english

POC-M

Control module with integrated pressure sensor e.g. for central extraction systems

Quick Start Guide

Detailed Description on www.systemair.com

Software version: from version 11.16

L-BAL-E231-GB 1446 Index 001 Part.-No. 00163429-42

systemair

Content

1 General notes

1.1 Structure of the short operating instructions

Attention!
This Quick Start Guide contains basic information on safety, use, installation and quick commissioning.
The detailed Operating Instructions can be found on our website. The additional information they contain must be observed.

To download the Operating Instructions, go to **www.systemair.com** and enter the article number of the device as the search key (☞ name plate).	**Example:** search key  Enter the article number

1.2 Exclusion of liability

Concurrence between the contents of these operating instructions and the described hardware and software in the device has been examined. It is still possible that non-compliances exist; no guarantee is assumed for complete conformity. To allow for future developments, construction methods and technical data given are subject to alteration. We do not accept any liability for possible errors or omissions in the information contained in data, illustrations or drawings provided.
We accept no liability for damage caused by misuse, incorrect use, improper use or as a consequence of unauthorized repairs or modifications.

2 Safety instructions

2.1 Intended use

The equipment is to be used solely for the purposes specified and confirmed in the order. Other uses which do not coincide with, or which exceed those specified will be deemed unauthorised unless contractually agreed. Damages resulting from such unauthorised uses will not be the liability of the manufacturer. The user will assume sole liability.
Reading these operating instructions and complying with all contained instructions - especially the safety notifications contained therein - are considered part of intended use. To consider is also the manual of attached components. Not the manufacturer, rather the operator of the device is liable for any personal harm or material damage arising from non-intended use!

2.2 Explanations of symbols

Safety instructions are highlighted with warning triangles and are depicted according to the degree of hazard as follows.

	Attention! General hazardous area. Death or severe injury or significant property damage can occur if the corresponding precautions are not taken!
	Danger due to electric current Danger by dangerous, electric voltage! Death or severe injury can occur if the corresponding precautions are not taken!
	Information Important additional information and advice for user.

2.3 Work on the device

Information
Mounting, electrical connection, and start-up operation may only be carried out by an electrical specialist in accordance with electrotechnical regulations (e.g. EN 50110 or EN 60204)!

Danger due to electric current
It is generally forbidden to carry out work on electrical live parts. Protection class of the device when open is IP00! It is possible to touch hazardous voltages directly!
The safe isolation from the supply must be checked using a **two-pole** voltage detector.

Attention!
Automatically restart after a power failure or mains disconnection!

3 Product overview

3.1 Operational area

Control module with integrated pressure sensor e. g. for central extraction systems. In connection with an external temperature sensor outside temperature compensation is possible.
The purpose of the device is to reach and maintain the target values set. To accomplish this, the measured actual value (sensor value) is compared with the adjusted target value, and the controlled value (modulation) is deduced from this.
Controlled output (0 - 10 V) e.g. for activating a speed controller for fans or an EC-fan directly.

3.2 Maintenance

The device must be checked for soiling and, if necessary, cleaned in periodic intervals.

3.3 Transport

- The device is packed ex factory to suit the transport method previously agreed.
- Always use the original packaging materials when transporting the device.
- Avoid shocks and impacts to the device during the transport.
- During manual handling the human lifting and carrying restrictions must be observed and adhered to.

3.4 Storage

- The device must be stored in its original packaging in a dry and weather-proof room.
- Avoid exposure to extreme heat and cold.
- Avoid over-long storage periods (we recommend a maximum of one year).

3.5 Disposal / recycling

Disposal must be carried out professionally and environmentally friendly in accordance with the legal stipulations.

4 Mounting

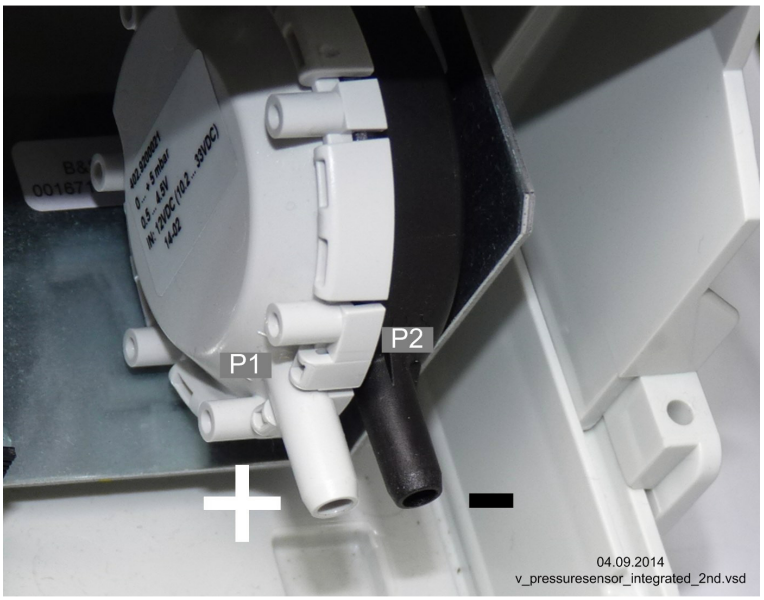
4.1 General notes

Attention!
The following points must be complied with during the mechanical installation to avoid causing a defect in the device due to assembly errors or environmental influences:

- Before installation remove the device from the packing and check for any possible shipping damage!
- Assemble the device on a clean and stable base. Do not distort during assembly! Use the appropriate mounting devices for proper installation of the unit!
- Do not mount equipment on vibrating base!
- When mounted onto lightweight walls, there must be no impermissibly high vibrations or shock loads. Any banging shut of doors that are integrated into these lightweight walls, can result in extremely high shock loads. Therefore, we advise you to decouple the devices from the wall.
- Do not allow drilling chips, screws and other foreign bodies to reach the device interior!
- The device should be installed in a location where it will not be disturbed, but at the same time can be easily accessed!
- Depending on the housing model use supplied stoppers for cable inlets, cut off necessary cable inlets respectively to the cable diameter. Or alternative use cable inlet for cable glands. Any cable ducts openings not used must be sealed!
- Care must be taken to avoid direct radiation from the sun!
- The device is designed for vertical installation (cable inlet down). A horizontal or reclined installation is only permissible after technical release of the manufacturer!
- Be sure to observe proper heat dissipation (☞ Technical data, heat dissipation).

4.2 Connection pressure measuring tube

Depending on the tube diamater cut the cable entries and bring in measuring tubes into the device. Connection of the tubes directly to the internal pressure sensor.
The excess pressure tube must be connected to the white side here “P1” (+) and the negative pressure tube connected to the black side “P2” (-) (connection piece Ø : 6.2 mm).



5 Electrical installation

Information
This Quick Start Guide does not list all connection options or notes for electrical installation (full description ☞ Operating Instructions, connection diagram ☞ Enclosure).

5.1 Mains connection

Power from the mains is connected to terminals: PE, L1 and N. Here, it must be strictly observed that the mains voltage lies within the allowable tolerance specifications (☞ Technical data and nameplate affixed to the side).

Danger due to electric current
The mains voltage must comply with the DIN EN 50160 quality characteristics and the defined standard voltages in IEC 60038!

5.2 Signal input or sensor connection (E2)

- In the operating mode **4.01**, the analogue input “E2” has no function (☞basic setting **4.01**).
- In the operating mode **4.02** (factory setting), the analogue input“E2” is pre-programmed for connecting the outdoor temperature sensor (PTC / KTY81-210 of the “TF..” series).
  - When connecting **passiv** temperature sensorsTF.. (KTY81-210) or PT1000 at terminals “E2” and “T” must be paid attention to no polarity.
    For a high interference immunity a capacitor must be connected directly to the sensor (1 nF parallel). With temperature sensors type TF.. (KTY81-210) a capacitor is integrated.
  - When connecting **aktive** sensors at the terminals “E2” and “GND” attention must be paid to correct polarity, a 24 V DC power supply is integrated.
  - For sensors in two-wire-technology (4 - 20 mA signal), the connection is made on the “E2” and “24 V” (“GND” terminal is omitted).

Danger due to electric current
Never apply line voltage to analog inputs!

Information
Analog input “E1” is internally occupied by the built in pressure sensor.

5.3 Control outputs 0 - 10 V (A1, A2)

The analogue outputs can be used to activate a speed controller with 0 - 10 V input for example. Fans with integrated controller and 0 - 10 V input can be activated directly.

- Analog output 1 (terminals A1 - GND)
  - Controlled 0 - 10 V output for control circuit 1 (factory setting function 2A).
- Analog output 2 (terminals A2 - GND)
  - For operation with one control circuit: constant voltage +10 V e.g. for supply of an external potentiometer (function factory setting 1 A).
  - For operation with a second control circuit: controlled 0 - 10 V output for control circuit 2 (function initial setting 8 A).

Other functions can be assigned if necessary (☞ Operating Instructions / IO Setup).

Danger due to electric current
It is not permissible to connect outputs of several devices to each other!

5.4 Digital inputs (D1, D2)

Various functions can be allocated to the digital inputs “D1” and “D2” (☞ IO Setup: Functions summary of the digital inputs). Activation via floating contacts (a low voltage of ca. 24 V DC is connected).

Factory setting for digital input “D1” : Switch over setpoint 1 / setpoint 2 (function = 5D)
“Setpoint 1” with open contact / “setpoint 2” with closed contact.
For operation with second control circuit: switch over “1.Setpoint 1” / “1.Setpoint 2”

Info	
248.3 Pa **E1 Actual**	Operation with “Setpoint2” is signalized by the moon symbol for reduced operation.

No function is programmed in factory for the digital input “D2” (function = OFF)

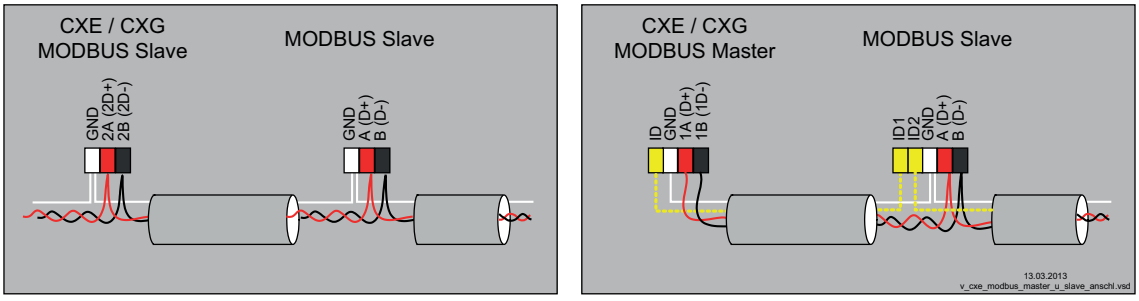
Danger due to electric current
Never apply line voltage to the digital input!
Observe input resistance and voltage range (☞ Technical data).

5.5 RS-485 interfaces for MODBUS RTU

The device has two RS-485 interfaces for networking via MODBUS RTU:

1. Interface “1A (1D+)”, “1B (1D-)” for MODBUS Master applications
   – Pre-programmed function is output from control circuit 1: 1st control signal (2 A)
   For example, to activate speed controllers for fans or fans with integrated controller and MODBUS interface.
   – Automatic addressing of members via a patented procedure.
   It is no longer necessary to address each individual member manually in the network. The “ID” connection is also assigned.

2. Interface “2A (2D+)”, “2B (2D-)” for MODBUS Slave applications
   – Connection of the device to a superordinate building control system.



Connection MODBUS Slave and MODBUS Master interface

When using telephone flex with four cable cores, we recommend the following allocation:

- A (D+) = red
- B (D-) = black
- ID - ID1/2 = yellow (for automatic addressing for MODBUS Master)
- GND = white

Information

- You must ensure correct connection; i.e. “A (D+)” must also be connected on the following devices to “A (D+)”. The same applies to “A (D+)”.
- Inaddition,a "GND" connection must be established, as dissimilar potential (over 10 V!) will lead to the destruction of the RS-485 interface (e.g. lightning).
- Except for the data link “A (D+)”, “B (D-)”, the “ID1 - ID2” (automatic addressing for MODBUS Master) and the “GND” connection, no further cable cores of the data line may be used.
- Do not use wire shield!

- Pay attention to sufficient distance from powerlines and motor wires (min. 20 cm).

The data line must be connected from one device to the next. No other type of wiring is allowed! Always use only two wires of one lead (twisted pair) for the connection.

Further description ☞ Operating Instructions

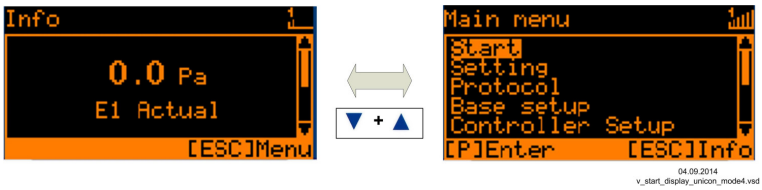
6 Start-up

6.1 Prerequisites for commissioning

Attention!
1. You must mount and connect the device in accordance with the operating instructions.
2. Double check that all connections are correct.
3. The mains voltage must match the information on the rating plate.
4. Make sure that no persons or objects are in the fan's hazardous area.

6.2 Procedure for commissioning

1. Turn on mains voltage
   – Display:



(Function of display ☞ controls and menu)

2. Switch over between “Info” and “Main menu” with the “Esc” key combination

3. Menu group: **Start**
   – Set the menu language if necessary (factory setting English = Language GB).
   – The display can be switched between SI units (US units = OFF) and imperial (US) units (US units = ON).

4. Menu group: **Basic setting**
   Set desired operating mode
   – **4.01** pressure control, setpoint in Pa
   – **4.02** Pressure control setpoint depending on outdoor temperature (factory setting)

5. Menu group: **Setting**
   – Set the parameters for the control mode.

Excerpt from the menu table

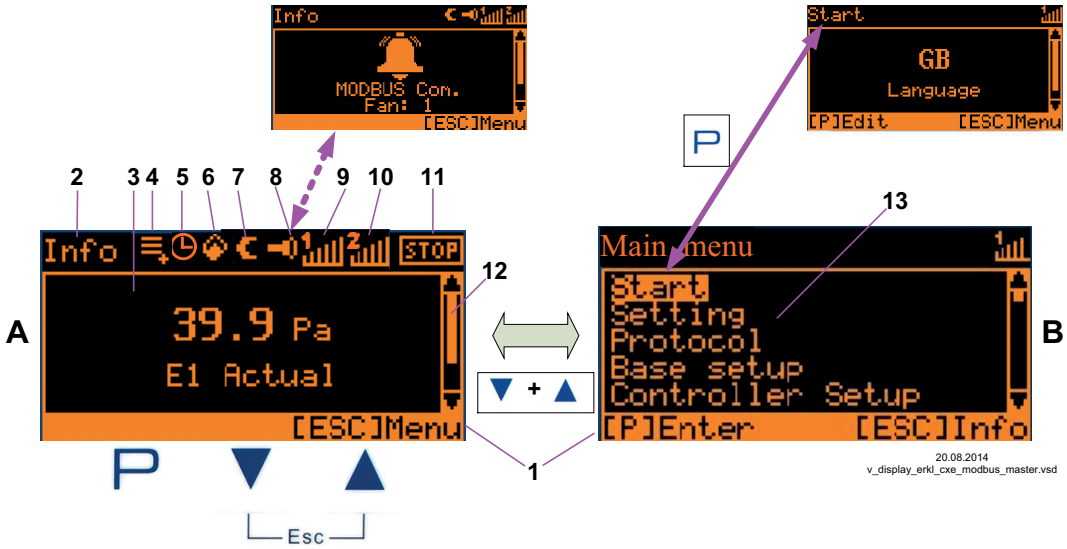
Start		
Language	GB	GB
US units	OFF	OFF
Base setup		
Mode	**4.01**	**4.02**
Setting		
Setpoint1	250.0 Pa	250.0 Pa
Setpoint2	250.0 Pa	250.0 Pa
Pband 1	250.0 Pa	250.0 Pa
Min. Speed	0%	0%
Max. Speed	100 %	100 %
Manual mode	OFF	OFF
Speed man.	100 %	100 %
T-Band SA		30.0 K
T-Start SA		15.0 °C
Min Setpoint		70.0 Pa

Information

Adjust further settings according to the desired function (☞ Operating Instructions / Programming)

7 Controls and Menu

7.1 Multipurpose LC display and keyboard



A	**Actual value display** Display after line voltage is switched on or after the **Esc** key combination is used to exit the settings menu (display depends on selected mode and sensor value).
B	**Main menu** Display after the **Esc** key combination is used to exit the actual value display. Select the desired menu group with the ▼▲ buttons and use the **P**-key to open it.
P	Program key and open menu.
▼	Menu selection, reduce value.
▲	Menu selection, increase value.
▼ + ▲ Esc	**Esc**-key combination, Escape = leave menu. Switch between Info and Main menu.

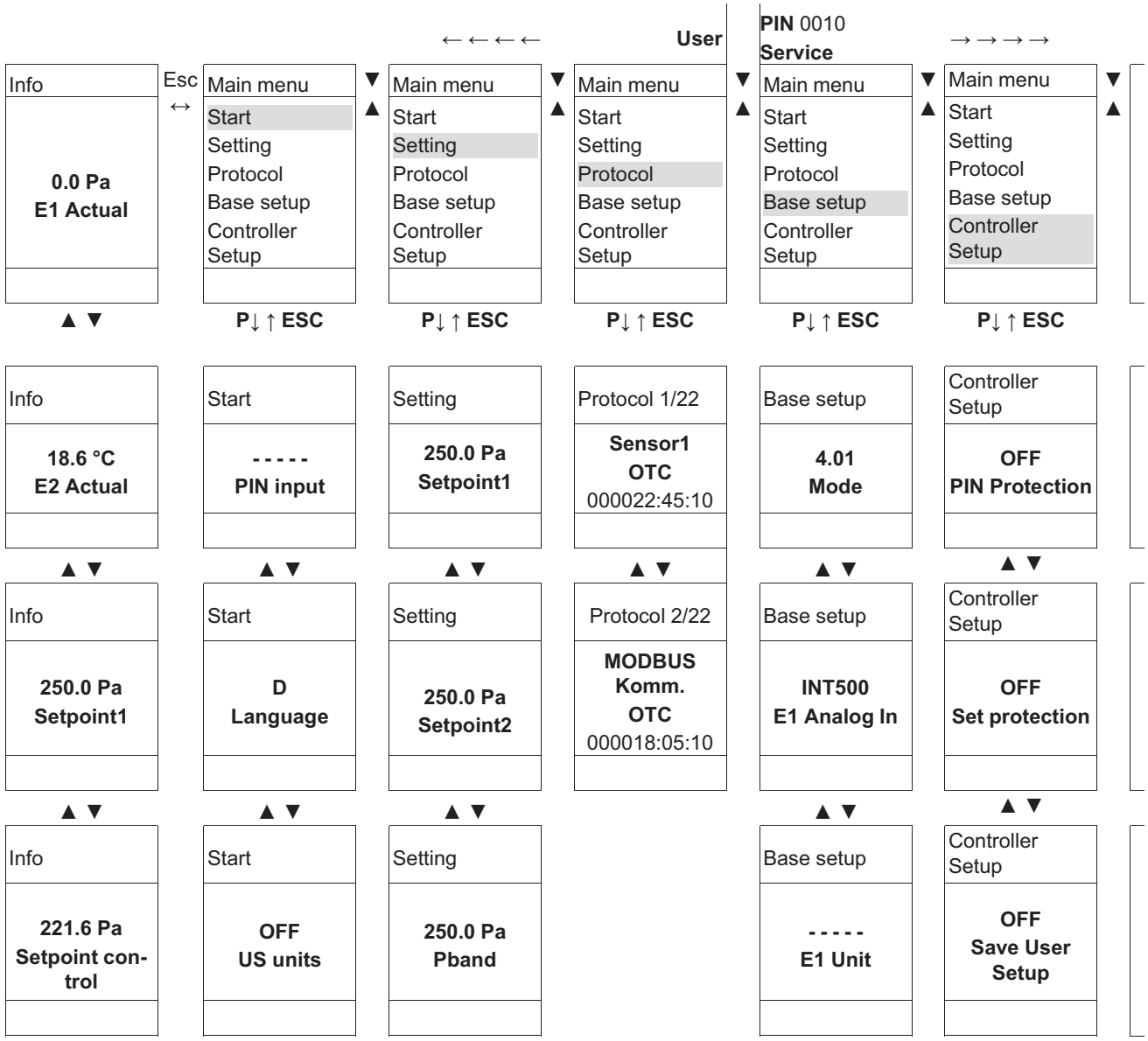
1. Status bar
2. Display of the menu group in which the displayed menu is located
3. Display window
4. Log entry which still was not seen
5. Timer function active
6. Fire-Symbol (heating operation)
7. Moon-Symbol for set point 2
8. Alarm symbol (fault message alternating with actual value display)
9. Modulation control circuit 1
10. Modulation control circuit 2 (if activated)
11. STOP-Symbol (enable)
12. Position of the menu in the menu group
13. List of the menu groups

7.2 Example for programming mode 4.01 in “Base setup ”

Sequence

1		2		3		4		5		6		7
Base setup **4.02 Mode** [P] [ESC]		**P**		Base setup **4.02 Mode** [P] [ESC]		**▲**		Base setup **4.01 Mode** [P] [ESC]		**P**		Base setup **4.01 Mode** [P] [ESC]

7.3 Menu structure



Menu dependent on mode

Selection of the menu group (e.g. Base setup) to the right through the ▼-key, to the left through the ▼-key.
You can go to the menu items in the menu groups (e.g. mode of operation) by using the **P** key. Use the arrow keys to move up and down within the menu group.
The menu groups consist of one area for the user (user menu) and one area for installation (service). The service area can be protected against unauthorized access by using a PIN.
In order to simplify the initial start-up operation, the service level is enabled at first (i.e., not protected by the PIN 0010 (☞ Operating Instructions / Controller Setup, PIN protection = OFF). If PIN protection is activated (ON), the service menu remains enabled after input of PIN 0010 as long as one is pressing keys. If no keys are pressed for ca. 15 minutes, the PIN is automatically erased, i.e. the service level is blocked.
To make adjustments, press the **P** key after selecting the menu item. If the previously set value starts to □ashi‡ can be adjusted with the ▼ + ▲ keys and then saved with the **P** key. To exit the menu without making any changes, use the “Esc” short-key, i.e., the originally set values remain.

Information
After installation of the device has been carried out, PIN protection should be activated (☞ Operating Instructions / Controller Setup)!

7.4 Overview menu groups

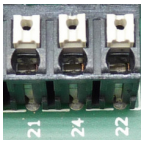
Main menu	Possible settings
Info	Display measured actual values, selected setpoints, modulation, etc. Settings cannot be made in this menu group.
Start	PIN input for reset to initial settings and to protect settings. Setting the menu language. Display in SI units or Imperial units (US) Complete re-start of the device. Display of the set mode, software version, etc.
Setting	Settings for Operation, Setpoint, Pband, Min. Speed, Max. Speed, etc.
Protocol	Display and query of events / malfunctions.
Base setup	Setting of the desired mode, configuration of signal and sensor inputs. Activation control circuit 2.
Controller Setup	Activate set protection, save user settings. Activate alarm message in the event of a sensor fault. Activate limitation of modulation via digital input or timer of time switch. Configuration of control parameters, group control.
IO Setup	Configuration and function assignment for: analogue outputs, digital inputs, relay outputs. Function MODBUS interface: COM2 for MODBUS Slave or MODEM SMS.
Limits	Limit messages depending on modulation, setting signal or sensor signal, offset to setpoint.
Timer	Integrated time switch with programmable timer functions. Clock fine adjustment
Diagnostic	Current operating states of the device.
MODBUS Slave **MODBUS SMS**	Addressing and configuration of the MODBUS Slave interface. alternatively Input of SIM PIN for MODBUS SMS interface (currently no function).
MODBUS Master	Start automatic addressing of members. alternatively Manual input of number of members.

8 Enclosure

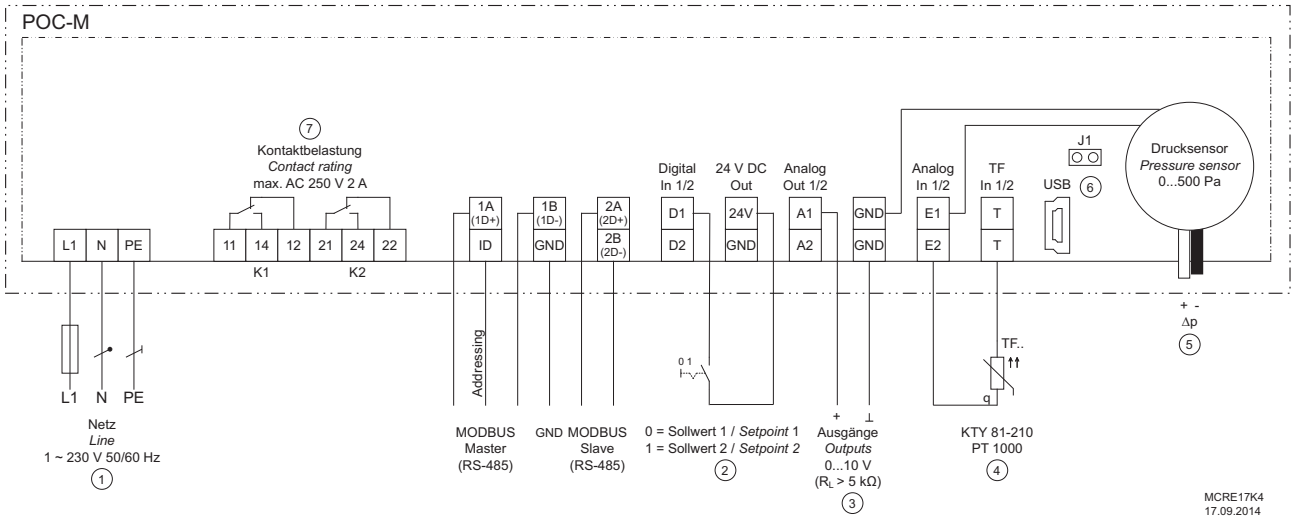
8.1 Technical data

Type	POC-M
Part-No.	313833 (320060-42)
Line voltage	1 ~ 230 V (-15 % bis +10 %), 50/60 Hz
Weight	0.98 kg
Input resistance for sensor signal (E2)	for 0 - 10 V input: R_i > 900 kΩ for input 4 - 20 mA: R_i = 250 Ω (max. load 500 Ω)
Voltage supply for external devices	+24 V (-30...+20 %), I_{max} 62 mA
Analog output (A1, A2 0 - 10 V)	Load resistance (load) > 5 kΩ Short-circuit proof, short-circuit current = 24 mA
Digital inputs (D1, D2)	R_i approx. 7.8 kΩ Input current typ. 2.5 mA Voltage range high level: 7.1...19 V DC Voltage range low level: 0....2.7 V DC
Max. heat dissipation	approx. 10 W
Max. line fuse	10 A
Max. permissible ambient temperature	55 °C
Min. permissible ambient temperature	0 °C (if mains voltage is not switched off up to -20 °C)
Permissible rel. humidity	85 % no condensation
Electromagnetic compatibility for the standard voltage 230 / 400 V according to DIN IEC 60038	Interference emission EN 61000-6-3 (domestic household applications)
	Interference immunity EN 61000-6-2 (industrial applications)
Housing protection	IP54

Connectable conductors (information for all terminals)

Push-In Terminals 		Cross section min.	Cross section max.
	Terminal range, rated connection	0.13 mm^2	1.5 mm^2
	Wire connection cross section AWG	AWG 24	AWG 16
	Solid H05(07) V-U	0.2 mm^2	1.5 mm^2
	Flexible H05(07) V-K	0.2 mm^2	1.5 mm^2
	With wire end ferrule DIN 46 228/1	0.25 mm^2	1.5 mm^2
	Wire plastic collar ferrule DIN 46 228/4,	0.25 mm^2	0.75 mm^2
	Rigid conductors and conductors with wire end ferrules can be plugged into the terminal without tools. Use the flexible conductor for connection and the push button for release. Stripping length: 8 mm		
The data refer to the connection possibilities of the terminals. The necessary conductor cross section must be dimensioned according to the respective prevailing conditions.			

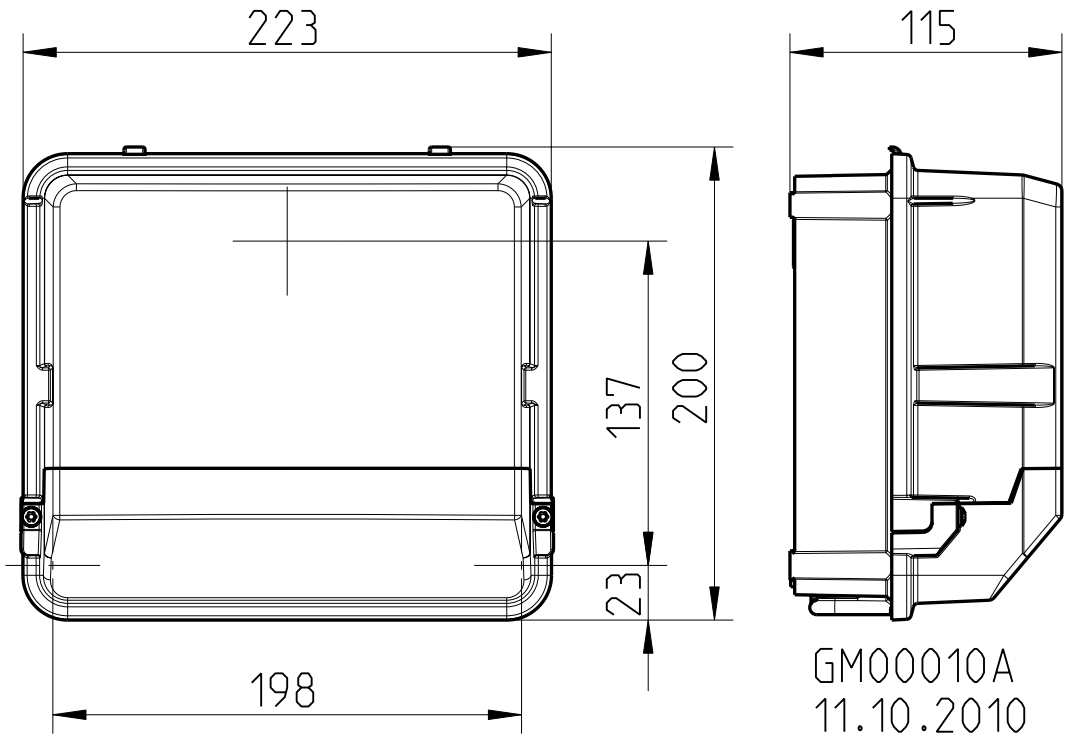
8.2 Connection diagram



1 Line
2 Digital inputs for potential-free contacts, D1 pre-programmed for switch over setpoint 1/2
3 Outputs (I_{max} = 2 mA): A1 pre-programmed control output e.g. for controlling a speed controller. Fans with integrated controller and input 0 - 10 V can be activated directly. A2 pre-programmed for constant voltage +10 V
4 Outdoor temperature sensor to E2: TF.. (KTY, Pt1000), alternatively 0...10 V, 0...20 mA, 4...20 mA,
5 Internal pressure sensor to E1
6 Jumper J1 for USB interface (Bootloader)
7 Contact rating max. AC 250 V 2 A (ohmic load)

Attention!
Plug the jumper J1 to both PINs only for a software update via USB interface. The device will not switch on if this jumper is plugged to both PINs!
Do not replug the jumper under voltage, observe the safety instructions!

8.3 Dimensions [mm]



8.4 Manufacturer reference CE

Our products are manufactured in accordance with the relevant international regulations. If you have any questions concerning the use of our products or plan special uses, please contact:

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