FISCHER MESS- UND REGELTECHNIK

Instruction Manual

EA14M || Pressure Indicator

Table of Contents

1. Safety Instructions

1.1. General

This manual contains detailed information about the product, and instructions for its installation, operation and maintenance. Operators and other technical personnel responsible for the equipment must read this thoroughly before attempting to install or operate this equipment. A copy of this manual must always be kept accessible at the place of work for reference by concerned personnel.

Chapter 1 (sections 1.2 through 1.7) contains general as well as specific safety instructions. Chapters 2 through 10, covering topics ranging from intended purpose of the equipment to its final disposal, also include important points relating to safety. Overlooking or ignoring any of these safety points can endanger humans and animals, and possibly cause damage to other equipment.

1.2. Personnel Qualification

Personnel responsible for installation, operation, maintenance and inspection of this product must have the qualifications, training and experience necessary to carry out such work on this type of equipment.

1.3. Risks of Disregarding Safety Instructions

Disregarding safety instructions, use of this product for purposes for which it is not intended, and/or operation of this product outside the limits specified for any of its technical parameters, can result in harm to persons, the environment, or the plant on which it is installed. Fischer Mess- und Regeltechnik GmbH will not be responsible for consequences in such circumstances.

1.4. Safety Instructions for Operators

Safety instructions for the proper use of this product must be followed. This information must be available at all times to by personnel responsible for

installation, operation, maintenance and inspection of this product. Adequate steps must be taken to prevent the occurrence of hazardous conditions that can be caused by electric energy and the convertible energy of the process media. Such conditions can, for example, be the result of improper electrical or process connections. Detailed information is available in relevant published norms (DIN EN, UVW in Germany; and equivalents in other countries), industrial standards such as DVWG, Ex-, GL-, VDE guidelines, as well as regulations of the local authorities (e.g., EVUs in Germany).

1.5. Modifications Forbidden

Modification or other technical alteration of the product is not permissible. This also applies to the use of unauthorized spare parts for repair / maintenance of the product. Any modifications to this product, if and as necessary, should be done only by Fischer Mess- und Regeltechnik GmbH.

1.6. Operational Restrictions

The operational reliability of the product is guaranteed only when used for intended purposes. The product must be selected and configured for use specifically with defined process media. The limiting values of operating parameters, as given in the product specification sheet, must never be crossed.

1.7. Safety Considerations during Installation and Maintenance

The safety instructions given in this manual, existing national regulations relating to accident prevention, and the internal safety rules and procedures of the user organization regarding safety during installation, operation and servicing must all be followed meticulously.

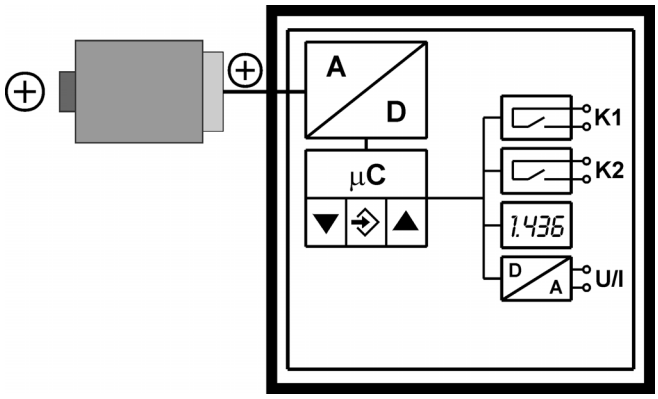
It is the responsibility of the users to ensure that only suitably qualified and experienced technical personnel are used for installation, operation and servicing of this equipment.

2. Intended Applications

Intelligent multi-function instrument system that measures and displays pressure and (optionally) transmits the measured value as a standardized 3-wire electrical signal. Its programmable limit detection functions enables it also to act as an accurate and versatile pressure switch. The product must be used only for applications and under conditions specified by the manufacturer.

3. Product Description and Functions

3.1. Block Schematic Diagram



3.2. Principles of Operation

The electronic module converts the analog signal from the pressure sensor and then digitally processes the input value. Its microcontroller provides a high degree of user programmability and tremendous versatility. The electronic module controls the module's digital display and limit signaling on-off outputs, and (optionally) produces a new analog signal output. The readings can be filtered, scaled, inverted, or linearized through a user-defined look-up table.

The external pressure transmitter is connected to the electronic module through flexible signal cables terminated by plug-in connectors. Only the pressure transmitter supplied as part of the instrument set can be used.

The pressure ratings of the pressure transmitter and the measuring range of the instrument are matched and calibrated at the factory, and marked accordingly on the product identification label.

4. Installation

The electronic module is mounted on a flat plate or panel, for which it has 4 holes at the rear for self-tapping screws (∅ 3.5mm).

A wall-mounting plate is available as an option (see sections: Dimensions and Ordering Code).

IP65 protection for the housing is guaranteed only if suitable connecting cable is used.

If the instrument is intended for outdoor application, we highly recommend using an adequate protective housing (or at least a big enough shelter) as protection against UV-radiation on the membrane keyboard and against exposure of the instrument to rain or snow.

4.1. Process Connections

- Only qualified technicians authorized for this type of work should undertake installation.
- Ensure that process equipment and pressure lines are at atmospheric pressure before making pressure connections.
- The pressure transmitter should be provided with suitable protection against pressure surges (e.g., snubber or pulsation damper).
- Ensure that the mechanical configuration and materials of construction of the external pressure transmitter are compatible with the process media.
- Ensure that process pressure is always less than the specified safe pressure rating.
- Carefully check tightness of all pressure connections before start-up.

4.2. Electrical Connections

- Only qualified technicians authorized for this type of work should undertake installation.
- Electrical connections must comply with relevant international, national and local regulations and norms relating to electrical and instrumentation installations.
- Switch off electrical power to the plant before attempting electrical installation work of any kind.
- Make electrical connections to the transmitter through a suitable energy-limiting safety device (isolation or zener barrier).

5. Commissioning

Power supply and signal cabling to the pressure indicator must be correctly selected to meet operational requirements, and installed in a way that does not cause physical stress to the instrument.

5.1. Separately Connected Pressure Transmitter

The pressure transmitter connector on the electronic module is identified by a mark.

If the pressure transmitter is subjected to pressure when it is started up, zero point checking and adjustment is not possible. In such cases, only electrical connections of the instrument should be made, but not the pressure connections.

5.2. Display

The 3½ digit LED display normally indicates the current pressure. The back-lighted symbols to the right of the digital display indicate the chosen measuring unit. (Note: the units shown in the illustrations of this document can differ from those of the actual instrument). The two LEDs ❶ ❷ above the digital display respectively indicate the status of the two limit relays / solid state switches (LED on = relay contacts closed / solid-state switch on).

While the instrument is in set-up mode, the digital display either indicates the selected menu option or a set-up parameter value. The instrument continues its pressure monitoring functions even while it is in set-up mode, except under either of two circumstances.

One is when the limit switching delay time is changed: the existing delay must time out first. The other circumstance is when the look-up table (s. 5.3.7.) is re-programmed. In these circumstances, the output signal value and the limit relay/switch states are frozen until the changes are finalized.

5.3. Set-up

The instrument has comprehensive set-up options by means of which it can be optimized for any specific measuring or control application. This section of the document provides information and instructions about each of the set-up parameters.

Depending on the instrument configuration ordered (e.g.: no transmitter signal output / voltage signal output / current signal output) some of the menu options may not be available. E.g.: if the instrument doesn't support signal output no functions related to the characteristic are indicated in the menu (s. 5.3.6. Signal Conversion and Transfer Functions).

All instrument settings can be conveniently done from a PC connected to the instrument through a serial interface adaptor. All set-up parameters can be viewed and changed on the PC screen. Also, the entire instrument set-up configuration can be loaded, stored on a PC and printed out for plant / process documentation. Further information about the PC software for this is given in the related manual.

5.3.1. Selecting the Pressure Unit

Make the necessary electrical connections (signal, power supply) to the instrument. Its pressure sensor must be pressure-free (i.e., vented to atmosphere; typically by disconnecting the pressure line).

At first choose the unit of pressure measurement. The current valid unit of measurement is indicated by one of the back-lighted symbols to the right of the digital display. To change the unit of measurement, first press ⏎ then search for parameter **Ein** using ▲. Next press ⏎ again and select another unit of measurement using ▲or ▼. Then press again ⏎ to store the selection, and **Ein** will appear again in the digital display.

To exit the set-up mode, press ▼until **ESC** appears, and then press ⏎. The current measured pressure value is indicated again, and the appropriate symbol of the unit of measurement (to the right of the digital display) is lighted.

The digital display is limited to a count of ±1999. Therefore, all available units of measurement may not be suitable for selection for a given application.

5.3.2. Zero Point Checking and Adjustment

If the instrument has been de-pressurized (vented to atmosphere) and does not indicate precisely zero, note this non-zero value. Using the set-up parameter **oFI**, you can trim this offset to exactly zero. If the indicated non-zero value is positive, this value must be entered and stored as a negative offset value, and vice versa.

If the instrument was in use before zero setting is done, values of set-up parameters **oFI** and **nP** would have been previously programmed. In this case, set both values to zero, read the actual zero offset, and then use this value for **oFI** for zero point correction, as described in the previous paragraph.

Note: The registered value is a pure number: no decimal point is indicated.

After correcting the zero offset, the pressure connections can be made again.

5.3.3. Damping and Zero Stabilization

If the media is subject to excessive pressure fluctuations, the displayed readings and the transmitter output signal can be stabilized using the instrument's **dAn** and **nP** set-up parameters.

The set-up parameter **dAn** has the effect of a pulsation damper (on the displayed measurements, output signal and limit detection, - not on the sensor itself!). It adds a time-constant (averaging filter) in the user selectable range of 0.0 to 100.0 secs. If the damping is set to maximum, it takes more than 2 minutes to reach the final value for a full scale pressure jump.

In many cases fluctuating pressure readings do not cause a problem, except when the plant / equipment is at zero (differential) pressure condition and readings fluctuate near about zero value. The set-up parameter **nP** is meant to handle this. Its value defines the digit range arond zero (similar to the zero offset correction) within which the measured value is forced to zero. If a value of 8 is set for **nP** any pressure measurement in the range -0.08 to +0.08 bar (or -8 to +8 kPa) displayed as zero. Only when the actual pressure is outside this range the display will indicate a non-zero value. The actual and displayed pressures are equal starting from double the value of the **nP** setting (in the given example: 0.16 bar or 16 kPa).

5.3.4. Output Signal Setting

The transmitter output signal depends primarily on the measured pressure. However, this signal can be adapted to meet users' application requirements precisely. The basic pressure range (as marked on the product identification label) and the type of output signal (voltage or current) always remain unchanged for a particular instrument unit.

The set-up parameters **nA** (measuring range starting point) and **nE** (measuring range end point) specify the pressure values between which the measurements are expected to be. Both values can be selected anywhere within the specified measuring range of the instrument (e.g., 10 bar). This user-programmed pressure range will correspond to the output signal (current or voltage) range, which will be as specified on the product identification label: i.e., 0 - 10V or 4 - 20 mA.

If **nA** is lower than **nE**, the signal is said to have a positive slope: i.e., the output signal increases as the pressure increases. If **nE** is lower than **nA**, the output signal has a negative slope: i.e., the output signal decreases as the pressure increases.

The difference between the values of **nA** and **nE** must be at least 25% of the specified measuring range of the in-

strument (2.5 bar for 10 bar instrument example mentioned above). The software does not permit a smaller pressure span to be entered (the instrument will not allow storing of, nor exit from an invalid span).

Note: If you change nA and/or nE the entire look-up table (s .5.3.6., 5.3.7.) will be deleted!

5.3.5. Output Signal Limiting (Namur)

The three set-up parameters oCI, oC2 and oEr specify the limits of the signal output current or voltage that are not to be exceeded, irrespective of the actual pressure. These limit values have higher priority than the nA and nE pressure span settings.

These settings serve mainly to prevent control systems from interpreting brief pressure excursions outside the measuring range as error / fault events. oCI sets the output signal minimum value, and is useful only for a 4 - 20 mA current signal, because sometimes a value below 3.8 mA is defined as a sensor fault condition. oC2 sets the upper signal limit and is valid for either current or voltage signal (e.g., voltage signal output can be limited at 10.2 V).

An instrument fault condition can be transmitted as an output signal value set as parameter oEr. However, it should be understood that not all instrument fault and error conditions can be detected and signaled by the self-diagnostic functions of the instrument.

5.3.6. Signal Conversion and Transfer Functions

In certain cases other process variables are derived from primary pressure measurement. Examples are flow rate derived from differential pressure across an orifice plate, and liquid level derived from hydrostatic pressure of liquid measured at the bottom of the tank. Such derivations often involve non-linear transfer functions, while it is necessary for the output signal to be linearly proportional to the derived variable (e.g. liquid volume in a tank in m^3, or flow rate in cm^3/sec).

The set-up parameter F allows the user to select the appropriate signal conversion function from those available:

F = 0: Linear characteristic (default)

F = 1: Square root extraction

F = 2: Horizontal cylindrical tank

F = 3.....30: Look-up table with 3 to 30 pairs of values

The tables generated by functions F = 0, F = 1 and F = 2 are not visible. For these functions, internal values are used for table computation. These values cannot be modified by the user.

For all conversion functions, when the actual pressure is equal to the nA value, the output signal will be at the lowest end of its range (0 V, 0 mA or 4 mA). When the actual pressure is equal to the nE value, the output signal will be at the highest end of its range (10 V or 20 mA). The user can enter only the 1...28 intermediate values of the look-up table function F = 3....30. The parameters nA and nE relate to the start and end values of the look-up table. A change in either of these parameter values causes the conversion function to be re-set to F = 0.

Whenever the value of F is changed, the instrument internally generates a new look-up table. All previous table values are deleted and replaced by new linear progression values.

5.3.7. Look-up Table Programming (F = 3..30)

If the value of set-up parameter F is selected equal to or greater than 3, a sub-menu Lin is invoked. Through this sub-menu all the required look-up table values can be entered, except the first and last pairs of table values (respectively corresponding to nA and nE). This sub-menu has its own entry and exit points, the latter being the last of the value pairs to be entered. The table is stored only when the user exits to the sub-menu prompt Lin, by pressing ⇦. If the table is not correctly entered, the display will indicate Err, indicating an error condition. If this happens, it is not possible to exit this sub-menu mode until the error is corrected.

The table entries consist of 1 to 28 pairs of values. Values i02 through i29 (or u02 through u29) specify the signal output, and values P02 through P29 are the corresponding pressure values.

Entering or changing table values through the instrument's membrane keyboard is a tedious and error-prone method. It should only be used as a stopgap method when the PC Interface Module is not available.

The table is accepted as correct if each output value is larger than its preceding value. Pressure values can be steadily increasing or steadily decreasing. However, a transition from falling to rising pressure values is not permitted; nor are pressure values allowed to turn back along the same curve.

5.3.8. Limit Setting

The two limit switch outputs ❶ ❷ are each configured by four set-up parameters:

Switching output 1 is configured by parameters r1A, r1E, r1d and r1F.

Switching output 2 is configured by parameters r2A, r2E, r2d and r2F.

The turn-on and turn-off points of switching output 1 are defined respectively by parameters r1A and r1E. The values for these are set in the currently valid unit of measurement (indicated by the lighted symbol to the right of the digital display).

The two parameters r1A and r1E together determine the logic of switching output 1:

If r1A is smaller than r1E, the output turns on when the measured value exceeds r1E. It turns off again only when the measured value falls below r1A (hysteresis function).

If r1A and r1E have the same value, there is no hysteresis: the switching output turns on when the measured value exceeds r1A / r1E, and turns off again when the measured value falls below r1A / r1E.

If r1A is larger than r1E, the switching output turns on when the measured value falls between r1A and r1E: i.e., when r1E < measured value < r1A (window limit function).

Both parameters can be independently adjusted over the full measuring range.

If the unit of measurement is changed, the switching points are changed accordingly. In this event, rounding error can cause a deviation in the last digit.

The value of the set-up parameter r1d determines the delay time for switching output 1, after the measured value reaches the switching point. The delay value can be selected in the range 0.0 to 100.0 secs. This value applies equally to turn on and off.

The set-up parameter r1F determines the action of the switching output. If r1F = 1, the switching output acts as normally open (NO) contact. If r1F = 2, it acts as normally closed (NC) contact.

5.3.9. Password

The last set-up parameter -P- allows a password to be entered. A password value of 001 to 999 can be selected. A value of 000 disables the password function.

If a password was set previously the digital display indicates PAS after ESC is displayed and ⇨ is pressed. The password is then entered by pressing ⇨ and then ▲ or ▼. Only then will the set-up menu options be accessible. If an incorrect password is entered, the display jumps back to beginning of the menu (i.e., ESC).

New Functions! (as of April 2008)

5.3.10. dO – Display options

This parameter allows smoothing the displayed values in cases where they are frequently deviating. The filter function is similar to the dAM function, but acts only upon the display, having no impact on the output signal. Additionally the display can be turned off partially (dO = -1, only the setpoint LEDs are driven) or completely (dO = -2).

5.3.11. rES – Reset to default values

This function will reset all parameters to default when activated. Default values can be defined only by using the PC interface.

5.3.12. nAF, nEF, dPF – Free Unit

If the device is configured to have a “free“ third unit (symbol: ↓) then the display can be scaled as desired by using these three parameters.

The measuring range as defined by parameters nA and nE is rescaled to nAF and nEF. If the table function (F) is enabled, table values will be taken into account too. The dPF value controls the position of the decimal point.

5.4. Overview of Set-up Parameters

When the instrument is turned on, it briefly displays the software version number, and then switches automatically to normal operating mode. Pressing ◈ causes the set-up menu to be loaded, indicated by ESC on the digital display. After that, by pressing ▲ repeatedly, each of the set-up parameters is loaded in sequence:

Note: Depending on the version of the ordered instrument some of the individual parameters might not be available.

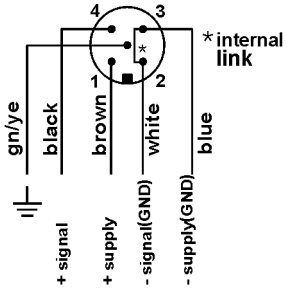
- PAS Password input (appears only if password function has been enabled). Values: 001 to 999
- dAM Damping (time constant). Range of values = 0.0 to 100.0 secs
- dO Damping (display only), range of values 0..100. Additional: -1 = no digital value and -2 = display turned off completely.
- r1A Switching output 1: turn-off point
- r1E Switching output 1: turn-on point.
- r1d Switching output 1: delay. Range of values = 0.0 to 100.0 sec. This values applies equally for turn-on and turn-off delays.
- r1F Switching output 1 action. If r1F = 1, acts as NO contacts. If r1F = 2, acts as NC contacts.
- r2A Switching output 2: turn-off point.
- r2E Switching output 2: turn-on point.
- r2d Switching output 2: delay. Range of values = 0.0 to 100.0 sec. This values applies equally for turn-on and turn-off delays.
- r2F Switching output 2 action. If r1F = 1, acts as NO contacts. If r1F = 2, acts as NC contacts.
- Ein Unit of measurement. The selection is indicated by the lighted symbol to the right of the digital display. A particular unit can be selected only if it can be represented meaningfully within the basic measuring range of the instrument.
- MA Measuring range start point. The value of the measured variable corresponding with the minimum value of the output signal (0 V, 0 mA or 4 mA, depending on the instrument version).
- ME Measuring range end point. The value of the measured variable corresponding with the maximum value of the output signal (10 V or 20 mA, depending on the instrument version).
- dPF Position of decimal place for free unit.
- MAF Measuring range start point (displayed value) for free unit.
- MEF Measuring range end point (displayed value) for free unit.
- nP Zero stabilization. Range = 0 to 100 counts. The value spans symmetrically around the actual zero point.
- oFI Zero offset correction, input 1. Range = -100 to +100 counts.
- F Signal conversion function. (0 = linear,
  1 = square root,
  2 = horizontal cylindrical tank,
  3..30 = look-up table)
- Lin Look-up table entry (sub-menu)
- oG1 Output signal limiting, minimum
- oG2 Output signal limiting, maximum
- oEr Fault signaling (output signal value on detection of instrument fault).
- rES Reset all values to default. (Default values can be defined only by using the PC interface.)
- -P- Password setting. Permissible password values = 001 to 999. "000" disables password protection.

If the password is lost, the instrument can be unlokked only through a serial interfaced PC, or the instrument has to be sent to the manufacturer for this purpose.

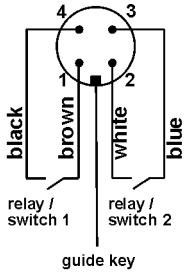
If oG1 and oG2 are both set to "0", the output signal will not be subjected to limiting.

If oG1 is set at the maximum value (11 V or 21 mA), the output signal can be adjusted using oG2 to any arbitrary value between zero and maximum value, *irrespective of pressure measurement*. This feature enables the instrument to be used as a simulated signal source to test signal lines and other instruments or systems.

5.5. Electrical Connections, Switching Outputs



connector 1
supply input and
analogue signal output



connector 2
relay / switch outputs

Switching Outputs:

Switching output 1 is configured by parameters r1A, r1E, r1d, and r1F.

Switching output 2 is configured by parameters r2A, r2E, r2d, and r2F.

Power Supply Voltage and Output Signal Load:

Nominal supply voltage and the operating supply voltage range and the maximum output signal loads are indicated under 11. Specifications.

The signal ground line is internally connected to the instrument ground, and serves only as an alternative ground connection for the output signal. This usually increases the noise margin.

6. Maintenance

The instrument is inherently maintenance-free.

To ensure reliable operation and maximize the operating life of the instrument it is recommended that the instrument, its external electrical and process connections, and external connected devices be regularly inspected, e.g.:

- Check the display.
- Check the switching function in connection with external devices.
- Check all pressure connections for leak-tightness.
- Check the integrity of all electrical connections of the instruments.

Inspection and test schedules depend on operating and site conditions. The operating manuals of other equipment to which the transmitter is connected must be read thoroughly to ensure that all items work correctly when connected together.

7. Transport

The product must be protected against shock and vibration during transport. It must therefore be properly pakked, preferably in the original packaging, whenever transported.

8. Service

Any defective devices or devices with missing parts should be retourned to Fischer Mess- und Regeltechnik GmbH. For quick service contact our service department.

Remaining medium in and on dismantled measuring instruments may cause danger to persons, environment and equipment. Take reasonable precautions! Clean the instrument thoroughly if necessary.

9. Accessories

- Wall mounting adaptor plate (s. 13. Ordering Code)
- M12 connectors with pre-wired cable lengths
- PC serial interface adaptor with software: model EU03.F300

10. Disposal

Protect your environment!

Use the product in accordance with relevant regulations. Please be aware of environmental consequences of disposal at the end of the product's life, and take care accordingly.

11. Specifications

General

Measuring range	bar	all
Straight line error (max.)°	%FS	0.1
Straight line error (typ.)°	%FS	< 0.05
Tc span (max.)°°	%FS 10K	<0.1
Tc span (typ.)°°	%FS 10K	< 0.025
Tc zero point (max.)°°	%FS 10K	<0.1
Tc zero point (typ.)°°	%FS 10K	<0.025

Shown values characterize the electronic module only, values of the attached pressure transmitter are not included (see data sheet of pressure transmitter).

°: Straight line error = nonlinearity + hysteresis; at 25°C; pressure within specified range (characteristic linear, not spreaded)

°°: Pressure within specified range (characteristic linear, not spreaded)

Operating temp. (ambient)	-10 … 70°C
Operating temp. (media)	See data sheet pressure transmitter
Storage temperature	-20 … 70°C
Protection class (housing)	IP 65 per DIN EN 60529
	Electrical
Nominal supply voltage	24 V DC / AC
Operating supply voltage	12 ... 32 V DC / AC
Output signal	0 ... 20 mA, 4 ... 20 mA, or 0 ... 10 V DC (3-wire)
Output signal load	For current output $R_L \leq (U_B - 4\ V) / 0{,}02\ A$ ($U_B \leq 26V$), else $R_L \leq 1100\ \Omega$ For voltage output $R_L \geq 2\ K\Omega$ ($U_B \geq 15\ V$), $R_L \geq 10\ K\Omega$ ($U_B = 12$ …15V)
Power consumption	Approx. 2 W / VA
Switching contacts	2 sets of programmable voltage free relay contacts: N/O or N/C $U_{max} = 32$ V DC/AC, $I_{max} = 2$ A, $P_{max} = 64$ W/VA Optional, instead of relay outputs: 2 programmable voltage free MOSFET switch outputs, NO/NC U = 3…32 V DC/AC, $I_{max} = 0.25$ A, $P_{max} = 8$ W/VA, $R_{ON} \leq 4\ \Omega$
Display	3½ digit LED
	Connections
External transmitter supply Max. current	Supply of EA14M, fused via PTC (approx. 8 Ω) ≤ 250 mA for the external pressure transmitter (limited by PTC)
Electrical connections	Two round-shell multi-pin connector sockets (M12, male) Connector 1: 5-pin: power input and analog signal output Connector 2: 4-pin: relay contacts / solid-state switch outputs
External pressure transmitter	Two round-shell multi-pin connector sockets (M12, female) or square-shell 4-pin connector (female), acc. to DIN EN 175 301-803-A, 1m cable
	Materials, mounting
Materials, housing	Polyamide PA6,6
Materials, media contact	See data sheet pressure transmitter
Mounting	Mounting holes at rear for panel mounting Wall mountable using adaptor plate

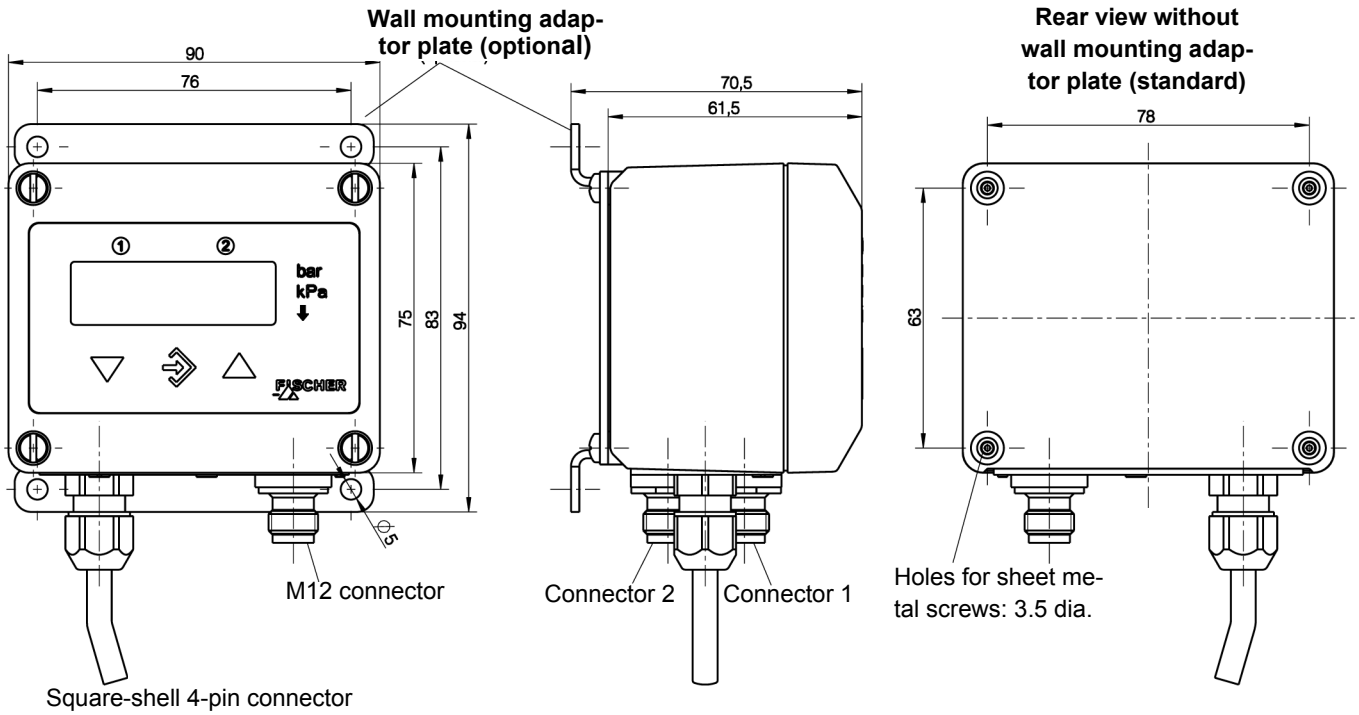
11.1. Programming

Via membrane key-switches or by using PC-programming interface (accessory). Programming mode can be password protected.

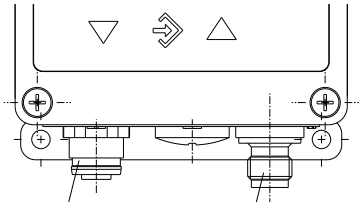
	Settings
Input filtering	0.0...100.0s (10/90% step response time) for signal output, display seperated
Relay / switch 1/2	Activation point, de-activation point, response time delay (0...100 secs), logic (N/O or N/C)
Measurement unit selection	bar / kPa / „free unit“ start value, end value and decimal place for „free unit“
Output signal start/end value	Can be set at any point of measuring range (2)
Zero suppression	0...100 counts (1)
Zero pressure calibration	±100 counts (3)
Output characteristic	Linear, square rooted, horizontal cylindr. tank, table (3...30 entries)
Password range	001 … 999 (000 = password protection disabled)

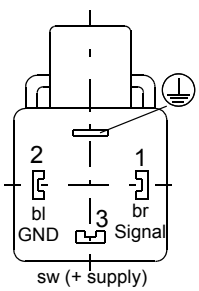
(1) Measured value deviations up to 100 counts, symmetric about zero, are set to zero. Used for zero drift suppression.
(2) Maximum effective turn-down ratio = 4:1. Only the output signal is affected. Transfer function is inverted if start value > end value.
(3) Zero calibration setting may change with mounting orientation.

12. Dimensions (all units in mm unless stated otherwise)



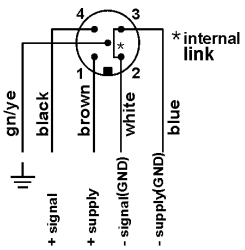
Square-shell 4-pin connector (female) acc. to DIN EN 175 301-803, 1m cable



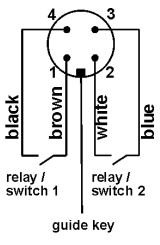


Electrical connections

The pinning of connector 1 is also used for the M12 connector for the external pressure transmitter.



connector 1
supply input and analogue signal output



connector 2
relay / switch outputs

13. Ordering Code

Pressure Indicator **EA14**

M			0				K	0		M	

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 transmitter

M12 round-shell multi-pin connector	M
Square-shell 4-pin connector (f) acc. to DIN EN 175 301-803, 1m cable	H

Signal input

0 - 20 mA, 3-wire (STANDARD)	A
4 - 20 mA, 2-wire	B
0 - 10 V DC, 3-wire (STANDARD)	C

Signal output

No signal output	0
0 - 20 mA, 3-wire (STANDARD)	A
0 - 10 V DC, 3-wire (STANDARD)	C
4 - 20 mA, 3-wire (STANDARD)	P

Supply voltage

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

Display and limit switching outputs

3½ digit LED display, 2 sets of voltage-free relay contacts	3
3½ digit LED display, 2 sets of solid-state switch outputs	6

Electrical connection

M12 round-shell multi-pin connectors	M

Mounting

Rear fastening holes (standard)	0
Wall mounting	W

Accessories

Ordering code	Designation	Pins	Application	Length
06401993	cable with M12 connector	4-pin	for relay / switch	2 m
06401994	cable with M12 connector	4-pin	for relay / switch	5 m
06401995	cable with M12 connector	5-pin	for supply / signal	2 m
06401996	cable with M12 connector	5-pin	for supply / signal	5 m
04005144	wall mounting adapter set			
EU03.F300	PC-programming interface with SW			

14. CE-Certificate

FISCHER
MESS- UND REGELTECHNIK

TÜV CERT
DIN EN ISO 9001 : 2000
08 100 981959

EG-Konformitätserklärung

Wir erklären in alleiniger Verantwortung, dass nachstehend genannte Produkte

EC Declaration of Conformity

We declare under our sole responsibility that the products mentioned below

Druckauswerteeinheit / Pressure Indicator

EA14M ##########

gemäß gültigem Datenblatt übereinstimmen mit der

specified by the actual data sheet complies with the

EG-Richtlinie

2004/108/EG (EMV)

EC Directive

2004/108/EC (EMC)

Die Produkte wurden entsprechend der folgenden Normen geprüft (Störfestigkeit für Industriebereich, Störaussendung für Wohnbereich):

DIN EN 61326-1:2004-05
DIN EN 61326-2-3
DIN EN 61010-1:2002-08

The instruments have been tested in compliance with the norms (Immunity for industrial environments, emission for residential environments):

DIN EN 61326-1:2004-05
DIN EN 61326-2-3
DIN EN 61010-1:2002-08

Die Geräte werden gekennzeichnet mit:

The gauges are marked with:

CE

Bad Salzuflen, 30.04.08
(Ort, Datum / place, date)

(rechtsverb. Unterschrift / authorized signature)

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