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CLEAN ROOM
 SAFETY LABORATORIES

Measuring Equipment Technology



CLEAN ROOM TECHNOLOGY Perfect Measuring Equipment – from FISCHER

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2019

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.

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developing solutions

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

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- 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



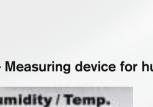
- Pt1000 temperature sensor
- Long-term stable without recalibration
- High repeatability
- LC display with colour change of backlighting as clean room signal light
- User prompt in clear text
- In-situ calibration or adjustment
- Integrated control unit / Zeroing, calibration and setting without PC
- 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)



- 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.

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SAFETY LABORATORIES

Accurate control and monitoring – from FISCHER

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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 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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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: undirectional: 0...50 Pa to 0...1000 Pa
- unidirectional: 0...50 Pa to 0...1000 bidirectional: ± 25 Pa to ± 100 Pa • Max. static pressure up to 100 kPa
- 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)
- 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







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





Alarm

O.K.

• 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

Square-rooting display/output

Operating voltage 24 V DC/AC

Operation: Membrane keypad-

Screw connection for hoses

Relay/Semiconductor contact

Flush mount clean room application

ATEX II3G - LC display version

ATEX II3D - LC display version

Optional: Panel mounting

DE44 with colour change Measuring range > 4 mbar 0 - 20 mA 4 - 20 mA 3-wire 0 - 10 V

LC display

PC software

PC adapter EU 03



DE45 with colour change



DE46 with colour change



Measuring range > 25 Pa 0 - 20 mA 4 - 20 mA

0 - 10 V

LC display

PC software

3-wire

Square-rooting display/output Operating voltage 24 V DC/AC Operation: Membrane keypad-PC adapter EU 03

EA14F

with colour change

DE49 0

2x

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

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

Measuring of pressure/filling level

Possible input signal from external

3-wire

3-wire

Operating voltage 24 V DC/AC

Operation: Membrane keypad-

Relay/Semiconductor contact

Optional: Panel mounting

PC adapter EU 03

by evaluating external sensor

values

sensor:

0 - 20 mA

4 - 20 mA

Output signal

0 - 20 mA

4 - 20 mA

LC display

PC software

0 - 10 V

0 - 10 V

Product Line Climate Control Technology

DE39 with colour change



ΔP measuring by calculating the EA14D difference between two pressure with colour change

Pressure stages: 6 - 40 bar

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

sensors

LC display Operating voltage 24 V DC/AC

Operation: Membrane keypad-

Cutting ring connection / female thread G1/8

Relay/Semiconductor contact

ATEX II3G - LC display version

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ΔP 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





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

with colour change

PC adapter EU 03

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

Square-rooting display/output

Operating voltage 24 V DC

Cutting ring connection

Explosion proof: II 1/2 G Ex ia IIC T4 II 2 D Ex ia D 21 T80 °C

Measuring ranges: 250 mbar, 1 bar





stat. operating pressure 3 bar



-10...60 °C

DE49 A







LC display

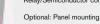
Operation: Membrane keypad

EA14M

LC display Operating voltage 24 V DC/AC Operation: Membrane keypad-

PC software

Relay/Semiconductor contact







PC adapter EU 03 PC software

Optional: Panel mounting