les raccordements de puissance.
 - Réaliser les raccordements de puissance conformément aux instructions de montage comprises dans l'emballage du variateur afin de les adapter correctement aux exigences de l'appareil.
2. Réaliser les raccordements de commande.
 - Le raccordement E/S préconfiguré peut être modifié via les paramètres de configuration. Voir le chapitre "Affectation des bornes spécifique à l'application".
 - Affectation dans le mode de commande par défaut "Bornes 0" :

Borne	Fonction	Information
A1U	Réglage de la consigne	10 V $\equiv$ 1500 min ⁻¹ (pour moteur 4 pôles) En général : 10 V $\equiv$ 100 % de la vitesse de référence (C00011)
DI1	JOG 1	Sélection des consignes fixes 1 ... 3 Si les deux entrées sont au niveau BAS, le réglage de la consigne est activé via l'entrée analogique A1U.
DI2	JOG 2	
DI3	Freinage CC (DCB)	Freinage CC manuel (DCB) - Avec des entrées activées au niveau HAUT, le freinage CC est activé tant que DI3 se trouve au niveau HAUT. - Dès que le temps de mise à l'arrêt (C00107) est écoulé, le variateur déclenche le blocage des impulsions (CINH). Freinage CC (► 110)
DI4	R/L	Niveau BAS : rotation horaire Niveau HAUT : rotation antihoraire
DI5	Frein de parking	Ouverture/fermeture du frein de parking Modes de freinage C02580

- Contrôler le commutateur sur la partie inférieure du module de base (Drive Unit) :
DIP1/1 doit être en position "OFF" (réglage Lenze) pour permettre le remplacement des paramètres via »Engineer«, via le clavier de commande ou via bus de terrain.
- Pour la communication par bus de terrain, régler si nécessaire les paramètres de communication sur le module de communication (Communication Unit) via le commutateur DIP.
Les paramètres de communication sont fonction du bus de terrain utilisé.
- Fixer le variateur au moyen des 4 vis.
- Mettre le variateur sous tension.
- Raccorder le clavier de commande.
 - Retirer le couvercle de l'interface de diagnostic sur la partie supérieure de l'appareil et raccorder le clavier de commande à l'interface de diagnostic.
 - Une fois le clavier de commande branché, la liaison avec le variateur est établie. Le processus est terminé lorsque C00051 apparaît à l'écran.

Affichage clavier de commande	Opération
MCTRL: Act speed val. C00051 0 rpm	Passer au menu principal avec la touche de fonction gauche  .

8. Chargement du réglage Lenze sur le variateur

- Pour ce faire, vous disposez de la commande appareil "Charger réglage Lenze" qui peut être exécutée via le code C00002/1 avec le clavier de commande :



Remarque importante !

Avec la commande "Charger les réglages Lenze", les valeurs modifiées précédemment sont écrasées. Les réglages Lenze par défaut sont réinitialisés. Ils se rapportent à un moteur spécifique comme par exemple à un moteur directement monté sur un réducteur.

6 Mise en service

Mise en service avec clavier de commande avec support

Opérations de mise en service

Affichage clavier de commande	Opération
Par1 8400 motec User Menu (Menu utilisateur)	A Avec la touche de navigation , sélectionner le menu dans le menu principal. B Avec la touche de navigation , passer au menu.
Load Lenze setting C00002/1	A Avec la touche de fonction gauche EDIT, passer au mode édition pour C00002/1. B Avec la touche de fonction  dans la liste de sélection, sélectionner la commande "1: On/Start". C Avec la touche de fonction droite OK, valider la modification effectuée et quitter le mode édition. – Le processus de chargement peut prendre quelques secondes.

9. Valider le variateur : régler la borne RFR (déblocage variateur) sur HAUT.
 - Lors de la livraison, la borne RFR (déblocage variateur) est pontée (déblocage variateur).
 - Si, à la mise sous tension, le déblocage variateur est activé et l'option de démarrage automatique "Blocage en cas d'appareil ON" est activée en C00142, le variateur reste à l'état "ReadyToSwitchOn". Pour permettre le passage à l'état "SwitchedOn", le déblocage variateur doit d'abord être annulé puis activé pour que l'appareil puisse passer à l'état "OperationEnabled".
 - Si l'option de démarrage automatique "Blocage en cas d'appareil ON" est activée en C00142 et lorsque le déblocage variateur est activé après la mise sous tension, l'appareil passe directement de l'état "ReadyToSwitchOn" à l'état "SwitchedOn" puis à l'état "OperationEnabled".



Danger !

Quand l'option de démarrage automatique "Blocage en cas d'appareil ON" est désactivée, le moteur peut démarrer directement si à la mise sous tension le blocage variateur est activé !

10. Régler la vitesse :
 - en mode de commande "Bornier 0", en réglant une tension à l'entrée analogique ou en sélectionnant une consigne fixe via les entrées numériques DI1/DI2.
 - Dans le mode de commande "Clavier de commande", la consigne de vitesse principale et les signaux de commande sont définis via les paramètres suivants :

Paramètre	Désignation	Information	Réglage Lenze
C00728/3	nMainSetValue_A	Consigne principale pour l'application 100 % = vitesse de référence (C00011)	0.00 %
C00727/3	bSetSpeedCcw	Inversion du sens de rotation "0" : rotation horaire "1" : rotation antihoraire	0
C00727/4	bJogSpeed1	Sélection consigne fixe 1 "0" : consigne principale (C00728/3) activée. "1" : consigne fixe 1 (C00039/1) activée.	0

11. Le cas échéant, adapter d'autres paramètres.

12. Enregistrer les réglages des paramètres avec la touche de fonction **SAVE** dans le module mémoire. Les données seront sauvegardées même en cas de coupure réseau.

6.3.4 Mode SET

Dans le mode SET, le variateur est piloté par le clavier de commande avec support. Vous pouvez modifier la consigne de vitesse et valider le variateur ou le bloquer (RFR/run). Les autres sources de la consigne sont ignorées.

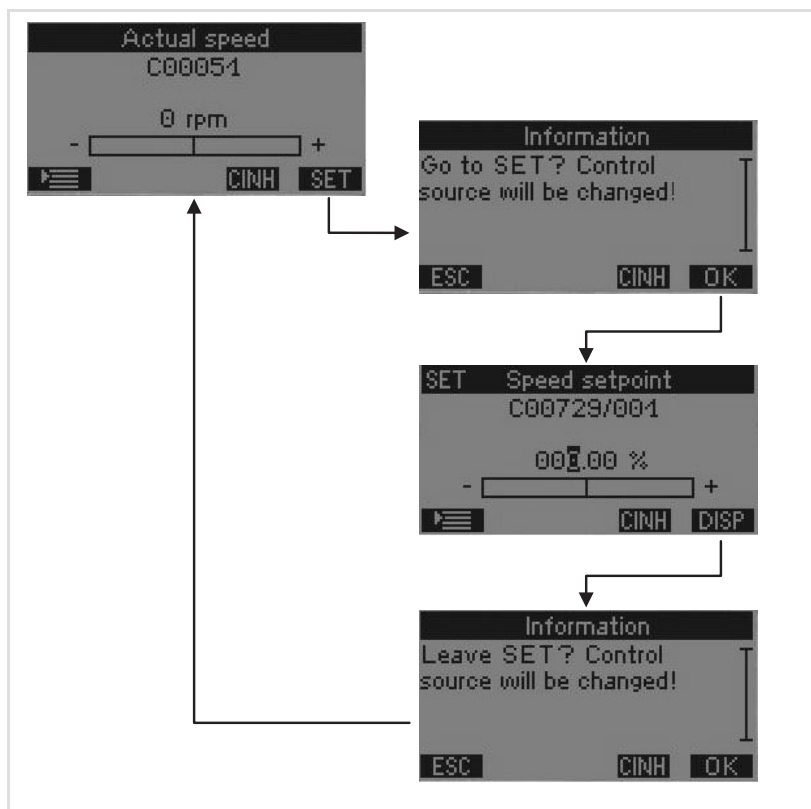
- ▶ Activer le mode SET : actionner la touche logicielle "DISP" et confirmer avec la touche logicielle "OK".
- ▶ Quitter le mode SET : actionner la touche logicielle "DISP" et confirmer avec la touche logicielle "OK".



Remarque importante !

Le mode SET peut être activé uniquement lorsque l'appareil se trouve dans l'état «OperationEnabled» (le blocage variateur est levé, la LED verte est allumée en permanence sur le variateur).

- ▶ Le blocage variateur est uniquement signalé dans le clavier de commande. Dans C00158, la cause du blocage variateur est affichée de manière détaillée (📖 Manuel de référence 8400 motec).



7 Paramétrage

Le paramétrage permet d'adapter le variateur de vitesse de manière optimale aux exigences spécifiques de l'application.

Il peut être réalisé de différentes manières :

Paramétrage à l'aide du logiciel L-force »Engineer«

- ▶ Réglages complexes via logiciel en mode en ligne
 - Le paramétrage sûr est pris en charge par le logiciel pour PC « Engineer », à partir de la version 02.23.
 - Le paramétrage est décrit dans le manuel du logiciel du module de sécurité SM302.
 - Réglages nécessitant le logiciel et l'adaptateur de diagnostic.

Paramétrage à l'aide du clavier de commande avec support de protection

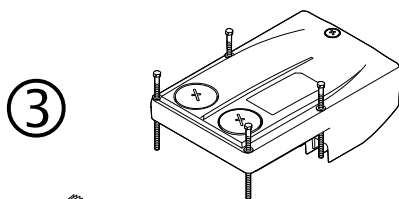
- ▶ Réglages d'un certain nombre de paramètres par l'utilisateur expérimenté
 - Réglages nécessitant un clavier avec support adapté au variateur 8400 motec
 - Le paramétrage est décrit dans les instructions de mise en service EZAEBK000X sur le clavier de commande 400.



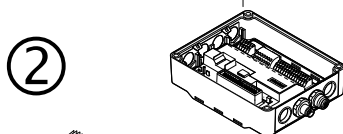
Remarque importante !

Sauvegarder les réglages de paramètres de manière persistante en cas de coupure réseau.

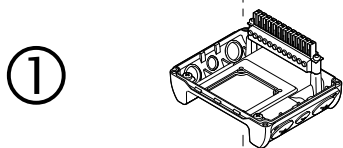
Pour que les réglages de paramètres effectués dans l'appareil ne soient pas perdus suite à une remise sous tension, le jeu de paramètres doit être explicitement sauvegardé de manière persistante en cas de coupure réseau.



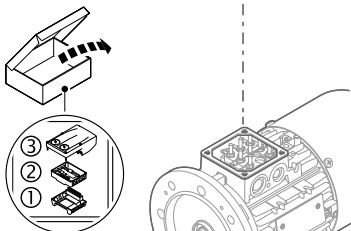
EDK84DGDVBxxx4



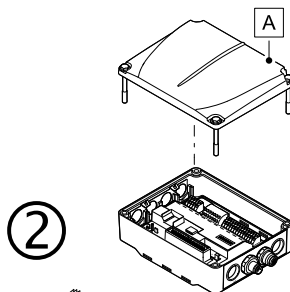
EDK84DGFCxxx



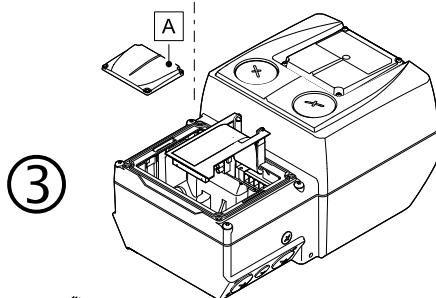
EDK84DGVNxE



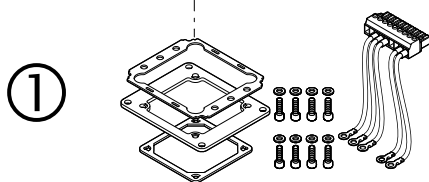
E84DG023a



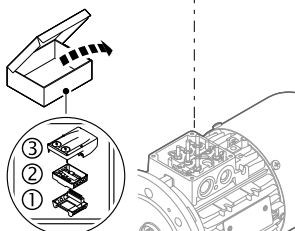
EDK84DGFCxxx



EDK84DGDVBxxx4



EDK84DGVN4E



E84DG023b

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1

Acerca de esta documentación

Historia del documento

1

Acerca de esta documentación

1.1 Historia del documento

Número de material	Versión			Descripción
13546838	8.3	01/2019	TD15	DE/EN/FR/ES/IT (solo PDF)
13546836	8.2	12/2018	TD15	Suplumento de descripciones de funcionamiento
13546838	8.1	12/2017	TD15	DE/EN/FR/ES/IT (solo PDF)
13546836	8.0	12/2017	TD15	Suplumento de descripciones de funcionamiento Correcciones UL
13523272	7.1	12/2016	TD29	DE/EN/FR/ES/IT (solo PDF)
13523101	7.0	11/2016	TD29	Suplumento de descripciones de funcionamiento, corrección de errores, revisión de la estructura de documentos
13482775	6.1	02/2015	TD29	DE/EN/FR/ES/IT (solo PDF)
13478084	6.0	12/2014	TD15	Correcciones UL
13410321	5.3	07/2014	TD15	DE/EN/FR/ES/IT (solo PDF)
13410320	5.2	07/2014	TD15	Indicaciones UL en francés de Canadá Conformidad EAC
13410321	5.1	06/2012	TD15	Correcciones generales, DE/EN/FR/ES/IT (solo PDF)
13410320	5.0	06/2012	TD15	Correcciones generales
13392616	4.1	12/2011	TD15	Ampliación 4 ... 7,5 kW, DE/EN/FR/ES/IT (solo PDF)
13392614	4.0	11/2011	TD15	Ampliación 4 ... 7.5 kW
13373549	3.0	04/2011	TD15	Ampliación 2.2 ... 3 kW, PROFINET, EtherCAT
13371646	2.0	02/2011	TD15	Correcciones generales
13336813	1.5	09/2010	TD15	Primera edición DE/EN/FR/ES/IT (sólo PDF)
13336813	1.0	08/2010	TD15	Primera edición DE/EN



¡Sugerencia!

Encontrará información y consejos sobre los productos de Lenze en el área de descargas en

www.lenze.com

1.2 Grupo objetivo

Esta documentación va dirigida a personal experto y cualificado según IEC 60364.

Personal experto cualificado son aquellas personas que disponen de las cualificaciones adecuadas para realizar los trabajos necesarios para la instalación, montaje, puesta en marcha y operación del producto.

1.3

Información sobre la validez

Estas instrucciones son válidas para el convertidor 8400 motec con denominación de tipo:

Denominación de tipo	a partir de HW	a partir de SW
E84DGDVBxxx4	VA	01.00

Puede consultar más información sobre la designación de tipo en el capítulo Descripción de producto del manual del equipo 8400 motec. ( EDS84DG752)

1.4

Convenciones utilizadas

Esta documentación utiliza las siguientes convenciones para distinguir diferentes tipos de información:

Tipo de información	Marcación	Ejemplos/indicaciones
Escritura de números		
Separación de decimales	Punto	Por norma general se utiliza el punto para los decimales. Por ejemplo: 1234.56
Advertencias		
Advertencias UL		Se utilizan en Inglés y Francés.
Advertencias UR		
Resalte del texto		
Nombre del programa	» «	Software para PC Por ejemplo: »Engineer«, »Global Drive Control« (GDC)
Símbolos		
Referencia a páginas		Referencia a otra página con información adicional Por ejemplo:  16 = véase la página 16
Referencia a otra documentación		Referencia a otra documentación con información adicional Por ejemplo:  EDKxxx = véase la documentación EDKxxx

1.5 Indicaciones utilizadas

Para indicar peligros e información importante, se utilizan en esta documentación los siguientes términos indicativos y símbolos:

Instrucciones de seguridad

Estructura de las instrucciones de seguridad:

**¡Peligro!**
(indican el tipo y la gravedad del peligro)
Texto indicativo
(describe el peligro y da instrucciones para evitarlo)

Pictograma y término indicativo	Significado
 ¡Peligro!	Riesgo de daños personales por voltaje eléctrico Indica un peligro inminente que puede causar la muerte o lesiones graves si no se toman las medidas adecuadas.
 ¡Peligro!	Riesgo de daños personales por una fuente de riesgo general Indica un peligro inminente que puede causar la muerte o lesiones graves si no se toman las medidas adecuadas.
 ¡Alto!	Peligro de daños materiales Indica un posible riesgo que puede ocasionar daños materiales si no se toman las medidas adecuadas.

Instrucciones de uso

Pictograma y término indicativo	Significado
 ¡Aviso!	Nota importante para el funcionamiento sin fallos
 ¡Sugerencia!	Sugerencia útil para facilitar la operación
	Referencia a otra documentación

Instrucciones especiales de seguridad y uso

Pictograma y término indicativo	Significado
 Warnings!	Instrucción de seguridad o de uso para la utilización de un equipo con certificación UL o CSA.
 Warnings!	Estas medidas son necesarias para cumplir con los requisitos UL o CSA.

2

Instrucciones de seguridad

2.1

Instrucciones de seguridad generales



¡Peligro!

Voltaje eléctrico peligroso

- Las conexiones de potencia siguen vivas hasta 3 minutos después de la desconexión de red.

Posibles consecuencias:

- Muerte o serias lesiones al tocar las conexiones de potencia.

Medidas de protección:

- Antes de trabajar en el equipo, desconectar la alimentación de red y esperar por lo menos 3 minutos.
- Comprobar, si todas las conexiones de potencia están libres de voltaje.

Advertencia mediante símbolos

Símbolo	Descripción
	Largo tiempo de descarga: ¡Todos los bornes de potencia siguen estando peligrosamente vivos hasta 3 minutos después de la desconexión de la red!
	Alta corriente de fuga: Ejecutar la instalación fija y la conexión a PE según EN 61800-5-1!
	Elementos sensibles a la electrostática: ¡Antes de realizar trabajos en el equipo, el personal debe liberarse de toda carga electrostática!
	Superficie caliente: ¡Utilice equipo de protección personal o espere a que se enfríe!

Observe también la información importante sobre aspectos relativos a la técnica del dispositivo y de seguridad incluida en el CD-ROM adjunto!

2.2 Instrucciones de seguridad para la instalación según UL/CSA

Original - Inglés



Warnings!

- ▶ Use Class 1 wire only.
- ▶ Intended for use with 75 °C wire.
- ▶ Intended for use with copper conductors only.
- ▶ Suitable for use in a surrounding air temperature of 45 °C, and – additionally 55 °C when de-rating rules are followed.
- ▶ Hot surface. Risk of burn.
- ▶ Should this device be mounted on a motor, the combination needs to be suitable for the type rating.
- ▶ The supply terminals are to be tightened to:
 - For model suffix's 371, 551, 751, 112, 152 tighten to 4.4 - 5.3 lb-in.
 - For model suffix's 222, and 302, tighten to 7 lb-in.
- ▶ These devices are suitable for use on a circuit capable of delivering not more than 200 000 rms Symmetrical Amperes, 480 V maximum
 - When protected by CC, R, T, or J class fuses or
 - When protected by a circuit breaker having an interrupting rating not less than 200 000 rms symmetrical amperes, 480 V maximum.
- ▶ These devices are suitable for motor group installation on a circuit capable of delivering not more than 200 000 rms Symmetrical Amperes, 480 V maximum
 - When protected by CC, R, T, or J class fuses or
 - When protected by a circuit breaker having an interrupting rating not less than 200 000 rms symmetrical amperes, 480 V maximum.
- ▶ Use fuses and circuit breakers only.

...



Warnings!

...

- ▶ Integral solid state short circuit protection does not provide branch circuit protection. Branch circuit protection must be provided in accordance with the National Electrical Code and any additional local codes.
- ▶ The opening of branch circuit protective devices may be an indication that a fault current has been interrupted. To reduce the risk of fire or electric shock, current carrying parts and other components, the controller should be examined and replaced if damaged.
- ▶ These devices provide overload protection rated for 125 % of the rated FLA.

CAUTION!

- ▶ Risk of electric shock. Please allow 180 s for the internal capacitors to discharge.

Instrucciones de seguridad para la instalación según UL/CSA

Original - Français



Avertissements !

- ▶ Utiliser exclusivement des conducteurs Class 1.
- ▶ Utiliser des conducteurs 75 °C.
- ▶ Utiliser exclusivement des conducteurs en cuivre.
- ▶ Convient à une utilisation à une température ambiante maximale de 45 °C ainsi que
 - 55 °C en cas d'application des règles de réduction de puissance.
- ▶ Température élevée en surface. Risque de brûlure.
- ▶ En cas de montage de l'équipement sur le moteur, la combinaison doit être conforme à la qualification du type.
- ▶ Couples de serrage des bornes réseau :
 - Pour les types contenant le suffixe 371, 551, 751, 112, 152 : 0,5 à 0,6 Nm.
 - Pour les types contenant le suffixe 222 et 302 : 0,8 Nm.
- ▶ Convient aux circuits non susceptibles de délivrer plus de 200 000 ampères symétriques eff., maximum 480 V
 - Protection par des fusibles CC de calibre R, T ou J ; ou
 - Protection par disjoncteur à pouvoir de coupure nominal d'au moins 200 000 ampères symétriques eff., maximum 480 V.
- ▶ Convient aux installations de groupe moteur sur des circuits non susceptibles de délivrer plus de 200 000 ampères symétriques eff., maximum 480 V
 - Protection par des fusibles CC de calibre R, T ou J ; ou
 - Protection par disjoncteur à pouvoir de coupure nominal d'au moins 200 000 ampères symétriques eff., maximum 480 V.
- ▶ Utiliser exclusivement des fusibles et des disjoncteurs.

...



Avertissements !

...

- La protection statique intégrée n'offre pas la même protection qu'un disjoncteur. Une protection par disjoncteur externe doit être fournie, conformément au National Electrical Code et aux autres dispositions applicables au niveau local.
- Le déclenchement des dispositifs de protection du circuit de dérivation peut être dû à une coupure qui résulte d'un courant de défaut. Pour limiter le risque d'incendie ou de choc électrique, examiner les pièces porteuses de courant et les autres éléments du contrôleur ; les remplacer s'ils sont endommagés.
- Ces équipements intègrent une protection contre les surcharges conçue pour se déclencher à 125 % de l'intensité assignée à pleine charge.

ATTENTION !

- Risque de choc électrique. Patientez 180 s pour permettre aux condensateurs internes de se décharger.

3 Datos técnicos

3.1 Datos generales y condiciones de uso

Conformidad y aprobaciones

Conformidad

CE	2014/35/CE	Directiva de bajo voltaje	
EAC	TP TC 004/2011 (TR TS 004/2011)	Acerca de la seguridad de equipos de bajo voltaje	Conformidad Eurasiática TR TS: Reglamento Técnico de la Unión Aduanera
EAC	TP TC 020/2011 (TR TS 020/2011)	Compatibilidad electromagnética de productos técnicos	Conformidad Eurasiática TR TS: Reglamento Técnico de la Unión Aduanera

Aprobación

UR	UL 508C	Power Conversion Equipment, File No. E170350	
cUR	C22.2 No 274-13		

Aprobación para montaje mural

cULus	UL 508C C22.2 No 274-13	Power Conversion Equipment, File No. E132659	
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Protección personal y de equipos

Tipo de protección		• ¡Cerrar los taladros para prensaestopas que no se utilicen con tapones ciegos! • ¡Cerrar conectores enchufables que no se utilicen con tapas protectoras o conectores ciegos!	
	EN 60529	8400 motec Set Montaje mural sin interruptor	IP65
		Montaje mural con interruptor de servicio/con interruptor de servicio y elementos de manejo	IP54
		Montaje mural con interruptor de servicio y función de protección	IP64
	NEMA 250	8400 motec Set	Tipo 4X (interior)
		Montaje mural sin interruptor	
		0,37 ... 3,0 kW 4,0 ... 7,5 kW	Tipo 12 Tipo 4X (interior)
		Montaje mural con interruptor	

Protección personal y de equipos			
		0,37 ... 3,0 kW	Tipo 12
Corriente de fuga (a tierra)	EN 61800-5-1	> 3.5 mA AC, > 10 mA DC	¡Observar disposiciones e instrucciones de seguridad!
Corriente de defecto acumulada		En redes IT se pueden utilizar los siguientes interruptores de corriente de defecto:	
Montaje en el motor		0,37 ... 3,0 kW	30 mA, tipo B
		4,0 ... 7,5 kW, $f_{ch} = 8/16$ kHz	30 mA, tipo B
		4,0 ... 7,5 kW, $f_{ch} = 4$ kHz	300 mA, tipo B
Montaje en la pared y sistema de cableado de Lenze ≤ 3 m		0,37 ... 3,0 kW	30 mA, tipo B
		4,0 ... 7,5 kW, $f_{ch} = 8/16$ kHz	30 mA, tipo B
		4,0 ... 7,5 kW, $f_{ch} = 4$ kHz	300 mA, tipo B
Montaje en la pared y sistema de cableado de Lenze > 3 m		0,37 ... 7,5 kW	300 mA, tipo B
Compensación de potencial adicional		Rosca M5 con borne en la unidad de cableado carcasa para conectar un cable PE de 16 mm ²	
Aislamiento de circuitos de conmutación de control	EN 61800-5-1	Separación segura de la red a través de aislamiento doble (reforzado).	
Resistencia de aislamiento	EN 61800-5-1	<2000 m sobre el nivel cero: categoría de sobretensión III	
		>2000 m sobre el nivel cero: categoría de sobretensión II	
Resistencia al cortocircuito	EN 61800-5-1	Conexión:	
		Motor	condicionada, el convertidor es inhibido, es necesario cancelar el error
		Freno de motor, resistencia de frenado	no
		PTC, conexiones de control	total
Resistencia al contacto a tierra	EN 61800-5-1	Conexión:	
		Motor (con convertidor habilitado)	condicionada, el convertidor es inhibido, es necesario cancelar el error
		Motor (en funcionamiento)	no
		Resistencia de frenado, PTC	no

Protección personal y de equipos			
Medidas de protección contra		• cortocircuito del lado motor en el encendido y durante el funcionamiento • Inclínación del motor • Sobrecalentamiento del motor – Entrada para PTC o contacto térmico – Monitorización I²t	
Conexión de red cíclica		• Conmutaciones/minuto	3
		• Conmutaciones/hora	máx. 20
		• Pausa de conmutación	A una red de conmutación de 3 veces por minuto, debe seguirle una pausa de conmutación de 9 min.
Corriente de conexión		$\leq 2 \times I_N$	

Condiciones para la conexión

Conexión a red

Sistema de red

TT, TN (con punto estrella puesto a tierra)		Funcionamiento permitido sin restricciones.
IT		Utilizar la medida descrita para redes IT (retirar tornillo IT). ¡El cumplimiento de los requisitos relativos a la compatibilidad electromagnética para la emisión de interferencias (EN 61800-3) de la máquina/instalación es responsabilidad del fabricante de la máquina/instalación! No está permitido el funcionamiento con tecnología de seguridad integrada.

Conexión del motor

Motores	EN 60034	Sólo utilizar motores adecuados para el funcionamiento con convertidor. Resistencia al aislamiento: min. $\hat{u} \geq 1.5 \text{ kV}$, min. $du/dt \geq 5 \text{ kV}/\mu\text{s}$
Longitud del cable de motor		< 20 m (cable de sistema Lenze, apantallado)

Condiciones ambientales			
Climática			
Almacenaje	IEC/EN 60721-3-1	1K3 (-30 ... +60 °C)	
Transporte	IEC/EN 60721-3-2	2K3 (-30 ... +75 °C)	
Funcionamiento	IEC/EN 60721-3-3	3K3 (-30 ... +55 °C)	
		Funcionamiento con 4 kHz: > +45 °C reducir la corriente nominal de salida en 2,5 %/°C. Funcionamiento con 8/16 kHz: > +40 °C reducir la corriente nominal de salida en 2,5 %/°C.	
Altura de montaje		< 4000 m snm > 1.000 m snm reducir la corriente nominal de salida en 5% / 1.000 m.	
Polución	IEC/EN 61800-5-1	Grado de polución 2	
Mecánica			
Resistencia a las sacudidas (9.81 m/s² = 1 g)			
Montaje en el motor	Germanischer Lloyd	Condiciones generales: resistente a la aceleración hasta 2 g	
	IEC/EN 60721-3-3	3M6	
Montaje en la pared con E84DZMAWE1	Germanischer Lloyd	Condiciones generales: resistente a la aceleración hasta 2 g	
	IEC/EN 60721-3-3	3M6	

Condiciones de montaje			
Lugar de montaje			
Montaje en el motor		Estándar	
Montaje en la pared		con adaptadores de pared opcionales	Garantizar la refrigeración por convección en nichos.
Posición de montaje			
Montaje en la pared			
0,37 ... 3,0 kW		vertical con aletas de refrigeración superiores, girado, horizontal	- Respetar la deriva, consulte el manual de equipo 8400 motec (EDS84DG752) - Colocar varios equipos uno al lado del otro para garantizar que se conserve la refrigeración por convección.
4,0 ... 7,5 kW		aleatorio	

Control	
Procedimientos de control	VFCplus: - Control U/f (linear o cuadrático), VFC closed loop: - VFCplus con realimentación adicional del número de revoluciones VFC eco: - Control U/f, optimizado energéticamente RVSS: - Regulación vectorial sin sensor de par motor/de número de revoluciones RSSMS: - Regulación sin sensor para motores síncronos
Frecuencia de chopeado	4 kHz, 8 kHz, 16 kHz

3.2

Datos nominales

Datos de entrada

Red	Tensión U_{LN} [V]	Rango de tensión U_{LN} [V]	Rango de frecuencia f [Hz]
3/PE AC	400	320 - 0 % ... 440 + 0 %	45 - 0 % ... 65 + 0 %
3/PE AC	480	432 - 0 % ... 528 + 0 %	45 - 0 % ... 65 + 0 %

	Voltaje [V]	Frecuencia [Hz]	Corriente nominal [A]		Número de fases
			hasta +45 °C ①	hasta +55 °C ①	
E84DGDVB3714	400/480	50/60	1.3/1.1	1.0/0.8	3
E84DGDVB5514	400/480	50/60	1.8/1.5	1.4/1.1	3
E84DGDVB7514	400/480	50/60	2.4/2.0	1.8/1.5	3
E84DGDVB1124	400/480	50/60	3.2/2.7	2.4/2.0	3
E84DGDVB1524	400/480	50/60	3.8/3.1	2.9/2.3	3
E84DGDVB2224	400/480	50/60	5.6/4.6	4.2/3.5	3
E84DGDVB3024	400/480	50/60	7.2/5.9	5.4/4.4	3
E84DGDVB4024	400/480	50/60	9.3/7.7	7.0/5.8	3
E84DGDVB5524	400/480	50/60	12.8/10.6	9.6/8.0	3
E84DGDVB7524	400/480	50/60	16.3/13.5	12.3/10.1	3

① Temperatura ambiente, frecuencia de chopeado 4 kHz

Datos de salida

	Voltaje [V]	Frecuencia [Hz]	Corriente nominal [A]		Número de fases
			hasta +45 °C ①	hasta +55 °C ①	
E84DGDVB3714	0 ... 400/480	0 ... 300	1.3/1.1	1.0/0.8	3
E84DGDVB5514	0 ... 400/480	0 ... 300	1.8/1.5	1.4/1.1	3
E84DGDVB7514	0 ... 400/480	0 ... 300	2.4/2.0	1.8/1.5	3
E84DGDVB1124	0 ... 400/480	0 ... 300	3.2/2.7	2.4/2.0	3
E84DGDVB1524	0 ... 400/480	0 ... 300	3.9/3.2	2.9/2.4	3
E84DGDVB2224	0 ... 400/480	0 ... 300	5.6/4.7	4.2/3.5	3
E84DGDVB3024	0 ... 400/480	0 ... 300	7.3/6.0	5.4/4.5	3
E84DGDVB4024	0 ... 400/480	0 ... 300	9.5/7.9	7.1/5.9	3
E84DGDVB5524	0 ... 400/480	0 ... 300	13.0/10.8	9.8/8.1	3
E84DGDVB7524	0 ... 400/480	0 ... 300	16.5/13.7	12.4/10.3	3

① Temperatura ambiente, frecuencia de chopeado 4 kHz

4 Instalación mecánica

4.1 Preparación

El montaje y el cableado de la unidad de cableado y la unidad de comunicación deben corresponderse con las instrucciones para el montaje.



¡Sugerencia!

Antes de que se pueda continuar y finalizar el montaje del 8400 motec, deben tomarse decisiones sobre la configuración de parámetros y sobre la puesta en marcha.

¿Debe preinstalarse el convertidor con DIP1, DIP2, P2 o P3?

- ▶ Efectuar los ajustes según los requisitos.
 - El capítulo Ajustes contiene la información necesaria. (📖 180)
- ▶ Montar la unidad de accionamiento. (📖 176)

¿Deben configurarse los parámetros del convertidor con L-Force "Engineer" o con un terminal manual?

- ▶ Montar la unidad de accionamiento. (📖 176)

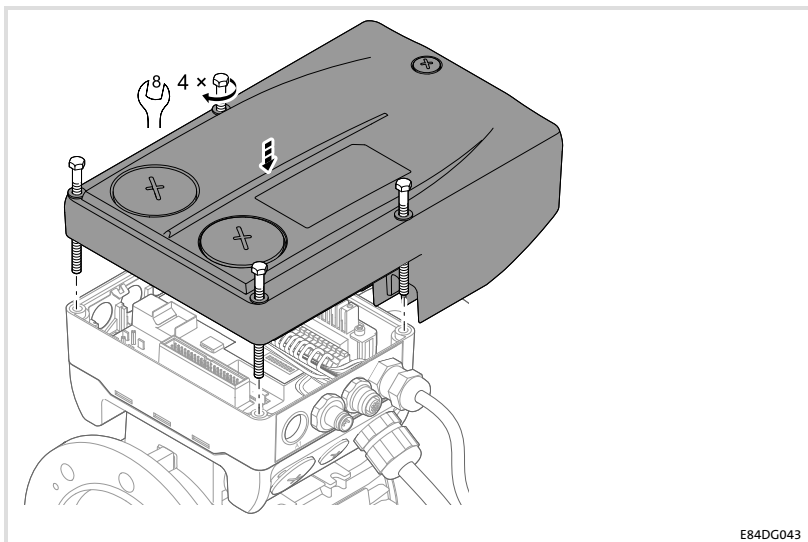
¿Forma parte el convertidor de un motor o de un motor reductor?

- ▶ El convertidor debe ajustarse de acuerdo con el motor y el engranaje instalados en fábrica.
 - No modificar los ajustes de fábrica.
- ▶ Montar la unidad de accionamiento. (📖 176)

4.2

Montaje**0.37 ... 3 kW**

Coloque la unidad de accionamiento, sin que se ladee, sobre la unidad de comunicación que se ha montado primero. Sujete la unidad de accionamiento con los cuatro tornillos adjuntos (par de apriete: 5.0 Nm/44 lb-in).

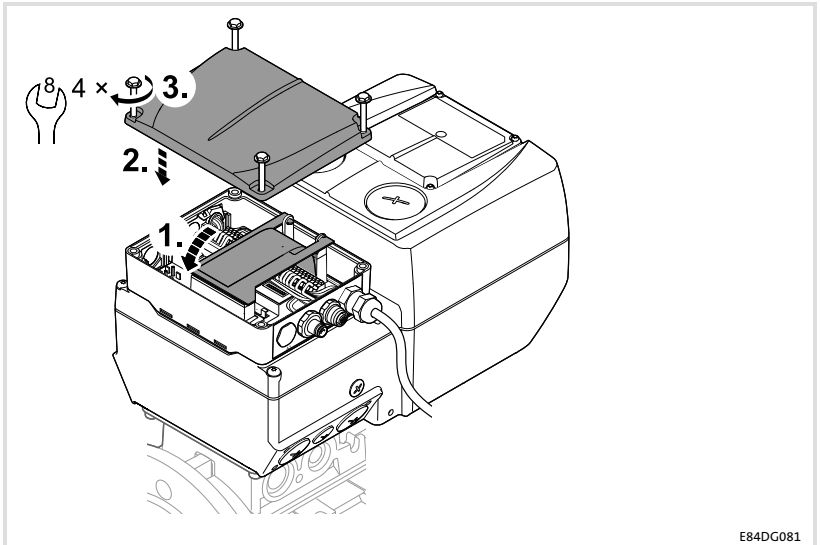


4 ... 7.5 kW

La Drive Unit (unidad de accionamiento) ya ha sido montada con la Wiring Unit (unidad de cableado).

Para finalizar el montaje, proceda de la siguiente manera:

1. Girar la regleta de conectores hembra hacia la Communication Unit (unidad de comunicación) e insertarla con cuidado en el conector macho.
2. Colocar la tapa de la DU sobre la CU y
3. fijarla con los cuatro tornillos (par de apriete: 1.5 Nm/14 lb-in).



E84DG081

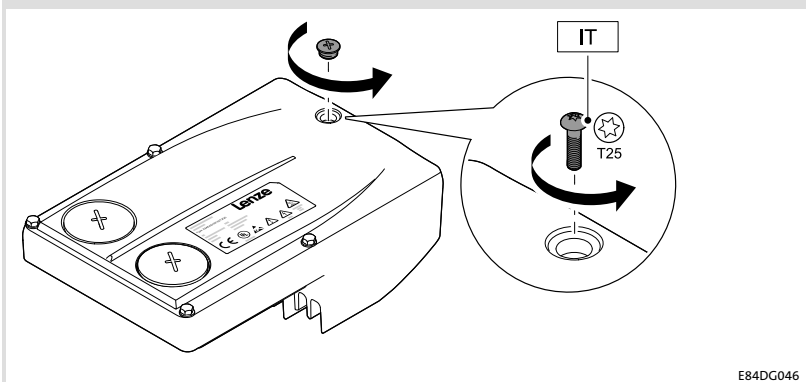
4.3 Medida de la aplicación en redes de TI

Si el accionamiento se instala en una red IT, los filtros internos deberán separarse del conductor protector.

Proceda de la siguiente manera:

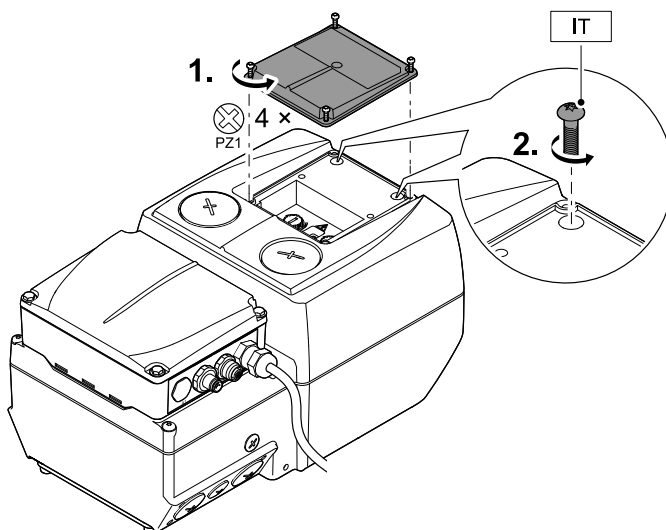
1. En convertidores ya montados: ¡Desconectar el voltaje de red!
2. Acceder al tornillo IT.
 - Equipos hasta 3 kW: Desenroscar el pequeño capuchón en la parte superior.
 - Equipos a partir de 4 kW: Retirar la pequeña tapa en la parte superior.
3. Desenroscar y extraer el(los) tornillo(s).
4. Enroscar el capuchón o colocar la tapa.

0.37 ... 3 kW



E84DG046

4 ... 7.5 kW



E84DG084

5 Configuraciones



¡Alto!

Arranque automático del motor

En "Local mode" la opción de arranque automático "Inhibir al conectar a red" no está activada. El motor arranca al conectar a red cuando la habilitación de convertidor RFR está puenteada o activada.

("Local mode" => DIP1/1 = ON y DIP2/5-7 = OFF)

Posibles consecuencias:

- Peligros o daños debido al arranque inesperado del motor.

Medidas de protección:

- Desacoplar el motor del circuito de accionamiento durante la puesta en marcha.
- Sustituir el puente de fábrica en RFR con un contacto NO.
- No activar la habilitación del convertidor.

Para la primera puesta en marcha se pueden realizar las configuraciones a través de interruptor DIP y potenciómetro. Las configuraciones deben realizarse antes del montaje de la unidad de accionamiento, ya que los elementos de configuración no son accesibles desde el exterior.

A partir de la versión de software 07.00.00 puede ajustar con DIP2/8 dos asignaciones previas diferentes de DIP1, DIP2, P1, P2 y P3:

- DIP2/8 = OFF: interruptor DIP / asignación Poti 0
- DIP2/8 = ON: interruptor DIP / asignación Poti 1

Hasta la versión de software 07.00.00 solo estaba disponible el interruptor DIP / la asignación Poti 0.

A partir de la versión de software 08.00.00, y si se utiliza un módulo de comunicación POWERLINK, es posible influir en el ajuste de la dirección IP por medio de DIP1/1:

- DIP1/1 = OFF: DIP1/2 ... DIP1/8, P1, P2 y P3 son inactivos, DIP2 se utiliza para ajustar la dirección IP de POWERLINK
- DIP1/1 = ON: función de interruptor DIP y asignación del potenciómetro de acuerdo con la descripción, ajuste de la dirección IP a partir de la dirección de codificado C13899

Encontrará información detallada en el manual de comunicación POWERLINK (EDS84DMOTPL).

Además se dispone de la asignación de interruptor DIP/potenciómetro 2.

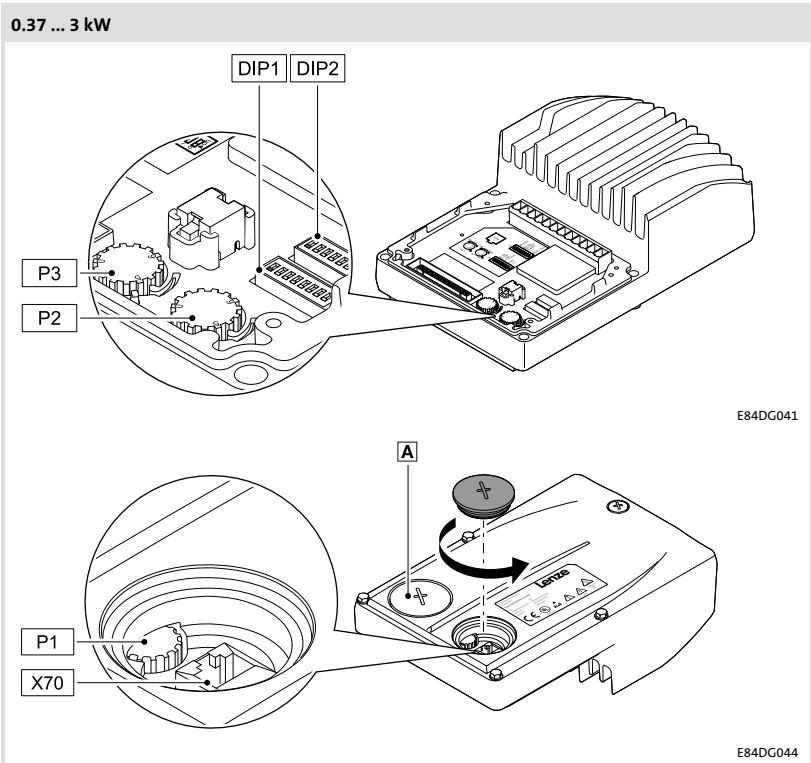
Requisitos:

- ▶ Equipos con denominación de tipo E84DGDVBxxx4xxP
- ▶ Equipos a partir de la revisión de software 09.00.00
- ▶ Equipos en el rango de potencia 0.37 kW ... 3.0 kW

Elementos de configuración 0.37 ... 3 kW

En el lado interior de la unidad de accionamiento se encuentran los elementos de configuración.

Las configuraciones realizadas mediante DIP1, DIP2, P2, P3 y P1 deben activarse con DIP1/1. Las configuraciones se asumen con cada conexión a red. De esta manera se pueden sobrescribir modificaciones realizadas en parámetros.



	Denominación
DIP1	Interruptor DIP para la puesta en marcha
DIP2	
P1	Ajuste "Top Cover: Speed ... %"
P2	Ajuste "Speed ... %", (velocidad)
P3	Ajuste "Ramp ... s", (tiempo de arranque/tiempo de vencimiento)
X70	Conexión para adaptador de diagnóstico USB E94AZCUS o terminal manual
A	Visualización de estado LED

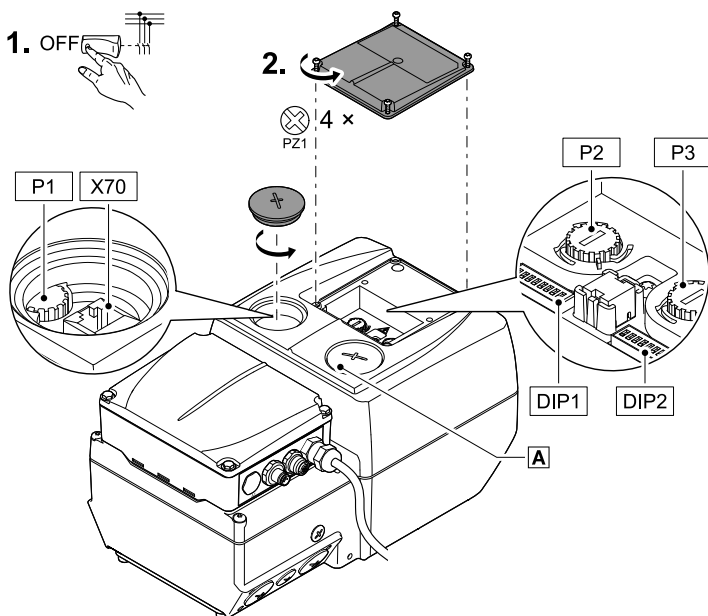
Elementos de configuración 4 ... 7.5 kW

En la parte superior de la Drive Unit (unidad de accionamiento), se encuentran los elementos de configuración.

- Confirmar que esté libre de tensión y asegurar contra el encendido involuntario.
- Retirar la pequeña tapa de la parte superior.

Las configuraciones realizadas mediante DIP1, DIP2, P2, P3 y P1 deben activarse con DIP1/1. Las configuraciones se asumen con cada conexión a red. De esta manera se pueden sobrescribir modificaciones realizadas en parámetros.

4 ... 7.5 kW



E84DG083

	Denominación
DIP1	Interruptor DIP para la puesta en marcha
DIP2	
P1	Ajuste "Top Cover: Speed ... %"
P2	Ajuste "Speed ... %", (velocidad)
P3	Ajuste "Ramp ... s", (tiempo de arranque/tiempo de vencimiento)
X70	Conexión para adaptador de diagnóstico USB E94AZCUS o terminal manual
	Visualización de estado LED

5.1 Interrupor DIP / asignación Poti 0

Ajustes con DIP1
(Ajuste de Lenze **negrita**)

DIP1			Interrupor							
Descripción			1	2	3	4	5	6	7	8
DIP1, DIP2, P1, P2 y P3 activo	activo		ON							
	inactivo		OFF							
Dirección de giro	izquierda			ON						
	derecha			OFF						
Regulación	cuadrático				ON					
	lineal				OFF					
Rearranque al vuelo	activo					ON				
	inactivo					OFF				
reservado	-						OFF	OFF	OFF	
Estado del equipo	Accionamien to listo:	NO/COM = cerrado								ON
	Fallo en el accionamien to:	DO1 = HIGH								
Estado del equipo	Accionamien to listo:	DO1 = HIGH								OFF
	Fallo en el accionamien to:	NO/COM = cerrado								

Ajustes con DIP2

(Ajuste de Lenze **negrita**)

DIP2		Interruptor							
Descripción		1	2	3	4	5	6	7	8
Velocidad de referencia del motor / velocidad de referencia	50 Hz ∇ / 1500 min-1	OFF	OFF						
	60 Hz ∇ / 1800 min-1	ON	OFF						
	87 Hz Δ / 2610 min-1	OFF	ON						
	120 Hz ∇ / 3600 min-1	ON	ON						
Modo de entrada analógica	0 ... 10 V			OFF	OFF				
	0 ... 20 mA			ON	OFF				
	4 ... 20 mA			OFF	ON				
	no admitido			ON	ON				
Modo de control de la aplicación tecnológica	0 (modo local)					OFF	OFF	OFF	
	10 (Bornes 0)					ON	OFF	OFF	
	12 (Bornes 2)					OFF	ON	OFF	
	14 (Bornes 11)					ON	ON	OFF	
	16 (Bornes 16)					OFF	OFF	ON	
	reservado					ON	OFF	ON	
	reservado					OFF	ON	ON	
	40 (MCI)					ON	ON	ON	
reservado	-								OFF

Modos de control DIP2/5-7	Descripción (Dlx → High)
9 (Modo local)	El control de la aplicación tecnológica se efectúa localmente a través de elementos del convertidor y de bornes de entrada digitales:  Al activar la red, el motor arranca automáticamente si el RFR está puenteado o puesto. DI1 Valor de preajuste de P2 (velocidad) DI2 Valor de preajuste fijo 2 Valor de preajuste fijo 3 DI3 Activar el freno por inyección continua DI4 Cambio de dirección de giro (no permitida, si DIP1/2 = está encendido (izquierda)) DI5 Desbloquear manualmente el freno de parada (modo de funcionamiento según ajuste C02580)
10 (Bornes 0)	El control de la aplicación tecnológica se efectúa a través de bornes de entrada digitales del convertidor: DI1 Valor de preajuste fijo 1 DI2 Valor de preajuste fijo 2 Valor de preajuste fijo 3 DI3 Activar el freno por inyección continua DI4 Cambio de dirección de giro DI5 Desbloquear manualmente el freno de parada (modo de funcionamiento según ajuste C02580)
12 (Bornes 2)	El control de la aplicación tecnológica se efectúa a través de bornes de entrada digitales del convertidor: DI1 Valor de preajuste fijo 1 DI2 Valor de preajuste fijo 2 Valor de preajuste fijo 3 DI3 Parada rápida DI4 Cambio de dirección de giro DI5 Desbloquear manualmente el freno de parada (modo de funcionamiento según ajuste C02580)
14 (Bornes 11)	El control de la aplicación tecnológica se efectúa a través de bornes de entrada digitales del convertidor: DI1 Cambio de dirección de giro DI2 Activar el freno por inyección continua DI3 Potenciómetro del motor: velocidad superior DI4 Potenciómetro del motor: velocidad inferior DI5 Desbloquear manualmente el freno de parada (modo de funcionamiento según ajuste C02580)

Modos de control DIP2/5-7	Descripción (Dlx → High)	
16 (Bornes 16)	El control de la aplicación tecnológica se efectúa a través de bornes de entrada digitales del convertidor:	
	DI1	Valor de preajuste fijo 1
	DI2	Valor de preajuste fijo 2
	Valor de preajuste fijo 3	
	DI3 Giro a la derecha/parada rápida	
	DI4 Giro a la izquierda/parada rápida	
	DI5 Desbloquear manualmente el freno de parada (modo de funcionamiento según ajuste C02580)	
40 (MCI)	El control de la aplicación tecnológica se efectúa por comunicación de bus de campo:	
	En función de la unidad de comunicación existente	

Ajustes con P2(Ajuste de Lenze **negrita**)

Con P2 se ajusta en 10 niveles la velocidad nominal del motor porcentual a la velocidad de referencia en C00011 (valor de preajuste fijo de velocidad). El valor de preajuste fijo solo se activa si la entrada DI1 se ajusta en "Local mode" (modo local).

P2	Ajuste									
Descripción	0	1	2	3	4	5	6	7	8	9
Velocidad del motor en porcentaje de ajuste de la velocidad de referencia C00011 [%]	0	11	22	33	44	55	66	77	88	100

Ajustes con P3(Ajuste de Lenze **negrita**)

Con P3 se ajusta el tiempo de arranque y de vencimiento del motor.

P3	Ajuste									
Descripción	0	1	2	3	4	5	6	7	8	9
Tiempo de arranque y de vencimiento del motor en segundos [s]	0.1	0.5	1	2	5	10	20	30	60	120

Ajustes con P1(Ajuste de Lenze **negrita**)

Durante el funcionamiento puede ajustar la velocidad del motor con progresión continua porcentual a la velocidad de referencia en C00011, siempre que no haya ningún valor de preajuste fijo de velocidad P2 activo a través de DI1.

Retirar la tapa para poder ajustar el potenciómetro P1.

- Volver atornillar la tapa después del ajuste para garantizar el grado de protección del convertidor.

P1	Ajuste		
Descripción	0	...	9
Velocidad del motor en porcentaje de velocidad nominal C00011 [%]	0	...	100

5.2

Interrupitor DIP / asignación Poti 1

(a partir de la versión de software 07.00.00)

Ajustes con DIP1

(Ajuste de Lenze **negrita**)

DIP1		Interrupitor							
Descripción		1	2	3	4	5	6	7	8
DIP1, DIP2, P1, P2, P3	activo	ON							
	inactivo	OFF							
Potencia del motor	Potencia del motor > potencia del inversor		ON						
	Potencia del motor = potencia del inversor		OFF						
Regulación	VFCplus eco:			ON					
	VFCplus linear:			OFF					
Control del freno / agarre	Control del freno desactivado, agarre desactivado				OFF	OFF			
	Control del freno desactivado, agarre activado				ON	OFF			
	Control del freno automático horizontal, agarre desactivado				OFF	ON			
	Control del freno automático vertical, agarre desactivado				ON	ON			
Dirección de montaje del motor	invertido						ON		
	no invertido						OFF		
Función P1	Valor de preajuste fijo 3 siempre se describe con P1							ON	
	Valor de preajuste fijo 3 se describe una vez al activar la red con P1							OFF	
Cargar los parámetros tras la activación de la red	Cargar los parámetros del módulo de memoria								ON
	Cargar los parámetros del ajuste de Lenze								OFF

Ajustes con DIP2(Ajuste de Lenze **negrita**)

DIP2		Interrupor							
Descripción		1	2	3	4	5	6	7	8
Velocidad de referencia del motor / velocidad de referencia	50 Hz ∇ / 1500 min-1	OFF	OFF						
	60 Hz ∇ / 1800 min-1	ON	OFF						
	87 Hz Δ / 2610 min-1	OFF	ON						
	120 Hz ∇ / 3600 min-1	ON	ON						
Configuración de la aplicación	Velocidad del mando de accionamiento (1000)			OFF	OFF				
	Perfil AC-Drive (1100)			ON	OFF				
	Posicionamiento de desconexión (3000)			OFF	ON				
	reservado			ON	ON				
Modo de control de la aplicación tecnológica	0 (modo local)					OFF	OFF	OFF	
	10 (Bornes 0)					ON	OFF	OFF	
	12 (Bornes 2)					OFF	ON	OFF	
	14 (Bornes 11)					ON	ON	OFF	
	16 (Bornes 16)					OFF	OFF	ON	
	reservado					ON	OFF	ON	
	41 (interfaz AS)					OFF	ON	ON	
Selección del interruptor DIP / asignación Poti	Interruptor DIP / asignación Poti 0								OFF
	Interruptor DIP / asignación Poti 1								ON

Modos de control DIP2/5-7	Descripción (Dlx → High)	
9 (Modo local)	El control de la aplicación tecnológica se efectúa localmente a través de elementos del convertidor y de bornes de entrada digitales:	
	 Al activar la red, el motor arranca automáticamente si el RFR está puenteado o puesto.	
	DI1 Valor de preajuste de P2 (velocidad)	Valor de preajuste fijo 3
	DI2 Valor de preajuste fijo 2	
	DI3 Activar el freno por inyección continua	
	DI4 Cambio de dirección de giro (no permitida, si DIP1/2 = está encendido (izquierda))	
	DI5 Desbloquear manualmente el freno de parada (modo de funcionamiento según ajuste C02580)	
10 (Bornes 0)	El control de la aplicación tecnológica se efectúa a través de bornes de entrada digitales del convertidor:	
	DI1 Valor de preajuste fijo 1	Valor de preajuste fijo 3
	DI2 Valor de preajuste fijo 2	
	DI3 Activar el freno por inyección continua	
	DI4 Cambio de dirección de giro	
	DI5 Desbloquear manualmente el freno de parada (modo de funcionamiento según ajuste C02580)	
	12 (Bornes 2)	El control de la aplicación tecnológica se efectúa a través de bornes de entrada digitales del convertidor:
DI1 Valor de preajuste fijo 1		Valor de preajuste fijo 3
DI2 Valor de preajuste fijo 2		
DI3 Parada rápida		
DI4 Cambio de dirección de giro		
DI5 Desbloquear manualmente el freno de parada (modo de funcionamiento según ajuste C02580)		
14 (Bornes 11)		El control de la aplicación tecnológica se efectúa a través de bornes de entrada digitales del convertidor:
	DI1 Cambio de dirección de giro	
	DI2 Activar el freno por inyección continua	
	DI3 Potenciómetro del motor: velocidad superior	
	DI4 Potenciómetro del motor: velocidad inferior	
	DI5 Desbloquear manualmente el freno de parada (modo de funcionamiento según ajuste C02580)	

Modos de control DIP2/5-7	Descripción (Dlx → High)														
16 (Bornes 16)	El control de la aplicación tecnológica se efectúa a través de bornes de entrada digitales del convertidor: <table><tr><td>DI1</td><td>Valor de preajuste fijo 1</td><td rowspan="2">Valor de preajuste fijo 3</td></tr><tr><td>DI2</td><td>Valor de preajuste fijo 2</td></tr><tr><td>DI3</td><td colspan="2">Giro a la derecha/parada rápida</td></tr><tr><td>DI4</td><td colspan="2">Giro a la izquierda/parada rápida</td></tr><tr><td>DI5</td><td colspan="2">Desbloquear manualmente el freno de parada (modo de funcionamiento según ajuste C02580)</td></tr></table>	DI1	Valor de preajuste fijo 1	Valor de preajuste fijo 3	DI2	Valor de preajuste fijo 2	DI3	Giro a la derecha/parada rápida		DI4	Giro a la izquierda/parada rápida		DI5	Desbloquear manualmente el freno de parada (modo de funcionamiento según ajuste C02580)	
DI1	Valor de preajuste fijo 1	Valor de preajuste fijo 3													
DI2	Valor de preajuste fijo 2														
DI3	Giro a la derecha/parada rápida														
DI4	Giro a la izquierda/parada rápida														
DI5	Desbloquear manualmente el freno de parada (modo de funcionamiento según ajuste C02580)														
40 (MCI)	El control de la aplicación tecnológica se efectúa por comunicación de bus de campo: En función de la unidad de comunicación existente														

Ajustes con P2

(Ajuste de Lenze **negrita**)

Con P2 se pueden registrar distintos valores de preajuste fijos en C00039/1 y C00039/2.

P2		Ajuste									
Descripción		0	1	2	3	4	5	6	7	8	9
Valor de preajuste fijo 1 registrado en C00039/1	[%]	5	10	15	20	25	30	35	40	45	50
Valor de preajuste fijo 2 registrado en C00039/2	[%]	10	20	30	40	50	60	70	80	90	100

Ajustes con P3

(Ajuste de Lenze **negrita**)

Con P3 puede registrar diferentes tiempos de arranque/vencimiento en C00012/C00013 con distintos tiempos de vencimiento para la parada rápida en C00105.

P3		Ajuste									
Descripción		0	1	2	3	4	5	6	7	8	9
Registrar tiempo de arranque/vencimiento en C00012/C00013	[s]	0.1	0.5	0.7	1	1.5	2	5	10	30	60
Parada rápida del tiempo de vencimiento registrado en C00105	[s]	0.1	0.2	0.5	0.7	1	1.5	2	5	10	30

Ajustes con P1

(Ajuste de Lenze **negrita**)

Con P1 registra un valor de preajuste fijo de velocidad en C00039/3. En función de la posición del interruptor DIP1/7 se describe C00039/3 una vez al activar la red o de forma permanente.

Retirar la tapa para poder ajustar el potenciómetro P1.

- Volver atornillar la tapa después del ajuste para garantizar el grado de protección del convertidor.

P1		Ajuste		
Descripción		0	...	9
Valor de preajuste fijo 3 registrado en C00039/3	[%]	0	...	100

5.3 Interruptor DIP / asignación Poti 2

(a partir de la versión de software 09.00.00)

Los equipos con la denominación de tipo E84DGDVBxxx4xxP sólo disponen de posibilidades de configuración mediante potenciómetro P1.

Ajustes con P1

(Ajuste de Lenze **negrita**)

Con P1 registra un valor de preajuste fijo de velocidad en C00039/3. C00039/3 es descrito de manera continua.

Retirar la tapa para poder ajustar el potenciómetro P1.

- Volver atornillar la tapa después del ajuste para garantizar el grado de protección del convertidor.

P1	Descripción	Ajuste		
		0	...	9
	Valor de preajuste fijo 3 registrado en C00039/3 [%]	0	...	100

6**Puesta en marcha****6.1****Antes de la primera conexión**

- ▶ La unidad de cableado está montada y cableada según las instrucciones,
 - directamente en la brida de apriete del motor o
 - con el adaptador para pared en una superficie adecuada cerca del motor.
- ▶ Las conexiones con la red, el motor, los frenos de parada, etc. están establecidas.
- ▶ La unidad de comunicación está montada y cableada según la aplicación prevista.
 - Señales de entrada y salida
 - Entrada segura
 - Bus de campo(dependiendo de la versión puede que solo sea opcional)
- ▶ En caso de ser necesario, se han realizado las configuraciones básicas para el "Modo local".
 - Interruptor DIP
 - Potenciómetro
- ▶ La unidad de accionamiento está montada y atornillada.
- ▶ Utilizar las funciones de control disponibles de manera adecuada, p.e.
 - Inhibir la habilitación del convertidor
 - Configurar la velocidad a un mínimo
 - Activar configuración de seguridad
- ▶ El uso de una resistencia de frenado ha sido comprobado.
 - Para los equipos E84DGDVB4024 ... 7524 (4 ... 7,5 kW) con cargas dinámicas o en condiciones de regulación difíciles, se recomienda utilizar siempre una resistencia de frenado interna E84DZEW47R0001.



¡Peligro!

Mayor potencial de peligro durante la puesta en marcha

Configuraciones incorrectas pueden causar movimientos inesperados y peligrosos del motor y la instalación.

Posibles consecuencias:

- ▶ Daños materiales
- ▶ Daños personales

Medidas de protección:

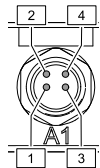
- ▶ Abandonar la zona de peligro
- ▶ Respetar todas las normas y distancias de seguridad

6.2 Pasos de la puesta en marcha

Proceda paso a paso:

- ▶ Conectar la red
- ▶ Supervisar la visualización de estado
 - Una vez transcurrido un breve período de inicialización, la visualización debe parpadear en verde.
- ▶ Desactivar los requisitos de la función de seguridad
- ▶ Aplicar la habilitación del convertidor
 - El motor debe girar a la velocidad ajustada una vez transcurrido el período de arranque configurado.
- ▶ Primera comprobación del comportamiento específico esperado:
 - ¿Dirección de giro?
 - ¿Período de arranque?
 - ¿Velocidad?
 - ¿Regulación de velocidad?
- ▶ Comprobación de funciones de control opcionales:
 - ¿Funciona la especificación análoga del valor de preajuste?
 - ¿Funcionan las señales digitales, p. ej., el indicador de final de carrera?
 - ¿Funciona el freno de parada del motor conectado?
 - ¿Funciona el cambio de dirección de giro?
 - ¿Funcionan los requisitos de la función de seguridad?
 - ¿Funcionan las señales de control a través del bus de campo?
- ▶ Apagar el accionamiento
 - Reducir la velocidad
 - Inhibir la habilitación del convertidor
 - Desconectar la red

Dependiendo del sistema de bus de la unidad de comunicación, los estados son señalizados mediante LEDs. Encontrará información detallada en el manual de comunicaciones del sistema de bus utilizado.

LED		1 (green)	2 (green)	3 (red)	4 (red)
	PROFIBUS	BUS STATE	MODULE STATE	BUS ERROR	MODULE ERROR
	AS-i	SLAVE 1 READY	SLAVE 2 READY	SLAVE 1 ERROR	SLAVE 2 ERROR
	EtherCAT	RUN	LINK/ACTIVITY	ERROR	LINK/ACTIVITY (green)
	PROFINET	BUS READY	LINK/ACTIVITY 1 (yellow)	BUS ERROR	LINK/ACTIVITY 2 (yellow)
	EtherNet/IP	MODULE STATE		NETWORK STATE	
E84DG056_b			(red)	(green)	

6.3 Puesta en marcha con terminal manual

Con el terminal manual X400 puede ajustar rápida y fácilmente los parámetros y hacer que se muestren los valores reales actuales y los estados del equipo a través de los parámetros de visualización correspondientes. El terminal manual debe introducirse a la interfaz de diagnóstico X70 por la parte superior del equipo.

**¡Peligro!****Posibles movimientos de motor no controlados**

Generalmente, la modificación de los parámetros conlleva una reacción inmediata del convertidor.

Posibles consecuencias:

- En caso de que el convertidor esté habilitado, se pueden producir comportamientos inesperados del eje del motor.

Medidas de protección:

- Efectuar las modificaciones en pequeños pasos y esperar para comprobar cómo reaccionan.
- Se producen excepciones en ciertos comandos del equipo o en la configuración que podrían llevar el comportamiento de accionamiento a un estado crítico. Tales modificaciones de parámetros se permiten únicamente con el convertidor bloqueado, de lo contrario aparecerá un mensaje de error apropiado.

**¡Aviso!**

El terminal manual debe conectarse y desconectarse durante el funcionamiento.



Para obtener más información...

Puede obtener información detallada sobre el terminal manual en las instrucciones de funcionamiento del teclado y del terminal manual X400.

6.3.1 Estructura de menú

El menú principal del terminal manual contiene los elementos siguientes:

Elemento de menú	Función	
Menú de usuario	Visualización de una selección de parámetros necesarios de uso frecuente	
Lista de código	Visualización de la lista de parámetros con todos los parámetros	
Ir a parámetro	Activa un parámetro concreto directamente	
Transferencia de parámetro		
Configuración del menú de usuario		
Teclado		

6.3.2 Menú de usuario

El menú de usuario se puede configurar en C00517 libremente y contiene los siguientes parámetros en los ajustes de Lenze:

Parámetro	Nombre	Información	Ajuste de Lenze
C00011	Apl.: velocidad de referencia	Ajuste de la velocidad de referencia	1500 min-1
C00012	Valores de preajuste principal del tiempo de arranque	Bloque de funciones L_NSet_1: tiempo de arranque del generador de rampa del valor de preajuste principal de velocidad	2,0 s
C00013	Valores de preajuste principal del tiempo de vencimiento	Bloque de funciones L_NSet_1: tiempo de vencimiento del generador de rampa del valor de preajuste principal de velocidad	2,0 s
C00015	VFC: Frecuencia nominal U/f	Frecuencia nominal U/f para la regulación del motor VFCplus	50 Hz
C00016	VFC: Aumento U _{min}	Aumento de la línea característica de tensión U/f del área de velocidades reducidas o de frecuencias para la regulación del motor VFCplus	2,6 %
C00022	I _{max} motriz	Corriente motriz máxima para todo tipo de regulaciones de motor	5,8 A
C00039/1	Valor de preajuste fijo 1 (L_NSet_1 n-Fix)	Bloque de funciones L_NSet_1: valor de preajuste fijo de velocidad (valores jog) para el generador de preajuste Valor de preajuste fijo 1	40,0 %
C00039/2	Valor de preajuste fijo 2	Valor de preajuste fijo 2	60,0 %
C00051	MCTRL: valor real de velocidad	Valor real de velocidad del motor	—
C00053	Voltaje del DC bus	Voltaje actual del DC bus	—

Parámetro	Nombre	Información	Ajuste de Lenze
C00054	Corriente del motor	Corriente actual del motor o corriente de salida del convertidor	—
C00061	Temperatura del radiador	Temperatura del radiador actual	—
C00087	Velocidad nominal del motor	Este valor debe tomarse de las características técnicas del motor. Una vez seleccionado el motor utilizado del catálogo de motores se puede introducir el valor adecuado automáticamente.	1320 min-1
C00099	Versión de firmware	Versión de firmware del equipo como cadena de caracteres	—
C00105	Parada rápida del tiempo de vencimiento	El tiempo de vencimiento ajustado determina la conductancia de la rampa en la parada rápida	5,0 s
C00120	Umbral de sobrecarga del motor (I ² xt)	Umbral de respuesta para el mensaje de error "OC6: sobrecarga del motor (I ² xt)"	100 %
C00137	Estado del equipo	Estado actual del equipo	—
C00166/3	Meld.Zust.Fehler	Mensaje de texto del próximo error	—
C00173	Voltaje de red	Selección del voltaje de red utilizado con el que opera el equipo.	0: "3ph 400 V"
C00200	Tipo de producto de firmware		—

— Solo visualización

6.3.3 Pasos para la puesta en marcha



¡Aviso!

En la interfaz de diagnóstico X70 se pueden conectar:

- ▶ Adaptador de diagnóstico USB (E94AZCUS)
- ▶ Terminal manual X400 (EZAEBK200x)
 - Las funciones del terminal manual y del teclado X400 (EZAEBK100x) son idénticas.

Para el accionamiento, solo es preciso ajustar unos cuantos parámetros. Posteriormente, se puede controlar de forma inmediata la aplicación de accionamiento en el modo de control preestablecido "Bornes 0" a través de las entradas analógicas y digitales. En el modo de control "teclado" puede utilizarse de forma alternativa el teclado para especificar los valores de preajuste necesarios y las señales de control.

Proceda de la manera siguiente:

1. Conectar las conexiones de potencia.
 - Siga las instrucciones para el montaje del convertidor adjuntas para ayudarlo a efectuar correctamente las conexiones de potencia de acuerdo con los requisitos de su equipo.
2. Conectar las conexiones de control.
 - La conexión preconfigurada I/O se puede modificar a través de los parámetros de configuración. Consulte el capítulo «Conexión de los terminales definida por el usuario».
 - Asignación en el modo de control preajustado "Bornes 0":

6 Puesta en marcha

Puesta en marcha con terminal manual

Pasos para la puesta en marcha

Borne	Función		Información
A1U	Especificación de valor de preajuste		10 V ≡ 1500 min-1 (en motor de 4 polos) general: 10 V ≡ 100 % de la velocidad de referencia (C00011)
DI1	JOG 1	JOG 3	Selección de valores de preajuste fijos 1... 3 Si ambas entradas se encuentran a nivel LOW, el valor de preajuste está activo mediante la entrada analógica A1U.
DI2	JOG 2		
DI3	FICC		Frenado por inyección de corriente continua manual (FICC) - En caso de entradas de nivel HIGH activas, el frenado por inyección de corriente continua está activo siempre que el DI3 se encuentre en nivel HIGH. - Después del tiempo de espera (C00107), el inhibidor de impulsos del regulador (IIR). frenado por inyección de corriente continua(► I 110)
DI4	D/I		Nivel LOW: giro a la derecha Nivel HIGH: giro a la izquierda
DI5	Freno de parada		Abrir/cerrar freno de parada Modos de frenado C02580

3. Controlar el interruptor de la parte inferior de la unidad de accionamiento: DIP1/1 debe estar en posición "OFF" (ajuste de Lenze), para que así sea posible sobrescribir los parámetros mediante la función "Engineer", a través del teclado o del bus de campo.
4. Para la comunicación del bus de campo se toman los ajustes de comunicación necesarios, en su caso, con el interruptor DIP en la unidad de comunicación.
Los ajustes de comunicación dependen del bus de campo utilizado.
5. Fijar el convertidor con cuatro tornillos.
6. Encender el voltaje de alimentación del convertidor.
7. Conectar el teclado.
 - Retirar la tapa de la interfaz de diagnóstico de la parte superior del equipo y conectar el teclado a la interfaz de diagnóstico.
 - Después de fijar el teclado se establece la conexión con el convertidor. El proceso se completa cuando C00051 aparece en la pantalla.

Visualización del teclado	Acción
MCTRL: Act speed val. C00051 0 rpm	Cambiar con el botón de función izquierdo  del menú principal.

8. Cargar el ajuste del convertidor.

- Para ello, dispone del comando de equipo "Cargar configuración Lenze" que se puede ejecutar a través del código C00002/1 con el teclado:



¡Aviso!

Con el comando "Cargar configuración Lenze" se sobrescriben los valores modificados anteriormente. Se restablecen los preajustes para un motor específico, por ejemplo, a cargo de Lenze, si se incorpora en un motor reductor.

Visualización del teclado	Acción
Par1 8400 motec Menú de usuario	A Elegir el menú con el botón de navegación  del menú principal. B Cambiar con el botón de navegación  del menú.
Cargar ajuste de Lenze <i>C00002/1</i>	A Cambiar a C00002/1 con el botón de función izquierdo Edit del menú de edición. B Con el botón de navegación  seleccione el registro "1: On/Start" de la lista de selección. C Con el botón de función OK acepte la modificación efectuada y abandone el modo de edición. – El proceso de carga puede durar unos segundos.

9. Habilitar el convertidor: ponga el borne RFR en la posición HIGH.
- En el momento de la entrega, el borne RFR está puenteado (convertidor habilitado).
 - Si la opción autoinicio en C00142 "Bloqueo en el equipo" está activa y el convertidor se encuentra habilitado al activar la red, el convertidor permanece en el estado "ReadyToSwitchOn". Para efectuar un cambio en el estado "SwitchedOn" primero se debe inhabilitar el convertidor. Solo se debe cambiar posteriormente volviendo a habilitar el convertidor en el estado "OperationEnabled".
 - Si en el C00142 la opción de autoinicio "Bloqueo en el equipo" está desactivada, una vez activada la red y directamente con el convertidor habilitado, se cambiará del estado "ReadyToSwitchOn" al estado "SwitchedOn" y posteriormente a "OperationEnabled".



¡Peligro!

Si la opción de autoinicio "Bloqueo en el equipo" está desactivada, el motor puede ponerse en marcha directamente con el convertidor habilitado una vez activada la red.

10. Especificar la velocidad:
- En el modo de control "Bornes 0" especificando una tensión en la entrada analógica o seleccionando el valor de preajuste fijo a través de las entradas digitales DI1/DI2.
 - En el modo de control "Teclado" se efectúa la especificación del valor de preajuste principal de la velocidad y las señales de control a través de los parámetros siguientes:

Parámetro	Nombre	Información	Ajuste de Lenze
C00728/3	nMainSetValue_a	Valor de preajuste principal para la aplicación 100 % ≡ Velocidad de referencia (C00011)	0,00 %
C00727/3	bSetSpeedCcw	Cambio de dirección de giro "0": giro a la derecha "1": giro a la izquierda	0
C00727/4	bJogSpeed1	Selección valor de preajuste fijo 1 "0": valor de preajuste principal (C00728/3) activo. "1": valor de preajuste fijo 1 (C00039/1) activo.	0

11. Ajustar los parámetros en caso necesario.

12. Guardar los ajustes de parámetros con el botón de función **SAVE** a prueba de fallo de corriente en el módulo de memoria.

6.3.4 Modo SET

En el modo SET se controla el convertidor a través del terminal manual. Puede modificar el valor de preajuste de velocidad y habilitar el convertidor o bloquearlo (RFR/run). Se ignorarán otras fuentes de valor de preajuste.

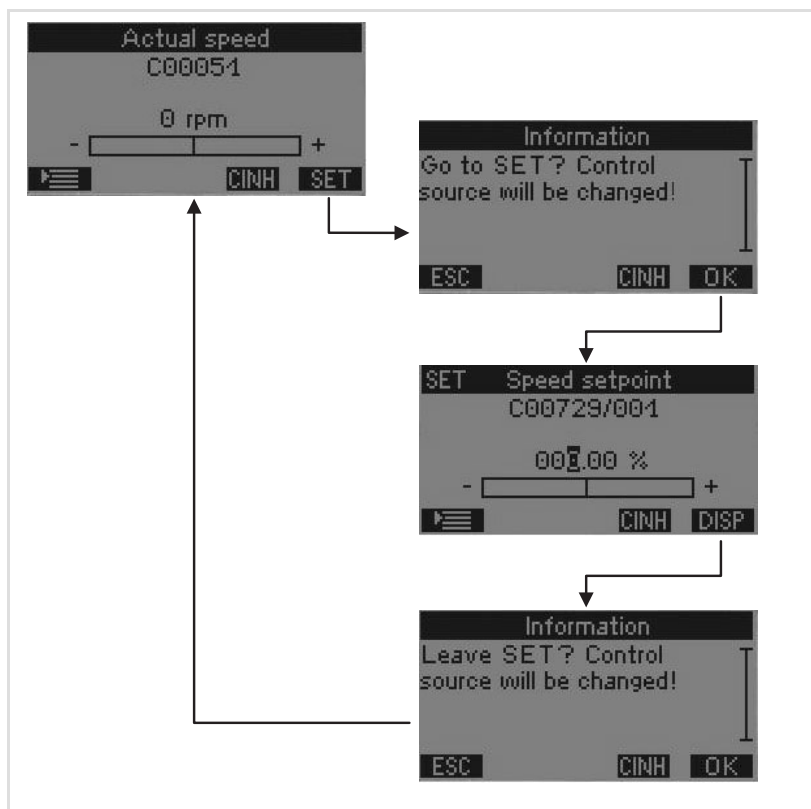
- Activar el modo SET: pulsar la tecla programable "DISP" y confirmar con la tecla programable "Aceptar".
- Abandonar el modo SET: pulsar la tecla programable "DISP" y confirmar con la tecla programable "Aceptar".



¡Aviso!

El modo SET solo se puede activar en el estado de equipo "OperationEnabled" (el bloqueo del regulador está desactivado, el LED verde del convertidor está activo de forma permanente).

- El bloqueo del regulador solo se señala en el teclado. En C00158 se muestra la causa del bloqueo del regulador en detalle (Manual de referencia 8400 motec).



7 Parametrización

Con la configuración de parámetros se pueden ajustar diferentes requisitos de aplicaciones del convertidor de forma óptima.

La configuración de parámetros se puede efectuar de los modos siguientes:

Configuración de parámetros con L-force "Engineer"

- ▶ Ajustes detallados en línea a través del software
 - La configuración segura de parámetros es compatible con el software para PC de Lenze "Engineer", a partir de la versión 02.23.
 - La configuración de parámetros se describe en el manual del software del módulo de seguridad SM302.
 - Software requerido y adaptador de diagnóstico USB.

Configuración de parámetros con terminal manual/teclado

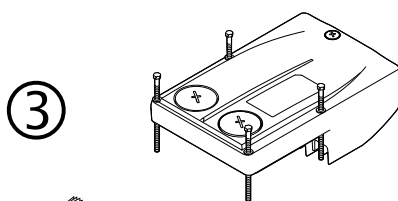
- ▶ Ajuste de parámetros concretos por usuarios experimentados
 - Requiere un terminal manual adecuado para 8400 motec
 - La configuración de parámetros se describe en las instrucciones de funcionamiento EZAEBK000X del teclado 400.



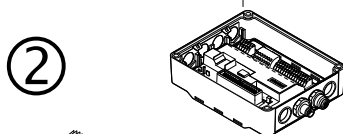
¡Aviso!

Guardar la configuración de parámetros de manera remanente

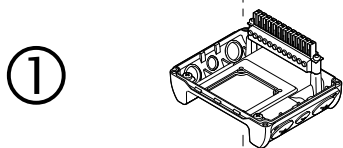
Para que las configuraciones realizadas en los parámetros no se pierdan en caso de un fallo de red, el registro de parámetros deberá guardarse en el equipo explícitamente de manera remanente.



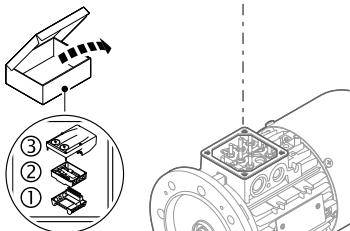
EDK84DGDVBxxx4



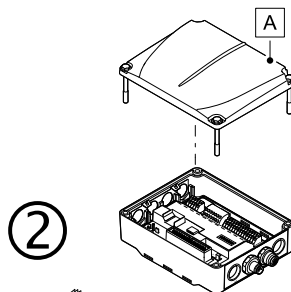
EDK84DGFCxxx



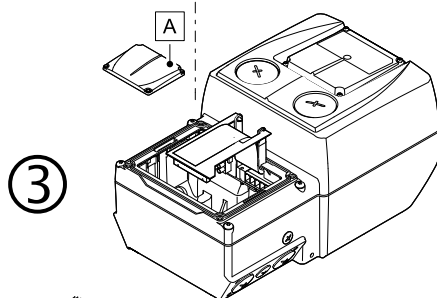
EDK84DGVNxE



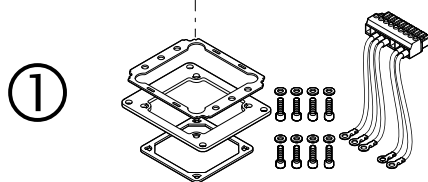
E84DG023a



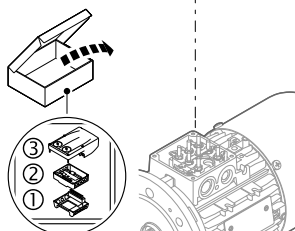
EDK84DGFCxxx



EDK84DGDVBxxx4



EDK84DGVN4E



E84DG023b

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1

Informazioni sul manuale

1.1

Cronologia del documento

Numero documento	Versione			Descrizione
13546838	8.3	01/2019	TD15	DE/EN/FR/ES/IT (solo PDF)
13546836	8.2	12/2018	TD15	Integrazione delle descrizioni della funzione
13546838	8.1	12/2017	TD15	DE/EN/FR/ES/IT (solo PDF)
13546836	8.0	12/2017	TD15	Integrazione delle descrizioni della funzione Correzioni UL
13523272	7.1	12/2016	TD29	DE/EN/FR/ES/IT (solo PDF)
13523101	7.0	11/2016	TD29	Integrazione delle descrizioni della funzione, correzioni errori, revisione della struttura dle documento
13482775	6.1	02/2015	TD29	DE/EN/FR/ES/IT (solo PDF)
13478084	6.0	12/2014	TD15	Correzioni UL
13410321	5.3	07/2014	TD15	DE/EN/FR/ES/IT (solo PDF)
13410320	5.2	07/2014	TD15	Avvertenze UL in lingua francese per il Canada Conformità EAC
13410321	5.1	06/2012	TD15	correzioni generali DE/EN/FR/ES/IT (solo PDF)
13410320	5.0	06/2012	TD15	Correzioni generali
13392616	4.1	12/2011	TD15	Espansione 4 ... 7.5 kW, DE/EN/FR/ES/IT (solo PDF)
13392614	4.0	11/2011	TD15	Espansione 4 ... 7.5 kW
13373549	3.0	04/2011	TD15	Espansione 2.2 ... 3 kW, PROFINET, EtherCAT
13371646	2.0	02/2011	TD15	Correzioni generali
13336813	1.5	09/2010	TD15	Prima edizione DE/EN/FR/ES/IT (solo PDF)
13336813	1.0	08/2010	TD15	Prima edizione DE/EN



Suggerimento:

Per informazioni e ausili sui prodotti Lenze, consultare l’area
Download all’indirizzo

www.lenze.com

1.2 A chi è rivolto

La presente documentazione si rivolge al personale tecnico specializzato secondo la norma IEC 60364.

Per personale tecnico qualificato si intendono persone dotate delle necessarie qualifiche per lo svolgimento delle attività di preparazione, montaggio, messa in servizio e funzionamento del prodotto.

1.3

Informazioni sulla validità

Queste istruzioni sono valide per unità di controllo 8400 motec con il codice di identificazione:

Codice di identificazione	a partire da HW	a partire da SW
E84DGDVBxxx4	VA	01.00

Maggiori informazioni sul codice di identificazione sono a disposizione nel capitolo descrizione prodotto nel manuale hardware 8400 motec. (📖 EDS84DG752)

1.4

Convenzioni utilizzate

La presente documentazione utilizza le seguenti convenzioni tipografiche per distinguere i diversi tipi di informazioni:

Tipo di informazione	Convenzione tipografica	Esempi/Note
Modalità di scrittura dei numeri		
Separatore decimali	Punto	Si utilizza in generale il punto come separatore dei decimali. Esempio: 1234.56
Avvertenze		
Avvertenze UL		Vengono riportate in inglese e francese.
Avvertenze UR		
Evidenziazioni nel testo		
Nome di programma	» «	Software per PC Ad esempio: »Engineer«, »Global Drive Control« (GDC)
Simboli		
Riferimento a una pagina		Riferimento ad un'altra pagina contenente informazioni aggiuntive Ad esempio:  16 = vedere pagina 16
Riferimento ad altra documentazione		Riferimento ad altra documentazione contenente informazioni aggiuntive Ad esempio:  EDKxxx = vedere il documento EDKxxx

1.5 Avvertenze utilizzate

Per segnalare pericoli ed informazioni importanti, nella presente documentazione sono riportati i seguenti simboli e parole di segnalazione:

Note di sicurezza

Struttura delle note di sicurezza:

**Pericolo!**
(indica il tipo e la gravità del pericolo)
Testo della nota
(descrive il pericolo e fornisce indicazioni su come può essere evitato)

Simbolo e parola di segnalazione	Significato
 Pericolo!	Pericolo di danni alle persone dovuti a tensione elettrica Segnala una situazione di pericolo che può provocare morte o gravi lesioni se non vengono osservate le necessarie misure precauzionali.
 Pericolo!	Pericolo di danni alle persone dovuti a una fonte generica di pericolo Segnala una situazione di pericolo che può provocare morte o gravi lesioni se non vengono osservate le necessarie misure precauzionali.
 Stop!	Pericolo di danni materiali Segnala un possibile pericolo che può provocare danni materiali se non vengono osservate le necessarie misure precauzionali.

Note di utilizzo

Simbolo e parola di segnalazione	Significato
 Avvertenza:	Avvertenza importante per assicurare un corretto funzionamento dell'apparecchiatura
 Suggerimento:	Utile suggerimento per un più semplice utilizzo
	Rimando ad altra documentazione

Note di sicurezza e istruzioni d'uso speciali

Simbolo e parola di segnalazione	Significato
 Warnings!	Nota di sicurezza o istruzioni d'uso per il funzionamento secondo i requisiti UL o CSA.
 Warnings!	Le misure sono necessarie per soddisfare i requisiti della normativa UL o CSA.

2 Istruzioni di sicurezza

2.1 Note di sicurezza generali



Pericolo!

Tensione elettrica pericolosa

- I collegamenti di potenza presentano una tensione elettrica pericolosa fino a 3 minuti dopo la disinserzione della rete.

Possibili conseguenze:

- Morte o gravi lesioni in caso di contatto con i collegamenti di potenza.

Misure di protezione:

- Attendere almeno 3 minuti prima di eseguire qualsiasi intervento sui collegamenti di potenza.
- Controllare tutti i collegamenti di potenza per accertare l'assenza di tensione.

Simboli di avvertenza

Simbolo	Descrizione
	Tempo di scaricamento prolungato: Fino a 3 minuti dopo la disinserzione della rete, tutti i morsetti di potenza conducono ancora una tensione pericolosa.
	Alta corrente dispersa: Eseguire una installazione fissa e il collegamento PE secondo EN 61800-5-1.
	Componenti sensibili a cariche elettrostatiche: Prima di eseguire interventi sul dispositivo, il personale deve adottare le necessarie misure per liberarsi dalle cariche elettrostatiche.
	Superficie ustionante: Indossare l'equipaggiamento di protezione personale o attendere il raffreddamento della superficie.

Osservare anche le ulteriori informazioni importanti relative a installazione e sicurezza incluse nel CD-ROM allegato!

2.2

Informazioni sulla sicurezza per l'installazione secondo UL/CSA

Originale - Inglese

**Warnings!**

- ▶ Use Class 1 wire only.
- ▶ Intended for use with 75 °C wire.
- ▶ Intended for use with copper conductors only.
- ▶ Suitable for use in a surrounding air temperature of 45 °C, and
 - additionally 55 °C when de-rating rules are followed.
- ▶ Hot surface. Risk of burn.
- ▶ Should this device be mounted on a motor, the combination needs to be suitable for the type rating.
- ▶ The supply terminals are to be tightened to:
 - For model suffix's 371, 551, 751, 112, 152 tighten to 4.4 - 5.3 lb-in.
 - For model suffix's 222, and 302, tighten to 7 lb-in.
- ▶ These devices are suitable for use on a circuit capable of delivering not more than 200 000 rms Symmetrical Amperes, 480 V maximum
 - When protected by CC, R, T, or J class fuses or
 - When protected by a circuit breaker having an interrupting rating not less than 200 000 rms symmetrical amperes, 480 V maximum.
- ▶ These devices are suitable for motor group installation on a circuit capable of delivering not more than 200 000 rms Symmetrical Amperes, 480 V maximum
 - When protected by CC, R, T, or J class fuses or
 - When protected by a circuit breaker having an interrupting rating not less than 200 000 rms symmetrical amperes, 480 V maximum.
- ▶ Use fuses and circuit breakers only.

...



Warnings!

...

- ▶ Integral solid state short circuit protection does not provide branch circuit protection. Branch circuit protection must be provided in accordance with the National Electrical Code and any additional local codes.
- ▶ The opening of branch circuit protective devices may be an indication that a fault current has been interrupted. To reduce the risk of fire or electric shock, current carrying parts and other components, the controller should be examined and replaced if damaged.
- ▶ These devices provide overload protection rated for 125 % of the rated FLA.

CAUTION!

- ▶ Risk of electric shock. Please allow 180 s for the internal capacitors to discharge.

Informazioni sulla sicurezza per l'installazione secondo UL/CSA**Originale - Francese****Avertissements !**

- ▶ Utiliser exclusivement des conducteurs Class 1.
- ▶ Utiliser des conducteurs 75 °C.
- ▶ Utiliser exclusivement des conducteurs en cuivre.
- ▶ Convient à une utilisation à une température ambiante maximale de 45 °C ainsi que
 - 55 °C en cas d'application des règles de réduction de puissance.
- ▶ Température élevée en surface. Risque de brûlure.
- ▶ En cas de montage de l'équipement sur le moteur, la combinaison doit être conforme à la qualification du type.
- ▶ Couples de serrage des bornes réseau :
 - Pour les types contenant le suffixe 371, 551, 751, 112, 152 : 0,5 à 0,6 Nm.
 - Pour les types contenant le suffixe 222 et 302 : 0,8 Nm.
- ▶ Convient aux circuits non susceptibles de délivrer plus de 200 000 ampères symétriques eff., maximum 480 V
 - Protection par des fusibles CC de calibre R, T ou J ; ou
 - Protection par disjoncteur à pouvoir de coupure nominal d'au moins 200 000 ampères symétriques eff., maximum 480 V.
- ▶ Convient aux installations de groupe moteur sur des circuits non susceptibles de délivrer plus de 200 000 ampères symétriques eff., maximum 480 V
 - Protection par des fusibles CC de calibre R, T ou J ; ou
 - Protection par disjoncteur à pouvoir de coupure nominal d'au moins 200 000 ampères symétriques eff., maximum 480 V.
- ▶ Utiliser exclusivement des fusibles et des disjoncteurs.

...



Avertissements !

...

- ▶ La protection statique intégrée n'offre pas la même protection qu'un disjoncteur. Une protection par disjoncteur externe doit être fournie, conformément au National Electrical Code et aux autres dispositions applicables au niveau local.
- ▶ Le déclenchement des dispositifs de protection du circuit de dérivation peut être dû à une coupure qui résulte d'un courant de défaut. Pour limiter le risque d'incendie ou de choc électrique, examiner les pièces porteuses de courant et les autres éléments du contrôleur ; les remplacer s'ils sont endommagés.
- ▶ Ces équipements intègrent une protection contre les surcharges conçue pour se déclencher à 125 % de l'intensité assignée à pleine charge.

ATTENTION !

- ▶ Risque de choc électrique. Patientez 180 s pour permettre aux condensateurs internes de se décharger.

3

Dati tecnici

3.1

Dati generali e condizioni di impiego

Conformità e omologazione			
Conformità			
CE	2014/35/CE	Direttiva Bassa Tensione	
EAC	TP TC 004/2011 (TR ZU 004/2011)	Informazioni sulla sicurezza dei dispositivi a bassa tensione	Conformità euroasiatica TR ZU: Regolamento tecnico dell'unione doganale
EAC	TP TC 020/2011 (TR ZU 020/2011)	Compatibilità elettromagnetica degli apparecchi tecnici	Conformità euroasiatica TR ZU: Regolamento tecnico dell'unione doganale
Omologazione			
UR	UL 508C	Power Conversion Equipment, File No. E170350	
cUR	C22.2 No 274-13		
Omologazione montaggio a parete			
cUL _{US}	UL 508C C22.2 No 274-13	Power Conversion Equipment, File No. E132659	
Protezione delle persone e protezione del dispositivo			
Grado di protezione		• Chiudere tutti i fori per pressacavo non utilizzati con tappi ciechi. • Chiudere tutti i connettori a innesto non utilizzati con calotte di protezione o connettori ciechi.	
	EN 60529	8400 motec Set Montaggio a parete senza interruttore	IP65
		Montaggio a parete con interruttore servizio / con interruttore di servizio ed elementi di comando	IP54
		Montaggio a parete con interruttore di servizio e funzione di protezione	IP64
	NEMA 250	8400 motec Set	Tipo 4X (per uso interno)
		Montaggio a parete senza interruttore 0.37 ... 3.0 kW 4.0 ... 7.5 kW	Tipo 12 Tipo 4X (per uso interno)

Protezione delle persone e protezione del dispositivo

		Montaggio a parete con interruttore	
		0.37 ... 3.0 kW	Tipo 12
Corrente di dispersione (a terra)	EN 61800-5-1	> 3,5 mA AC, > 10 mA DC	Rispettare le disposizioni e le informazioni sulla sicurezza.
Corrente di guasto complessiva		In reti TN possono essere impiegati i seguenti interruttori differenziali:	
Montaggio a motore		0.37 ... 3.0 kW	30 mA, tipo B
		4.0 ... 7.5 kW, $f_{ch} = 8/16$ kHz	30 mA, tipo B
		4.0 ... 7.5 kW, $f_{ch} = 4$ kHz	300 mA, tipo B
montaggio a parete e cavo di sistema Lenze ≤ 3 m		0.37 ... 3.0 kW	30 mA, tipo B
		4.0 ... 7.5 kW, $f_{ch} = 8/16$ kHz	30 mA, tipo B
		4.0 ... 7.5 kW, $f_{ch} = 4$ kHz	300 mA, tipo B
montaggio a parete e cavo di sistema Lenze > 3 m		0.37 ... 7.5 kW	300 mA, tipo B
Collegamento equipotenziale aggiuntivo		Filettatura M5 con morsetto nella WU per il collegamento di un cavo PE da 16 mm ²	
Isolamento dei circuiti di controllo	EN 61800-5-1	Separazione sicura dalla rete con isolamento doppio (rinforzato).	
Resistenza di isolamento	EN 61800-5-1	<2000 m sopra il livello del mare: categoria di sovratensione III	
		<2000 m sopra il livello del mare: categoria di sovratensione II	
Resistenza a cortocircuiti	EN 61800-5-1	Collegamento:	
		Motore	limitata, il controllo viene inibito, è richiesta la tacitazione dell'errore
		Freno di stazionamento del motore, resistenza di frenatura	no
		PTC, collegamenti di controllo	piena

Protezione delle persone e protezione del dispositivo			
Resistenza a dispersioni a terra	EN 61800-5-1	Collegamento:	
		Motore (con abilitazione controllo)	limitata, il controllo viene inibito, è richiesta la tacitazione dell'errore
		Motore (in funzione)	no
		Resistenza di frenatura, PTC	no
misure di protezione contro		• cortocircuito lato motore durante l'inserzione e durante il funzionamento • stallo del motore • sovratemperatura motore – ingresso per PTC o termocontatto – I²funzione di sorveglianza t	
riavvio ciclico		• Circuiti / minuti	3
		• circuiti / ora	max. 20
		• pausa circuito	Ad un collegamento della rete per tre volte in un minuto deve seguire una pausa circuito di 9 minuti.
Corrente d'inserzione		≤ 2 x I _N	
Condizioni di collegamento			
Collegamento rete			
Tipo di rete			
TT, TN (con punto neutro isolato)		Funzionamento consentito senza limitazioni.	
IT		Utilizzare le misure descritte per le reti IT (rimozione della vite IT). Spetta al costruttore della macchina/dell'impianto garantire la conformità ai requisiti EMC per l'emissione di disturbi (EN 61800-3) per la macchina/l'impianto. Non è consentito il funzionamento con tecnologia di sicurezza integrata.	
Collegamento motore			
Motori	EN 60034	Utilizzare solo motori idonei per il funzionamento con inverter. Resistenza di isolamento: min. ũ ≥1.5 kV, min. du/dt ≥5 kV/µs	
Lunghezza del cavo motore		< 20 m (cavo di sistema Lenze, schermato)	

Condizioni ambientali

Climatiche

Stoccaggio	IEC/EN 60721-3-1	1K3 (-30 ... +60 °C)
Trasporto	IEC/EN 60721-3-2	2K3 (-30 ... +75 °C)
Funzionamento	IEC/EN 60721-3-3	3K3 (-30 ... +55 °C) Funzionamento a 4 kHz: > +45 °C con riduzione della corrente nominale in uscita di 2,5 %/°C. Funzionamento a 8/16 kHz: > +40 °C con riduzione della corrente nominale in uscita di 2,5 %/°C.
Altitudine di installazione		< 4000 m s.l.m. > 1000 m s.l.m.: ridurre la corrente nominale in uscita del 5 %/ 1000 m.
Inquinamento	IEC/EN 61800-5-1	Grado di inquinamento 2

Meccaniche

Resistenza alle vibrazioni (9.81 m/s² = 1 g)

Montaggio a motore	Germanischer Lloyd	Condizioni generali: resistente all'accelerazione fino a 2 g	
	IEC/EN 60721-3-3	3M6	
Montaggio a parete con E84DZMAWE1	Germanischer Lloyd	Condizioni generali: resistente all'accelerazione fino a 2 g	
	IEC/EN 60721-3-3	3M6	

Condizioni di montaggio

luogo di installazione

Montaggio a motore		Standard	
Montaggio a parete		con adattatore parete opzionale	Assicurare in nicchie del raffreddamento in convezione naturale!

posizione di montaggio

Montaggio a parete

0.37 ... 3.0 kW		verticale con alette di raffreddamento verso l'alto, girato, orizzontale	• Osservare il derating, vedere il manuale hardware 8400 motec (□ EDS84DG752) • Allineamento di diversi dispositivi solo a lato, affinché rimanga garantito il raffreddamento in convezione naturale!
4.0 ... 7.5 kW		a piacere	

Controllo	
Modalità di controllo	VFCplus: • controllo V/f (lineare o quadratico) VFC closed loop: • VFCplus con retroazione della velocità aggiuntiva VFC eco: • controllo V/f, con ottimizzazione energetica SLVC: • controllo vettoriale sensorless coppia/velocità SLPSM: • controllo sensorless per motori sincroni
Frequenza di commutazione	4 kHz, 8 kHz, 16 kHz

3.2

Dati nominali

Dati in ingresso

Rete	Tensione U_{LN} [V]	Campo di tensione U_{LN} [V]	Campo di frequenza f [Hz]
3/PE AC	400	320 - 0 % ... 440 + 0 %	45 - 0 % ... 65 + 0 %
3/PE AC	480	432 - 0 % ... 528 + 0 %	45 - 0 % ... 65 + 0 %

	Tensione [V]	Frequenza [Hz]	Corrente nominale [A]		Numero di fasi
			fino a +45 °C ①	fino a +55 °C ①	
E84DGDVB3714	400/480	50/60	1.3/1.1	1.0/0.8	3
E84DGDVB5514	400/480	50/60	1.8/1.5	1.4/1.1	3
E84DGDVB7514	400/480	50/60	2.4/2.0	1.8/1.5	3
E84DGDVB1124	400/480	50/60	3.2/2.7	2.4/2.0	3
E84DGDVB1524	400/480	50/60	3.8/3.1	2.9/2.3	3
E84DGDVB2224	400/480	50/60	5.6/4.6	4.2/3.5	3
E84DGDVB3024	400/480	50/60	7.2/5.9	5.4/4.4	3
E84DGDVB4024	400/480	50/60	9.3/7.7	7.0/5.8	3
E84DGDVB5524	400/480	50/60	12.8/10.6	9.6/8.0	3
E84DGDVB7524	400/480	50/60	16.3/13.5	12.3/10.1	3

① Temperatura ambiente, frequenza di commutazione 4 kHz

Dati in uscita

	Tensione [V]	Frequenza [Hz]	Corrente nominale [A]		Numero di fasi
			fino a +45 °C ①	fino a +55 °C ①	
E84DGDVB3714	0 ... 400/480	0 ... 300	1.3/1.1	1.0/0.8	3
E84DGDVB5514	0 ... 400/480	0 ... 300	1.8/1.5	1.4/1.1	3
E84DGDVB7514	0 ... 400/480	0 ... 300	2.4/2.0	1.8/1.5	3
E84DGDVB1124	0 ... 400/480	0 ... 300	3.2/2.7	2.4/2.0	3
E84DGDVB1524	0 ... 400/480	0 ... 300	3.9/3.2	2.9/2.4	3
E84DGDVB2224	0 ... 400/480	0 ... 300	5.6/4.7	4.2/3.5	3
E84DGDVB3024	0 ... 400/480	0 ... 300	7.3/6.0	5.4/4.5	3
E84DGDVB4024	0 ... 400/480	0 ... 300	9.5/7.9	7.1/5.9	3
E84DGDVB5524	0 ... 400/480	0 ... 300	13.0/10.8	9.8/8.1	3
E84DGDVB7524	0 ... 400/480	0 ... 300	16.5/13.7	12.4/10.3	3

① Temperatura ambiente, frequenza di commutazione 4 kHz

4 Installazione meccanica

4.1 Preparazione

Il montaggio e il cablaggio della Wiring Unit e della Communication Unit devono essere effettuati in base alle Istruzioni di montaggio.



Suggerimento:

Prima di poter proseguire con il montaggio di 8400 e di concludere, si devono prendere delle decisioni per la parametrizzazione e la messa in servizio.

L'unità di controllo con DIP1, DIP2, P2 o P3 deve essere preimpostata?

- ▶ Applicare le impostazioni in base ai requisiti.
 - Il capitolo impostazioni contiene le informazioni necessarie. (📖 233)
- ▶ Montare la Drive Unit. (📖 229)

L'unità di controllo deve essere parametrizzata con L-Force »Engineer« o con un terminale palmare?

- ▶ Montare la Drive Unit. (📖 229)

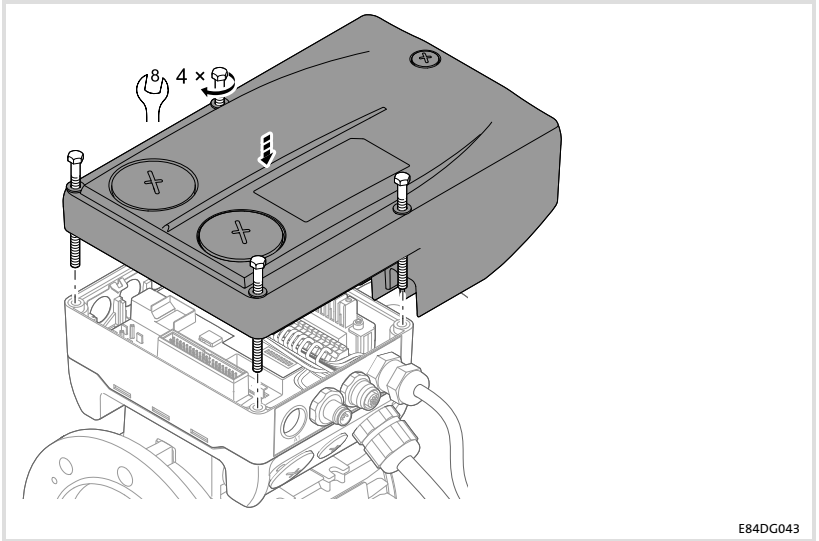
L'unità di controllo è parte costitutiva di un motore o un motoriduttore?

- ▶ L'unità di controllo è impostata in fabbrica in sintonia con motore e riduttore.
 - Non cambiare le impostazioni di fabbrica!
- ▶ Montare la Drive Unit. (📖 229)

4.2 Montaggio

0.37 ... 3 kW

Posizionare la Drive Unit - senza inclinarla - sulla Communication Unit precedentemente montata. Fissare la Drive Unit con le quattro viti fornite in dotazione (coppia di serraggio: 5.0 Nm/44 lb-in).



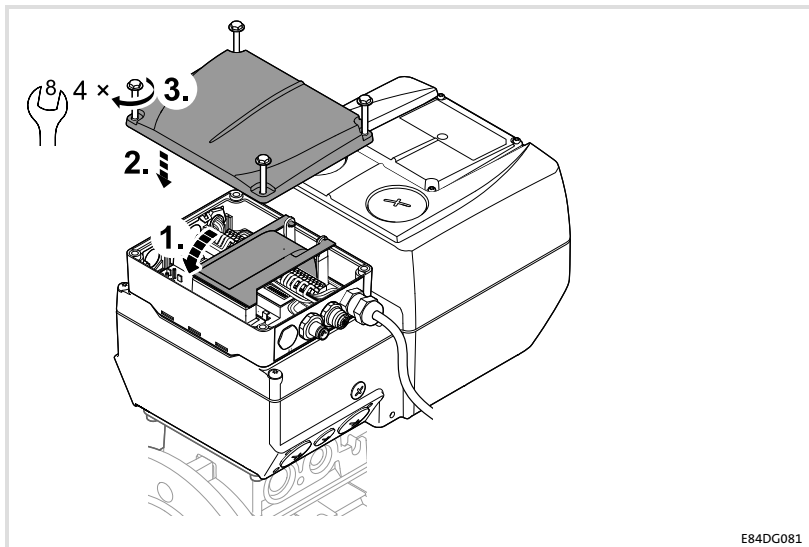
E84DG043

4 ... 7.5 kW

La Drive Unit è già stata preassemblata con la Wiring Unit.

Per completare il montaggio, procedere come segue:

1. Girare il connettore femmina ripiegabile verso la CU e inserirlo nel controconnettore esercitando una lieve pressione.
2. Posizionare il coperchio della DU sulla Communication Unit e
3. fissarlo con le quattro viti (coppia di serraggio: 1.5 Nm/14 lb-in).



E84DG081

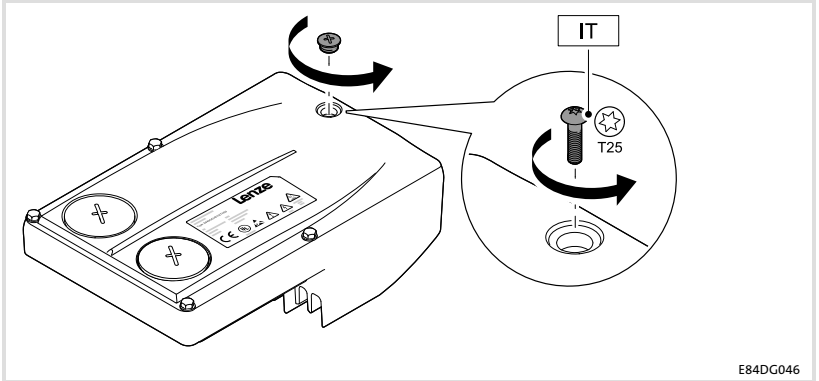
4.3 Misure nell'impiego in reti IT

Se l'azionamento viene installato in una rete IT, è necessario isolare i filtri interni dal conduttore di protezione.

Procedere nel seguente modo:

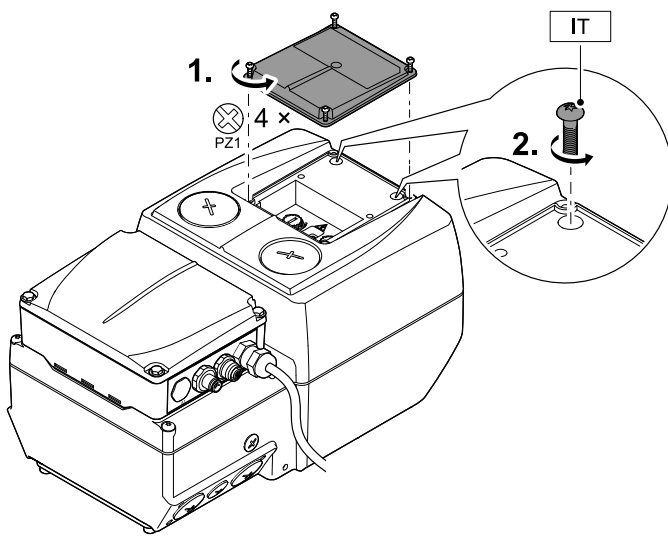
1. In caso di unità di controllo già montate: disinserire la tensione di rete.
2. Rendere accessibile la vite IT.
 - Dispositivi fino a 3 kW: svitare il piccolo tappo di chiusura sul lato superiore.
 - Dispositivi da 4 kW: rimuovere il piccolo coperchio sul lato superiore.
3. Svitare la/le vite/i e asportarla/e.
4. Riavvitare il tappo o ricollocare il coperchio.

0.37 ... 3 kW



E84DG046

4 ... 7.5 kW



E84DG084

5 Impostazioni



Stop!

Avvio motore automatico

In "Local mode" l'opzione di autoavvio "Blocco all'inserzione della rete" non è impostata. Il motore si avvia all'accensione quando l'abilitazione controllo RFR è ponticellata o impostata.

("Local mode" => DIP1/1 = ON e DIP2/5-7 = OFF)

Possibili conseguenze:

- ▶ Pericoli o danni dovuti all'avvio improvviso del motore.

Misure di protezione:

- ▶ Alla messa in servizio, disaccoppiare il motore dalla catena cinematica.
- ▶ Sostituire il ponticello applicato in fabbrica in RFR con un contatto NA.
- ▶ Non impostare l'abilitazione controllo.

Per la prima messa in servizio è possibile eseguire le impostazioni tramite DIP switch e potenziometro. Tali impostazioni devono essere eseguite prima del montaggio della Drive Unit, poiché gli elementi di impostazione non sono accessibili dall'esterno.

A partire dalla versione software 07.00.00 potete impostare con DIP2/8 due diverse preassegnazioni di DIP1, DIP2, P1, P2 e P3:

- ▶ DIP2/8 = OFF: DIP switch-/ occupazione potenziometro 0
- ▶ DIP2/8 = OFF: DIP switch-/ occupazione potenziometro 1

Fino alla versione software 07.00.00 è disponibile solo DIP switch-/ occupazione potenziometro 0.

A partire dalla versione del software 08.00.00 e in caso di utilizzo di un modulo di comunicazione POWERLINK è possibile influenzare l'impostazione dell'indirizzo IP con DIP1/1:

- ▶ DIP1/1 = OFF: DIP1/2 ... DIP1/8, P1, P2 e P3 sono disattivati, DIP2 serve per l'impostazione dell'indirizzo IP per POWERLINK
- ▶ DIP1/1 = ON: funzione di commutazione DIP e assegnazione potenziometro come descritto, impostazione indirizzo IP tramite codice C13899

Per informazioni dettagliate, consultare il Manuale di comunicazione POWERLINK (EDS84DMOTPL).

Inoltre è disponibile l'assegnazione DIP switch/potenziometro 2.

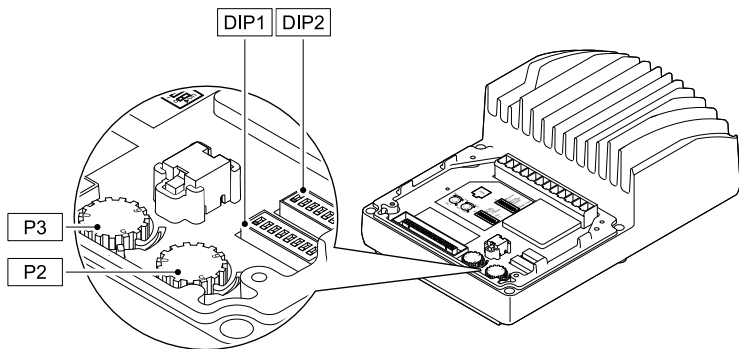
Condizione:

- ▶ dispositivi con codice di identificazione E84DGDVBxxx4xxP
- ▶ dispositivi con software a partire dalla revisione 09.00.00
- ▶ dispositivi con campo di potenza 0.37 kW ... 3.0 kW

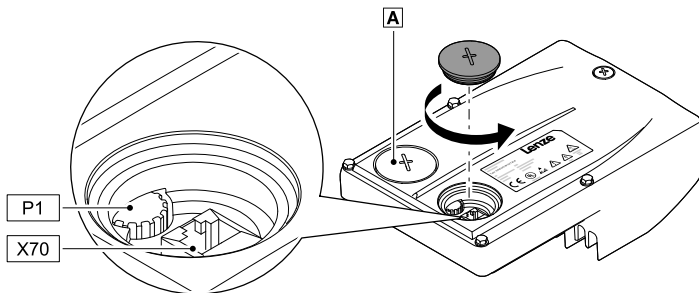
Elementi per l'impostazione - 0.37 ... 3 kW

Gli elementi per l'impostazione si trovano nella parte interna della Drive Unit. Le impostazioni eseguite tramite DIP1, DIP2, P2, P3 e P1 devono essere attivate con DIP1/1. Ad ogni accensione le impostazioni vengono nuovamente caricate. Eventuali modifiche eseguite nel frattempo ai parametri possono essere in tal modo sovrascritte.

0.37 ... 3 kW



E84DG041



E84DG044

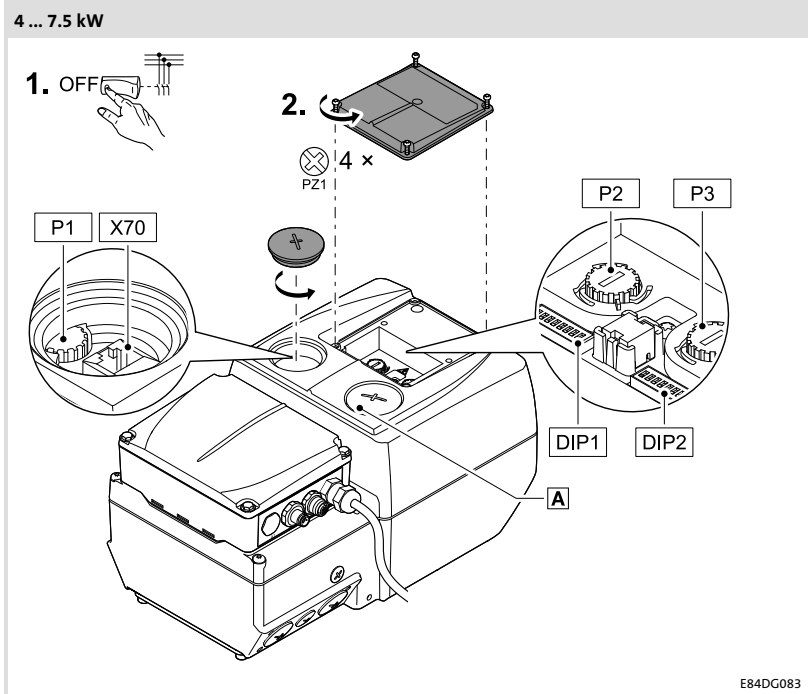
	designazione
DIP1	DIP switch per le messa in servizio
DIP2	
P1	impostazione "Top Cover: Speed ... %"
P2	impostazione "Speed ... %", (numero di giri)
P3	impostazione "Ramp ... s", (tempo di accelerazione e decelerazione)
X70	collegamento per adattatore per diagnostica USB E94AZCUS o terminale palmare
A	visualizzazione di stato LED

Elementi per l'impostazione - 4 ... 7.5 kW

Gli elementi per l'impostazione si trovano sul lato superiore della Drive Unit.

- ▶ Assicurare l'assenza di tensione e la protezione da riaccensione accidentale.
- ▶ Rimuovere il piccolo coperchio sul lato superiore.

Le impostazioni eseguite tramite DIP1, DIP2, P2, P3 e P1 devono essere attivate con DIP1/1. Ad ogni accensione le impostazioni vengono nuovamente caricate. Eventuali modifiche eseguite nel frattempo ai parametri possono essere in tal modo sovrascritte.



	designazione
DIP1	DIP switch per le messa in servizio
DIP2	
P1	impostazione "Top Cover: Speed ... %"
P2	impostazione "Speed ... %", (numero di giri)
P3	impostazione "Ramp ... s", (tempo di accelerazione e decelerazione)
X70	collegamento per adattatore per diagnostica USB E94AZCUS o terminale palmare
	visualizzazione di stato LED

5.1

DIP switch / occupazione potenziometro 0

Impostazioni con DIP1

(Impostazione Lenze grassetto)

DIP1		Switch							
Descrizione		1	2	3	4	5	6	7	8
DIP1, DIP2, P1, P2 e P3 attivi	attivo	ON							
	disattivato	OFF							
Senso di rotazione	sinistra		ON						
	destra		OFF						
Controllo	quadrato			ON					
	lineare			OFF					
Flying-restart	attivo				ON				
	disattivato				OFF				
riservato	-					OFF	OFF	OFF	
Stato del dispositivo	Drive Ready: NO/COM = Closed								ON
	Drive Fail: DO1 = HIGH								
Stato del dispositivo	Drive Ready: DO1 = HIGH								OFF
	Drive Fail: NO/COM = Closed								

Impostazioni con DIP2

(Impostazione Lenz **grassetto**)

DIP2		switch							
Descrizione		1	2	3	4	5	6	7	8
Frequenza di misurazione motore / velocità di riferimento	50 Hz ∇ / 1500 min-1	OFF	OFF						
	60 Hz ∇ / 1800 min-1	ON	OFF						
	87 Hz Δ / 2610 min-1	OFF	ON						
	120 Hz ∇ / 3600 min-1	ON	ON						
Modalità ingresso analogico	0 ... 10 V			OFF	OFF				
	0 ... 20 mA			ON	OFF				
	4 ... 20 mA			OFF	ON				
	non ammissibile			ON	ON				
Modalità di comando Applicazione tecnologica	9 (Local mode)					OFF	OFF	OFF	
	10 (morsetti 0)					ON	OFF	OFF	
	12 (morsetti 2)					OFF	ON	OFF	
	14 (morsetti 11)					ON	ON	OFF	
	16 (morsetti 16)					OFF	OFF	ON	
	riservato					ON	OFF	ON	
	riservato					OFF	ON	ON	
	40 (MCI)					ON	ON	ON	
<i>riservato</i>	-								OFF

Modalità di controllo DIP2/5-7	Descrizione (Dlx → High)	
9 (Local mode)	Il controllo dell'applicazione tecnologica avviene localmente tramite elementi sull'unità di controllo e i morsetti di ingresso digitali:	
	 Con l'inserzione della rete il motore si accende automaticamente se l'abilitazione controllo è provvista di ponticello o è attivata!	
	DI1 valore di riferimento di P2 (Speed)	valore di riferimento fisso 3
	DI2 valore di riferimento fisso 2	
	DI3 attivare frenatura DC	
	DI4 cambio del senso di rotazione (non possibile, se è DIP1/2 = on (sinistra))	
	DI5 rilasciare il freno di stazionamento manualmente (modo operativo secondo impostazione C02580)	
10 (morsetti 0)	il comando dell'applicazione tecnologica avviene per mezzo dei morsetti digitali d'ingresso dell'unità di controllo:	
	DI1 valore di riferimento fisso 1	valore di riferimento fisso 3
	DI2 valore di riferimento fisso 2	
	DI3 attivare frenatura DC	
	DI4 cambio del senso di rotazione	
	DI5 rilasciare il freno di stazionamento manualmente (modo operativo secondo impostazione C02580)	
12 (morsetti 2)	il comando dell'applicazione tecnologica avviene per mezzo dei morsetti digitali d'ingresso dell'unità di controllo:	
	DI1 valore di riferimento fisso 1	valore di riferimento fisso 3
	DI2 valore di riferimento fisso 2	
	DI3 arresto rapido	
	DI4 cambio del senso di rotazione	
	DI5 rilasciare il freno di stazionamento manualmente (modo operativo secondo impostazione C02580)	
14 (morsetti 11)	il comando dell'applicazione tecnologica avviene per mezzo dei morsetti digitali d'ingresso dell'unità di controllo:	
	DI1 cambio del senso di rotazione	
	DI2 attivare frenatura DC	
	DI3 motopotenziometro: numero di giri superiore	
	DI4 motopotenziometro: numero di giri inferiore	
	DI5 rilasciare il freno di stazionamento manualmente (modo operativo secondo impostazione C02580)	

Modalità di controllo DIP2/5-7	Descrizione (Dlx → High)	
16 (morsetti 16)	il comando dell'applicazione tecnologica avviene per mezzo dei morsetti digitali d'ingresso dell'unità di controllo:	
	DI1	valore di riferimento fisso 1
	DI2	valore di riferimento fisso 2
	DI3	rotazione oraria / arresto rapido
	DI4	rotazione antioraria / arresto rapido
40 (MCI)	DI5	rilasciare il freno di stazionamento manualmente (modo operativo secondo impostazione C02580)
	Il controllo dell'applicazione tecnologica avviene tramite comunicazione bus di campo. in funzione della Communication Unit esistente	

Impostazioni con P2

(Impostazione Lenze **grassetto**)

Con P2 impostate in 10 gradini la velocità nominale del motore in percentuale alla velocità nominale in C00011 (valore di riferimento fisso numero di giri). Il valore di riferimento fisso viene attivato solo se nel "Local mode" viene messo l'ingresso DI1.

P2	Impostazione									
Descrizione	0	1	2	3	4	5	6	7	8	9
Velocità motore in percentuale dell'impostazione velocità nominale C00011 [%]	0	11	22	33	44	55	66	77	88	100

Impostazioni con P3

(Impostazione Lenze **grassetto**)

Con P3 impostate il tempo di accelerazione e decelerazione del motore.

P3	Impostazione									
Descrizione	0	1	2	3	4	5	6	7	8	9
tempo di accelerazione e decelerazione del motore in secondi [s]	0.1	0.5	1	2	5	10	20	30	60	120

Impostazioni con P1

(Impostazione Lenze **grassetto**)

Durante il funzionamento potete impostare in modo continuo con P1 la velocità motore in modo percentuale alla velocità nominale in C00011 fintanto che nessun valore di riferimento fisso del numero di giri P2 sia attivo su DI1.

Rimuovere il coperchio di chiusura per poter impostare il potenziometro P1.

- Avvitare di nuovo il coperchio di chiusura dopo l'impostazione per garantire il grado di protezione dell'unità di controllo.

P1	Impostazione		
Descrizione	0	...	9
Velocità motore in percentuale del numero di giri nominale C00011 [%]	0	...	100

5.2 DIP switch / occupazione potenziometro 1

(a partire dalla versione software 07.00.00)

Impostazioni con DIP1

(Impostazione Lenze **grassetto**)

DIP1		Switch							
Descrizione		1	2	3	4	5	6	7	8
DIP1, DIP2, P1, P2, P3	attivo	ON							
	disattivato	OFF							
potenza motore	potenza motore > potenza inverter		ON						
	potenza motore = potenza inverter		OFF						
Controllo	VFCplus ECO			ON					
	VFCplus lineare			OFF					
comando freno / flying-restart	comando freno spento, flying-restart spento				OFF	OFF			
	comando freno spento, flying-restart spento				ON	OFF			
	comando freno automaticamente orizzontale, flying-restart spento				OFF	ON			
	comando freno automaticamente verticale, flying-restart spento				ON	ON			
direzione di montaggio motore	invertito						ON		
	non invertito						OFF		
Funzione P1	Il valore nominale fisso 3 viene descritto sempre con P1							ON	
	Il valore nominale 3 viene descritto nell'inserzione della rete una volta con P1							OFF	
Caricare i parametri secondo inserzione della rete	Caricare i parametri dal modulo Memory								ON
	Caricare i parametri dell'impostazione Lenze								OFF

Impostazioni con DIP2

(Impostazione Lenze **grassetto**)

DIP2		switch							
Descrizione		1	2	3	4	5	6	7	8
Frequenza di misurazione motore / velocità di riferimento	50 Hz ∇ / 1500 min-1	OFF	OFF						
	60 Hz ∇ / 1800 min-1	ON	OFF						
	87 Hz Δ / 2610 min-1	OFF	ON						
	120 Hz ∇ / 3600 min-1	ON	ON						
Configurazione applicazione	Attuatore di velocità (1000)			OFF	OFF				
	Profilo AC-Drive (1100)			ON	OFF				
	posizionamento su finecorsa (3000)			OFF	ON				
	riservato			ON	ON				
Modalità di comando Applicazione tecnologica	9 (Local mode)					OFF	OFF	OFF	
	10 (morsetti 0)					ON	OFF	OFF	
	12 (morsetti 2)					OFF	ON	OFF	
	14 (morsetti 11)					ON	ON	OFF	
	16 (morsetti 16)					OFF	OFF	ON	
	riservato					ON	OFF	ON	
	41 (AS-Interface)					OFF	ON	ON	
	40 (MCI/CAN)					ON	ON	ON	
selezione DIP switch / occupazione potenziometro	selezione DIP switch / occupazione potenziometro								OFF
	selezione DIP switch / occupazione potenziometro 1								ON

Modalità di controllo DIP2/5-7	Descrizione (Dlx → High)															
9 (Local mode)	Il controllo dell'applicazione tecnologica avviene localmente tramite elementi sull'unità di controllo e i morsetti di ingresso digitali:  Con l'inserzione della rete il motore si accende automaticamente se l'abilitazione controllo è provvista di ponticello o è attivata! <table><tr><td>DI1</td><td>valore di riferimento di P2 (Speed)</td><td rowspan="2">valore di riferimento fisso 3</td></tr><tr><td>DI2</td><td>valore di riferimento fisso 2</td></tr><tr><td>DI3</td><td colspan="2">attivare frenatura DC</td></tr><tr><td>DI4</td><td colspan="2">cambio del senso di rotazione (non possibile, se è DIP1/2 = on (sinistra))</td></tr><tr><td>DI5</td><td colspan="2">rilasciare il freno di stazionamento manualmente (modo operativo secondo impostazione C02580)</td></tr></table>	DI1	valore di riferimento di P2 (Speed)	valore di riferimento fisso 3	DI2	valore di riferimento fisso 2	DI3	attivare frenatura DC		DI4	cambio del senso di rotazione (non possibile, se è DIP1/2 = on (sinistra))		DI5	rilasciare il freno di stazionamento manualmente (modo operativo secondo impostazione C02580)		
DI1	valore di riferimento di P2 (Speed)	valore di riferimento fisso 3														
DI2	valore di riferimento fisso 2															
DI3	attivare frenatura DC															
DI4	cambio del senso di rotazione (non possibile, se è DIP1/2 = on (sinistra))															
DI5	rilasciare il freno di stazionamento manualmente (modo operativo secondo impostazione C02580)															
10 (morsetti 0)	il comando dell'applicazione tecnologica avviene per mezzo dei morsetti digitali d'ingresso dell'unità di controllo: <table><tr><td>DI1</td><td>valore di riferimento fisso 1</td><td rowspan="2">valore di riferimento fisso 3</td></tr><tr><td>DI2</td><td>valore di riferimento fisso 2</td></tr><tr><td>DI3</td><td colspan="2">attivare frenatura DC</td></tr><tr><td>DI4</td><td colspan="2">cambio del senso di rotazione</td></tr><tr><td>DI5</td><td colspan="2">rilasciare il freno di stazionamento manualmente (modo operativo secondo impostazione C02580)</td></tr></table>	DI1	valore di riferimento fisso 1	valore di riferimento fisso 3	DI2	valore di riferimento fisso 2	DI3	attivare frenatura DC		DI4	cambio del senso di rotazione		DI5	rilasciare il freno di stazionamento manualmente (modo operativo secondo impostazione C02580)		
DI1	valore di riferimento fisso 1	valore di riferimento fisso 3														
DI2	valore di riferimento fisso 2															
DI3	attivare frenatura DC															
DI4	cambio del senso di rotazione															
DI5	rilasciare il freno di stazionamento manualmente (modo operativo secondo impostazione C02580)															
12 (morsetti 2)	il comando dell'applicazione tecnologica avviene per mezzo dei morsetti digitali d'ingresso dell'unità di controllo: <table><tr><td>DI1</td><td>valore di riferimento fisso 1</td><td rowspan="2">valore di riferimento fisso 3</td></tr><tr><td>DI2</td><td>valore di riferimento fisso 2</td></tr><tr><td>DI3</td><td colspan="2">arresto rapido</td></tr><tr><td>DI4</td><td colspan="2">cambio del senso di rotazione</td></tr><tr><td>DI5</td><td colspan="2">rilasciare il freno di stazionamento manualmente (modo operativo secondo impostazione C02580)</td></tr></table>	DI1	valore di riferimento fisso 1	valore di riferimento fisso 3	DI2	valore di riferimento fisso 2	DI3	arresto rapido		DI4	cambio del senso di rotazione		DI5	rilasciare il freno di stazionamento manualmente (modo operativo secondo impostazione C02580)		
DI1	valore di riferimento fisso 1	valore di riferimento fisso 3														
DI2	valore di riferimento fisso 2															
DI3	arresto rapido															
DI4	cambio del senso di rotazione															
DI5	rilasciare il freno di stazionamento manualmente (modo operativo secondo impostazione C02580)															
14 (morsetti 11)	il comando dell'applicazione tecnologica avviene per mezzo dei morsetti digitali d'ingresso dell'unità di controllo: <table><tr><td>DI1</td><td colspan="2">cambio del senso di rotazione</td></tr><tr><td>DI2</td><td colspan="2">attivare frenatura DC</td></tr><tr><td>DI3</td><td colspan="2">motopotenziometro: numero di giri superiore</td></tr><tr><td>DI4</td><td colspan="2">motopotenziometro: numero di giri inferiore</td></tr><tr><td>DI5</td><td colspan="2">rilasciare il freno di stazionamento manualmente (modo operativo secondo impostazione C02580)</td></tr></table>	DI1	cambio del senso di rotazione		DI2	attivare frenatura DC		DI3	motopotenziometro: numero di giri superiore		DI4	motopotenziometro: numero di giri inferiore		DI5	rilasciare il freno di stazionamento manualmente (modo operativo secondo impostazione C02580)	
DI1	cambio del senso di rotazione															
DI2	attivare frenatura DC															
DI3	motopotenziometro: numero di giri superiore															
DI4	motopotenziometro: numero di giri inferiore															
DI5	rilasciare il freno di stazionamento manualmente (modo operativo secondo impostazione C02580)															

Modalità di controllo DIP2/5-7	Descrizione (Dlx → High)	
16 (morsetti 16)	il comando dell'applicazione tecnologica avviene per mezzo dei morsetti digitali d'ingresso dell'unità di controllo:	
	DI1 valore di riferimento fisso 1	valore di riferimento fisso 3
	DI2 valore di riferimento fisso 2	
	DI3 rotazione oraria / arresto rapido	
	DI4 rotazione antioraria / arresto rapido	
	DI5 rilasciare il freno di stazionamento manualmente (modo operativo secondo impostazione C02580)	
40 (MCI)	Il controllo dell'applicazione tecnologica avviene tramite comunicazione bus di campo.	
	in funzione della Communication Unit esistente	

Impostazioni con P2
(Impostazione Lenze **grassetto**)

Con P2 potete scrivere diversi valore di riferimento fisso in C00039/1 e C00039/2.

P2		Impostazione									
Descrizione		0	1	2	3	4	5	6	7	8	9
Scrivere il valore nominale in C00039/1	[%]	5	10	15	20	25	30	35	40	45	50
Scrivere il valore nominale in C00039/2	[%]	10	20	30	40	50	60	70	80	90	100

Impostazioni con P3
(Impostazione Lenze **grassetto**)

Con P3 potete scrivere i diversi tempi di accelerazione / decelerazione in C00012/C00013 con diversi tempi di decelerazione per l'arresto rapido in C00105.

P3		Impostazione									
Descrizione		0	1	2	3	4	5	6	7	8	9
scrivere tempo di accelerazione / decelerazione in C00012/C00013	[s]	0.1	0.5	0.7	1	1.5	2	5	10	30	60
scrivere tempo di decelerazione arresto rapido in C00105	[s]	0.1	0.2	0.5	0.7	1	1.5	2	5	10	30

Impostazioni con P1

(Impostazione Lenze **grassetto**)

Con P1 scrivete un valore di riferimento fisso del numero di giri in C00039/3. In funzione della posizione switch DIP1/7, C00039/3 viene descritto una volta o in mod permanente nell'inserzione della rete.

Rimuovere il coperchio di chiusura per poter impostare il potenziometro P1.

- Avvitare di nuovo il coperchio di chiusura dopo l'impostazione per garantire il grado di protezione dell'unità di controllo.

P1		Impostazione		
Descrizione		0	...	9
Scrivere il valore nominale fisso 3 in C00039/3	[%]	0	...	100

5.3

DIP switch / occupazione potenziometro 2

(a partire dalla versione software 09.00.00)
I dispositivi con codice di identificazione E84DGDVBxxx4xxP possono essere configurati solo con potenziometro P1.

Impostazioni con P1

(Impostazione Lenz **grassetto**)

Con P1 scrivete un valore di riferimento fisso del numero di giri in C00039/3. C00039/3 viene sovrascritto ogni volta.

Rimuovere il coperchio di chiusura per poter impostare il potenziometro P1.

- Avvitare di nuovo il coperchio di chiusura dopo l'impostazione per garantire il grado di protezione dell'unità di controllo.

P1	Impostazione		
Descrizione	0	...	9
Scrivere il valore nominale fisso 3 in C00039/3 [%]	0	...	100

6 Messa in servizio

6.1 Prima dell'accensione

- ▶ La Wiring Unit è montata e cablata secondo le istruzioni fornite,
 - direttamente su una flangia di bloccaggio del motore oppure
 - con un adattatore per montaggio a parete, su una superficie idonea nelle vicinanze del motore.
- ▶ I collegamenti con rete, motore, freni di stazionamento, ecc. sono stati eseguiti correttamente.
- ▶ La Communication Unit è stata montata e cablata conformemente all'applicazione pianificata.
 - Segnali di ingresso e uscita
 - Ingresso sicuro
 - Bus di campo(a seconda dell'esecuzione, disponibile solo come opzione)
- ▶ Se necessarie, le impostazioni di base per "Local mode" sono già state eseguite.
 - DIP switch
 - Potenzimetro
- ▶ La Drive Unit è stata montata e avvitata.
- ▶ Impostare in modo adeguato le funzioni di controllo presenti, ad esempio
 - Inibire l'unità di controllo (blocco dell'abilitazione controllo)
 - Impostare la velocità al minimo
 - Attivare i dispositivi di sicurezza
- ▶ È stato testato l'impiego di una resistenza di frenatura.
 - Con carichi dinamici o condizioni di controllo difficili si consiglia sempre l'impiego della resistenza interna di frenatura E84DZEW47R0001 per i dispositivi E84DGDVB4024 ... 7524 (4 ... 7.5 kW).

**Pericolo!****Elevato potenziale di pericolo durante la messa in servizio**

Eventuali impostazioni errate possono determinare movimenti inattesi e pericolosi del motore e dell'impianto.

Possibili conseguenze:

- ▶ Danni materiali
- ▶ Danni alle persone

Misure di protezione:

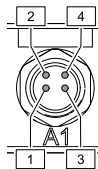
- ▶ Allontanarsi dalla zona di pericolo
- ▶ Osservare le norme di sicurezza e le distanze di sicurezza

6.2 Procedura di messa in servizio

Procedete passaggio dopo passaggio:

- ▶ Attivare la rete
- ▶ Osservare l'indicatore di stato
 - Dopo un breve tempo d'installazione, la visualizzazione deve lampeggiare in verde.
- ▶ Disattivare i requisiti della funzione di sicurezza
- ▶ Impostare l'abilitazione controllo
 - Il motore deve girare secondo il tempo di risposta impostato con la velocità impostata.
- ▶ Prima verifica del comportamento secondo le aspettative:
 - Senso di rotazione?
 - Tempo di risposta?
 - Velocità?
 - Controllo della velocità?
- ▶ Verifica delle funzione opzionali di comando:
 - Funziona l'impostazione del valore di riferimento?
 - Funzionano i segnali di controllo digitali ad es. i finecorsa?
 - Funziona il freno di stazionamento del motore collegato?
 - Funziona la commutazione del senso di rotazione?
 - Funziona il requisito della funzione di sicurezza?
 - Funzionano i segnali di controllo attraverso il bus di campo?
- ▶ Spegnerne azionamento
 - Ridurre la velocità
 - Inibire l'unità di controllo (blocco dell'abilitazione controllo)
 - Disinserizione rete

A seconda del sistema bus della Communication Unit gli stati vengono segnalati con un indicatore a LED. Per informazioni dettagliate, vedere il Manuale di comunicazione del sistema bus in uso.

LED		1 (green)	2 (green)	3 (red)	4 (red)
	PROFIBUS	BUS STATE	MODULE STATE	BUS ERROR	MODULE ERROR
	AS-i	SLAVE 1 READY	SLAVE 2 READY	SLAVE 1 ERROR	SLAVE 2 ERROR
	EtherCAT	RUN	LINK/ACTIVITY	ERROR	LINK/ACTIVITY (green)
	PROFINET	BUS READY	LINK/ACTIVITY 1 (yellow)	BUS ERROR	LINK/ACTIVITY 2 (yellow)
	EtherNet/IP	MODULE STATE (red)		NETWORK STATE (green)	
E84DG056_b					

6.3 messa in servizio con terminale palmare

Con il terminale palmare X400 potete impostare i parametri in modo facile e veloce e far visualizzare i valori istantanei aggiornati e gli stati dei dispositivi per mezzo dei relativi parametri di visualizzazione. Per questo è necessario inserire il terminale palmare sull'interfaccia diagnostica X70 sulla parte superiore del dispositivo.



Pericolo!

Possibili movimenti del motore non controllati

La modifica di un parametro ha come conseguenza di solito una reazione istantanea dell'unità di controllo.

Possibili conseguenze:

- ▶ Con unità di controllo abilitata, questo può provocare un comportamento indesiderato sull'albero motore.

Misure di protezione:

- ▶ Effettuare modifiche in piccoli passaggi e aspettare la reazione.
- ▶ Eccezioni sono determinati comandi dispositivi o impostazioni che potrebbero portare il comportamento dell'unità in uno stato critico. Queste modifiche dei parametri sono possibili solo con unità di controllo bloccata, altrimenti si verifica il relativo messaggio di errore.



Avvertenza:

Il terminale palmare può essere inserito e disinserto durante il funzionamento.



Maggiori informazioni.

Informazioni complete sul terminale palmare sono a disposizione nelle istruzioni operative per la tastiera & il terminale palmare X400.

6.3.1 Struttura dei menu

Il menu principale del terminale palmare contiene le seguenti voci:

Voce di menu	Funzione
Menu utente	Visualizzazione di una selezione di parametri spesso necessari
Lista codici	visualizzazione della lista parametri con tutti i parametri
Go To parametri	Richiamare direttamente un determinato parametro
Trasferimento parametri	
User Menu Configuration	
tastiera	

6.3.2 Menu utente

Il menù utente è configurabile liberamente e contiene nell'impostazione Lenze i seguenti parametri:

Parametri	Nome	Informazioni	Impostazione Lenze
C00011	Appl.: velocità di riferimento	Impostazione della velocità di riferimento	1500 min-1
C00012	Tempo di accelerazione valore di riferimento principale.	FB L_NSet_1: tempo di accelerazione del generatore di rampa per valore di riferimento principale del numero di giri	2.0 s
C00013	Tempo di decelerazione valore nominale principale	FB L_NSet_1: tempo di decelerazione del generatore di rampa per valore di riferimento principale numero di giri	2.0 s
C00015	VFC: U/f-frequenza di cut-off	U/f-frequenza di cut-off per controllo motore	50 Hz
C00016	VFC: sollevamento giri al min	Boost giri/ caratteristica di tensione nel campo del numero di giri ovvero frequenze per controllo motore VFCplus	2.6 %
C00022	Modo motore I _{max}	Corrente massima del motore per tutti i tipi di regolazione motore	5.8 A
C00039/1	Valore di riferimento fisso 1 (L_NSet_1 n-Fix)	FB L_NSet_1: valori di riferimento fissi numero di giri (valori jog) per generatore di valore di riferimento Valore di riferimento fisso 1	40.0 %
C00039/2	Valore di riferimento fisso 2	Valore di riferimento fisso 2	60.0 %
C00051	MCTRL: valore istantaneo velocità	Valore effettivo numero di giri dell'albero motore	–
C00053	Tensione DC bus	Tensione DC bus aggiornata	–
C00054	Corrente motore	Corrente motore/corrente in uscita aggiornate dell'inverter	–

Parametri	Nome	Informazioni	Impostazione Lenze
C00061	temperatura del dissipatore di calore	Temperatura aggiornata del dissipatore di calore	—
C00087	Velocità nominale motore	Questo valore si trova nella targhetta tipo motore. In base alla selezione del motore usato dal catalogo motore, il valore adeguato può essere inserito automaticamente.	1320 min-
C00099	Versione Firmware	versione Firmware del dispositivo come stringa di caratteri	—
C00105	Tempo di decelerazione arresto rapido	Il tempo di accelerazione impostato determina la ripidezza della rampa nell'arresto rapido	5.0 s
C00120	Soglia sovraccarico motore (I ² xt)	Sglia di risposta per il messaggio di errore "OC6: sovraccarico motore (I ² xt)"	100 %
C00137	Sato del dispositivo	Stato del dispositivo aggiornato	—
C00166/ 3	Mess. errore di aliment	Messaggio di testo dell'errore stabilito allo stato attuale	—
C00173	Tensione di rete	selezione della tensione di rete utilizzata con cui il dispositivo viene azionato.	0: "3ph 400V"
C00200	Tipo prodotto Firmware		—

— Solo visualizzazione

6.3.3 Procedura di messa in servizio**Avvertenza:**

Sull'interfaccia diagnostica X70 sono collegabili:

- ▶ adattatore USB per diagnostica (E94AZCUS)
- ▶ terminale palmare X400 (EZAEBK200x)
 - Le funzioni del terminale palmare e la tastiera X400 (EZAEBK100x) sono identici.

Per l'azionamento devono essere adattati solo alcuni parametri. Dopodiché è possibile comandare subito l'applicazione di azionamento nella modalità di controllo preimpostata "morsetti 0" tramite gli ingressi digitali e analogici. Nella modalità di controllo "tastiera" è possibile in alternativa utilizzare la tastiera per l'impostazione dei valori di riferimento necessari e dei segnali di controllo.

Procedere nel seguente modo:

1. Eseguire il cablaggio dei collegamenti di potenza.
 - Servitevi delle istruzioni di montaggio allegate all'unità di controllo come aiuto per eseguire correttamente i collegamenti di potenza in base alle esigenze del vostro dispositivo.
2. Eseguire il cablaggio dei collegamenti di controllo.
 - È possibile cambiare la connessione I/O preconfigurata attraverso i parametri di configurazione. Vedi capitolo "Assegnazione dei morsetti definita dall'utente".
 - Assegnazione nella modalità di controllo preimpostata "morsetti 0":

Morsetto	Funzione		Informazioni
A1U	Impostazione del valore di riferimento		10 V ≡ 1500 min-1 (con motore a 4 poli) generale: 10 V ≡ 100 % velocità di riferimento (C00011)
DI1	JOG 1	JOG 3	Selezione valore di riferimento fisso 1 ... 3 Se entrambi gli ingressi si trovano su livello LOW, l'impostazione del valore di riferimento è attiva attraverso l'ingresso analogico A1U.
DI2	JOG 2		
DI3	DCB		Frenatura manuale DC (DCB) - Con ingressi attivi HIGH la frenatura DC è attiva fintanto che DI3 si trova su livello HIGH. - Dopo il termine del tempo di arresto (C00107) il controllo predispone un'inibizione impulsi (CINH). Frenatura DC (► I 110)
DI4	R/L		Livello LOW: rotazione oraria Livello HIGH: rotazione antioraria
DI5	Freno di stazionamento		Aprire / chiudere freno di stazionamento Modalità di frenatura C02580

3. Controllare lo switch sulla parte inferiore del Drive Unit:
DIP1/1 deve essere in posizione "OFF" (impostazione Lenze), affinché sia possibile sovrascrivere i parametri con »Engineer«, tramite tastiera o bus di campo.
4. Per la comunicazione bus di campo eventualmente effettuare le impostazioni necessarie di comunicazione tramite il DIP switch sulla Communication Unit.
Le impostazioni di comunicazione dipendono dal bus di campo utilizzato.
5. Fissare l'unità di controllo con 4 viti.
6. Attivare l'alimentazione dell'unità di controllo.
7. Collegare la tastiera.
 - Rimuovere la copertura dell'interfaccia diagnostica sulla parte superiore del dispositivo e collegare la tastiera all'interfaccia diagnostica.
 - Dopo il collegamento della tastiera avviene la configurazione con l'unità di controllo. La procedura è conclusa quando compare nel display C00051.

Visualizzazione tastiera	Azione
MCTRL: Act speed val. C00051 0 rpm	Con pulsante di funzione sinistro  spostarsi sul menu principale.

8. Caricare l'impostazione Lenze nell'unità di controllo.

- Per questo è a disposizione il comando del dispositivo "caricare impostazione Lenze" (Load Lenze setting) che può essere eseguito tramite il codice C00002/1 con la tastiera:



Avvertenza:

Con il comando "Caricare impostazione Lenze" vengono sovrascritti i valori modificati e vengono quindi ripristinate le impostazioni predefinite per un motore specifico, ad es. da parte di Lenze durante il montaggio del motore con motoriduttore..

Visualizzazione tastiera	Azione
Par1 8400 motec Menu utente	A Con il tasto di navigazione  selezionare il menu nel menu principale. B Con il tasto di navigazione  passare al menu selezionato.
Load Lenze setting <i>C00002/1</i>	A Con tasto sinistro di funzione spostarsi nella modalità edit per C00002/1 EDIT. B Con tasto di navigazione selezionare la voce "1: On/Start"  nella lista di selezione. C Con tasto destro di funzione OK accettare la modifica eseguita e lasciare la modalità edit. – La procedura di caricamento può durare alcuni secondi.

9. Autorizzare l'unità di controllo: mettere il morsetto RFR su HIGH.
- Al momento della consegna il morsetto abilitazione controllo (RFR) è dotato di ponticello (abilitazione controllo).
 - Se in C00142 è attiva l'opzione autostart "blocco con dispositivo acceso" e all'inserzione della rete è presente l'abilitazione controllo, l'unità di controllo rimane ferma nello stato "ReadyToSwitchOn". Per il passaggio nello stato "SwitchedOn" deve essere prima di tutto rimossa l'abilitazione controllo. Quindi si potrà passare nello stato "OperationEnabled" solo con successiva applicazione dell'abilitazione controllo.
 - Se in C00142 è disattivata l'opzione autostart "blocco con dispositivo acceso", dopo l'inserzione della rete con abilitazione controllo attiva, il sistema passa direttamente dallo stato "ReadyToSwitchOn" allo stato "SwitchedOn" e quindi nello stato "OperationEnabled".



Pericolo!

Se l'opzione autostart "blocco con dispositivo acceso" è disattiva, con abilitazione controllo attiva il motore può avviarsi subito dopo l'inserzione della rete!

10. Indicare il numero di giri:
- Nella modalità di controllo "morsetti 0" con impostazione di una tensione sull'ingresso analogico o con la selezione di un valore di riferimento fisso attraverso gli ingressi digitali DI1/DI2.
 - Nella modalità di controllo "tastiera" l'impostazione del valore di riferimento principale per la velocità e dei segnali di controllo viene effettuata tramite i seguenti parametri:

Messa in servizio
messa in servizio con terminale palmare
Modalità SET

Parametri	Nome	Informazioni	Impostazione Lenze
C00728/3	nMainSetValue_ a	valore di riferimento principale per l'applicazione 100 % = velocità di riferimento (C00011)	0.00 %
C00727/3	bSetSpeedCcw	cambio del senso di rotazione "0": rotazione oraria "1": rotazione antioraria	0
C00727/4	bLogSpeed1	Selezione valore di riferimento fisso 1 "0": valore di riferimento principale (C00728/3) attivo. "1": valore di riferimento fisso 1 (C00039/1) attivo.	0

- 11. Se necessario, adeguare gli altri parametri.
- 12. Salvare impostazione parametri con il tasto di funzione **SAVE** in modo fail-safe nel Modulo di memoria.

6.3.4 Modalità SET

Nella modalità SET l'unità di controllo viene controllata tramite il terminale palmare. Potete modificare il valore di riferimento velocità e abilitare o bloccare l'unità di controllo (Abilitazione controllo/run). Altre fonti di valori di riferimento vengono ignorate.

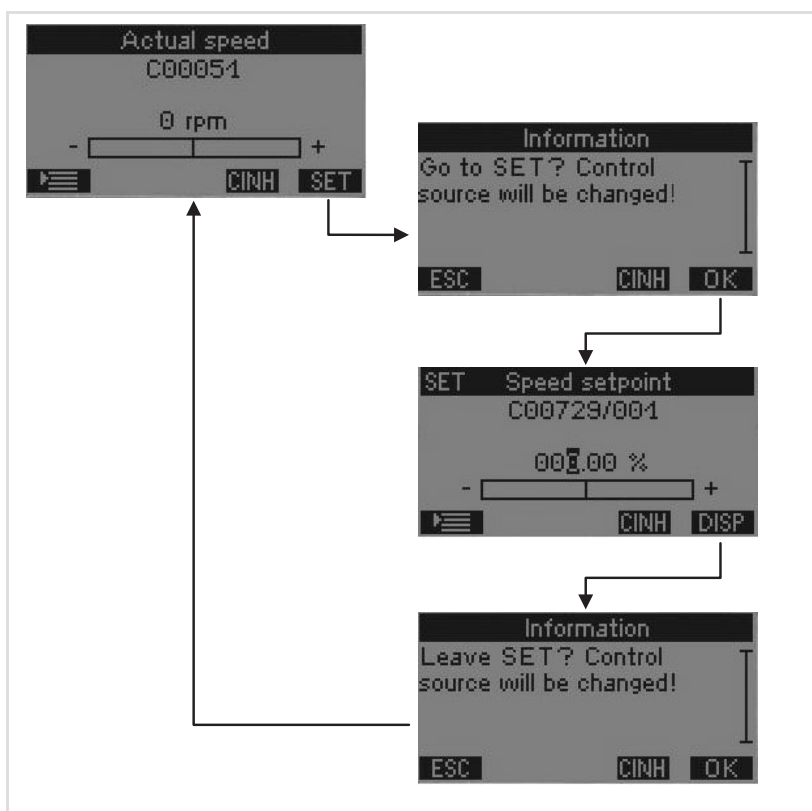
- Attivare modalità SET: attivare Softkey-Taste "DISP" e confermare con Softkey-Taste "OK".
- Lasciare modalità SET: attivare Softkey-Taste "DISP" e confermare con Softkey-Taste "OK".



Avvertenza:

Si riesce ad attivare la modalità SET solo nello stato del dispositivo "OperationEnabled" (inibizione controllo è rimossa, LED verde sull'unità di controllo è continuamente acceso).

- L'inibizione controllo nella tastiera viene solo segnalata. In C00158 viene visualizzata dettagliatamente la causa per l'inibizione controllo (📖 Manuale di riferimento 8400 motec).



7 Parametrizzazione

Attraverso la parametrizzazione potete impostare l'unità di controllo in modo ottimale su diversi requisiti di applicazioni.

La parametrizzazione può avvenire nei seguenti modi:

Parametrizzazione con L-force »Engineer«

- ▶ Ampie impostazioni online tramite software
 - La parametrizzazione sicura viene supportata tramite il Software per PC Lenze »Engineer«, a partire dalla versione 02.23.
 - La parametrizzazione è descritta nel manuale del software per il modulo di sicurezza SM302.
 - Richiede software e adattatore per diagnostica USB.

Parametrizzazione con terminale palmare/tastiera

- ▶ Impostazione di determinati parametri per mezzo di utenti esperti
 - Richiede un terminale palmare adatto per 8400 motec
 - La parametrizzazione è descritta nelle istruzioni operative EZAEBK000X per la tastiera 400.



Avvertenza:

Salvataggio delle parametrizzazioni in modo fail-safe

Affinché le parametrizzazioni eseguite nel dispositivo non vadano perse in caso di disinserzione della rete, è necessario salvarle esplicitamente in modo fail-safe nel dispositivo.

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EDK84DGDVBxxx4 ■ 13546838 ■ DE/EN/FR/ES/IT ■ 8.3 ■ TD15

10 9 8 7 6 5 4 3 2 1

EDK84DGVNxE
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L-force *Drives*

Montageanleitung

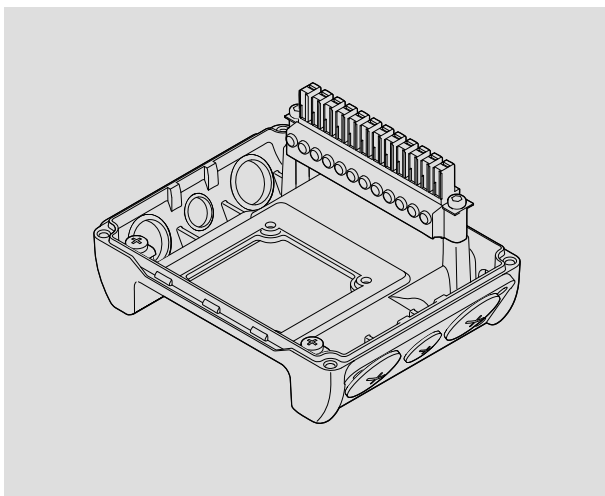
Mounting Instructions

Instructions de montage

Instrucciones para el montaje

Istruzioni per il montaggio

8400 motec

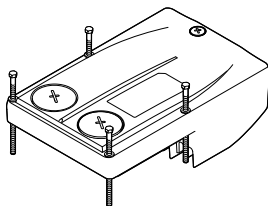


E84DGVN1E, E84DGVN2E, E84DGVN3E

Wiring unit

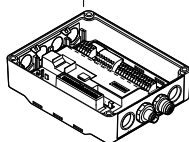
Lenze

③



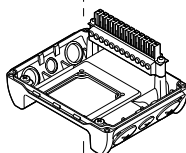
EDK84DGDVBxxx4

②

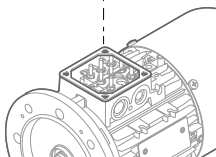
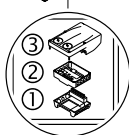
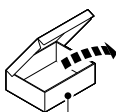


EDK84DGFCxxx

①



EDK84DGVNxE



E84DG023a



Warnings!

Operation of this equipment requires detailed installation and operation instructions provided in the Hardware manual intended for use with this product. This information is provided on the CD-ROM included in the container this device was packaged in. It should be retained with this device at all times. A hard copy of this information may be ordered by phone or e-mail, printed on the back of this document.



Gefahr!

Gefährliche elektrische Spannung

- ▶ Die Leistungsanschlüsse führen bis zu 3 Minuten nach Netz-Ausschalten gefährliche elektrische Spannung.

Mögliche Folgen:

- ▶ Tod oder schwere Verletzungen beim Berühren der Leistungsanschlüsse.

Schutzmaßnahmen:

- ▶ Vor Arbeiten am Gerät Netzspannung ausschalten und mindestens 3 Minuten warten.
- ▶ Prüfen, ob alle Leistungsanschlüsse spannungsfrei sind.

Beachten Sie auch weitere wichtige Informationen zur Geräte- und Sicherheitstechnik auf der beiliegenden CD-ROM!



Danger!

Dangerous voltage

- ▶ The power terminals carry dangerous voltages for up to 3 minutes after mains disconnection.

Possible consequences:

- ▶ Death or severe injury if the power terminals are touched.

Protective measures:

- ▶ Switch off the mains voltage and wait at least 3 minutes before starting to work on the device.
- ▶ Check that all power terminals are deenergised.

Please also observe more important information on device and safety technology provided on the enclosed CD-ROM!



Danger !

Tension électrique dangereuse

- ▶ Les raccordements de puissance sont susceptibles de véhiculer une tension dangereuse jusqu'à 3 minutes après une coupure réseau.

Risques encourus :

- ▶ Mort ou blessures graves en cas de contact avec les raccordements de puissance

Mesures de protection :

- ▶ Avant toute manipulation de l'appareil, couper la tension réseau et attendre 3 minutes au minimum.
- ▶ S'assurer que tous les raccordements de puissance sont hors tension.

Veuillez également tenir compte des consignes importantes sur la technologie des appareils et les fonctions de sécurité comprises sur le cédérom joint !



¡Peligro!

Voltaje eléctrico peligroso

- ▶ Las conexiones de potencia siguen vivas hasta 3 minutos después de la desconexión de red.

Posibles consecuencias:

- ▶ Muerte o serias lesiones al tocar las conexiones de potencia.

Medidas de protección:

- ▶ Antes de trabajar en el equipo, desconectar la alimentación de red y esperar por lo menos 3 minutos.
- ▶ Comprobar, si todas las conexiones de potencia están libres de voltaje.

Observe también la información importante sobre aspectos relativos a la técnica del dispositivo y de seguridad incluida en el CD-ROM adjunto!



Pericolo!

Tensione elettrica pericolosa

- ▶ I collegamenti di potenza presentano una tensione elettrica pericolosa fino a 3 minuti dopo la disinserzione della rete.

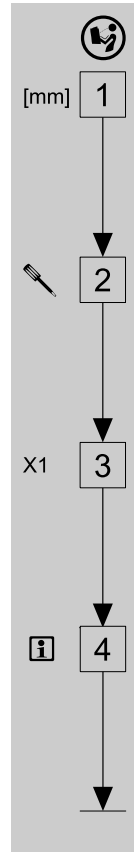
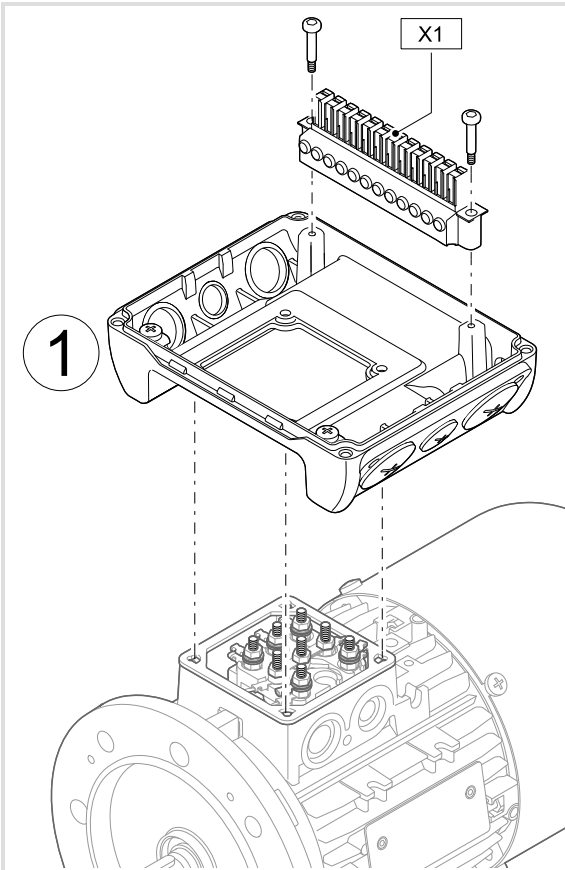
Possibili conseguenze:

- ▶ Morte o gravi lesioni in caso di contatto con i collegamenti di potenza.

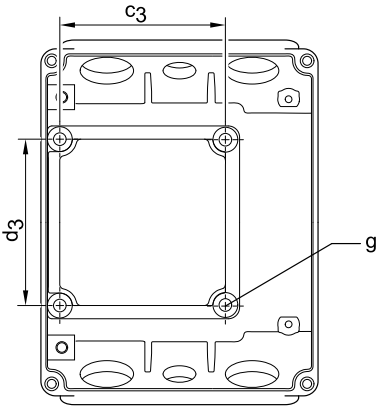
Misure di protezione:

- ▶ Attendere almeno 3 minuti prima di eseguire qualsiasi intervento sui collegamenti di potenza.
- ▶ Controllare tutti i collegamenti di potenza per accertare l'assenza di tensione.

Osservare anche le ulteriori informazioni importanti relative a installazione e sicurezza incluse nel CD-ROM allegato!



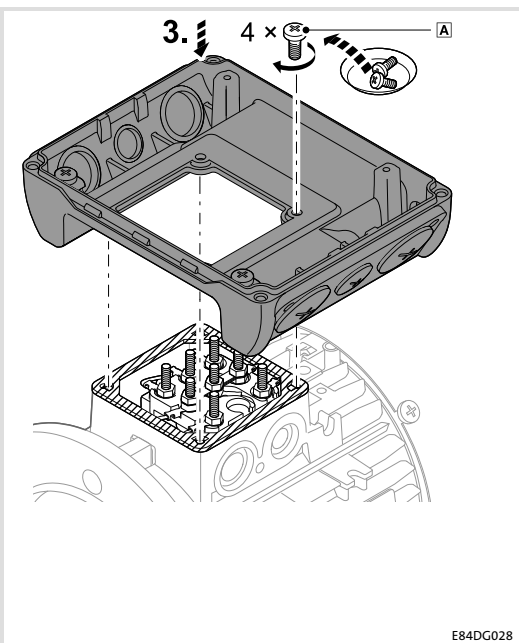
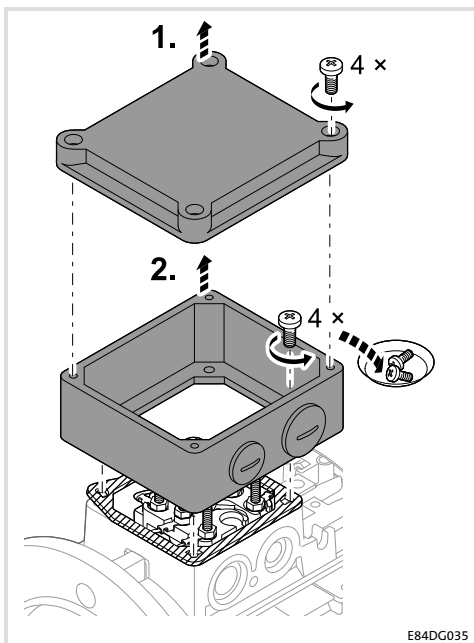
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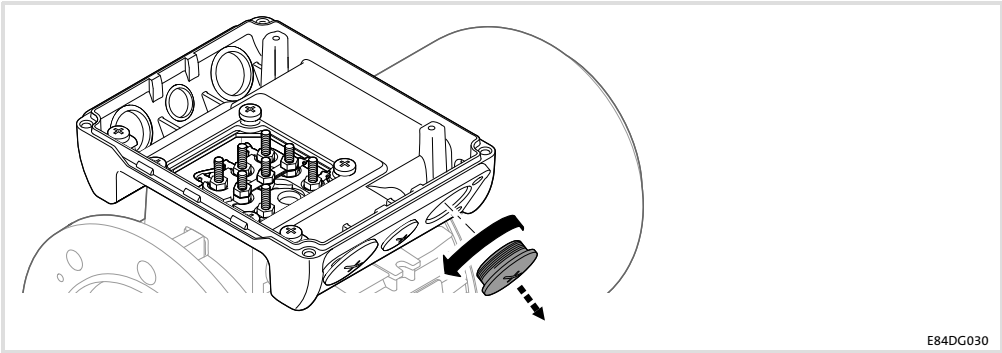
E84DG038



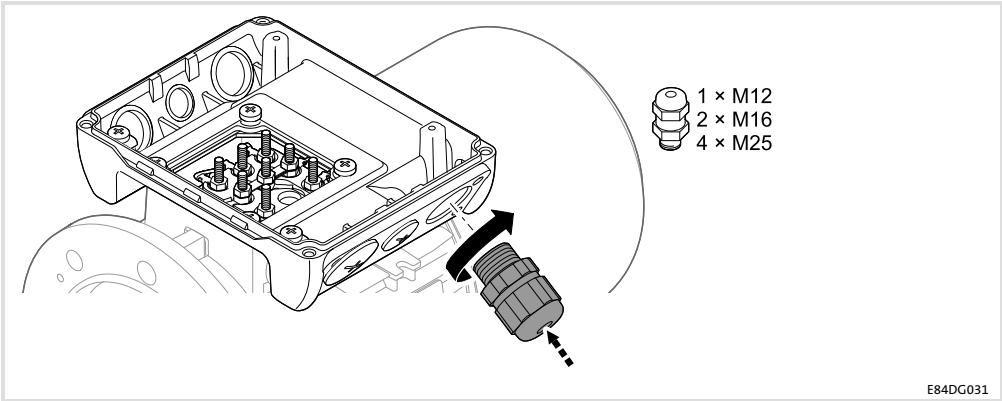
	c_3 [mm]	d_3 [mm]	g [mm]	 P_N / f_N
E84DGVN1E	60	60	Ø 4.5	0.37 ... 0.75 kW / 50 Hz
E84DGVN2E	73	73	Ø 5.5	1.1 ... 1.5 kW / 50 Hz
E84DGVN3E	73	73	Ø 5.5	2.2 ... 3 kW / 50 Hz



 	 Nm / [lb-in]
M4	3.4 / 30
M5	3.4 / 30



E84DG030



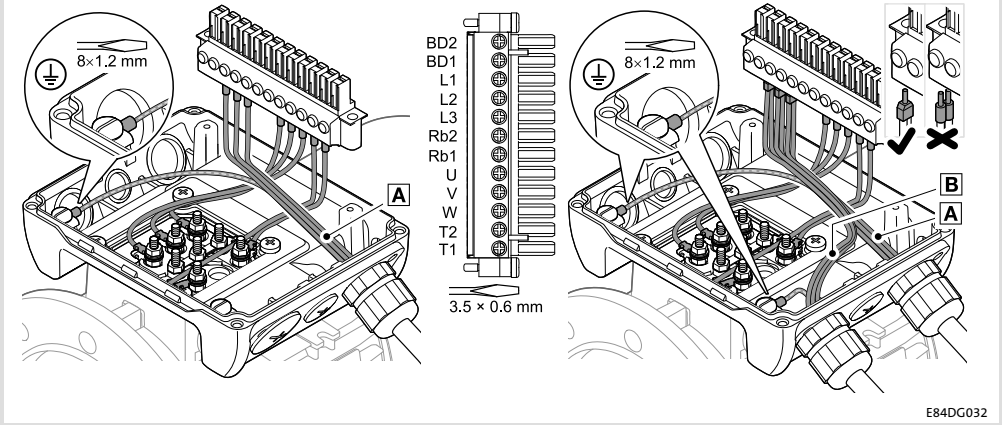
E84DG031

Option / option / option / opción / opzione

X10			U _{max}	I _{max}
 E84DG118	1	L1	480 V AC	20 A (UL: 15 A)
	2	L2		
	3	L3		
	⌚	PE		

X10			U _{max}	I _{max}
 E84DGX10M15	1	L1	480 V AC	16 A
	2	L2		
	3	L3		
	A	24 V ext.	24 V DC	10 A
	B	GND		
	⌚	PE		

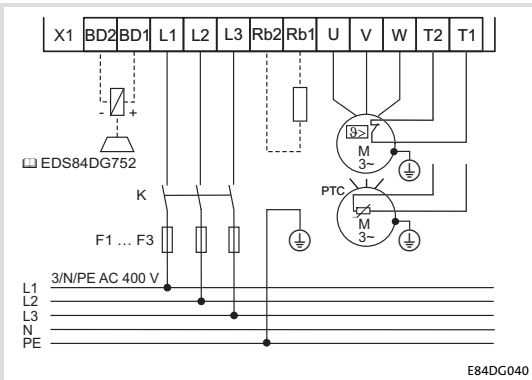
X1



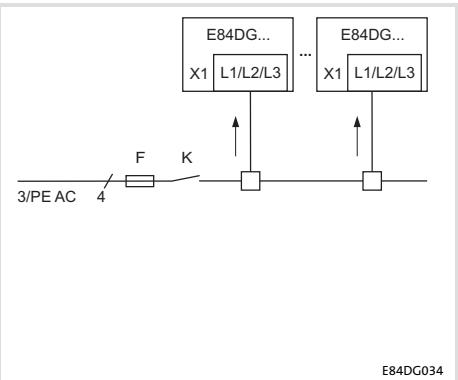
E84DG032

A 120 mm

B 180 mm

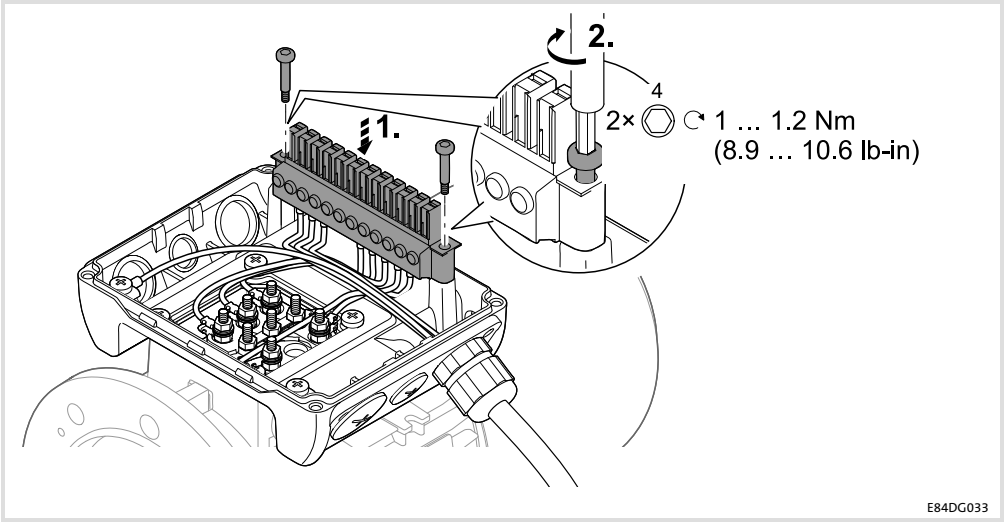


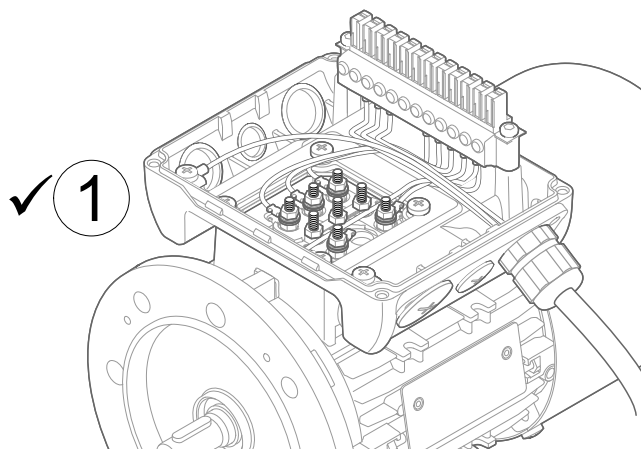
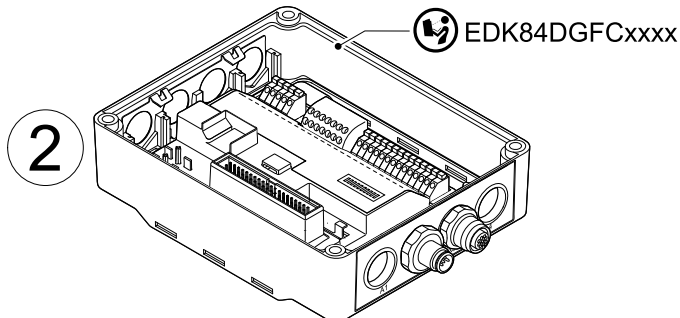
E84DG040



E84DG034

	F			L1, L2, L3 / U, V, W			PE			BD1, BD2, Rb1, Rb2, T1, T2		
	EN 60204											
	[A]		[A]	[mm ²] [AWG]	[mm]	[Nm] [lb-in]	[mm ²] [AWG]	[mm]	[Nm] [lb-in]	[mm ²] [AWG]	[mm]	[Nm] [lb-in]
E84DGDBV3714 ...	16	C16	15	1 ... 6.0 18 ... 8	10	0.7 6.2	1 ... 6.0 18 ... 8	10	1.7 15	1 ... 6.0 18 ... 8	10	0.7 6.2
E84DGDBV2224 E84DGDBV3024	32	C32	25	1 ... 6.0 18 ... 8	10	0.7 6.2	1 ... 6.0 18 ... 8	10	1.7 15	1 ... 6.0 18 ... 8	10	0.7 6.2





E84DG037

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EDK84DGVNxE ■ 13578221 ■ DE/EN/FR/ES/IT ■ 5.1 ■ TD15

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EDK84DGVN4E
13410319



L-force *Drives*

Montageanleitung

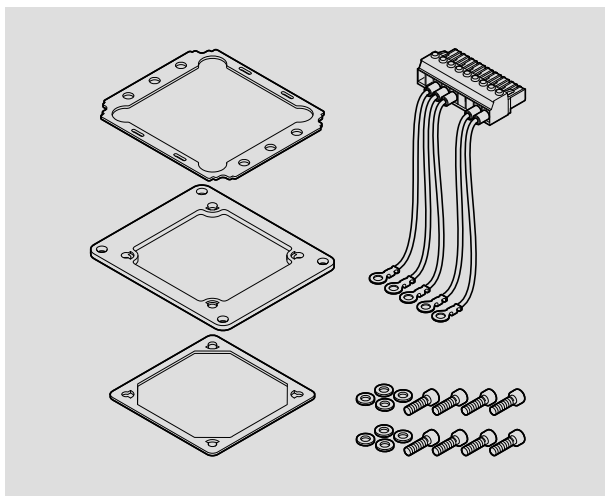
Mounting Instructions

Instructions de montage

Instrucciones para el montaje

Istruzioni per il montaggio

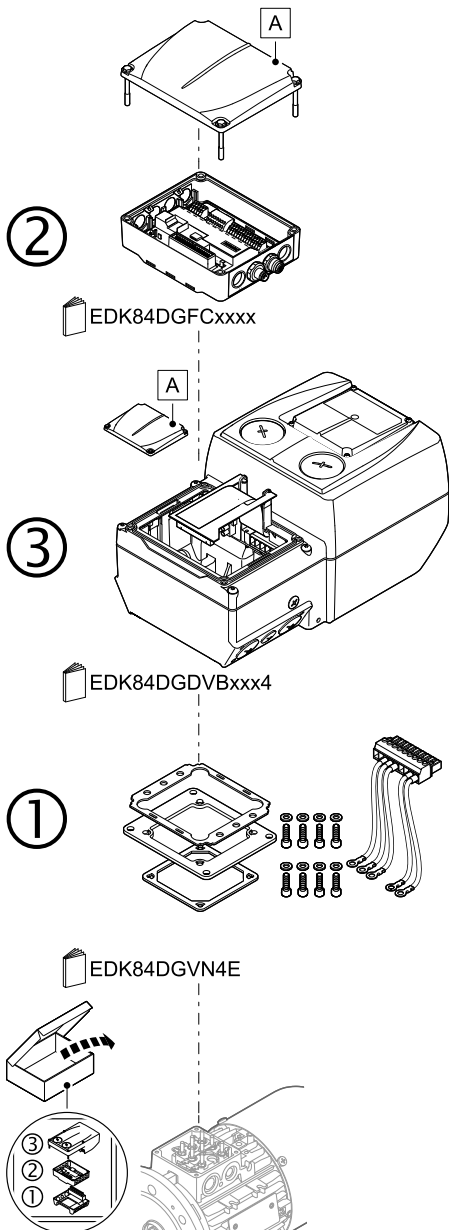
8400 motec



E84DGVN4E, E84DGVN5E

Wiring unit

Lenze



E84DG023b



Warnings!

Operation of this equipment requires detailed installation and operation instructions provided in the Hardware manual intended for use with this product. This information is provided on the CD-ROM included in the container this device was packaged in. It should be retained with this device at all times. A hard copy of this information may be ordered by phone or e-mail, printed on the back of this document.



Gefahr!

Gefährliche elektrische Spannung

- ▶ Die Leistungsanschlüsse führen bis zu 3 Minuten nach Netz-Ausschalten gefährliche elektrische Spannung.

Mögliche Folgen:

- ▶ Tod oder schwere Verletzungen beim Berühren der Leistungsanschlüsse.

Schutzmaßnahmen:

- ▶ Vor Arbeiten am Gerät Netzspannung ausschalten und mindestens 3 Minuten warten.
- ▶ Prüfen, ob alle Leistungsanschlüsse spannungsfrei sind.

Beachten Sie auch weitere wichtige Informationen zur Geräte- und Sicherheitstechnik auf der beiliegenden CD-ROM!



Danger!

Dangerous voltage

- ▶ The power terminals carry dangerous voltages for up to 3 minutes after mains disconnection.

Possible consequences:

- ▶ Death or severe injury if the power terminals are touched.

Protective measures:

- ▶ Switch off the mains voltage and wait at least 3 minutes before starting to work on the device.
- ▶ Check that all power terminals are deenergised.

Please also observe more important information on device and safety technology provided on the enclosed CD-ROM!



Danger !

Tension électrique dangereuse

- ▶ Les raccordements de puissance sont susceptibles de véhiculer une tension dangereuse jusqu'à 3 minutes après une coupure réseau.

Risques encourus :

- ▶ Mort ou blessures graves en cas de contact avec les raccordements de puissance

Mesures de protection :

- ▶ Avant toute manipulation de l'appareil, couper la tension réseau et attendre 3 minutes au minimum.
- ▶ S'assurer que tous les raccordements de puissance sont hors tension.

Veuillez également tenir compte des consignes importantes sur la technologie des appareils et les fonctions de sécurité comprises sur le cédérom joint !



¡Peligro!

Voltaje eléctrico peligroso

- ▶ Las conexiones de potencia siguen vivas hasta 3 minutos después de la desconexión de red.

Posibles consecuencias:

- ▶ Muerte o serias lesiones al tocar las conexiones de potencia.

Medidas de protección:

- ▶ Antes de trabajar en el equipo, desconectar la alimentación de red y esperar por lo menos 3 minutos.
- ▶ Comprobar, si todas las conexiones de potencia están libres de voltaje.

Observe también la información importante sobre aspectos relativos a la técnica del dispositivo y de seguridad incluida en el CD-ROM adjunto!



Pericolo!

Tensione elettrica pericolosa

- ▶ I collegamenti di potenza presentano una tensione elettrica pericolosa fino a 3 minuti dopo la disinserzione della rete.

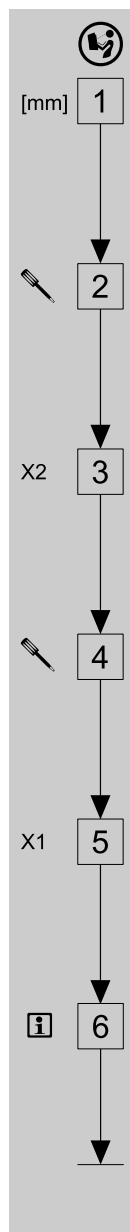
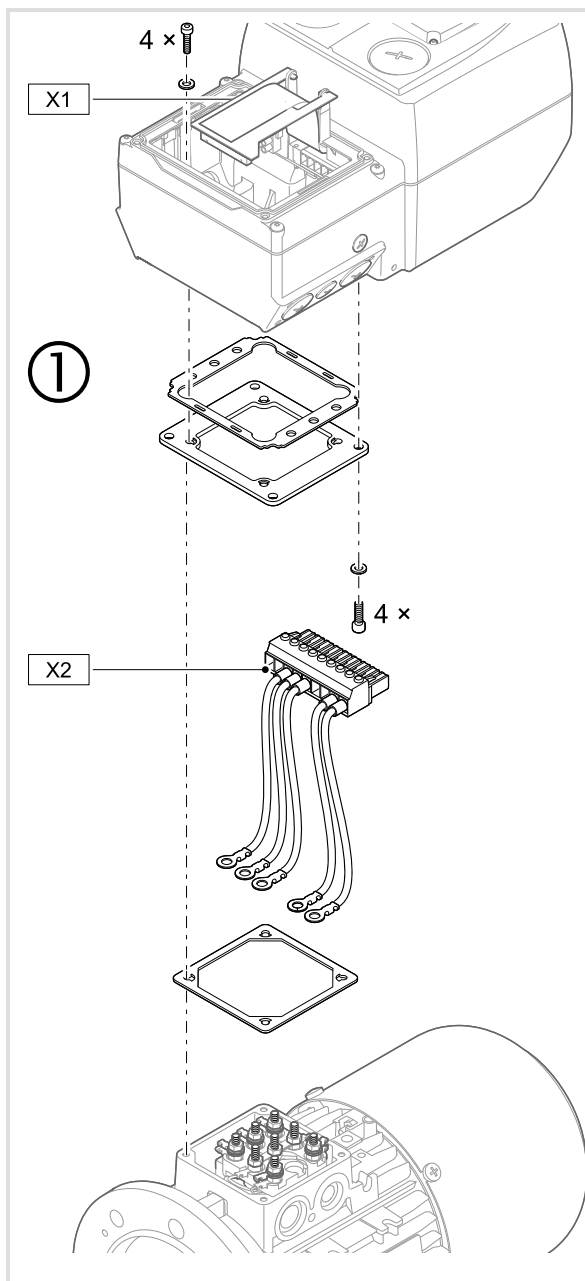
Possibili conseguenze:

- ▶ Morte o gravi lesioni in caso di contatto con i collegamenti di potenza.

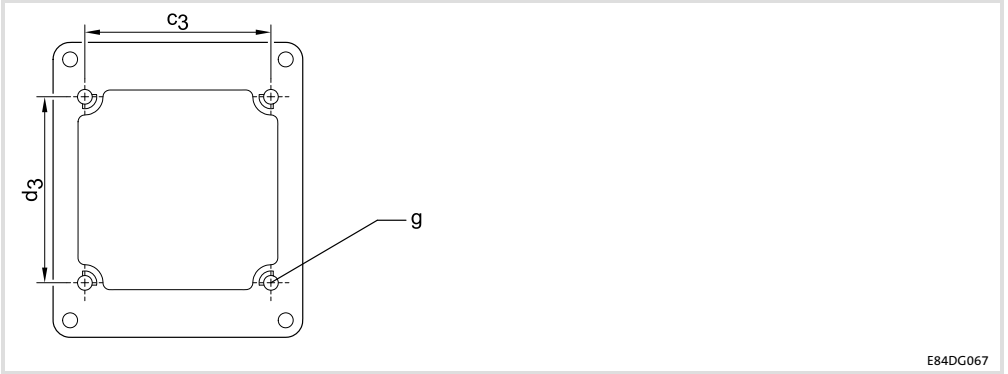
Misure di protezione:

- ▶ Attendere almeno 3 minuti prima di eseguire qualsiasi intervento sui collegamenti di potenza.
- ▶ Controllare tutti i collegamenti di potenza per accertare l'assenza di tensione.

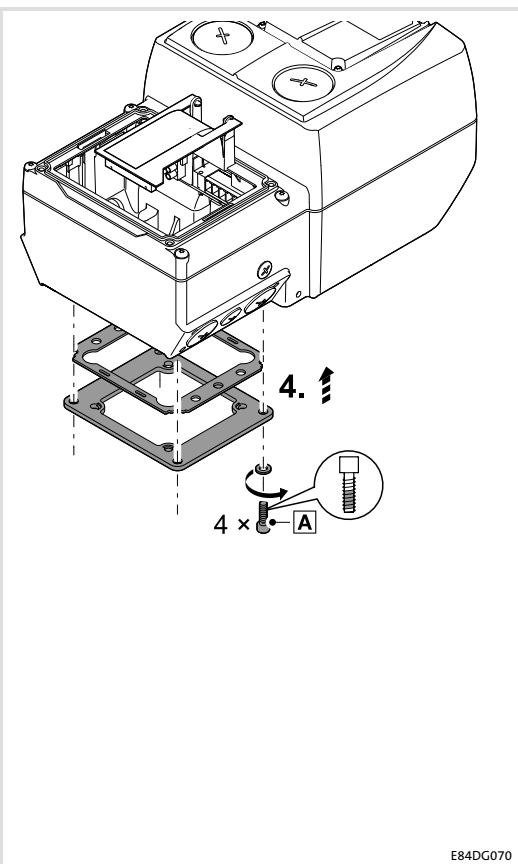
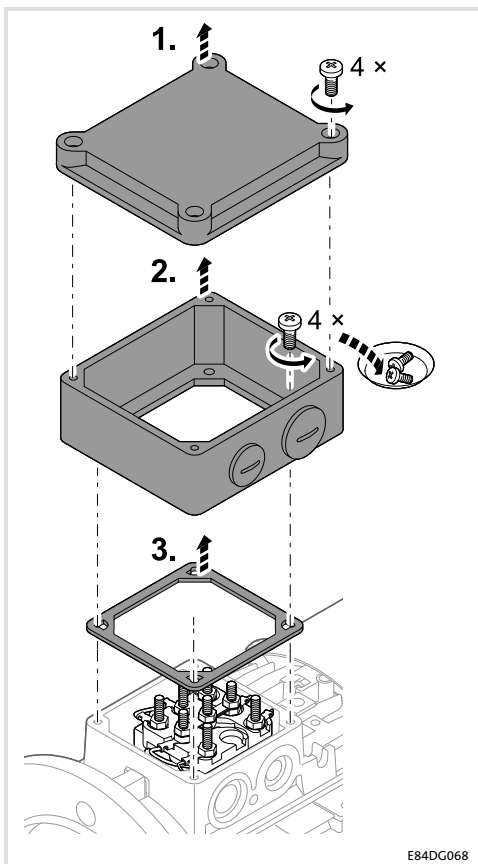
Osservare anche le ulteriori informazioni importanti relative a installazione e sicurezza incluse nel CD-ROM allegato!



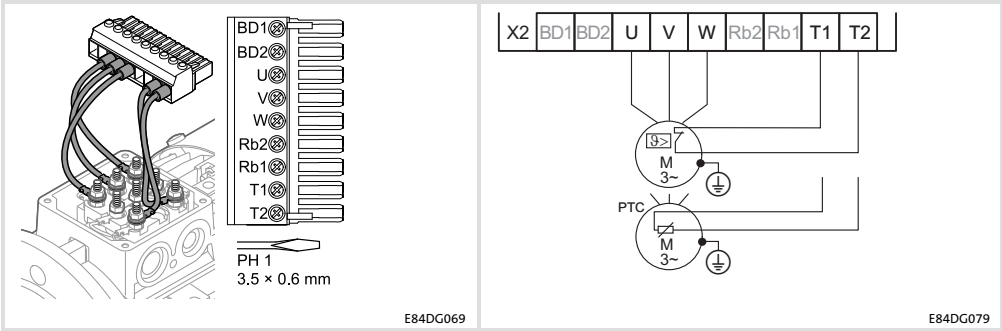
E84DG066



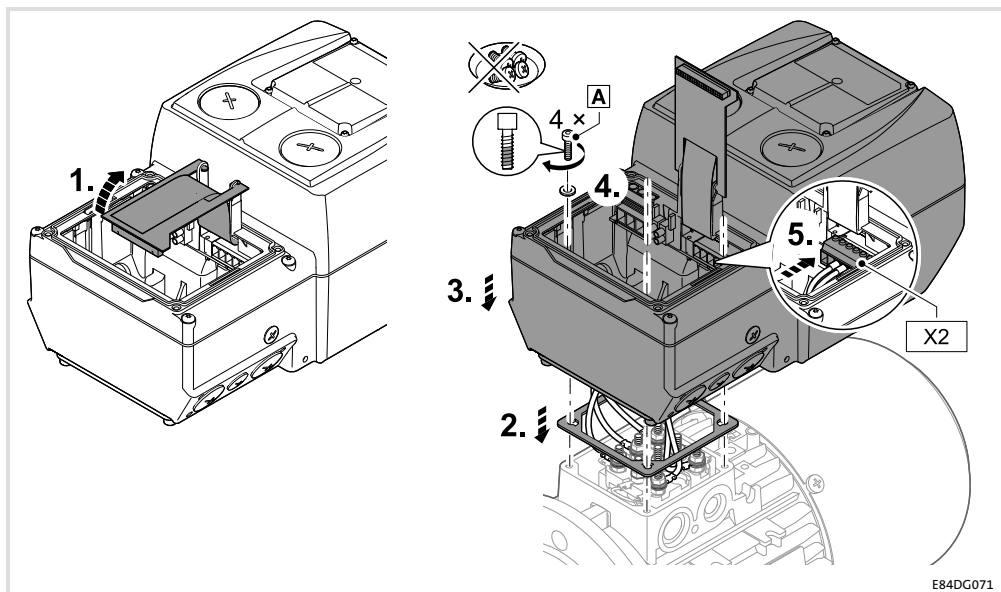
	c_3 [mm]	d_3 [mm]	g [mm]	 P_N / f_N
E84DGVN4E	73	73	Ø 5.5	4 ... 5.5 kW / 50 Hz
E84DGVN5E	82	82	Ø 6.5	7.5 kW / 50 Hz



 		
M6 × 16 mm	5	Nm / lb-in
		9 / 80



			
	[mm ²] [AWG]	[mm]	[Nm] [lb-in]
E84DGDBV4024	1 ... 6	10	0.7
E84DGDBV5524	18 ... 8		6.2
E84DGDBV7524			

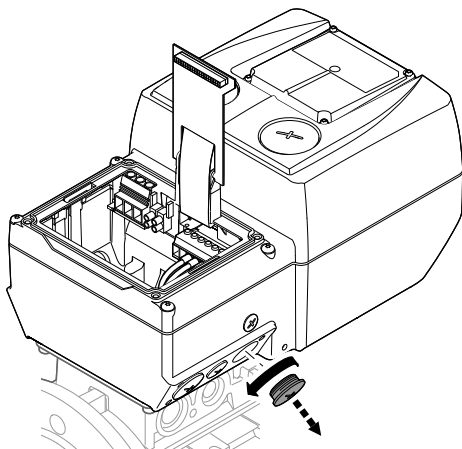


E84DG071

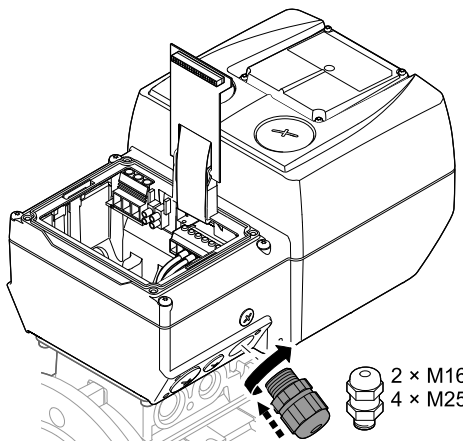
		
		Nm / lb-in
M5 × 16 mm	4	5.5 / 49
M6 × 16 mm	5	9 / 80



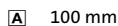
4



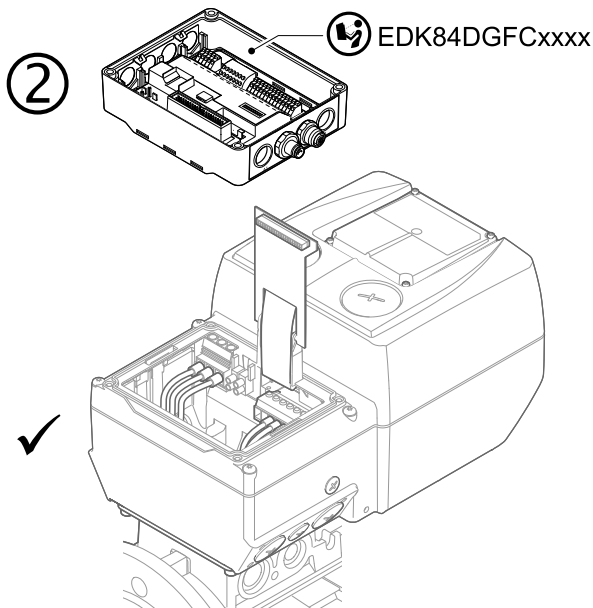
E84DG073



E84DG074



E84DGDBV4024
E84DGDBV5524
E84DGDBV7524



E84DG077

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