USER MANUAL

Longo programmable controller
LPC-2.OT1 operation terminal

Version 4

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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 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

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Index

Longo programmable controller LPC-2.OT1 operation terminal

1 DESCRIPTION

LPC-2.OT1 operation terminal module is a human machine interface (HMI). It is a part of the LONGO Programmable Controller LPC-2 system with illuminated LCD display, keyboard, status LEDs and buzzer.

It's general purpose is to execute HMI application software and communicate with LON network.

Module is powered with external 12 VDC supply. For this purpose additional power supply (LPC-2.SO5) is required. Green LED (PWR) indicates LPC-2.OT1 operation terminal module CPU state. Red LED (SER) indicates CPU LON state. Push button (P.B.) is used for LON service pin activation (refer to the Table 8).

Application program is easy to load, control and monitor directly from the LPC Manager tool using standard RS232 PC port and PMC programming cable attached to LPC-2.OT1 connector (COM).

Connection of the LPC-2.OT1 module to LON network is done using LON1 and LON2 connectors. Standard network integration tool (e.g. LonMaker™ for Windows) is used for designing, installing, and maintaining interoperable LonWorks® control networks.

LPC-2.OT1 module is intended for dose mounting, but it also can be mounted on custom enclosure, machine or other provided place using four screws (refer to the Mounting instructions latter in this document).

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

2 FEATURES

Figure 1: LPC-2.OT1 operation terminal

Table 1: Technical data
IEC 61131-3 LD ladder programming language
Application loading, controlling and monitoring
Easy to use human machine interface (HMI)
Illuminated character LCD display
Keyboard with 24 keys and status LEDs
Integrated buzzer
12 VDC power supply (additional power supply needed)
Integrated LON FT-10 network line driver
Different mounting possibilities

3 INSTALLATION

3.1 Connection scheme

Figure 2: Connection scheme

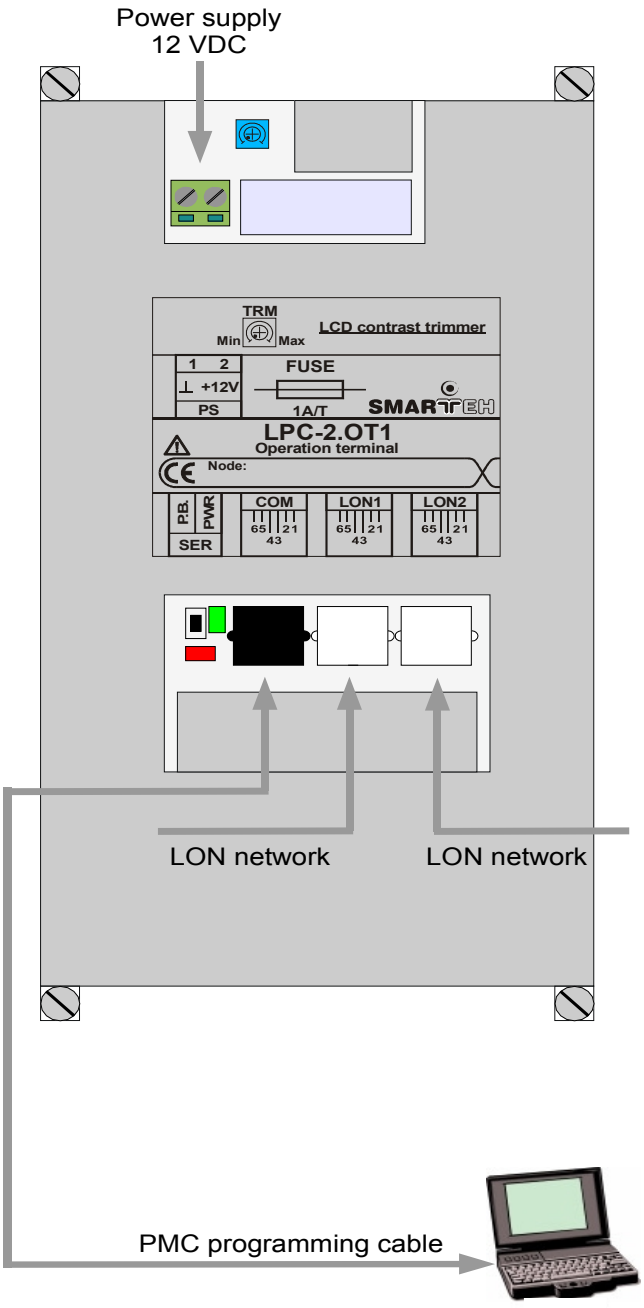


Table 2: PS[1]		
PS.1 (⊥)	0 VDC	Power supply input
PS.2 (+12V)	+12 VDC / 150 mA	Power supply input

Table 3: TRM		
TRM	Min. .. Max.	LCD contrast setting trimmer

Table 4: LON1		
LON1.1	N.C.	Not connected
LON1.2	N.C.	Not connected
LON1.3	LON FT-10[2]	LON communication
LON1.4	LON FT-10[2]	LON communication
LON1.5	N.C.	Not connected
LON1.6	N.C.	Not connected

Table 5: LON2		
LON2.1	GND	Ground
LON2.2	N.C.	Not connected
LON2.3	LON FT-10[2]	LON communication
LON2.4	LON FT-10[2]	LON communication
LON2.5	N.C.	Not connected
LON2.6	N.C.	Not connected

Table 6: COM		
COM.1	DTR - Data Terminal Ready RS232	Programming, controlling, monitoring
COM.2	GND	Ground
COM.3	N.C.	Not connected
COM.4	Rx - Receive RS232 •←	Programming, controlling, monitoring
COM.5	Tx - Send RS232 •→	Programming, controlling, monitoring
COM.6	RTS - Ready To Send RS232	Programming, controlling, monitoring

1 Supply wiring: power supply wires must have cross sectional area at least 0.75 mm^2. Minimum temperature rating of wire insulation must be 85 °C.

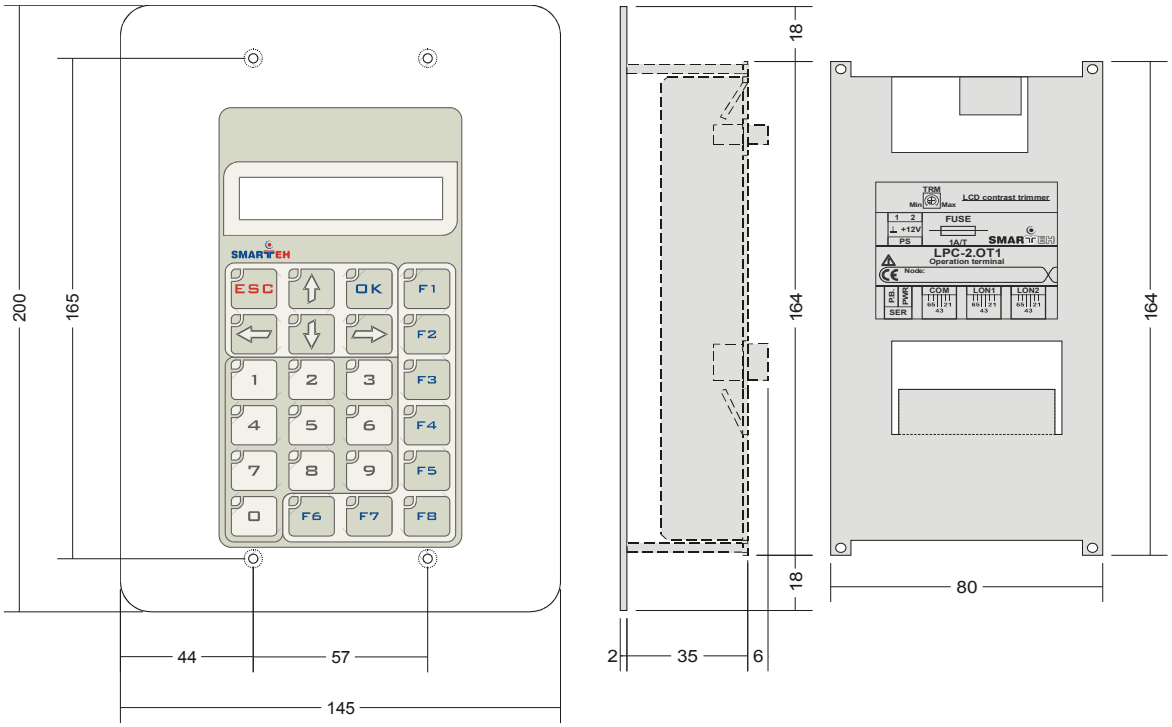
2 Use middle two pins for LON network connection.

Table 7: Earth		
Earth	Functional earthing	This connection is for functional (not protective) purposes only

Table 8: LEDs & Buttons		
PWR	Green LED: indicates LPC-2.OT1 CPU state	On: OK Off: power off or fuse blown Blink: internal fault Pulse off (OS): reset
SER	Red LED: indicates LPC-2.OT1 CPU LON state	Off: configured Blink: not configured On (with P.B. pressed): service pin message sent
P.B.	Push button: LON service pin	Service pin message sent when pressed

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.

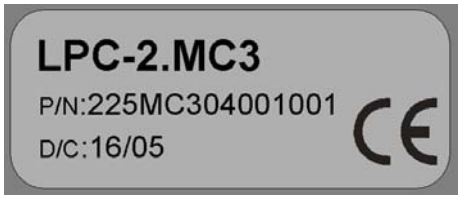
Mounting instructions:

1. Mount LPC-2.OT1 module to the provided place (GEWISS dose GW24238 or similar). Mounting screws are supplied together with LPC-2.OT1 module.
2. Connect communication wires to the connectors according to connection scheme in Figure 2.
3. Connect 12 VDC power supply wires to the connector according to connection scheme in Figure 2. If other then LPC-2.SO5 power supply is used, ensure that its output is SELV and limited power circuit.
4. Connect earthing wire to the provided place.
5. Switch ON 12 VDC power supply.
6. Power (PWR) green LED should switch on according to the Table 8.

3.3 Module labeling

Figure 5: Labels on housing

Label 1:



Label 2:

Label 1 description:

1. **LPC-2.MC3** is the full product name.
2. **P/N:225MC3040001001** 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 8: Technical specifications	
Supply voltage	12 V DC
Connection type	screw type connectors for stranded wire 0.75 to 2.5 mm^2
Max. power consumption	4 W
Application controller[3]	Intel C51 based
Data / programme memory	Organization: 8 bit
Non-volatile memory avail. for data	32 byte
RAM avail. for application	5.5 kB
FLASH-EPROM avail. for application	32 kB
Network controller	Echelon FT 3150
Network type	ANSI/CEA 709.3-1999, LON FT-10, 78 kbps
Network topology	star, daisy chain, bus, loop, mixed, free
Connection type	RJ12 FM connector
Application upload port	RS-232, max. 38.4 kbps, data bits: 8, parity: none, stop bit: 1, flow control: none,
Connection type	RJ12 FM connector
Dimensions (L x W x H)	145 x 200 x 43 mm
Weight	600 g
Ambient temperature	0 to 50 °C
Ambient humidity	max. 95 %, no condensation
Transport and storage temperature	-20 to 60 °C
Fuse	T 1A L 250 V
Pollution degree	2
Protection class	IP 30

3 For detailed memory configuration see MC3 help file in *LPC Composer* application

5 CHANGES

The following table describes all the changes to the document.

Date	V.	Description
31.3.2006	003	The initial version, issued as *LPC-2.OT1 module UserManual*.
11.5.2010	004	Updated warranty permanence.

6 NOTES