USER MANUAL

Longo programmable controller
LPC-2.CR1 special module

Version 2

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User Manual

Document Version: 002
July 1, 2012

STANDARDS AND PROVISIONS: Standards, recommendations, regulations and provisions of the country in which the devices will operate, must be considered while planning and setting up electrical devices. Work on 230 VAC network is allowed for authorized personnel only.
DANGER WARNINGS: Devices or modules must be protected from moisture, dirt and damage during transport, storing and operation.
WARRANTY CONDITIONS: For all modules LONGO LPC-2 – if no modifications are performed upon and are correctly connected by authorized personnel – in consideration of maximum allowed connecting power, we offer warranty for 24 months from date of sale to end buyer. In case of claims within warranty time, which are based on material malfunctions the producer offers free replacement. The method of return of malfunctioned module, together with description, can be arranged with our authorized representative. Warranty does not include damage due to transport or because of unconsidered corresponding regulations of the country, where the module is installed.

This device must be connected properly by the provided connection scheme in this manual. Misconnections may result in device damage, fire or personal injury.
Hazardous voltage in the device can cause electric shock and may result in personal injury or death.
NEVER SERVICE THIS PRODUCT YOURSELF!
This device must not be installed in the systems critical for life (e.g. medical devices, aircrafts, etc.).
If the device is used in a manner not specified by the manufacturer, the degree of protection provided by the equipment may be impaired.

Waste electrical and electronic equipment (WEEE) must be collected separately!

LONGO LPC-2 complies to the following standards:
- EMC:EN 61000-6-2 (EN 50082), EN 61000-6-4 (EN 50081)
- LVD: IEC 61131-2
- Vibrations and climatic-mechanical: EN 60068-2-6, EN 60068-2-27, EN 60068-2-29

Smarteh d.o.o. operates a policy of continuous development. Therefore we reserve the right to make changes and improvements to any of the products described in this manual without any prior notice.

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Longo programmable controller LPC-2.CR1 special module

1 DESCRIPTION

LPC-2.CR1 RFID reader is intended to be used as an identity verification device room, office or other indoor entrance.

When RFID tag (key-card) is approached to the reader and its code is successfully read out, the green LED blinks and a short beep is generated. In case key-card for correspondent room is valid, the green LED blinks again and a short beep is generated. Other devices can be activated at this event like door lock opening, turning light on...(LPC Manager can be used for function logic). If key-card number is not valid, the red LED blinks and a longer beep is generated.

LPC-2.CR1 module can be modified on customer request: custom front label, push buttons added, LEDs added, housing color. Please contact manufacturer for more information.

2 FEATURES

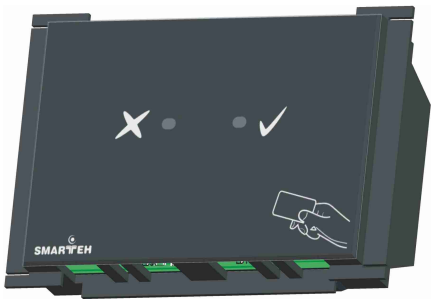


Figure 1: LPC-2.CR1 special module

Table 1: Technical data
RFID reader
OK “ ✓ ” LED
FAULT “ X ” LED
Power LED
Internal fault LED
Internal built-in buzzer

3 OPERATION

Operation of the CR1 module is also dependent on parameters received on RS485 communication channel.

Reader RFID field is active always when module is powered up. If tag is put inside RFID field, reader tries to resolve RFID tag code. If code is read successfully, module activates status *iIDNew*, generates a short beep, OK LED1 blinks and code is transmitted in *iIDW1* - *iIDW3* status fields. In MCU application this code can be read out and authenticated. If code has appropriate rights, MCU should activate *oOK* command. If code is not authorized, MCU application should activate *oFault* command. Regarding command received, following action are triggered on module:

oOK ==> OK LED2 blink, short beep.
oFault ==> FAULT LED1 blink, long beep.

Either command is received or no command is received within 10 sec, module clears *iIDNew* status and waits for next RFID tag. While CR1 module is waiting for authorization response, new RFID tags can not be read.

3.1 Parameters

If parameter is set to logical “1”, is considered to be active, enabled or set. If parameter has logical value “0” is considered to be inactive, disabled, or cleared.

Parameter can be status or command. Parameter as status means that CR1 module is sending information to MCU. On the other hand, command represents request from MCU to module.

iComm: Normal state is “0”. If set, there is communication error or no communication established.

iIDNew: When new RFID tag is recognized, this status is set active for 10sec or till authorization command is received (*oOK* or *oFault*).

oBuzz: While this command is active, buzzer is active.

oOK: Command for authorization of RFID code.

oFault: Command for rejecting authorization of RFID code.

oOkLD: While this command is active, OK LED2 is set.

oFaultLD: While this command is active, fault LED1 is set.

iIDW1: Upper (most significant) third of RFID code

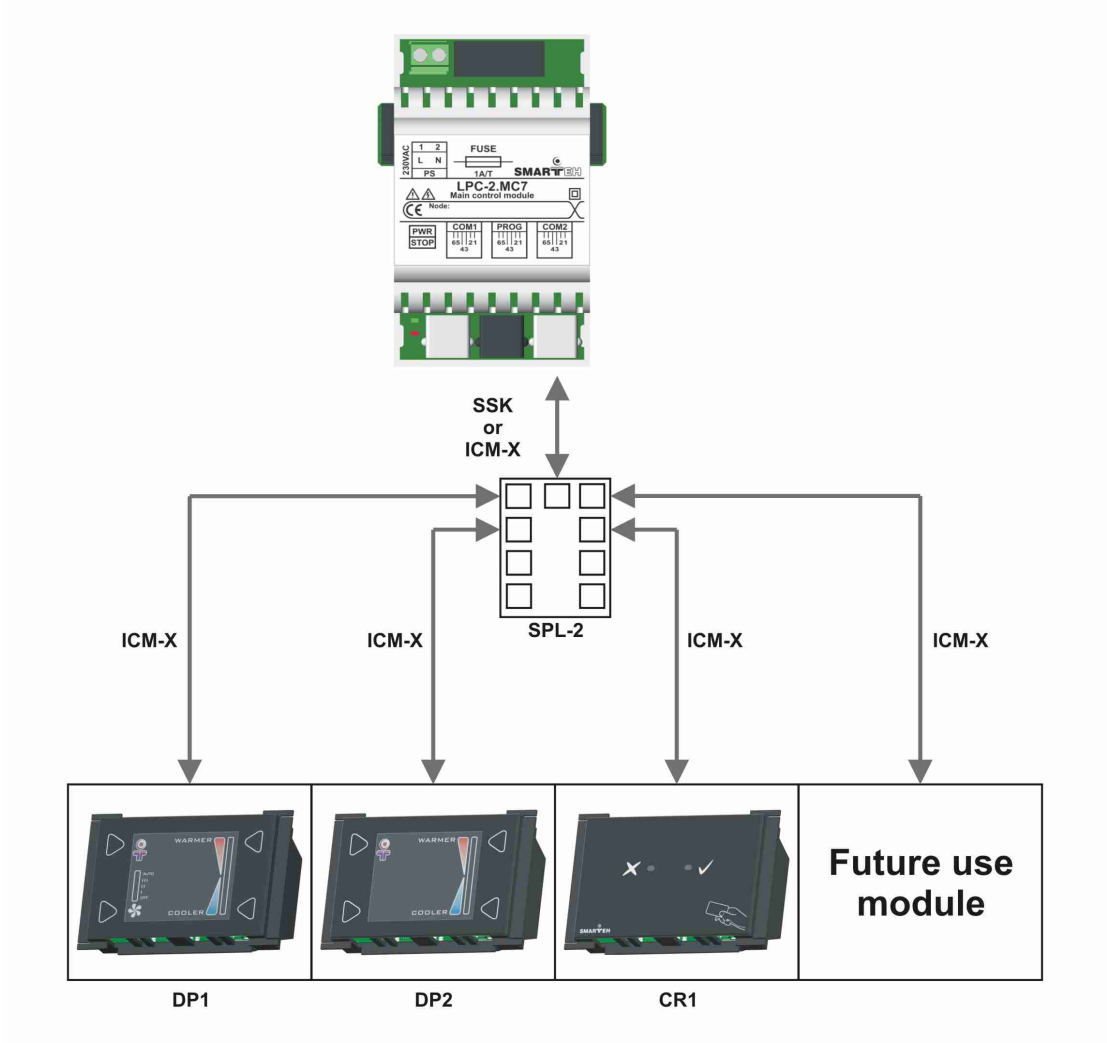
iIDW2: Middle third of RFID code

iIDW3: Lower (least significant) third of RFID code

4 INSTALLATION

4.1 Connection scheme

Figure 2: Connection scheme



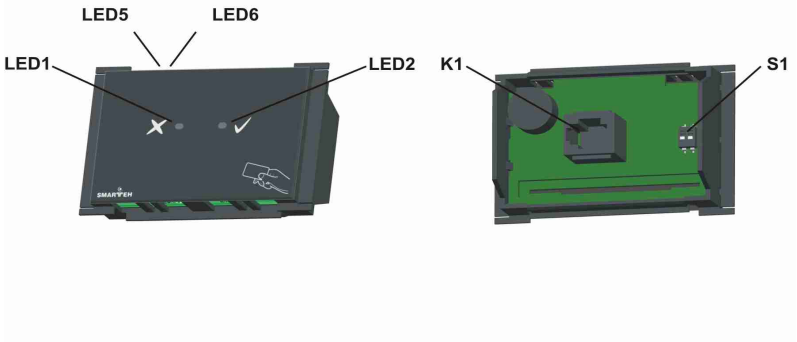


Table 2: K1		
K1.1	GND	Ground
K1.2	10 – 24 VDC	Power supply input
K1.3	RS485 A	Data receive/send line A
K1.4	RS485 B	Data receive/send line B

Table 3: LEDs & Buttons		
LED1: red	FAULT " X "	On: RFID key standard NOK or ID card number wrong Off: No tag in proximity
LED2: green	OK " √ "	On: RFID key standard OK and ID card number valid Off: No tag in proximity
LED5: red	Communication	On: RS485 communication fault Off: RS485 communication OK
LED6: green	Power supply	On: power supply OK Off: power supply missing or power off

Table 4: S1		
RS485 ADDRESS	**Switch 1**	**Switch 2**
0	OFF	OFF
1	OFF	ON
2	ON	OFF
3	ON	ON

4.2 Mounting frame selection

Frame, suitable for CR1 module insertion, should be modular one at least 3 gang wide. Be careful to have corresponding flush-mounting box provided on the place where module will be positioned.

Smarteh has verified following lines to be compatible with LPC-2.CR1 module:

- Bticino – Living, Light
- Gewiss – Playbus, System
- Vimar – Plana, Idea
- Tem – Modul Soft, Modul Line
- Master

Frames of other vendors most probably suits as well, but they were not verified by Smarteh. Before installation verify compatibility of non listed frames.

Module housing has a fin on each side, which can be easily removed with knife cutter or pliers. This adaptation enables housing to be build in various frame formats with two different depths. With regard to frame used you may remove fin for housing to fit in.

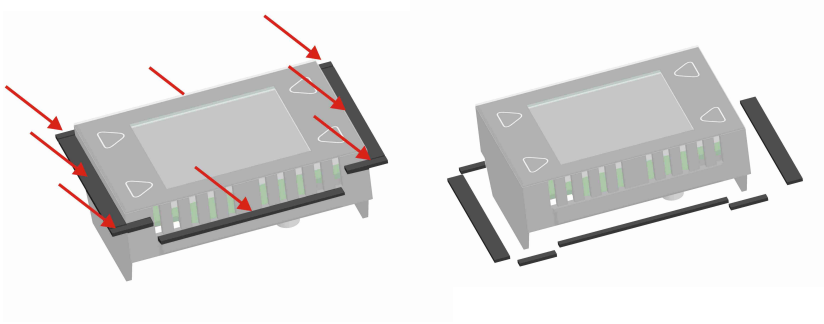
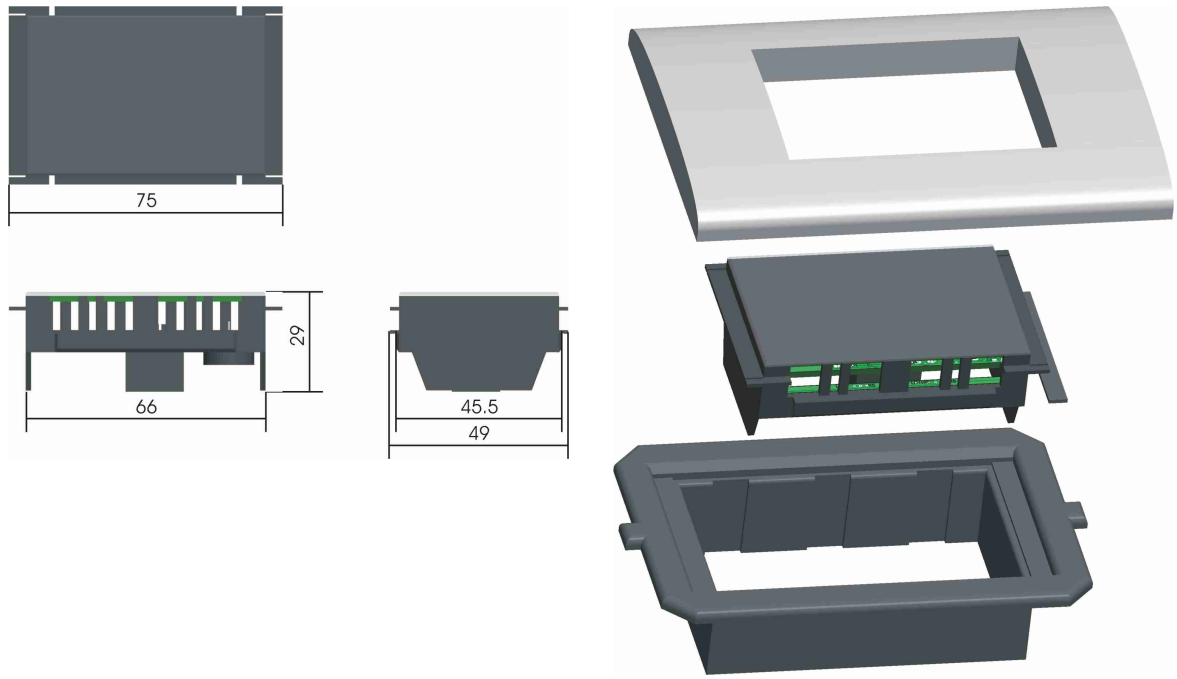


Figure 3: Fin removing

4.3 Mounting instructions

Figure 4: Housing dimensions



- Dimensions in millimeters.

All connections, module attachments and assembling must be done while module is not connected to the main power supply.

Module should not be mounted outdoors.

Several RFID panels should not be mounted close to each other. Minimum distance to next panel is at least 30 cm. This restriction also applies in case of mounting panels on both sides of the same wall. Adequate shielding material and provisions could be used to avoid interference between panels.
Mounting of RFID panels into conductive, metal frames, is not allowed.

1. Set the correct RS485 address (S1 switch) for LPC-2.CR1 (refer to the Table 4).
2. Connect interconnection cable to the connector K1. Max. allowed tractive force is 30 N.
3. Put the LPC-2.CR1 in mounting frames
4. Cover LPC-2.CR1 with cover plate

LPC-2.CR1 connects to the MCU unit on its RS485 port using interconnection cable. When more special modules (e.g. LPC-2.CA1, LPC-2.CH1, LPC-2.DP1) are connected to MCU, splitter is also required (e.g. SPL-2). Interconnection cable can be terminated on site, considering wiring scheme bellow:

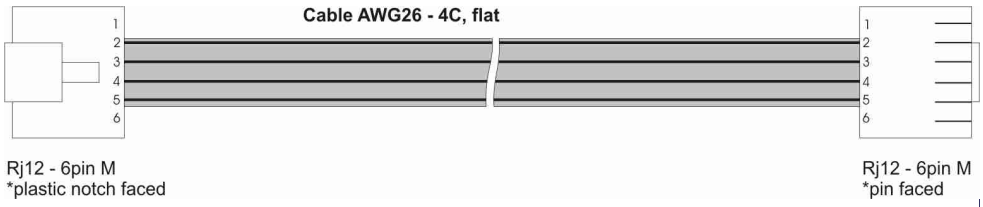


Figure 5: Interconnection cable ICM-x

NOTE: Signal wires must be installed separately from power and high voltage wires in accordance with general industry electrical installation standard.

4.4 Module labeling

Table 5: Labels

Label 1:	Label 2:
LPC-2.CR1 P/N:225CR110V01001 D/C: 01/10	S/N: CR1-S9-1000000003

Label description:

- **LPC-2.CR1** is the full product name
- P/N: 225CR110V01001 is the part number
  - 225 – general code for LPC-2 product family,
  - CR1 – short product name,
  - 10 – year of code opening
  - V - denotes flush frame mounting module
  - 01 – derivation code
  - 001 – version code (reserved for future HW and/or SW firmware upgrades).
- D/C: 01/10 is the date code.
  - 01 – week and
  - 10 – year of production
- S/N: CR1-S9-1000000003 is the serial number.
  - CR1 – short product name,
  - S9 – user code (test procedure, e.g. Smarteh person xxx),
  - 10 – year (last two cyphers)
  - 00000003 – current stack number; previous module would have the stack number 00000002 and the next one 00000004.

5 TECHNICAL SPECIFICATIONS

Table 6: Technical specifications	
Power supply	from MCU
Interconnection connector type	RJ12 6/6
Power consumption	2W
RFID type	EM4100, 125kHz, Manchester 64, read only
Max. reading distance	4 cm
Dimensions (W x H x D)	75 x 49 x 29 mm
Weight	40 g
Ambient temperature	0 to 50 °C
Ambient humidity	max. 95 %, no condensation
Maximum altitude	2000 m
Mounting position	horizontal
Transport and storage temperature	-20 to 60 °C
Protection class	IP 20

6 CHANGES

The following table describes all the changes to the document.

Date	V.	Description
1.7.2012	002	CGP General update.
1.10.2010	001	The initial version, issued as *LPC-2.CR1 module UserManual*.

7 NOTES