USER MANUAL

Longo programmable controller
LPC-2.C05 module

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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Longo programmable controller LPC-2.C05 module

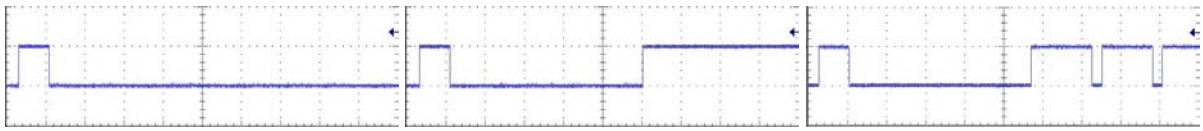
1 DESCRIPTION

LPC-2.C05 module is used for communication with mobile GSM equipment, like GSM phone or GSM modem. The communication between LPC-2 system and mobile equipment is established through SMS messages.

Up to eight digital and eight analog values could be represented from LPC-2 system as well as up to eight digital and eight analog commands could be sent from GSM phone or other mobile equipment. This commands could act direct to digital and analog outputs or can be used for parameter settings.

LPC-2 system can works also in alarming mode, where SMS alarm message is sent in case of abnormal situation (temperature too high, water leakage, etc.). The SMS alarm messages are sent recurrently every hour on first three phone numbers stored on the SIM card. If the phone numbers are stored in the international notation (with country code) then the prefix must start with "**00**" and not with "**+**" symbol (e.g. Slovenian international code is **00**386).

When LPC-2.C05 module is correctly installed, then is ready to operate. In this case status LED1 must blink (refer to the Table 6). The starting sequence is executed once after reset. Complete time base is 40 sec (see below).



a) b) c)

a) LED1 blinks once after reset and then is off – SIM card not inserted or SIM card PIN still enabled

b) LED1 blinks once after reset and then is on – GSM network problem; check antenna and GSM signal level with the mobile phone

c) LED1 blinks once after reset and then start blinking – normal starting sequence; everything OK

IMPORTANT: The PIN number of the SIM card must be disabled otherwise LPC-2.C05 will not be connected to the GSM network!

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.C05 communication module

Table 1: Technical data
Dual band 900/1800 MHz
Optional RS232 communication port, 9600 bps, 8 bits, one stop bit, no parity, no flow control, reserved for external AT command
Standard DIN EN50022-35 rail mounting

3 INSTALLATION

3.1 Connection scheme

Figure 2: Connection scheme

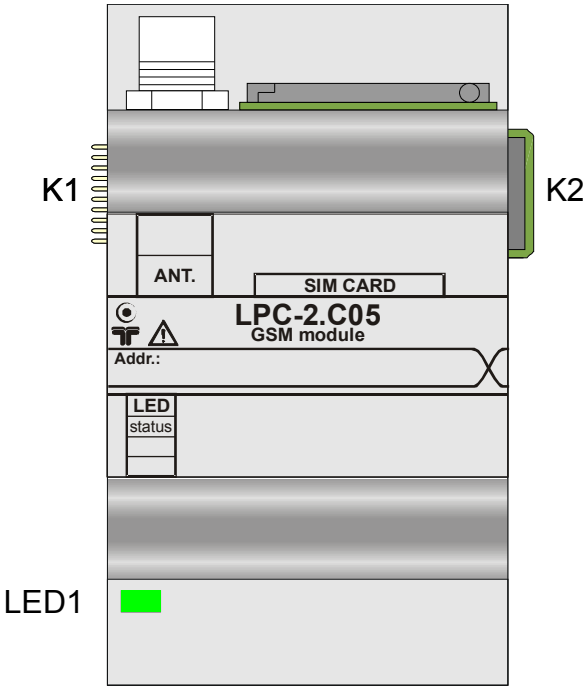


Table 2: ANT.		
ANT.	Antenna connector	FME/M (GSM antenna FME/F)

Table 3: SIM CARD	
SIM CARD	SIM card connector

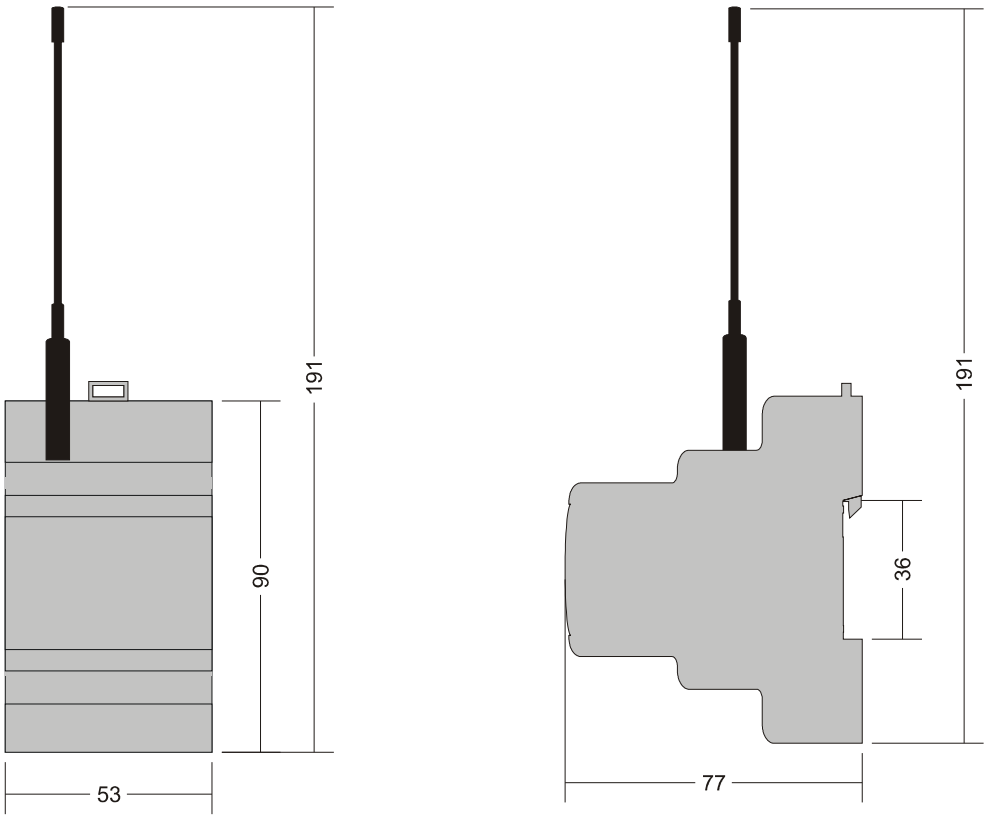
Table 4: K1		
Internal BUS	Data & DC power supply	Connection to I/O module

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

Table 6: LED1		
Status	Green LED: indicates C05 state	OFF: power off Blink once: SIM card not inserted or PIN enabled Blink once & ON: Low GSM signal Blink: Normal starting sequence

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.C05 module to the provided place inside an electrical panel (DIN EN50022-35 rail mounting).
3. Screw antenna (delivered together with LPC-2.C05 module) to the antenna connector.
4. Mount other LPC-2 modules (if required). Mount each module to the DIN rail first, then attach modules together through K1 and K2 connectors.
5. Switch ON main power supply.

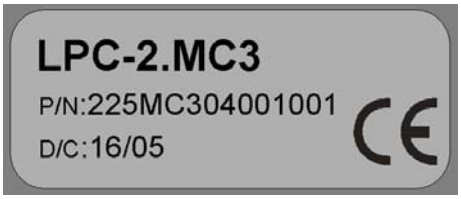
Dismount in reverse order. For mounting/dismounting modules to/from DIN rail a free space of at least one module must be left on the DIN rail.

NOTE: LPC-2.MC3 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 5: Labels on housing

Label 1 (MC3 sample):



Label 2 (MC3 sample):

Label 1 description:

1. **LPC-2.MC3** is the full product name.
2. **P/N:225MC3040001001** is the part number.
   - **225** – general code for 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
Communication	Optional RS232 communication port, 9600 bps, 8 bits, one stop bit, no parity, no flow control, reserved for external AT commands
Antenna connector	FME/M
Antenna impedance	50 Ω
Phone book capacity	100
SMS storage capacity	40 in ME (mobile equipment) up to 25 in SIM (SIM dependent)
Frequency range	GSM 900 and GSM 1800
Dimensions (L x W x H)	90 x 53 x 60 mm
Weight	120 g
Ambient temperature	0 to 50 °C
Ambient humidity	max. 95 %, no condensation
Transport and storage temperature	-20 to 60 °C
Pollution degree	2
Protection class	IP 30

APPENDIX A: PROGRAMMERS GUIDE

Memory allocation

Tables below shows the example of memory allocation for C05 on position #1.

Boolean variables Rx:

I/O Module	FBOOL8							
I/O Name	BIT0	BIT1	BIT2	BIT3	BIT4	BIT5	BIT6	BIT7
Range	0..1							
Address	MC3: 0x1069 + (N * 0x0040) MC7: 0x0702 + (N * 0x0040)							

Boolean variables Tx used to select the number of analogue (BIT0-BIT3) and digital (BIT4-BIT7) input signals:

I/O Module	FBOOL8							
I/O Name	BIT0	BIT1	BIT2	BIT3	BIT4	BIT5	BIT6	BIT7
Range	0..1							
Address	MC3: 0x1438 + (N * 0x0040) MC7: 0x0101 + (N * 0x0040)							

Boolean variables Tx:

I/O Module	FBOOL8							
I/O Name	BIT0	BIT1	BIT2	BIT3	BIT4	BIT5	BIT6	BIT7
Range	0..1							
Address	MC3: 0x1439 + (N * 0x0040) MC7: 0x0102 + (N * 0x0040)							

Word variables Rx:

I/O Module	FWORD16							
I/O Name	WORD1	WORD2	WORD3	WORD4	WORD5	WORD6	WORD7	WORD8
Range	0..65535							
Address	MC3: 0x160a + (N * 0x0040) MC7: 0x0703 + (N * 0x0040)							

Word variables Tx:

I/O Module	FWORD16							
I/O Name	WORD1	WORD2	WORD3	WORD4	WORD5	WORD6	WORD7	WORD8
Range	0..65535							
Address	MC3: 0x143a + (N * 0x0040) MC7: 0x0103 + (N * 0x0040)							

Boolean variable Tx used for alarming of the LPC-2 system(s):

I/O Module	FBOOL8							
I/O Name	BIT0	BIT1	BIT2	BIT3	BIT4	BIT5	BIT6	BIT7
Range	0..1							
Address	MC3: 0x144e + (N * 0x0040) MC7: 0x0117 + (N * 0x0040)							

N = module position number;
N of Main control unit is 0 and counts up by 1 with every next module

5 CHANGES

The following table describes all the changes to the document.

Date	V.	Description
30.6.2005	003	The initial version, issued as *LPC-2.C05 module UserManual*.
11.5.2010	004	Updated warranty permanence.

6 NOTES