Pos.	Description	See
	E82ZAFLC010 function module	
A	DIP switch for activating the bus terminating resistor	📖 43
B	Status display (yellow), LECOM-B communication	📖 46
C	Status display (green) drive communication	
D	Plug connector X3.1, connection for LECOM-B	📖 41
E	Plug connector X3.2, connection for external supply of the function module	
F	Plug connector X3.3, connection for • controller inhibit (CINH) • internal supply of the controller inhibit (CINH)	
G	Nameplate	📖 29

Tip!

Current documentation and software updates concerning Lenze products can be found on the Internet in the "Services & Downloads" area under

http://www.Lenze.com

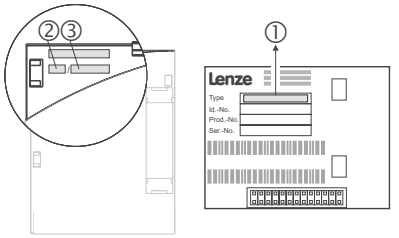
Validity

These instructions are valid for

► E82ZAFLC010 function module from version 3A10.

These instructions are only valid together with the Operating Instructions for the standard devices permitted for the application.

Identification



E82ZAFX005

	①			②	③	
	E82ZAF	**L**	**C**	**010**	**3A**	**10**
Device series						
LECOM-B						
Version						
Variant 010: PT design						
Hardware version						
Software version						

Order designation

E82ZAFLC010

Function

The function module connects the Lenze controller to a higher-level master computer (PLC, PC) via the Lenze fieldbus LECOM-B (RS485).

Application range

The E82ZAFLC010 function module can be used in conjunction with the following standard devices:

Standard device		**as of version**
Frequency inverter	8200 vector	Vx14

i Contents

Definition of notes used

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

Safety instructions

Structure of safety instructions:

Danger!

(characterises the type and severity of danger)

Note

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

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

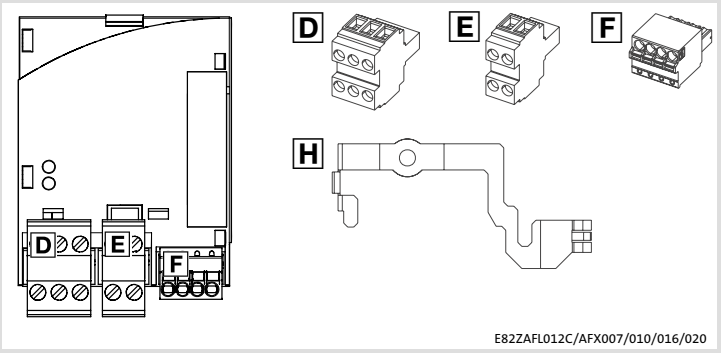
Application notes

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

Residual hazards

Danger!

Observe the safety instructions and residual hazards included in the instructions for the standard device.



E82ZAFL012C/AFX007/010/016/020

Pos.	Scope of supply	See
	E82ZAFLC010 function module	
	Mounting Instructions	
D	Plug connector with double screw connection, 3-pole	41
E	Plug connector with double screw connection, 2-pole	
F	Plug connector with screw connection, 4-pole	
H	Mounting clip	For use, see 8200 vector Operating Instructions/Mounting Instructions

3 Mechanical installation

Follow the notes given in the Mounting Instructions for the standard device for the mechanical installation of the function module.

The Mounting Instructions for the standard device ...

- ► are part of the scope of supply and are enclosed with each device.
- ► provide tips for avoiding damage through improper handling.
- ► describe the obligatory order of installation steps.

Wiring according to EMC

Note!

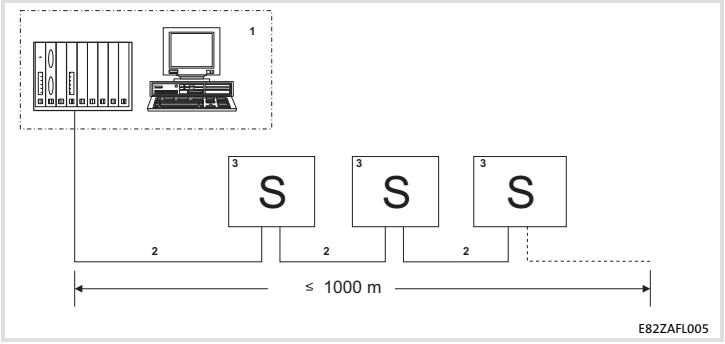
- Always lay control cables separate from motor cables.
- Connect the shields on the control or data cables as follows:
  – *At both ends* on cables with *digital signals*.
- Use an equalising conductor with a cross-section of at least 16 mm² (reference: PE) to avoid potential differences between decentralised systems (8200 motec / starttec).
- Please follow the other notes concerning wiring according to EMC given in the instructions for the standard device.

Wiring procedure

1. Observe bus topology, so do not use any stubs.
2. Follow the wiring notes given in the documentation for the control system.
3. Only use cables which comply with the specifications listed (📖 36).
4. Follow the notes on the voltage supply for the function module (📖 39).
5. Activate the bus terminating resistors on the first and last physical bus device (📖 43).

Wiring

Basic structure of a LECOM-B network

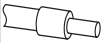


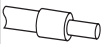
No.	Element	Comment
1	Master computer	E.g. PC or PLC with RS485 master interface module
2	Bus cable	Max. length: 1000 m
3	LECOM-B slave	Standard device applicable with E82ZAFLC0xx function module

Specification of the transmission cable

Specification of transmission cable for RS485	
• Total cable length up to 300 m:	
Cable type	LIYCY 1 x 2 x 0.5 mm^2 shielded
Cable resistance	≤ 40 Ω/km
Capacitance per unit length	≤ 130 nF/km
• Total cable length up to 1200 m:	
Cable type	CYPIMF 1 x 2 x 0.5 mm^2 shielded
Cable resistance	≤ 40 Ω/km
Capacitance per unit length	≤ 130 nF/km

Terminal data

Plug connector with double screw connection		
Possible connections		rigid: 1.5 mm² (AWG 16)
		flexible:
		without wire end ferrule 1.5 mm² (AWG 16)
		with wire end ferrule, without plastic sleeve 1.5 mm² (AWG 16)
		with wire end ferrule, with plastic sleeve 1.5 mm² (AWG 16)
Tightening torque	0.5 ... 0.6 Nm (4.4 ... 5.3 lb-in)	
Bare end	10 mm	

Plug connector with spring connection		
Possible connections		rigid: 1.5 mm² (AWG 16)
		flexible:
		without wire end ferrule 1.5 mm² (AWG 16)
		with wire end ferrule, without plastic sleeve 1.5 mm² (AWG 16)
		with wire end ferrule, with plastic sleeve 0.5 mm² (AWG 20)
Bare end	9 mm	

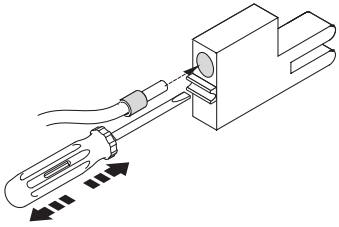
Use of plug connectors

Stop!

Observe the following to prevent any damage to plug connectors and contacts:

- ► Only plug in/unplug if the controller is disconnected from the mains!
- ► First wire the plug connectors, then connect them!
- ► Also connect unassigned plug connectors.

Use of plug connector with spring connection



E82ZAFX013

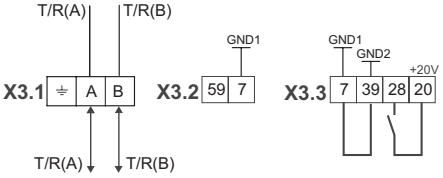
DC-voltage supply

Note!

With external voltage supply, please always use a separate power supply unit in every control cabinet.

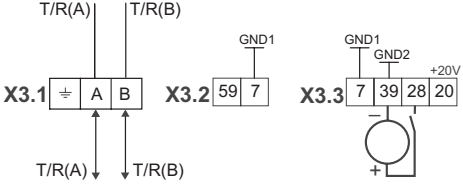
DC voltage supply	
Internal	The internal voltage is available at terminal X3.3/20. It is used to supply the controller inhibit (CINH), see 📖 41.
External	External voltage supply is necessary ● for stations which are disconnected from the mains but their communication with the master is to be maintained. ● for stations with activated bus terminating resistor which are to be disconnected from the mains although the bus system is to remain active.

Supply of controller inhibit (CINH) via internal voltage source (X3.3/20)



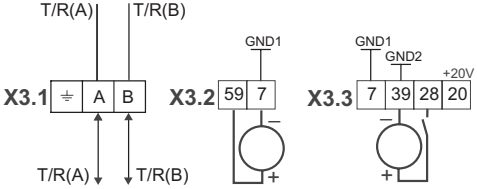
E82ZAFP011

Supply of controller inhibit (CINH) via external voltage source



E82ZAFP012

Supply of function module and controller inhibit (CINH) via external voltage source



E82ZAFP013

Minimum wiring required for operation

Terminal		Designation	Function	Level
X3.1/	⏚		Additional HF-shield termination	
	A	T/R(A)	RS485 data line A	
	B	T/R(B)	RS485 data cable B	
X3.2/	7	GND1	Reference potential for the internal supply on X3.3/20	
	59		External DC supply for the function module	U = 24 V DC (21.6 V - 0% ... 26.4 V + 0 %, reference: GND1)
X3.3/	7	GND1	Reference potential for the internal supply on X3.3/20	
	39	GND2	Reference potential for controller inhibit (CINH) on X3.3/28	
	28	CINH	Controller inhibit	• Start = HIGH (+12 ... +30 V) • Stop = LOW (0 ... +3 V)
	20		DC voltage source for internal supply of the controller inhibit (CINH)	+20 V (reference: GND1)

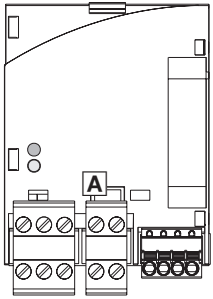
Before switching on

Stop!

Before switching on the standard device with the function module in the LECOM-B network for the first time

- ► check the complete wiring for completeness, short circuit, and earth fault.
- ► check whether the bus system is terminated physically at the first and last station by the integrated active bus terminating resistor.(📖 43)

Activating the bus terminating resistor



E82ZAFP0xx

DIP switch position (A)	Function
ON	Integrated active bus terminating resistor is switched on.
OFF	Integrated active bus terminating resistor is switched off.

Initial switch-on

Note!

- The standard device is only ready for operation if a HIGH level is applied to terminal 28 (controller enable via terminal).
  - Please note that the controller can be inhibited by various sources. The sources act like a series connection of switches.
  - If the drive does not start even though the controller has been enabled via terminal 28, check whether the controller has been inhibited by another source. Another source could be the STOP key on the keypad.
- Please note the different status information for code C0068 compared to software version "0.1" (see the following table).

Bit	Function	Description
8	RFR (controller enable)	0: no controller enable 1: controller enable
11	IMP (pulse inhibit)	0: pulses for power sections inhibited 1: pulses for power sections enabled
15	TRIP (fault)	0: no fault 1: fault exists

Step	Procedure	Description
1.	Configure the host system for communication with the function module.	
2.	Check bus termination	Only for the first and last station: Activate bus terminating resistor with DIP switch = ON (📖 43) **Lenze setting: OFF**
3.	Connect mains voltage and, if required, the separate voltage supply for the function module	The standard device is ready for operation after approx. 1 second. Controller inhibit is active. **Reaction:** ● The green LED on the front of the function module illuminates (only visible in case of 8200 vector, 📖 46). ● Keypad: RDY IMP (if fitted)
4.	Assign station address.	Assign a station address to the station using C1509. Every station needs its own address. **Lenze setting: 1**
5.	Set LECOM baud rate	Set LECOM baud rate via keypad or host system. **Lenze setting: 9600 Bit/s**
6.	Communication with the controller is now possible, i.e. all codes can be read and all writable codes can be changed. If required adapt the codes to your application (see Operating Instructions for the standard device). The yellow LED on the function module flashes if the LECOM-B is active (📖 46).	
7.	Select function module as setpoint source	Setpoint source: C0046 Configuration: C0412/1 = 0
8.	Enable controller via terminal.	Terminal 28 = HIGH
9.	Select setpoint	Setpoint selection through C0046
10.	The drive now starts.	

Note!

If you set the station address (C1509) and the LECOM baud rate (C1516) in step 4. and 5. of commissioning via the host system, the settings for the host system must be changed immediately. Otherwise the host system will not recognise the responses since these are already sent with the new settings by the controller.

Status display

Pos.	Colour	Status	Notes
B	yellow	off	• No communication with the host system. • Function module is not supplied with voltage.
		blinking	Communication via the function module to the host system has been established.
C	green	off	• Function module is not supplied with voltage. • Standard device and/or external voltage supply is switched off.
		blinking	Function module is supplied with voltage but has no connection to the standard device. Reason: • Standard device is switched off; • Standard device is being initialised; • Standard device is not available.
		on	Function module is supplied with voltage and is connected to the standard device.
B + C	yellow/ green	blinking	Internal error of the function module

General data and operating conditions

General data

Range	Values
Communication protocol	LECOM-A/B V2.0
Communication medium	RS485 (LECOM-B)
Character format:	7E1: 7 bit ASCII, 1 stop bit, 1 start bit, 1 parity bit (even)
Baud rate [kbit/s]	1200, 2400, 4800, 9600, 19200, 38400, 57600
LECOM-B station	Slave
Network topology	• without repeaters: line • with repeaters: line or tree
Max. number of stations	Standard: 31 (= 1 bus segment) / with repeaters: 90
Max. cable length per bus segment	1000 m (depending on baud rate and cable type used)
Communication time	• Sum of cycle time and processing time in the fieldbus stations. The times are independent of each other. • Processing time in the controller: – Parameter data: approx. 30 ms + 20 ms tolerance – Process data: approx. 3 ms + 2 ms tolerance
External DC voltage supply	+24 V DC ±10 %, max. 80 mA

Plug connector X3.3/	
28	External supply of terminal with U(ext.) = +12 V DC - 0% ... +30 V DC + 0%
20	DC voltage source for internal supply of the controller inhibit (CINH) U = + 20 V (reference: GND1) Load capacity: I_{max} = 10 mA

Protection of persons and equipment		
Type of protection	EN 60529	IP20

Operating conditions

Ambient conditions

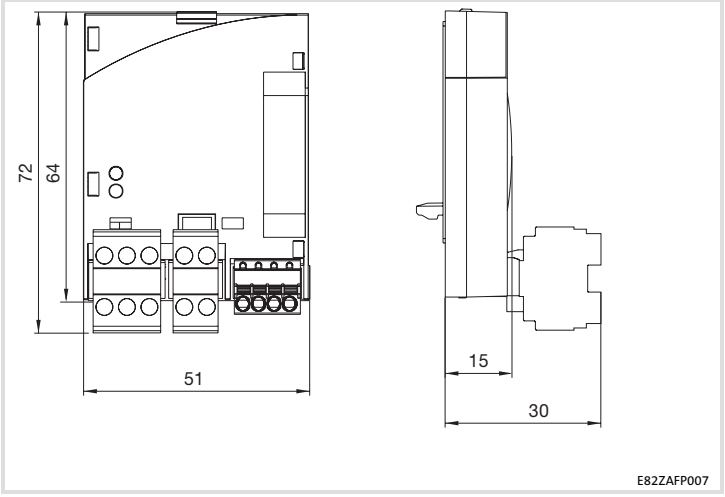
Climatic conditions

Storage	IEC/EN 60721-3-1	1K3 (-25 ... +60 °C)
Transport	IEC/EN 60721-3-2	2K3 (-25 ... +70 °C)
Operation	IEC/EN 60721-3-3	3K3 (-20 ... +60 °C)
Pollution	EN 61800-5-1	Degree of pollution 2

Protective insulation

Insulation between bus and ...	Type of insulation (according to EN 61800-5-1)
● Power stage	
– 8200 vector	Reinforced insulation
● Reference earth / PE (X3.3/7)	Functional insulation
● External supply (X3.2/59)	Functional insulation
● Control terminals	
– X3.3/20 (internal supply)	Functional insulation
– X3.3/28 (controller inhibit (CINH))	Functional insulation

Dimensions



All dimensions in mm