

PROFIBUS



E84DGFCpxxx

Inverter Drives 8400 motec-----

Communication Manual

EN



13564909

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1 About this documentation

Contents

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



Note!

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

The hardware manual contains safety instructions which must be observed!

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

This documentation also contains the following:

- Safety instructions that must be observed
- The basic technical data of the communication module
- Information on versions of the Lenze standard devices to be used
- Notes on troubleshooting and fault elimination

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

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 PROFIBUS can be found on the website of the PROFIBUS user organisation:

www.profibus.com

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 (»Engineer«), screenshots in this documentation may differ from the representation on the screen.

About this documentation

Target group

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



Tip!

Information and software updates for Lenze products are provided 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	Version
Inverter Drives 8400 motec PROFIBUS Communication Unit	E84DGFCPxNx	PROFIBUS
	E84DGFCPxJx	PROFIBUS + Safety

► [Features and variants](#) (14)

About this documentation

Document history

1.1 Document history

Version			Description
4.0	02/2019	TD23	• General revision
3.0	11/2011	TD17	• General revision • Digital and analog input information (📖 38) supplemented. • Description of code C13887 (from version 02.00) supplemented.
2.0	01/2011	TD17	• DIP switch settings (📖 30) corrected. • »Engineer« screenshots updated.
1.0	09/2010	TD17	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
Hexadecimal	0x[0 ... 9, A ... F]	Example: 0x60F4
Binary • Nibble	In inverted commas Point	Example: '100' Example: '0110.0100'
Decimal separator	Point	The decimal point is always used. For example: 1234.56
Text		
Program name	» «	PC software Example: Lenze »Engineer«
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	 8	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
Inverter	Lenze frequency inverter 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.
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

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](#) (📖 13)
 - 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](#) (📖 14)
 - 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. According to IEC 60364 and CENELEC, 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.
- In case of external voltage supply, each control cabinet must be provided with a safely separated power supply unit ("SELV"/"PELV") according to EN 61800-5-1.
- Only use cables that meet the listed specifications.
 - ▶ [Bus cable specification](#) (📖 24)



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](#) (📖 19)

3 Product description

3.1 Application as directed

The communication unit PROFIBUS ...

- 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
Inverter Drives 8400 motec Wiring Unit	E84DGVNxx

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

Any other use shall be deemed inappropriate!

3.2 Features and variants

The communication unit PROFIBUS is available in the following versions:

Product series	Type designation	Product features				
		Enclosure	Connection PROFIBUS	I/O: Connection via terminal	I/O: Connection via M12	Safety
Inverter Drives 8400 motec Communication unit PROFIBUS	E84DGFCFPNP	IP 65	M12	3× DI 1× DO	2× DI	
	E84DGFCPENP	IP 65	M12	2× DI	3× DI 1× DO	
	E84DGFCPFJP	IP 65	M12	3× DI 1× DO 1× AI	2× DI	●
	E84DGFCPEJP	IP 65	M12	3× DI	2× DI 1× DO 1× AI	●

- The PROFIBUS communication unit is ...
 - mounted on top of 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 can be used on machines for the protection of persons.
- Support of the parameter data channel DRIVECOM (DP-V0), PROFIDrive (DP-V1) in preparation
- Exchange of up to 8 process data words per direction
- Bus coupling via remote bus according to the RS485 standard
- Automatic detection of the baud rate (9.6 kbps to 12 Mbps)
- Setting of the station address is possible via DIP switch or code.
- Communication with the Lenze »Engineer« (access to all Lenze parameters) is executed via the diagnostic interface of the Drive Unit.



"Inverter Drives 8400 motec" hardware manual

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

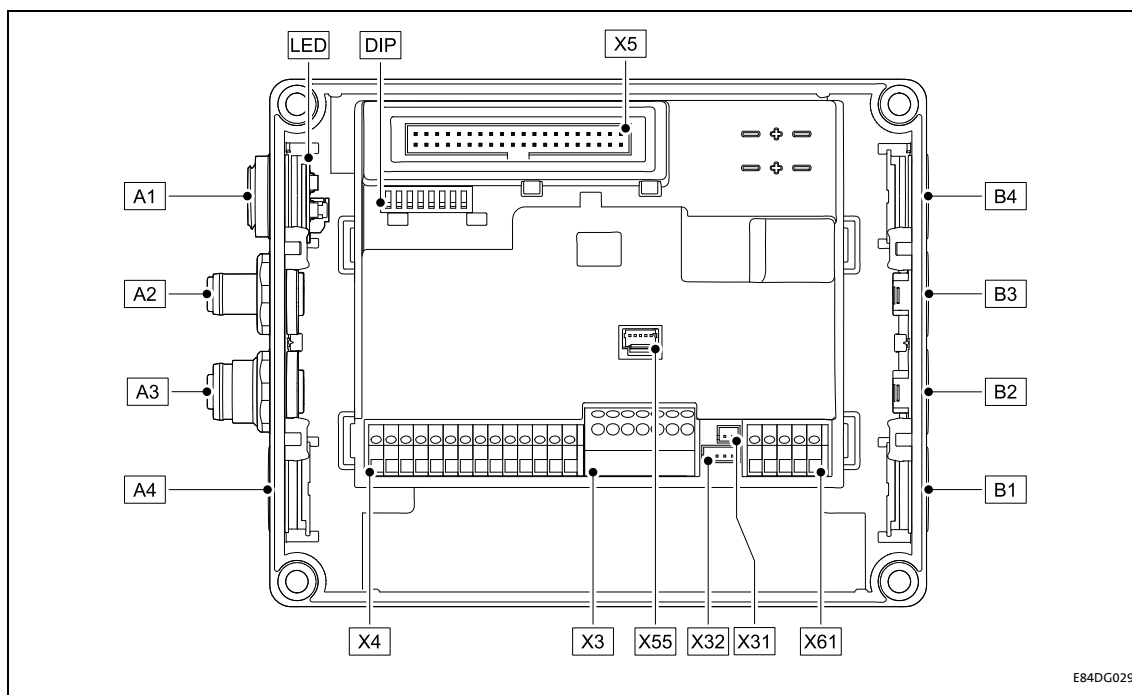
Software manual / »Engineer« online help "Inverter Drives 8400 motec"

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] PROFIBUS Communication Unit

Pos.	Description
DIP	DIP switch ► Possible settings via DIP switch (29)
A1 / LED	Position of LEDs for PROFIBUS status display ► LED status displays (70)
A2	PROFIBUS input (M12 male, 5-pin) ► PROFIBUS connection (25)
A3	PROFIBUS output (M12 female, 5-pin) ► PROFIBUS connection (25)
A4	Positions for further freely designable inputs and outputs:
B1 ... B4	• Digital inputs • Digital output • Analog input (only for E84DGFCPxJx) • Relay output (only for E84DGFCPxJx) • Connection of "Safety Option" safety system (only for E84DGFCPxJx)
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 PROFIBUS input at A2
X32	Plug connector for wiring the PROFIBUS output at A3
X55	Plug connector for the wiring of the LEDs to A1

Product description

Connections and interfaces

- By default, the PROFIBUS connections and the LEDs for the PROFIBUS status displays are already mounted and wired:
 - PROFIBUS input to plug connector X31
 - PROFIBUS output to plug connector X32
 - LEDs on plug connector X55
- At positions A1 ... A4 and B1 ... B4, it is also possible to design the PROFIBUS connections and other connections (e.g. digital inputs) freely.
- 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.



"Inverter Drives 8400 motec" hardware manual

Observe the notes and wiring instructions contained in this documentation.

4 Technical data



"Inverter Drives 8400 motec" hardware manual

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	- E84DGFCPxNx (PROFIBUS) - E84DGFCPxJx (PROFIBUS + Safety)
Communication profile	- PROFIBUS DP-V0 (DRIVECOM) - PROFIBUS DP-V1 (PROFIdrive), from SW version 2.0
Standards / specifications	- IEC 61158 / EN 50170 - IEC 61784
Communication medium	RS485
Interface for communication	- PROFIBUS input: M12 pins, 5-pole, B-coded - PROFIBUS output: M12 socket, 5-pole, B-coded
Max. cable length	1200 m (depending on the selected baud rate, the used cable type and hardware (repeaters))
Bus termination	Bus terminating resistors are required at the first and last PROFIBUS node (implemented in the connector of the bus cable)
Network topology	- Line (without repeater) - Tree/line (with repeater)
Type of node	PROFIBUS slave
Slave node number	- Max. 31 (without repeater) - Max. 125 (with repeater)
PNO identification number	0x0A89
Baud rate for cable type A (EN 50170)	9.6 kbps ... 12 Mbps (automatic detection)
External voltage supply	- U = 24 V DC (20 V - 0 % ... 29 V + 0 %) - I_{max} = 120 mA
Conformities, approvals	- CE - UR / cUR

4.2 Protocol data

Range	Values
Process data words (PCD)	1 ... 8 words (16 bits/word)
Cyclic parameter data channel (DP-V0)	4 words
Acyclic parameter data channel (DP-V1)	Max. 240 bytes
PROFIBUS user data length	1 ... 8 words process data channel + 4 words parameter data channel

4.3 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 a PROFIBUS network depend on ...

- 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) • For some codes, the processing time may be longer (see software manual/»Engineer« online help "Inverter Drives 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

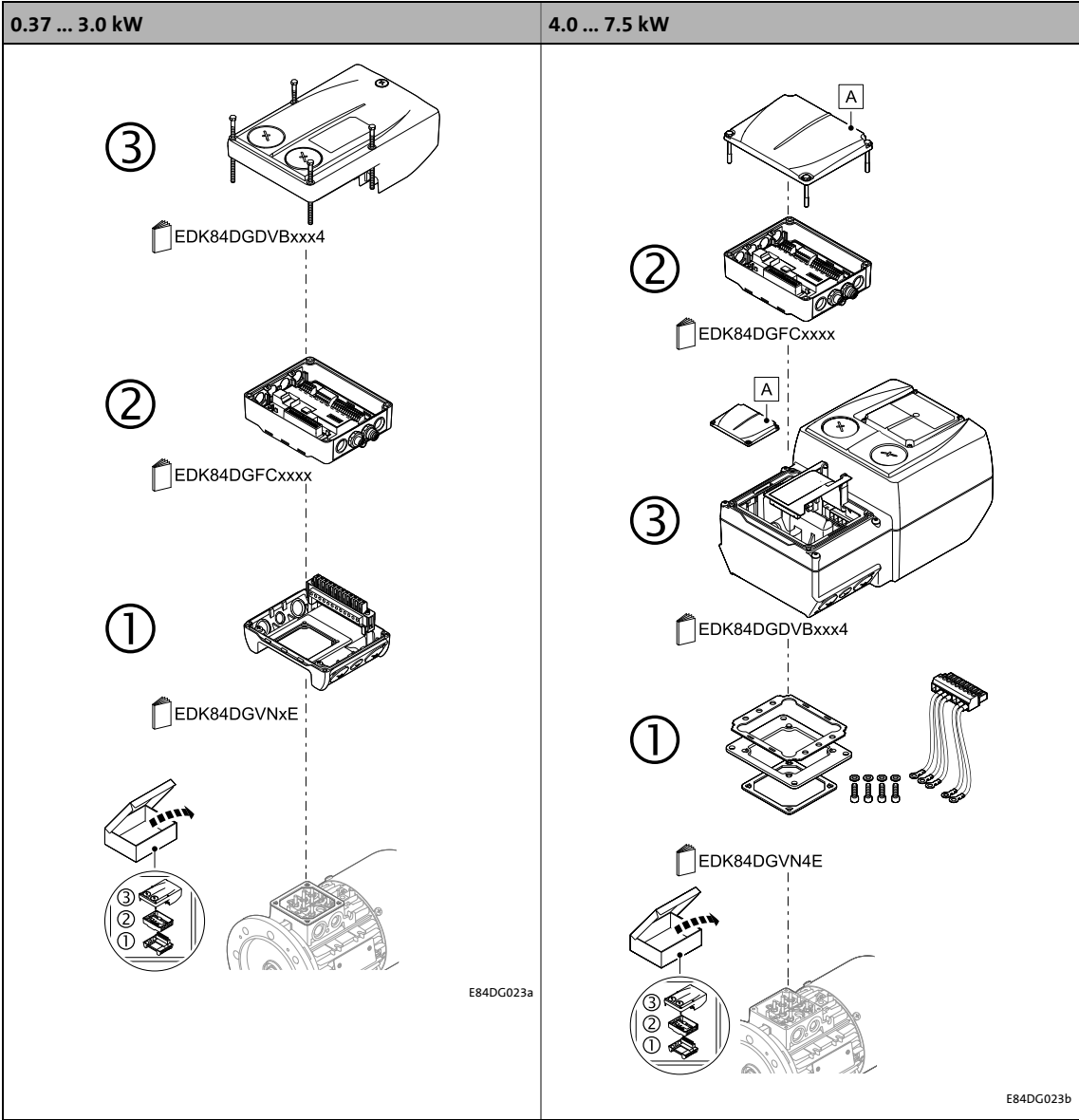
Discharge electrostatic charges before touching the Communication Unit.

5.1 Mechanical installation



Mounting instructions "Inverter Drives 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



"Inverter Drives 8400 motec" hardware manual

Here you can find detailed information on ...

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

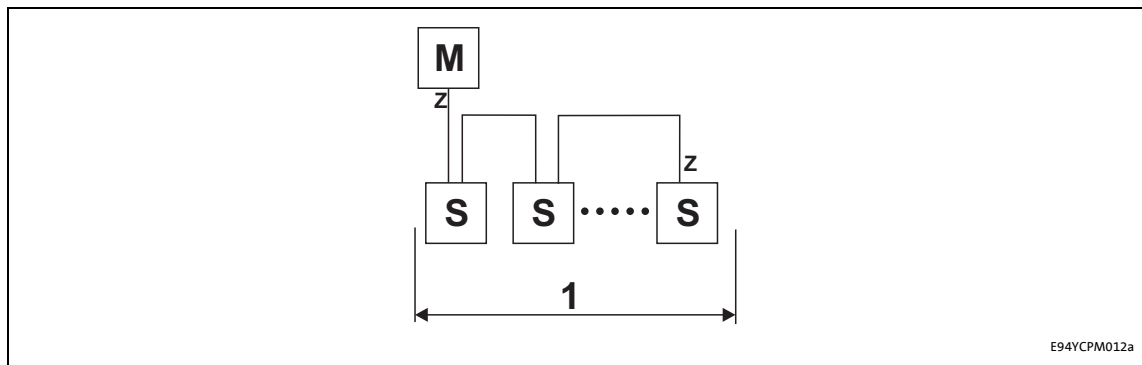
Observe the notes and wiring instructions contained in this documentation.

5.2.1 Network topology

Two simple RS485 networks are described in the following examples.

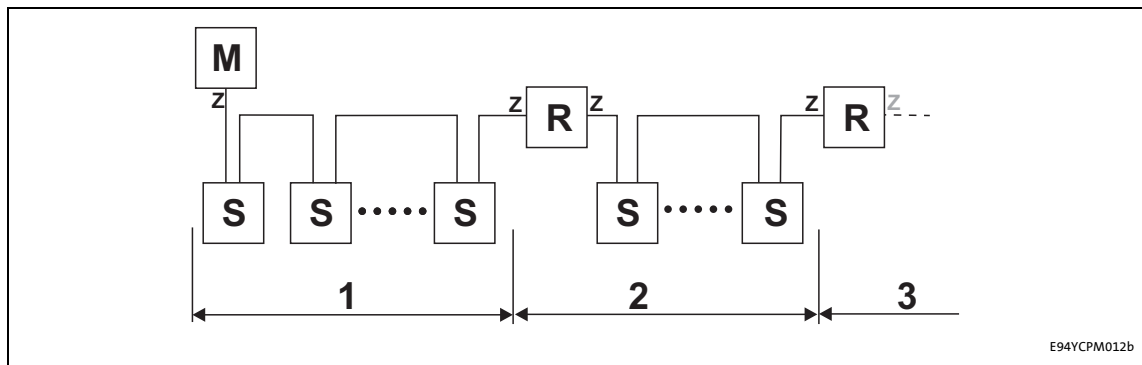
Every segment of the network must be terminated at both ends. The bus terminators of the PROFIBUS are marked with a "Z" in the below examples.

With an RS485 network of only one segment, the PROFIBUS master (M) with the integrated bus terminating resistor starts the segment and the bus of the last PROFIBUS node (S) must be terminated with a bus terminating resistor.



[5-2] RS485 network with one segment

An RS485 network consisting of several segments contains repeaters (R) for connecting the segments. The repeaters are provided with integrated bus terminating resistors.



[5-3] RS485 network with a repeater

If no repeater is to be used at the end of the segment, the bus must be terminated by means of a bus terminating resistor at the last station (S). The bus termination is supplied by this station.

Installation

Electrical installation

External supply of the communication unit allows for the separation of the bus termination supply from the inverter supply.



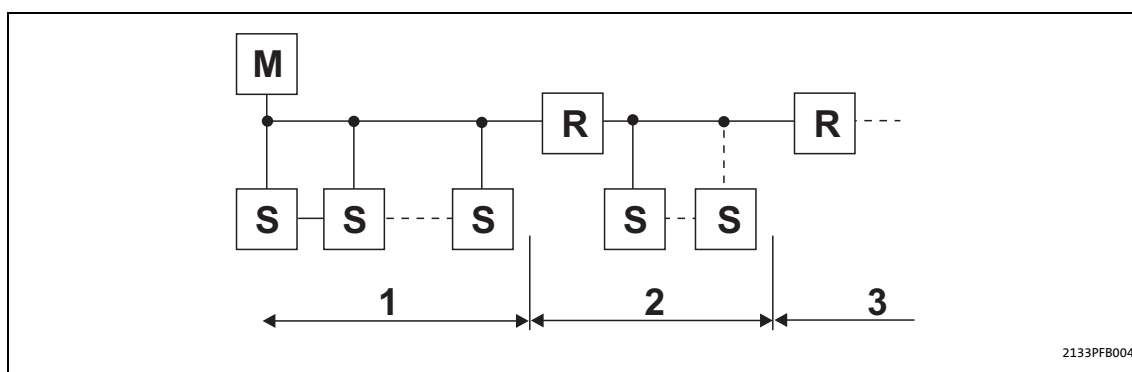
Note!

The bus terminator must always be supplied. Otherwise, the bus can get unstable.

► [Bus termination](#) (📖 23)

► [External voltage supply](#) (📖 26)

Number of nodes



[5-4] Number of nodes

Segment	Master (M)	Slave (S)	Repeater (R)
1	1	31	-
	2	30	-
2	-	30	1
3	-	30	1



Tip!

Repeaters do not have a station address. When calculating the maximum number of stations, they reduce the number of stations by 1 on each side of the segment.

By means of repeaters, you can establish line or tree topologies. The maximum total dimension of the bus system depends on ...

- the used baud rate;
- the number of repeaters.

5.2.2 Bus termination

The PROFIBUS must be terminated by means of a bus terminating resistor at the first and last physical station.

In the case of the communication unit, the bus terminating resistor can only be installed externally at the M12 connector. This has the advantage that an installed resistor is visible when the device is closed.



Note!

- The PROFIBUS connections (input and output) must be installed in an enclosed manner. Please use either a connection cable, an enclosed bus terminator connector (M12 male, 4-pin, B-coded) or a cap.
- The connecting cable and terminating resistor plug can be procured freely from various cable manufacturers (e.g. Lapp or Turck).
- If you want to disconnect individual bus stations, ensure that the bus terminators at the cable ends remain active. Otherwise, the bus may become unstable.
- Please observe that the bus termination is not active any longer if ...
 - the bus terminator connector has been disconnected;
 - the mains supply of the drive unit and the external 24V supply of the communication unit have been switched off at the same time.

5.2.3 Bus cable specification



Note!

Only use cables that correspond to the given specifications of the PROFIBUS user organisation.

Range	Values
Cable resistance	135 ... 165 Ω /km, (f = 3 ... 20 MHz)
Capacitance per unit length	≤ 30 nF/km
Loop resistance	< 110 Ω /km
Core diameter	> 0.64 mm
Core cross-section	> 0.34 mm ²
Cores	Twisted in pairs, insulated and shielded

Bus cable length

The length of the bus cable depends on the baud rate and cable type used. The data in the following table applies to PROFIBUS cables of "FC-Standard Cable" cable type .

Baud rate	Length
9.6 ... 93.75 kbps	1200 m
187.5 kbps	1000 m
500 kbps	400 m
1500 kbps	200 m
3000 ... 12000 kbps	100 m



Note!

The baud rate depending on the data volume, cycle time and number of stations should only be selected as high as required for the application.



Tip!

We recommend taking the use of optical fibres into consideration for high baud rates.

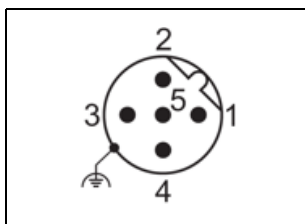
Advantages of optical fibres:

- External electromagnetic interferences have no effect on the transmission path.
- Bus lengths of several kilometres are also possible with higher baud rates.
- The bus length is ...
 - independent of the baud rate;
 - dependent on the optical fibre used.

Installation

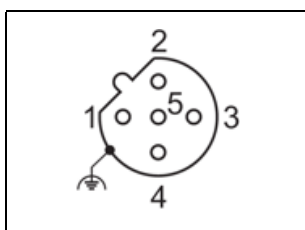
Electrical installation

5.2.4 PROFIBUS connection



- PROFIBUS input: M12 pins, 5-pole, B-coded
- Wiring at terminal strip X31
- Shield connection via housing

PROFIBUS input		
Pin	Signal	Description
1	-	Not assigned
2	RxD/TxD-N (A)	Data line A (received/transmitted data, minus)
3	-	Not assigned
4	RxD/TxD-P (B)	Data line B (received/transmitted data, plus)
5	-	Not assigned



- PROFIBUS output: M12 socket, 5-pole, B-coded
- Wiring at terminal strip X32
- Shield connection via housing

PROFIBUS output		
Pin	Signal	Description
1	P5V2	5 V DC / 30 mA (bus termination)
2	RxD/TxD-N (A)	Data line A (received/transmitted data, minus)
3	M5V2	Data ground (ground to 5 V)
4	RxD/TxD-P (B)	Data line B (received/transmitted data, plus)
5	-	Not assigned

5.2.5 External voltage supply

- By means of the external voltage supply, PROFIBUS communication for commissioning can be established, and the data of the digital and analog inputs can be queried.
- Furthermore the external voltage supply serves to maintain PROFIBUS 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:
 - $U = 24 \text{ V DC (} 20 \text{ V} - 0 \% \dots 29 \text{ V} + 0 \%)$
 - $I_{\text{max}} = 120 \text{ mA}$
- Access to parameters of a device that is disconnected from the mains is not possible.



"Inverter Drives 8400 motec" hardware manual

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-volatilely as a data set in the memory module.

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

▶ [Parameter reference](#) (□ 79)

6.1 Before initial switch-on



Stop!

Before switching on the inverter for the first time, check ...

- the entire wiring for completeness, short circuit, and earth fault.
- whether the bus system is terminated by means of a bus terminating resistor at the first and last physical bus station.

▶ [Bus termination](#) (□ 23)

6.2 How to configure the host (master)

Communication with the inverter requires configuration of the host (master) first.

Configuration for the host (master) and the DP-V0 parameter data channel

For the configuration of the PROFIBUS, the PROFIBUS device description file of the Inverter Drive 8400 motec must be read into the master.

The device description file is available on Lenze's website in the "Services & Downloads" area at:

www.Lenze.com

The following language variants of the device description file can be used:

- LENZE84D.GSD (source file, English)
- LENZE84D.GSG (German)
- LENZE84D.GSE (English)

Defining the user data length

The user data length is defined during the initialisation phase of the master.

The communication unit PROFIBUS supports the configuration of max. 8 process data words (max. 16 bytes).

The user data lengths for process input data and process output data are identical.

Commissioning

Possible settings via DIP switch

6.3 Possible settings via DIP switch



[6-1] DIP switch

The DIP switches serve to ...

- [Setting the station address](#) (30) (switches: 1 ... 64)
- [Receiving the station address via the master](#) (29) (switch: S)

Lenze setting: all switches in OFF position



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 inverter and the external supply of the communication unit before you start disassembling the drive unit.
- The DIP switches are only read in when the device is switched on.

6.3.1 Receiving the station address via the master

Set the DIP switch **S = OFF**, in order to receive the station address automatically via the master.

- The station address active at the PROFIBUS is displayed in [C13864](#).
- The settings of the DIP switches **1 ... 64** have no effect.
- When the mains connection is established, first the station address (DIP switch or [C13899](#)) set on the device is applied. Then the station address is obtained via the master.

Commissioning

Possible settings via DIP switch

6.3.2 Setting the station address

The station addresses must differ from each other if several networked PROFIBUS stations are used. The station address can be set via the DIP switches 1 ... 64 or via the »Engineer« with code [C13899](#). The setting with [C13899](#) requires DIP switches 1 ... 64 to be either **OFF** or **ON**.



Note!

The valid address range is 0 ... 126 (max. 125 slaves).

DIP switch settings

S	DIP switch							Station address
	64	32	16	8	4	2	1	
OFF	...	...	...	...	...	...	...	Autom. via master
ON	OFF	OFF	OFF	OFF	OFF	OFF	OFF	Value from C13899
ON	OFF	OFF	OFF	OFF	OFF	OFF	ON	1
ON	...	...	...	...	...	...	...	...
ON	ON	ON	ON	ON	ON	ON	OFF	126
ON	ON	ON	ON	ON	ON	ON	ON	Value from C13899

The labelling on the package corresponds to the values of the individual DIP switches for determining the node address.

Example :

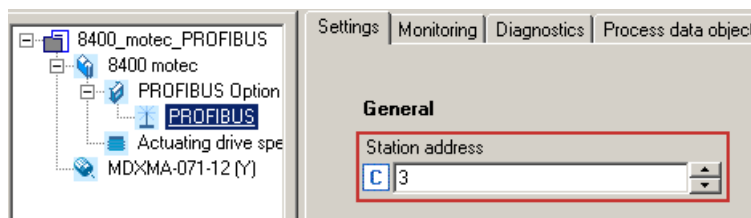
DIP switch	64	32	16	8	4	2	1
Switch position	OFF	OFF	ON	OFF	ON	ON	ON
Value	0	0	16	0	4	2	1
Station address	= sum of the valencies = 16 + 4 + 2 + 1 = 23						

- The current address set with the switches is displayed in [C13920](#).
- The station address active at the PROFIBUS is displayed in [C13864](#).

► [DIP switch positions for setting the station address](#) (91)

Setting the station address via the »Engineer«

In the »Engineer«, the station address can be set via the **Settings** tab.



- Impermissible addresses are displayed in red in the **Station address** (code [C13899](#)).
- Save changed settings with the device command **C00002/11** (save all parameter sets).

6.4 Initial switch-on

Establishing communication

- To establish communication, the inverter drive must be supplied with mains voltage.
- PROFIBUS 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 PROFIBUS communication can be established.
- The external voltage supply serves to maintain PROFIBUS communication if the main supply fails.
 - ▶ [External voltage supply](#) (📖 26)
- When the mains connection is established, all parameters (codes) and the DIP switch settings are read.
- The settings of the DIP switches determine whether the station address is selected automatically by the PROFIBUS master or via code [C13899](#).
 - ▶ [Possible settings via DIP switch](#) (📖 29)

7 Data transfer

PROFIBUS master and inverter communicate with each other by exchanging data telegrams via PROFIBUS. The user data area of the data telegram contains parameter data or process data. In the inverter, different communication channels are assigned to the parameter data and process data.

Communication channels

- The process data channel transmits process data.
 - The process data serve to control the inverter.
 - The host (master) can directly access the process data. In the PLC, for instance, the data are directly saved to the I/O area.
 - Process data are not saved in the inverter.
 - Process data are transferred cyclically between the host (master) and the inverters (slaves) (continuous exchange of current input and output data).
 - Process data are e.g. setpoints, actual values, control words, and status words.
 - The Inverter Drive 8400 motec can exchange a maximum of 8 process data words (16 bits/word) per direction.
 - In addition to the process data, digital and analog input information can also be queried. These signals are set permanently to 2 additional data words which must be parameterised correspondingly in the HW manager.

► [Digital and analog input information](#) (38)



Note!

Please observe the direction of the flow of information!

- Process input data (Rx data):
 - Process data from the inverter (slave) to the master
- Process output data (Tx data):
 - Process data from the master to the inverter (slave)

- The parameter data channel serves to transfer parameter data.
 - The parameter data channel provides access to all Lenze codes.
 - The transmission of parameter data is usually not time-critical.
 - Parameter data are, for instance, operating parameters, motor data and diagnostic information.
 - Parameter changes must be stored via code **C00002** of the Inverter Drive 8400 motec.

Process data transfer

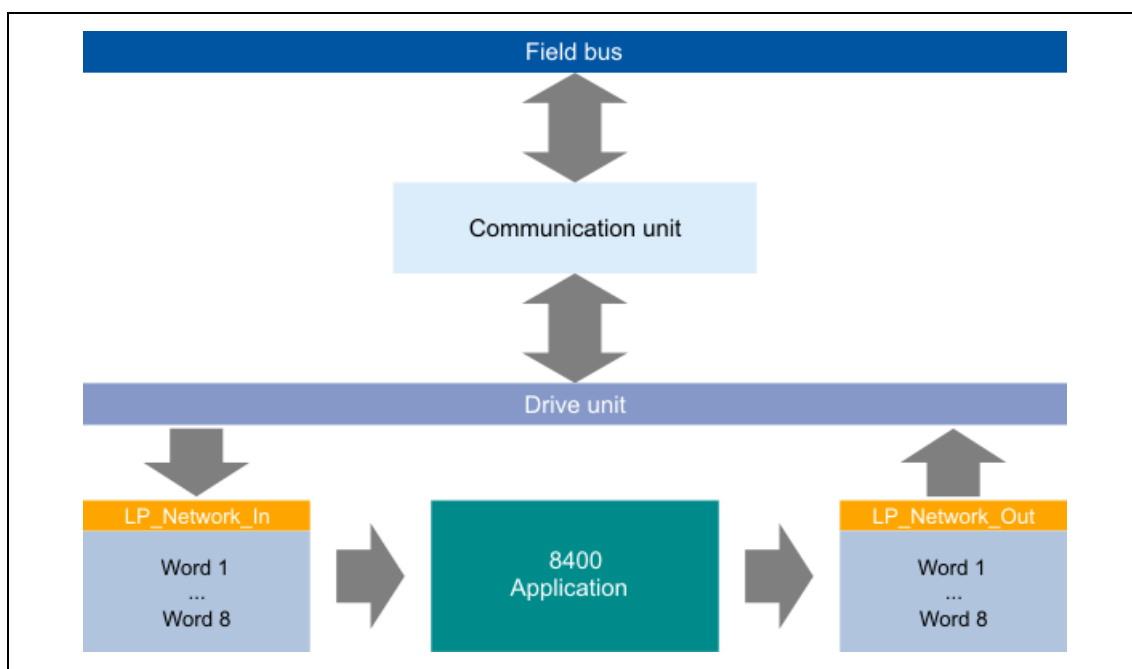
Access to process data / PDO mapping

8 Process data transfer

8.1 Access to process data / PDO mapping

Process data are transferred via the MCI/CAN interface.

- Max. 8 words (16 bits/word) per direction can be exchanged.
- The process data are accessed via the **LP_Network_In** and **LP_Network_Out** port blocks. These port blocks are also called process data channels.
- The port/function blocks of the process data objects (PDO) are interconnected via the Lenze »Engineer«.



[8-1] External and internal data transfer between the bus system, inverter, and application



Software manual / »Engineer« online help for the Inverter Drive 8400 motec

Here you can find detailed information on port blocks and the port/function block inter-connection in the »Engineer«.

Process data transfer

Port interconnection of process data objects (PDO)

8.2 Port interconnection of process data objects (PDO)



Note!

The »Engineer« screenshots shown on the following pages are only examples for the setting sequence and the resulting screens.

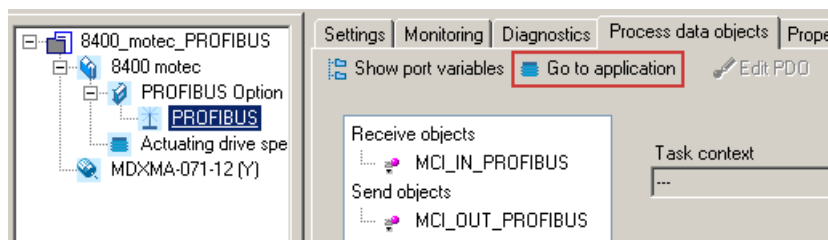
Depending on the software version of the inverter and the version of the »Engineer« software installed, the screenshots in this documentation may differ from the actual »Engineer« screens.

The preconfigured port interconnection of the process data objects is activated by setting code **C00007 = 40: Network (MCI/CAN)**.

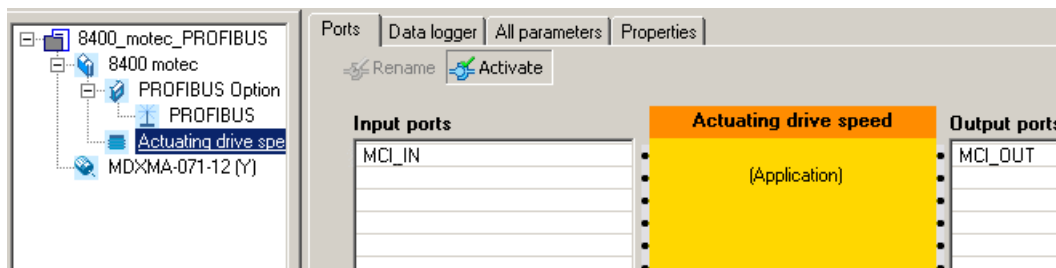


How to configure the port interconnection in the »Engineer«:

1. Go to the **Process data objects** tab and click **Go to application**.



2. The **Ports** tab displays the port blocks **MCI_IN** and **MCI_OUT**.



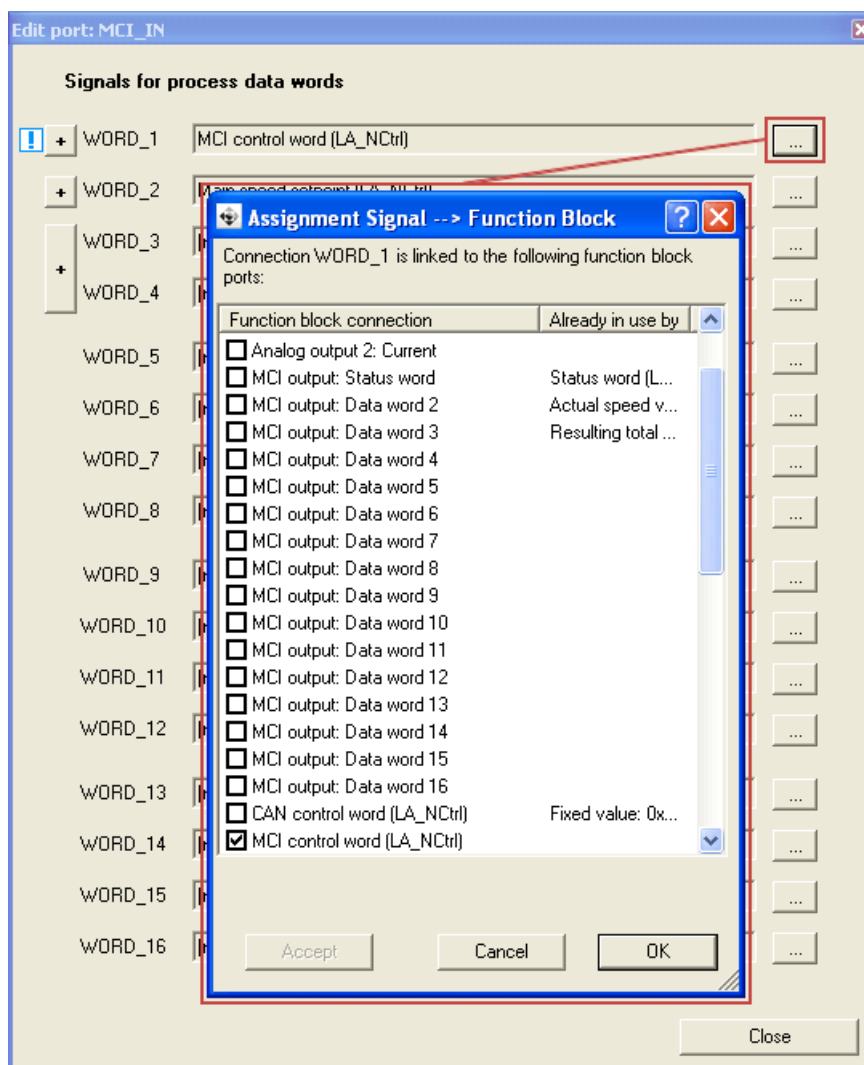
Port interconnection of process data objects (PDO)

Lenze · Decentralised frequency inverter 8400 motec (PROFIBUS option) · EDS84DMOTPBUS EN 4.0 - 02/2019 35

Process data transfer

Port interconnection of process data objects (PDO)

4. Via the  button, you can assign signals to the process data words in the *Assignment Signal --> Function Block* dialog window.
→ Select the signals and then confirm the selection with **OK**.

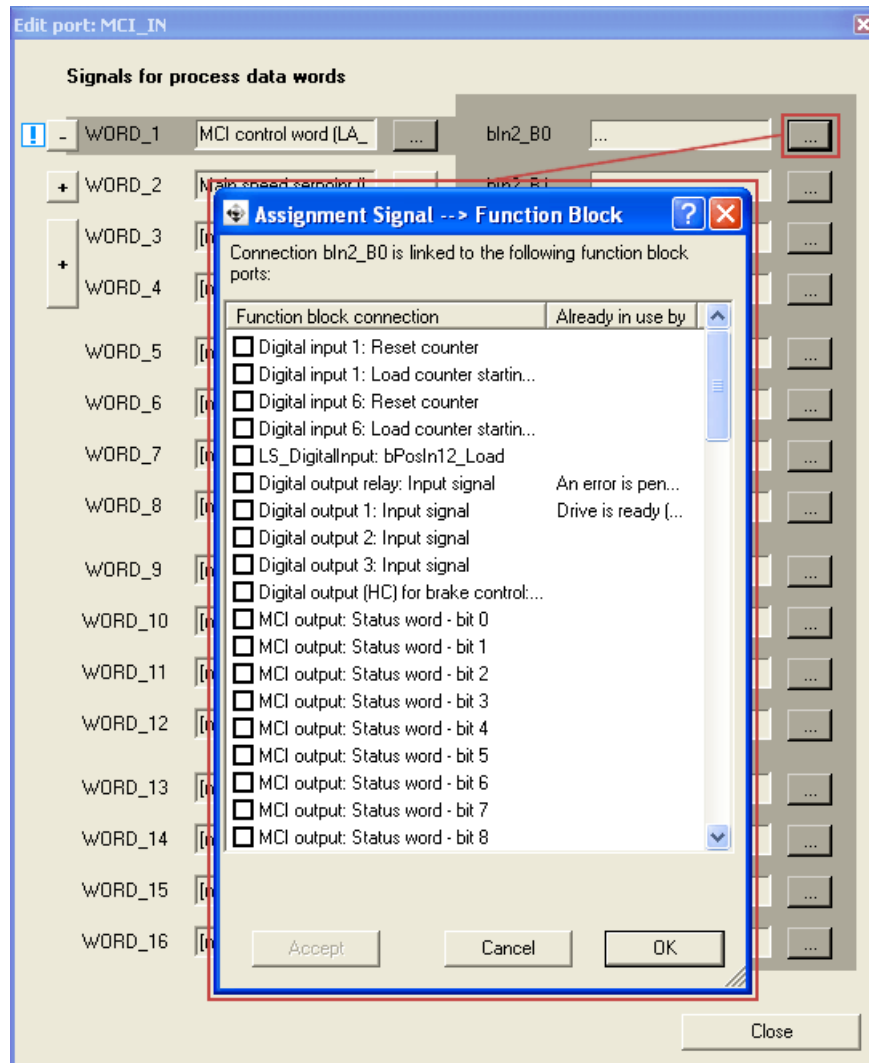


Process data transfer

Port interconnection of process data objects (PDO)

For some process data words, you can also assign signals to the individual bits via the and buttons.

→ Select the signals and then confirm the selection with **OK**.



The current interconnection is only displayed if the following has been set for the control mode in code **C00007 = 40: Network (MCI/CAN)**.

Process data transfer

Digital and analog input information

8.3 Digital and analog input information

In addition to the process data, also digital and analog input information can be queried. The signals are stored permanently on 2 additional data words which have to be parameterised correspondingly in the HW manager. These two data words can even be accessed if the mains voltage of the inverter is switched off and only the communication unit is supplied externally with DC 24 V. For all other data words, the mains voltage of the inverter must be switched on.

Word	Bit	Function	Values / states
1	0	Analog input value (0 ... 10 V)	10 V = 1000 _{dec} (1111101000 _{bin})
	...		
	9		
	10	Digital input 3	0: Closed / not active 1: Open / active
	11	Digital input 4	0: Closed / not active 1: Open / active
	12	Digital input 5	0: Closed / not active 1: Open / active
	13	Reserved	
	14	I/O status	0: I/O data are invalid. 1: I/O data are valid. • For determining the I/O status, the checksums are generated from the I/O data in the master and in the slave (inverter), respectively, and are then compared to each other.
	15	Drive status	0: Inverter is 'offline'. 1: Inverter is 'online'.
2	0	RFR (controller enable)	0: Inverter is enabled. 1: Inverter is not enabled (inhibited).
	1	Digital input 1	0: Closed / not active 1: Open / active
	2	Digital input 2	0: Closed / not active 1: Open / active
	3	Digital input 3	0: Closed / not active 1: Open / active
	4	Digital input 4	0: Closed / not active 1: Open / active
	5	Digital input 5	0: Closed / not active 1: Open / active
	6	Reserved	
	...		
	13		
	14	I/O status	0: I/O data are invalid. 1: I/O data are valid.
	15	Drive status	0: Inverter is 'offline'. 1: Inverter is 'online'.

9 Parameter data transfer

The PROFIBUS communication unit supports the cyclic and acyclic transmission of parameter data:

- Cyclic DP-V0 parameter data are based on the DRIVECOM profile.
If the DP-V0 parameter data channel is active, it additionally occupies 4 words of the input and output data.
- The acyclic DP-V1 parameter data are based on the PROFIdrive profile (PROFIDrive (DP-V1) in preparation)

9.1 Addressing of the parameter data

The parameter data are addressed via codes which you'll find in a code table in this documentation and in the corresponding documentation of your inverter.

▶ [Parameter reference](#) (□ 79)

Addressing of Lenze parameters

In the case of the DP-V0 parameter data channel, the parameters of a device are not addressed directly via Lenze code numbers, but via indices (bytes 3 + 4) and subindices (byte 2).

- The conversion is made via an offset (24575 / 0x5FFF):
 - $\text{PROFIBUS-Index}_{\text{dec}} = 24575 - \text{Lenze code numbers}$
 - $\text{PROFIBUS-DP index}_{\text{hex}} = 0x5FFF - \text{Lenze code number}_{\text{hex}}$
- Example of C00105 (quick stop deceleration time):
 - $\text{PROFIBUS-Index}_{\text{dec}} = 24575 - 105 = 24470$
 - $\text{PROFIBUS-DP index}_{\text{hex}} = 0x5FFF - 0x69 = 0x5F96$
- The parameter values are entered into the user data (bytes 5 to 8) of the telegram.

Parameter data transfer

DRIVECOM parameter data channel (DP-V0)

9.2 DRIVECOM parameter data channel (DP-V0)

The DRIVECOM parameter data channel (DP-V0) ...

- enables the parameterisation and diagnostics of the inverter.
- provides access to all Lenze parameters (codes).
- additionally occupies 4 words (16 bits/word) of the input and output data words in the master.
- is identical for both transmission directions.

9.2.1 Telegram structure (overview)

The telegram of the parameter data channel consists of a total of 8 bytes:

Byte 1	Byte 2	Byte 3	Byte 4	Byte 5	Byte 6	Byte 7	Byte 8
Service	Subindex	Index High byte	Index Low byte	Data 4 / Error 4	Data 3 / Error 3	Data 2 / Error 2	Data 1 / Error 1

The individual bytes are described in detail in the following subchapters.

Parameter data transfer

DRIVECOM parameter data channel (DP-V0)

9.2.2 Byte 1: Service

Byte 1	Byte 2	Byte 3	Byte 4	Byte 5	Byte 6	Byte 7	Byte 8
Service	Subindex	Index High byte	Index Low byte	Data 4 / Error 4	Data 3 / Error 3	Data 2 / Error 2	Data 1 / Error 1

Request and response control for the parameter data channel

7	6	5	4	3	2	1	0
---	---	---	---	---	---	---	---

[9-1] Method of counting for bits 0 ... 7

Bit 0 ... 2: Request	
Read/write request from the master to the inverter	
000	No request
001	Read request ▶ Reading parameter data from the inverter (□ 42)
010	Write request (write data to the inverter) ▶ Reading parameter data from the inverter (□ 42)
100	Data transfer abort by the master ▶ Data transfer abort by the master (□ 43)

Bit 3
Reserved

Bit 4/5: Data length	
Data length ≤ 4 bytes in the telegram bytes 5 ... 8 (data 1 ... 4 / error 1 ... 4)	
00	1 byte
01	2 bytes
10	3 bytes
11	4 bytes

Bit 6: Handshake	
Indicates a new request. • The state of this (toggle) bit is changed by the master for every new request. • The inverter copies the bit into its response message.	

Bit 7: Status	
Status information from the inverter to the master with the order confirmation. • This status bit informs the master whether the request has been carried out without errors.	
0	Request completed without errors.
1	Request not completed because of an error. • The status bit set indicates that the telegram is an "error telegram". The data of bytes 5 ... 8 (data/error) must be interpreted as an error message. ▶ Error codes (□ 46)

Parameter data transfer

DRIVECOM parameter data channel (DP-V0)

9.2.2.1 Reading parameter data from the inverter

General procedure:

1. Determine the user data area of the inverter, i. e. where is the storage location of the DP user data in the master computer (observe manufacturer-specific details).
2. Enter the address of the required parameter in the "Index" and "Subindex" fields (DP output data).
3. Request in the service byte = read request.
 - The handshake bit in the service byte must be changed (DP output data).
4. Check whether the handshake bit in the service byte is the same for the DP input data and the DP output data.
 - If the handshake bit is the same, the response has been received.
 - It is useful to implement a time monitoring tool.
5. Check whether the status bit in the service byte is set:
 - Status bit is not set: The "Data/Error" field contains the required [Parameter value \(data\)](#) (45).
 - Status bit is set: The read request has not been executed correctly. The "Data/Error" field contains the [Error codes](#) (46).

9.2.2.2 Writing parameter data to the inverter

General procedure:

1. Determine the user data area of the inverter, i. e. where is the storage location of the DP user data in the master computer (observe manufacturer-specific details).
2. Enter the address of the required parameter in the "Index" and "Subindex" fields (DP output data).
3. Enter the parameter value in the "Data/Error" field.
4. Request in the service byte = write request.
 - The handshake bit in the service byte must be changed (DP output data).
5. Check whether the handshake bit in the service byte is the same for the DP input data and the DP output data.
 - If the handshake bit is the same, the response has been received.
 - It is useful to implement a time monitoring tool.
6. Check whether the status bit in the service byte is set:
 - Status bit is not set: The write request has been executed correctly.
 - Status bit is set: The write request has not been executed correctly. The "Data/Error" field contains the [Error codes](#) (46).

Parameter data transfer

DRIVECOM parameter data channel (DP-V0)

9.2.2.3 Data transfer abort by the inverter

To abort the transfer, the error telegram is used.

- The error telegram is marked by a set status bit in the service byte.
- The telegram can either be the response to an "Initiate Read/Write Service" or to a "Read/Write Segment Service".

Response of the inverter in the event of an error:

Byte 1	Byte 2	Byte 3	Byte 4	Byte 5	Byte 6	Byte 7	Byte 8
Service	Subindex	Index High byte	Index Low byte	Data 4 / Error 4	Data 3 / Error 3	Data 2 / Error 2	Data 1 / Error 1
1t110000	SIDX	IDXH	IDXL	Error Class	Error code	Additional Code High	Additional Code Low

9.2.2.4 Data transfer abort by the master

The master can use this error telegram to abort a running segment transmission.

- The error telegram is marked by a set status bit in the service byte.
- The service byte also contains the request code "4" (100_{bin}).
- Bit 4 and bit 5 in the service byte (data length) are without meaning.
- Additional information (subindex, index, error information) is not transmitted.

Byte 1	Byte 2	Byte 3	Byte 4	Byte 5	Byte 6	Byte 7	Byte 8
Service	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved
1txx0100	0	0	0	0	0	0	0

Response of the inverter if no errors occur:

The inverter also acknowledges the error telegram of the master with an error telegram.

- The error telegram is marked by a set status bit in the service byte.
- In the case of correct execution, the telegram contains the error information "0x00000000" in bytes 5 ... 8.
- Additional information (subindex, index) is not transmitted.

Byte 1	Byte 2	Byte 3	Byte 4	Byte 5	Byte 6	Byte 7	Byte 8
Service	SIDX	IDXH	IDXL	Error Class	Error code	Additional Code High	Additional Code Low
1t110000	0	0	0	0	0	0	0

Parameter data transfer

DRIVECOM parameter data channel (DP-V0)

9.2.3 Byte 2: Subindex

Byte 1	Byte 2	Byte 3	Byte 4	Byte 5	Byte 6	Byte 7	Byte 8
Service	Subindex	Index High byte	Index Low byte	Data 4 / Error 4	Data 3 / Error 3	Data 2 / Error 2	Data 1 / Error 1

Additional addressing via the subindex is required for those codes of the Inverter Drives 8400 motec that contain subcodes (see code table).

9.2.4 Bytes 3 + 4: Index

Byte 1	Byte 2	Byte 3	Byte 4	Byte 5	Byte 6	Byte 7	Byte 8
Service	Subindex	Index High byte	Index Low byte	Data 4 / Error 4	Data 3 / Error 3	Data 2 / Error 2	Data 1 / Error 1

The parameter (Lenze code) is selected via these two bytes according to the formula:

- **Index = 24575 - Lenze code number**

(Also see "[Addressing of Lenze parameters](#)" (39))

Example :

The parameter C00105 (quick stop (QSP) deceleration time) is to be addressed:

- $\text{Index} = 24575 - 105 = 24470 = 0x5F96$
- The entries in bytes 3 + 4 for this example would be:

Byte 1	Byte 2	Byte 3	Byte 4	Byte 5	Byte 6	Byte 7	Byte 8
Service	Subindex	0x5F	0x96	Data 4 / Error 4	Data 3 / Error 3	Data 2 / Error 2	Data 1 / Error 1

Parameter data transfer

DRIVECOM parameter data channel (DP-V0)

9.2.5 Bytes 5 ... 8: Parameter value / error information

Byte 1	Byte 2	Byte 3	Byte 4	Byte 5	Byte 6	Byte 7	Byte 8
Service	Subindex	Index High byte	Index Low byte	Data 4 / Error 4	Data 3 / Error 3	Data 2 / Error 2	Data 1 / Error 1

The state of status bit 7 in the service byte determines the meaning of this data field:

Status bit	Meaning of bytes 5 ... 8
0	Bytes 5 ... 8 contain the parameter value (data 1 ... 4). ▶ Parameter value (data) (□ 45)
1	Bytes 5 ... 8 contain an error message (error 1 ... 4) due to an invalid access. ▶ Error codes (□ 46)

Parameter value (data)



Note!

Strings or data blocks cannot be transmitted.

Depending on the data format, the length of the parameter value is between 1 and 4 bytes.

- Data are saved in the Motorola format, i.e. first the high byte (high word), then the low byte (low word):

Byte 5	Byte 6	Byte 7	Byte 8
High byte	Low byte	High byte	Low byte
High word		Low word	
Double word			

- Principle for the assignment of bytes 5 ... 8 with parameter values of different lengths:

Byte 5	Byte 6	Byte 7	Byte 8
Parameter value (length 1)	00	00	00
Parameter value (length 2)		00	00
Parameter value (length 4)			

Parameter data transfer

DRIVECOM parameter data channel (DP-V0)

9.2.6 Error codes

The following error messages may appear:

Byte 8	Byte 7	Byte 6	Byte 5	Meaning
Error 1	Error 2	Error 3	Error 4	
0x06	0x03	0x00	0x00	No right to access
0x06	0x05		0x11	Invalid subindex
0x06	0x05		0x12	Data length too large
0x06	0x05		0x13	Data length too small
0x06	0x07		0x00	Object does not exist
0x06	0x08		0x00	Data types do not comply with each other
0x08	0x00		0x00	Request cannot be executed
0x08	0x00		0x20	Request cannot be executed at the moment
0x08	0x00		0x22	Request cannot be executed due to the device status / The parameter can only be changed in the case of a controller inhibit
0x08	0x00		0x30	Out of value range
0x08	0x00		0x31	Parameter value too high
0x08	0x00		0x32	Parameter value too low
0x08	0x00		0x80	Hardware error

Parameter data transfer

DRIVECOM parameter data channel (DP-V0)

9.2.7 Telegram examples

9.2.7.1 Read request: Querying the heatsink temperature

The heatsink temperature of the inverter is to be read.

- Code to be read: C00061
- Heatsink temperature: 43 °C

Byte 1: Service (request)

- Request = $0t110001_{bin}$
 - Bit 0 ... 2 = 001_{bin} for read request
 - Bit 3 = 0 (reserved)
 - Bit 4/5 = 01_{bin} for 2-byte data length (only relevant for the response telegram)
 - Bit 6 = handshake bit (t $\equiv$ status is changed in the response telegram)
 - Bit 7 = status bit (only relevant for the response telegram)

Byte 2: Subindex

- Subindex = 0 because code C00061 does not contain any subindices.

Bytes 3 + 4: Index

- Index = 24575 - code number = 24575 - 61 = 24514 = $0x5FC2$
 - Byte 3 (high byte) = $0x5F$
 - Byte 4 (low byte) = $0xC2$

Bytes 5 ... 8: Data

- The response telegram contains the value of code C00061:
 - Data 3 + 4 = $43 [^{\circ}C] \times 1$ (internal factor) = 43 = $0x002B$

Result:

- Request telegram from master to drive:

Byte 1	Byte 2	Byte 3	Byte 4	Byte 5	Byte 6	Byte 7	Byte 8
Service	Subindex	Index high byte	Index low byte	Data 4	Data 3	Data 2	Data 1
0x01	0x00	0x5F	0xC2	0x00	0x00	0x00	0x00
$0t000001_{bin}$	00000000_{bin}	01011111_{bin}	11000010_{bin}	00000000_{bin}	00000000_{bin}	00000000_{bin}	00000000_{bin}
Waiting for change of handshake bit 6 in service byte 1 of the response.							

- Response telegram from drive to master (for correct execution):

Byte 1	Byte 2	Byte 3	Byte 4	Byte 5	Byte 6	Byte 7	Byte 8
Service	Subindex	Index high byte	Index low byte	Data 4	Data 3	Data 2	Data 1
0x11	0x00	0x5F	0xC2	0x00	0x2B	0x00	0x00
$0t010001_{bin}$	00000000_{bin}	01011111_{bin}	11000010_{bin}	00000000_{bin}	00101011_{bin}	00000000_{bin}	00000000_{bin}

9.2.7.2 Write request: Setting the deceleration time for quick stop (QSP)

In the inverter, the deceleration time for quick stop (QSP) is to be set to 50 ms.

- Code to be written: C00105

Parameter data transfer

DRIVECOM parameter data channel (DP-V0)

Byte 1: Service (request)

- Request = $0t110010_{bin}$
 - Bit 0 ... 2 = 010_{bin} for write request
 - Bit 3 = 0 (reserved)
 - Bit 4/5 = 11_{bin} for 4-byte data length
 - Bit 6 = handshake bit (t $\equiv$ status is changed in the response telegram)
 - Bit 7 = status bit (only relevant for the response telegram)

Byte 2: Subindex

- Subindex = 0 because code C00105 does not contain any subindices.

Bytes 3 + 4: Index

- Index = 24575 - code number = 24575 - 105 = 24470 = $0x5F96$
 - Byte 3 (high byte) = $0x5F$
 - Byte 4 (low byte) = $0x96$

Bytes 5 ... 8: Data

- The parameter value of 0.05 s to be set is multiplied by the code-specific factor of "1000" and entered in the user data:
 - Data 1 ... 4 = $0.05 [s] \times 1000$ (internal factor) = 50 = $0x00000032$

Result:

- Request telegram from master to drive:

Byte 1	Byte 2	Byte 3	Byte 4	Byte 5	Byte 6	Byte 7	Byte 8
Service	Subindex	Index high byte	Index low byte	Data 4	Data 3	Data 2	Data 1
0x72	0x00	0x5F	0x96	0x00	0x00	0x00	0x32
$0t110010_{bin}$	00000000_{bin}	01011111_{bin}	10010110_{bin}	00000000_{bin}	00000000_{bin}	00000000_{bin}	00110010_{bin}
Waiting for change of handshake bit 6 in service byte 1 of the response							

- Response telegram from drive to master (for correct execution):

Byte 1	Byte 2	Byte 3	Byte 4	Byte 5	Byte 6	Byte 7	Byte 8
Service	Subindex	Index high byte	Index low byte	Data 4	Data 3	Data 2	Data 1
0x40	0x00	0x5F	0x96	0x00	0x00	0x00	0x32
$0t000000_{bin}$	00000000_{bin}	01011111_{bin}	10010110_{bin}	00000000_{bin}	00000000_{bin}	00000000_{bin}	00110010_{bin}

9.3 PROFIdrive parameter data channel (DP-V1)

Data communication with PROFIBUS DP-V0 is characterised by cyclic diagnostics and cyclic process data and parameter data transfer.

An optional service extension is the acyclic parameter data transfer of PROFIBUS DP-V1 (in preparation). This service does not impair the functionality of the standard services under PROFIBUS DP-V0.

PROFIBUS DP-V0 and PROFIBUS DP-V1 can be operated simultaneously in the same network. This enables the step-by-step expansion or modification of a system.

The services of PROFIBUS DP-V1 can be used by the class 1 master (PLC) and the class 2 master (diagnostics master, etc.).

The integration of the acyclic service into the fixed bus cycle depends on the corresponding configuration of the class 1 master:

- With configuration, a time slot is reserved.
- Without configuration the acyclic service is *appended* when a class 2 master acyclically accesses a DP-V1 slave.

Product features

- Parameter number and subindex addresses with a width of 16 bits each.
- Several parameter requests can be combined to one request (multi-parameter request).
- There is always only one parameter request in process (no pipelining).
- A parameter request/response must fit into a data block (max. 240 bytes). Requests/responses cannot be split into several data blocks.
- No spontaneous messages are transferred.
- There are only acyclic parameter requests.
- Profile-specific parameters can be read independently of the slave state.

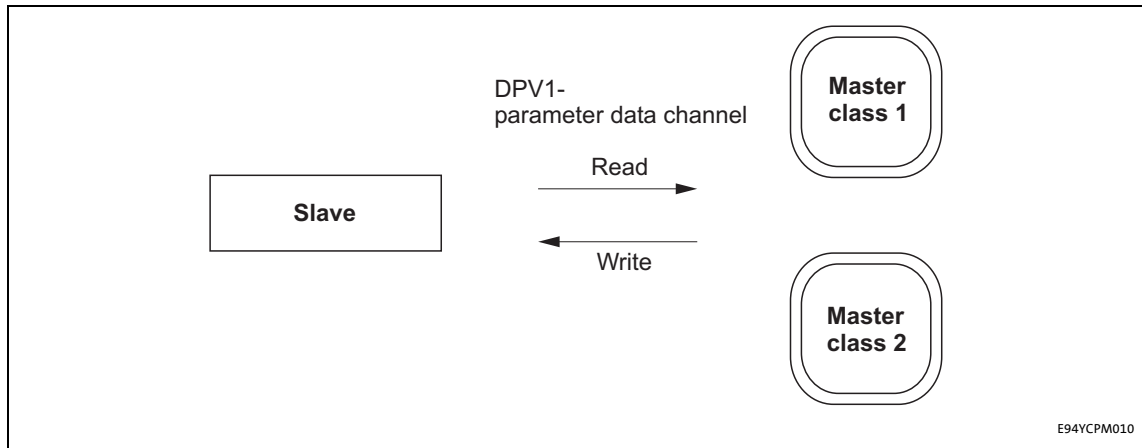
Parameter data transfer

PROFIdrive parameter data channel (DP-V1)

9.3.1 Connection establishment between master and slave

A class 1 master can always be used to request parameters from a slave if the slave is in the "Data_Exchange" state.

In addition to the class 1 master, a class 2 master can establish a communication connection to the slave:



[9-2] Data communication via the DP-V1 parameter data channel

Parameter data transfer

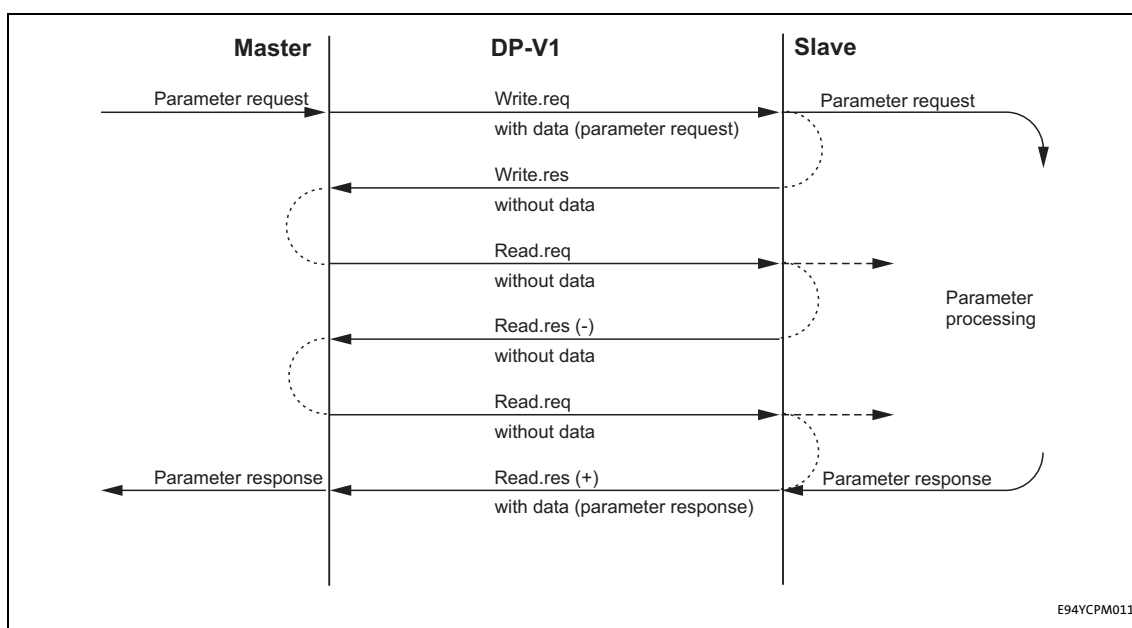
PROFIdrive parameter data channel (DP-V1)

9.3.2 Acyclic data transfer



Note!

A parameter request refers to one or several parameter(s) (multi-parameter request).



[9-3] Transmission directions

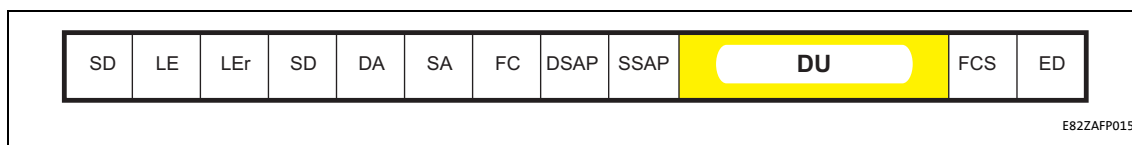
Explanation

- A "Write.req" is used to pass the data set (DB47) to the slave in the form of a parameter request.
- With "Write.res" the master receives the confirmation for the receipt of the message.
- The master requests the response of the slave with "Read.req".
- The slave responds with "Read.res (-)" if processing has not yet been completed.
- After parameter processing, the parameter request is completed by transmitting the parameter response to the master with "Read.res (+)".

Parameter data transfer

PROFIdrive parameter data channel (DP-V1)

9.3.3 Telegram structure



[9-4] PROFIBUS data telegram

The data unit (DU) contains the DP-V1 header and the parameter request or the parameter response.

The following subchapters describe the parameter request and the parameter response in detail.



Note!

The DP-V1 header consists of:

- Function identification
- Slot number
- Data set
- Length of the user data

Please refer to the corresponding PROFIBUS specification for further information on the DP-V1 header.

Assignment of the user data depending on the data type

Depending on the data type used, the user data are assigned as follows:

Data type	Length	User data assignment				
		Byte 1	Byte 2	Byte 3	Byte 4	Byte ...
String	x bytes					
U8	1 byte		00			
U16	2 bytes	High byte	Low byte			
U32	4 bytes	High word		Low word		
		High byte	Low byte	High byte	Low byte	

Parameter data transfer

PROFIdrive parameter data channel (DP-V1)

9.3.3.1 Reading parameter data from the inverter



Note!

- When a read request is processed, no parameter value is written to the slave.
- In the case of a multi-parameter read request, the parameter attribute, index, and subindex are repeated with the number "n" of the parameters requested.
- A read request must not exceed the maximum data length of 240 bytes.

Request header

Byte 1	Byte 2	Byte 3	Byte 4
Request reference	Request identification	Axis	Number of indices

Field	Data type	Values
Request reference	U8	This value is specified by the master
Request identification	U8	0x01: Request parameters for reading
Axis	U8	0x00 or 0x01
Number of indices	U8	0x"n" (n = number of parameters requested)

Parameter attribute

Byte 5	Byte 6
Attribute	Number of subindices

Field	Data type	Values
Attribute	U8	0x10: Value
Number of subindices	U8	0x00 (For array elements: Enter the number of array elements required.)

Index and subindex

Byte 7	Byte 8	Byte 9	Byte 10
Index		Subindex	
High byte	Low byte	High byte	Low byte

Field	Data type	Values
Index	U16	0x0001 ... 0xFFFF (1 ... 65535)
Subindex	U16	0x0001 ... 0xFFFF (1 ... 65535)

Parameter data transfer

PROFIdrive parameter data channel (DP-V1)

9.3.3.2 Response to a correctly executed read request



Note!

Responses to a read request do not contain parameter attributes, indices and subindices.

Response header

Byte 1	Byte 2	Byte 3	Byte 4
Request reference (mirrored)	Response identification	Axis (mirrored)	Number of indices

Field	Data type	Values
Request reference	U8	Mirrored value of the parameter request
Response identification	U8	0x01: Parameter has been read
Axis	U8	0x00 or 0x01
Number of indices	U8	0x"n" (n = number of parameters requested)

Parameter format

Byte 5	Byte 6
Format	Number of values

Field	Data type	Values
Format	U8	0x02: Integer8 0x03: Integer16 0x04: Integer32 0x05: Unsigned8 0x06: Unsigned16 0x07: Unsigned32 0x09: Visible string 0x0A: Octet string 0x40: Zero 0x41: Byte 0x42: Word 0x43: Double word
Number of values	U8	0x01 or number of requested subindices/parameters (with several subindices/parameters only the parameter value is repeated). In the case of string codes, the number of characters is entered here.

Parameter data transfer

PROFIdrive parameter data channel (DP-V1)

Parameter value

Byte 7	Byte 8	Byte 9	Byte 10
Value			

Field	Data type	Values
Value	String	Any (length > 4 bytes possible)
	U8	0x00 0xFF
	U16	0x0000 0xFFFF
	U32	0x0000 0000 0xFFFF FFFF

9.3.3.3 Response to a read error



Note!

In the case of a multi-parameter request, correct and possible faulty messages are summarised in one telegram. They have the following data contents:

- Correct message:
 - Format: data type of the value requested
 - Number of values: as described in the chapter "[Reading parameter data from the inverter](#)" (42).
 - Parameter value: value requested
- Faulty message
 - Format: 0x44
 - Number of values: 0x01 or 0x02
 - Error code without additional information (for number of values = 0x01) or
 - Error code with additional information (for number of values = 0x02)

A faulty access to a parameter "n" is indicated at the nth position in the response telegram of a multi-parameter request.

Response header

Byte 1	Byte 2	Byte 3	Byte 4
Request reference (mirrored)	Response identification	Axis (mirrored)	Number of indices

Field	Data type	Values
Request reference	U8	Mirrored value of the parameter request
Response identification	U8	0x81: Parameter has not been read • The data in the bytes 7 + 8 must be interpreted as an error code.
Axis	U8	0x00 or 0x01
Number of indices	U8	0x"n" (n = number of parameters requested)

Parameter data transfer

PROFIdrive parameter data channel (DP-V1)

Parameter format

Byte 5	Byte 6
Format	Number of values

Field	Data type	Values
Format	U8	0x44: Error
Number of values	U8	0x01: Error code without additional information 0x02: Error code with additional information

Error code

Byte 7	Byte 8	Byte 9	Byte 10
Error code		Additional information (if available)	
High byte	Low byte	High byte	Low byte

Field	Data type	Values
Error code	U16	0x0000 0xFFFF
Additional information (if available)	U16	► Error codes (61)

9.3.3.4 Writing parameter data to the inverter



Note!

When a multi-parameter write request is transferred, the ...

- Parameter attribute
- Index and subindex

and then the ...

- Parameter format
- Parameter value

... are repeated with the number "n" of the parameters addressed.

A write request must not exceed the maximum data length of 240 bytes.

Parameter data transfer

PROFIdrive parameter data channel (DP-V1)

Request header

Byte 1	Byte 2	Byte 3	Byte 4
Request reference	Request identification	Axis	Number of indices

Field	Data type	Values
Request reference	U8	This value is defined by the master.
Request identification	U8	0x02: Write parameter
Axis	U8	0x00 or 0x01
Number of indices	U8	0x"n" (n = number of parameters addressed)

Parameter attribute

Byte 5	Byte 6
Attribute	Number of subindices

Field	Data type	Values
Attribute	U8	0x10: Value
Number of subindices	U8	0x00 (For array elements: Enter the number of array elements required.)

Index and subindex

Byte 7	Byte 8	Byte 9	Byte 10
Index		Subindex	
High byte	Low byte	High byte	Low byte

Field	Data type	Values
Index	U16	0x0001 ... 0xFFFF (1 ... 65535)
Subindex	U16	0x0001 ... 0xFFFF (1 ... 65535)

Parameter data transfer

PROFIdrive parameter data channel (DP-V1)

Parameter format

Byte 11	Byte 12
Format	Number of values

Field	Data type	Values
Format	U8	0x02: Integer8 0x03: Integer16 0x04: Integer32 0x05: Unsigned8 0x06: Unsigned16 0x07: Unsigned32 0x09: Visible string 0x0A: Octet string 0x40: Zero 0x41: Byte 0x42: Word 0x43: Double word
Number of values	U8	0x01 or number of written subindices/parameters (with several subindices/parameters only the parameter value is repeated). In the case of string codes, the number of characters is entered here.

Parameter value

Byte 13	Byte 14	Byte 15	Byte 16
Value			

Field	Data type	Values
Value	String	Any (length > 4 bytes possible)
	U8	0x00 0xFF
	U16	0x0000 0xFFFF
	U32	0x0000 0000 0xFFFF FFFF

9.3.3.5 Response to a correctly executed write request



Note!

In the case of a multi-parameter request, correct and possible faulty messages are summarised in one frame. They have the following data contents:

- Correct message
 - Format: 0x40
 - Number of values: 0x00
- Faulty message
 - Format: 0x44
 - Number of values: 0x01 or 0x02
 - Error code without additional information (for number of values = 0x01) or with additional information (for number of values = 0x02)

A faulty access to a parameter "n" is indicated at the nth position in the response frame of a multi-parameter request.

Response header

Byte 1	Byte 2	Byte 3	Byte 4
Request reference (mirrored)	Response identification	Axis (mirrored)	Number of indices

Field	Data type	Values
Request reference	U8	Mirrored value of the parameter request
Response identification	U8	0x02: Parameter has been written
Axis	U8	0x00 or 0x01
Number of indices	U8	0xn (n = number of parameters addressed)

Parameter data transfer

PROFIdrive parameter data channel (DP-V1)

9.3.3.6 Response to a write error

Response header

Byte 1	Byte 2	Byte 3	Byte 4
Request reference (mirrored)	Response identification	Axis (mirrored)	Number of indices

Field	Data type	Values
Request reference	U8	Mirrored value of the parameter request
Response identification	U8	0x82: Parameter has not been written • The data in the bytes 7 + 8 must be interpreted as an error code.
Axis	U8	0x00 or 0x01
Number of indices	U8	0x"n" (n = number of parameters addressed)

Parameter format

Byte 5	Byte 6
Format	Number of values

Field	Data type	Values
Format	U8	0x44: Error
Number of values	U8	0x01: Error code without additional information 0x02: Error code with additional information

Error code

Byte 7	Byte 8	Byte 9	Byte 10
Error code		Additional information (if available)	
High byte	Low byte	High byte	Low byte

Field	Data type	Values
Error code	U16	0x0000 0xFFFF
Additional information (if available)	U16	► Error codes (□ 61)

Parameter data transfer

PROFIdrive parameter data channel (DP-V1)

9.3.4 Error codes

Error code	Description	Explanation	Additional information
0x0000	Impermissible parameter number	Access to unavailable parameter	-
0x0001	Parameter value cannot be changed	Change access to a parameter value that cannot be changed	Subindex
0x0002	Lower or upper value limit exceeded	Change access with value beyond the value limits	Subindex
0x0003	Faulty subindex	Access to unavailable subindex	Subindex
0x0004	No array	Access with subindex to non-indicated parameter	-
0x0005	Wrong data type	Change access with value that does not match the data type of the parameter	-
0x0006	No setting permitted (only resettable)	Change access with value unequal to 0 where this is not permitted	Subindex
0x0007	Description element cannot be changed	Change access to a description element that cannot be changed	Subindex
0x0008	Reserved	(PROFIdrive profile V2: PPO-Write requested in the IR is not available)	-
0x0009	Description data not available	Access to unavailable description (parameter value is available)	-
0x000A	Reserved	(PROFIdrive profile V2: Wrong access group)	-
0x000B	No parameter change rights	Change access without parameter change rights	-
0x000C	Reserved	(PROFIdrive profile V2: Wrong password)	-
0x000D	Reserved	(PROFIdrive profile V2: Text in the cyclic traffic cannot be read)	-
0x000E	Reserved	(PROFIdrive profile V2: Name in the cyclic traffic cannot be read)	-
0x000F	No text array available	Access to unavailable text array (parameter value is available)	-
0x0010	Reserved	(PROFIdrive profile V2: Missing PPO-Write)	-
0x0011	Request cannot be executed due to the operating state	Access is not possible due to temporary reasons not specified here	-
0x0012	Reserved	(PROFIdrive profile V2: Other error)	-
0x0013	Reserved	(PROFIdrive profile V2: date in the cyclic traffic cannot be read)	-
0x0014	Value impermissible	Change access with the value that is inside the value limits but not permissible for other permanent reasons (parameters with defined individual values)	Subindex
0x0015	Response too long	The length of the current response exceeds the maximum transmittable length	-
0x0016	Parameter address impermissible	Impermissible or non-supported value for attribute, number of subindices, parameter number, or subindex, or a combination	-
0x0017	Format impermissible	Write request: Impermissible or non-supported format of parameter data	-
0x0018	Number of values not consistent	Write request: Number of values of the parameter data do not match the number of subindices in the parameter address	-
0x0019	Reserved	-	-
...			
0x0064			

Parameter data transfer

PROFIdrive parameter data channel (DP-V1)

Error code	Description	Explanation	Additional information
0x0065	Manufacturer-specific	-	-
...			
0x00FF			

Parameter data transfer

PROFIdrive parameter data channel (DP-V1)

9.3.5 Telegram examples

9.3.5.1 Read request: Querying the heatsink temperature

The heatsink temperature of the inverter is to be read.

- Code to be read: C00061
- Heatsink temperature: 43 °C

Parameter request

Byte 1	Byte 2	Byte 3	Byte 4
Request reference	Request identification	Axis	Number of indices
0xXX	0x01	0x00	0x01
	Request parameters for reading		

Byte 5	Byte 6
Attribute	Number of subindices
0x10	0x00
Value	No subindex

Byte 7	Byte 8	Byte 9	Byte 10
Index		Subindex	
High byte	Low byte	High byte	Low byte
0x5F	0xC2	0x00	0x00
Index = 24575 - code no. = 24575 - 61 = 24514 = 0x5F C2		No subindex	

Parameter data transfer

PROFIdrive parameter data channel (DP-V1)

Parameter response to a correctly executed read request

Byte 1	Byte 2	Byte 3	Byte 4
Request reference	Response identification	Axis	Number of indices
0xXX	0x01	0x00	0x01
(mirrored)	Parameter has been read	(mirrored)	

Byte 5	Byte 6
Format	Number of values
0x03	0x01
Integer16	1 value

Byte 7	Byte 8
Value	
High byte	Low byte
0x00	0x2B
Value read = 0x 00 2B = 43 x 1 (internal factor) = 43 [°C]	

Parameter response to a read error

Byte 1	Byte 2	Byte 3	Byte 4
Request reference	Response identification	Axis	Number of indices
0xXX	0x81	0x00	0x01
(mirrored)	Parameter has not been read	(mirrored)	

Byte 5	Byte 6
Format	Number of values
0x44	0x01
Error	Error code without additional information

Byte 7	Byte 8
Error code	
High byte	Low byte
For the meaning, see the " Error codes " (book icon 61) chapter	

Parameter data transfer

PROFIdrive parameter data channel (DP-V1)

9.3.5.2 Write request: Setting the deceleration time for quick stop (QSP)

In the inverter, the deceleration time for quick stop (QSP) is to be set to 50 ms.

- Code to be written: C00105

Parameter request

Byte 1	Byte 2	Byte 3	Byte 4
Request reference	Request identification	Axis	Number of indices
0xXX	0x02	0x00	0x01
	Write parameters	Axis 0	1 index

Byte 5	Byte 6
Attribute	Number of subindices
0x10	0x00
Value	No subindex

Byte 7	Byte 8	Byte 9	Byte 10
Index		Subindex	
High byte	Low byte	High byte	Low byte
0x5F	0x96	0x00	0x00
Index = 24575 - code no. = 24575 - 105 = 24470 = 0x5F 96		No subindex	

Byte 11	Byte 12
Format	Number of values
0x43	0x01
Double word	1 value

Byte 13	Byte 14	Byte 15	Byte 16
Value			
High word: high byte	High word: low byte	Low- word: high byte	Low word: low byte
0x00	0x00	0x00	0x32
Value to be written = 0.05 [s] x 1000 (internal factor) = 50 = 0x00 00 00 32			

Parameter data transfer

PROFIdrive parameter data channel (DP-V1)

Parameter response to a correctly executed write request

Byte 1	Byte 2	Byte 3	Byte 4
Request reference	Response identification	Axis	Number of indices
0xXX	0x02	0x00	0x01
(mirrored)	Parameter has been written	(mirrored)	1 index

Parameter response to a read error

Byte 1	Byte 2	Byte 3	Byte 4
Request reference	Response identification	Axis	Number of indices
0xXX	0x82	0x00	0x01
(mirrored)	Parameter has not been written	(mirrored)	1 index

Byte 5	Byte 6
Format	Number of values
0x44	0x01
Error	Error code without additional information

Byte 7	Byte 8
Error code	
High byte	Low byte
For the meaning, see the " Error codes " (61) chapter	

10 Monitoring

10.1 Permanent interruption of PROFIBUS communication

If the PROFIBUS communication is interrupted permanently, e.g. by cable breakage or failure of the PROFIBUS master, no process data are transmitted to the slave being in the "Data_Exchange" state.

After the watchdog monitoring time determined by the PROFIBUS master has expired, the response parameterised in [C13880/1](#) is executed.

The process data are treated according to the setting in [C13885](#). (The data sent last by the master can be used or can be set to zero.)

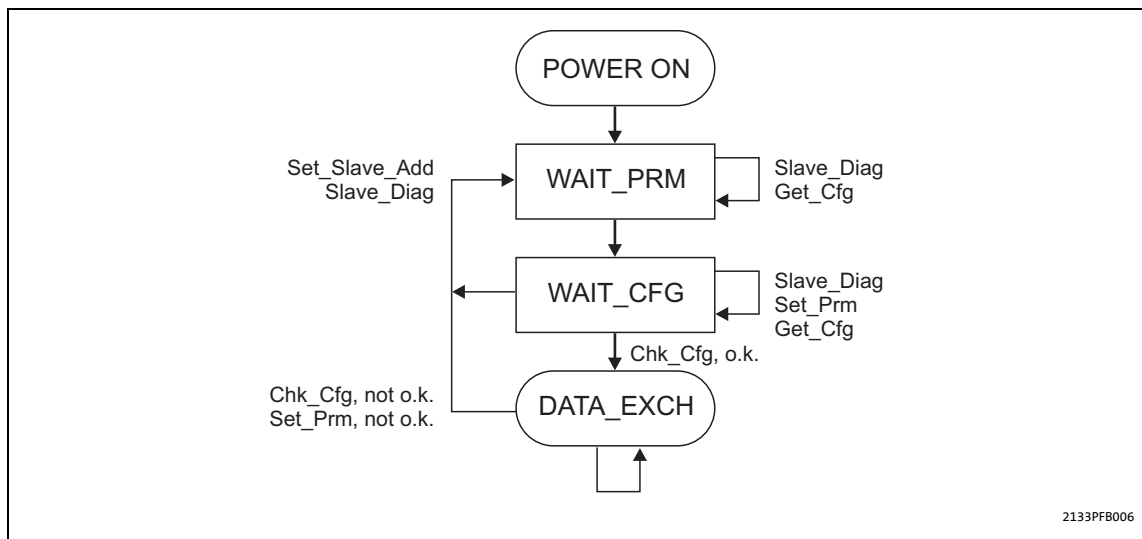
Preconditions for a response of the inverter (slave)

- A monitoring time of 1 ... 65534 ms for the "Data_Exchange" status ([C13881](#)) is set.
A value of "65535 ms" (Lenze setting) deactivates the monitoring.
- A response for the slave is set in [C13880/1](#) (Lenze setting "No response").
- The slave is in the "Data_Exchange" state.
- The watchdog monitoring time is configured correctly in the master.

If one of these preconditions is not met, the response to the absence of cyclic process data telegrams from the master is not executed.

► [Settings and displays in the »Engineer«](#) (📖 69)

10.2 Short-time interruption of PROFIBUS communication



[10-1] Sequence for short-time interruption of communication

The master detects the communication fault and only after a few microseconds it transfers the slave to the WAIT_PRM state of the DP state machine (see fig. [10-1]).

Only after the state chain of the DP state machine ending in the "Data_Exchange" state (DATA_EXCH) has been passed through, the watchdog monitoring time calculated for the slave (in milliseconds) continues to run.



Note!

The watchdog monitoring time does not continue running if the slave does not reach the "Data_Exchange" state due to repeated communication errors (e.g. caused by loose contact).

Additional monitoring for the data exchange

An additional monitoring function for data exchange is available under code [C13881](#). This monitoring function already becomes active when the "Data_Exchange" state is exited and the parameterised time (0 ... 65535 ms) has expired. The monitoring function then triggers the response parameterised under [C13880/1](#).



Note!

Observe the following condition for the time setting:

Monitoring time for the data exchange ([C13881](#)) $\geq$ watchdog monitoring time of the PROFIBUS ([C13882/1](#)).

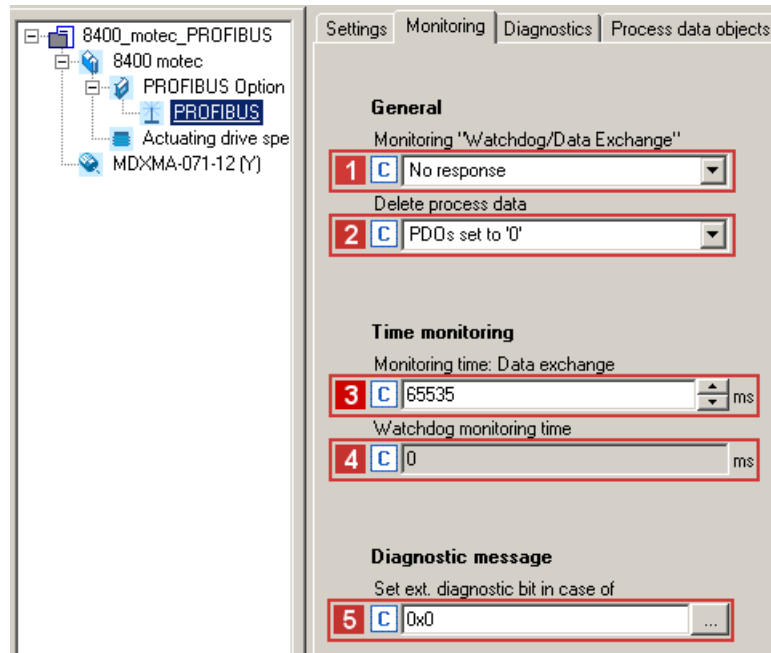
Monitoring

Settings and displays in the »Engineer«

10.3 Settings and displays in the »Engineer«

For monitoring the PROFIBUS communication, you can set a Lenze-internal monitoring time in the »Engineer« via the **Monitoring** tab **3** ([C13881](#)) and a response of the inverter **1** ([C13880](#)).

The watchdog monitoring time **4** defined in the PROFIBUS master is displayed in code [C13882](#).



If the inverter does not receive any valid process data in the "Data_Exchange" state, the process data are treated according to the setting in **2** [C13885](#). (In this way, the data sent last by the master can be used or set to zero.)

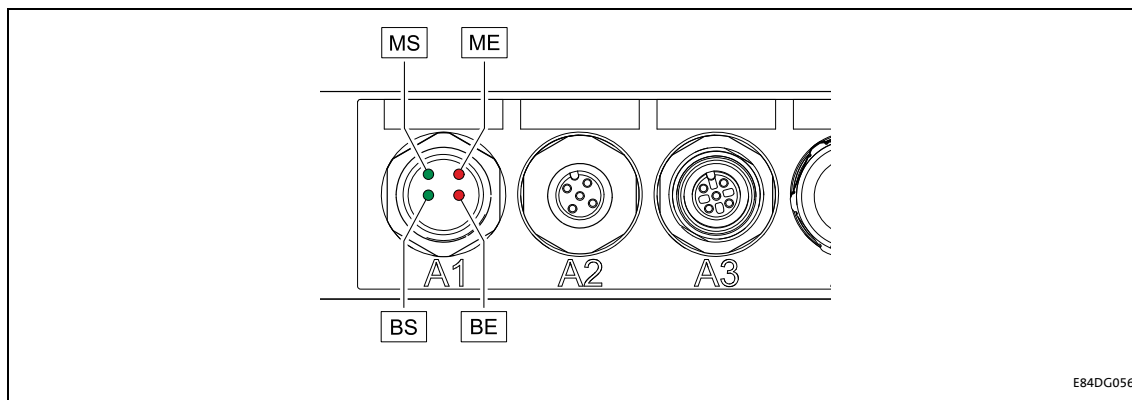
Furthermore you can set the error responses causing the external diagnostic bit ("Diag-Bit") to be set in the inverter **5** ([C13886](#)).

11 Diagnostics

PROFIBUS communication faults can be diagnosed via the LEDs of the communication unit.

Furthermore, the »Engineer« provides some diagnostic information on PROFIBUS.

11.1 LED status displays



LED	Colour	Status	Description
MS	green	On	 The communication module is supplied with voltage and is connected to the standard device.
		blinking	 The communication module is supplied with voltage, but is not connected to the standard device. (Standard device is switched off, in the initialisation phase, or not available.)
ME	red	On	 An error has occurred in the communication module.
BS	green	Off	The communication module is not active on the fieldbus or is in the "Init" state.
		blinking	 The communication module is in the "Data_Exchange" status.
BE	red	blinking	 Incorrect setting for the station address. The communication module has been initialised and continues to work internally with the respective standard values.
		On	 Bus error/fault is active (e.g. bus cable unplugged).

Diagnostics

Diagnostics with the »Engineer«

11.2 Diagnostics with the »Engineer«

In the »Engineer« under the **Diagnostics** tab, you will find PROFIBUS diagnostics information.

The screenshot displays the »Engineer« software interface with the **Diagnostics** tab selected. The left sidebar shows a tree structure with the following items: 8400_motec_PROFIBUS, 8400 motec, PROFIBUS Option, PROFIBUS (highlighted), Actuating drive spe, and MDXMA-071-12 (Y). The main panel is divided into three sections: **Address**, **Status**, and **Debug**. Each section contains several parameters with input fields and a 'C' icon. At the bottom, there are two buttons: 'Process data' and 'Module information'.

Address	Status	Debug
Active station address C 0	Baud rate C 12.00 Mbit/s	Data cycles per second C 0
Display: DIP switch setting C 0	Bus status C 0	Total data cycles C 0
		Total parameterisation events C 0
		Total configuration events C 0
		Display: Most recent PRM data C 00
		Display: Most recent CFG data C 00
		Display: Most recent diagnostic data C 00
		Number of process data words C 0
		DRIVECOM parameter data cha.. C 0

Process data Module information

11.3 Querying the current bus status

Code [C13861](#) displays the current PROFIBUS status in a bit-coded form:

Bit assignment				Description
Bit 3	Bit 2	Bit 1	Bit 0	Reserved
		Bit 5	Bit 4	State of the DP state machine (DP-STATE)
		0	0	WAIT_PRM The slave waits for a parameter data telegram after acceleration. Other types of telegrams will not be processed. Data exchange is not yet possible.
		0	1	WAIT_CFG The slave waits for the configuration telegram that specifies the number of input and output bytes. The master informs the slave about the number of I/O bytes that will be transferred.
		1	0	DATA_EX If the parameter settings and the configuration have been accepted by the firmware and by the application, the slave state changes to "Data_Exchange" (exchange of user data with the master).
		1	1	Not possible
		Bit 7	Bit 6	State of the Watchdog-State-Machine (WD-STATE)
		0	0	BAUD_SEARCH The slave is able to recognise the baud rate automatically.
		0	1	BAUD_CONTROL After recognising the correct baud rate, the slave status changes to BAUD_CONTROL, and the baud rate is monitored.
		1	0	DP_CONTROL The DP_CONTROL state serves for response monitoring of the master.
		1	1	Not possible
Bit 11	Bit 10	Bit 9	Bit 8	Recognised PROFIBUS baud rate
0	0	0	0	12 Mbps
0	0	0	1	6 Mbps
0	0	1	0	3 Mbps
0	0	1	1	1.5 Mbps
0	1	0	0	500 kbps
0	1	0	1	187.5 kbps
0	1	1	0	93.75 kbps
0	1	1	1	45.45 kbps
1	0	0	0	19.2 kbps
1	0	0	1	9.6 kbps
Bit 15	Bit 14	Bit 13	Bit 12	Reserved

11.4 Diagnostic data

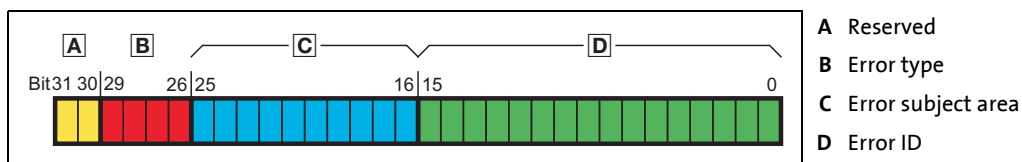
- Present diagnostic data are signalled to the master by the PROFIBUS slave via an alarm message.
- Errors and warnings of the inverter are sent to the master as extended diagnostic messages.

General structure of diagnostic messages

Byte	Description
1	Bit 0: Station does not exist (set by the master). Bit 1: Slave is not ready for data exchange. Bit 2: Configuration data do not correspond. Bit 3: Slave has extended diagnostic data. Bit 4: Requested function is not supported by the slave. Bit 5: Slave response is invalid (set by the master) Bit 6: Incorrect parameter setting Bit 7: Slave has been parameterised by another master (set by the master).
2	Bit 0: Slave must be parameterised again. Bit 1: Static diagnostics Bit 2: Permanently set to "1". Bit 3: Watchdog active Bit 4: Freeze command received. Bit 5: Sync command received. Bit 6: Reserved Bit 7: Slave is deactivated (set by the master).
3	Bit 7: Diagnostics overflow - amount of diagnostic information present in the slave is too large to fit into one telegram.
4	Bits 0 ... 7: Master address after parameterisation ("0xFF" without parameterisation)
5	Bits 0 ... 7: ID number (high byte)
6	Bits 0 ... 7: ID number (low byte)
7	header • The header contains the block length of the advanced diagnostics including the header byte. • In this case, the value of the entry is "0x0A" (bytes 7 ... 16 = 10 bytes).
8	Status_Type • The value of this entry is fixed. For the following bit assignment it is "0x81": • Bit 7 = 1: "status" • Bit 0 = 1: "status message" • Value of all other bits = 0
9	Slot_Number • The value of the slot number is "0x00".
10	Specifier • An indicated error is entered in the specifier with the identification "0x1" (status coming). • An eliminated error is entered in the specifier with the identification "0x02" (status going). • If no errors are indicated, the entry in the specifier has the value "0x00" (no further differentiation).
11	Reserved
12	
13 ... 16	Error code of the inverter

Error code of the Inverter Drive 8400 motec

If an error occurs in the inverter, a 32-bit value is stored in the error format in the logbook, composed of the following information:



[11-1] Structure of the error number

- Bytes 13 ... 16 of the diagnostic message contain the error code of the inverter.
- In the logbook and in code **C00165**, the error number is shown in the following syntax in order to facilitate the readability:
[error type].[error subject area no.].[error ID]



Software manual/»Engineer« online help for Inverter Drives 8400 motec

Here you'll find detailed information on the structure and contents of the error codes.

Example: Error "Short circuit (OC1)"

Byte	Value [hex]	Description
1	x	Standard data (PRM_Fault)
...		
6		
7	0A	Block length of the advanced diagnostics = 10 bytes
8	81	Status message
9	00	Slot 0
10	01	Status coming
11	00	Error message 0x11C4000B ("Short circuit (OC1)")
12	00	
13	0B	
14	00	• Error type: "Warning locked"
15	C4	• Subject area: 0x11C4 (current)
16	11	• Error ID: 0x000B
		Thus, the error number "0x11C4000B" means: An overcurrent has been detected in the "current" subject area causing a "Warning locked" error response which must be unlocked after the error has been removed.

Error messages

Short overview of the PROFIBUS error messages

12 Error messages

This chapter complements the error list in the software manual and the »Engineer« online help for the Inverter Drive 8400 motec by PROFIBUS error messages.



Software manual/»Engineer« online help for the Inverter Drive 8400 motec

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

12.1 Short overview of the PROFIBUS error messages

The following table lists all PROFIBUS error messages in the numerical order of the error numbers. Furthermore, the preset error response and - if available - the parameter for setting the error response are 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 number			Error text	Error type	Adjustable in
hex	dec (Subject area no.)	dec (Error no.)			
0x01bc3100	444	12544	Connection to 8400 standard device lost	1: No Response	C01501/2
0x01bc5531	444	21809	Memory: No access	1: No Response	C01501/2
0x01bc5532	444	21810	Memory. Read error	1: No Response	C01501/2
0x01bc5533	444	21811	Memory. Write error (nt14: COM fault 14)	1: No Response	C01501/2
0x01bc6010	444	24592	Restart after watchdog reset	1: No Response	C01501/2
0x01bc6011	444	24593	Internal error	1: No Response	C01501/2
0x01bc6100	444	24832	Internal error	1: No Response	C01501/2
0x01bc6101	444	24833	Internal error	1: No Response	C01501/2
0x01bc6110	444	24848	Internal error (nt15: COM fault 15)	1: No Response	
0x01bc641f	444	25631	Invalid parameter set	1: No Response	C01501/2
0x01bc6420	444	25632	Error: Lenze settings loaded	1: No Response	
0x01bc8130	444	33072	Profibus Watchdog: Monitoring time elapsed (nt03: COM fault 3)	0: No Response	C13880/1
0x01bc8131	444	33073	Profibus: State Data Exchange left (nt04: COM fault 4)	0: No Response	C13880/1
0x01bc8132	444	33074	Profibus Watchdog: DP-V1 MSC2 monitoring time exceeded (nt05: COM fault 5)	0: No Response	C13880/1

Error messages

Possible causes and remedies

12.2 Possible causes and remedies

This chapter lists all PROFIBUS error messages in the numerical order of the error numbers. Possible causes and remedies as well as responses to the error messages are described in detail.

Connection to 8400 standard device lost [0x01bc3100]

Response (Lenze setting printed in bold)		Setting: C01501/2 (☒ Adjustable response)
☒ None ☐ System fault ☒ Fault ☐ Trouble ☐ Quick stop by trouble ☒ Warning locked ☐ warning ☐ Information		
Cause	Remedy	
• The Communication Unit is supplied with external voltage, but the Inverter Drive 8400 motec is not supplied with voltage. • The Communication Unit is not connected correctly to the Drive Unit.	• Switch off and on again the voltage supply of the Inverter Drive 8400 motec. • Check wiring and terminals. • Check internal plug connection between Communication Unit and Drive Unit. For this purpose, the Inverter Drive 8400 motec must be unscrewed. Please observe the information in the mounting instructions of the Communication Unit and the Drive Unit! • If this error continues to occur, please contact the Lenze Service. (if required, the Communication Unit must be replaced.)	

Memory: No access [0x01bc5531]

Response (Lenze setting printed in bold)		Setting: C01501/2 (☒ Adjustable response)
☒ None ☐ System fault ☒ Fault ☐ Trouble ☐ Quick stop by trouble ☒ Warning locked ☐ warning ☐ Information		
Cause	Remedy	
Access to memory was not possible.	Send the device and a description of the fault to Lenze.	

Memory: Read error [0x01bc5532]

Response (Lenze setting printed in bold)		Setting: C01501/2 (☒ Adjustable response)
☒ None ☐ System fault ☒ Fault ☐ Trouble ☐ Quick stop by trouble ☒ Warning locked ☐ warning ☐ Information		
Cause	Remedy	
Parameter could not be read.	• Download application again (including module). • Send the device and a description of the fault to Lenze.	

Memory: Write error [0x01bc5533] (nt14: COM fault 14)

Response (Lenze setting printed in bold)		Setting: C01501/2 (☒ Adjustable response)
☒ None ☐ System fault ☒ Fault ☐ Trouble ☐ Quick stop by trouble ☒ Warning locked ☐ warning ☐ Information		
Cause	Remedy	
Parameter could not be written.	• Download application again (including module). • Send the device and a description of the fault to Lenze.	

Error messages

Possible causes and remedies

Restart by watchdog reset [0x01bc6010]

Response (Lenze setting printed in bold)	Setting: C01501/2 (☒ Adjustable response)
☒ None ☐ System fault ☒ Fault ☐ Trouble ☐ Quick stop by trouble ☒ Warning locked ☐ warning ☐ Information	
Cause	Remedy
Device is defective.	Send the device and a description of the fault to Lenze.

Internal error [0x01bc6011]

Response (Lenze setting printed in bold)	Setting: C01501/2 (☒ Adjustable response)
☒ None ☐ System fault ☒ Fault ☐ Trouble ☐ Quick stop by trouble ☒ Warning locked ☐ warning ☐ Information	
Cause	Remedy
Device is defective.	Send the device and a description of the fault to Lenze.

Internal error [0x01bc6100]

Response (Lenze setting printed in bold)	Setting: C01501/2 (☒ Adjustable response)
☒ None ☐ System fault ☒ Fault ☐ Trouble ☐ Quick stop by trouble ☒ Warning locked ☐ warning ☐ Information	
Cause	Remedy
Device is defective.	Send the device and a description of the fault to Lenze.

Internal error [0x01bc6101]

Response (Lenze setting printed in bold)	Setting: C01501/2 (☒ Adjustable response)
☒ None ☐ System fault ☒ Fault ☐ Trouble ☐ Quick stop by trouble ☒ Warning locked ☐ warning ☐ Information	
Cause	Remedy
Device is defective.	Send the device and a description of the fault to Lenze.

Internal error [0x01bc6110] (nt15: COM fault 15)

Response (Lenze setting printed in bold)	Setting: not possible
☐ None ☐ System fault ☒ Fault ☐ Trouble ☐ Quick stop by trouble ☐ Warning locked ☐ warning ☐ Information	
Cause	Remedy
Device is defective.	Send the device and a description of the fault to Lenze.

Invalid parameter record [0x01bc641f]

Response (Lenze setting printed in bold)	Setting: C01501/2 (☒ Adjustable response)
☒ None ☐ System fault ☒ Fault ☐ Trouble ☐ Quick stop by trouble ☒ Warning locked ☐ warning ☐ Information	
Cause	Remedy
No active parameter set could be loaded.	• Download application again (including module). • Send the device and a description of the fault to Lenze.

Error messages

Possible causes and remedies

Error: Lenze settings loaded [0x01bc6420]

Response (Lenze setting printed in bold)	Setting: not possible
☐ None ☐ System fault ☒ Fault ☐ Trouble ☐ Quick stop by trouble ☐ Warning locked ☐ warning ☐ Information	
Cause	Remedy
Access to parameter set was not possible.	• Download application again (including module). • Send the device and a description of the fault to Lenze.

Profibus watchdog: monitoring time exceeded [0x01bc8130] (nt03: COM fault 3)

Response (Lenze setting printed in bold)	Setting: C13880/1 (☒ adjustable response)
☒ None ☐ System fault ☒ Fault ☐ Trouble ☒ Quick stop by trouble ☒ Warning locked ☐ Warning ☒ Information	
Cause	Remedy
Permanent interruption of communication to PROFIBUS master. • Also see the chapter "Permanent interruption of PROFIBUS communication" (□ 67).	Check cables and terminals. Note: We recommend to set "Warning locked" for the response (no drive-relevant response).

Profibus: Data_Exchange status exited [0x01bc8131] (nt04: COM fault 4)

Response (Lenze setting printed in bold)	Setting: C13880/1 (☒ adjustable response)
☒ None ☐ System fault ☒ Fault ☐ Trouble ☒ Quick stop by trouble ☒ Warning locked ☐ Warning ☒ Information	
Cause	Remedy
Data exchange via PROFIBUS has been stopped. • Also see the chapter "Permanent interruption of PROFIBUS communication" (□ 67).	Check cables and terminals. The slave must receive new parameterisation and configuration files from the master in order to be able to exchange data again.

Profibus Watchdog: DP-V1 MSC2 monitoring time exceeded [0x01bc8132] (nt05: COM fault 5)

Response (Lenze setting printed in bold)	Setting: C13880/1 (☒ adjustable response)
☒ None ☐ System fault ☒ Fault ☐ Trouble ☒ Quick stop by trouble ☒ Warning locked ☐ Warning ☒ Information	
Cause	Remedy
Permanent interruption of communication to PROFIBUS master. • Also see the chapter "Permanent interruption of PROFIBUS communication" (□ 67).	Check cables and terminals. Note: We recommend to set "Warning locked" for the response (no drive-relevant response).

Parameter reference

Communication-relevant parameters of the operating system

13 Parameter reference

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



Software manual/»Engineer« online help "Inverter Drive 8400 motec"

Here you will find general information on parameters.

13.1 Communication-relevant parameters of the operating system

This chapter lists the communication-relevant parameters of the 8400 motec operating system in numerically ascending order.

C01501

Parameter Name:		Data type: UNSIGNED_8 Index: 23074 _d = 5A22 _h
C01501 Response in case of communication fault 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: Fault	Resp. to MCI fault 1 • Response to a communication fault.
C01501/2	1: Fault	Resp. to MCI fault 2 • Response to an incompatible communication unit.
☒ Read access ☒ Write access ☐ CINH ☐ PLC STOP ☐ No transfer ☐ COM ☐ MOT Scaling factor: 1		

C01503

Parameter Name:		Data type: UNSIGNED_16 Index: 23072 _d = 5A20 _h
C01503 MCI timeout		
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 PROFIBUS communication

13.2 Parameters relevant for PROFIBUS communication

This chapter lists the PROFIBUS parameters of the communication unit in numerically ascending order.

C13850

Parameter Name: C13850 All words to master			Data type: UNSIGNED_16 Index: 10725 _d = 29E5 _h
Display of the process data words transferred from the communication unit to the PROFIBUS master. In the subcodes 1 ... 8, all process data words to the master are displayed. However, only the configured process data words are valid.			
Display range (min. value unit max. value)			
0		65535	
Subcodes			Info
C13850/1			Word 1 to master
...			...
C13850/8			Word 8 to master
☒ Read access ☐ Write access ☐ CINH ☐ PLC-STOP ☐ No transfer ☐ PDO_MAP_RX ☐ PDO_MAP_TX ☐ COM ☐ MOT			

C13851

Parameter Name: C13851 All words from master			Data type: UNSIGNED_16 Index: 10724 _d = 29E4 _h
Display of the process data words transferred from the PROFIBUS master to the communication unit. In the subcodes 1 ... 8, all process data words from the master are displayed. However, only the configured process data words are valid.			
Display range (min. value unit max. value)			
0		65535	
Subcodes			Info
C13851/1			Word 1 from master
...			...
C13851/8			Word 8 from master
☒ Read access ☐ Write access ☐ CINH ☐ PLC-STOP ☐ No transfer ☐ PDO_MAP_RX ☐ PDO_MAP_TX ☐ COM ☐ MOT			

C13852

Parameter Name: C13852 All words to standard device			Data type: UNSIGNED_16 Index: 10723 _d = 29E3 _h		
Display of process data words 1 ... 8 which are transmitted from the communication unit to the drive unit. Subcodes 1 ... 8 display all the process data words from the communication unit.					
Display range (min. value unit max. value)					
0		65535			
Subcodes			Info		
C13852/1			Word 1 to drive unit		
...			...		
C13852/8			Word 8 to drive unit		
☒ Read access ☐ Write access ☐ CINH ☐ PLC-STOP ☐ No transfer ☐ PDO_MAP_RX ☐ PDO_MAP_TX ☐ COM ☐ MOT					

Parameter reference

Parameters relevant for PROFIBUS communication

C13853

Parameter Name: C13853 All words from standard device			Data type: UNSIGNED_16 Index: 10722 _d = 29E2 _h
Display of process data words 1 ... 8 which are transmitted from the drive unit to the communication unit. Subcodes 1 ... 8 display all the process data words from the drive unit.			
Display range (min. value unit max. value)			
0		65535	
Subcodes			Info
C13853/1			Word 1 from drive unit
...			...
C13853/8			Word 8 from drive unit
☒ Read access ☐ Write access ☐ CINH ☐ PLC-STOP ☐ No transfer ☐ PDO MAP RX ☐ PDO MAP TX ☐ COM ☐ MOT			

C13860

Parameter Name: C13860 Settings			Data type: UNSIGNED_8 Index: 10715 _d = 29DB _h		
Display of the current configuration data.					
Display range (min. value unit max. value)					
0		255			
Subcodes			Info		
C13860/1			Reserved		
C13860/2			Number of process data words • 1 ... 8 words		
C13860/3			DRIVECOM parameter data channel • 0: Not active • 1: Active		
C13860/4			Reserved		
☒ Read access ☐ Write access ☐ CINH ☐ PLC-STOP ☐ No transfer ☐ PDO_MAP_RX ☐ PDO_MAP_TX ☐ COM ☐ MOT					

C13861

Parameter Name: C13861 Bus status			Data type: UNSIGNED_16 Index: 10714 _d = 29DA _h		
Bit-coded display of the current bus state. ▶ Querying the current bus status (📖 72)					
Display range (min. value unit max. value)					
0			65535		
☒ Read access ☐ Write access ☐ CINH ☐ PLC-STOP ☐ No transfer ☐ PDO_MAP_RX ☐ PDO_MAP_TX ☐ COM ☐ MOT					

Parameter reference

Parameters relevant for PROFIBUS communication

C13862

Parameter Name: C13862 Bus counter			Data type: UNSIGNED_16 Index: 10713 _d = 29D9 _h		
When the maximum count value of 65535 is reached, the counter starts again with 0.					
Display range (min. value unit max. value)					
0		65535			
Subcodes			Info		
C13862/1			Data cycles per second		
C13862/2			Total data cycles		
C13862/3			Total parameterisation events		
C13862/4			Total configuration events		
☒ Read access ☐ Write access ☐ CINH ☐ PLC-STOP ☐ No transfer ☐ PDO_MAP_RX ☐ PDO_MAP_TX ☐ COM ☐ MOT					

C13863

Parameter Name: C13863 Baud rate		Data type: UNSIGNED_8 Index: 10712 _d = 29D8 _h
Display of the baud rate		
Selection list (read only)		
0	12.00 Mbps	
1	6.00 Mbps	
2	3.00 Mbps	
3	1.50 Mbps	
4	500.00 kbps	
5	187.50 kbps	
6	93.75 kbps	
7	45.45 kbps	
8	19.20 kbps	
9	9.60 kbps	
☒ Read access ☐ Write access ☐ CINH ☐ PLC-STOP ☐ No transfer ☐ PDO_MAP_RX ☐ PDO_MAP_TX ☐ COM ☐ MOT		

C13864

Parameter Name: C13864 Active station address			Data type: UNSIGNED_8 Index: 10711 _d = 29D7 _h
Display of the active station address ▶ Setting the station address (🔑 30)			
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			

C13865

Parameter Name: C13865 Display: Most recent PRM data			Data type: OCTET_STRING Index: 10710 _d = 29D6 _h
Display of the last parameter data sent by the PROFIBUS master with the "Set-Prm" telegram (ASCII string with 24 characters)			
☒ Read access ☐ Write access ☐ CINH ☐ PLC-STOP ☐ No transfer ☐ PDO_MAP_RX ☐ PDO_MAP_TX ☐ COM ☐ MOT			

Parameter reference

Parameters relevant for PROFIBUS communication

C13866

Parameter Name: C13866 Display: Most recent CFG data	Data type: OCTET_STRING Index: 10709 _d = 29D5 _h
Display of the last configuration data sent by the PROFIBUS master with the "Chk-Cfg" telegram (ASCII string with 22 characters)	
☒ Read access ☐ Write access ☐ CINH ☐ PLC-STOP ☐ No transfer ☐ PDO_MAP_RX ☐ PDO_MAP_TX ☐ COM ☐ MOT	

C13867

Parameter Name: C13867 Display: Most recent diagnostic data	Data type: OCTET_STRING Index: 10708 _d = 29D4 _h
Display of the last diagnostic data sent to the PROFIBUS master (ASCII string with 16 characters)	
☒ Read access ☐ Write access ☐ CINH ☐ PLC-STOP ☐ No transfer ☐ PDO_MAP_RX ☐ PDO_MAP_TX ☐ COM ☐ MOT	

C13880

Parameter Name: C13880 Reaction on communication failure		Data type: UNSIGNED_8 Index: 10695 _d = 29C7 _h
Monitoring response to a communication fault on the PROFIBUS • A change in the monitoring response becomes immediately effective. ▶ Permanent interruption of PROFIBUS communication (📖 67)		
Selection list		
0	No response	
1	Error	
4	Warning Locked	
Subcodes	Lenze setting	Info
C13880/1	0: No Response	The response set here for the "watchdog/data exchange" monitoring is executed if the bus station ... • does not receive any message from the master within the watchdog monitoring time (with an active connection, it is displayed in C13882/1 / C13882/2). • detects that it is no longer in the "Data_Exchange" status. Please see also the notes given under C13881 .
☒ Read access ☒ Write access ☐ CINH ☐ PLC-STOP ☐ No transfer ☐ PDO_MAP_RX ☐ PDO_MAP_TX ☐ COM ☐ MOT		

C13881

Parameter Name: C13881 Monitoring time: Data exchange		Data type: UNSIGNED_16 Index: 10694 _d = 29C6 _h	
If the "Data_Exchange" state has been exited, the response parameterised with C13880/1 is carried out when the monitoring time set here for the data exchange has expired. • A value of "65535" in this code deactivates the monitoring function. • A change of monitoring will be effective immediately. • Recommendation: The monitoring time set here should be longer than the watchdog monitoring time (displayed in C13882/1 / C13882/2). ▶ Permanent interruption of PROFIBUS communication (📖 67)			
Setting range (min. value unit max. value)			Lenze setting
0	ms	65535	65535 ms
☒ Read access ☒ Write access ☐ CINH ☐ PLC-STOP ☐ No transfer ☐ PDO_MAP_RX ☐ PDO_MAP_TX ☐ COM ☐ MOT			

Parameter reference

Parameters relevant for PROFIBUS communication

C13882

Parameter Name: C13882 Monitoring time: Watchdog			Data type: UNSIGNED_32 Index: 10693 _d = 29C5 _h
Display of the watchdog monitoring time determined by the PROFIBUS master - Monitoring starts with the receipt of the first telegram. - When a value of "0" is displayed, the monitoring function is deactivated. - A change in the watchdog monitoring time in the master will become effective immediately. ▶ Permanent interruption of PROFIBUS communication (□ 67)			
Display range (min. value unit max. value)			
0	ms	4294967295	
Subcodes			Info
C13882/1			Watchdog monitoring time
C13882/2			DP-V1 MSAC2
☒ Read access ☐ Write access ☐ CINH ☐ PLC-STOP ☐ No transfer ☐ PDO_MAP_RX ☐ PDO_MAP_TX ☐ COM ☐ MOT			

C13885

Parameter Name: C13885 Delete process data		Data type: UNSIGNED_8 Index: 10690 _d = 29C2 _h	
Setting of the process data which are to be further processed by the inverter for maintaining internal communication if the PROFIBUS has failed.			
Selection list (Lenze setting printed in bold)			
0	Use of most recent master PDOs		
1	PDOs are set to the value 0'		
☒ Read access ☒ Write access ☐ CINH ☐ PLC-STOP ☐ No transfer ☐ PDO_MAP_RX ☐ PDO_MAP_TX ☐ COM ☐ MOT			

C13886

Parameter Name: C13886 Set ext. diagnostic bit in case of		Data type: BITFIELD_8 Index: 10689 _d = 29C1 _h	
Bit-coded selection of the error responses in the drive unit causing the external diagnostic bit ("diag bit") to be set (see PROFIBUS specification; bit 3 of byte 1 of the DP diagnostic messages).			
• The diagnostic bit is sent to the PROFIBUS master by the communication unit and is evaluated separately there. • The diagnostic bit is always set when a system error or an error message by the safety module occurs. • The Lenze setting "0" means that the diagnostic bit is not set for the following error responses.			
Value is bit-coded:			
Bit 0	Error		
Bit 1	Reserved		
Bit 2	Reserved		
Bit 3	Warning Locked		
Bit 4	Reserved		
...	...		
Bit 7	Reserved		
☒ Read access ☒ Write access ☐ CINH ☐ PLC-STOP ☐ No transfer ☐ PDO_MAP_RX ☐ PDO_MAP_TX ☐ COM ☐ MOT			

Parameter reference

Parameters relevant for PROFIBUS communication

C13887

Parameter Name: C13887 Suppress signalling diag. mess.		Data type: BITFIELD_8 Index: 10688 _d = 29C0 _h
From version 02.00 Bit coded selection of the error responses in the drive unit, at which diagnostic signalling is suppressed.		
Value is bit-coded:		Info
Bit 0	Error	
Bit 1	Fault	
Bit 2	Reserved	
Bit 3	Warning Locked	
Bit 4	Reserved	
...	...	
Bit 7	Reserved	
☒ Read access ☒ Write access ☐ CINH ☐ PLC-STOP ☐ No transfer ☐ PDO_MAP_RX ☐ PDO_MAP_TX ☐ COM ☐ MOT		

C13899

Parameter Name: C13899 Station address		Data type: UNSIGNED_8 Index: 10676 _d = 29B4 _h
Optional setting of the station address (instead of setting via DIP switches 1 ... 64) - The station address set here only becomes effective if the DIP switch S has been set to ON and the DIP switches 1 ... 64 have been set to OFF prior to power-on. - The active station address is displayed under C13864. - A change in the station address will only be effective after the parameter set has been stored and if the mains of the communication unit or the inverter has been switched again subsequently. ▶ Setting the station address (□ 30)		
Setting range (min. value unit max. value)		Lenze setting
3		126 3
☒ Read access ☒ Write access ☐ CINH ☐ PLC-STOP ☐ No transfer ☐ PDO_MAP_RX ☐ PDO_MAP_TX ☒ COM ☐ MOT		

C13900

Parameter Name: C13900 Firmware product type		Data type: VISIBLE_STRING Index: 10675 _d = 29B3 _h
Display of the product type (string with a length of 8 bytes) The following identification code is displayed: "E84DGFCP".		
☒ Read access ☐ Write access ☐ CINH ☐ PLC-STOP ☐ No transfer ☐ PDO_MAP_RX ☐ PDO_MAP_TX ☐ COM ☐ MOT		

C13901

Parameter Name: C13901 Firmware compilation date		Data type: VISIBLE_STRING Index: 10674 _d = 29B2 _h
Display of the compilation date of the firmware (string with a length of 20 bytes) The date ("MMM DD YYYY") and time ("hh:mm:ss") are output, e.g. "Mar 21 2005 12:31:21".		
☒ 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 firmware version (string with a length of 5 bytes) An identification code is displayed, e.g. "00.80".		
☒ Read access ☐ Write access ☐ CINH ☐ PLC-STOP ☐ No transfer ☐ PDO_MAP_RX ☐ PDO_MAP_TX ☐ COM ☐ MOT		

Parameter reference

Parameters relevant for PROFIBUS communication

C13920

Parameter Name: C13920 Display: DIP switch setting		Data type: UNSIGNED_8 Index: 10655 _d = 299F _h
Display of the current DIP switch setting • The displayed value corresponds to the sum of the individual DIP switch values 1 ... 64. • The active station address is displayed under C13864. ▶ Setting the station address (↩ 30)		
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		

C13950

Parameter Name: C13950 Module internal communication status		Data type: UNSIGNED_8 Index: 10625 _d = 2981 _h
Display of the internal status of the communication unit		
Selection list (read only)		Info
0	Module not initialised	
1	Module ready for initialization	
2	Reading module parameters	
3	Module parameters have been read	
4	Initialisation of external protocol	
5	Online	
6	Module timeout	
☒ Read access ☐ Write access ☐ CINH ☐ PLC-STOP ☐ No transfer ☐ PDO_MAP_RX ☐ PDO_MAP_TX ☐ COM ☐ MOT		

Parameter reference

Table of attributes

13.3 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 required	☒ Writing is only possible if controller inhibit is set	

Parameter reference

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Table of attributes

Code	Name	Index		Data				Access		
		dec	hex	DS	DA	Data type	Factor	R	W	CINH
C13850	All words from drive to master	10725	29E5	A	8	UNSIGNED_16	1	☒		
C13851	All words from master to drive	10724	29E4	A	8	UNSIGNED_16	1	☒		
C13852	All words to the basic device	10723	29E3	A	8	UNSIGNED_16	1	☒		
C13853	All words to the basic device	10722	29E2	A	8	UNSIGNED_16	1	☒		
C13860	Settings	10715	29DB	A	4	UNSIGNED_8	1	☒		
C13861	Bus status	10714	29DA	E	1	UNSIGNED_16	1	☒		
C13862	Bus counter	10713	29D9	A	4	UNSIGNED_16	1	☒		
C13863	Baud rate	10712	29D8	E	1	UNSIGNED_8	1	☒		
C13864	Active station address	10711	29D7	E	1	UNSIGNED_8	1	☒		
C13865	Display: Most recent PRM data	10710	29D6	E	1	OCTET_STRING		☒		
C13866	Display: Most recent CFG data	10709	29D5	E	1	OCTET_STRING		☒		
C13867	Display: Most recent diagnostic data	10708	29D4	E	1	OCTET_STRING		☒		
C13880	Monitoring Reaction	10695	29C7	A	1	UNSIGNED_8	1	☒	☒	
C13881	Monitoring time: Data exchange	10694	29C6	E	1	UNSIGNED_16	1	☒	☒	
C13882	Monitoring time: Watchdog	10693	29C5	A	2	UNSIGNED_32	1	☒		
C13885	Delete process data	10690	29C2	E	1	UNSIGNED_8	1	☒	☒	
C13886	Set ext. diagnostic bit in case of	10689	29C1	E	1	BITFIELD_8		☒	☒	
C13887	Suppress signalling diag. mess. upon	10688	29C0	E	1	BITFIELD_8		☒	☒	
C13899	Station address	10676	29B4	E	1	UNSIGNED_8	1	☒	☒	
C13900	Firmware Product Type	10675	29B3	E	1	VISIBLE_STRING		☒		
C13901	Firmware Compilation Date	10674	29B2	E	1	VISIBLE_STRING		☒		
C13902	Firmware Version	10673	29B1	E	1	VISIBLE_STRING		☒		
C13920	Display: DIP switch setting	10655	299F	E	1	UNSIGNED_8	1	☒		
C13950	Module internal communication status	10625	2981	E	1	UNSIGNED_8	1	☒		

Parameter reference

Implemented PROFIdrive objects (DP-V1)

13.4 Implemented PROFIdrive objects (DP-V1)

I-918

Index Name: 0x918 Display of station address			Data type: U16
Display of the set station address (see also C13864)			
Display range (min. value unit max. value)			
1		126	
☒ Read access ☐ Write access			

I-963

Index Name: 0x963 Baud rate			Data type: U16
Display of the PROFIBUS baud rate (see also C13863)			
Selection list (read only)			
0	9.6 kbps		
1	19.2 kbps		
2	93.75 kbps		
3	187.5 kbps		
4	500 kbps		
6	1.5 Mbps		
7	3 Mbps		
8	6 Mbps		
9	12 Mbps		
☒ Read access ☐ Write access			

I-964

Index Name: 0x964 Device identification		Data type: U16
Display of identification data		
Subindex	Display	Info
0x964/0	262	Manufacturer: Lenze
0x964/1	8400	Device type
0x964/2	xyyy	Software version, e.g. 0100 (V 01.00)
0x964/3	yyyy	Firmware date (year), e.g. 2007
0x964/4	ddmm	Firmware date (day/month), e.g. 0506 (5th June)
☒ Read access ☐ Write access		

Parameter reference

Implemented PROFIdrive objects (DP-V1)

I-974

Index Name:		Data type: U16
0x974 Maximum time per DPV1 parameter access		
Display of access statistics		
Subindex	Display	Info
0x974/0	240 bytes	Maximum block length
0x974/1	40	Maximum number of parameter accesses
0x974/2	0	Maximum time per access
☒ Read access ☐ Write access		

14 DIP switch positions for setting the station address

The station address results from the sum of the binary valencies of switches 1 ... 64.

The following table shows the switch positions for the valid address range 0 ... 126.

► [Setting the station address](#) (30)

Station address	DIP switch						
	64	32	16	8	4	2	1
0	OFF	OFF	OFF	OFF	OFF	OFF	OFF
1	OFF	OFF	OFF	OFF	OFF	OFF	ON
2	OFF	OFF	OFF	OFF	OFF	ON	OFF
3	OFF	OFF	OFF	OFF	OFF	ON	ON
4	OFF	OFF	OFF	OFF	ON	OFF	OFF
5	OFF	OFF	OFF	OFF	ON	OFF	ON
6	OFF	OFF	OFF	OFF	ON	ON	OFF
7	OFF	OFF	OFF	OFF	ON	ON	ON
8	OFF	OFF	OFF	ON	OFF	OFF	OFF
9	OFF	OFF	OFF	ON	OFF	OFF	ON
10	OFF	OFF	OFF	ON	OFF	ON	OFF
11	OFF	OFF	OFF	ON	OFF	ON	ON
12	OFF	OFF	OFF	ON	ON	OFF	OFF
13	OFF	OFF	OFF	ON	ON	OFF	ON
14	OFF	OFF	OFF	ON	ON	ON	OFF
15	OFF	OFF	OFF	ON	ON	ON	ON
16	OFF	OFF	ON	OFF	OFF	OFF	OFF
17	OFF	OFF	ON	OFF	OFF	OFF	ON
18	OFF	OFF	ON	OFF	OFF	ON	OFF
19	OFF	OFF	ON	OFF	OFF	ON	ON
20	OFF	OFF	ON	OFF	ON	OFF	OFF
21	OFF	OFF	ON	OFF	ON	OFF	ON
22	OFF	OFF	ON	OFF	ON	ON	OFF
23	OFF	OFF	ON	OFF	ON	ON	ON
24	OFF	OFF	ON	ON	OFF	OFF	OFF
25	OFF	OFF	ON	ON	OFF	OFF	ON
26	OFF	OFF	ON	ON	OFF	ON	OFF
27	OFF	OFF	ON	ON	OFF	ON	ON
28	OFF	OFF	ON	ON	ON	OFF	OFF
29	OFF	OFF	ON	ON	ON	OFF	ON
30	OFF	OFF	ON	ON	ON	ON	OFF
31	OFF	OFF	ON	ON	ON	ON	ON
32	OFF	ON	OFF	OFF	OFF	OFF	OFF
33	OFF	ON	OFF	OFF	OFF	OFF	ON
34	OFF	ON	OFF	OFF	OFF	ON	OFF
35	OFF	ON	OFF	OFF	OFF	ON	ON
36	OFF	ON	OFF	OFF	ON	OFF	OFF
37	OFF	ON	OFF	OFF	ON	OFF	ON

DIP switch positions for setting the station address

Station address	DIP switch						
	64	32	16	8	4	2	1
38	OFF	ON	OFF	OFF	ON	ON	OFF
39	OFF	ON	OFF	OFF	ON	ON	ON
40	OFF	ON	OFF	ON	OFF	OFF	OFF
41	OFF	ON	OFF	ON	OFF	OFF	ON
42	OFF	ON	OFF	ON	OFF	ON	OFF
43	OFF	ON	OFF	ON	OFF	ON	ON
44	OFF	ON	OFF	ON	ON	OFF	OFF
45	OFF	ON	OFF	ON	ON	OFF	ON
46	OFF	ON	OFF	ON	ON	ON	OFF
47	OFF	ON	OFF	ON	ON	ON	ON
48	OFF	ON	ON	OFF	OFF	OFF	OFF
49	OFF	ON	ON	OFF	OFF	OFF	ON
50	OFF	ON	ON	OFF	OFF	ON	OFF
51	OFF	ON	ON	OFF	OFF	ON	ON
52	OFF	ON	ON	OFF	ON	OFF	OFF
53	OFF	ON	ON	OFF	ON	OFF	ON
54	OFF	ON	ON	OFF	ON	ON	OFF
55	OFF	ON	ON	OFF	ON	ON	ON
56	OFF	ON	ON	ON	OFF	OFF	OFF
57	OFF	ON	ON	ON	OFF	OFF	ON
58	OFF	ON	ON	ON	OFF	ON	OFF
59	OFF	ON	ON	ON	OFF	ON	ON
60	OFF	ON	ON	ON	ON	OFF	OFF
61	OFF	ON	ON	ON	ON	OFF	ON
62	OFF	ON	ON	ON	ON	ON	OFF
63	OFF	ON	ON	ON	ON	ON	ON
64	ON	OFF	OFF	OFF	OFF	OFF	OFF
65	ON	OFF	OFF	OFF	OFF	OFF	ON
66	ON	OFF	OFF	OFF	OFF	ON	OFF
67	ON	OFF	OFF	OFF	OFF	ON	ON
68	ON	OFF	OFF	OFF	ON	OFF	OFF
69	ON	OFF	OFF	OFF	ON	OFF	ON
70	ON	OFF	OFF	OFF	ON	ON	OFF
71	ON	OFF	OFF	OFF	ON	ON	ON
72	ON	OFF	OFF	ON	OFF	OFF	OFF
73	ON	OFF	OFF	ON	OFF	OFF	ON
74	ON	OFF	OFF	ON	OFF	ON	OFF
75	ON	OFF	OFF	ON	OFF	ON	ON
76	ON	OFF	OFF	ON	ON	OFF	OFF
77	ON	OFF	OFF	ON	ON	OFF	ON
78	ON	OFF	OFF	ON	ON	ON	OFF
79	ON	OFF	OFF	ON	ON	ON	ON
80	ON	OFF	ON	OFF	OFF	OFF	OFF

DIP switch positions for setting the station address

Station address	DIP switch						
	64	32	16	8	4	2	1
81	ON	OFF	ON	OFF	OFF	OFF	ON
82	ON	OFF	ON	OFF	OFF	ON	OFF
83	ON	OFF	ON	OFF	OFF	ON	ON
84	ON	OFF	ON	OFF	ON	OFF	OFF
85	ON	OFF	ON	OFF	ON	OFF	ON
86	ON	OFF	ON	OFF	ON	ON	OFF
87	ON	OFF	ON	OFF	ON	ON	ON
88	ON	OFF	ON	ON	OFF	OFF	OFF
89	ON	OFF	ON	ON	OFF	OFF	ON
90	ON	OFF	ON	ON	OFF	ON	OFF
91	ON	OFF	ON	ON	OFF	ON	ON
92	ON	OFF	ON	ON	ON	OFF	OFF
93	ON	OFF	ON	ON	ON	OFF	ON
94	ON	OFF	ON	ON	ON	ON	OFF
95	ON	OFF	ON	ON	ON	ON	ON
96	ON	ON	OFF	OFF	OFF	OFF	OFF
97	ON	ON	OFF	OFF	OFF	OFF	ON
98	ON	ON	OFF	OFF	OFF	ON	OFF
99	ON	ON	OFF	OFF	OFF	ON	ON
100	ON	ON	OFF	OFF	ON	OFF	OFF
101	ON	ON	OFF	OFF	ON	OFF	ON
102	ON	ON	OFF	OFF	ON	ON	OFF
103	ON	ON	OFF	OFF	ON	ON	ON
104	ON	ON	OFF	ON	OFF	OFF	OFF
105	ON	ON	OFF	ON	OFF	OFF	ON
106	ON	ON	OFF	ON	OFF	ON	OFF
107	ON	ON	OFF	ON	OFF	ON	ON
108	ON	ON	OFF	ON	ON	OFF	OFF
109	ON	ON	OFF	ON	ON	OFF	ON
110	ON	ON	OFF	ON	ON	ON	OFF
111	ON	ON	OFF	ON	ON	ON	ON
112	ON	ON	ON	OFF	OFF	OFF	OFF
113	ON	ON	ON	OFF	OFF	OFF	ON
114	ON	ON	ON	OFF	OFF	ON	OFF
115	ON	ON	ON	OFF	OFF	ON	ON
116	ON	ON	ON	OFF	ON	OFF	OFF
117	ON	ON	ON	OFF	ON	OFF	ON
118	ON	ON	ON	OFF	ON	ON	OFF
119	ON	ON	ON	OFF	ON	ON	ON
120	ON	ON	ON	ON	OFF	OFF	OFF
121	ON	ON	ON	ON	OFF	OFF	ON
122	ON	ON	ON	ON	OFF	ON	OFF
123	ON	ON	ON	ON	OFF	ON	ON

DIP switch positions for setting the station address

Station address	DIP switch						
	64	32	16	8	4	2	1
124	ON	ON	ON	ON	ON	OFF	OFF
125	ON	ON	ON	ON	ON	OFF	ON
126	ON	ON	ON	ON	ON	ON	OFF

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