USER MANUAL

Longo programmable controller
LPC-2.R01
Room module

Version 5

SMARTEH d.o.o. / Poljubinj 114 / 5220 Tolmin / Slovenia / Tel.: +386(0) 388 44 00 / e-mail: info@smarteh.si / www.smarteh.si

Written by SMARTEH d.o.o.

User Manual

Document Version: 5
June, 2019

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 programmable controller LPC-2.R01

1 DESCRIPTION

LPC-2.R01 is used as hotel room or office digital input and output module or general purpose input and output module. Module is equipped with 7 triac outputs, door lock output and 6 voltage free (dry) contacts digital inputs. Triac outputs are supposed to drive up to 3 speed fan, hot and cool valves, welcome light and energize room power relay. Door lock output is used to activate electrical door lock for door opening. To digital inputs, balcony and window contacts, SOS switch, light switches, occupancy switch are normally connected.

LEDs indicate state of contact or active signal present on corresponding module input and/or output (refer to Table 9, Table 10 and Table 11).

LPC-2.R01 is controlled and powered from the main module (e.g., LPC-2.MC8, LPC-2.MC9) via Right internal bus.

2 FEATURES

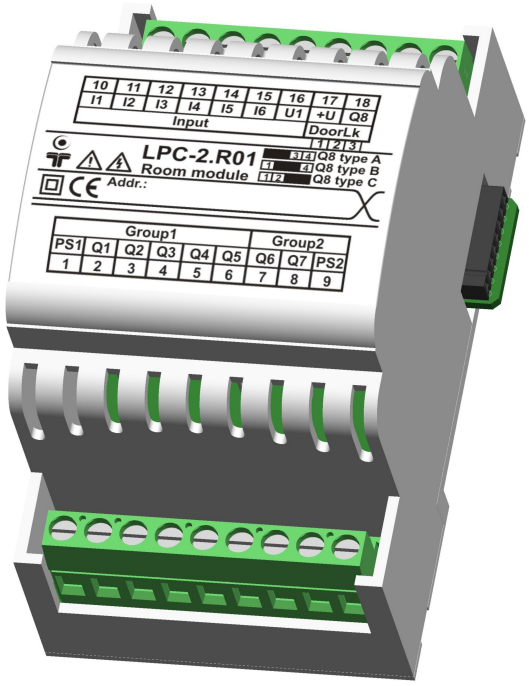


Figure 1: LPC-2.R01 module

Table 1: Features
7 triac outputs
Electrical door lock output
6 voltage free digital inputs
Galvanic isolated
Flexible inputs for wide use of operation
Standard DIN EN50022-35 rail mounting

3 INSTALLATION

3.1 Connection scheme

Figure 2: Connection scheme example

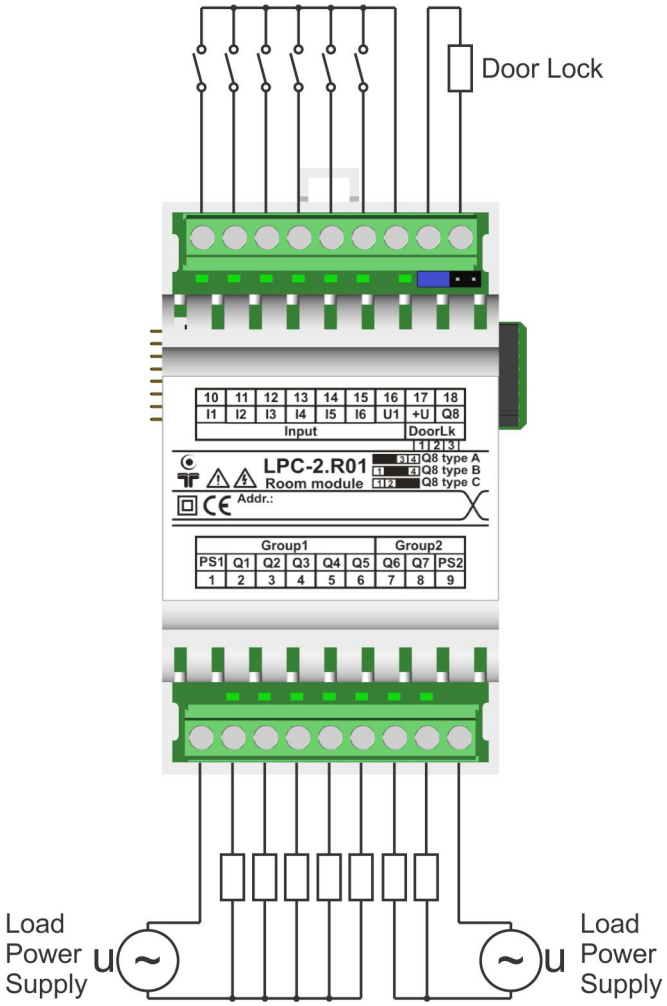


Figure 3: Connection scheme

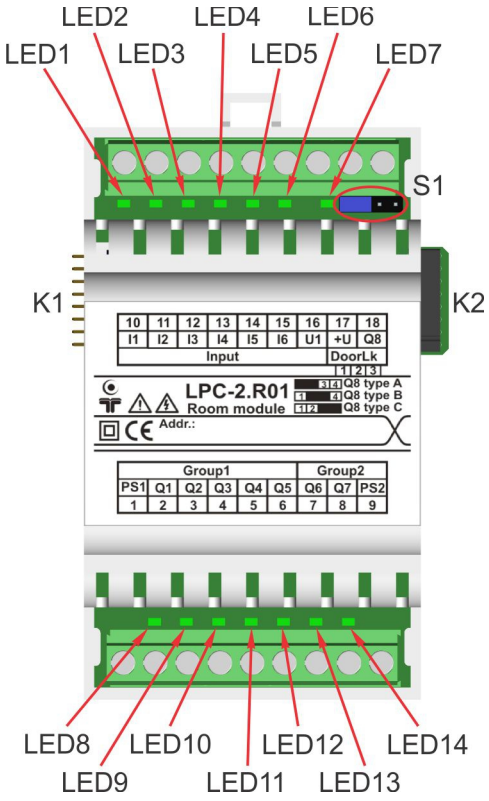


Table 2: Input[1]

Input.10	I1	Digital input, 0 .. 24 V DC
Input.11	I2	Digital input, 0 .. 24 V DC
Input.12	I3	Digital input, 0 .. 24 V DC
Input.13	I4	Digital input, 0 .. 24 V DC
Input.14	I5	Digital input, 0 .. 24 V DC
Input.15	I6	Digital input, 0 .. 24 V DC
Input.16	U1	Power supply output, +24 V DC / 50 mA output

Table 3: Group1[1]

Group1.1	PS1	Group1 Common AC supply, 24 .. 230 V AC
Group1.2	Q1	Triac digital output, 24 .. 230 V AC, make contacts (NO)
Group1.3	Q2	Triac digital output, 24 .. 230 V AC, Make contacts (NO)
Group1.4	Q3	Triac digital output, 24 .. 230 V AC, Make contacts (NO)
Group1.5	Q4	Triac digital output, 24 .. 230 V AC, make contacts (NO)
Group1.6	Q5	Triac digital output, 24 .. 230 V AC, make contacts (NO)

1 Wires connected to the module must have cross sectional area at least 0.75 mm^2. Minimum temperature rating of wire insulation must be 85 °C.

Table 4: Group2[1]		
Group2.7	Q6	Triac digital output, 24 .. 230 V AC, make contacts (NO)
Group2.8	Q7	Triac digital output, 24 .. 230 V AC, make contacts (NO)
Group2.9	PS2	Group2 Common AC supply, 24 .. 230 V AC

Table 5: DoorLK[1]			
DoorLK.17	+U	Lock Output (+)	Power
DoorLK.18	Q8	Lock Output (-)	Transistor switch output Minimum switching period is 2 seconds

Table 6: S1 Lock output activation voltage specification		
Q type A		50 V DC +/- 20% lock output activation voltage
Q type B		35 V DC +/- 20% lock output activation voltage
Q type C		20 V DC +/- 20% lock output activation voltage

Table 7: Voltage free (dry) contact digital input specification		
I1 .. I6	Voltage free (dry) contact input	OFF: R_{SW} > 40 kΩ ON: R_{SW} < 5 kΩ Max. input frequency = 20 Hz

Table 8: K1		
Internal BUS	Data & DC power supply	Connection to I/O module

Table 9: K2		
Internal BUS	Data & DC power supply	Connection to I/O module

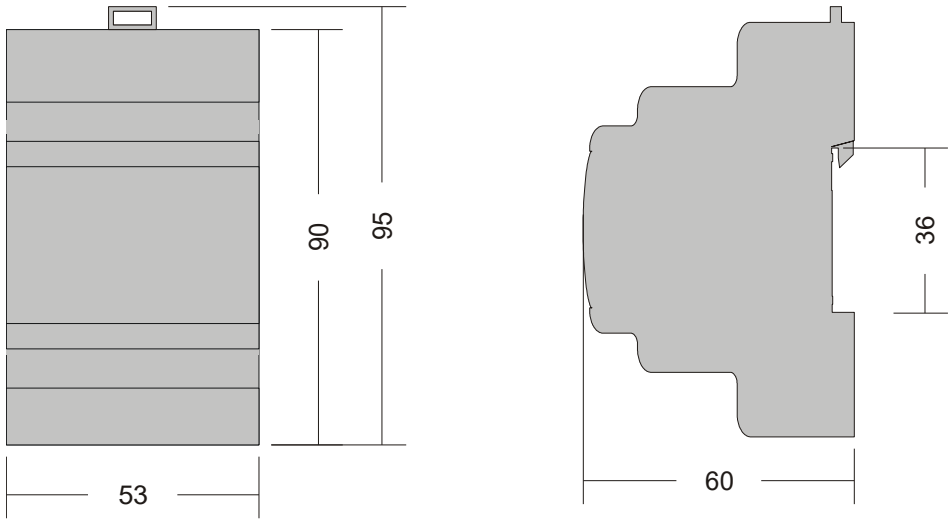
Table 10: LEDs		
LED1: green	Digital input state	ON: I1 connected to U1 (contact closed) OFF: I1 not connected to U1 (contact opened)
LED2: green	Digital input state	ON: I2 connected to U1 (contact closed) OFF: I2 not connected to U1 (contact opened)
LED3: green	Digital input state	ON: I3 connected to U1 (contact closed) OFF: I3 not connected to U1 (contact opened)
LED4: green	Digital input state	ON: I4 connected to U1 (contact closed) OFF: I4 not connected to U1 (contact opened)
LED5: green	Digital input state	ON: I5 connected to U1 (contact closed) OFF: I5 not connected to U1 (contact opened)
LED6: green	Digital input state	ON: I6 connected to U1 (contact closed) OFF: I6 not connected to U1 (contact opened)

Table 10: LEDs		
LED7: green	Door lock output state	ON: Lock output on (conductive) OFF: Lock output off (non conductive)
LED8: green	Triac digital output state	ON: Q1 triac on (conductive) OFF: Q1 triac off (non conductive)
LED9: green	Triac digital output state	ON: Q2 triac on (conductive) OFF: Q2 triac off (non conductive)
LED10: green	Triac digital output state	ON: Q3 triac on (conductive) OFF: Q3 triac off (non conductive)
LED11: green	Triac digital output state	ON: Q4 triac on (conductive) OFF: Q4 triac off (non conductive)
LED12: green	Triac digital output state	ON: Q5 triac on (conductive) OFF: Q5 triac off (non conductive)
LED13: green	Triac digital output state	ON: Q6 triac on (conductive) OFF: Q6 triac off (non conductive)
LED14: green	Triac digital output state	ON: Q7 triac on (conductive) OFF: Q7 triac off (non conductive)

NOTE: Special care must be taken in case of high inductance loads, e.g. Relays or contactors. High inductance load may cause output fail to close. In that case, use of appropriate snubber is advised.

3.2 Mounting instructions

Figure 4: Housing dimensions



Dimensions in milimeters.

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

Mounting instructions:

1. Switch OFF main power supply.
2. Mount LPC-2.R01 module to the provided place inside an electrical panel (DIN EN50022-35 rail mounting).
3. Mount other LPC-2 modules (if required). Mount each module to the DIN rail first, then attach modules together through K1 and K2 connectors.
4. Connect digital inputs and outputs wires according to the connection scheme in Figure 2.
5. Switch ON main power supply.

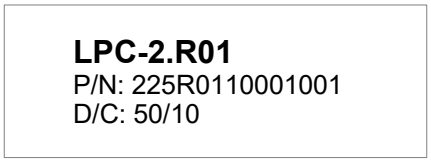
Dismount in reverse order. For mounting/dismounting modules to/from DIN rail a free space of at least one module must be left on the DIN rail.

NOTE: LPC-2 main module should be powered separately from other electrical appliance connected to LPC-2 system. Signal wires must be installed separately from power and high voltage wires in accordance with general industry electrical installation standard.

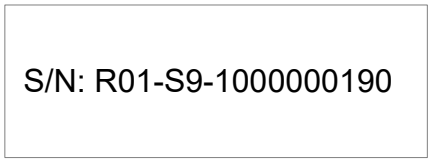
3.3 Module labeling

Figure 5: Labels

Label 1 (sample):



Label 2 (sample):



Label 1 description:

1. **LPC-2.R01** is the full product name.
2. **P/N:225R0110001001** is the part number.
   - **225** – general code for product family,
   - **R01** – short product name,
   - **10001** – sequence code,
     - 10 – year of code opening,
     - 001 – derivation code,
   - **001** – version code (reserved for future HW and/or SW firmware upgrades).
3. **D/C:50/10** is the date code.
   - **50** – week and
   - **10** – year of production.

Label 2 description:

1. **S/N:R01-S9-1000000190** is the serial number.
   - **R01** – short product name,
   - **S9** – user code (test procedure, e.g. Smarteh person xxx),
   - **1000000190** – year and current stack code,
     - 10 – year (last two cyphers),
     - 00000190 – current stack number; previous module would have the stack number 00000189 and the next one 00000191.

4 TECHNICAL SPECIFICATIONS

Table 11: Technical specifications	
Power supply	from internal BUS
Power consumption	4 W
Number of digital inputs	6 free (dry) contact inputs
Inputs threshold voltage	ON: <5 kΩ OFF: >40 kΩ
Number of triac digital outputs	7 triac make contacts (NO)
Rated load voltage	24 .. 230 V AC
Output current per triac channel	0.05 .. 0.9 A continuous load
Max. sum triac output load	1000 W
Number of el. lock digital outputs	1 transistor switch output (NO)
Lock output activation voltage	20, 35 or 50 V DC +/- 20%, selected by jumper S1
Lock output on state voltage	6.5 .. 7.5 V DC
Lock output max. load	20 Ohm
Connection type	screw type connector for stranded wire 0.75 to 2.5 mm^2
Dimensions (L x W x H)	90 x 53 x 60 mm
Weight	100 g
Ambient temperature	0 to 50 °C
Ambient humidity	max. 95 %, no condensation
Maximum altitude	2000 m
Mounting position	vertical
Transport and storage temperature	-20 to 60 °C
Pollution degree	2
Protection class	IP 30

5 SPARE PARTS

For ordering spare parts following Part Numbers should be used:

LPC-2.R01 Room module	
LPC-2.R01	P/N: 225R0110001001

6 CHANGES

The following table describes all the changes to the document.

Date	V.	Description
14/06/19	5	Additional note added.
15/01/17	4	General update.
01/02/16	3	General update.
01/07/12	2	CGP General update
10/12/10	1	The initial version, issued as *LPC-2.R01 module UserManual*.

7 NOTES