

USER MANUAL

— Longo programmable
controller
LPC-2.016 module

Version 2

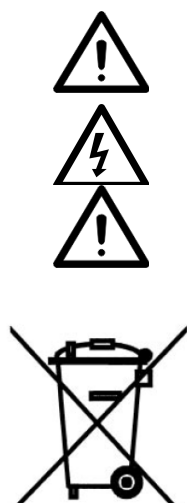


Written by SMARTEH d.o.o.
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User Manual

Document Version: 002
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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 230 VAC 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, we offer warranty for 24 months from date of sale to end buyer. 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 61000-6-2 (EN 50082), EN 61000-6-4 (EN 50081)
- LVD: IEC 61131-2
- Vibrations and climatic-mechanical: EN 60068-2-6, EN 60068-2-27, EN 60068-2-29

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.O16 module

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1 DESCRIPTION

LPC-2.O16 is used as standard 24 V DC digital output module. Module has 16 current protected and galvanic isolated PNP transistor outputs. It can be used in a wide range of operation.

LEDs indicates active signal present on module outputs (refer to the Table 5).

Module is powered from internal BUS or 24 V DC external power supply. Selection can be done with two sets of jumpers.

NOTE: In case of current protection of individual digital output is on (no voltage on individual output when switched on), switch off digital output from MCU application software side and after switch it on again. If current protection is still on, investigate what is the reason for this (wrong output connection, short circuit from output to the reference voltage, load shorted, to high capacity load connected to the output ...).



2 FEATURES

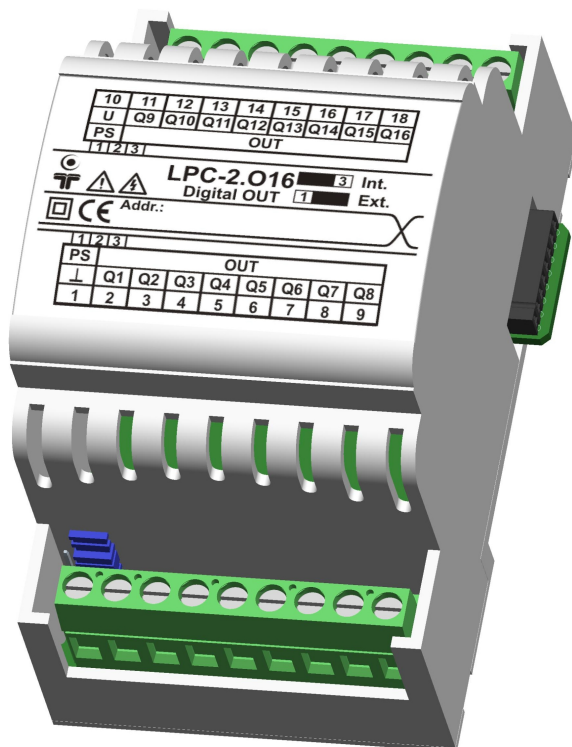


Figure 1: LPC-2.O16 module

Table 1: Technical data

16 standard PNP transistor digital outputs
Galvanic isolated
Current protected
Flexible output for wide use of operation
Small dimensions and standard DIN EN50022-35 rail mounting



3 INSTALLATION

3.1 Connection scheme

Figure 2: Connection scheme

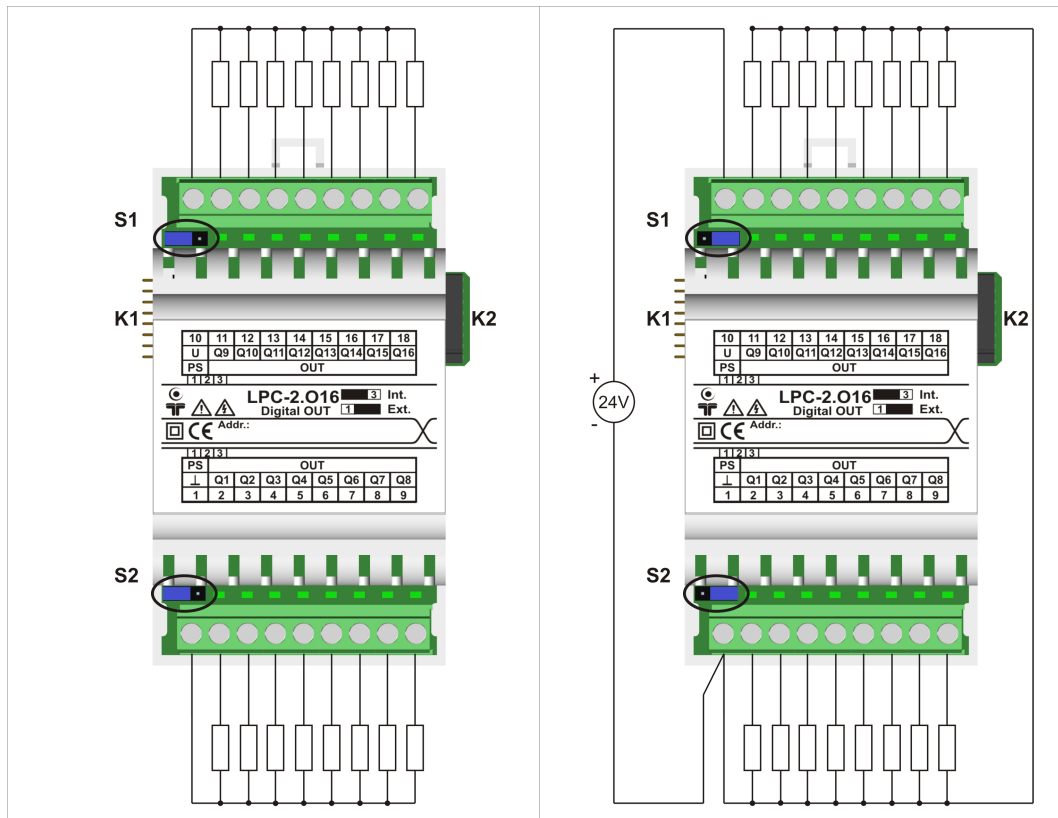


Table 2: OUT¹

	3 Int. Set as internally supplied output (Int.), NOTE: digital outputs sum current can not exceed 100 mA	1 Ext. Set as externally supplied output (Ext.), NOTE: digital outputs sum current can not exceed 4 A
PS.1 (⊥)	Internal reference to + 24 V DC digital outputs	External reference to + 24 V DC digital outputs
OUT.2 (Q1)	Digital output, 24 V DC / 500 mA	Digital output, 24 V DC / 500 mA
OUT.3 (Q2)	Digital output, 24 V DC / 500 mA	Digital output, 24 V DC / 500 mA
OUT.4 (Q3)	Digital output, 24 V DC / 500 mA	Digital output, 24 V DC / 500 mA
OUT.5 (Q4)	Digital output, 24 V DC / 500 mA	Digital output, 24 V DC / 500 mA
OUT.6 (Q5)	Digital output, 24 V DC / 500 mA	Digital output, 24 V DC / 500 mA
OUT.7 (Q6)	Digital output, 24 V DC / 500 mA	Digital output, 24 V DC / 500 mA
OUT.8 (Q7)	Digital output, 24 V DC / 500 mA	Digital output, 24 V DC / 500 mA
OUT.9 (Q8)	Digital output, 24 V DC / 500 mA	Digital output, 24 V DC / 500 mA
PS.10 (U)	Not connected	+ 24 V DC / 4 A input
OUT.11 (Q9)	Digital output, 24 V DC / 500 mA	Digital output, 24 V DC / 500 mA
OUT.12 (Q10)	Digital output, 24 V DC / 500 mA	Digital output, 24 V DC / 500 mA
OUT.13 (Q11)	Digital output, 24 V DC / 500 mA	Digital output, 24 V DC / 500 mA
OUT.14 (Q12)	Digital output, 24 V DC / 500 mA	Digital output, 24 V DC / 500 mA
OUT.15 (Q13)	Digital output, 24 V DC / 500 mA	Digital output, 24 V DC / 500 mA
OUT.16 (Q14)	Digital output, 24 V DC / 500 mA	Digital output, 24 V DC / 500 mA
OUT.17 (Q15)	Digital output, 24 V DC / 500 mA	Digital output, 24 V DC / 500 mA
OUT.18 (Q16)	Digital output, 24 V DC / 500 mA	Digital output, 24 V DC / 500 mA

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 3: Digital outputs specification

Q1..Q16	"Off" No voltage on output pin "On" Voltage on output pin Max. output frequency = 20 Hz	Digital output state
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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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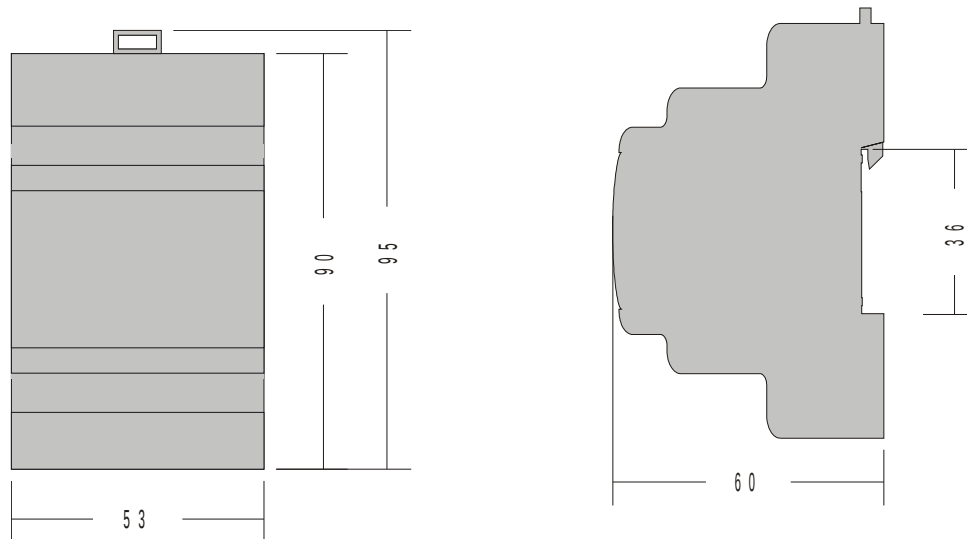
Table 6: LED1 - LED16

Status	Digital output state	On: voltage on output pin Off: no voltage on output pin
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3.2 Mounting instructions

Figure 3: Housing dimensions



- Dimensions in millimeters.



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.O16 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.

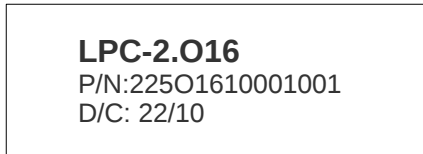
NOTE: LPC-2 MCU main control module should be powered separately from other electrical appliance connected to LPC-2 system. Signal wires must be installed separately from power and high voltage wires in accordance with general industry electrical installation standard.



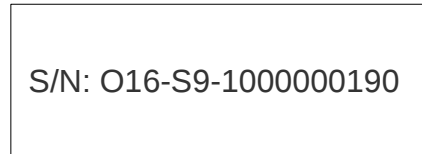
3.3 Module labeling

Figure 4: Labels on housing

Label 1(LPC-2.O16 module sample):



Label 2(LPC-2.O16 module sample):



Label 1 description:

1. **LPC-2.O16** is the full product name.
2. **P/N:225O1610001001** is the part number.
 - **225** – general code for product family,
 - **O16** – 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:22/10** is the date code.
 - **22** – week and
 - **10** – year of production.

Label 2 description:

1. **S/N:O16-S9-1000000190** is the serial number.
 - **O16** – 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 6: Technical specifications

Power supply, selected by jumpers	from internal BUS external 24 V DC
Power consumption	power supply from internal BUS, 3 W 24 V DC external power supply, 1 W
Rated output voltage	power supply from internal BUS, 20..28 V DC 24 V DC external power supply, 20..28 V DC
External 24 V DC power supply (U)	20..28 V DC / Max. current 4 A
Max. output current	500 mA, short circuit proof
Max. load capacitance	10 μ F
Number of digital outputs	16
Connection type	screw type connector for stranded wire 0.75 to 2.5 mm ²
Dimensions (L x W x H)	90 x 18 x 60 mm
Weight	120 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 CHANGES

The following table describes all the changes to the document.

Date	V.	Description
1.7.2012	002	CGP General Update.
30.6.2010	001	The initial version, issues as <i>LPC-2.O16 module UserManual</i> .





6 NOTES

