



SMARTEH[®]
LIVING SYSTEMS

USER MANUAL

- ▶ Longo programmable controller
LPC-2.DI8
Digital Input module

Version 3

Written by SMARTEH d.o.o.
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User Manual

Document Version: 003
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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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Longo programmable controller LPC-2.DI8

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1 DESCRIPTION

LPC-2.DI8 is an input module for detecting 230 V AC signal presence. Inputs are galvanic isolated from the rest of the LPC-2 system. Module has eight (8) line (L) inputs with common neutral (N) reference point.

Since there is no need using additional galvanic isolation, module can be used in a wide range of operation.

LEDs are indicating signal presence on module input.

Module is powered from internal BUS.

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



2 FEATURES

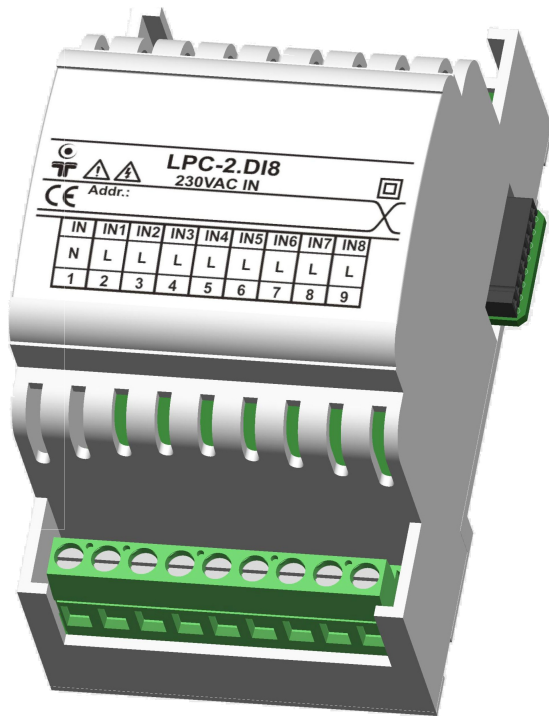


Figure 1: LPC-2.DI8 module.

Table 1: Technical data

Eight 230 V AC digital input, galvanic isolated

Wide input range for wide use of operation

Standard DIN EN50022-35 rail mounting



3 INSTALLATION

3.1 Connection scheme

Figure 2: Connection scheme

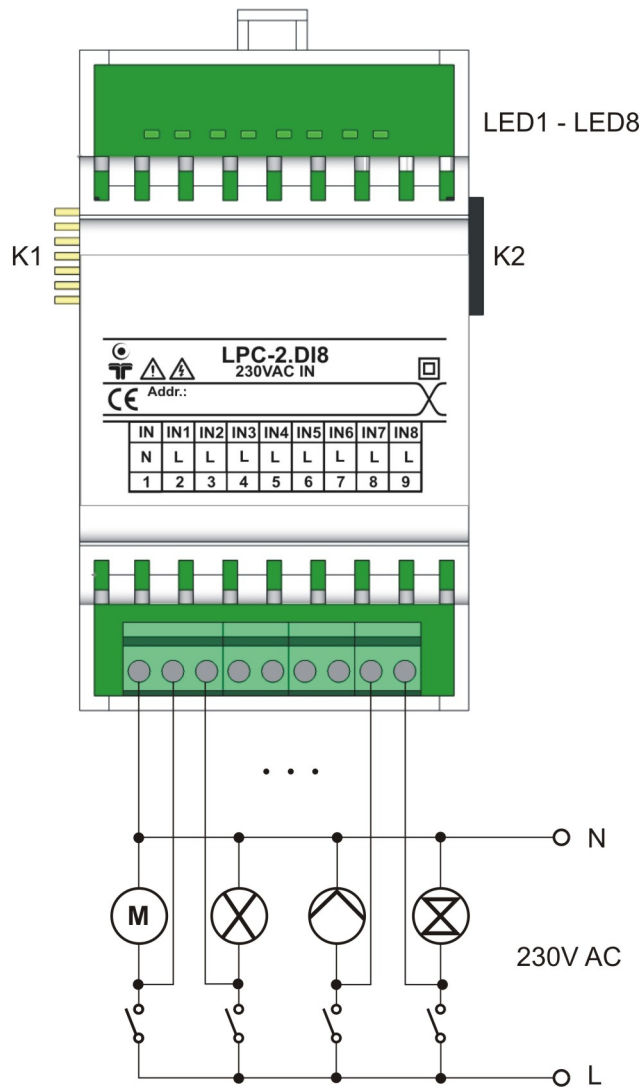


Table 2: OUT¹

IN (N)	Common AC supply (N - line)	
IN1 (L)	Digital input in reference to IN (N)	230 V AC digital input
IN2 (L)	Digital input in reference to IN (N)	230 V AC digital input

¹ Wires connected to the module must have cross sectional area at least 0.75 mm². Minimum temperature rating of wire insulation must be 85 °C.



Table 2: OUT

IN3 (L)	Digital input in reference to IN (N)	230 V AC digital input
IN4 (L)	Digital input in reference to IN (N)	230 V AC digital input
IN5 (L)	Digital input in reference to IN (N)	230 V AC digital input
IN6 (L)	Digital input in reference to IN (N)	230 V AC digital input
IN7 (L)	Digital input in reference to IN (N)	230 V AC digital input
IN8 (L)	Digital input in reference to IN (N)	230 V AC digital input

Table 3: Digital input specification

IN1..IN8	Digital input reference to IN, 0 .. 230 V AC $R_{in} > 200 \text{ k}\Omega$ Off ($U_{in} < 22 \text{ V AC RMS}$) On ($U_{in} > 60 \text{ V AC RMS}$)	230 V AC
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Warning: All line inputs should be from the same phase (L1 or L2 or L3). Never connect two different phases on the same module.

Table 4: K1

Internal BUS	Data & DC power supply	Connection to I/O module
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Table 5: K2

Internal BUS	Data & DC power supply	Connection to I/O module
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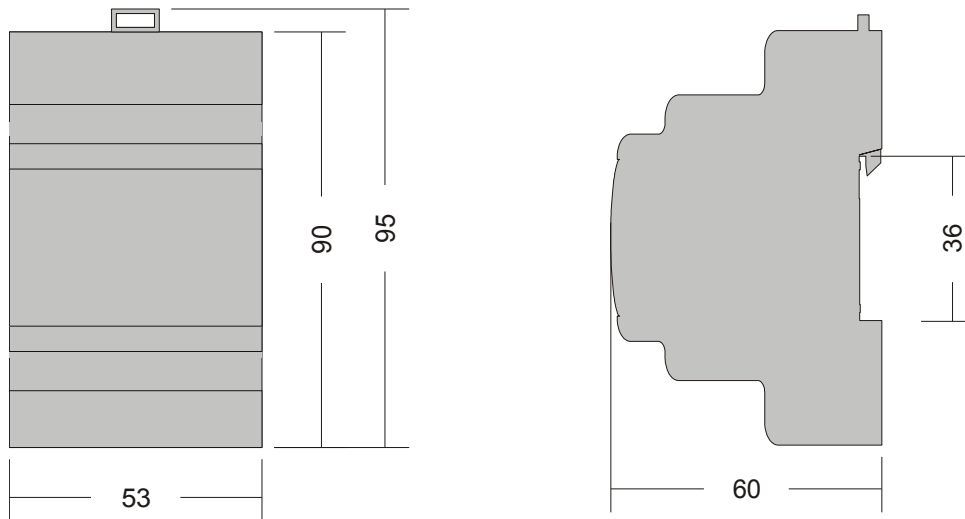
Table 6: LED1 - LED8

Status	Digital output state	LED on: input active LED off: input inactive
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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.



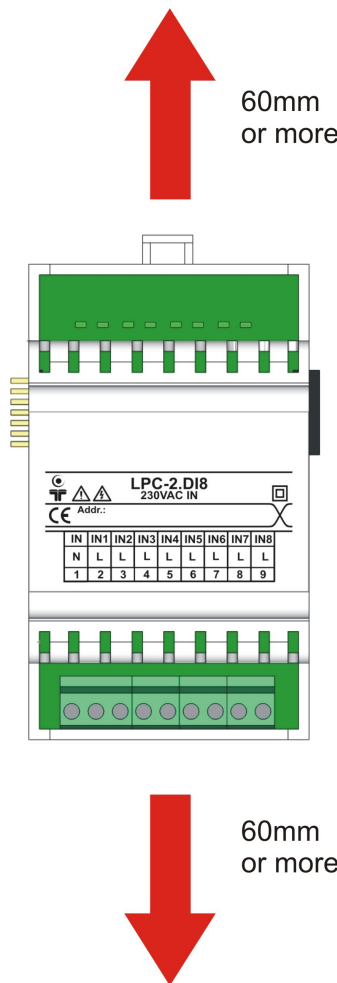
Mounting instructions:

1. Switch OFF main power supply.
2. Mount LPC-2.DI8 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



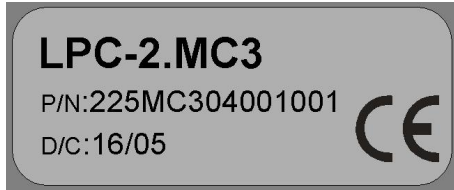
The clearances above must be considered before module mounting.



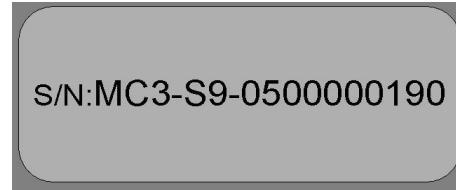
3.3 Module labeling

Figure 6: Labels on housing

Label 1:



Label 2:



Label 1 description:

1. **LPC-2.MC3** is the full product name.
2. **P/N:225MC304001001** is the part number.
 - **225** - general code for LPC-2 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 7: Technical specifications

Power supply	from internal BUS
Power consumption	1 W
Number of inputs	8
Input type	230 V AC
Connection type	screw type connector for stranded wire 0.75 to 2.5 mm ²
Max. transition time per channel	1 s
Dimensions (L x W x H)	90 x 53 x 60 mm
Weight	110 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

The following table describes all the changes to the document.

Date	V.	Description
1.7.2012	003	CGP General update .
11.5.2010	002	Updated warranty permanence.
29.2.2008	001	The initial version, issues as <i>LPC-2.DI8 module UserManual.</i>



6 NOTES

