



SMARTEH[®]
LIVING SYSTEMS

USER MANUAL

- ▶ Longo programmable controller
LPC-2.A04
Analog Output module

Version 1

Written by SMARTEH d.o.o.
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User Manual

Document Version: 001
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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.

MANUFACTURER:

SMARTTEH d.o.o.
 Poljubinj 114
 5220 Tolmin
 Slovenia



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Longo programmable controller LPC-2.A04

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1 DESCRIPTION

LPC-2.A04 is an eight analog outputs module.

Outputs can be individually set as current or voltage mode with correspondent jumper. In current output mode module generates 0 .. 20 mA, if configured as voltage output mode it generates 0 .. 10 V on the port.

The output is supplied to target system with a resolution of 16 bits.

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



2 FEATURES

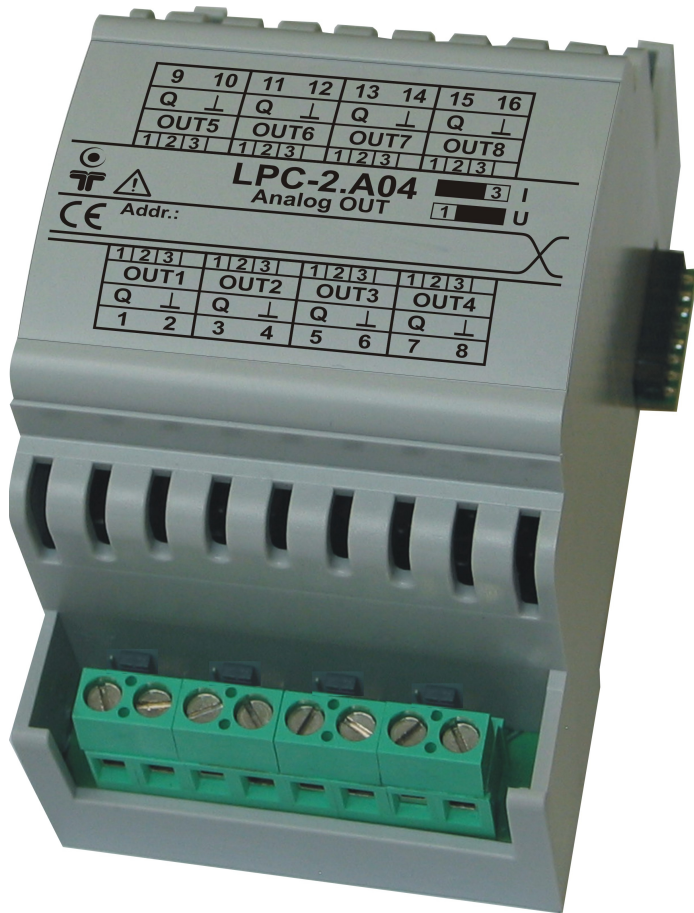


Figure 1: LPC-2.A04 analog module.

Table 1: Technical data

8 analog outputs

Voltage / current output range: 0 .. 10 V / 0 .. 20 mA @ $\pm 1\%$ / $\pm 1\%$ accuracy of full scale value

Output can be set as current or voltage type (jumper configurable)

Standard DIN EN50022-35 rail mounting



3 INSTALLATION

3.1 Connection scheme example

Figure 2: Connection scheme example

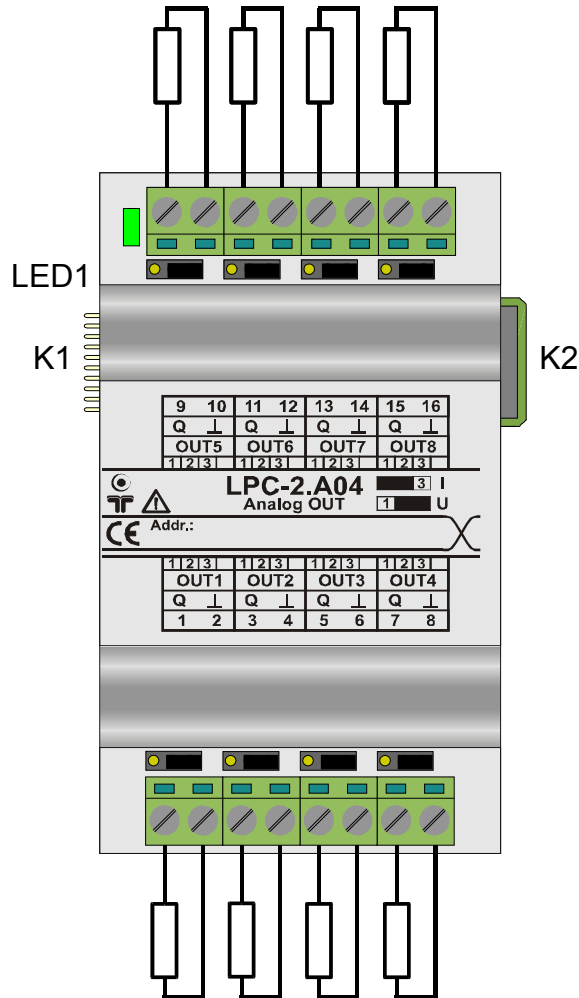


Table 1: Outputs¹

		set as voltage	set as current
OUT1.1 (Q)		analog out 0 .. 10 V DC	analog out 0 .. 20 mA
OUT1.2 (⊥)	GND		
OUT2.3 (Q)		analog out 0 .. 10 V DC	analog out 0 .. 20 mA
OUT2.4 (⊥)	GND		
OUT3.5 (Q)		analog out 0 .. 10 V DC	analog out 0 .. 20 mA
OUT3.6 (⊥)	GND		
OUT4.7 (Q)		analog out 0 .. 10 V DC	analog out 0 .. 20 mA
OUT4.8 (⊥)	GND		
OUT5.9 (Q)		analog out 0 .. 10 V DC	analog out 0 .. 20 mA
OUT5.10 (⊥)	GND		
OUT6.11 (Q)		analog out 0 .. 10 V DC	analog out 0 .. 20 mA
OUT6.12 (⊥)	GND		
OUT7.13 (Q)		analog out 0 .. 10 V DC	analog out 0 .. 20 mA
OUT7.14 (⊥)	GND		
OUT8.15 (Q)		analog out 0 .. 10 V DC	analog out 0 .. 20 mA
OUT8.16 (⊥)	GND		

Table 2: K1

Internal BUS	Data & DC power supply	Connection to I/O module
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Table 3: K2

Internal BUS	Data & DC power supply	Connection to I/O module
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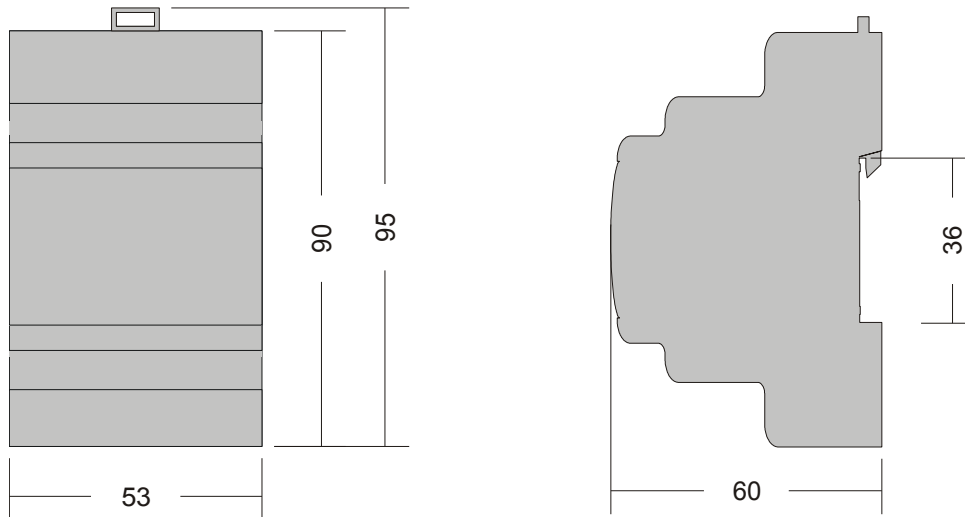
Table 4: LED1

Status	Green LED: indicates A04 state	Off: No power supply
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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.A04 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 devices and sensor wires according to the connection scheme in Figure 2.
5. Switch ON main power supply.
6. Green LED should turn on according to the Table 4.

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.

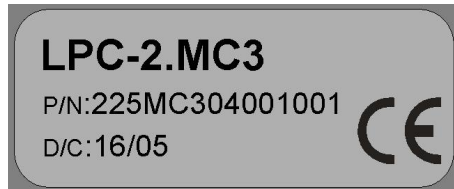
NOTE: LPC-2 main module should be powered separately from other electrical appliance connected to LPC-2 system. Signal wires must be installed separately from power and high voltage wires in accordance with general industry electrical installation standard.



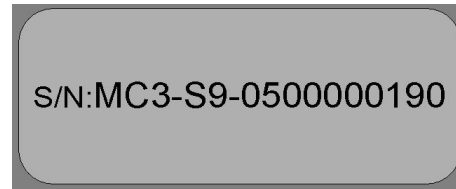
3.3 Module labeling

Figure 4: 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 5: Technical specifications

Power supply	from internal BUS
Number of analog outputs	8
Connection type	screw type connector for stranded wire 0.75 to 2.5 mm ²
Max. power consumption	5 W
Max. current consumption	20 mA per output
Analog output accuracy of the full scale value	< ±1 %
Load resistance	R > 500 Ω voltage mode R < 500 Ω current mode
Analog output range	0 .. 10 V / 0 .. 20 mA
Max. transition time per channel	1 s
DAC resolution	16 bit
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 CHANGES

The following table describes all the changes to the document.

Date	V.	Description
31.3.2006	1	The initial version, issued as <i>LPC-2.A04 module UserManual</i> .





6 NOTES

