USER MANUAL

Longo programmable controller
LPC-2.CA1M
Card Reader module

Version 2

Written by SMARTEH d.o.o.
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User Manual

Document Version: 2
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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 100 .. 240 V AC 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, warranty of 24 months is valid from the date of sale to the end buyer, but not more than 36 months after delivery from Smarteh. 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 61000-6-3:2007 + A1:2011, EN 61000-6-1:2007, EN 61000-3-2:2006 + A1:2009 + A2: 2009, EN 61000-3-3:2013
- LVD: IEC 61010-1:2010 (3rd Ed.), IEC 61010-2-201:2013 (1st Ed.)

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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Index

Longo programmable controller LPC-2.CA1M

1 DESCRIPTION

LPC-2.CA1M RFID reader is intended to be used as an identity verification device at room entrance. Module also provides display for four different messages and requests, usually activated from other module inside the room. This messages are convenient to notify personnel (e.g. occupied, do not disturb, SOS, room service).

When RFID tag (key-card) is approached to the reader, the green LED blinks and a short beep is generated if code is successfully read out. 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 the ID card number is not valid, the red LED blinks and a longer beep is generated.

In case other (magnet or contact-chip) card system is used for door unlock, LPC-2.CA1M module can be used only to show messages.

LPC-2.CA1M module can be modified on customer request: custom front label, touch buttons added, LEDs added, housing color. Please contact manufacturer for more information.

LPC-2.CA1M reads unique ID (UID) from standard ISO/IEC 14443 A/MIFARE.

2 FEATURES

Figure 1: LPC-2.CA1M module.

Table 1: Features
RFID reader
LEDs for showing activated messages & requests: occupied, do not disturb, room service, SOS
OK " ∫ " LED
FAULT " X " LED
Power LED
Internal fault LED
Internal built-in buzzer

3 OPERATION

Operation of the CA1M module is also dependent on parameters received on RS-485 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 main module application this code can be read out and authenticated. If code has appropriate rights, main module should activate *oOK* command. If code is not authorized, main module application should activate *oFault* command. Regarding command received, following action are triggered on module:

oOK   ==>   OK LED4 blink, short beep.
oFault ==>   FAULT LED3 blink, long beep.

Either command is received or not from main module application within 10 seconds, module clears *iIDNew* status and waits for next RFID tag. While CA1 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 CA1 module is sending information to main module. On the other hand, command represents request from main module 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.

oOccup: While this command is active, occupied message LED6 is set.

oDNDist: While this command is active, do not disturb message LED1 is set.

oRServ: While this command is active, room service request LED2 is set.

oSOS: While this command is active, SOS request LED5 is set.

oOkLD: While this command is active, OK LED4 is set.

oFaultLD: While this command is active, fault LED3 is set.

iIDW1: Upper (most significant) third of RFID code (UID0, UID1)

iIDW2: Middle third of RFID code (UID2, UID3)

iIDW3: Middle third of RFID code (UID4, UID5)

iIDW4: Lower (least significant) third of RFID code (UID6, UID7)

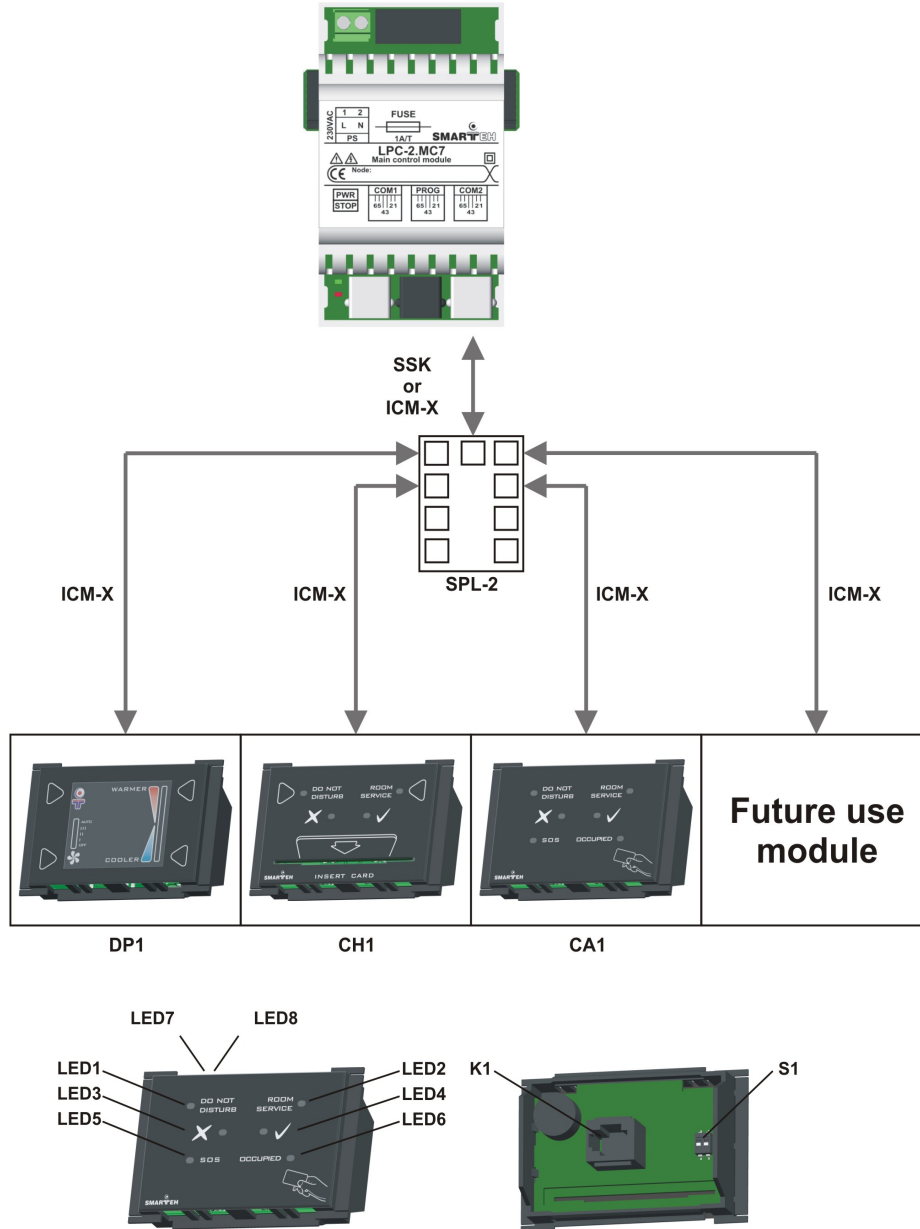# 4 INSTALLATION

4.1 Connection scheme

Figure 2: Connection scheme

Table 2: K1

K1.1	GND	Ground
K1.2	10 .. 24 V DC	Power supply input
K1.3	RS-485 A	Data receive/send line A
K1.4	RS-485 B	Data receive/send line B

Table 3: LEDs & Buttons

LED1: blue	do not disturb	On: request active Off: no request
LED2: blue	room service	On: request active Off: no request
LED3: red	FAULT " X "	On: RFID key standard NOK or ID card number wrong Off: No tag in proximity
LED4: green	OK " ʃ "	On: RFID key standard OK and ID card number valid Off: No tag in proximity
LED5: blue	SOS	On: request active Off: no request
LED6: blue	occupied	On: request active Off: no request
LED7: red	Communication	On: RS-485 communication fault Off: RS-485 communication OK
LED8: 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 CA1M 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.CA1 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. RFID module should not be positioned close to conductive areas (e.g.: metal frames and metal cover plate).
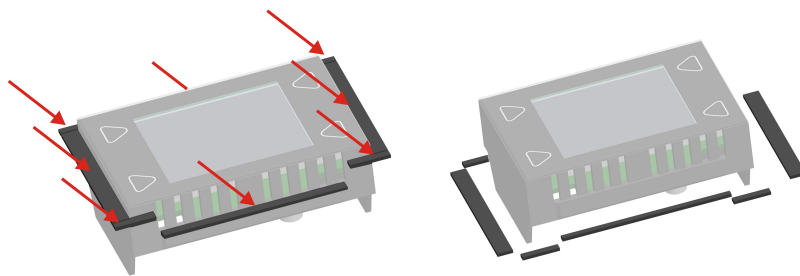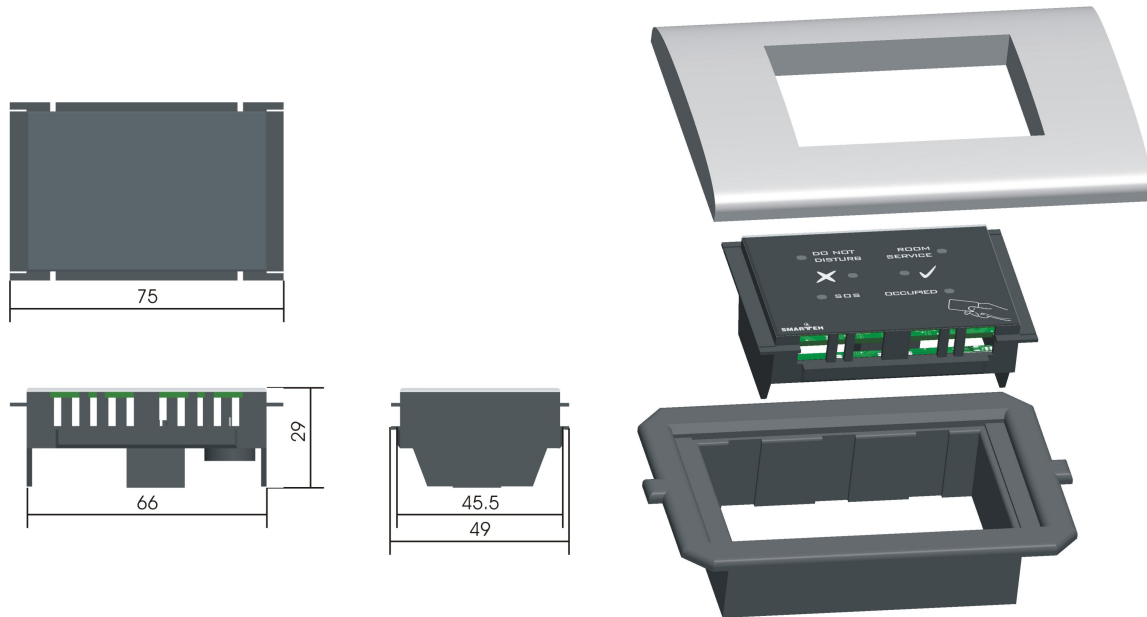
Figure 3: Module with removable fin.

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.

RFID panel should not be positioned close to conductive areas (e.g.: metal frames and metal cover plate).

Mounting instructions:

1. Set the correct RS-485 address (S1 switch) for LPC-2.CA1M (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.CA1M in mounting frames.
4. Cover LPC-2.CA1M with cover plate.

LPC-2.CA1M connects to the main module on its RS-485 port using interconnection cable. When more special modules (e.g. LPC-2.CR1, LPC-2.CH1, LPC-2.DP1) are connected to main module, splitter is also required (e.g. SPL-2).

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 (sample):

> **LPC-2.CA1M**
> P/N:225CA113V02003
> D/C: 01/10

Label 2 (sample):

> S/N: CA1-S9-1000000003

Label description:

- **LPC-2.CA1M** is the full product name.
- P/N: 225CA113V02002 is the part number.
    - 225 – general code for LPC-2 product family,
    - CA1 – 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: CA1-S9-1000000003 is the serial number.
    - CA1 – 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 main module
Interconnection connector type	RJ-12 6/6
Power consumption	1 W
RFID type	ISO/IEC 14443 A/MIFARE
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
30.05.17	2	Technical data update.
01.06.14	1	The initial version, issued as *LPC-2.CA1M module UserManual*.

7 NOTES