



E84DGFCLxxx

POWERLINK

Inverter Drives 8400 motec_____

Communication manual

EN



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1 About this documentation

Contents

This documentation exclusively contains descriptions of the POWERLINK bus system for the Inverter Drive 8400 motec.



Note!

This documentation supplements the **mounting instructions** and the **Inverter Drive 8400 motec hardware manual** supplied with the Communication Unit.

The hardware manual contains safety instructions which must be observed!

The properties and functions of POWERLINK for Inverter Drives 8400 motec are described in detail. Examples illustrate typical applications.

The theoretical context is only explained as far as it is required for understanding the function of the Communication Unit.

This documentation does not describe any software provided by other manufacturers. No liability can be accepted for corresponding data provided in this documentation. For information on how to use the software, please refer to the master computer (PLC, master) documents.

All brand names mentioned in this documentation are trademarks of their corresponding owners.



Tip!

Detailed information about POWERLINK can be found on the website of the Ethernet POWERLINK Standardization Group:

www.ethernet-powerlink.org

About this documentation

Target group

This documentation addresses to persons who configure, install, commission, and maintain the networking and remote maintenance of a machine.



Tip!

Current documentation and software updates with regard to Lenze products can be found in the download area at:

www.Lenze.com

Information regarding the validity

The information given in this documentation is valid for the following devices:

Product series	Type designation	Variant
Inverter Drives 8400 motec POWERLINK Communication Unit	E84DGFCLxNx	POWERLINK
	E84DGFCLxJx	POWERLINK + Safety

► [Features and variants](#) (13)

Screenshots/application examples

All screenshots in this documentation are application examples. Depending on the firmware version of the field devices and the software version of the Engineering tools installed (e.g. »Engineer«), the screenshots in this documentation may deviate from the actual screen representation.

About this documentation

Document history

1.1 Document history

Version			Description
1.0	10/2018	TD23	First edition

About this documentation

Conventions used

1.2 Conventions used

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

Type of information	Highlighting	Examples/notes
Spelling of numbers		
Decimal	Normal spelling	Example: 1234
Decimal separator	Point	The decimal point is always used. For example: 1234.56
Hexadecimal	0x[0 ... 9, A ... F]	Example: 0x60F4
Binary • Nibble	0b[0, 1]	Example: '0b0110' Example: '0b0110.0100'
Text		
Program name	» «	PC software Example: Lenze »Engineer«
Window	<i>italics</i>	The <i>message window</i> ... / The <i>Options</i> dialog box...
Control element	Bold	The OK button... / The Copy command... / The Properties tab... / The Name input field...
Hyperlink	<u>Underlined</u>	Optically highlighted reference to another topic. Can be activated with a mouse-click in this documentation.
Icons		
Page reference	 7	Optically highlighted reference to another page. Can be activated with a mouse-click in this documentation.
Step-by-step instructions		Step-by-step instructions are indicated by a pictograph.

About this documentation

Terminology used

1.3 Terminology used

Term	Meaning
	POWERLINK is a real-time capable fieldbus system based on Ethernet. For user data exchange, POWERLINK specifies a communication protocol based on CANopen. POWERLINK is a patented technology licensed by the Ethernet POWERLINK Standardization Group (EPSG), Germany.
Inverter	Lenze inverters of the "Inverter Drives 8400 motec" product series
Standard device	
Drive Unit Communication unit Wiring Unit	The 8400 motec inverter has a modular structure that includes the following modules: "Drive Unit", "Communication Unit", and "Wiring Unit". • The drive unit is available in different power settings. • In case of the communication unit you can select between: • Without fieldbus (basic I/O, standard I/O, extended I/O) • AS interface (without safety/with safety STO) • CANopen (without safety/with safety STO) • EtherCAT (without safety/with safety STO) • EtherNET/IP (without safety/with safety STO) • PROFIBUS (without safety/with safety STO) • PROFINET (without safety/with safety STO) • POWERLINK (without safety/with safety STO) • The wiring unit provides flexible connection possibilities for a simple integration into the power supply of the machine.
»Engineer«	Lenze PC software which supports you during the "Engineering" process (parameterisation, diagnostics, and configuration) throughout the whole life cycle, i. e. from planning to maintenance of the machine commissioned.
»PLC Designer«	
Code	Parameter which serves to parameterise and monitor the inverter. In normal usage, the term is usually referred to as "Index".
Subcode	If a code contains several parameters, they are stored in "subcodes". This manual uses a slash "/" as a separator between code and subcode (e.g. "C00118/3"). This term is also referred to as "subindex" in common parlance.
Lenze setting	This setting is the default factory setting of the device.
Basic setting	
HW	Hardware
SW	Software
EPL	Abbreviation for "Ethernet POWERLINK"
(EPL) nodes	Ethernet POWERLINK nodes (<i>managing node, controlled nodes</i>)
CN	Controlled node (EPL slave)
MN	Managing node (EPL master) The <i>Managing Node</i> accepts the control function for the data communication of the decentralised field devices. Typically, the <i>Managing Node</i> is the communication interface of a PLC.
Node ID	EPL node address

About this documentation

Notes used

1.4 Notes used

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

Safety instructions

Layout of the safety instructions:



Pictograph and signal word!

(characterise the type and severity of danger)

Note

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

Pictograph	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	Signal word	Meaning
	Note!	Important note to ensure trouble-free operation
	Tip!	Useful tip for easy handling
		Reference to another document

2 Safety instructions



Note!

It is absolutely vital that the stated safety measures are implemented in order to prevent serious injury to persons and damage to material assets.

Always keep this documentation to hand in the vicinity of the product during operation.

2.1 General safety and application notes



Danger!

If the following basic safety measures are disregarded, severe injuries to persons and damage to material assets may result.

- Lenze drive and automation components ...
 - must only be used as directed.
 - ▶ [Application as directed](#) (📖 12)
 - must never be commissioned if they display signs of damage.
 - must never be technically modified.
 - must never be commissioned if they are not fully mounted.
 - must never be operated without required covers.
 - during and after operation can have live, moving and rotating parts, depending on their degree of protection. Surfaces can be hot.
- The following applies to Lenze drive components ...
 - only use the accessories approved.
 - Only use original manufacturer spare parts.
- Observe all specifications contained in the enclosed documentation and related documentation.
 - This is the precondition for safe and trouble-free operation and for obtaining the product features specified.
 - ▶ [Features and variants](#) (📖 13)
 - The specifications, processes, and circuitry described in this document are for guidance only and must be adapted to your own specific application. Lenze does not take responsibility for the suitability of the process and circuit proposals.
- Only qualified personnel may work with and on Lenze drive and automation components. In accordance with IEC 60364 and CENELEC HD 384, these are persons ...
 - are familiar with installing, mounting, commissioning, and operating the product.
 - who have the corresponding qualifications for their work.
 - who know and can apply all regulations for the prevention of accidents, directives, and laws applicable at the place of use.

Safety instructions

Device and application-specific safety instructions

2.2 Device and application-specific safety instructions

During operation, the Communication Unit must be connected to the Wiring Unit and the Drive Unit.



Documentation for Inverter Drives 8400 motec, control system, plant/machine

All the other measures prescribed in this documentation must also be implemented.
Observe the safety instructions and application notes contained in this manual.

2.3 Residual hazards

Device protection

The Communication Unit contains electronic components that can be damaged or destroyed by electrostatic discharge.

▶ [Installation](#) (18)

3 Product description

3.1 Application as directed

The POWERLINK communication unit ...

- is a unit that can only be used in conjunction with the following modules:

Product series	Type designation
Inverter Drives 8400 motec Drive Unit	E84DGDVxxxxxxxx (from version 8.00)
Inverter Drives 8400 motec Wiring Unit	E84DGVNxx

- is a device intended for use in industrial power systems.
- should only be used under the operating conditions prescribed in this documentation.
- can only be used in POWERLINK networks.
- can also be used without being connected to the POWERLINK network.

Any other use shall be deemed inappropriate!

Product description

Features and variants

3.2 Features and variants

The POWERLINK Communication Unit is available in the following versions:

Product series	Type designation	Product features				
		Enclosure	Connection POWERLINK	I/O: Connection via terminal	I/O: Connection via M12	Safety
Inverter Drives 8400 motec POWERLINK Communication Unit	E84DGFCLFNP	IP 65	M12	3× DI 1× DO	2× DI	
	E84DGFCLENP	IP 65	M12	2× DI	3× DI 1× DO	
	E84DGFCLFJP	IP 65	M12	3× DI 1× DO 1× AI	2× DI	●
	E84DGFCLJJP	IP 65	M12	3× DI	2× DI 1× DO 1× AI	●

- The POWERLINK Communication Unit is ...
 - mounted to the Wiring Unit (E84DGVNxx);
 - supplied internally via the Drive Unit (E84DGDVxxxxxxxx) or externally via a separate voltage source.
- The I/O connections can be brought into the device via M12 connectors or cable glands.
- Devices without an integrated safety system (safety option) have no analog input and no relay output.
- The integrated safety system is applicable on machines for the protection of persons.
- Real-time Ethernet with the Ethernet POWERLINK V2 communication profile for motion and general applications
- Supported functions:
 - POWERLINK CN (Controlled Node)
- Up to 6 data words (max. 12 bytes) can be sent or received.
- Very short CN response times for optimal network performance
- Communication with the Lenze »EASY Starter« (access to all Lenze parameters) is executed via the diagnostic interface of the Drive Unit.



Hardware manual for the Inverter Drive 8400 motec

Here you will find detailed information on the integrated safety system (safety option).

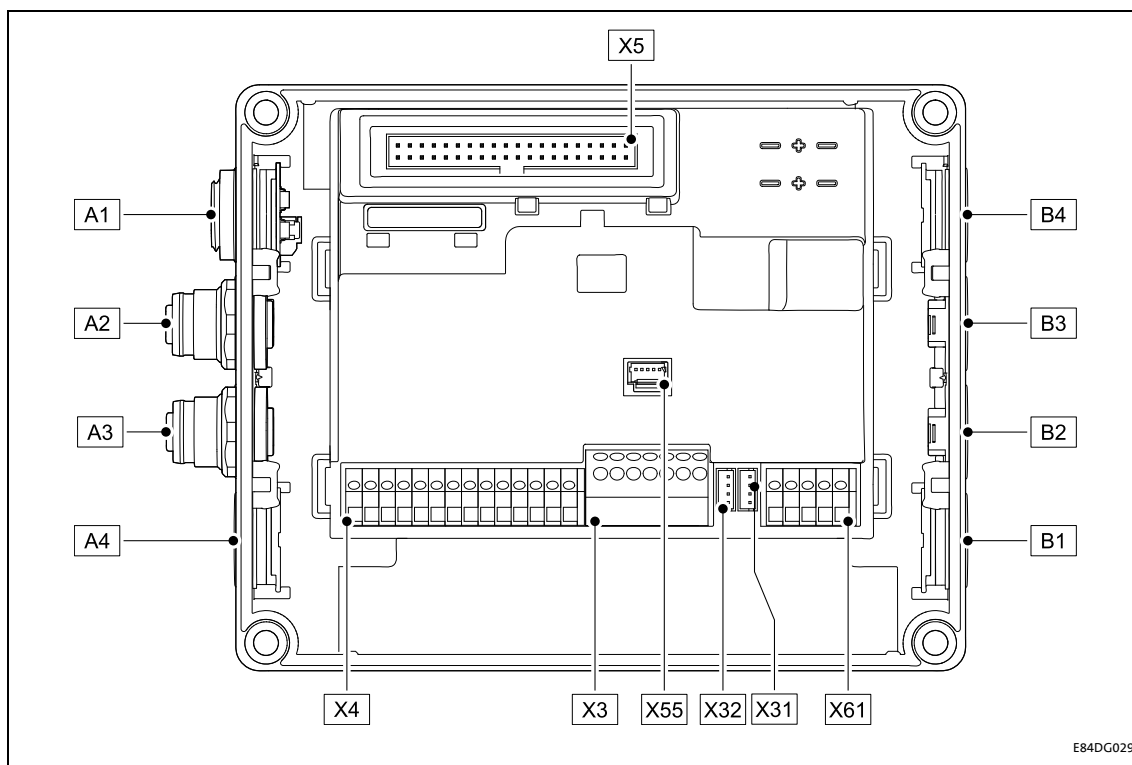
Reference manual/online help for the Inverter Drive 8400 motec

Here you will find detailed information on how to configure the safety system (safety option).

Product description

Connections and interfaces

3.3 Connections and interfaces



[3-1] POWERLINK Communication Unit

Pos.	Description
A1	LEDs for POWERLINK status display ▶ LED status displays (38)
A2	POWERLINK IN (M12 socket, 4-pole, D-coded) ▶ POWERLINK connection (23)
A3	POWERLINK OUT (M12 socket, 4-pole, D-coded) ▶ POWERLINK connection (23)
A4	Positions for further freely designable inputs and outputs:
B1 ... B4	
	• Digital inputs • Digital output • Analog input (only for E84DGFCLxJx) • Relay output (only for E84DGFCLxJx) • Connection of "Safety Option" safety system (only for E84DGFCLxJx)
X3, X4, X61	Terminal strips for wiring the connections at A4 and B1 ... B4
X5	Plug connector for connection to the Drive Unit
X31	Plug connector for wiring the POWERLINK IN to A2
X32	Plug connector for wiring the POWERLINK OUT to A3
X55	Plug connector for wiring the LEDs at A1

Product description

Connections and interfaces

- By default, the POWERLINK connections and the LEDs for the POWERLINK status displays are already mounted and wired:
 - POWERLINK IN to plug connector X31
 - POWERLINK OUT to plug connector X32
 - LEDs to plug connector X55
- It is also possible to connect the POWERLINK and other inputs and outputs (e.g. digital inputs) via the positions A1 ... A4 and B1 ... B4.
- For the connections, 5-pin M12 connectors or - alternatively - cable glands (cable cross-section max. 1.0 mm², AWG 18) can be used.
- The M12 connectors, cable glands and prefabricated system cables can be obtained from various manufacturers.
- Wire the M12 connectors or cable glands used to the corresponding contacts of the terminal strips/plug connectors X3, X4 and X61.



Hardware manual for the Inverter Drive 8400 motec

Observe the notes and wiring instructions contained in this documentation.

4 Technical data



Hardware manual for the Inverter Drive 8400 motec

Here you will find the **ambient conditions** and information on the **electromagnetic compatibility (EMC)** that also apply to the Communication Unit.

4.1 General data and operating conditions

Range	Values
Order designation	• E84DGFCLxNx (POWERLINK) • E84DGFCLxJx (POWERLINK + Safety)
Communication profile	Ethernet POWERLINK V2
Interface for communication	• POWERLINK IN: M12 socket, 4-pole, D-coded • POWERLINK OUT: M12 socket, 4-pole, D-coded
Network topology	Tree, star, and line
Type of node	Controlled node
Node addresses (node IDs)	1 ... 239
Transmission mode	Half duplex
Baud rate	100 Mbps
External voltage supply	• $U = 24\text{ V DC (}20\text{ V} - 0\text{ \%} \dots 29\text{ V} + 0\text{ \%)}$ • $I_{\text{max}} = 120\text{ mA}$
Conformities, approvals	• CE • UR / cUR • EAC (see also hardware manual)

4.2 POWERLINK communication data

Range	Values
Min. cycle time	400 µs
Total cycle times	0.4 / 0.5 / 1.0 / 1.2 / 2.0 / 3.0 ... 20.0 ms
Buffer size	- Tx-iso: max. 1490 bytes - Rx-iso: max. 1490 bytes
Delay time	- Controlled node ($T_{\text{Preq}} - T_{\text{Res}}$): approx. 2.6 µs - Controlled node ($T_{\text{SoA}} - T_{\text{ASnd}}$): approx. 2.6 µs
Frame size	Max. asynchronous frame size (MTU): 1518 bytes
SDO communication method	UDP/IP or ASND
Number of RPDOs	1 channel
RPDO user data per application	Max. 6 objects (max. 10 bytes)
Number of TPDOs	1 channel (data access of all nodes by broadcasting)
TPDO user data per application	Max. 6 objects (12 bytes)
CN operating modes	Support of ... - Multiplex CNs - Optional CNs

Communication time

The communication time is the time between the start of a request and the arrival of the corresponding response.

The communication times in an POWERLINK network depend on the ...

- processing time in the inverter;
- frame runtime (baud rate / frame length);
- nesting depth of the network.

Processing time inside the inverter

Data	Processing time
Process data	Approx. 2 ms + 0 ... 1 ms + 1 ... x ms Update cycle Processing time in the module Runtime of the application task of the technology application used (tolerance)
Parameter data	Approx. 30 ms + a tolerance of 20 ms (typically) Some codes may require a longer processing time (see reference manual/ online help for Inverter Drive 8400 motec).

There are no interdependencies between parameter data and process data.

5 Installation



Stop!

Electrostatic discharge

Electronic components within the Communication Unit can be damaged or destroyed by electrostatic discharge.

Possible consequences:

- The Communication Unit is defective.
- Fieldbus communication is not possible or faulty.
- I/O signals are faulty.
- The safety function is faulty.

Protective measures

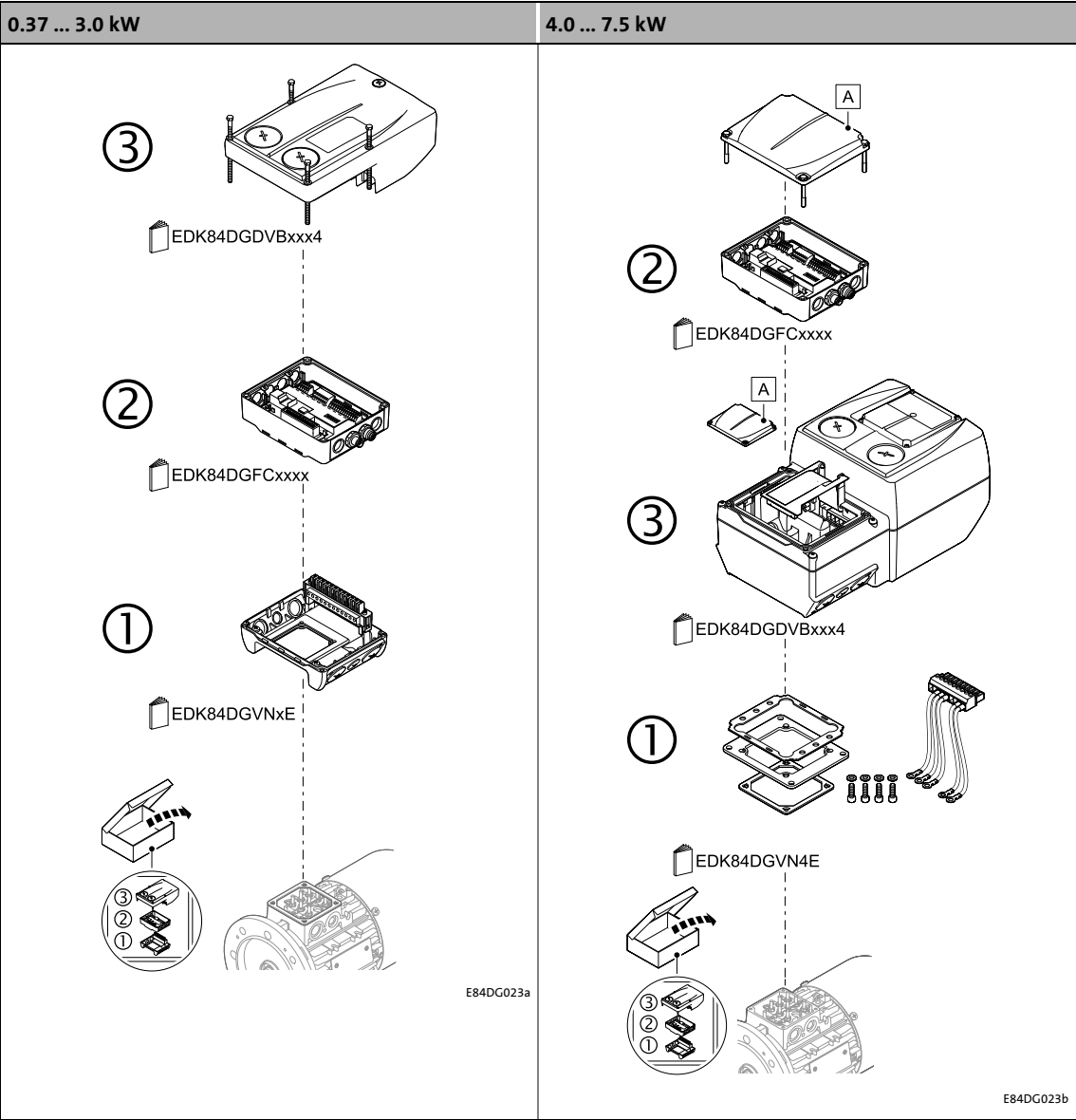
Discharge electrostatic charges before touching the Communication Unit.

5.1 Mechanical installation



Mounting instructions for the Inverter Drive 8400 motec

Here you will find detailed information on the installation.



[5-1] Mechanical installation of the 8400 motec components

Legend for Fig. [5-1]	
1	Drive Unit
2	Communication unit
3	Wiring Unit
A	Cover of the Drive Unit
EDK84DG...	Mounting instructions of the Drive Unit, Communication Unit, Wiring Unit

5.2 Electrical installation



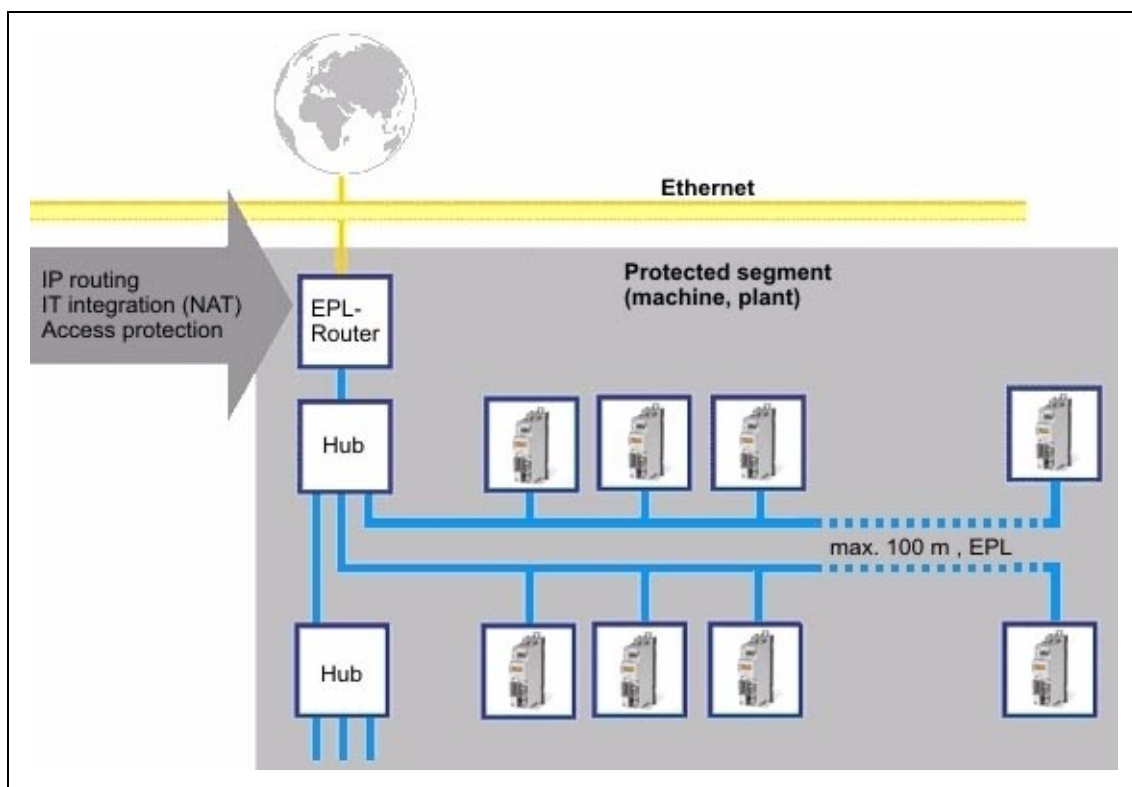
Hardware manual for the Inverter Drive 8400 motec

Here you will find detailed information about ...

- the digital and analog inputs/outputs;
- the relay output;
- the integrated safety system (safety option);
- the wiring of the connections.

Observe the notes and wiring instructions provided therein!

5.2.1 Network topology



[5-2] Network topology for POWERLINK



Note!

The use of class-1 hubs and switches inside the EPL network segment is not permitted.

Inside the segment only Ethernet hubs may be used as infrastructure elements. The hubs must meet the requirements on class II repeaters acc. to IEEE 802.3u.

Class I hubs and switches are not permissible since they have considerably longer delay times for the frame forwarding and a bigger jitter. Both sizes reduce the real-time capability and dynamics.

The cable length between both nodes is limited to 100 m.

Installation

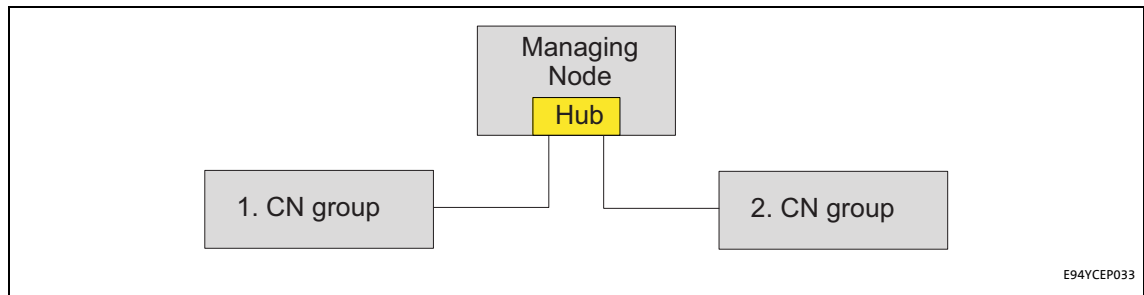
Electrical installation

The topology rules (IEEE 802.3u) required for controlling the collisions may be violated in the EPL network segment since according to the EPL access order frame collisions are prevented. This enables a structure of lines and any hybrid forms between star and line topology.

Recommended topology

For an easy configuration and due to many possible topology variants we recommend to create networks according to the following rules:

1. Create CN groups with up to 10 nodes.
2. Connect CN groups in star shape to the managing node.
3. Connect CN groups to the managing node via one external hub each.
 - For more than 2 CN groups, use an external hub.
 - For max. 7 CN groups one hub is sufficient.
 - For more than 7 CN groups, use further hubs.
 - The groups can be distributed on the hubs just as you like.
 - Observe the restrictions of the used managing node.



[5-3] Star topology for 1 to 2 CN groups

5.2.2 POWERLINK



Note!

Standard Ethernet nodes are not permitted in the POWERLINK network segment.

In order to use the real-time capability of the POWERLINK technology, POWERLINK nodes must be interconnected in a separate network segment.

In accordance with the EPL rules, only the managing node controls the network access of EPL nodes. The managing node is the only node that transmits autonomously. The slave nodes (i.e. all controlled nodes) only transmit when they are entitled to transmit by the managing node.

Non-EPL nodes (e.g. PCs) typically violate these rules by sending frames independently of the managing node. These frames interfere with the cyclic frame exchange of the EPL nodes and impede the real-time capability of POWERLINK.

Connection to the standard Ethernet network

The connection to an external standard Ethernet network is carried out via an POWERLINK router or an POWERLINK gateway.

These infrastructure components separate the network traffic in the POWERLINK network segment from the one in the standard Ethernet. The handling of the frames depend on their direction:

- Standard Ethernet ---> EPL network segment:
Only frames that are addressed to nodes in the EPL network segment are forwarded. The forwarding takes place in the asynchronous area of the EPL cycle.
- EPL network segment ---> standard Ethernet:
Only asynchronous frames that are not addressed to nodes in the EPL network segment are forwarded.



Tip!

Detailed information on the function and setting of the router or gateway can be found in the documentation of the component manufacturer.

5.2.3 Basic Ethernet Mode



Note!

Operation in the "Basic Ethernet Mode" does not permit any real-time communication.

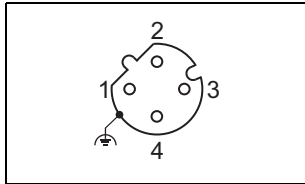
The Communication Unit can be operated in the "Basic Ethernet Mode" for a basic parameter setting provided that the following applies:

1. Operation of the module with network address (node ID) ≤ 239 .
 - IP address: 192.168.100.[Node ID], see [Node address \(node ID\) setting](#) (26)
2. No operation with real-time EPL must be carried out.

No integration of a managing node (EPL address = 240) into the standard Ethernet network.

5.2.4 POWERLINK connection

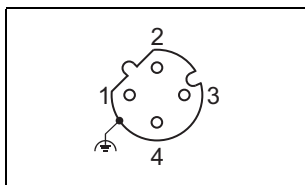
POWERLINK IN



- M12 socket, 4-pole, D-coded
- Wiring at terminal strip X31

Pin	Signal	Description
1	Tx +	Data line (transmitted data, plus)
2	Rx +	Data line (received data, plus)
3	Tx -	Data line (transmitted data, minus)
4	Rx-	Data line (received data, minus)

POWERLINK OUT



- M12 socket, 4-pole, D-coded
- Wiring at terminal strip X32

Pin	Signal	Description
1	Tx +	Data line (transmitted data, plus)
2	Rx +	Data line (received data, plus)
3	Tx -	Data line (transmitted data, minus)
4	Rx-	Data line (received data, minus)

5.2.5 External voltage supply

- The external voltage supply can be used to establish POWERLINK communication for commissioning and to query the data of the digital and analog inputs.
- Furthermore the external voltage supply serves to maintain POWERLINK communication if the main supply fails.
- The digital inputs RFR, DI1 ... DI5 and the analog input can continue to be evaluated.
- The external voltage supply is done via the terminals 24E and GND of the terminal strip X3.
- Permissible voltage (DC) / max. current:
 - $U = 24 \text{ V DC (} 20 \text{ V} - 0 \% \dots 29 \text{ V} + 0 \% \text{)}$
 - $I_{\max} = 120 \text{ mA}$
- Access to parameters of a device that is disconnected from the mains is not possible.



Hardware manual for the Inverter Drive 8400 motec

Here you can find detailed information on how to wire the Communication Unit.

6 Commissioning

During commissioning, system-related data such as motor parameters, operating parameters, responses, and parameters for fieldbus communication are defined for the inverter. For Lenze devices, this is done via the codes.

The codes of the inverter and communication are saved non-volatily as a data set in the memory module.

In addition, there are codes for diagnosing and monitoring the stations.

▶ [Parameter reference](#) (□ 45)

The data from the inverter or the memory module can only be read with the main voltage supply (400/500 V AC).

6.1 Before initial switch-on



Stop!

Before switching on the inverter for the first time, check the entire wiring with regard to completeness, short circuit, and earth fault.

6.2 Node address (node ID) setting

The POWERLINK node address (node ID) can either be defined via the DIP switches of the Drive Unit or set in the »EASY Starter«/»Engineer« in code [C13899](#).

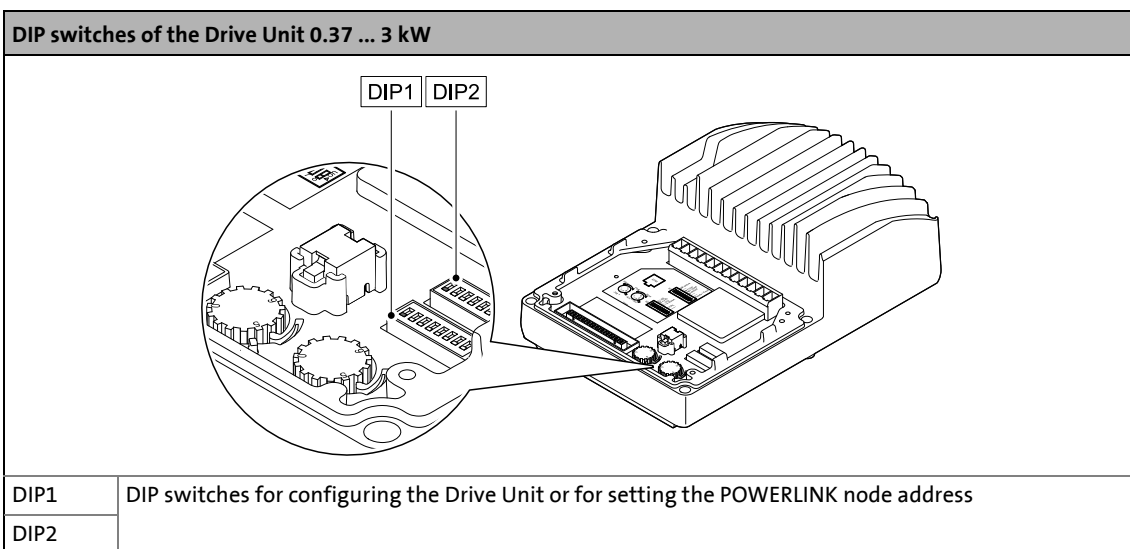
- If you set the node via DIP switches, the Drive Unit cannot be configured anymore via the DIP switches DIP1, DIP2 and the potentiometers P1, P2, P3.
- In case of the following DIP switch settings, the node ID is obtained from [C13899](#):
 - DIP1, switch 1 is "ON"
 - DIP1, switch 1 is "OFF" and DIP2, switch 1 ... 8 are "OFF" (Lenze setting).
- The node IDs must differ from each other in case of several networked POWERLINK nodes.
- Save the changed parameter settings with the device command **C00002/11** (save all parameter sets).

DIP switches of the Drive Unit



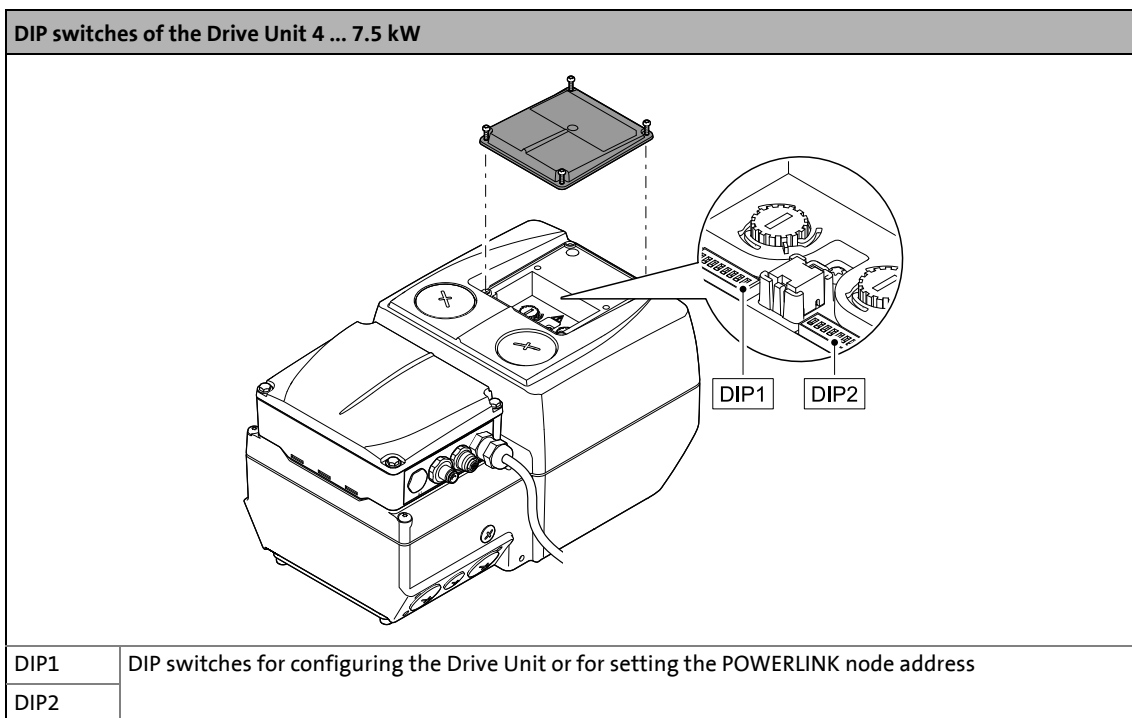
Note!

- The DIP switches can only be accessed when the drive unit is detached from the communication unit. Loosen the four fixing screws at the drive unit. **Observe the notes in the mounting instructions.**
- Switch off the voltage supply of the controller and the external supply of the communication unit before starting with the disassembly of the drive unit.
- The DIP switches are only read in when the device is switched on.



Commissioning

Node address (node ID) setting



Setting of the DIP switches DIP1 and DIP2

DIP1	1	2	3	4	5	6	7	8	Description
OFF	...	...	...	...	...	...	...	...	The node ID 1 ...239 can be set via DIP2. (Lenze setting)
ON	...	...	...	...	...	...	...	...	Obtain node ID from C13899 .

DIP2	1	2	3	4	5	6	7	8	Description
Value	128	64	32	16	8	4	2	1	
OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	Obtain node ID from C13899 . (Lenze setting)
OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	ON	Node ID = 1
...	...	...	...	...	...	...	...	...	...
ON	ON	ON	ON	OFF	ON	ON	ON	ON	Node ID = 239
ON	ON	ON	ON	ON	ON	ON	ON	ON	If the set value is higher than 239, the node ID is set to 239.

- The valid address range is 0 ... 239. If the value set via DIP switch DIP2 is higher than 239, the node ID is set to 239.
- The node ID is used in the last byte of the IP address: 192.168.100.[Node ID]
- In [C13920](#), the DIP switch position of DIP2 (node ID) of the last mains switching is displayed.
- In [C13864](#), the active node ID is displayed.
- [C13865](#) displays whether the node ID has been set via DIP switches or via [C13899](#).

6.3 Initial switch-on

Establishing communication

- To establish communication, the inverter drive must be supplied with voltage.
- POWERLINK communication requires voltage supply of the communication unit.
If this requirement is not met, the "CE04: MCI communication error" error message (error No. 01.0127.00002) is output. The error must be reset in the Inverter Drive, so that POWERLINK communication can be established.
- The external voltage supply serves to keep up POWERLINK communication in the event of a main supply failure.
 - ▶ [External voltage supply](#) (📖 24)
- Addressing can be carried out manually via DIP switches or codes in the »EASY Starter«/»Engineer«.
 - ▶ [Node address \(node ID\) setting](#) (📖 26)

6.4 Settings in the »Engineer«



Select the *project element* POWERLINK in the *project tree*.

- The workspace now displays the codes you can use to make the POWERLINK settings.

Settings			
#	/	C..	S Name
13000	1	0x1E40.2	IP Address
13001	1	0x1E40.3	Subnet mask
13003	1	0x1E40.5	IP Address Router
13004	1	0x1030.5	MAC Address

Parameters	Lenze setting	Info
C13000 0x1E40.2 IP Address	0xC0A86401	Read only - The IP address is derived from the node address (node ID): 192.168.100.[Node ID]. - The Lenze setting corresponds to the IP address 192.168.100.1 (0xC0.A8.64.01).
C13001 0x1E40.3 Subnet Mask		Read only
C13003 0x1E40.5 IP Address Router	3232261374	Lenze setting (hex): 0xC0A864FE = 192.168.100.254
C13004 0x1030.5 MAC Address		Read only
C13136 SoC Cycle Counter		Read only
C13861 0x1F8C NMT Communication Status		Read only
C13864 0x1F93.1 Node ID		Read only
C13865 0x1F93.2 Node ID by HW		Read only
C13867 Emergency data load		Read only
C13879 Bus error		Read only
C13898 0x1F9A Host Name		DNS-compatible device name. The length is limited to 20 characters. The device name must be non-ambiguous within the network domain.
C13899 Node ID SW	0	Setting of the node ID, unless a node ID is set via DIP switches.
C13920 Current address switch		Read only

6.5 Settings in the »EASY Starter«



How to open the parameter list for the POWERLINK settings:

1. Go to the online devices in the *device list* and select the diagnostic adapter (8400 motec).
2. Select the **diagnostics** tab in the workspace.
3. Open the fieldbus diagnostics dialog window via the  **Fieldbus** button.
 - The dialog box displays the codes you can use to make the POWERLINK settings.

Fieldbus diagnosis

POWERLINK Option

0x1E40.2 IP Address	1	0x00000000	...	Current address switch	9	0
0x1E40.3 Subnet mask	2	0x00000000	...			
0x1E40.5 IP Address Rou...	3	0xC0A864FE	...			
0x1030.5 MAC Address	4		...			
0x1F93.1 Node ID	5	0		Bus error	10	0x00000000
0x1F93.2 Node ID by HW	6	0		0x1001 ERR_ErrorRegister	11	0x00
Node ID SW	7	0		SoC Cycle Counter	12	0
0x1F9A Host Name	8			0x1F8C NMT_CurrentState	13	Off [0]
				Emergency Data Last	14	

Close

Commissioning

Settings in the »EASY Starter«

Parameters	Lenze setting	Info
1 0x1E40.2 IP Address C13000	0xC0A86401	Read only - The IP address is derived from the node address (node ID): 192.168.100.[Node ID]. - The Lenze setting corresponds to the IP address 192.168.100.1 (0xC0.A8.64.01).
2 0x1E40.3 Subnet Mask C13001		Read only
3 0x1E40.5 IP Address Router C13003	3232261374	Lenze setting (hex): 0xC0A864FE = 192.168.100.254
4 0x1030.5 MAC Address C13004		Read only
5 0x1F93.1 Node ID C13864		Read only
6 0x1F93.2 Node ID by HW C13865		Read only
7 Node ID SW C13899	0	Setting of the node ID, unless a node ID is set via DIP switches.
8 0x1F9A Host Name C13898		DNS-compatible device name. The length is limited to 20 characters. The device name must be non-ambiguous within the network domain.
9 Current address switch C13920		Read only
10 Bus error C13879		Read only
11 0x1001 error memory C13110		Read only
12 SoC Cycle Counter C13136		Read only
13 0x1F8C NMT Communication Status C13861		Read only
14 Emergency data load C13867		Read only

6.6 Optimisation of networks

SDO bandwidth



Note!

The channel bandwidth should only be increased if the network is below capacity limit.

The SDO channel width ([C13075](#)) is the size of the asynchronous channel used for parameter setting and diagnostics. A higher value improves the transmission of large amounts of data (e.g. parameter downloads) and at the same time reduces the number of possible nodes.

Maximum time for device search

During the device search, the managing node has to wait until all controlled nodes have been found.

- Unless all controlled nodes are available in the defined EPL cycle time, the "EPL_BOOTUP_1" error message is generated. The managing node remains in this status.
- If the managing node has found all controlled nodes, it starts the network.

Due to machine or system-specific switch-on sequences, it may be required to adapt the following EPL objects:

- CN object **0x1F99**: NMT_CNBasicEthernetTimeout_U32 ([C13078](#))
- MN object **0x1F89**: NMT_BootTime_REC



Note!

In order to avoid a too quick change to the "[Basic Ethernet Mode](#)" ([62](#)), the value of the **0x1F99** object (NMT_CNBasicEthernetTimeout_U32) must be higher than the value of the **0x1F89** object (NMT_BootTime_REC) which is the case by default.

► [Index table](#) ([62](#))

7 Process data transfer

POWERLINK transmits process data, parameter data, configuration data and diagnostic data between the managing node and the controlled nodes. Depending on their time-critical behaviour, the data are transmitted via different communication channels.

- Process data are transmitted via the process data channel.
- Process data serve to control the Inverter Drive 8400 motec.
- The transmission of process data is time-critical.
- Process data are cyclically transferred between the managing node and the controlled nodes (permanent exchange of current input and output data).
- The managing node can directly access the process data. In the PLC, for instance, the data are directly assigned to the I/O area.
- Up to 6 process data words (max. 12 bytes) can be sent or received.
- Process data are not saved in the Inverter Drive 8400 motec.
- Process data are e.g. setpoints, actual values, control words, and status words.

Process data transfer

Freely configuring the port interconnection of the process data objects (PDO)

7.1 Freely configuring the port interconnection of the process data objects (PDO)

The port interconnection of the process data objects is only possible in the »Engineer«.



How to freely configure the port interconnection:

1. Go to the project view of the »Engineer« and select the application (A).
2. Select the port blocks **MCI_IN** or **MCI_OUT** on the **Ports** tab with a mouse-click and activate them with the **Activate** (B) button.
3. Click the **Edit port ...** (C) button.

Ports | Data logger | All parameters | Properties

Renamc **Activate**

Input ports

MCI_IN

Actuating drive speed

Application

Output ports

MCI_OUT

Mapping

POWERLINK/MCI_IN_PROFINET : 0

Network default interconnection

not defined

Network default change...

Application variables

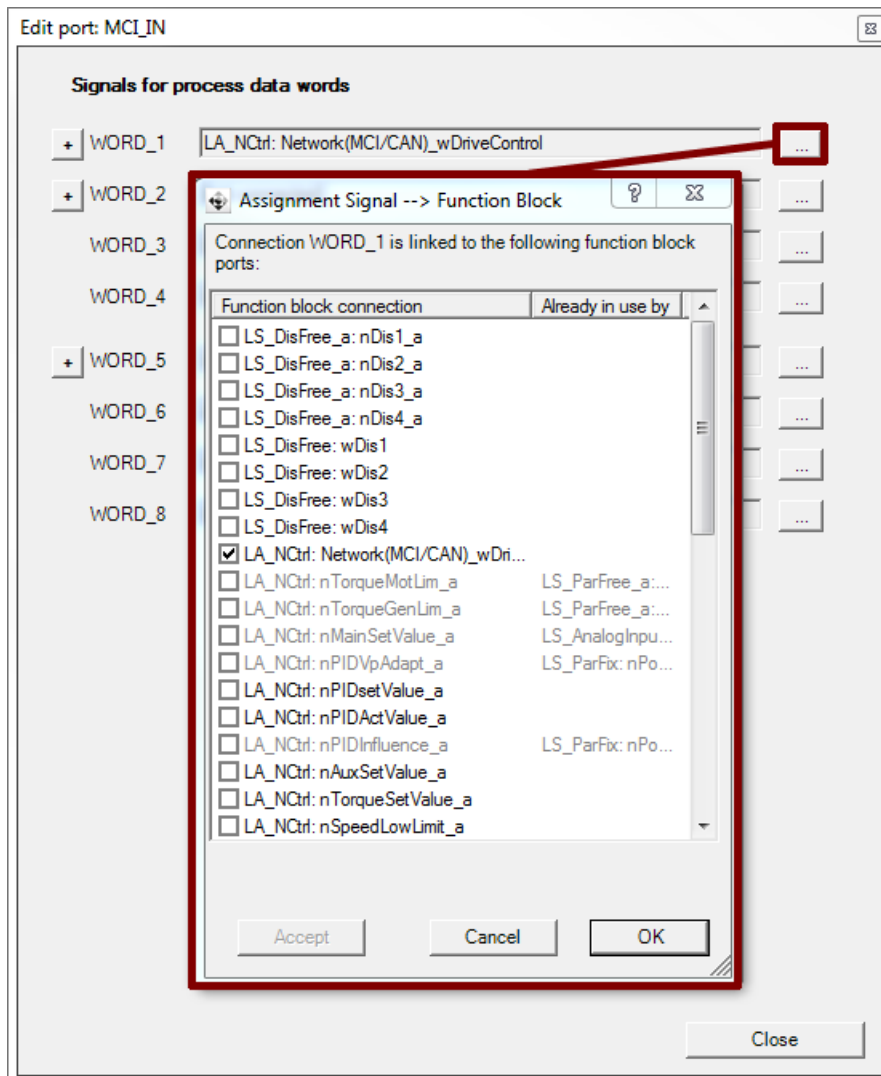
#	Name	Signal	Type	Length	Index	Online
1	WORD_1	[not connected]	WORD	16	C876/1	offline
2	WORD_2	[not connected]	WORD	16	C876/2	offline
3	WORD_3	[not connected]	WORD	16	C876/3	offline
4	WORD_4	[not connected]	WORD	16	C876/4	offline
5	WORD_5	[not connected]	WORD	16	C876/5	offline
6	WORD_6	[not connected]	WORD	16	C876/6	offline
7	WORD_7	[not connected]	WORD	16	C876/7	offline
8	WORD_8	[not connected]	WORD	16	C876/8	offline

Change Variable... (C)

Process data transfer

Freely configuring the port interconnection of the process data objects (PDO)

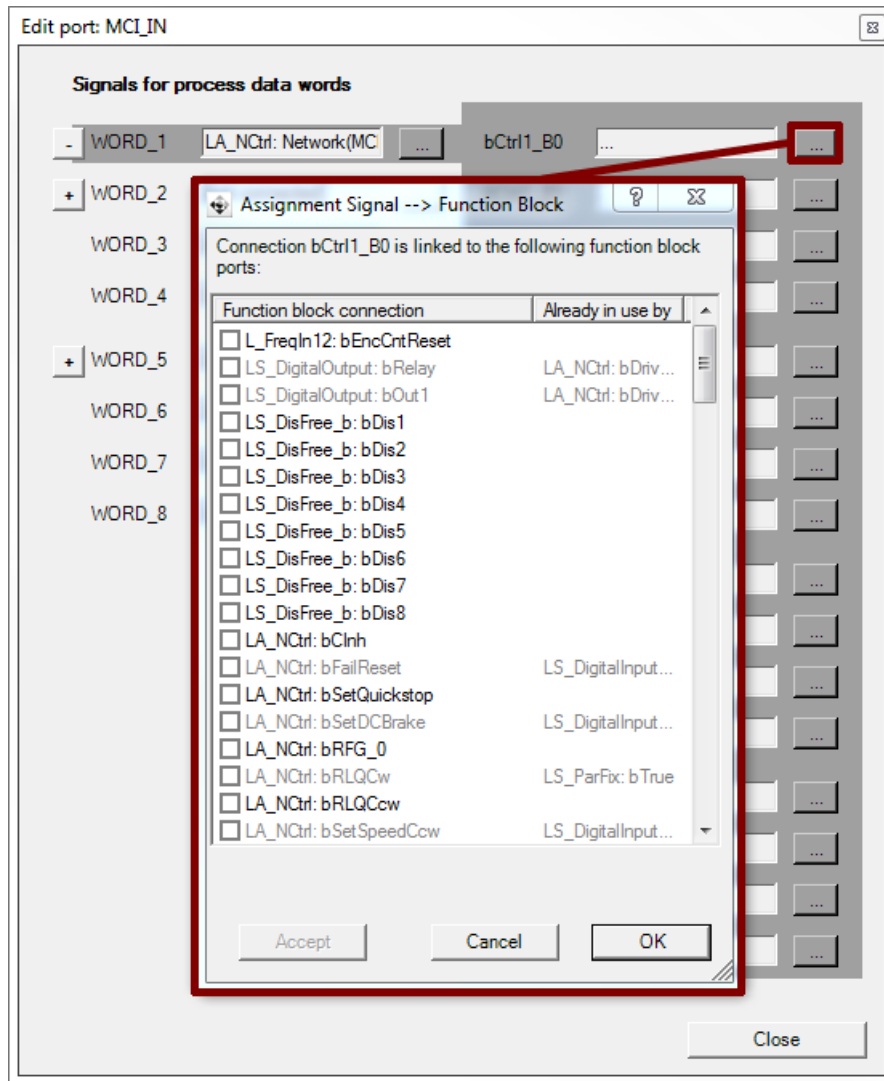
4. Via the  button, you assign signals to the process data words in the *Signal assignment* --> *Function block* dialog box.
 - Select the desired signals.
 - Confirm the selection with **OK**.



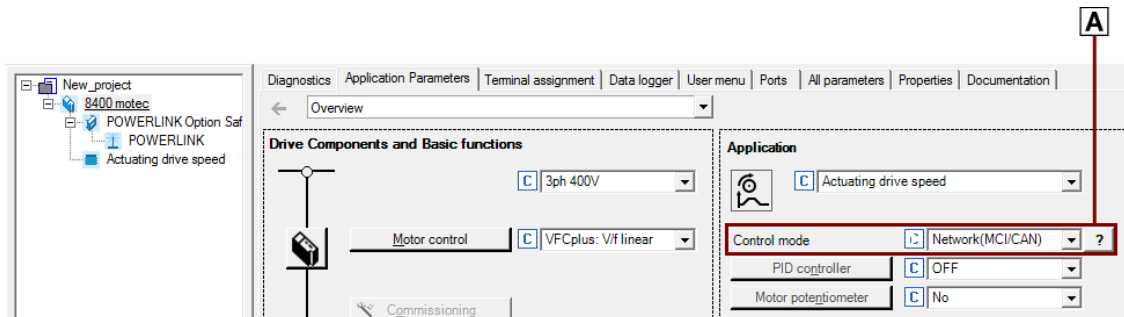
Process data transfer

Freely configuring the port interconnection of the process data objects (PDO)

5. Via the  button, you can expand the view for the process data words WORD_1, WORD_2 und WORD_5 to assign them to additional control and status bit signals.
 - Via the  button, you can select the desired signals in the *Signal assignment --> Function block* dialog box.
 - Confirm the selection with OK.



6. Set the control mode **A** to "Network (MCI/CAN)" (C00007 = 40) on the **Application parameter** tab.



8 Monitoring

8.1 Interruption of POWERLINK communication

An interruption of POWERLINK communication in the OPERATIONAL state, e.g. by cable break or failure of the managing node, is detected by the controlled node. The response to this interruption of communication depends on the following settings:

1. The watchdog monitoring time defined in the managing node is transferred to the controlled node when the POWERLINK communication is initialised.
If the controlled node being in the OPERATIONAL state does not receive valid process data, the process data are handled according to the setting in [C13885](#). (The last data sent by the managing node can either be used or set to zero.)
If communication fails, the controlled node state changes to PRE-OPERATIONAL (see [C13861](#)) and the red LED "ERR" is activated (see [LED status displays](#) (□ 38)).
By default, there is no response in the controlled node.
2. In order to trigger a response in the controlled node, additionally set a response of the controlled node ([C13880/1](#)).

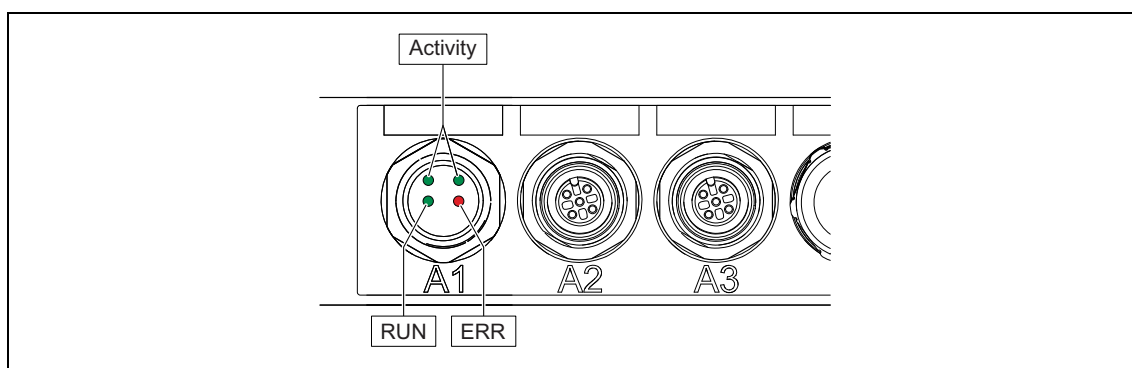
8.2 Interruption of internal communication

- The response in the case of a communication error between the Communication Unit and the Drive Unit can be set via code [C01501](#).
- The Communication Unit reports interrupted communication via an emergency telegram to the master and changes to the "Safe-Operational" state.
- The error message "[EPL: Lost connection to 8400 target \[0x01bc3100\]](#)" (□ 42) is output.

9 Diagnostics

POWERLINK communication faults can be diagnosed via the LEDs of the Communication Unit.

9.1 LED status displays



LED	Colour	Status	Description
Activity	green	Off	The Communication Unit is not active on the fieldbus or is in the "INIT" state.
		blinking	 EPL network is in the initialisation phase. EPL status: NMT_CS_PREOPERATIONAL_1
		blinking	 EPL network is in the initialisation phase with cyclic traffic. EPL status: NMT_CS_PREOPERATIONAL_2
		blinking	 EPL node is waiting for the start signal. EPL status: NMT_CS_READY_TO_OPERATE
		blinking	 The EPL node has not found a managing node and is in Basic Ethernet Mode (22). EPL status: NMT_CS_BASIC_ETHERNET
		blinking	 EPL node is in the "Stopped" status (waiting for disconnection). EPL status: NMT_CS_STOPPED
		On	 EPL node is in the operating phase. EPL status: NMT_CS_OPERATIONAL

Diagnostics

LED status displays

LED	Colour	Status	Description
RUN	green	Off	The Communication Unit is not active on the fieldbus or is in the "Init" state.
		On	 The Communication Unit is supplied with voltage and is connected to the standard device.
		blinking	 The Communication Unit is supplied with voltage, but has not yet established a connection to the standard device. (Standard device is switched off, initialising or not present.)
ERR	red	Off	No error
		On	 A fieldbus error has occurred (POWERLINK collision).

9.2 Diagnostic data

- Pending diagnostic data are signalled from the controlled node to the managing node by means of an emergency message.
- Code [C13887](#) serves to suppress sending emergency messages to the managing node. You can select which type of error is to be suppressed.
- Errors and warnings are sent to the managing node as extended diagnostic messages.
- The diagnostic data are visible via the PLC Engineering software.

Bytes	Meaning	Value [hex]
1 ... 6	Diagnostic block header	0x0010 001C 0100
7 ... 8	Alarm type	0x0001 (diagnosis)
9 ... 12	API (Application Programming Interface)	0x0000 0000
13, 14	Slot number	0x0001 / 0x0002
15, 16	Subslot number	0x0001
17 ... 20	Module ID	ID according to module
21 ... 24	Submodule number	ID according to module
25, 26	Alarm specification	0xB000
27, 28	User structure ID	0x0001
29 ... 32	Error code	



Reference manual/online help for the Inverter Drive 8400 motec

Detailed information on the error codes is provided here.

Error messages

Short overview of the POWERLINK error messages

10 Error messages

This chapter complements the error list in the reference manual and the online help for the Inverter Drive 8400 motec by POWERLINK error messages.

10.1 Short overview of the POWERLINK error messages



Reference manual/online help for the Inverter Drive 8400 motec.

Here you will find general information on diagnostics & fault analysis and on error messages.

The following table contains all error messages of the Communication Unit in numerical order of the error number. Furthermore the preset error response and - if applicable – the parameter for setting the error response is specified.



Tip!

If you click on the cross-reference in the first column, you will get a detailed description (causes and remedies) of the corresponding error message.

Error no. [hex]	Subject area no. [dec]	Error no. [dec]	Error text	Error type (Error response)	Adjustable in
0x01bc3100	444	12544	EPL: Lost connection to 8400 target	1: No Response	-
0x01bc5531	444	21809	EPL: NV memory: No access	1: No Response	-
0x01bc5532	444	21810	EPL: NV memory: Read error	1: No Response	-
0x01bc5533	444	21811	EPL: NV memory: Write error	1: No Response	-
0x01bc6010	444	24592	EPL: Restart after watchdog reset	1: No Response	-
0x01bc6011	444	24593	EPL: Watchdog reset	1: No Response	-
0x01bc6100	444	24832	EPL: Software error	1: No Response	-
0x01bc6101	444	24833	EPL: Fatal software error	1: No Response	-
0x01bc6110	444	24848	EPL: Invalid PDO mapping	1: No Response	-
0x01bc641f	444	25631	EPL: Invalid parameter set	1: No Response	-
0x01bc6420	444	25632	EPL: Default setting loaded	1: No Response	-
0x01bc6430	444	25648	EPL: Invalid module configuration	1: No Response	-
0x01bc8131	444	33073	EPL: OPERATIONAL status left	1: No Response	C13880/1
0x01bc8261	444	33377	EPL: Invalid address selected	1: No Response	-
0x01bc8265	444	33381	EPL: Synchronisation of MN lost	0: None	C13880/2
0x01bc8266	444	33382	EPL: Frame error (CRC)	0: None	C13880/3

Error messages

Possible causes and remedies

10.2 Possible causes and remedies

This chapter contains all error messages of the Communication Unit in numerical order of the error number. Possible causes and remedies as well as responses to the error messages are described in detail.

► [Short overview of the POWERLINK error messages](#) (41)

EPL: Lost connection to 8400 target [0x01bc3100]

Response (Lenze setting printed in bold)		Setting: not possible
☐ No reaction ☐ System fault ☒ Fault ☐ Trouble ☐ Quick stop by trouble ☐ WarningLocked ☐ Warning ☐ Information		
Cause	Remedy	
Communication to the Inverter Drive 8400 motec is interrupted. • The Inverter Drive 8400 motec is switched off. • The Communication Unit is not connected correctly to the Drive Unit.	• Switch on Inverter Drive 8400 motec. • Check connection of the Communication Unit to the Drive Unit. • Sent Inverter Drive 8400 motec with error description to Lenze.	

EPL: NV Memory: No access [0x01bc5531]

Response (Lenze setting printed in bold)		Setting: not possible
☐ No reaction ☐ System fault ☒ Fault ☐ Trouble ☐ Quick stop by trouble ☐ WarningLocked ☐ Warning ☐ Information		
Cause	Remedy	
Access to parameter set in memory module via standard device was not successful.	Download application again (including module).	

EPL: NV Memory: Read error [0x01bc5532]

Response (Lenze setting printed in bold)		Setting: not possible
☐ No reaction ☐ System fault ☒ Fault ☐ Trouble ☐ Quick stop by trouble ☐ WarningLocked ☐ Warning ☐ Information		
Cause	Remedy	
Parameter in the memory module could not be read.	Download application again (including module).	

EPL: NV Memory: Write error [0x01bc5533]

Response (Lenze setting printed in bold)		Setting: not possible
☐ No reaction ☐ System fault ☒ Fault ☐ Trouble ☐ Quick stop by trouble ☐ WarningLocked ☐ Warning ☐ Information		
Cause	Remedy	
Parameter in the memory module could not be written.	Download application again (including module).	

EPL: Restart after watchdog reset [0x01bc6010]

Response (Lenze setting printed in bold)		Setting: not possible
☐ No reaction ☐ System fault ☒ Fault ☐ Trouble ☐ Quick stop by trouble ☐ WarningLocked ☐ Warning ☐ Information		
Cause	Remedy	
Communication unit is defective.	Send Communication Unit with error description to Lenze.	

Error messages

Possible causes and remedies

EPL: Watchdog reset [0x01bc6011]

Response (Lenze setting printed in bold) ☐ No reaction ☐ System fault ☒ Fault ☐ Trouble ☐ Quick stop by trouble ☐ WarningLocked ☐ Warning ☐ Information		Setting: not possible	
Cause		Remedy	
Communication unit is defective.		Send Communication Unit with error description to Lenze.	

EPL: Software error [0x01bc6100]

Response (Lenze setting printed in bold) ☐ No reaction ☐ System fault ☒ Fault ☐ Trouble ☐ Quick stop by trouble ☐ WarningLocked ☐ Warning ☐ Information		Setting: not possible	
Cause		Remedy	
Communication unit is defective.		Send Communication Unit with error description to Lenze.	

EPL: Fatal software error [0x01bc6101]

Response (Lenze setting printed in bold) ☐ No reaction ☐ System fault ☒ Fault ☐ Trouble ☐ Quick stop by trouble ☐ WarningLocked ☐ Warning ☐ Information		Setting: not possible	
Cause		Remedy	
Communication unit is defective.		Send Communication Unit with error description to Lenze.	

EPL: PDO Mapping invalid [0x01bc6110]

Response (Lenze setting printed in bold) ☐ No reaction ☐ System fault ☒ Fault ☐ Trouble ☐ Quick stop by trouble ☐ WarningLocked ☐ Warning ☐ Information		Setting: not possible	
Cause		Remedy	
Invalid mapping configuration.		Correct the mapping configuration.	

EPL: Invalid parameter set [0x01bc641f]

Response (Lenze setting printed in bold) ☐ No reaction ☐ System fault ☒ Fault ☐ Trouble ☐ Quick stop by trouble ☐ WarningLocked ☐ Warning ☐ Information		Setting: not possible	
Cause		Remedy	
No active parameter set could be loaded.		Download application again (including module).	

EPL: Factory settings loaded [0x01bc6420]

Response (Lenze setting printed in bold) ☐ No reaction ☐ System fault ☒ Fault ☐ Trouble ☐ Quick stop by trouble ☐ WarningLocked ☐ Warning ☐ Information		Setting: not possible	
Cause		Remedy	
Access to parameter set in memory module via standard device was not successful.		Download application again (including module).	

Error messages

Possible causes and remedies

EPL: Invalid module configuration [0x01bc6430]

Response (Lenze setting printed in bold) ☐ No reaction ☐ System fault ☒ Fault ☐ Trouble ☐ Quick stop by trouble ☐ WarningLocked ☐ Warning ☐ Information	
Setting: not possible	
Cause	Remedy
Module configuration is faulty.	Check and correct module configuration.

EPL: State OPERATIONAL lost [0x01bc8131]

Response (Lenze setting printed in bold) ☒ No reaction ☐ System fault ☒ Fault ☒ Trouble ☒ Quick stop by trouble ☒ WarningLocked ☐ Warning ☒ Information	
Setting: C13880/1	
Cause	Remedy
Data exchange via POWERLINK has been terminated. • Also see the chapter " Interruption of POWERLINK communication " (□ 37).	• Check the network cable (plug) and replace it if necessary. • Plug the network cable into the POWERLINK terminal X251 or X252 and continue to check the status of the managing node.

EPL: Invalid address selected [0x01bc8261]

Response (Lenze setting printed in bold) ☐ No reaction ☐ System fault ☒ Fault ☐ Trouble ☐ Quick stop by trouble ☐ WarningLocked ☐ Warning ☐ Information	
Setting: not possible	
Cause	Remedy
An invalid IP address has been assigned by the managing node via POWERLINK or set as node ID.	• Ensure that a valid IP address is assigned by the managing node via POWERLINK. • Set valid node ID. ▶ Node address (node ID) setting (□ 26)

EPL: Synchronisation lost from MN [0x01bc8265]

Response (Lenze setting printed in bold) ☒ None ☐ System fault ☐ Fault ☒ Trouble ☒ Quick stop by trouble ☒ Warning locked ☐ Warning ☒ Information	
Setting: C13880/2	
Cause	Remedy
In the controlled node, the synchronisation cycle of the managing node has failed. The controlled node changes automatically to the NMT_CS_PREOPERATIONAL_1 state and waits for a new run-up by the managing node.	• Check network cable and components (failure of managing node, router). • Restart managing node if required.

EPL: Telegram error detected (CRC) [0x01bc8266]

Response (Lenze setting printed in bold) ☒ None ☐ System fault ☐ Fault ☒ Trouble ☒ Quick stop by trouble ☒ Warning locked ☐ Warning ☒ Information	
Setting: C13880/3	
Cause	Remedy
Faulty telegrams (CRC error) have been detected. Possible causes: • A device in the network is not EPL-compliant. • EMC interference is too strong.	• Check if a non-EPL-compliant device is in the network (e.g. diagnostics PC). • Reduce EMC interference on the network or use an additional shield connection.

Parameter reference

Communication-relevant parameters of the operating system

11 Parameter reference

This chapter complements the parameter list and the table of attributes in the software manual and the »Engineer« online help for the Inverter Drive 8400 motec by the parameters for POWERLINK communication.

11.1 Communication-relevant parameters of the operating system



Reference manual/online help for the Inverter Drive 8400 motec.

Here you will find general information on parameters.

This chapter lists the communication-relevant parameters of the inverter operating system in numerically ascending order.

C01501

Parameter Name:		Data type: UNSIGNED_8 Index: 23074 _d = 5A22 _h	
C01501 Resp. to communication error with MCI			
Configuration of monitoring functions for the Communication Unit			
Selection list			
0	No response		
1	Error		
4	Warning Locked		
Subcodes	Lenze setting	Info	
C01501/1	1: No Response	Resp. to MCI fault 1 • Response to a communication fault.	
C01501/2	1: No Response	Resp. to MCI fault 2 • Response to a fault in the Communication Unit.	
☒ Read access ☒ Write access ☐ CINH ☐ PLC STOP ☐ No transfer ☐ COM ☐ MOT Scaling factor: 1			

C01503

Parameter Name: C01503 MCI timeout			Data type: UNSIGNED_16 Index: 23072 _d = 5A20 _h
Setting range (min. value unit max. value)			
0	ms	1000	
Subcodes	Lenze setting	Info	
C01503/1	200 ms	MCI timeout	
☒ Read access ☒ Write access ☐ CINH ☐ PLC STOP ☐ No transfer ☐ COM ☐ MOT Scaling factor: 1			

Parameter reference

Parameters relevant for POWERLINK communication

11.2 Parameters relevant for POWERLINK communication

This chapter lists the POWERLINK parameters of the Communication Unit in numerically ascending order.

C13000

Parameter Name: C13000 0x1E40.2 IP address			Data type: UNSIGNED_32 Index: 11575 _d = 2D37 _h		
The code displays the IP address of the communication module.					
• The IP address is derived from the node address (Node ID): 192.168.100.[Node ID] • The node ID is derived from the DIP switch setting of the Drive Unit or from C13899.					
▶ Node address (node ID) setting (□ 26)					
Display range (min. value unit max. value)					
Subcodes			Info		
C13000/1			IP address • Example: 0xC0A86401 = 192.168.100.1		
☒ Read access ☐ Write access ☐ CINH ☐ PLC-STOP ☒ No transfer ☐ PDO_MAP_RX ☐ PDO_MAP_TX ☒ COM ☐ MOT					

C13001

Parameter Name: C13001 0x1E40.3 Subnet Mask			Data type: UNSIGNED_32 Index: 11574 _d = 2D36 _h		
The code declares the IP subnet mask which restricts the directly addressable IP address range (i.e. without a gate- way in the EPL segment of the routers). The value 255.255.255.0 (0xFFFFF00) is always assigned to the subnet mask in one segment.					
Display range (min. value unit max. value)					
Subcodes			Info		
C13001/1			EPL IP Subnet Mask • Lenze setting (hex): 0xFFFFF00 = 255.255.255.0		
☒ Read access ☐ Write access ☐ CINH ☐ PLC-STOP ☒ No transfer ☐ PDO_MAP_RX ☐ PDO_MAP_TX ☒ COM ☐ MOT					

C13003

Parameter Name: C13003 0x1E40.5 IP address router			Data type: UNSIGNED_32 Index: 11572 _d = 2D34 _h
The code declares the IP address of the router which connects the EPL segment to the higher-level network. The standard entry corresponds to the standard router address of the EPL specification: → 192.168.100.254 Permissible entries replace the lowest-order byte of the standard entry with the EPL address of the node which has the function of a router.			
Setting range (min. value unit max. value)			
Subcodes	Lenze setting	Info	
C13003/1	3232261374	IP address router • Lenze setting (hex): 0xC0A864FE = 192.168.100.254	
☒ Read access ☒ Write access ☐ CINH ☐ PLC-STOP ☐ No transfer ☐ PDO_MAP_RX ☐ PDO_MAP_TX ☒ COM ☐ MOT			

Parameter reference

Parameters relevant for POWERLINK communication

C13004

Parameter Name: C13004 0x1030.5 MAC address		Data type: OCTET_STRING Index: 11571 _d = 2D33 _h	
The code indicates the physical address (MAC address) of the POWERLINK interface of the Communication Unit. When the Communication Unit is produced, the MAC address is assigned unequivocally worldwide and provides addressing on the lowest level.			
Display range (min. value unit max. value)			
Subcodes		Info	
C13004/1		MAC Address (octet string[6]) 00-0A-86-xx-yy-zz • 00-0A-86 = Lenze • xx-yy-zz = consecutive number	
☒ Read access ☐ Write access ☐ CINH ☐ PLC-STOP ☒ No transfer ☐ PDO_MAP_RX ☐ PDO_MAP_TX ☒ COM ☐ MOT			

Parameter reference

Parameters relevant for POWERLINK communication

C13028

Parameter Name: C13028 0x1F81 Node Assignment CN		Data type: UNSIGNED_32 Index: 11547 _d = 2D1B _h
The code declares the controlled nodes 1 ... 100 and their properties.		
Value is bit-coded:		
Bit 0 ... 31	see below	
Subcodes	Lenze setting	Info
C13028/1	0	
...	..	
C13028/100	0	
☒ Read access ☒ Write access ☐ CINH ☐ PLC-STOP ☐ No transfer ☐ PDO_MAP_RX ☐ PDO_MAP_TX ☒ COM ☐ MOT		

The describing bit field has the following structure:

Bit	Value	Description
0 (LSB)	0	EPL node with this ID does not exist.
	1	EPL node with this ID exists.
1	0	EPL node with this ID is not a controlled node.
	1	EPL node with this ID is a controlled node.
2	0	On detection of a booting controlled node, the application will not be informed.
	1	On detection of a booting controlled node, the application will be informed and the controlled node will be started.
3	0	Optional controlled node
	1	Obligatory controlled node
4	0	The managing node is allowed to send reset commands.
	1	The managing node must not send any reset command.
5	0	Software version verification of the controlled node is not required.
	1	Software version verification of the controlled node is required.
6	0	Automatic application software update is not allowed.
	1	Automatic application software update is allowed.
7	-	Reserved / No function
8	0	Isochronously accessed controlled node
	1	Asynchronously accessed controlled node (bit 9 is irrelevant)
9	0	Continuously accessed controlled node
	1	Multiplex EPL nodes are supported.
10	0	No "POWERLINK to standard Ethernet" router function.
	1	The device can be used as an "POWERLINK to standard Ethernet" router (router type 1).
11	0	No "POWERLINK to fieldbus" router function.
	1	The device can be used as an "POWERLINK to fieldbus" router (router type 1).
12	0	The managing node does not send any PRes frames
	1	The managing node sends PRes frames
13 ... 30	-	Reserved / No function
31 (MSB)	0	Bits 0 ... 30 inhibited
	1	Bits 0 ... 30 enabled

Parameter reference

Parameters relevant for POWERLINK communication

C13029

Parameter Name: C13029 0x1F81 Node Assignment		Data type: UNSIGNED_32 Index: 11546 _d = 2D1A _h
The code declares managing node, diagnostic device, and router, and describes their properties.		
Value is bit-coded:		
Bit 0 ... 31	see below	
Subcodes	Lenze setting	Info
C13029/1	2147483661	EPL node assignment managing node Lenze setting (hex): 0x8000000D
C13029/2	0	EPL node assignment diagnostic device Lenze setting (hex): 0x00000000
C13029/3	2147483655	EPL node assignment router Lenze setting (hex): 0x80000007
☒ Read access ☒ Write access ☐ CINH ☐ PLC-STOP ☐ No transfer ☐ PDO_MAP_RX ☐ PDO_MAP_TX ☒ COM ☐ MOT		

The describing bit field has the following structure:

Bit	Value	Description
0 (LSB)	0	EPL node with this ID does not exist.
	1	EPL node with this ID exists.
1	0	EPL node with this ID is not a controlled node.
	1	EPL node with this ID is a controlled node.
2	0	On detection of a booting controlled node, the application will not be informed.
	1	On detection of a booting controlled node, the application will be informed and the controlled node will be started.
3	0	Optional controlled node
	1	Obligatory controlled node
4	0	The managing node is allowed to send reset commands.
	1	The managing node must not send any reset command.
5	0	Software version verification of the controlled node is not required.
	1	Software version verification of the controlled node is required.
6	0	Automatic application software update is not allowed.
	1	Automatic application software update is allowed.
7	-	Reserved / No function
8	0	Isochronously accessed controlled node
	1	Asynchronously accessed controlled node (bit 9 is irrelevant)
9	0	Continuously accessed controlled node
	1	Multiplex EPL nodes are supported.
10	0	No "POWERLINK to standard Ethernet" router function.
	1	The device can be used as an "POWERLINK to standard Ethernet" router (router type 1).
11	0	No "POWERLINK to fieldbus" router function.
	1	The device can be used as an "POWERLINK to fieldbus" router (router type 1).
12	0	The managing node does not send any PRes frames
	1	The managing node sends PRes frames
13 ... 30	-	Reserved / No function
31 (MSB)	0	Bits 0 ... 30 inhibited
	1	Bits 0 ... 30 enabled

Parameter reference

Parameters relevant for POWERLINK communication

C13040

Parameter Name: C13040 0x1F82 Feature Flags		Data type: UNSIGNED_32 Index: 11535 _d = 2D0F _h
The code displays the POWERLINK functions implemented by the EPL node. Lenze standard value: 0x00000207		
Value is bit-coded:		
Bit 0 ... 31	see below	
☒ Read access ☐ Write access ☐ CINH ☐ PLC-STOP ☒ No transfer ☐ PDO_MAP_RX ☐ PDO_MAP_TX ☒ COM ☐ MOT		

The describing bit field has the following structure:

Bit	Value	Description
0 (LSB)	0	Asynchronous access
	1	Isochronous access
1	0	No SDO by UDP/IP
	1	SDO by UDP/IP
2	0	No SDO by EPL "ASnd"
	1	SDO by EPL "ASnd"
3	0	No SDO integrated in PDO
	1	SDO integrated in PDO
4	0	No "NMT Info Services"
	1	"NMT Info Services" supported
5	0	No extended "NMT State Commands"
	1	Extended "NMT State Commands" supported
6	0	No dynamic PDO mapping
	1	Dynamic PDO mapping supported
7	-	Reserved / No function
8	0	No configuration manager function
	1	Configuration manager function
9	0	Only isochronous cyclic access permitted.
	1	Isochronous multiplexed access possible.
10	0	No address assignment via software
	1	Address assignment via software
11	-	Reserved / No function
12	0	No "POWERLINK to standard Ethernet" router function.
	1	The device can be used as an "POWERLINK to standard Ethernet" router (router type 1).
13	0	No "POWERLINK to fieldbus" router function.
	1	The device can be used as an "POWERLINK to fieldbus" router (router type 1).
14 ... 31 (MSB)	-	Reserved / No function

Parameter reference

Parameters relevant for POWERLINK communication

C13060

Parameter Name: C13060 0x1006 Cycle Time		Data type: UNSIGNED_32 Index: 11515 _d = 2CFB _h
The code declares the length of the EPL cycle in μ s. • In the configured state, this code must have an identical value in all EPL nodes. • The selected value must correspond to the actual bus cycle time so that the internal monitoring functions work correctly.		
Selection list (Lenze setting printed in bold)		
400	400	
500	500	
600	600	
800	800	
1000	1000	
2000	2000	
3000	3000	
4000	4000	
5000	5000	
6000	6000	
7000	7000	
8000	8000	
9000	9000	
10000	10000	
11000	11000	
12000	12000	
13000	13000	
14000	14000	
15000	15000	
16000	16000	
17000	17000	
18000	18000	
19000	19000	
20000	20000	
☒ Read access ☒ Write access ☐ CINH ☐ PLC-STOP ☐ No transfer ☐ PDO_MAP_RX ☐ PDO_MAP_TX ☒ COM ☐ MOT		

Parameter reference

Parameters relevant for POWERLINK communication

C13066

Parameter | Name:

C13066 | 0x1F8D PResPayloadLimit RPDO CN

Data type: UNSIGNED_16
Index: 11509_d = 2CF5_h

The code defines the reserved user data length of the PRes telegrams for controlled nodes 1 ... 100. Each subcode number corresponds to one EPL node with the same node ID. The EPL node must be enabled via code [C13028](#). The subcodes describe the PRes telegrams received. The value must be within the range of 36 ... 1490 bytes. The values are upper limit values for the entire size of the PDO mappings for received PRes telegrams. **In the configured state, the values stored for the EPL nodes must be identical to the corresponding [C13072](#) entries. C13066 must have an identical value in all EPL nodes of the network.**

Setting range (min. value unit max. value)			
0	Byte	1490	
Subcodes	Lenze setting	Info	
C13066/1	0 byte		
...	...		
C13066/100	0 byte		

☒ Read access

☒ Write access

☐ CINH

☐ PLC-STOP

☐ No transfer

☐ PDO_MAP_RX

☐ PDO_MAP_TX

☒ COM

☐ MOT

C13067

Parameter Name:			Data type: UNSIGNED_16 Index: 11508 _d = 2CF4 _h
C13067 0x1F8D PResPayloadLimit			
The code defines the reserved user data length of the PRes frames for managing node, diagnostic device or router. Each subcode number corresponds to one EPL node with the same node ID. The EPL node must be enabled via code C13028. The subcode describes the PRes telegrams received. The value must be within the limits of 36 ... 1490 bytes. The values are upper limit values for the entire size of the PDO mappings for received PRes telegrams. In the configured state, the values stored for the nodes must be identical to the corresponding C13072 entries. C13066 must have an identical value in all EPL nodes of the network.			
Setting range (min. value unit max. value)			
0	Byte	1490	
Subcodes	Lenze setting	Info	
C13067/1	0 byte	Managing node	
C13067/2	0 byte	Diagnostics device	
C13067/3	0 byte	router	
☒ Read access ☒ Write access ☐ CINH ☐ PLC-STOP ☐ No transfer ☐ PDO_MAP_RX ☐ PDO_MAP_TX ☒ COM ☐ MOT			

C13071

Parameter Name:			Data type: UNSIGNED_16 Index: 11504 _d = 2CF0 _h		
C13071 0x1F98.4 PReqPayloadLimit RPDO					
The code defines the maximum data size to be received by the controlled node via PReq for the current network configuration. C13071 is an upper limit value for the entire size of the PDO mapping for the PReq telegram. In the configured state, the value must be identical to the entry for a response valid for the EPL node.					
Setting range (min. value unit max. value)			Lenze setting		
36	Byte	1490	36 bytes		
☒ Read access ☒ Write access ☐ CINH ☐ PLC-STOP ☐ No transfer ☐ PDO MAP RX ☐ PDO MAP TX ☒ COM ☐ MOT					

Parameter reference

Parameters relevant for POWERLINK communication

C13072

Parameter Name: C13072 0x1F98.5 PResPayloadLimit TPDO			Data type: UNSIGNED_16 Index: 11503 _d = 2CEF _h
The code defines the maximum data size to be sent by the EPL node for the current network configuration. The PDO mapping is allowed to assign data with a total size greater than or equal to C13072. In the configured state, C13072 must be identical to the entry in C13066 valid for the EPL node.			
Setting range (min. value unit max. value)			Lenze setting
36	Byte	1490	36 bytes
☒ Read access ☒ Write access ☐ CINH ☐ PLC-STOP ☐ No transfer ☐ PDO_MAP_RX ☐ PDO_MAP_TX ☒ COM ☐ MOT			

C13074

Parameter Name: C13074 0x1F98.7 Multiplex Cycle Counter			Data type: UNSIGNED_8 Index: 11501 _d = 2CED _h
This code serves to define the maximum number of the multiplexed cycles. If, for instance, the value "3" is entered, the multiplexed cycle is repeated every three cycles. Within one multiplexed cycle, the nodes are queried according to the value in code C13079 . If, for instance, the value "2" is entered for a node in C13079/x , it is always queried only in the second cycle of the three multiplexed cycles.			
Setting range (min. value unit max. value)			Lenze setting
0	Cycles	255	0 cycles
☒ Read access ☒ Write access ☐ CINH ☐ PLC-STOP ☐ No transfer ☐ PDO_MAP_RX ☐ PDO_MAP_TX ☒ COM ☐ MOT			

C13075

Parameter Name: C13075 0x1F98.8 SDO Channel Width (AsyncMTU)			Data type: UNSIGNED_16 Index: 11500 _d = 2CEC _h
The code defines the maximum user data size of asynchronous frames. Protocol-specific headers for EPL, UDP/IP and others as well as service-specific headers are to be interpreted as part of the user data. In the configured state, the C13075 values of all EPL nodes must be identical.			
Setting range (min. value unit max. value)			Lenze setting
300	Byte	1500	300 bytes
☒ Read access ☒ Write access ☐ CINH ☐ PLC-STOP ☐ No transfer ☐ PDO_MAP_RX ☐ PDO_MAP_TX ☒ COM ☐ MOT			

C13076

Parameter Name: C13076 0x1F98.9 Prescaler_U16			Data type: UNSIGNED_16 Index: 11499 _d = 2CEB _h
This code configures the change rate of the SoC PS flag.			
Setting range (min. value unit max. value)			Lenze setting
0	Cycles	1000	2 Cycles
☒ Read access ☒ Write access ☐ CINH ☐ PLC-STOP ☐ No transfer ☐ PDO_MAP_RX ☐ PDO_MAP_TX ☒ COM ☐ MOT			

C13078

Parameter Name: C13078 0x1F99 BasicEthTimeout			Data type: UNSIGNED_32 Index: 11497 _d = 2CE9 _h
The code defines the time interval needed for the booting controlled node to wait for the managing node. If the controlled node detects a managing node within the interval, the controlled node changes to NMT_CS_PREOPERATIONAL_1, if not it changes to "Basic Ethernet Mode".			
Setting range (min. value unit max. value)			Lenze setting
0	µs	4294967295	5000000 µs
☒ Read access ☒ Write access ☐ CINH ☐ PLC-STOP ☐ No transfer ☐ PDO_MAP_RX ☐ PDO_MAP_TX ☒ COM ☐ MOT			

Parameter reference

Parameters relevant for POWERLINK communication

C13079

Parameter Name: C13079 0x1F9B Multiplex Cycle CN		Data type: UNSIGNED_8 Index: 11496 _d = 2CE8 _h
This code indicates in which multiplexed cycle the node is queried. The value entered must not exceed the value in code C13074 . If, for instance, the value "3" is entered in code C13074 , the multiplexed cycle is repeated every three cycles. If now the value "3" is entered for one node in C13079/x, it is always queried only in the second cycle of the three multiplexed cycles.		
Setting range (min. value unit max. value)		
0	Cycles	255
Subcodes	Lenze setting	Info
C13079/1	0 cycles	
...	...	
C13079/100	0 cycles	
☒ Read access ☒ Write access ☐ CINH ☐ PLC-STOP ☐ No transfer ☐ PDO_MAP_RX ☐ PDO_MAP_TX ☒ COM ☐ MOT		

C13102

Parameter Name: C13102 0x1F9E NMT Reset Command		Data type: UNSIGNED_8 Index: 11473 _d = 2CD1 _h
A reset command to a single EPL node in the network can result in cycle and monitoring errors. The code initiates a reset of the EPL node. When the reset has been executed, the code is automatically set to "NoCommand / NMTInvalidService".		
Selection list (Lenze setting printed in bold)		
40	ResetNode	
41	ResetCommunication	
42	ResetConfiguration	
255	NoCommand	
☒ Read access ☒ Write access ☐ CINH ☐ PLC-STOP ☒ No transfer ☐ PDO_MAP_RX ☐ PDO_MAP_TX ☒ COM ☐ MOT		

C13136

Parameter Name: C13136 SoC Cycle Counter		Data type: UNSIGNED_32 Index: 11439 _d = 2CAF _h
The subcodes of the code display a counter for EPL cycles. • The SoC cycle counter can be used for activity monitoring. • The counter is started at "0" each time the EPL node is switched on. The overflow is at "4294967295".		
Display range (min. value unit max. value)		
0		4294967295
☒ Read access ☐ Write access ☐ CINH ☐ PLC-STOP ☒ No transfer ☐ PDO_MAP_RX ☐ PDO_MAP_TX ☒ COM ☐ MOT		

C13859

Parameter Name: C13859 0x1A00.0 Number of mapped Tx PDO-1			Data type: UNSIGNED_8 Index: 10716 _d = 29DC _h	
Number of sent PDOs via the PDO channel 1 (Tx)				
Display range (min. value unit max. value)				
0		10		
Subcodes			Info	
C13859/1			0x1A00.0 Number of mapped Tx PDO-1	
☒ Read access ☐ Write access ☐ CINH ☐ PLC-STOP ☐ No transfer ☐ PDO MAP RX ☐ PDO MAP TX ☒ COM ☐ MOT				

Parameter reference

Parameters relevant for POWERLINK communication

C13860

Parameter Name: C13860 0x160x.0 Number of mapped Rx PDO			Data type: UNSIGNED_8 Index: 10715 _d = 29DB _h		
Number of received PDOs via the PDO channel 1 (Rx)					
Display range (min. value unit max. value)					
0		8			
Subcodes			Info		
C13860/1			0x1600.0 Number of mapped Rx PDO-1		
☒ Read access ☐ Write access ☐ CINH ☐ PLC-STOP ☐ No transfer ☐ PDO_MAP_RX ☐ PDO_MAP_TX ☒ COM ☐ MOT					

C13861

Parameter Name: C13861 0x1F8C NMT Communication Status		Data type: UNSIGNED_8 Index: 10714 _d = 29DA _h
The code displays the current NMT state (according to the Ethernet POWERLINK specification) of the EPL node.		
0	Off	NMT_GS_OFF
25	Initialising	NMT_GS_INITIALISING
41	ResetAppl	NMT_GS_RESET_APPLICATION
57	ResetComm	NMT_GS_RESET_CONFIGURATION
121	ResetConfig	NMT_GS_RESET_CONFIGURATION
28	NotActive	NMT_CS_NOT_ACTIVE
29	PreOp1	NMT_CS_PRE_OPERATIONAL_2
93	PreOp2	NMT_CS_PRE_OPERATIONAL_2
109	ReadyToOp	NMT_CS_READY_TO_OPERATE
253	Operational	NMT_CS_OPERATIONAL
77	Stopped	NMT_CS_STOPPED
30	BasicEthernet	NMT_CS_BASIC_ETHERNET
0	Off	NMT_GS_OFF
☒ Read access ☐ Write access ☐ CINH ☐ PLC-STOP ☒ No transfer ☐ PDO_MAP_RX ☐ PDO_MAP_TX ☒ COM ☐ MOT		

C13864

Parameter Name: C13864 0x1F93.1 Node ID		Data type: UNSIGNED_8 Index: 10711 _d = 29D7 _h	
The code displays the currently valid EPL device address. • The EPL device address must be unequivocal in the EPL network segment. • See also C13899.			
Display range (min. value unit max. value)			
1			
☒ Read access ☐ Write access ☐ CINH ☐ PLC-STOP ☒ No transfer ☐ PDO_MAP_RX ☐ PDO_MAP_TX ☒ COM ☐ MOT			

Parameter reference

Parameters relevant for POWERLINK communication

C13865

Parameter Name: C13865 0x1F93.2 Node ID by HW		Data type: UNSIGNED_8 Index: 10710 _d = 29D6 _h	
The code displays whether the EPL node address (node ID) has been set via the DIP switch of the Drive Unit or via C13899. • 0 (FALSE): Node ID has been set via C13899. • 1 (TRUE): Node ID has been set via DIP switches. ▶ Node address (node ID) setting (□ 26)			
Display range (min. value unit max. value)			
0			
☒ Read access ☐ Write access ☐ CINH ☐ PLC-STOP ☒ No transfer ☐ PDO_MAP_RX ☐ PDO_MAP_TX ☒ COM ☐ MOT			

C13879

Parameter Name: C13879 Bus error		Data type: UNSIGNED_32 Index: 10696 _d = 29C8 _h	
The code displays the bus error status which is signalled in the "ERR" LED. • Bit 0 = 0 (0x00000000) no bus error • Bit 0 = 1 (0x00000001) bus error active			
Value is bit-coded:			
Bit 0	Bus Error if TRUE		
☒ Read access ☐ Write access ☐ CINH ☐ PLC-STOP ☒ No transfer ☐ PDO_MAP_RX ☐ PDO_MAP_TX ☒ COM ☐ MOT			

C13880

Parameter Name: C13880 error response		Data type: UNSIGNED_8 Index: 10695 _d = 29C7 _h	
The subcodes determine the reaction when the OPERATIONAL state is left, when SoC is lost and when a CRC error occurs.			
Selection list			
0	No response		
1	Error		
3	Quick stop by trouble		
4	Warning Locked		
6	Information		
Subcodes	Lenze setting	Info	
C13880/1	0: No Response	Error reaction at OPERATIONAL loss	
C13880/2	0: No Response	Error reaction at SoC loss	
C13880/3	0: No Response	Error reaction at CRC error	
☒ Read access ☒ Write access ☐ CINH ☐ PLC-STOP ☐ No transfer ☐ PDO_MAP_RX ☐ PDO_MAP_TX ☒ COM ☐ MOT			

C13884

Parameter Name:		Data type: BITFIELD_8 Index: 10691 _d = 29C3 _h	
C13884 Response to RPDO monitoring			
The code displays if the EPL node is synchronised. • Bit 0 = 0 (0x00000000) The EPL node is not synchronised. • Bit 0 = 1 (0x00000001) The EPL node is synchronised.			
Value is bit-coded:			
Bit 0	CU Synchronisation is locked if TRUE		
☒ Read access ☐ Write access ☐ CINH ☐ PLC-STOP ☐ No transfer ☐ PDO MAP RX ☐ PDO MAP TX ☒ COM ☐ MOT			

Parameter reference

Parameters relevant for POWERLINK communication

C13885

Parameter Name: C13885 Suppress emergency message upon		Data type: UNSIGNED_8 Index: 10690 _d = 29C2 _h
The code controls the error response to failing PDO communication with a node. The failure is detected because expected PDO data are missing.		
Selection list (Lenze setting printed in bold)		
0	Maintain PDO	
1	Delete PDO	
☒ Read access ☒ Write access ☐ CINH ☐ PLC-STOP ☐ No transfer ☐ PDO_MAP_RX ☐ PDO_MAP_TX ☒ COM ☐ MOT		

C13887

Parameter Name: C13887 Suppress emergency message upon		Data type: BITFIELD_8 Index: 10688 _d = 29C0 _h
This code serves to suppress sending alarm messages to the managing node. You can explicitly suppress a certain type of error. Furthermore, all errors are entered into the logbook. • A change can only be effective immediately if no error number with the error type selected here is active in C00165.		
Value is bit-coded:		
Bit 0	Error	
Bit 1	Fault	
Bit 2	Quick stop by trouble	
Bit 3	Warning Locked	
Bit 4	Warning	
Bit 5	Reserved	
Bit 6	Reserved	
Bit 7	Reserved	
☒ Read access ☒ Write access ☐ CINH ☐ PLC-STOP ☐ No transfer ☐ PDO_MAP_RX ☐ PDO_MAP_TX ☒ COM ☐ MOT		

C13898

Parameter Name: C13898 0x1F9A Host Name		Data type: VISIBLE_STRING Index: 10677 _d = 29B5 _h
The code defines a DNS-compatible device name. The length is limited to 20 characters. The device name must be non-ambiguous within the network domain. Naming convention: The device name ... • starts with a letter; • ends with a letter or a digit. The device name consists of ... • letters (A ... Z, a ... z); • digits (0 ... 9); • hyphen (-).		
☒ Read access ☒ Write access ☐ CINH ☐ PLC-STOP ☐ No transfer ☐ PDO_MAP_RX ☐ PDO_MAP_TX ☒ COM ☐ MOT		

Parameter reference

Parameters relevant for POWERLINK communication

C13899

Parameter Name: C13899 Node ID SW			Data type: UNSIGNED_8 Index: 10676 _d = 29B4 _h
Setting of the node ID, unless a node ID is set via DIP switches. ▶ Node address (node ID) setting (📖 26)			
Setting range (min. value unit max. value)			Lenze setting
0		239	0
☒ Read access ☒ Write access ☐ CINH ☐ PLC-STOP ☐ No transfer ☐ PDO_MAP_RX ☐ PDO_MAP_TX ☒ COM ☐ MOT			

C13900

Parameter Name: C13900 Firmware Type		Data type: VISIBLE_STRING Index: 10675 _d = 29B3 _h	
Display of the Lenze firmware type of the Communication Unit (product designation).			
☒ Read access ☐ Write access ☐ CINH ☐ PLC-STOP ☐ No transfer ☐ PDO_MAP_RX ☐ PDO_MAP_TX ☒ COM ☐ MOT			

C13901

Parameter Name: C13901 Firmware Date		Data type: VISIBLE_STRING Index: 10674 _d = 29B2 _h	
Display of the creation date of the Communication Unit firmware.			
☒ Read access ☐ Write access ☐ CINH ☐ PLC-STOP ☐ No transfer ☐ PDO_MAP_RX ☐ PDO_MAP_TX ☒ COM ☐ MOT			

C13902

Parameter Name: C13902 Firmware Version		Data type: VISIBLE_STRING Index: 10673 _d = 29B1 _h	
Display of the version number of the Communication Unit firmware.			
☒ Read access ☐ Write access ☐ CINH ☐ PLC-STOP ☐ No transfer ☐ PDO_MAP_RX ☐ PDO_MAP_TX ☒ COM ☐ MOT			

Parameter reference

Parameters relevant for POWERLINK communication

C13910

Parameter Name: C13910 Last Module Error		Data type: UNSIGNED_32 Index: 10665 _d = 29A9 _h
Display of the error code of the error last occurred in the Communication Unit		
Selection list (Lenze setting printed in bold)		
0	No error	
297566817	Warning locked INVALID_ADDR	
29122816	Software error	
96239921	Fault OPER_LOST	
230457649	Quick stop OPER_LOST	
297566513	Warning locked OPER_LOST	
431784241	Information OPER_LOST	
96240229	Fault CN_SoC_LOSS	
230457957	Quick stop CN_SoC_LOSS	
297566821	Warning locked CN_SoC_LOSS	
431784549	Information CN_SoC_LOSS	
96240230	Fault COM_CRC	
230457958	Quick stop COM_CRC	
297566822	Warning locked COM_CRC	
431784550	Information COM_CRC	
☒ Read access ☒ Write access ☐ CINH ☐ PLC-STOP ☒ No transfer ☐ PDO_MAP_RX ☐ PDO_MAP_TX ☒ COM ☐ MOT		

C13915

Parameter Name: C13915 CustomerObject[16]		Data type: OCTET_STRING Index: 10660 _d = 29A4 _h
The code contains an octet string[16] for customised use.		
Setting range (min. value unit max. value)		
Subcodes	Lenze setting	Info
C13915/1	00000000000000000000000000000000 000	
☒ Read access ☒ Write access ☐ CINH ☐ PLC-STOP ☐ No transfer ☐ PDO_MAP_RX ☐ PDO_MAP_TX ☒ COM ☐ MOT		

C13920

Parameter Name: C13920 Current address switch		Data type: UNSIGNED_8 Index: 10655 _d = 299F _h
The code displays the current DIP switch position (node ID). Not all switch positions are useful. The values for node IDs assigned by means of switches are between 1 and 239. ▶ Node address (node ID) setting (p. 26)		
Display range (min. value unit max. value)		
0		255
☒ Read access ☐ Write access ☐ CINH ☐ PLC-STOP ☒ No transfer ☐ PDO_MAP_RX ☐ PDO_MAP_TX ☒ COM ☐ MOT		

Parameter reference

Table of attributes

11.3 Table of attributes

The table of attributes contains information required for a communication with the Inverter Drives 8400 motec via parameters.

How to read the table of attributes:

Column		Meaning	Entry	
Code		Parameter name	Cxxxxx	
Name		Parameter short text (display text)	Text	
Index	dec	Index under which the parameter is addressed. The subindex for array variables corresponds to the Lenze subcode number.	24575 - Lenze code number	Is only required for access via a bus system.
	hex		5FFF _h - Lenze code number	
Data	DS	Data structure	E	Single variable (only one parameter element)
			A	Array variable (several parameter elements)
	DA	Number of array elements (subcodes)	Number	
	DT	Data type	BITFIELD_8	1 byte, bit-coded
			BITFIELD_16	2 bytes, bit-coded
			BITFIELD_32	4 bytes, bit-coded
			INTEGER_8	1 byte, with sign
			INTEGER_16	2 bytes with sign
			INTEGER_32	4 bytes, with sign
			UNSIGNED_8	1 byte without sign
			UNSIGNED_16	2 bytes without sign
			UNSIGNED_32	4 bytes, without sign
			VISIBLE_STRING	ASCII string
			OCTET_STRING	
Factor	Factor for data transmission via a bus system, depending on the number of decimal positions	Factor	1 ≡ No decimal positions 10 ≡ 1 decimal position 100 ≡ 2 decimal positions 1000 ≡ 3 decimal positions	
Access	R	Read access	☒ Reading permitted	
	W	Write access	☒ Writing permitted	
	CINH	Controller inhibit (CINH) required	☒ Writing is only possible when the controller is inhibited (CINH)	

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		dec	hex	DS	DA	Data type	Factor	R	W	CINH
C13000	0x1E40.2 IP address	11575	2D37	A	1	UNSIGNED_32		☑		
C13001	0x1E40.3 Subnet mask	11574	2D36	A	1	UNSIGNED_32		☑		
C13003	0x1E40.5 IP Address Router	11572	2D34	A	1	UNSIGNED_32		☑	☑	
C13004	0x1030.5 MAC address	11571	2D33	A	1	OCTET_STRING		☑		
C13028	0x1F81 NMT_NodeAssignment CN	11547	2D1B	A	100	UNSIGNED_32		☑	☑	
C13029	NMT_NodeAssignment	11546	2D1A	A	3	UNSIGNED_32		☑	☑	
C13040	0x1F82 Feature Flags	11535	2D0F	E	1	UNSIGNED_32		☑		
C13060	0x1006 Cycle Time	11515	2CFB	E	1	UNSIGNED_32	1	☑	☑	
C13066	0x1F8D PResPayloadLimit RPDO CN	11509	2CF5	A	100	UNSIGNED_16	1	☑	☑	
C13067	0x1F8D PResPayloadLimit	11508	2CF4	A	3	UNSIGNED_16	1	☑	☑	
C13071	0x1F98.4 PReqPayloadLimit RPDO	11504	2CF0	E	1	UNSIGNED_16	1	☑	☑	
C13072	0x1F98.5 PResPayloadLimit TPDO	11503	2CEF	E	1	UNSIGNED_16	1	☑	☑	
C13074	0x1F98.7 MultiplCycleCnt	11501	2CED	E	1	UNSIGNED_8	1	☑	☑	
C13075	0x1F98.8 AsyncMTU	11500	2CEC	E	1	UNSIGNED_16	1	☑	☑	
C13076	0x1F98.9 Prescaler_U16	11499	2CEB	E	1	UNSIGNED_16	1	☑	☑	
C13078	0x1F99 BasicEthTimeout	11497	2CE9	E	1	UNSIGNED_32	1	☑	☑	
C13079	0x1F9B NMT_MultiplCycleAsgn CN	11496	2CE8	A	100	UNSIGNED_8	1	☑	☑	
C13102	0x1F9E NMT_ResetCmd	11473	2CD1	E	1	UNSIGNED_8	1	☑	☑	
C13136	SoC Cycle Counter	11439	2CAF	E	1	UNSIGNED_32	1	☑		
C13859	0x1A00.0 Number of mapped Tx PDO-1	10716	29DC	A	1	UNSIGNED_8	1	☑		
C13860	0x160x.0 Number of mapped Rx PDO-1	10715	29DB	A	1	UNSIGNED_8	1	☑		
C13861	0x1F8C NMT_CurrentState	10714	29DA	E	1	UNSIGNED_8	1	☑		
C13864	0x1F93.1 Node ID	10711	29D7	E	1	UNSIGNED_8	1	☑		
C13865	0x1F93.2 Node ID by HW	10710	29D6	E	1	UNSIGNED_8	1	☑		
C13879	Bus error	10696	29C8	E	1	UNSIGNED_32		☑		
C13880	Module error reactions	10695	29C7	A	3	UNSIGNED_8	1	☑	☑	
C13884	CU Synchronisation lock status	10691	29C3	E	1	BITFIELD_8		☑		
C13885	Error reaction on RPDO check	10690	29C2	E	1	UNSIGNED_8	1	☑	☑	
C13887	Suppress emergency message upon	10688	29C0	E	1	BITFIELD_8		☑	☑	
C13898	0x1F9A Host Name	10677	29B5	E	1	VISIBLE_STRING		☑	☑	
C13899	Node ID SW	10676	29B4	E	1	UNSIGNED_8	1	☑	☑	
C13900	Firmware Type	10675	29B3	E	1	VISIBLE_STRING		☑		
C13901	Firmware Date	10674	29B2	E	1	VISIBLE_STRING		☑		
C13902	Firmware Version	10673	29B1	E	1	VISIBLE_STRING		☑		
C13910	Last Module Error	10665	29A9	E	1	UNSIGNED_32	1	☑	☑	
C13915	CustomerObject[16]	10660	29A4	A	1	OCTET_STRING		☑	☑	
C13920	Current address switch	10655	299F	E	1	UNSIGNED_8	1	☑		

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The following objects specified by the POWERLINK communication profile (DS 301) are supported:

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0x1000	NMT_DeviceType_U32	-	U32	R	-	0
0x1001	ERR_ErrorRegister_U8	-	I8	R	-	
0x1003.0	ERR_History_ADOM	NumberOfEntries	U8	RW	-	
0x1003.1 ...254	ERR_History_ADOM	ErrorEntry_DOM	DOMAIN	R	-	
0x1006	NMT_CycleLen_U32	-	U32	RW	C13060	1000
0x1008	NMT_ManufactDevName_VS	-	VS5	R	-	Lenze motec inverter
0x1018.0	NMT_IdentityObject_REC	NumberOfEntries	U8	R	-	4
0x1018.1	NMT_IdentityObject_REC	VendorId_U32	U32	R	-	59
0x1018.2	NMT_IdentityObject_REC	ProductCode_U32	U32	R	-	840110
0x1018.3	NMT_IdentityObject_REC	RevisionNo_U32	U32	R	-	
0x1018.4	NMT_IdentityObject_REC	SerialNo_U32	U32	R	-	
0x1020.0	CFM_VerifyConfiguration_REC	NumberOfEntries	U8	R	-	2
0x1020.1	CFM_VerifyConfiguration_REC	ConfDate_U32	U32	RW	-	
0x1020.2	CFM_VerifyConfiguration_REC	ConfTime_U32	U32	RW	-	
0x1030.0	NMT_InterfaceGroup_0h_REC	NumberOfEntries	U8	R	-	9
0x1030.1	NMT_InterfaceGroup_0h_REC	InterfaceIndex_U16	U16	R	Interface no. of the POWERLINK interface	1
0x1030.2	NMT_InterfaceGroup_0h_REC	InterfaceDescription_VSTR	VS3	R	Description of the POWERLINK interface	Lenze E84DGFE
0x1030.3	NMT_InterfaceGroup_0h_REC	InterfaceType_U8	U8	R	Interface type	6
0x1030.4	NMT_InterfaceGroup_0h_REC	InterfaceMtu_U32	U32	R	Maximum frame size [byte]	1490
0x1030.5	NMT_InterfaceGroup_0h_REC	InterfacePhysAddress_OSTR	OS6	R	C13004/1	
0x1030.6	NMT_InterfaceGroup_0h_REC	InterfaceName_VSTR	VS16	RW	Symb. name of the POWERLINK interface	ETH0
0x1030.7	NMT_InterfaceGroup_0h_REC	InterfaceOperState_U8	U8	R	Operation status of the POWERLINK interface	1
0x1030.8	NMT_InterfaceGroup_0h_REC	InterfaceAdminState_U8	U8	RW	Administration status of the POWERLINK interface	1
0x1030.9	NMT_InterfaceGroup_0h_REC	Valid_BOOL	BOOL	RW	Release of the interface description	1: TRUE
0x1300	SDO_SequLayerTimeout_U32	-	U32	RW	Value in [ms]	15000
0x1301	SDO_CmdLayerTimeout_U32	-	U32	RW	Value in [ms]	30000
0x1400.0	PDO_RxCommParam_00h_REC	NumberOfEntries	U8	R	-	2
0x1400.1	PDO_RxCommParam_00h_REC	NodeID_U8	U8	RW	-	0
0x1400.2	PDO_RxCommParam_00h_REC	MappingVersion_U8	U8	R	Version of PDO mapping	0
0x1600.0	PDO_RxMappParam_00h_REC	NumberOfEntries	U8	R	C13860/1	
0x1600.1 ...8	PDO_RxMappParam_00h_REC	ObjectMapping_U64	U64	RW	-	
0x1800.0	PDO_TxCommParam_00h_REC	NumberOfEntries	U8	R	-	2
0x1800.1	PDO_TxCommParam_00h_REC	NodeID_U8	U8	R	Node ID of the receiver	0 (pseudo node ID for PRes-Tx)
0x1800.2	PDO_TxCommParam_00h_REC	MappingVersion_U8	U8	R	Version of PDO mapping	0
0x1A00.0	PDO_TxMappParam_00h_AU64	NumberOfEntries	U8	R	C13859/1	
0x1A00.1 ...10	PDO_TxMappParam_00h_AU64	ObjectMapping	U64	R	-	
0x1C0A.0	DLL_CNCCollision_REC	NumberOfEntries	U8	R	-	3
0x1C0A.1	DLL_CNCCollision_REC	CumulativeCnt_U32	U32	RW	-	
0x1C0A.1	DLL_CNCCollision_REC	ThresholdCnt_U32	U32	R	-	
0x1C0A.1	DLL_CNCCollision_REC	Threshold_U32	U32	RW	-	15

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0x1C0B.0	DLL_CNLossSoC_REC	NumberOfEntries	U8	R	-	3
0x1C0B.1	DLL_CNLossSoC_REC	CumulativeCnt_U32	U32	RW	-	
0x1C0B.1	DLL_CNLossSoC_REC	ThresholdCnt_U32	U32	R	-	
0x1C0B.1	DLL_CNLossSoC_REC	Threshold_U32	U32	RW	-	15
0x1C0C.0	DLL_CNLossSoA_REC	NumberOfEntries	U8	R	-	3
0x1C0C.1	DLL_CNLossSoA_REC	CumulativeCnt_U32	U32	RW	-	
0x1C0C.1	DLL_CNLossSoA_REC	ThresholdCnt_U32	U32	R	-	
0x1C0C.1	DLL_CNLossSoA_REC	Threshold_U32	U32	RW	-	15
0x1C0D.0	DLL_CNLossPReq_REC	NumberOfEntries	U8	R	-	3
0x1C0D.1	DLL_CNLossPReq_REC	CumulativeCnt_U32	U32	RW	-	
0x1C0D.1	DLL_CNLossPReq_REC	ThresholdCnt_U32	U32	R	-	
0x1C0D.1	DLL_CNLossPReq_REC	Threshold_U32	U32	RW	-	15
0x1C0F.0	DLL_CNCRCErrror_REC	NumberOfEntries	U8	R	-	3
0x1C0F.1	DLL_CNCRCErrror_REC	CumulativeCnt_U32	U32	RW	-	
0x1C0F.1	DLL_CNCRCErrror_REC	ThresholdCnt_U32	U32	R	-	
0x1C0F.1	DLL_CNCRCErrror_REC	Threshold_U32	U32	RW	-	15
0x1C10	DLL_CNLossOfLinkCum_U32	-	U32	RW	-	
0x1C13	DLL_CNSoCJitterRange_U32	-	U32	RW	-	2000
0x1C14	DLL_CNLossOfSocTolerance_U32	-	U32	RW	-	100000
0x1E40.0	NWL_IpAddrTable_0h_REC	NumberOfEntries	U8	R	-	5
0x1E40.1	NWL_IpAddrTable_0h_REC	IfIndex_U16	U16	R	-	0
0x1E40.2	NWL_IpAddrTable_0h_REC	Addr_IPAD	U32	R	C13000/1	
0x1E40.3	NWL_IpAddrTable_0h_REC	NetMask_IPAD	U32	R	C13001/1	
0x1E40.4	NWL_IpAddrTable_0h_REC	ReasmMaxSize_U16	U16	R	Maximum frame size which can be reconstructed from frames arriving in fragments [byte].	1518
0x1E40.5	NWL_IpAddrTable_0h_REC	DefaultGateway_IPAD	U32	RW	C13003/1	
0x1E4A.0	NWL_IpGroup_REC	NumberOfEntries	U8	R	-	3
0x1E4A.1	NWL_IpGroup_REC	Forwarding_BOOL	BOOL	R	Release for IP router function	0: FALSE
0x1E4A.2	NWL_IpGroup_REC	DefaultTTL_U16	U16	RW	TimeToLive value for transmitted IP frames Limits the range with regard to router stations passed.	64
0x1E4A.3	NWL_IpGroup_REC	ForwardingDatagrams_U32	U32	R	Counter for routed frames	
0x1F81.0	NMT_NodeAssignment_AU32	NumberOfEntries	U8	RW	-	254
0x1F81.1...100	NMT_NodeAssignment_AU32	NodeAssignment	U32	RW	C13028/1...100	
0x1F81.240	NMT_NodeAssignment_AU32	NodeAssignment	U32	RW	C13029/1	
0x1F81.253	NMT_NodeAssignment_AU32	NodeAssignment	U32	RW	C13029/2	
0x1F81.254	NMT_NodeAssignment_AU32	NodeAssignment	U32	RW	C13029/3	
0x1F82	NMT_FeatureFlags_U32	-	U32	R	C13040	0x20
0x1F83	NMT_EPLVersion_U8	-	U8	R	EPL version	
0x1F8C	NMT_CurrNMTState_U8	-	U8	R	C13861	
0x1F8D.0	NMT_PResPayloadLimitList_AU16	NumberOfEntries	U8	R	-	254
0x1F8D.1...100	NMT_PResPayloadLimitList_AU16	PResPayloadLimit	U16	RW	C13066/1...100	36
0x1F8D.240	NMT_PResPayloadLimitList_AU16	PResPayloadLimit	U16	RW	C13067/1	36
0x1F8D.253	NMT_PResPayloadLimitList_AU16	PResPayloadLimit	U16	RW	C13067/2	36
0x1F8D.254	NMT_PResPayloadLimitList_AU16	PResPayloadLimit	U16	RW	C13067/3	36
0x1F93.0	NMT_EPLNodeID_REC	NumberOfEntries	U8	R		2
0x1F93.1	NMT_EPLNodeID_REC	NodeID_U8	U8	R	C13864	
0x1F93.2	NMT_EPLNodeID_REC	NodeIDByHW_BOOL	BOOL	R	-	
0x1F98.0	NMT_CycleTiming_REC	NumberOfEntries	U8	R	-	9

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EPL index	Index name	Subindex name	Type	Attr.	Reference / description	Value
0x1F98.1	NMT_CycleTiming_REC	IsochrTxMaxPayload_U16	U16	R	Size of the isochronous transmit memory	1490
0x1F98.2	NMT_CycleTiming_REC	IsochrRxMaxPayload_U16	U16	R	Size of the isochronous receive memory	1490
0x1F98.3	NMT_CycleTiming_REC	PResMaxLatency_U32	U32	R	Isochronous response delay [ns]	3000
0x1F98.4	NMT_CycleTiming_REC	PReqActPayloadLimit_U16	U16	RW	C13071	36
0x1F98.5	NMT_CycleTiming_REC	PResActPayloadLimit_U16	U16	RW	C13072	36
0x1F98.6	NMT_CycleTiming_REC	ASndMaxLatency_U32	U32	R	Asynchronous response delay [ns]	3000
0x1F98.7	NMT_CycleTiming_REC	MultiplCycleCnt_U8	U8	RW	C13074	0
0x1F98.8	NMT_CycleTiming_REC	AsyncMTU_U16	U16	RW	C13075	300
0x1F98.9	NMT_CycleTiming_REC	Prescaler_U16	U16	RW	C13076	2
0x1F99	NMT_CNBasicEthernetTimeout_U32	-	U32	RW	C13078	5000000
0x1F9A	NMT_HostName_VSTR	-	VS32	RW	C13898	
0x1F9B.0	NMT_MultiplCycleAssign_AU8	NumberOfEntries	U8	RW	C13079	254
0x1F9B.1 ...254	NMT_MultiplCycleAssign_AU8	CycleNo	U8	RW	C13079	0 ... value of 0x1F98.7
0x1F9E	NMT_ResetCmd_U8	-	U8	RW	C13102	

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Your opinion is important to us

These instructions were created to the best of our knowledge and belief to give you the best possible support for handling our product.

Perhaps we have not succeeded in achieving this objective in every respect. If you have suggestions for improvement, please e-mail us to:

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Thank you very much for your support.

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