



**SMARTEH**<sup>®</sup>  
LIVING SYSTEMS

# USER MANUAL

- ▶ Longo programmable controller  
LPC-2.D09  
Triac Output module

Version 5

Written by SMARTEH d.o.o.  
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User Manual

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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 (3<sup>rd</sup> Ed.), IEC 61010-2-201:2013 (1<sup>st</sup> 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.D09**

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1 DESCRIPTION.....1

2 FEATURES.....2

3 INSTALLATION.....3

    3.1 Connection scheme.....3

    3.2 Mounting instructions.....5

    3.3 Module labeling.....7

4 TECHNICAL SPECIFICATIONS.....8

5 CHANGES .....9

6 NOTES.....10



## 1 DESCRIPTION

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LPC-2.DO9 is a four snubberless zero crossing triac digital output module<sup>1</sup>. It can be used in a wide range of operation.

LEDs indicate each triac's contacts state. If a LED is on, the module's connection pins for the correspondent triac are shorted (refer to the Table 5).

Module is powered from internal BUS.

NOTE: For proper system configuration and data allocation please refer to LPC Composer software help menu.

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<sup>1</sup> If one of the outputs is intended to be energized by a SELV or PELV source of supply (48 V RMS) than other outputs must not be energized by a higher voltage (e.g. 230 V AC).



## 2 FEATURES

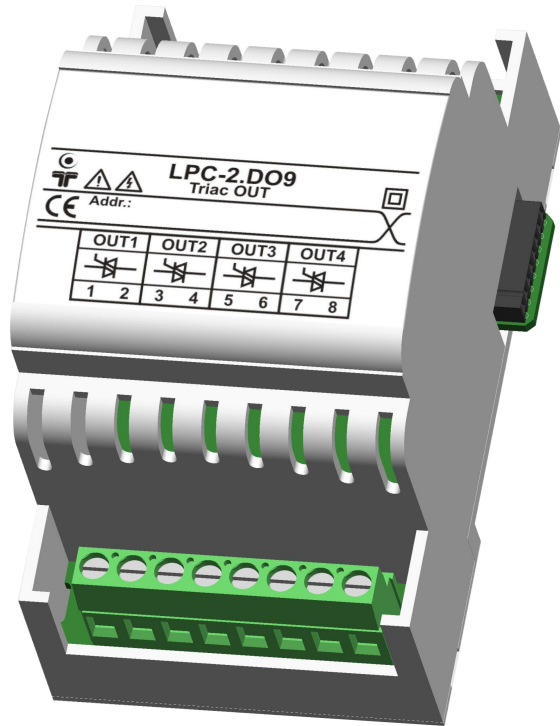


Figure 1: LPC-2.DO9 module.

### Table 1: Technical data

Four snubberless zero crossing triac output also suitable for use with inductive loads
Long life AC digital output
Standard DIN EN50022-35 rail mounting



### 3 INSTALLATION

#### 3.1 Connection scheme

Figure 2: Connection scheme

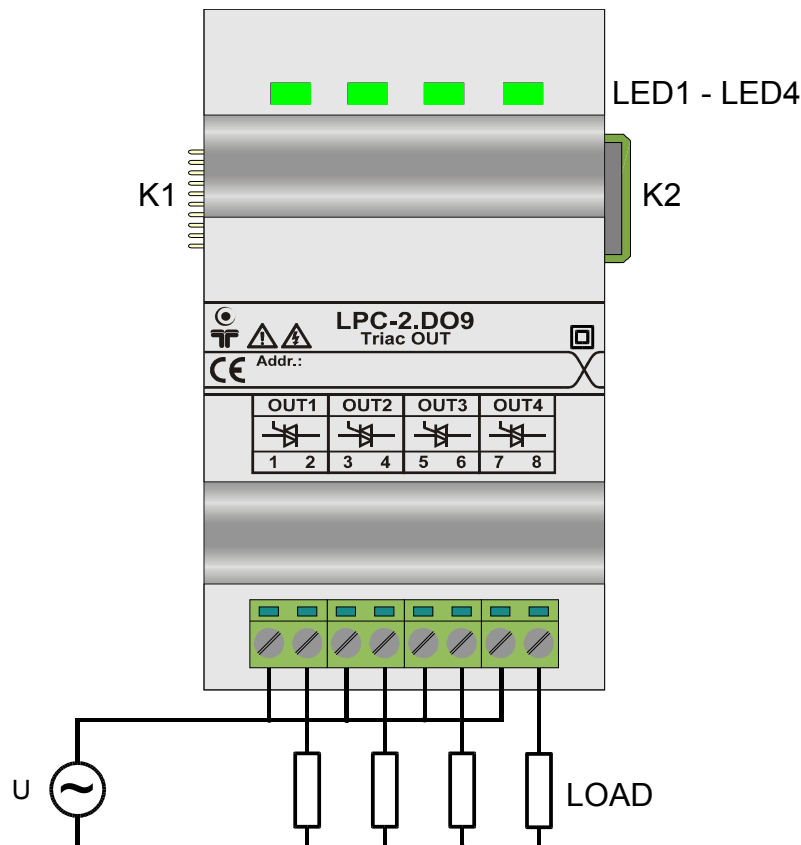


Table 2: OUT<sup>2</sup>

OUT1.1 OUT1.2	Triac digital output, 24 .. 230 V AC	Make contacts triac (NO)
OUT2.3 OUT2.4	Triac digital output, 24 .. 230 V AC	Make contacts triac (NO)
OUT3.5 OUT3.6	Triac digital output, 24 .. 230 V AC	Make contacts triac (NO)
OUT4.7 OUT4.8	Triac digital output, 24 .. 230 V AC	Make contacts triac (NO)

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





**Table 3: K1**

Internal BUS	Data & DC power supply	Connection to I/O module
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**Table 4: K2**

Internal BUS	Data & DC power supply	Connection to I/O module
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**Table 5: LED1 - LED4**

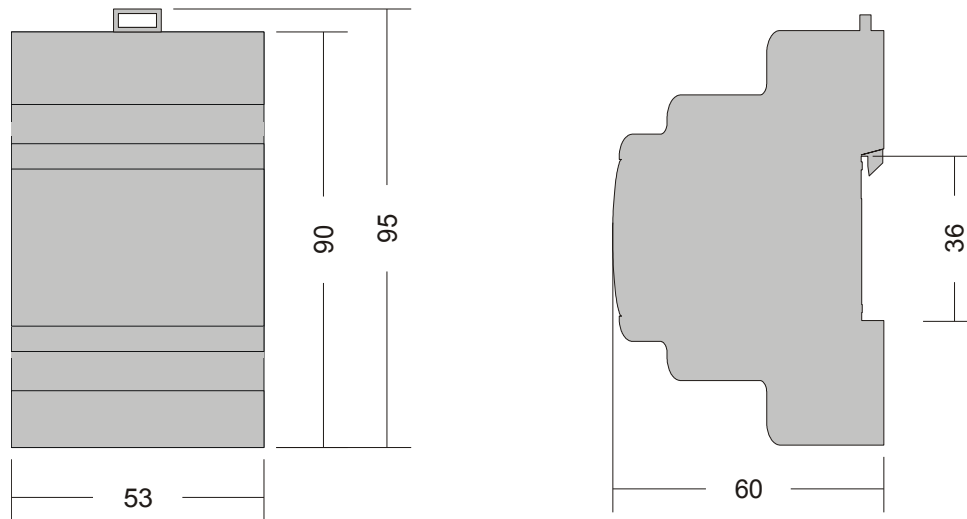
Status	Digital output state	On: OUT1 triac on - conductive up to OUT4 triac on - conductive Off: OUT1 triac off - non conductive up to OUT4 triac off - non conductive
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### 3.2 Mounting instructions

**Figure 3: Housing dimensions**



- Dimensions in millimeters.

**EXTERNAL SWITCH OR CIRCUIT-BREAKER AND EXTERNAL OVERCURRENT PROTECTION:** The unit is allowed to be connected to installation with over current protection that has nominal value of 16 A or less.

**RECOMMENDATION ON SWITCH OR CIRCUIT-BREAKER PROTECTION:** There should be two poles main switch in the installation in order to switch off the unit. The switch should meet the requirements of standard IEC60947 and have a nominal value at least 6 A. The switch or circuit-breaker should be within easy reach of the operator. It should be marked as the disconnecting device for the equipment.



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



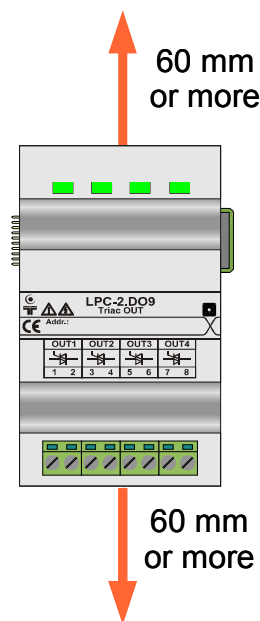
**Mounting instructions:**

1. Switch OFF main power supply.
2. Mount LPC-2.DO9 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 output 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.

**Figure 4: Minimum clearances**



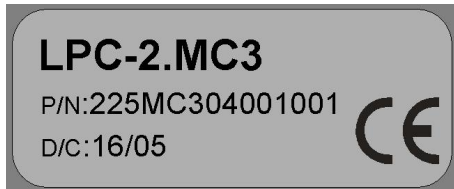
The clearances above must be considered before module mounting.



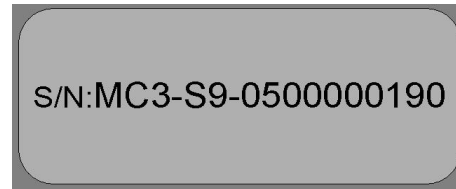
### 3.3 Module labeling

**Figure 5: Labels on housing**

Label 1 (MC3 sample):



Label 2 (MC3 sample):



**Label 1 description:**

1. **LPC-2.MC3** is the full product name.
2. **P/N:225MC304001001** is the part number.
  - **225** - general code for product family,
  - **MC3** - short product name,
  - **04001** - sequence code,
    - **04** - year of code opening
    - **001** - derivation code
  - **001** - version code (reserved for future HW and/or SW firmware upgrades).
3. **D/C:16/05** is the date code.
  - **16** - week and
  - **05** - year of production.

**Label 2 description:**

1. **S/N:MC3-S9-0500000190** is the serial number.
  - **MC3** - short product name,
  - **S9** - user code (test procedure, e.g. Smarteh person xxx),
  - **0500000190** - year and current stack code,
    - **05** - 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 6: Technical specifications**

Power supply	from internal BUS
Power consumption	0.75 W
Rated load voltage	24 .. 230 V AC
Number of digital outputs	4 triac make contacts (NO)
Output current per channel	0.05 .. 1.8 A continuous load
Connection type	screw type connector for stranded wire 0.75 to 2.5 mm <sup>2</sup>
Max. transition time per channel	1 s
Dimensions (L x W x H)	90 x 53 x 60 mm
Weight	140 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
Overvoltage category	II
Electrical equipment	Class II (double insulation)
Protection class	IP 30



## 5 CHANGES

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The following table describes all the changes to the document.

Date	V.	Description
1.7.2012	005	CGP General update.
11.5.2010	004	Updated warranty permanence.
31.5.2006	003	The initial version, issues as <i>LPC-2.DO9 module UserManual</i> .





## 6 NOTES

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