



**Measuring
Equipment
Technology**

 **CLEAN ROOM**
 **SAFETY LABORATORIES**

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.

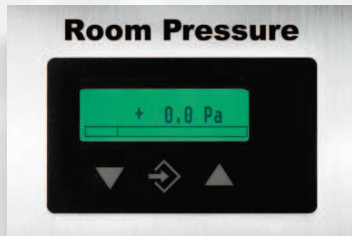
As far as it is required by the product, the room temperature and / or the room air humidity levels may also be measured, recorded and applied as a control variable for the building control system.

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



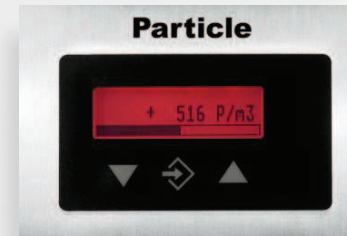
Measuring Equipment Technology CLEAN ROOM

DE24 – Room pressure transmitter/display



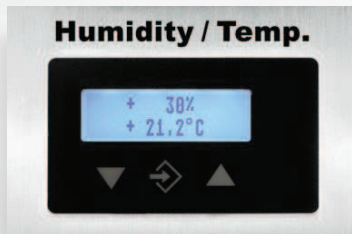
- Capacitive low-pressure sensor
- Long-term stable without recalibration
- High repeatability
- LC display with colour change of backlighting as clean room signal light
- User prompt in clear text
- In-situ calibration or adjustment
- Integrated control unit / Zeroing, calibration and setting without 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)

EA14A – Universal display



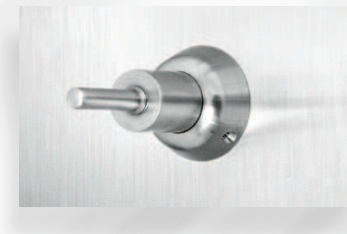
- Long-term stable without recalibration
- High repeatability
- LC display with colour change of backlighting as clean room signal light
- User prompt in clear text
- In-situ calibration or adjustment
- Integrated control unit / Zeroing, calibration and setting without PC
- Password-protected to prevent unauthorised access
- Industry standard analogue output
- Measuring ranges: freely definable areas and units
- Input signal display
 - 0...10 V, 0...20 mA, 4...20 mA, 3-wire
- 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)

FT61 – Measuring device for humidity/temperature



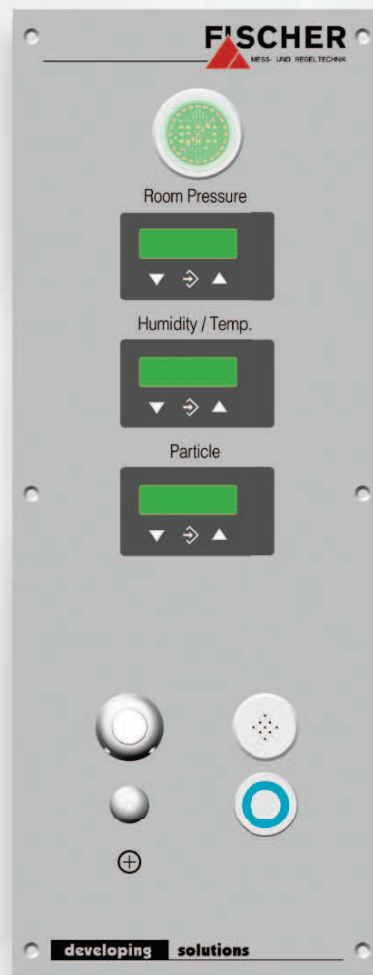
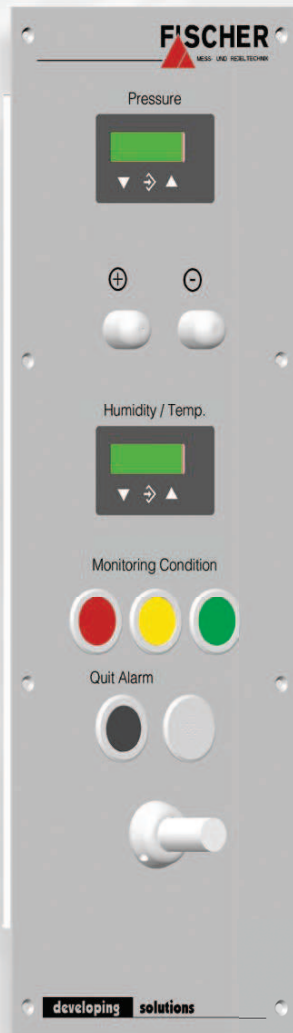
- Capacitive humidity sensor
- Pt1000 temperature sensor
- Long-term stable without recalibration
- High repeatability
- LC display with colour change of backlighting as clean room signal light
- User prompt in clear text
- In-situ calibration or adjustment
- Integrated control unit / Zeroing, calibration and setting without PC
- Password-protected to prevent unauthorised access
- Industry standard analogue output
- Measuring ranges:
 - Humidity: 20...85 % r.F., ± 2.5 %
 - Temperature: -25...+85 °C, ± 0.5 °C
- Interface Sensor -> Indicator: I²C Bus
- 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)

TW68 – Compact resistance thermometer with miniature head transmitter



- 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

Panel examples CLEAN ROOM



Manufacturing examples:
Technical implementation according to
customer requirements.

SAFETY LABORATORIES

Accurate control and monitoring – from FISCHER



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

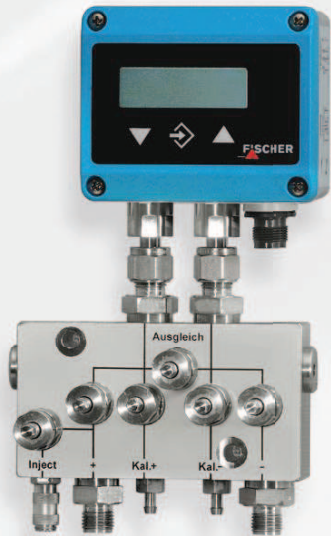
In accordance with these regulations, spaces are classified in one of four security grades - from S1 to S4. If an airborne infection can occur, the spaces and the upstream air-locks, showers, etc. must be held under controlled vacuum conditions. It may also be the case that a disinfection of the rooms with H₂O₂ 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.



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



Manufacturing examples:
Technical implementation according to
customer requirements.

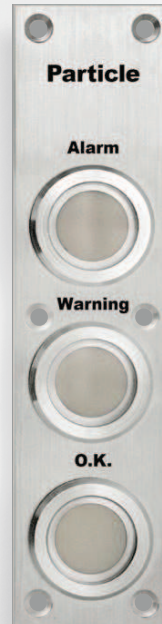
Accessories CLEAN ROOM and SAFETY LABORATORIES

LE06 – Air-lock symbols



- Gas tight air-lock symbols
- Discretely controllable symbols:
 - green arrow
 - yellow triangle
 - red crossed circle
- Operating voltage 24 VDC, Power consumption 75 mA

LE07 – LED indicator light



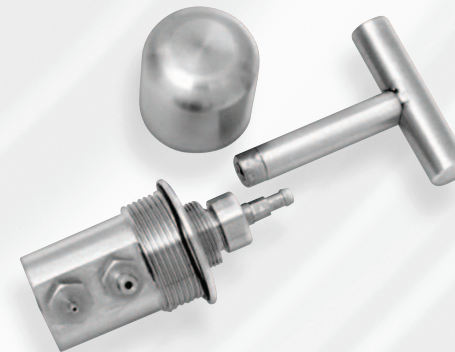
- Gas tight LED indicator lights
- Available colours:
 - green
 - yellow
 - red
- Operating voltage 24 VDC, Power consumption 60 mA

RT010065 – 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

RT02 – 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

RT03 – Bulkhead pipe fitting



- Completely made of stainless steel
- For ceiling/wall thicknesses of 12 to 150 mm
- Special lengths on request

RT04 – 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

Product Line Ventilation Technology

DE44 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 03
PC software

Screw connection for hoses

Relay/Semiconductor contact

Optional: Panel mounting

DE45 with colour change



Flush mount clean room application

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

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 03
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

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 03
PC software

Relay/Semiconductor contact

Optional: Panel mounting

DE39 with colour change



Δ P 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 03
PC software

Cutting ring connection /
female thread G1/8

Relay/Semiconductor contact

Optional: Panel mounting

ATEX II3G - LC display version

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

Product Line Climate Control Technology

EA14D with colour change



Δ P measuring by calculating the
difference between two external
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 03
PC software

Relay/Semiconductor contact

Optional: Panel mounting

EA14F 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

EA14M with colour change



LC display
Operating voltage 24 V DC/AC

Operation: Membrane keypad-
PC adapter EU 03
PC software

Relay/Semiconductor contact

Optional: Panel mounting