



SMARTEH[®]
LIVING SYSTEMS

USER MANUAL

- ▶ Longo programmable controller
LPC-2.DB1
Debug module

Version 2

Written by SMARTEH d.o.o.
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User Manual

Document Version: 2
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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.DB1

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1 ABBREVIATIONS

Sorted by order of appearance in document:

LED Light emitting diode



2 DESCRIPTION

LPC-2.DB1 debug module is used for two different purposes. It can be used for debugging LHC-2.MW1 and LPC-2.MC9 or programming LPC-2.NE1, LRC-1.NE1, LRC-1.NE2, LPC-2.MC3 and LPC-2.MC7.



3 FEATURES

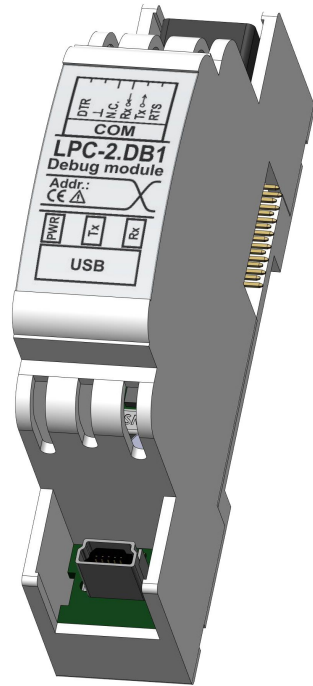


Figure 1: LPC-2.DB1 debug module

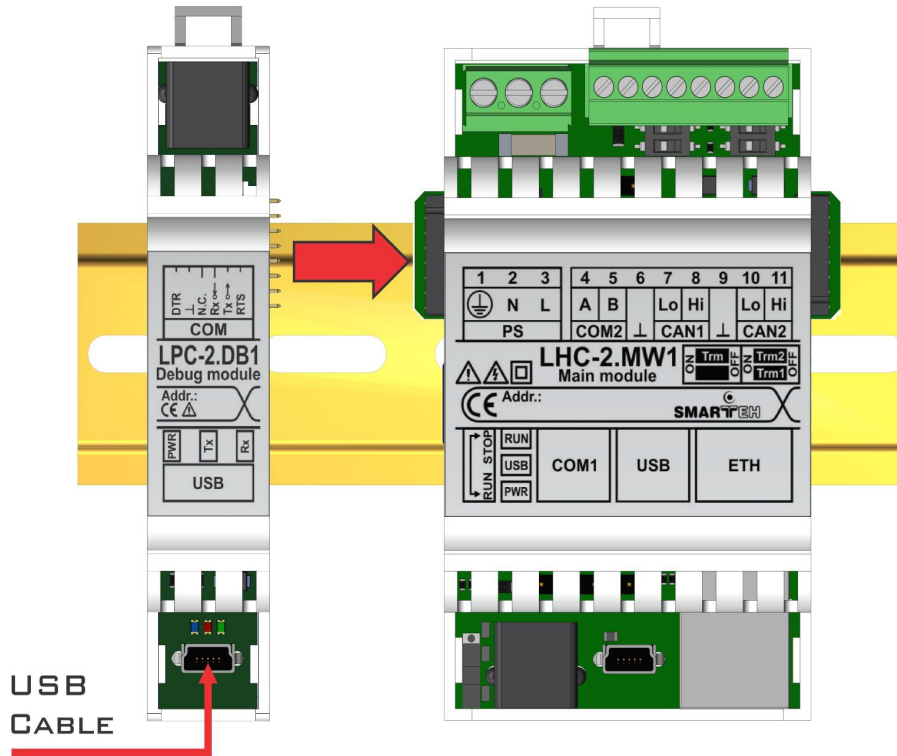
Table 1: Features
Debugging LHC-2.MW1 and LPC-2.MC9
Programming LPC-2.NE1, LRC-1.NE1, LRC-1.NE2, LPC-2.MC3 and LPC-2.MC7
Standard DIN EN50022-35 rail mounting
3 diagnose LEDs



4 INSTALLATION

4.1 Connection scheme example

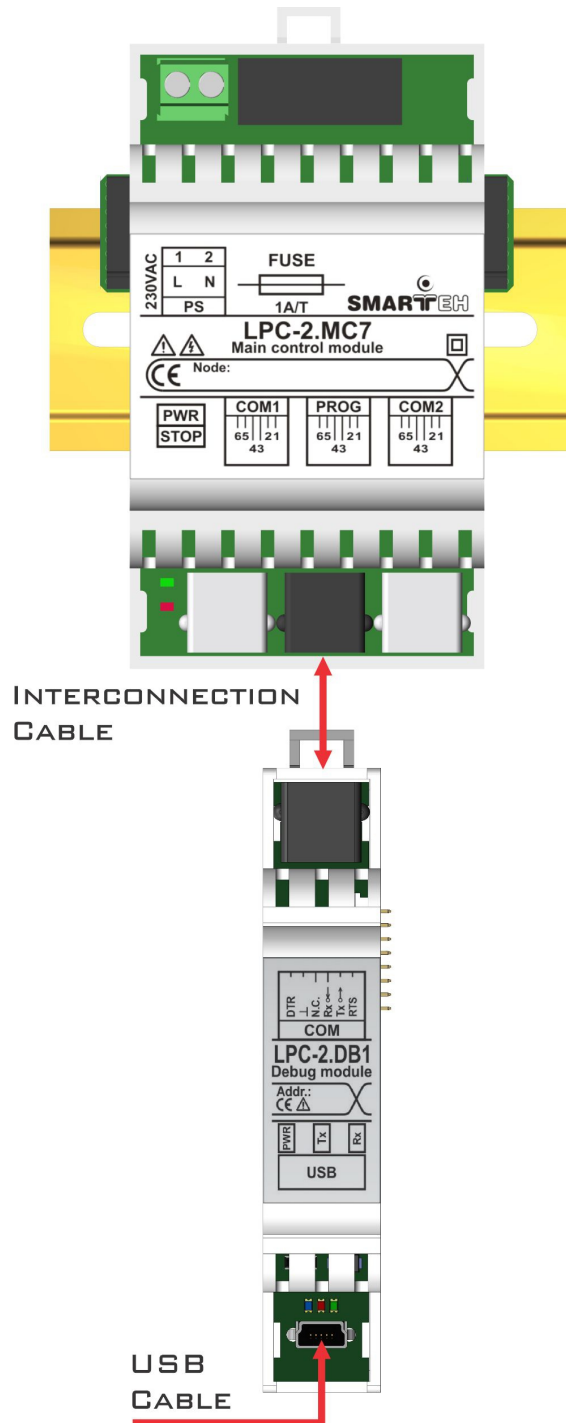
Figure 2: Connection scheme for debugging LHC-2.MW1



NOTE: Debugging LPC-2.MC9 is done the same way as shown in picture above.



Figure 3: Connection scheme for programming LPC-2.MC7



NOTE: Programming LPC-2.NE1, LRC-1.NE1, LRC-1.NE2, LPC-2.MC3 and LPC-2.MC7 is done via interconnection cable to COM port. In case with LPC-2.NE1, LRC-1.NE1, LRC-1.NE2 additional power supply is needed.



Figure 4: Connection scheme

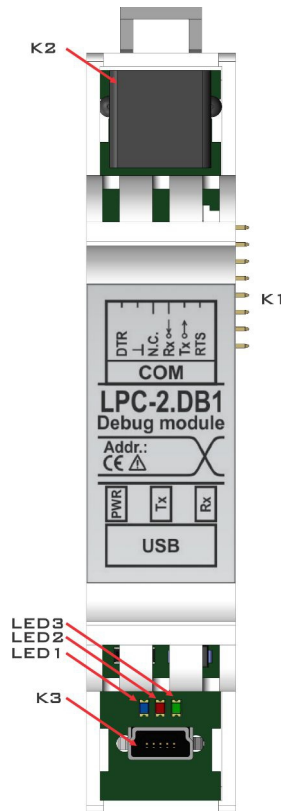


Table 2: K1

Internal BUS	Data transfer	Connection to controller
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Table 3: K2

K2.1	DTR	Data terminal ready
K2.2	GND	Ground
K2.3	N.C.	Not connected
K2.4	RS-232: Rx ●←	Data receive input
K2.5	RS-232: Tx ●→	Data send output
K2.6	RTS	Request to send





Table 4: K3

K3.1	VCC	Power supply input
K3.2	D-	Data -
K3.3	D+	Data +
K3.4	ID	May be N/C, GND or used as an attached device presence indicator (tied to GND with resistor)
K3.5	GND	Ground

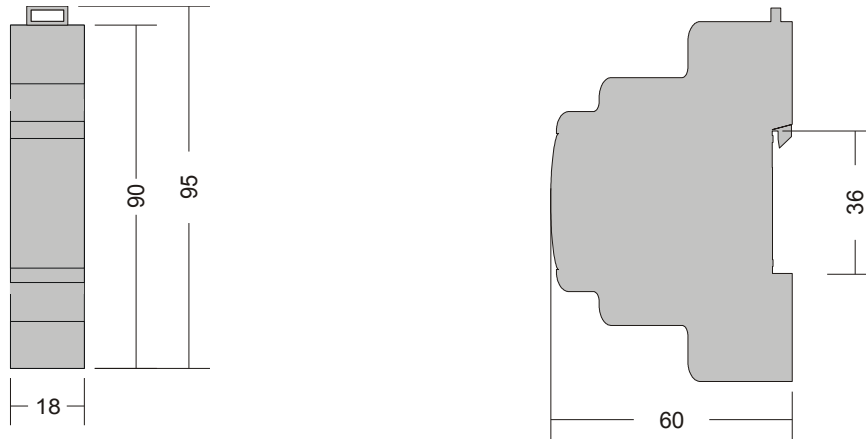
Table 5: LEDs

LED1	Blue, DB1 status	OFF: No power supply ON: OK
LED2	Red, DB1 Tx packet status	Blinking ON: Transmitting Tx packet
LED3	Green, DB1 Rx packet status	Blinking ON: Receiving Rx packet



4.2 Mounting instructions

Figure 5: 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 for debugging purpose:

1. Switch off main power supply.
2. Mount LPC-2.DB1 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. Make connections as show in Figure 2.
5. Blue LED1 should turn on.

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.

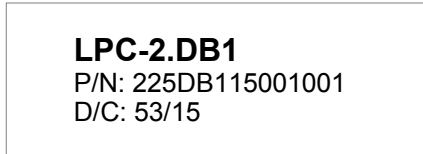
NOTE: LPC-2 main module should be powered separately from other electrical appliance connected to LPC-2 system. Signal wires must be installed separately from power and high voltage wires in accordance with general industry electrical installation standard.



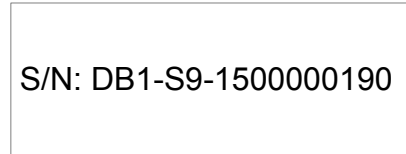
4.3 Module labeling

Figure 6: Labels

Label 1 (sample):



Label 2 (sample):



Label 1 description:

1. **LPC-2.DB1** is the full product name.
2. **P/N:225DB115001001** is the part number.
 - **225** - general code for LPC-2 product family,
 - **DB1** - short product name,
 - **15001** - sequence code,
 - 15 - year of code opening
 - 001 - derivation code
 - **001** - version code (reserved for future HW and/or SW firmware upgrades).
3. **D/C:53/15** is the date code.
 - **53** - week and
 - **15** - year of production.

Label 2 description:

1. **S/N:DB1-S9-1500000190** is the serial number.
 - **DB1** - short product name,
 - **S9** - user code (test procedure, e.g. Smarteh person xxx),
 - **1500000190** - year and current stack code,
 - 15 - year (last two cyphers)
 - 00000190 - current stack number; previous module would have the stack number 00000189 and the next one 00000191.



5 TECHNICAL SPECIFICATIONS

Table 6: Technical specifications

Power supply	from USB
Power consumption	0.5 W
Connection type	screw type connectors for stranded wire 0.75 to 2.5 mm ²
Dimensions (L x W x H)	90 x 18 x 60 mm
Weight	40 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





6 SPARE PARTS

For ordering spare parts following Part Numbers should be used:

LPC-2.DB1 Debug module	
LPC-2.DB1	P/N: 225DB115001001

Interconnection cable	
SPK-4	P/N: 203SPK16004001

USB cable	
USB A - B mini cable 1.8 m	P/N: 440USBAB180002





7 CHANGES

The following table describes all the changes to the document.

Date	V.	Description
15.12.16	1	Added chapter abbreviations. Small corrections.
15.03.16	1	The initial version, issued as <i>LPC-2.DB1 UserManual</i> .



8 NOTES

