USER MANUAL

Longo programmable controller
LPC-2.AQ1
Air Quality module

Version 2

User Manual

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.AQ1

1 DESCRIPTION

LPC-2.AQ1 is designed as air quality sensing module priority to detect CO2 levels while monitoring different gases and odors. The actual air quality can be optionally visualized with green and red signalization LEDs, mounted on the module. It is controlled by LPC-2.MC8 main module, user programmed with LPC Smarteh IDE developing tool. Air Quality module communicates to the main module by RS-485 protocol.

Module facilitates maximum energy efficiency, productivity and ultimate comfort, LPC-1.AQ1 Air quality sensor modules enable true demand-controlled ventilation. Applications include wall-mount solutions, as well as cost-efficient direct integration into HV AC systems, including damper actuators and automated windows.

The climate control industry views indoor air quality as a measure of temperature, humidity and carbon dioxide (CO2) levels.

Module is powered from LPC-2.MC8 controller through RS-485 cable, therefore no additional power supply is needed.

2 FEATURES

Figure 1: LPC-2.AQ1 module.

Table 1: Technical data
Air Quality sensing module
DIP switch configurable RS-485 address
Status LEDs for IR and RS-485 communication
Modular frame mounting

3 INSTALLATION
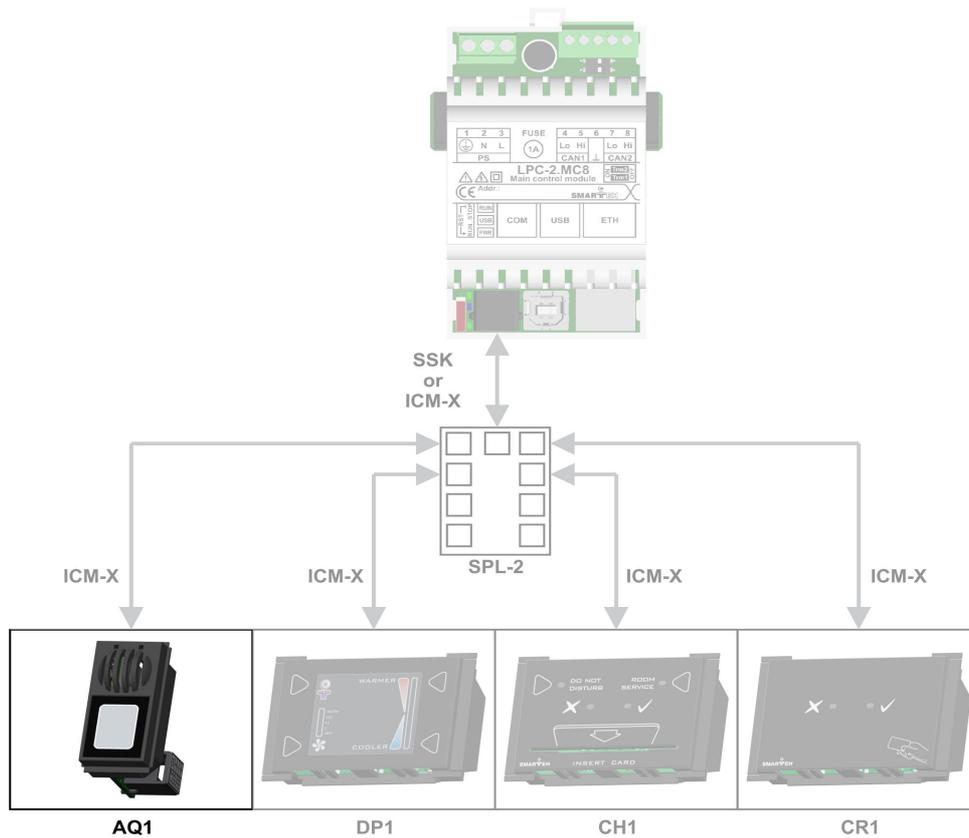
3.1 Connection scheme

Figure 2: Connection scheme

Figure 3: Layout of LEDs, switches, connectors

Table 2: K1

K1.1	GND	Ground
K1.2	9 V DC	Power supply input
K1.3	Standard RS-485 A	Data receive/send line A
K1.4	Standard RS-485 B	Data receive/send line B

Table 3: LEDs & Buttons

LED1	Error Led	On: Communication OK. Off: No communication.
LED2	Power Supply LED	On: Power present. Off: Power supply error.
LED3	PWM1 LED (Green)	On: Air Quality OK. Off: Bad Air Quality.
LED4	PWM2 LED (Red)	On: Bad Air Quality. Off: Air Quality OK.

Table 4: S1 Address settings

RS-485 ADDRESS	Switch 1	Switch 2
0	OFF	OFF
1	OFF	ON
2	ON	OFF
3	ON	ON

3.2 Addressing

Depending on number of additional devices attached to RS-485 port of main module, corresponding address must be set properly as advised by LPC Smarteh IDE. Address is set using DIP switches on the back side of module. Refer to Table 4 for finding the corresponding position of slides advised by LPC Smarteh IDE. When address is changed, device must be disconnected from the power supply and then reconnected again for changes to take effect. After successful address configuration, device is ready to communicate with controller.

Module connects to the main module on its RS-485 port using interconnection cable (e.g., SSK-7). When more special modules (e.g. LPC-2.ID1V, LPC-2.DP2 or LPC-2.WA1) are connected to main module, splitter is also required (e.g. SPL-2). Interconnection cable can be order from Smarteh or terminated on site, considering wiring scheme bellow:
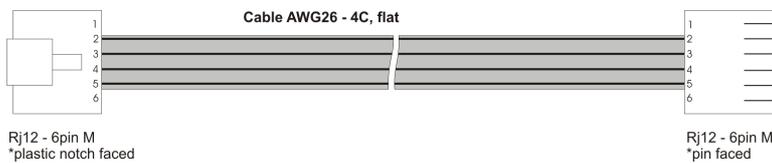

Cable AWG26 - 4C, flat

Rj12 - 6pin M
*plastic notch faced

Rj12 - 6pin M
*pin faced

Figure 4: Interconnection cable SSK.

NOTE: Signal wires must be installed separately from power and high voltage wires in accordance with general industry electrical installation standard.

3.3 Mounting frame selection

Frame, suitable for AQ1 module insertion, should be modular one at least 1 gang wide. Be careful to have corresponding flush-mounting box provided on the place, where module will be positioned.

Smarteh has verified following lines to be compatible with LPC-2.AQ1 module:

- Bticino – Living, Light
- Gewiss – Playbus, System
- Vimar – Plana, Idea
- Tem
- Master

Frames of other vendors most probably suits as well, but they were not verified by Smarteh. Before installation verify compatibility of non-listed frames.
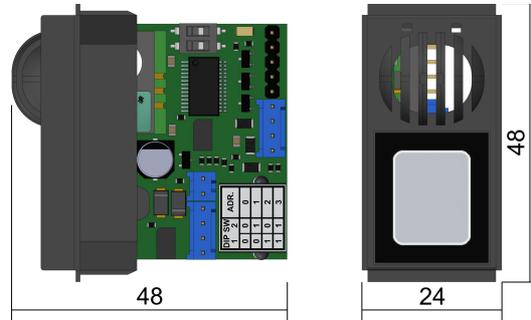
Module housing has a fin on each side, which can be easily removed with knife cutter or pliers. This adaptation enables housing to be inserted in various frame formats. With regard to frame used, you may remove fin for housing to fit in.

Figure 5: AQ1 modul with removable fin.

3.4 Mounting instructions

Figure 6: Housing dimensions

48

48

24

- Dimensions in millimeters.

⚠ All connections, module attachments and assembling must be done while module is not connected to the main power supply.

⚠ The LPC-2.AQ1 module should be positioned on the wall inside the room. It is advised to avoid direct sunlight or position near heating/cooling source object. Round flush-mounting box (e.g. Gewiss GW 24232), Φ60 mm is recommended for installation. A box must be installed with screw holes in the horizontal position!

Mounting instructions:

1. Mount LPC-2.AQ1 module back plate to the provided leveled place on the wall.
2. Fasten 2 screws (DIN 7981 or similar, Φ3 mm, **max. head height 3 mm**) to fix LPC-2.AQ1 module to its place.
3. Connect interconnection cable to the interconnection connector K1. Max. allowed tractive force is 30 N.
4. Set the correct RS-485 address (S1 switch) for LPC-2.AQ1 (refer to the Table 4).
5. Power (PWR) green LED should switch on according to the Table 5.
6. Mount LPC-2.AQ1 module front plate to the back plate.
7. Fasten the screw in the bottom carefully (not too strong), to fix the front plate to the back plate.

4 MODULE LABELING

Figure 7: Labels

LPC-2.AQ1
P/N:225AQ114V01001
D/C: 40/08
S/N: AQ1-S9-0800000003

Label description:

- **LPC-2.AQ1** is the full product name.
- P/N: 225AQ114V01001 is the part number.
    - 225 – general code for LPC-2 product family,
    - AQ1 – short product name,
    - 08 – year of code opening,
    - V - denotes flush frame mounting module,
    - 01 – derivation code,
    - 001 – version code (reserved for future HW and/or SW firmware upgrades).
- D/C: 40/08 is the date code.
    - 40 – week and
    - 08 – year of production.
- S/N: AQ1-S9-0800000003 is the serial number.
    - AQ1 – short product name,
    - S9 – user code (test procedure, e.g. Smarteh person xxx),
    - 08 – year (last two cyphers),
    - 00000003 – current stack number; previous module would have the stack number 00000002 and the next one 00000004.

5 TECHNICAL SPECIFICATIONS

Table 5: Technical specifications	
Power supply	from main module
Interconnection connector type	RJ-12 6/6
Power consumption	0.5 W
Dimensions (W x H x D)	24 x 48 x 34 mm
Weight	15 g
Maximum altitude	2000 m
Mounting position	all directions
Ambient temperature	0 to 50 ˚C
Ambient humidity	max. 95 %, no condensation
Transport and storage temperature	-20 to 60 ˚C
Protection class	IP 20

6 CHANGES

The following table describes all the changes to the document.

Date	Ver.	Description
08.10.2019	002	Updated Figure 1.
01.12.2014	001	The initial version, issued as *LPC-2.AQ1 special module UserManual*.

7 NOTES