MECON
SAFETY CONTROL

# TURBO-LUX® 2 DIGITAL

## Fire pump flowmeter for use in test lines of fire protection systems

## ADVANTAGES

- One device for all nominal sizes and measuring ranges of Turbo-Lux® 2
- Easy switch between analog and digital
- Digital display for effortless reading of measurements
- Readable from up to 5 meters (16.4 feet) distance
- Maintenance-free

VdS

made in Germany

This modern measuring device is suitable for all nominal diameters and measuring ranges of the Turbo-Lux® 2. With a wide range of 420 … 18 000 l/min for nominal diameters DN 80 … DN 250 the Turbo-Lux® 2 Digital offers you maximum flexibility and accuracy.

Existing Turbo-Lux® 2 bypass flowmeters can be converted to the digital version in just a few simple steps. The switch is straightforward via a screw connection without the need for tools.

The 4 … 20 mA output also allows direct connection to external control systems, such as pump control cabinets.

The display continuously shows the current flow rate, the measurement range and the nominal diameter, and remains clearly legible even from a distance of up to five metres.

Thanks to its completely maintenance-free design, the Turbo-Lux® 2 Digital offers maximum operational reliability and consistently dependable performance – for flow measurement you can rely on at all times.

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# TECHNICAL DATA

## System

| | |
|---|---|
| Measuring principle | Orifice plate flowmeter with differential pressure as transducer |
| Measurement range | ± 2.5 % of full scale value |
| Certificates | VdS G 4060003 |

## Input

| | |
|---|---|
| Nominal diameter | DN 80 PN 16 |
| | DN 100 PN 16 |
| | DN 150 PN 16 |
| | DN 200 PN 10/16 |
| | DN 250 PN 10/16 |
| Pressure limits | Max. 16 bar (232 psi) |
| Hydrostatically strength / Pressure strength | 64 bar (928 psi) for 10 min. |

## Operating conditions

| | |
|---|---|
| Temperature range | 4 °C ... 50 °C (39 °F ... 122 °F) |
| Medium | Water |
| Analogue output | 4 ... 20 mA (version 24 V DC - connection cable 4-pole) |
| Power supply | 12 ... 24 V DC |
| Power consumption | Max. 1.0 W |
| Ambient temperature | 1 °C ... 60 °C (34 °F ... 140 °F) |
| Storage temperature | -20 °C ... 60 °C (-4 °F ... 140 °F) |
| Protection class | IP54 |
| Damping | 3 s |

## Constructive Design

| | |
|---|---|
| Differential pressure tube | Messing |
| Gasket | NBR |
| Measuring transducer | Aluminium |
| Display | 2.4 in illuminated graphical LCD |
| Connection | M12 x 1 (4-polig) |
| Weight (inkl. mains adapter) | Approx. 1.3 kg (2.8 lbs) |

# INSTALLATION INSTRUCTIONS

Before and after the orifice plate a straight calming ection is provided as a function of the nominal diameter (D).

An inlet path of at least 10 x D is required before the measuring orifice. The outlet zone after the measuring orifice must be at least 5 x D.

The connected pipelines must be the same size as the orifice plate. Important for maintaining the measurement tolerance is the concentric installation between the flanges of the pipeline. The center offset must not exceed 0.5 mm. As an aid for each size, a centering kit is available for the alignment from the measuring aperture to the installation between flanges.

The pipelines must be completely filled at all times. Examples of special installation situations are illustrated in figures 2 to 5.

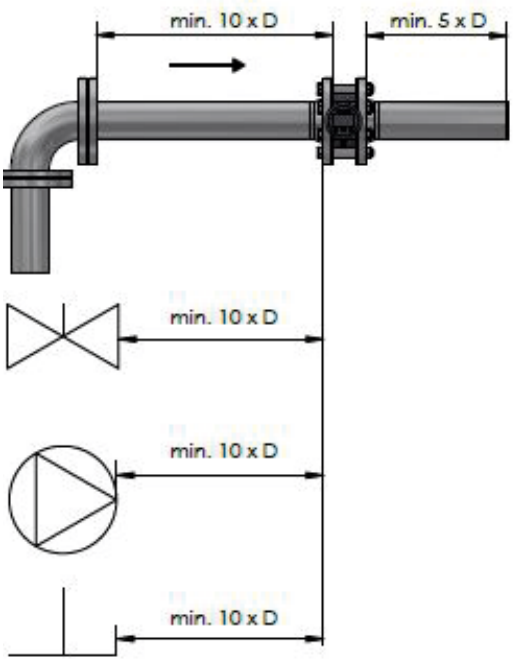



*Fig. 1: Inlet path and outflow zone*

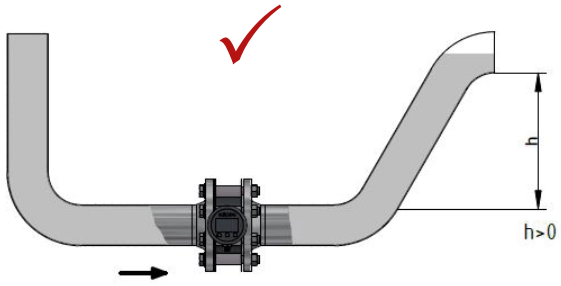



*Fig. 2: Turbo-Lux® 2 Digital correct horizontal installation*

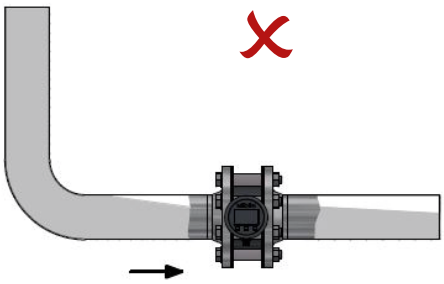


*Fig. 3: Turbo-Lux® 2 Digital wrong horizontal installation*

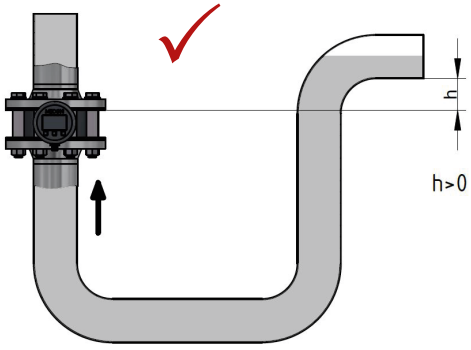



*Fig. 4: Turbo-Lux® 2 Digital correct vertical installation*

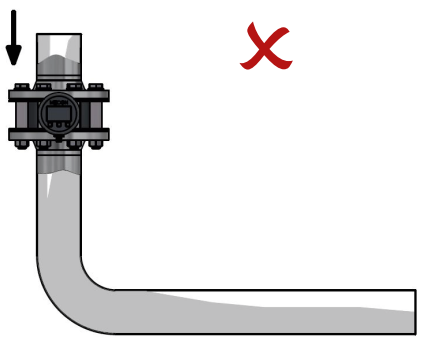
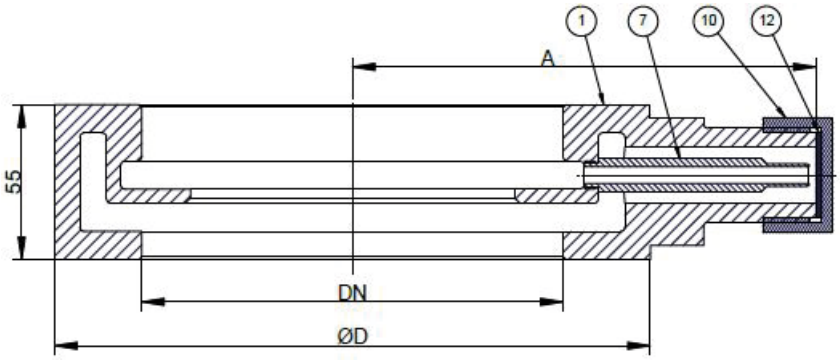


*Fig. 5: Turbo-Lux® 2 Digital wrong vertical installation*

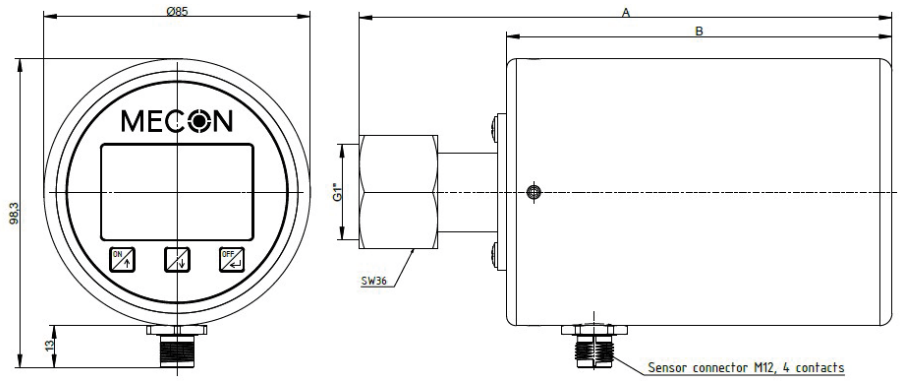
# DIMENSIONS AND WEIGHTS




① Orifice plate
⑦ Differential pressure tube
⑩ Cap
⑫ Gasket

*Fig. 6: Turbo-Lux® 2 orifice plate, position drawing and dimensions*

| Nominal diameter | A (mm / in) | ØD (mm / in) | Weight (kg / lbs) |
|---|---|---|---|
| DN 80 PN 16 | 130 / 5.1 | 138 / 5.4 | 1.3 / 2.9 |
| DN 100 PN 16 | 140 / 5.5 | 158 / 6.2 | 1.6 / 3.5 |
| DN 150 PN 16 | 165 / 6.5 | 212 / 8.4 | 2.1 / 4.6 |
| DN 200 PN 10/16 | 190 / 7.5 | 268 / 10.6 | 3.0 / 6.6 |
| DN 250 PN 10/16 | 215 / 8.5 | 320 / 12.6 | 4.0 / 8.8 |
| Digital bypass flowmeter | - | - | 1.2 / 2.7 |




Ⓐ 168 mm / 6.6 in
Ⓑ 123 mm / 4.8 in

*Fig. 7: Turbo-Lux® 2 Digital (Plug M12 x 1 in 12 ... 24 V DC version)*

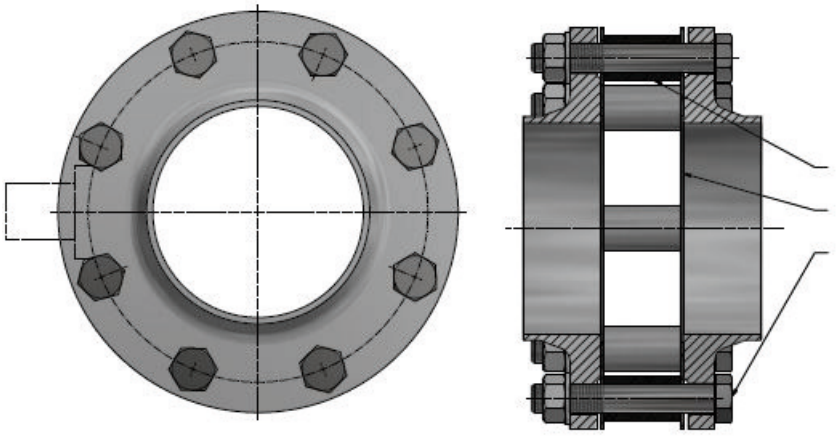
# PRODUCT AND ACCESSORIES

| Order code | Description |
|---|---|
| TL2D0 | Turbo-Lux® 2 Digital |
| ZB-TL3D0-001 | 5 m (16.4 ft) connection cable with PUR sheathing, open end, with plug M 12, 4-pole, 90° socket, IP68 |
| ZB-TL3D0-002 | Plug-in power supply unit, Input 100 ... 240 V AC, 50 ... 60 Hz, Output 12 V DC, cable length 1.5 m (4.9 ft) universal plugs for Australia, Europe, UK and US |
| ZB-TL2D0-003 | Set calibration (indicator and orifice) |
| ZB-TL3D0-004 | Round connector M12 socket for cable mounting, 4-pole |

# ORIFICE PLATES

| Order code | Description | Connection / Measurement range |
|---|---|---|
| 7ME5834-1AA00-0AA0 | Orifice plate[2] | DN 80 PN 16<br>Qv: 0,42 - 2,1 m³/min |
| 7ME5834-2AA00-0AA0 | Orifice plate[2] | DN 100 PN 16<br>Qv: 0,6 - 3,0 m³/min |
| 7ME5834-3AA00-0AA0 | Orifice plate[2] | DN 150 PN 16<br>Qv: 1,2 - 6,0 m³/min |
| 7ME5834-4AA00-0AA0 | Orifice plate[2] | DN 200 PN 10/16<br>Qv: 2,4 - 12,0 m³/min |
| 7ME5834-5AA00-0AA0 | Orifice plate[2] | DN 250 PN 10/16<br>Qv: 3,6 - 18,0 m³/min |
| 7ME5834-0BA00-0AA0 | Centering kit orifice plate[2] | DN 80 PN 16 |
| 7ME5834-0CA00-0AA0 | Centering kit orifice plate[2] | DN 100 PN 16 |
| 7ME5834-0EA00-0AA0 | Centering kit orifice plate[2] | DN 150 PN 16 |
| 7ME5834-0FA00-0AA0 | Centering kit orifice plate[2] | DN 200 PN 10 |
| 7ME5834-0KA00-0AA0 | Centering kit orifice plate[2] | DN 200 PN 16 |
| 7ME5834-0GA00-0AA0 | Centering kit orifice plate[2] | DN 250 PN 10/16 |

[2] *For installation between flanges*



Centering bushing

Gasket

Hex nut with washer and hex nut

* for DN 80, the two centering bushings to the right and left of the connection nozzles are not required

*Fig. 8: Centering kit for wafer version*