

Data sheet

EA14M | Pressure indicator with colour-changing LCD

The EA14A can be used as a transmitter and display unit for measuring pressure. The device analyses a signal (current or voltage) that originates from an external transmitter.

Fields of application include:

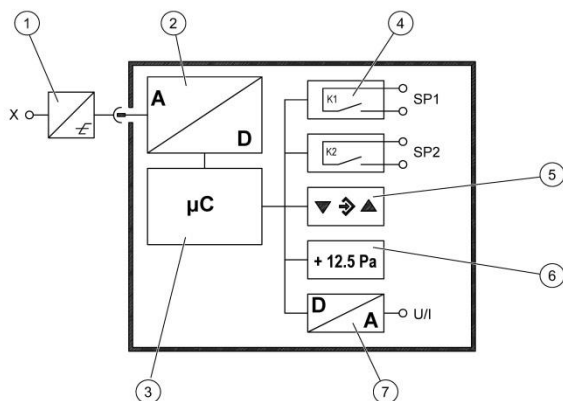
- Differential pressure measurements in heavily soiled media
- Filter monitoring
- Filling level measuring
- simple pump control systems
- Pump, compressor monitoring

Design and mode of operation

This device is based on an electronic analysis switch that analyses the measuring signal of an external transmitter. The main task is to display and analyse the measured signal. Optionally, an output signal can be provided that is proportional to the input signal.

The external transmitter is connected to the analysis circuit using a flexible cable with plug connectors which also acts as the power supply. Only the supplied transmitters may be connected.

Functional Schematic



- | | |
|---------------------------------|---------------------|
| 1 Transmitter with input signal | 2 Signal conversion |
| 3 Micro-controller | 4 Switch output |
| 5 Keyboard | 6 Display |
| 7 Analogue output | |

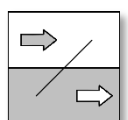


Important features

- Colour-change LCD
- Switchable pressure units
- 2 independent switching points with lots of configuration options
- Optional signal output with possibility of characteristic curve spread and reversal with any offset
- Characteristic curve implementation via table with max. 30 measuring points
- Complete adjustment of all parameters and measuring point protocol possible through optional PC adaptor EU03.

Typical applications

- Pressure switch / pressure indicator for difficult to access measuring points
- Filling level measuring
- Simple pump control systems
- Pump, compressor monitoring



Technical Data

Input signal		0...20 mA	4...20 mA	0...10 V
Max. characteristic curve deviation	%FS	0.1		
Typ. characteristic curve deviation	%FS	< 0.05		
Tk span max. ^{°°}	%FS/10K	< 0.1		
Tk span typ. ^{°°}	%FS/10K	< 0.025		
Tk zero point max. ^{°°}	%FS/10K	< 0.1		
Tk zero point typ. ^{°°}	%FS/10K	< 0.025		

The stated values refer to the analysis unit and do not take into account the property of the connected filling level transmitter!

°: Characteristic curve deviation (non-linearity and hysteresis) at 25°C, and rated voltage, in reference to basic measuring range (linear characteristic curve, not spread)

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	General points
Admissible ambient temperature	-10 ... 70°C
Admissible media temperature	see data sheet of the connected sensor
Admissible storage temperature	-20 ... 70°C
Enclosure protection class	IP 65 acc. to DIN EN 60529
	Electrical data
Rated Voltage	24 VDC / VAC
Allowed operating voltage U_b	12...32 VDC / VAC
Electrical connection type	Three-conductor
Output signal	0...20 mA, 4...20 mA, 0...10 VDC
Admissible apparent ohmic resistance	for current output $R_L \leq (U_b - 4 \text{ V}) / 0.02 \text{ A}$ ($U_b \leq 26\text{V}$), otherwise $R_L \leq 1100 \Omega$ for voltage output $R_L \geq 2 \text{ K}\Omega$ ($U_b \geq 15 \text{ V}$), $R_L \geq 10 \text{ K}\Omega$ ($U_b = 12 \dots 15\text{V}$)
	Switch contacts
Progr. switching function	2 potential-free relay contacts Open contact (NO) / break contact (NC)
Switching voltage	max. 32 V DC/AC
Max. switching current	2A
Max. switching output	64 W/VA
Power consumption	approx. 2 W / VA (without external sensors)
Advertisement	LCD graphic display
	Ports
electr. connection	2 x fitted connectors M12 coding Connector 1 for supply and analogue output signal (5-pin) Connector 2 for switch contacts (4-pin)
External pressure transmitter	Connector 3 1m cable with standardised plug DIN EN 175 301-803-A (4-pin) or Built-in socket M12 Code A (5-pin)
	Materials
Housing	Polyamide PA 6.6
Media-contacting material	see data sheet of the connected sensor
	Montage
	Assembly of the mounting rails Panel mounting set Wall mounting

Programming

Programmed via the membrane keyboard with menu navigation; locked with a password.

	Settings
Attenuation	0.0 ... 0.0 ... 100.0 s (jump response time 10 / 90 %) for signal output; separately also for display
Switch output 1 / 2	Switch-off point, switch-on point, response time (0 ... 100 s); function (NO contact / NC contact)
Measuring range unit	m / Pa / "free unit", starting value, end value and decimal point for "free unit"
Zero-point stabilising	0 ... 1/3 of the basic measuring range (1)
Output signal	User-definable within the basic measuring range (2)
Zero point correction	$\pm 1/3$ of the basic measuring range (3)
Implementation of characteristic curve	linear, square rooted, table with 3...30 support points
Password	001 ... 999 (000 = no password protection)

Comments:

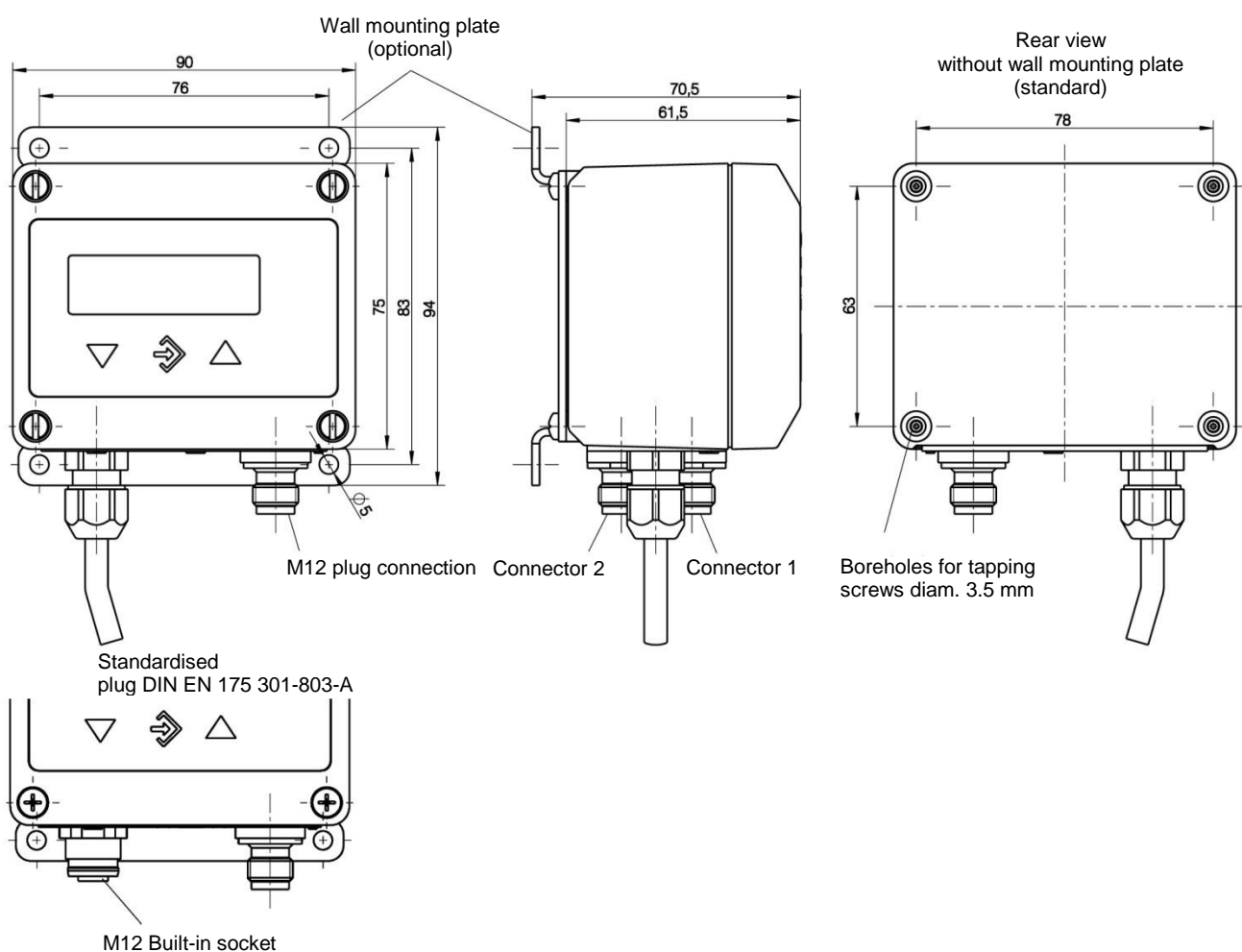
(1) Measuring values (around zero) were set to zero. (e.g. to suppress seepage).

(2) Maximum effective spread 4:1. Only the output signal is influenced.

This in turn enables a decreasing characteristic curve, if the start of the measuring range > end of the measuring range.

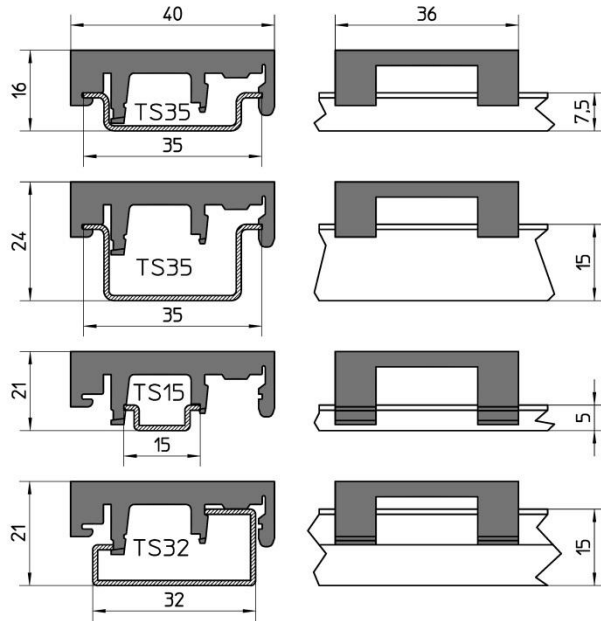
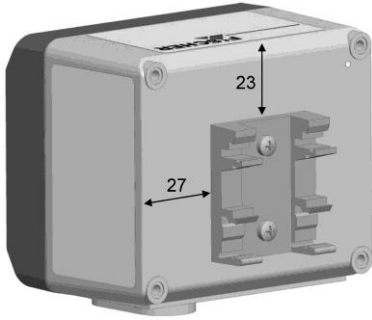
(3) Zero point correction for compensation of various installation positions.

Dimensional drawings (all dimensions in mm unless otherwise specified)

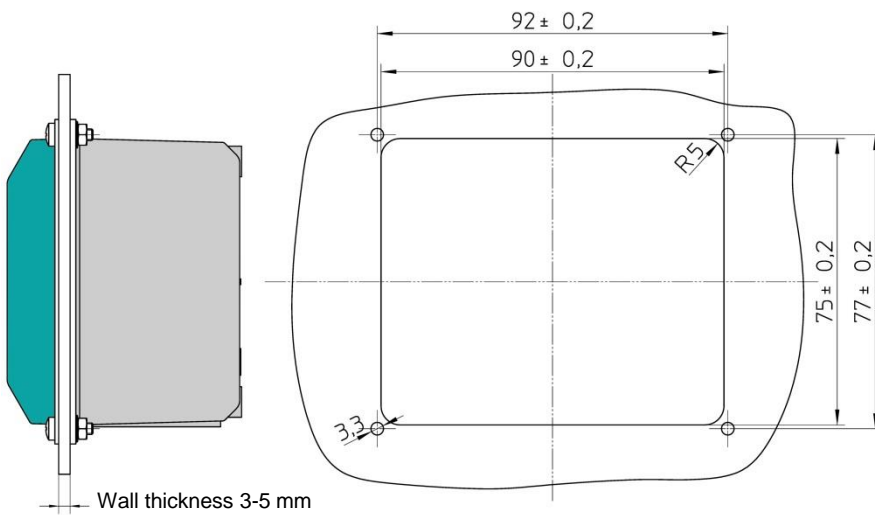


Assembly of the mounting rails

DIN attachment element for assembly of the mounting rails in compliance with EN 60715



Panel mount



Order Codes

Pressure analysis unit with colour change LCD

EA14 M 0 K W M

Version

Pressure > M

Measuring range

0... 0.6 bar > 0 1
 0... 1 bar > 0 2
 0... 1.6 bar > 0 3
 0... 2.5 bar > 0 4
 0... 4 bar > 0 5
 0... 6 bar > 0 6
 0... 10 bar > 0 7
 0... 16 bar > 0 8
 0... 25 bar > 0 9
 0... 40 bar > 1 0
 0... 60 bar > 1 1
 0... 100 bar > 1 2
 0... 160 bar > 1 3
 0... 250 bar > 1 4
 0... 400 bar > 1 5
 -1... 0 bar > 3 1
 -1... 0.6 bar > 3 2
 -1... 1.5 bar > 3 3
 -1... 3 bar > 3 4
 -1... 5 bar > 3 5
 -1... 9 bar > 3 6
 -1... 15 bar > 3 7
 0... -1 bar > 3 9

Electrical connection pressure transmitter

M12 plug connection > M

Plug connector DIN EN 175301-803 A, 1m cable > H

Electrical input signal

0 - 20 mA 3-LINE > A

4 - 20 mA 2-LINE > B

0 - 10 V DC 3-LINE > C

Electrical output signal

without analogue electrical output signal > 0

0 - 20 mA 3-LINE > > A

0 - 10 V DC 3-LINE > C

4 - 20 mA 3-LINE > P

Operating voltage

24 V DC/AC (12 - 32 V DC/AC) > K

Measuring unit

Selectable pressure units > W

Measured value display / contact elements

4-digit colour change LCD - 2 relay contacts > C

4-digit colour change LCD - 2 semiconductor contacts > D

Electrical connection

M12 plug connection > M

Assembly option

Standard (attachment boreholes on rear side) > 0

Assembly of the mounting rails > S

Panel mounting set > T

Wall mounting > W

