MECON
SAFETY CONTROL

TURBO-LUX® 3 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® 3
- 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

FM APPROVED

VdS

made in Germany

This innovative device is suitable for all nominal sizes and measuring ranges of the Turbo-Lux® 3 and offers you maximum flexibility and accuracy.

The Turbo-Lux® 3 Digital can be used in various systems and covers a wide measuring range from 75 ... 38 000 l/min (20 ... 10 000 USgpm) and nominal sizes from 2“/DN 50 ... 12“/DN 300.

With minimal effort, you can install the Turbo-Lux® 3 Digital on existing, operational Turbo-Lux® 3 orifice plates. The switch to the digital display is straightforward using a screw connection.

With the 4 ... 20 mA output, the Turbo-Lux® 3 Digital can be connected to a control system, such as a pump control unit. Alternatively, it can be connected to the power supply using an AC adapter.

The display permanently shows the current flow rate, pump performance, and nominal size and is readable from up to 5 meters (16.4 feet) away.

The Turbo-Lux® 3 Digital is completely maintenance-free, providing you with a reliable and long-lasting solution for your flow measurement.

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TECHNICAL DATA

System

Measuring principle	Orifice plate flowmeter with differential pressure as transducer
Measurement range	75 ... 38 000 l/min (20 ... 10 000 USgpm)
Measuring accuracy	±2.0 % of full scale value
Certificates	FM PR455022 VdS G 415006

Input

Nominal diameter	2“/DN 50 (Ø 60.3 mm / 2.4 in)
	2½“/DN 65[2] (Ø 73.0 mm / 2.9 in)
	2½“/DN 65 (Ø 76.1 mm / 3.0 in)
	3“/DN 80 (Ø 88.9 mm / 3.5 in)
	4“/DN 100 (Ø 114.3 mm / 4.5 in)
	6“/DN 150 (Ø 165.1 mm / 6.5 in)
	6“/DN 150 (Ø 168.3 mm / 6.6 in)
	8“/DN 200[2] (Ø 219.1 mm / 8.6 in)
	10“/DN 250[1] (Ø 273.0 mm / 10.7 in)
	12“/DN 300[1] (Ø 323.9 mm / 12.8 in)
Pressure limits	34.5 bar (500 psi) 2“/DN 50 ... 8“/DN 200 - FM
	16 bar (232 psi) 10“/DN 250 ... 12“/DN 300 - FM
	16 bar (232 psi) 2“/DN 50 ... 8“/DN 200 - VdS
Hydrostatically strength / Pressure strength	69 bar (1 000 psi) for 5 min. - FM
	64 bar (928 psi) for 10 min. - VdS

Application 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
	Battery operation (in preparation)
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

Orifice plate 2“/DN 50 ... 4“/DN 100	Housing tube in stainless steel with turned grooved connection
Orifice plate 6“/DN 150 ... 12“/DN 300	Housing tube in coated steel with rolled grooved connection

Measuring transducer

Display	2.4 in illuminated graphical LCD
Connection	M12 x 1 (4-pole)
Weight (incl. mains adapter)	Approx. 1.3 kg (2.9 lbs)
Material	Aluminium or stainless steel suitable for salt water

[1]Only available with FM approval
[2]VdS limited measuring range up tp 10 m/s (corresponds to 20 800 l/min / 5 500 USgpm)

INSTALLATION NOTES

The Turbo-Lux® 3 Digital is installed using grooved pipe couplings. It is essential to ensure that the couplings used do not reduce the inner diameter of the pipe in the sealing area, as this can cause flow turbulence and measurement inaccuracies.

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

By default, there should be a 5 x D straight calming section in front of the orifice plate and a 2 x D straight calming section behind it.

For the installation of valves, pumps, or T-piece pipes, an inlet path of at least 10 x D is required. Of this, at least 5 x D must be a straight section directly in front of the orifice plate.

The connected pipelines must be the same size as the orifice plate.

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

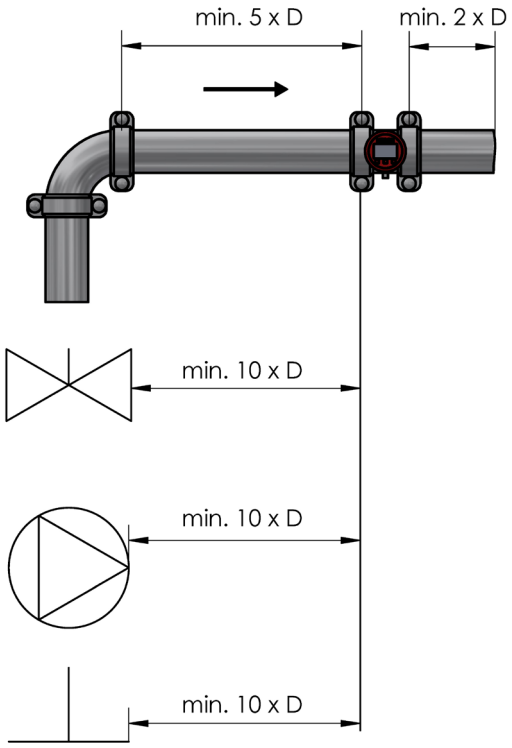


Fig. 1: Inlet path and outflow zone

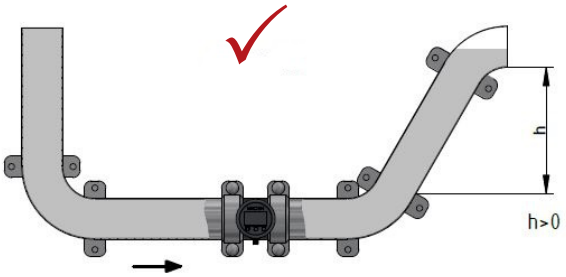


Fig. 2: Turbo-Lux® 3 Digital correct horizontal installation

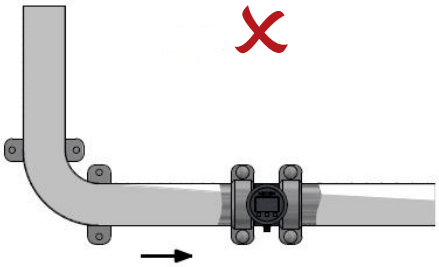


Fig. 3: Turbo-Lux® 3 Digital wrong horizontal installation

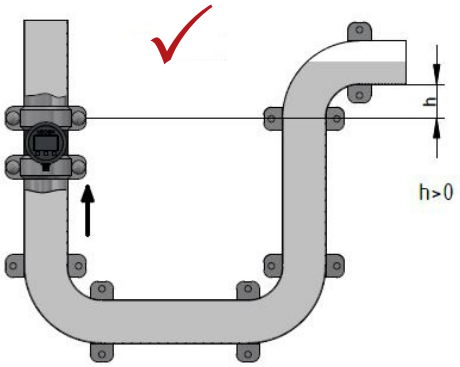


Fig. 4: Turbo-Lux® 3 Digital correct vertical installation

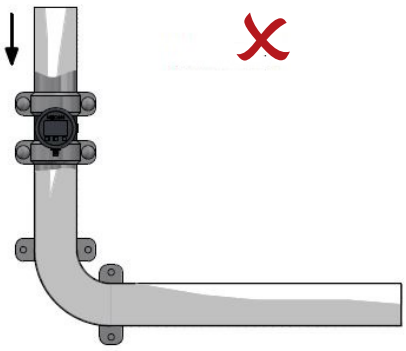


Fig. 5: Turbo-Lux® 3 Digital wrong vertical installation

DIMENSIONS AND WEIGHTS

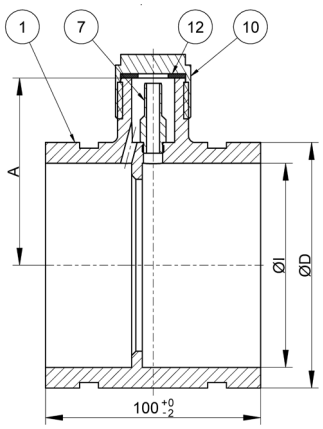


Fig. 2: Turbo-Lux® 3 Orifice plate, position drawing and dimensions for 2"/DN 50 ... 4"/DN 100

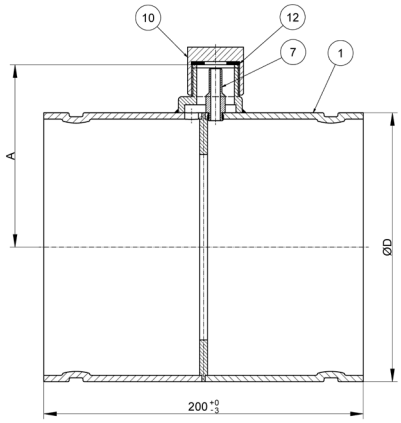
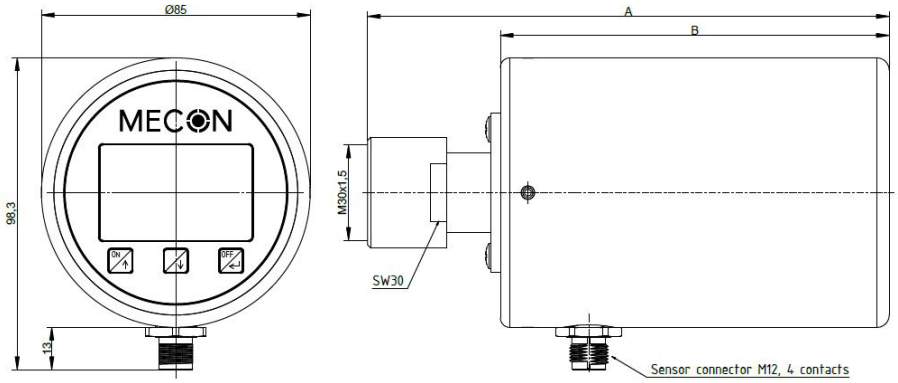


Fig. 3: Turbo-Lux® 3 Orifice plate, position drawing and dimensions for 6"/DN 150 ... 12"/DN 300

① Housing tube
⑦ Differential pressure
⑩ Cap
⑫ Gasket



Ⓐ 168 mm / 6.6 in
Ⓑ 123 mm / 4.8 in

Fig. 4: Turbo-Lux® 3 Digital (Sensor connector M12 x 1 in 12 ... 24 V DC version)

Nominal diameter	A (mm / in)	ØD (mm / in)	ØI (mm / in)	Weight (kg / lbs)
2"/DN 50	60 / 2.4	60.3 / 2.4	53 / 2.1	0.6 / 1.3
2½"/DN 65	68 / 2.7	73.0 / 2.9	66 / 2.6	1.0 / 2.2
2½"/DN 65	68 / 2.7	76.1 / 3.0	66 / 2.6	1.0 / 2.2
3"/DN 80	75 / 3.0	88.9 / 3.5	80 / 3.2	1.0 / 2.2
4"/DN 100	87 / 3.4	114.3 / 4.5	100 / 3.9	2.0 / 4.4
6"/DN 150	113 / 4.4	165.1 / 6.5	155.1 / 6.1	4.5 / 9.9
6"/DN 150	114 / 4.5	168.3 / 6.6	160.3 / 6.3	4.5 / 9.9
8"/DN 200	140 / 5.5	219.1 / 8.6	210.1 / 8.3	5.1 / 11.2
10"/DN 250	166 / 6.5	273.0 / 10.8	263.0 / 10.4	6.6 / 14.6
12"/DN 300	192 / 7.6	323.9 / 12.8	312.7 / 12.3	9.4 / 20.7
Digital bypass flowmeter	-	-	-	0.6 / 1.3

PRODUCT AND ACCESSORIES

Product	Order code
Turbo-Lux® 3 Digital	TL3D0
Turbo-Lux® 3 Digital stainless steel - suitable for saltwater	TL3D0S
5 m (16.4 ft) connection cable with PUR sheathing, open end, with plug M 12, 4-pole, 90° socket, IP68	ZB-TL3D0-001
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-TL3D0-002
Set calibration (indicator and orifice)	ZB-TL3D0-003
Round connector M12 socket for cable mounting, 4-pole	ZB-TL3D0-004
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) with GB socket	ZB-TL3D0-005
Replacement cap	ZB-TL3P0-001
Replacement cap stainless steel	ZB-TL3P0-002

ORIFICE PLATES

Nominal diameter	Measuring range	Order code	Orifice plate anthracite	Orifice plate red	Orifice plate stainless steel
2“/DN 50 50 USgpm (Ø 60.3 mm / 2.4 in)	20 ... 100 USgpm (75 ... 375 l/min)	TL3P0-EB			X
2½“/DN 65 100 USgpm (Ø 73.0 mm / 2.9 in)	40 ... 200 USgpm (150 ... 750 l/min)	TL3P0-UC			X
2½“/DN 65 100 USgpm (Ø 76.1 mm / 3.0 in)	40 ... 200 USgpm (150 ... 750 l/min)	TL3P0-FC			X
3“/DN 80 150 USgpm (Ø 88.9 mm / 3.5 in)	60 ... 300 USgpm (220 ... 1 100 l/min)	TL3P0-GD			X
3“/DN 80 200 USgpm (Ø 88.9 mm / 3.5 in)	80 ... 400 USgpm (300 ... 1 500 l/min)	TL3P0-GE			X
4“/DN 100 250 USgpm (Ø 114.3 mm / 4.5 in)	100 ... 500 USgpm (380 ... 1 900 l/min)	TL3P0-HF			X
4“/DN 100 300 USgpm (Ø 114.3 mm / 4.5 in)	120 ... 600 USgpm (460 ... 2 300 l/min)	TL3P0-HG			X
4“/DN 100 400 USgpm (Ø 114.3 mm / 4.5 in)	160 ... 800 USgpm (600 ... 3 000 l/min)	TL3P0-HH			X
4“/DN 100 450 USgpm (Ø 114.3 mm / 4.5 in)	180 ... 900 USgpm (680 ... 3 400 l/min)	TL3P0-HJ			X

Nominal diameter	Measuring range	Order code	Orifice plate anthracite	Orifice plate red	Orifice plate stainless steel
6“/DN 150 500 USgpm (Ø 168.3 mm / 6.6 in)	200 ... 1 000 USgpm (760 ... 3 800 l/min)	TL3P0-KK	X		
		TL3P0-KKR		X	
		TL3P0-KKS			X
6“/DN 150 750 USgpm (Ø 168.3 mm / 6.6 in)	300 ... 1 500 USgpm (1 130 ... 5 650 l/min)	TL3P0-KL	X		
		TL3P0-KLR		X	
		TL3P0-KLS			X
6“/DN 150 1 000 USgpm (Ø 168.3 mm / 6.6 in)	400 ... 2 000 USgpm (1 500 ... 7 500 l/min)	TL3P0-KM	X		
		TL3P0-KMR		X	
		TL3P0-KMS			X
6“/DN 150 1 250 USgpm (Ø 168.3 mm / 6.6 in)	500 ... 2 500 USgpm (1 900 ... 9 500 l/min)	TL3P0-KN	X		
		TL3P0-KNR		X	
		TL3P0-KNS			X
6“/DN 150 500 USgpm (Ø 165.1 mm / 6.5 in)	200 ... 1 000 USgpm (760 ... 3 800 l/min)	TL3P0-XK	X		
		TL3P0-XKR		X	
		TL3P0-XKS			X
6“/DN 150 750 USgpm (Ø 165.1 mm / 6.5 in)	300 ... 1 500 USgpm (1 130 ... 5 650 l/min)	TL3P0-XL	X		
		TL3P0-XLR		X	
		TL3P0-XLS			X
6“/DN 150 1 000 USgpm (Ø 165.1 mm / 6.5 in)	400 ... 2 000 USgpm (1 500 ... 7 500 l/min)	TL3P0-XM	X		
		TL3P0-XMR		X	
		TL3P0-XMS			X
6“/DN 150 1 250 USgpm (Ø 165.1 mm / 6.5 in)	500 ... 2 500 USgpm (1 900 ... 9 500 l/min)	TL3P0-XN	X		
		TL3P0-XNR		X	
		TL3P0-XNS			X
8“/DN 200 1 500 USgpm (Ø 219.1 mm / 8.6 in)	600 ... 3 000 USgpm (2 200 ... 11 000 l/min)	TL3P0-LP	X		
		TL3P0-LPR		X	
		TL3P0-LPS			X
8“/DN 200 2 000 USgpm (Ø 219.1 mm / 8.6 in)	800 ... 4 000 USgpm (3 000 ... 15 000 l/min)	TL3P0-LQ	X		
		TL3P0-LQR		X	
		TL3P0-LQS			X
8“/DN 200 2 500 USgpm (Ø 219.1 mm / 8.6 in)	1 000 ... 5 000 USgpm (3 800 ... 19 000 l/min)	TL3P0-LR	X		
		TL3P0-LRR		X	
		TL3P0-LRS			X
8“/DN 200 3 000 USgpm (Ø 219.1 mm / 8.6 in)	1 200 ... 6 000 USgpm (4 500 ... 22 500 l/min)	TL3P0-LS	X		
		TL3P0-LSR		X	
		TL3P0-LSS			X

Nominal diameter	Measuring range	Order code	Orifice plate anthracite	Orifice plate red	Orifice plate stainless steel
10“/DN 250 3 500 USgpm (Ø 273.0 mm / 10.7 in)	1 400 ... 7 000 USgpm (5 300 ... 26 500 l/min)	TL3P0-MT	X		
		TL3P0-MTR		X	
		TL3P0-MTS			X
10“/DN 250 4 000 USgpm (Ø 273.0 mm / 10.7 in)	1 600 ... 8 000 USgpm (6 000 ... 30 000 l/min)	TL3P0-MU	X		
		TL3P0-MUR		X	
		TL3P0-MUS			X
10“/DN 250 4 500 USgpm (Ø 273.0 mm / 10.7 in)	1 800 ... 9 000 USgpm (6 800 ... 34 000 l/min)	TL3P0-MV	X		
		TL3P0-MVR		X	
		TL3P0-MVS			X
12“/DN 300 5 000 USgpm (Ø 323.9 mm / 12.8 in)	2 000 ... 10 000 USgpm (7 600 ... 38 000 l/min)	TL3P0-NW	X		
		TL3P0-NWR		X	
		TL3P0-NWS			X