



SMARTEH[®]
LIVING SYSTEMS

USER MANUAL

— Longo Modbus Products
LMP-1.CH1M
Card Holder module

Version 1

Written by SMARTEH d.o.o.
Copyright © 2020, SMARTEH d.o.o.

User Manual

Document Version: 1
January, 2020



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.

MANUFACTURER:
 SMARTEH d.o.o.
 Poljubinj 114
 5220 Tolmin
 Slovenia



Index

Longo Modbus Products LMP-1.CH1M

1 DESCRIPTION.....1

2 FEATURES.....2

3 OPERATION.....3

 3.1 Modbus RTU variables.....4

4 INSTALLATION.....6

 4.1 Connection scheme.....6

 4.2 Mounting frame selection.....8

 4.3 Mounting instructions.....9

 4.4 Module labeling.....10

5 TECHNICAL SPECIFICATIONS.....11

6 CHANGES12

7 NOTES.....13



1 DESCRIPTION

LMP-1.CH1M RFID reader is intended to be used as presence registering device and key-card holder. Module also provides push buttons (PB) for activating requested messages. This messages are convenient to notify personnel (e.g. occupied, do not disturb).

Once a person has entered to the room, the key-card should be inserted to the CH1M card slot¹. If card ID for correspondent room is valid, several actions can be started (e.g. room light and air conditioning switched on).

CH1M module features two push buttons with which customer is able to activate notification to the personnel. One PB activates “DO NOT DISTURB” message and the other PB activates “ROOM SERVICE” request.

LMP-1.CH1M module can be modified on customer request: custom front label, push buttons changed, LEDs added, housing color. Please contact manufacturer for more information.

LMP-1.CH1M reads unique ID (UID) from standard ISO/IEC 14443 A/MIFARE.

¹ To achieve most reliable RFID card reading results use Smarteh RFID Mifare cards.
RFID Mifare card must be inserted at least 40 mm deep into LMP-1.CH1M card slot in a time period between 1 .. 3 seconds.



2 FEATURES

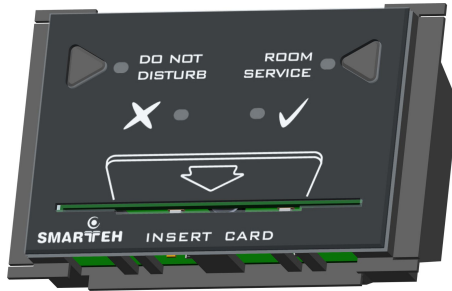


Figure 1: LMP-1.CH1M module.

Table 1: Features

RFID reader
RFID card slot
Adjustable LED intensity
LEDs for showing activated messages & requests: do not disturb, room service
2 push buttons for activating messages & requests: do not disturb, room service
OK “ ✓ ” LED
FAULT “ X ” LED
Power LED
Internal fault LED
Internal built-in buzzer



3 OPERATION

Operation of the CH1M module is also dependent on parameters received on Modbus RTU communication channel.

If RFID card is inserted into the slot, reader tries to resolve RFID tag code. If code is read successfully, module activates status *iIDNew* and sends RFID code in *iIDW1-iIDW4* status fields. Code is send out until key-card is removed from slot.

While *iIDNew* status is active and *iIDCodeOK* or *iIDCodeFault* is activated, corresponding LED is turned on (LED3 Fault or LED4 OK respectively). This state is sustained until key-card is removed.

Each press on a PB1 or PB2 toggles status *iB1* or *iB2* respectively. By activating commands *idOKLedCmd*, *idFaultLedCmd*, *oLedDoNotDisturb* or *oLedRoomService* corresponding LED is turned-on (LED4, LED3, LED1, LED2).

To check if communication is running, master toggles *oCommToggleBit* and then reads if *iCommToggleBit* was toggled.

CH1M module LED's intensity can be adjusted. By default their intensity is set to 75%. While *oRemoteLedRef* status is active, LED's intensity can be adjusted by changing *oLedIntensity* parameter.



3.1 Modbus RTU variables

Do not use poll times smaller than 200 ms and greater than 4 s.

Table 2: 4xxxx, Holding registers			
Reg.	Name	Description	Raw → Engineering data
1	oLedIntensity	LED intensity reference	0 .. 10000 → 0 .. 100%
90	oSaveModbusSettings	Save EEPROM settings; change the value from 0 to 12345 to save settings	0, 12345
98	mbSlaveAddressMem	Modbus Slave Address	1 .. 247 → 1 ..247
99	mbBaudrateMem	Modbus Baudrate	1 → 600 bps
			2 → 1200 bps
			3 → 2400 bps
			4 → 4800 bps
			5 → 9600 bps
			6 → 14400 bps
			7 → 19200 bps
			8 → 38400 bps
			9 → 56000 bps
			10 → 57600 bps
			11 → 115200 bps
other → 19200 bps (default)			
100	mbParityMem	Modbus Parity	0 → none
			1 → even (default)
			2 → odd
			other → none

Table 3: 3xxxx, Input registers			
Reg.	Name	Description	Raw → Engineering data
1	iDW1	RFID ID received word 1	0 .. 65535 → 0 .. 65535
2	iDW2	RFID ID received word 2	0 .. 65535 → 0 .. 65535
3	iDW3	RFID ID received word 3	0 .. 65535 → 0 .. 65535
4	iDW4	RFID ID received word 4	0 .. 65535 → 0 .. 65535
6	iDLength	Lenght of ID code	0 → ID code not received
			4 → 4 bytes
			7 → 7 bytes
98	iFWver	Software version	0 .. 65535 → 0 .. 65535
99	iHWver1	Hardware version 1	0 .. 65535 → 0 .. 65535
100	iHWver2	Hardware version 1	0 .. 65535 → 0 .. 65535



Table 4: 0xxxx, Coils

Reg.	Name	Description	Raw → Engineering data
1	oRemoteLedRef	Remote LED intensity reference enable	0 → Disabled 1 → Enabled
2	oBuzz	Set/Reset Buzzer	0 → Reset 1 → Set
3	oIDCodeFault	ID code Fault confirm	0 → Fault not confirmed 1 → Fault confirmed
4	oIDCodeOK	ID code OK confirm	0 → OK not confirmed 1 → OK confirmed
5	oIDFaultLedCmd	Set/Reset Fault LED	0 → Reset 1 → Set
6	oIDOKLedCmd	Set/Reset OK LED	0 → Reset 1 → Set
8	oLedDoNotDisturb	Set/Reset Do not disturb LED	0 → Reset 1 → Set
9	oLedRoomService	Set/Reset Room service LED	0 → Reset 1 → Set
11	oCommToggleBit	Communication toggle bit loop	0, 1

Table 5: 1xxxx; Discrete inputs

Reg.	Name	Description	Raw → Engineering data
1	iCommToggleBit	Communication toggle bit loop indicator	0, 1
2	iIDNew	New ID detected	0 → New ID not detected 1 → New ID detected
3	iCardPresent	Card present status	0 → Card not present 1 → Card present
4	iB1	Do not disturb button	0 → Button not pressed 1 → Button pressed (1 sec timer on)
5	iB2	Room service button	0 → Button not pressed 1 → Button pressed (1 sec timer on)



4 INSTALLATION

4.1 Connection scheme

Figure 2: Connection scheme

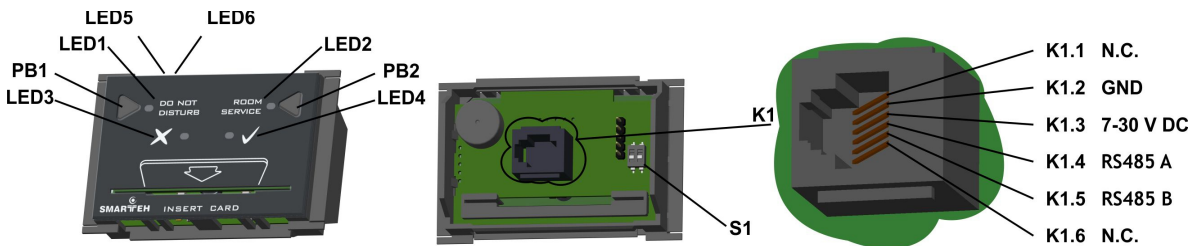
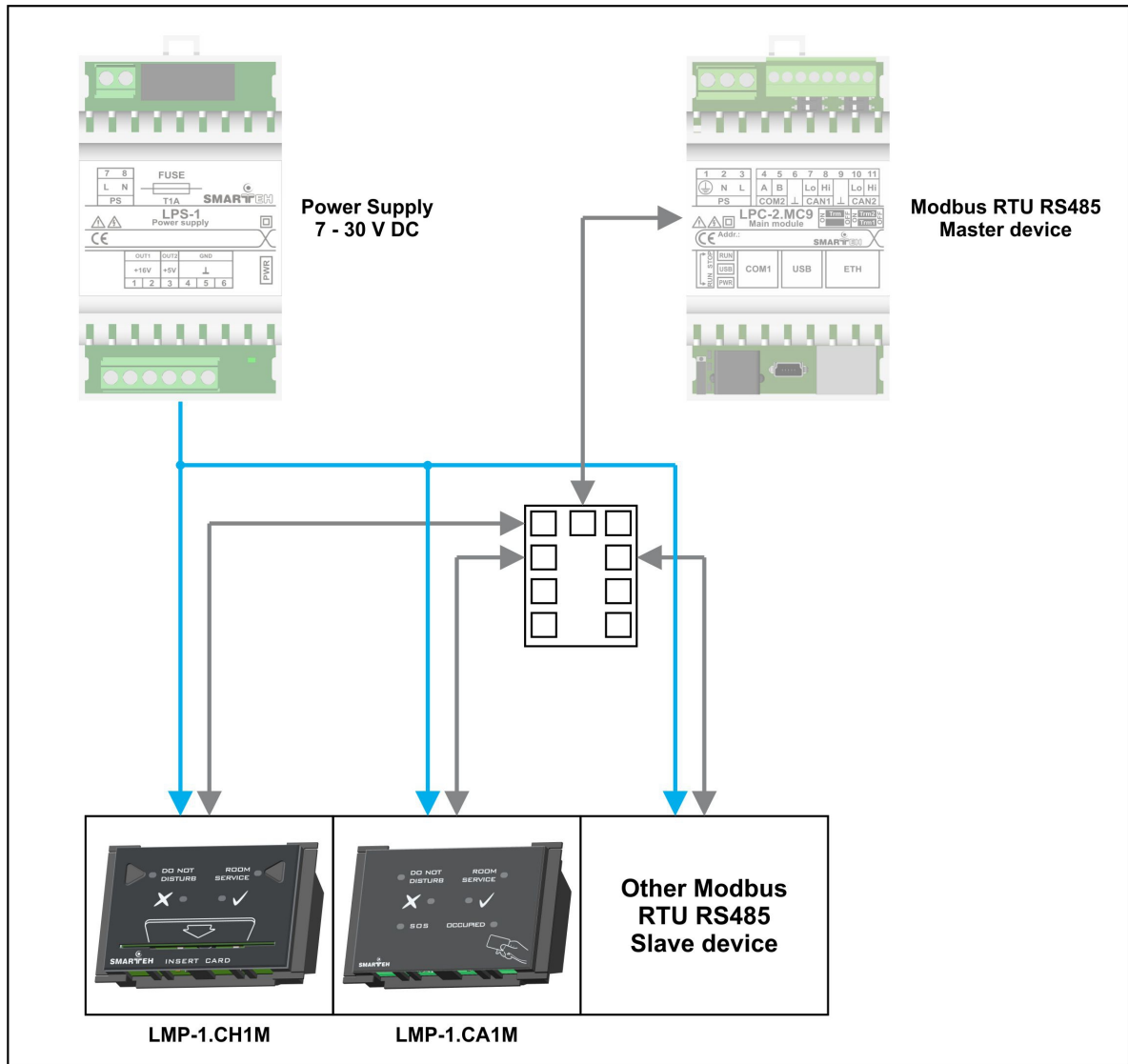


Table 6: K1

K1.1	N.C.	Not connected
K1.2	GND	Ground
K1.3	7 .. 30 V DC	Power supply input
K1.4	Standard RS-485 A	Data receive/send line A
K1.5	Standard RS-485 B	Data receive/send line B
K1.6	N.C.	Not connected

Table 7: 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 “ J ”	On: RFID key standard OK and ID card number valid Off: No tag in proximity
LED5: red	Communication	On: RS-485 communication fault Off: RS-485 communication OK
LED6: green	Power supply	On: power supply OK Off: power supply missing or power off
PB1	Do not disturb	Each press toggles request on/off
PB2	Room service	Each press toggles request on/off

Table 8: S1

SELECTOR	Switch 1	Switch 2
User settings, from Modbus RTU registers	OFF	OFF
Not used	OFF	ON
Not used	ON	OFF
Default factory settings active, 19200bps/8 data bits/1 stop bit/EVEN	ON	ON



4.2 Mounting frame selection

Frame, suitable for CH1M 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 LMP-1.CH1M 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).

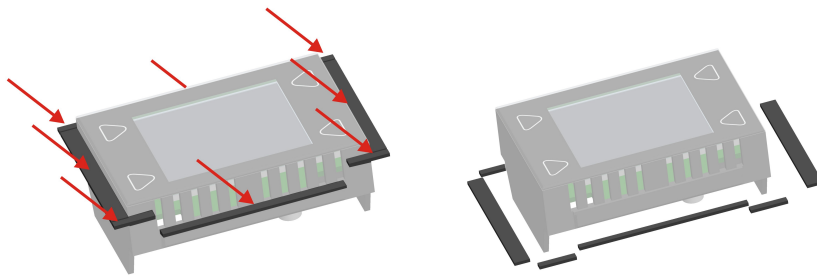
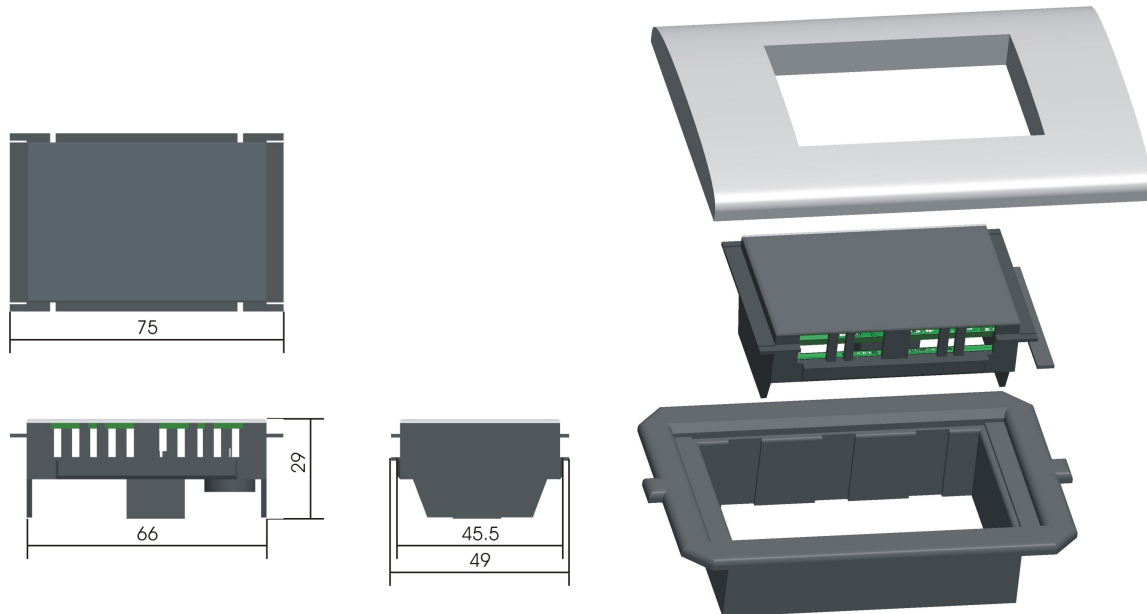


Figure 3: Module with removable fin.



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 be positioned in the wall inside of the room. Avoid direct sunlight or positioning near heating/cooling source object.

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 LMP-1.CH1M settings (refer to the Table 2 and Table 8).
2. Connect LMP-1.CA1M with appropriate cable to the connector K1, Modbus RTU Master equipment and power supply source (refer to Table 6). Max. allowed tensile force is 30 N.
3. Put the LMP-1.CH1M in mounting frames.
4. Cover LMP-1.CH1M with cover plate.

Modbus RTU settings source is set with DIP switch on the back of the LMP-1.MP1 module (Table 8).

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

Figure 5: Label

Label (sample):

```
XXX-N.ZZZ  
P/N: AAABBBCCDDDEEE  
S/N: SSS-RR-YYXXXXXXXXXX  
D/C: WW/YY
```

Label description:

1. **XXX-N.ZZZ** - full product name.
 - **XXX-N** - Product family
 - **ZZZ** - product
2. **P/N: AAABBBCCDDDEEE** - part number.
 - **AAA** - general code for product family,
 - **BBB** - short product name,
 - **CCDDD** - sequence code,
 - **CC** - year of code opening,
 - **DDD** - derivation code,
 - **EEE** - version code (reserved for future HW and/or SW firmware upgrades).
3. **S/N: SSS-RR-YYXXXXXXXXXX** - serial number.
 - **SSS** - short product name,
 - **RR** - user code (test procedure, e.g. Smarteh person xxx),
 - **YY** - year,
 - **XXXXXXXXXX** - current stack number.
4. **D/C: WW/YY** - date code.
 - **WW** - week and
 - **YY** - year of production.

Optional

1. **MAC**
2. **Symbols**
3. **WAMP**
4. **Other**



5 TECHNICAL SPECIFICATIONS

Table 9: Technical specifications

Power supply	from main module
Interconnection connector type	RJ-12 6/6, 4/6
Power consumption	1 W
RFID type	ISO/IEC 14443 A/MIFARE ²
Max. reading distance	RFID card must be inserted into LMP-1.CH1M ²
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

² To achieve most reliable RFID card reading results use Smarteh RFID Mifare cards.
RFID Mifare card must be inserted at least 40 mm deep into LMP-1.CH1M card slot in a time period between 1 .. 3 seconds.



6 CHANGES

The following table describes all the changes to the document.

Date	V.	Description
10.01.2020	1	The initial version, issued as <i>LMP-1.CH1M module UserManual</i> .





7 NOTES

