LINETRAXX® SmartDetect LCM410

Four-channel load current monitor sensitive to alternating and pulsed currents



BENDER

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Device features

Special features

- 4 measuring channels for AC or pulse current sensitive measurement
- Adjustable frequency behaviour
- Space-saving thanks to small size and compact design(1 DU)
- Simple configuration with Bender Connect app via NFC interface

Intended Use

The device combination, consisting of LCM410 and the designated measuring current transformers, is intended for AC and pulse current-sensitive load current measurement in TN, TT and IT networks. An LCM410 alarms if the adjustable response values are exceeded.

The requirements of the system and operating conditions on site and the application must be taken into account by selection of a suitable device combination and individual parameter setting. Next, the notes, instructions and specifications in this manual must be observed and implemented.

The devices are intended for operation in switch cabinets or in similarly protected environments.

Usage for any other purpose or beyond is considered improper use.

Approvals

Standards & certifications

The LCM410 device has been developed in accordance with the following standards:

- DIN EN IEC 61010-1
- UL508

Licences

For a list of the open-source software used see our Homepage.

Declaration regarding the radio system

EU declaration of conformity

Bender GmbH & Co. KG hereby declares that the device covered by the Radio Equipment Directive complies with Directive 2014/53/EU. The full text of the EU Declaration of Conformity is available at the following internet address:

EU declaration of conformity LCM410

Hereby, Bender GmbH & Co. KG declares that this radio equipment complies with Radio Equipment Regulations 2017 (S.I. 2017/1206). The full text of the UK declaration of conformity is available at the following internet address:

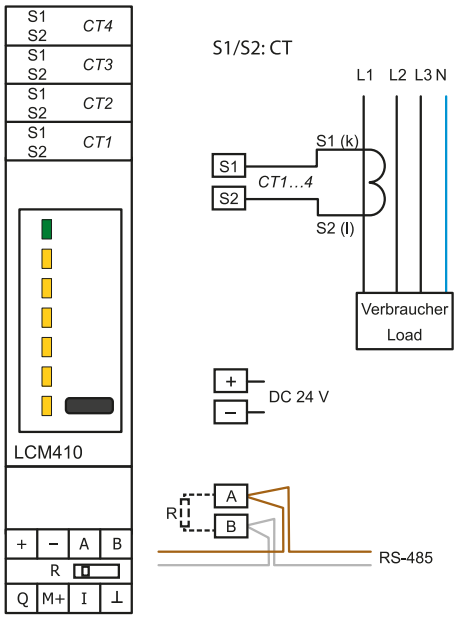
UKCA-Declaration of Conformity LCM410

Ordering information

Type	Supply voltage U_S	Measuring current transformers that can be used		Art. No.
		Type A	Type F	
LCM410-24	DC 24 V	X	X	B85604049

Accessories	Art. No.
Sealable transparent cover	B80609199

Wiring diagram



Legend for wiring diagram

S1/S2: CT	Measuring-current-transformer connection
+, -	Supply voltage connection
A, B	RS-485

ADVICE

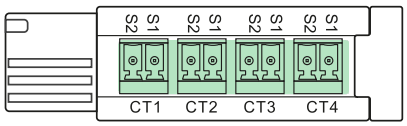
Ensure that only the phase to be monitored passes through the load current transformer at all times in order to accurately measure the actual load current. Running more conductors through the transformer at the same time will distort the measurement result.

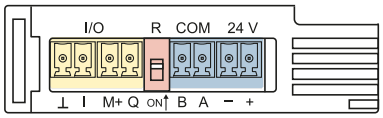
Ensure that the 24-V-DC supply is connected correctly. Otherwise the LCM410 can be destroyed!

***For UL applications:** Use 60/75 °C copper conductors only!*

Cable lengths to the measuring current transformer: See technical data.

Connections overview

Top	Terminal	Description
	S1, S2 (CT1)	Measuring-current transformer CT1
	S1, S2 (CT2)	Measuring-current transformer CT2
	S1, S2 (CT3)	Measuring-current transformer CT3
	S1, S2 (CT4)	Measuring-current transformer CT4

Bottom	Terminal	Description
	+, -	Supply voltage DC
	A, B	RS-485 interface
	ON (R)	Termination of RS-485 interface
	Q	Digital input/output
	M+	Multifunctional output
	I	Digital input
	⊥	GND

The cables are connected to the device via plug-in terminals. The maximum permissible conductor cross section is 1.5 mm².

NFC (Near Field Communication)

The NFC interface can be used to transmit a previously configured device parameter setting directly to the device.

This function is available only via the Bender Connect App, which is available for iOS and Android.

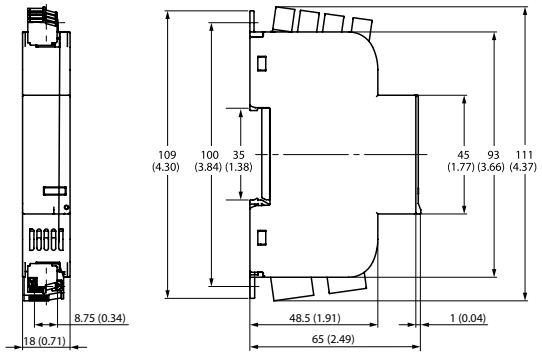
In the Bender Connect App, the device must first be registered. The device-specific setting options are then displayed and can be configured. During data transmission, feedback is provided indicating whether the parameter configuration was successful.

Parameter settings can be transmitted to the device via the Bender Connect App by holding the smartphone close to the device:

- When the device is **unpowered**, parameter settings can be transmitted and are automatically activated once the device is connected to the power supply.
- When the device is **powered**, parameter configuration requires that the NFC interface is activated on the device beforehand.

Dimension diagrams

Dimensions in mm (Inch)



Technical data

()* = Factory setting

Supply voltage (+, -)

Connection	+, –
Supply voltage U_s	DC 24 V
Protection class of power supply unit	2 or 3
Permissible tolerance	–30…+25 %
Permissible ripple	5 %
Power consumption	≤ 2 W
Inrush current (< 5 ms)	< 10 A

Measuring circuit

Burden (internal)	33 Ω
Frequency range	42 Hz…20 kHz
Measuring range (peak)	3 mA…100 A
Measuring range rms	2 mA…70 A
Operating load current	50 A
Response value main alarm I_{Ln}	6 mA…50 A (16 A)*
Prewarning	10…100 % x I_{Ln} (70 %)*
Operating uncertainty	±10 % (at 0.5…5 x I_{Ln})
Relative response uncertainty	6 mA…50 A: -20…0 %
Hysteresis	10…25 % (15 %)*
Fault-memory alarm messages	On/off (on)*
Permissible continuous load current	
single-channel use	85 A
dual-channel use	60 A
use of three channels	49 A
use of four channels	42 A

Measuring-current transformers

Connection	CT1…4 (S1, S2)
Measuring-current transformer series	
Type A	CTAC, CTAS, W, WR, WS
Type F	CTAC
CT connection monitoring	Yes
Rated voltage U_n	See manual of the measuring current transformer
Connecting wires	See manual of the measuring current transformer
Cable length	
CT Type A (single wire ≥ 0.75 mm²)	≤ 10 m
CT Type A (shielded cabel ≥ 0.75 mm²)	≤ 40 m
For UL applications	60/75 °C copper conductors

Time response

Start-up delay t	0…900 s (0 s)*
Response delay t_{on}	0…10 s (0 s)*
Delay on release t_{off}	0…900 s (1 s)*
Operating time t_{ae}	
with 1 x I_{Ln}	≤ 260 ms
with 5 x I_{Ln}	40…120 ms
Response time t_{an}	$t_{an} = t_{ae} + t_{on}$
Recovery time t_b	≤ 500 ms
Response time for CT connection monitoring	≤ 10 s

Operation

Display	Status LED, alarm LEDs, channel LEDs
Button T/R	Reset / test / NFC / address setting / protect
Terminating resistor DIP switches	On/off (off)*

RS-485 interface

Connection	A, B
Protocol	BSC | Modbus RTU
Baud rate	Max. 115.2 kbits/s (19.2 kbits/s)*
Parity	Even, no, odd (even)*
Stop bits	1/2/auto (auto)*
Cable length (at 9.6 kbits/s)	≤ 1200 m
Recommended lines, shield on one side connected to PE	
CAT6/CAT7	Min. AWG23
min. J-Y(St)Y 2 x 0.6 mm²	Twisted pair
Device address	1…247 (100 + last two digits of serial number)*

NFC interface

Frequency	13.56 MHz
Transmitting power (modulating; in 0 m distance, e.g.) [1]	0 W

1 • Electromagnetic interference may cause NFC failure.
• The device does not transmit any radio waves when used as intended.

Input I

Connection	I,⊥
Max. cable length (recommended)	10 m
External connections	Potential-free contact

Input/output Q

Connection	Q,⊥
Max. cable length (recommended)	10 m
Max. load	20 mA
Low voltage level (output)	0…2 V
High voltage level (output)	10 V…U_S
External voltage (passive mode)	DC 0…(U_S - 1 V)

Output M+

Connection	M+,⊥
Max. cable length (recommended)	10 m
Max. load	20 mA
Burden	
Current output	≤ 600 Ω
Voltage output	≥ 20 kΩ
Tolerance with respect to final current/voltage value	±20 %
External voltage (passive mode)	DC 0…U_S

Connections

Terminals	Plug-in screw-type terminals
Terminal series	Phoenix Contact MC 1,5/ -ST-3,5 BK
Connection properties	
Rigid	0.14…1.5 mm²
Flexible, without plastic sleeve	0.25…1.5 mm²
Flexible, with plastic sleeve	0.25…0.5 mm²
Stripping length	7 mm
Tightening torque	0.22…0.25 Nm
Conductor cross section AWG	28…16

EMC/Environment

EMC	IEC 61326-1
Operating temperature	
Transport	-40…+85 °C
Long-time storage	-40…+70 °C

Classification of climatic conditions acc. to IEC 60721

Stationary use (IEC 60721-3-3)	3K22
Transport (IEC 60721-3-2)	2K11
Long-term storage (IEC 60721-3-1)	1K22

Classification of mechanical conditions acc. to IEC 60721

Stationary use (IEC 60721-3-3)	3M11
Transport (IEC 60721-3-2)	2M4
Long-term storage (IEC 60721-3-1)	1M12

Other

Operating mode	Continuous operation
Mounting	Vertical
Degree of protection (DIN EN 60529)	
terminals	IP20
internal components	IP30
Enclosure material	Polycarbonate
DIN rail mounting acc. to	IEC 60715
Flammability class	UL94 V-0
Weight	≤ 55 g

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Subject to change!
The specified standards take into account the edition valid until 06.2026 unless otherwise indicated.