



Measurement technology for applications in safety laboratories and in areas protected against contamination

Clean Room Technology

- ▲ Measuring instruments in perfection
- ▲ Precise control and monitoring applications

CLEAN ROOM TECHNOLOGY

Perfect Measuring Equipment – from FISCHER



Clean rooms may be found in many areas of industry as well as in clinical environments - for example, in the pharmaceutical industry, the semiconductor and solar power industries, aerospace engineering, nanotechnology, medical engineering, research, pharmacies, etc. Clean rooms are installed anywhere where products need to be protected against contamination from airborne particles.

In order to separate clean rooms from surrounding rooms and to prevent the infiltration of particles, suitable ventilation systems are installed which create a

pressure cascade, depending on the classification of the clean room.

As far as it is required by the product, the room temperature and / or the room air humidity levels may also be measured, recorded and applied as a control variable for the building control system.

The measuring instruments from FISCHER provide the measured values required at the highest degree of precision and with long-lasting repeatability.





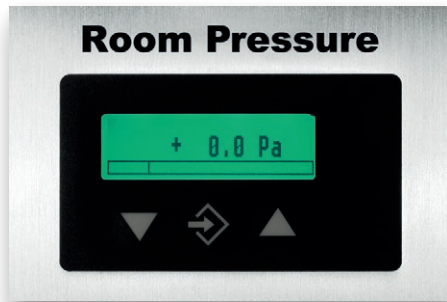
 **FISCHER**[®]
in touch

The New Generation

with touch-sensitive display units, applicable in FISCHER clean room panels to monitor the room parameter

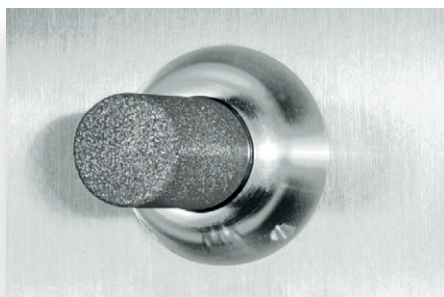
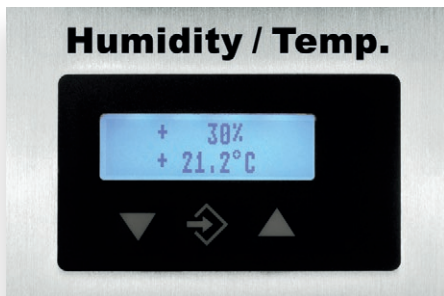
CLEAN ROOM TECHNOLOGY

DE24 – Room Pressure Transmitter / Display



- ▲ Capacitive low-pressure sensor
- ▲ Measuring ranges:
Unidirectional : 0 ... 25 Pa to 0 ... 1000 Pa
Bidirectional: ± 25 Pa to ± 100 Pa
- ▲ Max. static pressure up to 100 kPa

FT61 – Measuring Device for Humidity / Temperature

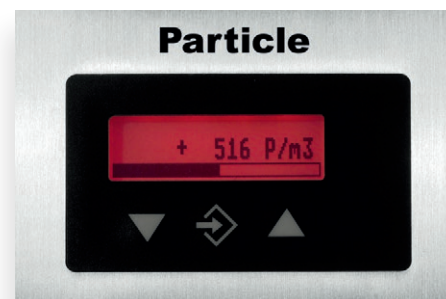


- ▲ Capacitive humidity and temperature sensor
- ▲ Measuring ranges:
Humidity: 0 ... 100% rH, ± 3 %
Temperature: – 40 ... + 100 °C, ± 0.5 °C
- ▲ Interface sensor → Indicator: I²C Bus

Characteristics DE24, FT61 and EA14

- ▲ Long-term stable without recalibration
- ▲ High repeatability
- ▲ LC display with colour change of backlighting as clean room signal light
- ▲ User prompt in clear text
- ▲ In-situ calibration or adjustment
- ▲ Integrated control unit / zeroing, calibration and setting without PC
- ▲ Password-protected to prevent unauthorized access
- ▲ Industry standard analogue output
- ▲ Output signal transmitter:
0 ... 10 V, 0 ... 20 mA, 4 ... 20 mA, 3-wire
- ▲ Output signal contacts:
2 independent programmable solid state relays
- ▲ Operating voltage 24 V DC/AC (20 ... 32 V)
- ▲ Protection class IP65 (front panel and keypad)

EA14 – Universal Display

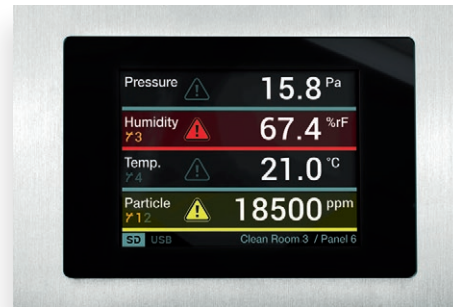


- ▲ Measuring ranges:
Freely definable areas and units
- ▲ Input signal display
0 ... 10 V, 0 ... 20 mA, 4 ... 20 mA, 3-wire

Characteristics

- ▲ Monitoring of the room parameters in clean rooms
- ▲ Touch-sensitive display with a very high contrast and an enormous luminosity
- ▲ Easy-to-use touch display even when wearing gloves or using touch pens, etc.
- ▲ Visualisation of up to four measured values simultaneously
- ▲ Data logging on secured SD card
- ▲ Parameterisation via micro USB port
- ▲ Visualisation of the measurement value curves directly on the device
- ▲ Warning messages in plain text
- ▲ Designation of the unit on the display freely selectable for easy mapping
- ▲ Communication via standard analog signals and other optional interfaces
- ▲ Four freely programmable switching contacts (different channels can be combined)
- ▲ Various colour profiles can be selected for better usability
- ▲ Integrated acknowledge function for warning signals

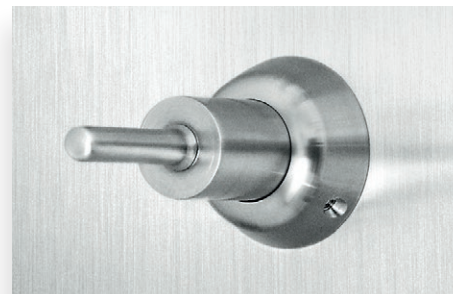
EA16 – Measuring Display Unit 3,5" Touch LCD



Characteristics

- ▲ Pt100, 4-wire
- ▲ Class B as standard, Class A, 1/3 or 1/10 DIN upon request
- ▲ Integrated, precise 2-wire miniature head transmitter
- ▲ High degree of repetition accuracy
- ▲ Integration into wall mounting panels
- ▲ In-situ calibration
- ▲ Measuring ranges:
Programmable between – 50 and + 200 °C
- ▲ Output signal transmitter
4 ... 20 mA, 2-wire
- ▲ Operating voltage
24 V DC
- ▲ Protection class IP65

TW68 - Compact Resistance Thermometer with Miniature Head Transmitter



PANEL EXAMPLES CLEAN ROOM

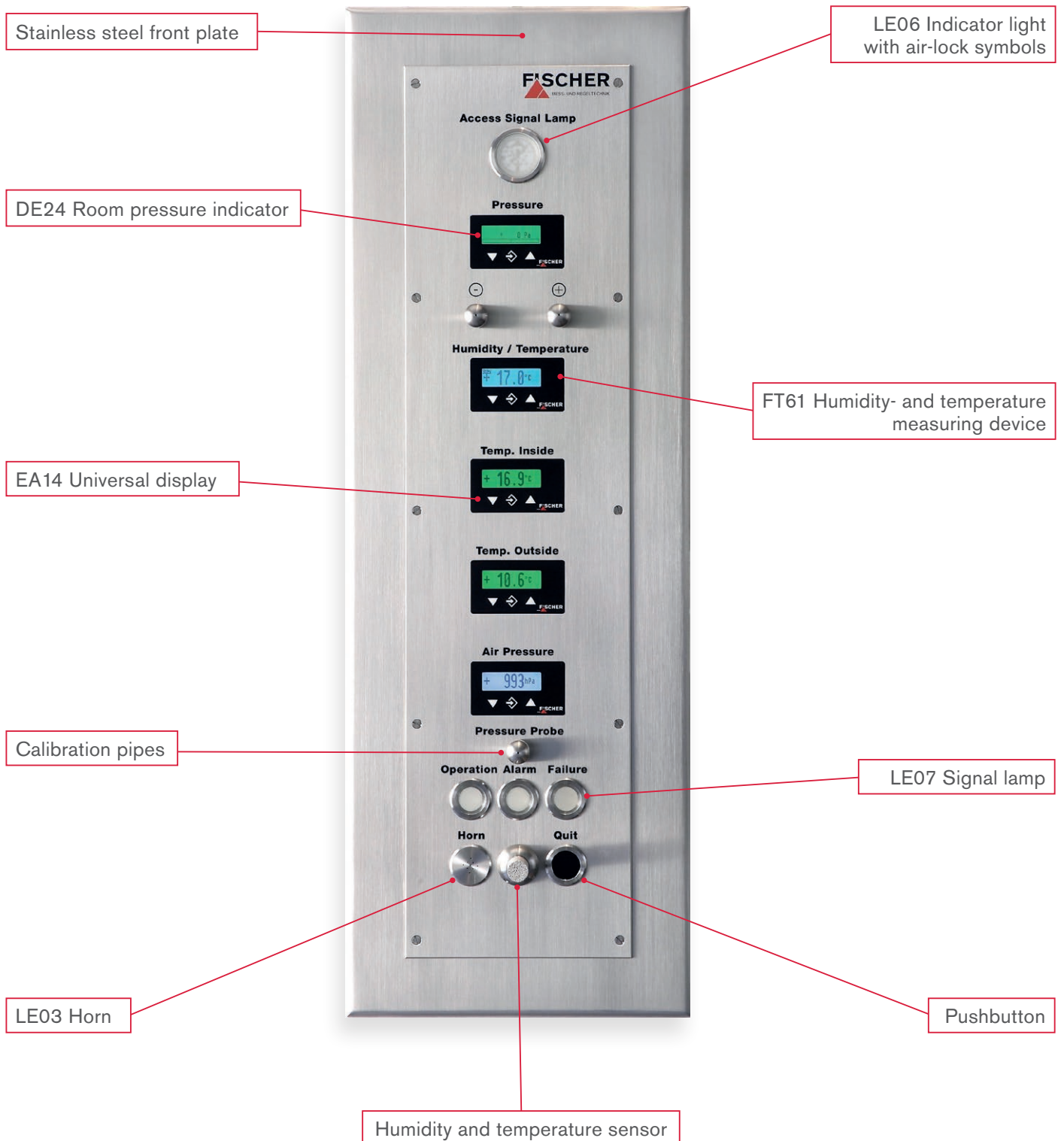


The measuring instruments, sensors and operating elements in the clean room panels can be combined randomly according to requirements. Following types of installations are possible:

- ▲ Wall-mounting
- ▲ Surface installation
- ▲ Channel assembly

PRODUCT OVERVIEW

Our clean room panels are produced according to our customer requirements. Hereafter please find a description, based on a randomly selected example.



SAFETY LABORATORIES

Accurate Control and Monitoring – with **FISCHER**



Safety laboratories are spaces in which biological or potent genetic materials (particularly microorganisms) are researched or developed. These spaces are subject to biomaterial regulations and / or genetics safety regulations.

In accordance with these regulations, spaces are classified in one of four security grades - from S1 to S4. If an airborne infection can occur, the spaces and the upstream air-locks, showers, etc. must be held under

controlled vacuum conditions. It may also be the case that a disinfection of the rooms with H_2O_2 or formalin is mandated, making it necessary for suitable isolation devices to be installed around the measuring instruments.

FISCHER has developed special measuring instruments, isolation devices and room pressure sensors for application in safety laboratories.





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The New Generation
with touch-sensitive display units

MEASURING EQUIPMENT TECHNOLOGY SAFETY LABORATORIES

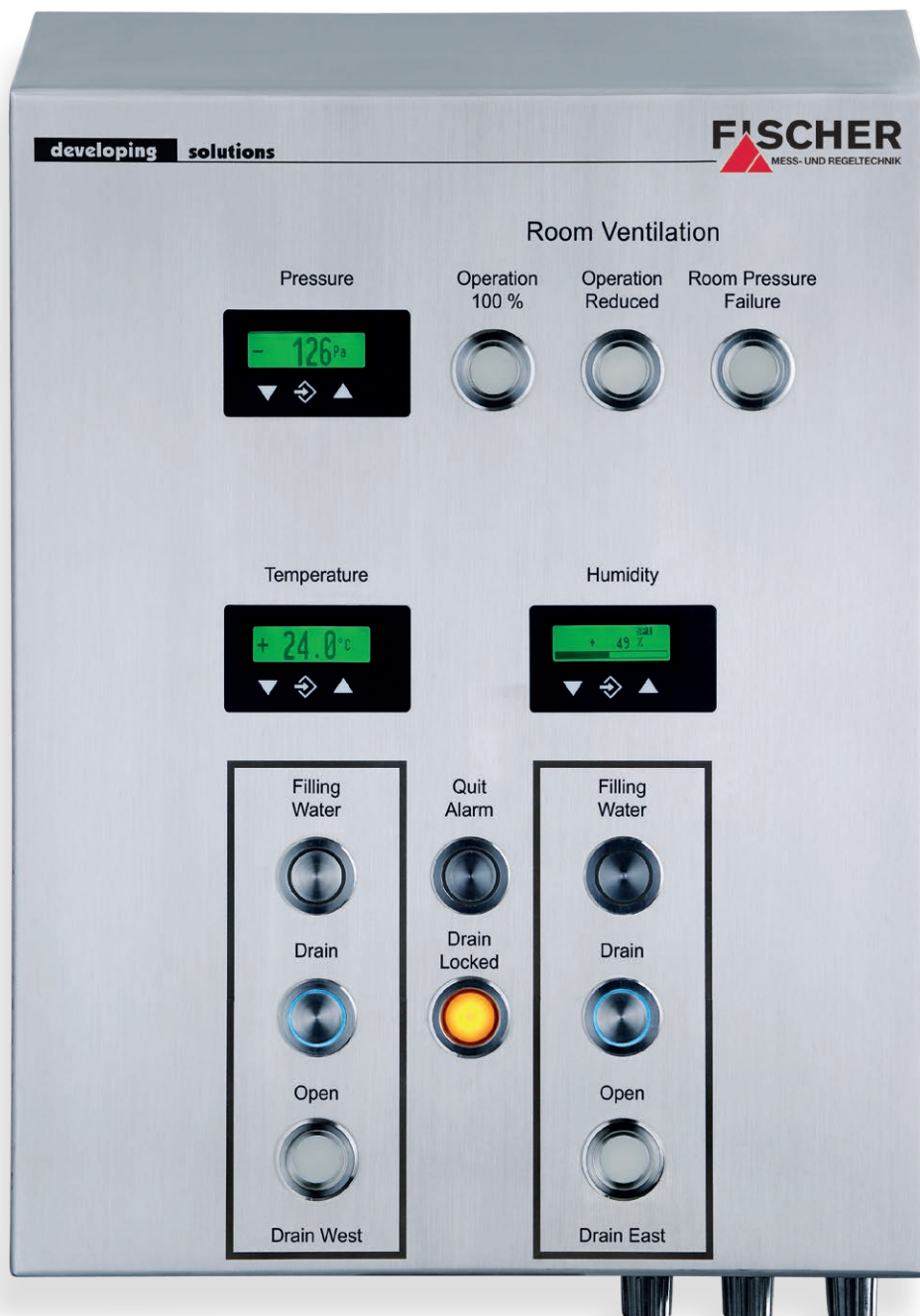
DE46 – Room Pressure Transmitter / Display with attached Shut-off Valve Block DZ67



- ▲ Capacitive low-pressure sensor
- ▲ Long-term stable without recalibration
- ▲ High repeatability
- ▲ LC display with colour change of backlighting as clean room signal light
- ▲ User prompt in clear text
- ▲ In-situ calibration or adjustment
- ▲ Integrated control unit / zeroing, calibration and setting without PC
- ▲ Password-protected to prevent unauthorised access
- ▲ Industry standard analogue output
- ▲ Measuring ranges:
Unidirectional: 0 ... 50 Pa to 0 ... 1000 Pa
Bidirectional: ± 25 Pa to ± 100 Pa
- ▲ Max. static pressure up to 100 kPa
- ▲ Output signal transmitter
0 ... 10 V, 0 ... 20 mA, 4 ... 20 mA, 3-wire
- ▲ Output signal contacts
2 independent programmable solid state relays
- ▲ Operating voltage
24 V DC/AC (20 ... 32 V)
- ▲ Protection class IP65 (front panel and keypad)
- ▲ Shut-off valve block with 6 spindle seat valves with settings for:
 - Measuring operation
 - Zero-point check
 - Sensor calibration / adjustment
 - Disinfection of room pressure line
- ▲ Completely made of stainless steel, gaskets made of resistant polymer
- ▲ Large nominal width for disinfection with formalin

PANEL EXAMPLES SAFETY LABORATORIES

Implementation according to the particular requirements.



ACCESSORIES CLEAN ROOM AND SAFETY LABORATORIES

LE06 – Air-lock Symbols



- ▲ Gas tight air-lock symbols
- ▲ Discretely controllable symbols:
 - Green arrow
 - Yellow triangle
 - Red crossed circle
- ▲ Operating voltage 24 V DC, Power consumption 75 mA

LE10 – Signal Lamp



- ▲ Concentric circles:
 - Green
 - Red
- ▲ Power consumption approx. 20 mA

Bulkhead Pipe Fitting



- ▲ Completely made of stainless steel
- ▲ For ceiling/wall thicknesses of 50 to 250 mm
- ▲ Special lengths on request

Indicator Lights for Safety Laboratories



- ▲ Gas tight LED indicator lights
- ▲ Available colours:
 - Green
 - Yellow
 - Red
 - Blue
 - White
- ▲ Operating voltage 24 V DC, Power consumption 60 mA

Further accessories (for example calibration pipes, reference pressure connections, reference pressure boxes, selector switch etc.) are available.

Room Pressure Probe with Hepa Filter



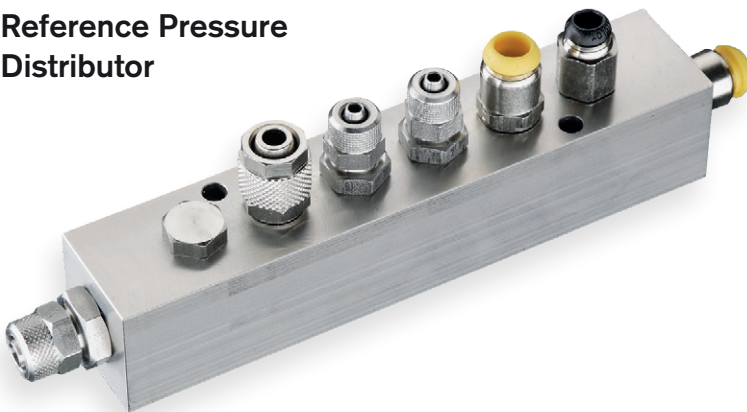
- ▲ Housing and internal parts made of stainless steel
- ▲ Fumigation resistant polymer gaskets
- ▲ Easy-to-exchange H14 filter
- ▲ Housing and internal parts autoclavable

Calibration Valve for Wall Mounting Panels



- ▲ Housing and internal parts made of stainless steel
- ▲ Fumigation resistant polymer gaskets
- ▲ Reduces time calibration considerably
- ▲ Protected from misuse by special key

Reference Pressure Distributor



- ▲ Housing made of stainless steel
- ▲ Pressure connections as
 - Quick-release coupling or
 - Plug-in coupling
- ▲ Reduces the time expended on installation considerably



Fair Exhibit

PRODUCT LINE VENTILATION TECHNOLOGY

DE44 and DE45 with Colour Change



Measuring range > 4 mbar
 0 - 20 mA
 4 - 20 mA 3-wire
 0 - 10 V

Square-rooting display/output

LC display
 Operating voltage 24 V DC/AC

Operation: Membrane keypad-
 PC adapter EU 05
 PC software

Screw connection for hoses

Relay/Semiconductor contact

Optional: Panel mounting

Flush mount clean room application

ATEX II3G - LC display version
 ATEX II3D - LC display version

EA14F with Colour Change



Measuring of pressure / filling level by evaluating external sensor values

Possible input signal from external sensor:
 0 - 20 mA
 4 - 20 mA 3-wire
 0 - 10 V

Output signal:
 0 - 20 mA
 4 - 20 mA 3-wire
 0 - 10 V

LC display
 Operating voltage 24 V DC/AC

Operation: Membrane keypad-
 PC adapter EU 05
 PC software

Relay / Semiconductor contact

Optional: Panel mounting

DE23 Differential Pressure Transmitter



Low pressure measurable with long-term drift

Measuring ranges:
 4 - 20 mA 2-wire
 0 - 10 V 3-wire

LC-displaying value display
 Operating voltage 24 V DC/AC

Optional:
 Mounting rail,
 wall mounting plate

DE46 with Colour Change



Measuring range > 25 Pa
 0 - 20 mA
 4 - 20 mA 3-wire
 0 - 10 V

Square-rooting display/output

LC display
 Operating voltage 24 V DC/AC

Operation: Membrane keypad-
 PC adapter EU 05
 PC software

Screw connection for hoses

Relay/Semiconductor contact

Optional: Panel mounting

Flush mount clean room application

ATEX II3G - LC display version
 ATEX II3D - LC display version

DE49_0



Measuring range > 4 mbar
 4 - 20 mA 2-wire

Square-rooting display/output

LC display
 Operating voltage 24 V DC

Operation: Membrane keypad

Screw connection for hoses

Explosion proof:
 II 1/2 G Ex ia IIC T4
 II 2 D Ex ia D 21 T80 °C
 -10 ... + 60 °C

0 ... 4 mbar, p max. 50 mbar
 up to
 0 ... 100 mbar, p max. 500 mbar

EA15 – Measuring Display Unit with 2,8" Touch LCD

Measuring display device for external sensors

Possible input signal:

- ▲ Up to four input signals
- ▲ Analogue standard signals, freely programmable

Electronic output signals:

- ▲ Up to four output signals
- ▲ Analogue standard signals, freely programmable

- ▲ 2,8" TFT Touch LCD

- ▲ Operating voltage 24 V DC/AC

Operation:

- ▲ Touch-sensitive Display
- ▲ Relay semiconductor contact

Optional:

- ▲ Digital interface
- ▲ Data logging on secured SD card

PRODUCT LINE CLIMATE CONTROL TECHNOLOGY

DE39 with Colour Change



ΔP measuring by calculating the difference between two pressure sensors

Pressure stages: 6 - 40 bar

0 - 20 mA
4 - 20 mA 3-wire
0 - 10 V

LC display
Operating voltage 24 V DC/AC

Operation: Membrane keypad-
PC adapter EU 05
PC software

Cutting ring connection/
female thread G1/8

Relay / Semiconductor contact

Optional: Panel mounting

ATEX II3G - LC display version

EA14D with Colour Change



ΔP measuring by calculating the difference between two pressure sensors

Measuring ranges: 2,5 - 100 bar

0 - 20 mA
4 - 20 mA 3-wire
0 - 10 V

LC display
Operating voltage 24 V DC/AC

Operation: Membrane keypad-
PC adapter EU 05
PC software

Relay / Semiconductor contact

Optional: Panel mounting



EA14F / M with Colour Change



Measuring of pressure / filling level by evaluating external sensor values

Possible input signals of external sensor:

0 - 20 mA
4 - 20 mA 3-wire
0 - 10 V

Output signal:
0 - 20 mA
4 - 20 mA 3-wire
0 - 10 V

LC display
Operating voltage 24 V DC/AC

Operation: Membrane keypad-
PC adapter EU 05
PC software

Relay / Semiconductor contact

Optional: Panel mounting

DE49_A



Measuring range > 250 mbar
4 - 20 mA 2-wire

Square-rooting display/output

LC display
Operating voltage 24 V DC

Operation: Membrane keypad

Cutting ring connection

Explosion proof:
II 1/2 G Ex ia IIC T4
II 2 D Ex ia D 21 T80 °C
-10 ... + 60 °C

Measuring ranges: 250 mbar, 1 bar
stat. operating pressure 3 bar

Please find further information about FISCHER and our products on our homepage:
www.fischermesstechnik.de/en



FISCHER Mess- und Regeltechnik GmbH provides a perfectly tailored range of models for clean rooms and safety laboratories, as well as for many other applications.

The measuring instruments are distinguished by:

- ▲ Families of measuring instruments for various measuring tasks
- ▲ Comfortable user prompt
- ▲ Some instruments with extended proofs (EAC, SIL, GL, structural testing, etc.)
- ▲ Industry-compliant equipment for housings and process connections
- ▲ Special instruments with colour-change displays for visualisation of operating conditions (e.g. warnings, alarms)
- ▲ Customer-specific system solutions

Numerous references prove the quality of our products.

FISCHER Mess- und Regeltechnik GmbH offers individual concept solutions for your application.

We are an owner-operated family business with efficient decision-making processes.

We offer our customers tailored systems and product solutions, as well as OEM products.

Our devices and solutions are optimally suited for a variety of applications, such as:

- ▲ Pressure measurement (under- and over-pressure)
- ▲ Differential pressure measurement
- ▲ Flow measurement
- ▲ Temperature measurement
- ▲ Level measurement
- ▲ Humidity measurement
- ▲ Control Systems

Contact details can be found on our website:

www.fischermesstechnik.de

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