

## Turbo-Lux® 3 Digital

### Application

- Fire pump flowmeter
- Measurement of flow of liquids (water) in stationary water extinguishing systems
- FM approved



### Technical data

**Measuring principle** Orifice plate flowmeter with differential pressure as transducer

#### Input

- Nominal size
  - 2"/DN 50 (Ø 60.3 mm)
  - 2½"/DN 65 (Ø 73.0 mm)
  - 2½"/DN 65 (Ø 76.1 mm)
  - 3"/DN 80 (Ø 88.9 mm)
  - 4"/DN 100 (Ø 114.3 mm)
  - 6"/DN 150 (Ø 165.1 mm)
  - 6"/DN 150 (Ø 168.3 mm)
  - 8"/DN 200 (Ø 219.1 mm)
  - 10"/DN 250 (Ø 273.0 mm)
  - 12"/DN 300 (Ø 323.9 mm)
- Pressure limits
  - 500 psi (34.5 bar) from 2" (DN 50) ... 8" (DN 200)
  - 232 psi (16 bar) from 10" (DN 250) ... 12" (DN 300)
- Hydrostatically strength/  
Pressure strength
  - 1000 psi (69 bar) for 5 min.

**Measuring accuracy** ±2.0 % of full scale value

#### Application conditions

- Temperature limit 39 °F ... 122 °F (4 °C ... 50 °C)
- Medium Water

#### Design / material

- Orifice plate
  - 2"/DN 50 ... 4"/DN 100 Stainless steel with turned grooved connection
  - 6"/DN 150 ... 12"/DN 300 Coated steel with rolled grooved connection

#### Measuring transducer

- Display 2.4 inch illuminated graphical LCD
- Connection M12 x 1 (4-pole)
- Weight (incl. mains adapter) Approx. 2.8 lb (1.3 kg)
- Material Aluminium

#### Properties

- 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 Watt
- Ambient temperature 34 °F ... 140 °F (1 °C ... 60 °C)
- Storage temperature -4 °F ... 140 °F (-20 °C ... 60 °C)
- Protection class IP 54
- Damping 3 s

<b>Certifications</b>	FM Approval PR455022
	VdS approval in process

**Installation notes**

Before and after the orifice plate a straight calming section is provided as a function of the nominal diameter (D). With an installation of an one quarter pipe (independent of the direction) the distance of the inlet path of min. 5 x D and an outflow zone of 2 x D is required (fig. 1). The connected pipes have to be of the same size as the orifice plate.

- An inlet path of 5 x D requires a mounted quarter pipe before.

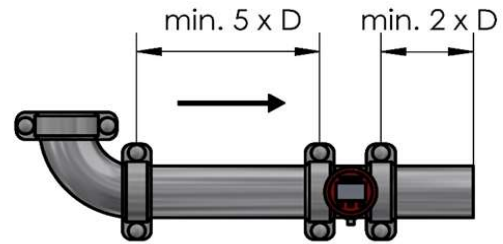


Fig. 1 Inlet path and outflow zone at 5 x D with an one quarter pipe

- An inlet path of min. 10 x D is required if a **valve, fitting or T-piece pipe** is mounted before, where at least 5 x D must be available as a straight inlet section directly in front of the orifice plate (fig. 2).

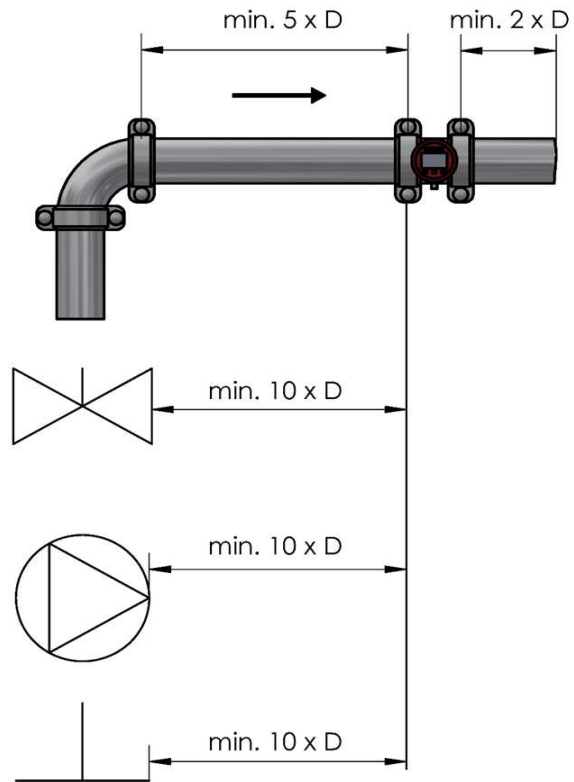


Fig. 2 Inlet path and outflow zone

**Dimensions**

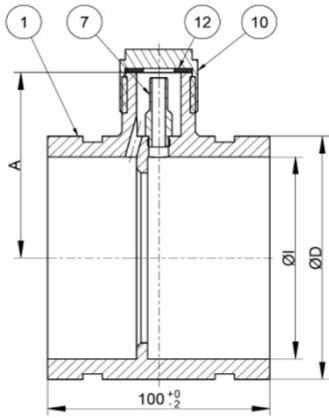


Fig. 3 Turbo-Lux® 3 orifice plate  
drawing and dimensions 2" / DN 50 ... 4" / DN 100

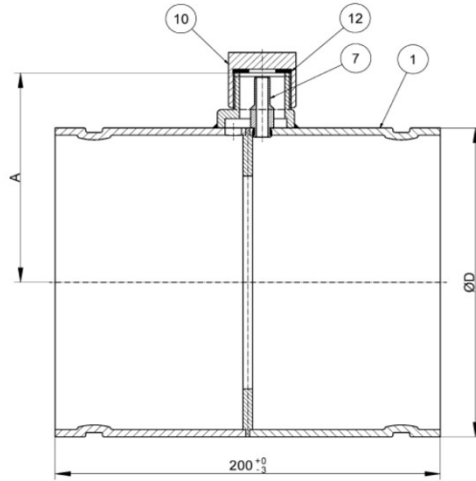
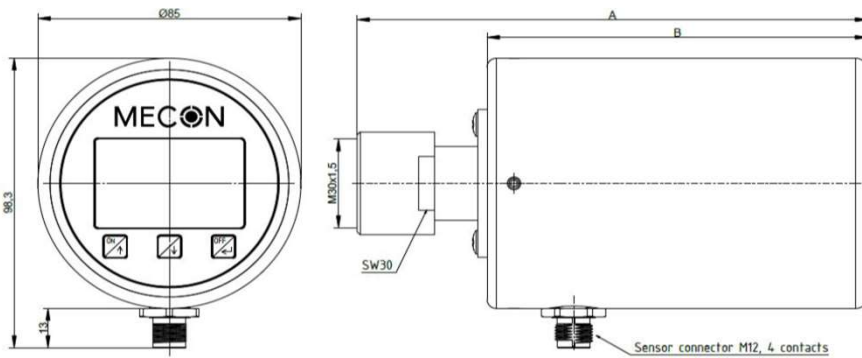


Fig. 4 Turbo-Lux® 3 orifice plate,  
drawing and dimensions 6" / DN 150 ... 12" / DN 300



A: 168 mm  
B: 123 mm

Fig. 5 Turbo-Lux® 3 Digital (Sensor connector M12 x 1 in 12 ... 24 V DC version)

Nominal Size	Dimensions (inch / mm)				Weight	
	Ø D	A (appr.)	Ø l	incl. packing (lbs / kg)		
2"/DN 50	2.375 60.3	2.362 60	2.087 53	0.9	0.4	
2½"/DN 65	2.875 73.0	2.677 68	2.598 66	1.8	0.8	
2½"/DN 65	3.000 76.1	2.677 68	2.598 66	1.8	0.8	
3"/DN 80	3.500 88.9	2.952 75	3.150 80	1.8	0.8	
4"/DN 100	4.500 114.3	3.425 87	3.937 100	4.0	1.8	
6"/DN 150	6.500 165.1	4.449 113	-	7.3	3.3	
6"/DN 150	6.625 168.3	4.488 114	-	7.3	3.3	
8"/DN 200	8.625 219.1	5.511 140	-	10.6	4.8	
10"/DN 250	10.750 273.0	6.535 166	-	16.3	7.4	
12"/DN 300	12.750 323.9	7.559 192	-	20.7	9.4	

Tab. 1 Dimensions and weight (orifice plate)

**Description code**

A flowmeter consists of a digital indicator (display unit) and an orifice plate.

**Digital indicator and accessories**

Order code	Description
TL3D0	Turbo-Lux® 3 Digital - for 12 ... 24 V DC power supply
ZB-TL3D0-001	5 m connection cable with PUR sheathing, open end, with plug M 12, 4-pole, 90° socket, IP 68
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 type F (CEE)
ZB-TL3D0-003	Measuring accuracy certificate for orifice plate flowmeter (SET)
ZB-TL3D0-004	Round connector M12 socket for cable mounting, 4-pole
ZB-TL3D0-005	Plug-in power supply unit, Input 100 ... 240 V AC, 50 ... 60 Hz, Output 12 V DC, cable length 1.5 m (GB socket)
ZB-TL3P0-001	Replacement cap

**Orifice plate**

Order code	Description	Measuring range		
TL3P0-EB	2"/DN 50 for pump 50 USgpm (Ø 60.3 mm)	20 ... 100	USgpm	75 ... 375 lpm
TL3P0-UC	2½"/DN 65 for pump 100 USgpm (Ø 73.0 mm)	40 ... 200	USgpm	150 ... 750 lpm
TL3P0-FC	2½"/DN 65 for pump 100 USgpm (Ø 76.1 mm)	40 ... 200	USgpm	150 ... 750 lpm
TL3P0-GD	3"/DN 80 for pump 150 USgpm (Ø 88.9 mm)	60 ... 300	USgpm	220 ... 1100 lpm
TL3P0-GE	3"/DN 80 for pump 200 USgpm (Ø 88.9 mm)	80 ... 400	USgpm	300 ... 1500 lpm
TL3P0-HF	4"/DN 100 pump 250 USgpm (Ø 114.3 mm)	100 ... 500	USgpm	380 ... 1900 lpm
TL3P0-HG	4"/DN 100 pump 300 USgpm (Ø 114.3 mm)	120 ... 600	USgpm	460 ... 2300 lpm
TL3P0-HH	4"/DN 100 pump 400 USgpm (Ø 114.3 mm)	160 ... 800	USgpm	600 ... 3000 lpm
TL3P0-HJ	4"/DN 100 pump 450 USgpm (Ø 114.3 mm)	180 ... 900	USgpm	680 ... 3400 lpm
TL3P0-KK	6"/DN 150 pump 500 USgpm (Ø 168.3 mm)	200 ... 1000	USgpm	760 ... 3800 lpm
TL3P0-KKR	6"/DN 150 pump 500 USgpm (Ø 168.3 mm), color red	200 ... 1000	USgpm	760 ... 3800 lpm
TL3P0-KKS	6"/DN 150 pump 500 USgpm (Ø 168.3 mm), stainless steel	200 ... 1000	USgpm	760 ... 3800 lpm
TL3P0-KL	6"/DN 150 pump 750 USgpm (Ø 168.3 mm)	300 ... 1500	USgpm	1130 ... 5650 lpm
TL3P0-KLR	6"/DN 150 pump 750 USgpm (Ø 168.3 mm), color red	300 ... 1500	USgpm	1130 ... 5650 lpm
TL3P0-KLS	6"/DN 150 pump 750 USgpm (Ø 168.3 mm), stainless steel	300 ... 1500	USgpm	1130 ... 5650 lpm
TL3P0-KM	6"/DN 150 pump 1000 USgpm (Ø 168.3 mm)	400 ... 2000	USgpm	1500 ... 7500 lpm
TL3P0-KMR	6"/DN 150 pump 1000 USgpm (Ø 168.3 mm), color red	400 ... 2000	USgpm	1500 ... 7500 lpm
TL3P0-KMS	6"/DN 150 pump 1000 USgpm (Ø 168.3 mm), stainless steel	400 ... 2000	USgpm	1500 ... 7500 lpm
TL3P0-KN	6"/DN 150 pump 1250 USgpm (Ø 168.3 mm)	500 ... 2500	USgpm	1900 ... 9500 lpm
TL3P0-KNR	6"/DN 150 pump 1250 USgpm (Ø 168.3 mm), color red	500 ... 2500	USgpm	1900 ... 9500 lpm
TL3P0-KNS	6"/DN 150 pump 1250 USgpm (Ø 168.3 mm), stainless steel	500 ... 2500	USgpm	1900 ... 9500 lpm
TL3P0-XK	6"/DN 150 pump 500 USgpm (Ø 165.1 mm)	200 ... 1000	USgpm	760 ... 3800 lpm
TL3P0-XKR	6"/DN 150 pump 500 USgpm (Ø 165.1 mm), color red	200 ... 1000	USgpm	760 ... 3800 lpm
TL3P0-XKS	6"/DN 150 pump 500 USgpm (Ø 165.1 mm), stainless steel	200 ... 1000	USgpm	760 ... 3800 lpm
TL3P0-XL	6"/DN 150 pump 750 USgpm (Ø 165.1 mm)	300 ... 1500	USgpm	1130 ... 5650 lpm
TL3P0-XLR	6"/DN 150 pump 750 USgpm (Ø 165.1 mm), color red	300 ... 1500	USgpm	1130 ... 5650 lpm
TL3P0-XLS	6"/DN 150 pump 750 USgpm (Ø 165.1 mm), stainless steel	300 ... 1500	USgpm	1130 ... 5650 lpm
TL3P0-XM	6"/DN 150 pump 1000 USgpm (Ø 165.1 mm)	400 ... 2000	USgpm	1500 ... 7500 lpm
TL3P0-XMR	6"/DN 150 pump 1000 USgpm (Ø 165.1 mm), color red	400 ... 2000	USgpm	1500 ... 7500 lpm
TL3P0-XMS	6"/DN 150 pump 1000 USgpm (Ø 165.1 mm), stainless steel	400 ... 2000	USgpm	1500 ... 7500 lpm
TL3P0-XN	6"/DN 150 pump 1250 USgpm (Ø 165.1 mm)	500 ... 2500	USgpm	1900 ... 9500 lpm
TL3P0-XNR	6"/DN 150 pump 1250 USgpm (Ø 165.1 mm), color red	500 ... 2500	USgpm	1900 ... 9500 lpm
TL3P0-XNS	6"/DN 150 pump 1250 USgpm (Ø 165.1 mm), stainless steel	500 ... 2500	USgpm	1900 ... 9500 lpm
TL3P0-LP	8"/DN 200 pump 1500 USgpm (Ø 219.1 mm)	600 ... 3000	USgpm	2200 ... 11000 lpm
TL3P0-LPR	8"/DN 200 pump 1500 USgpm (Ø 219.1 mm), color red	600 ... 3000	USgpm	2200 ... 11000 lpm
TL3P0-LPS	8"/DN 200 pump 1500 USgpm (Ø 219.1 mm), stainless steel	600 ... 3000	USgpm	2200 ... 11000 lpm

Order code	Description	Measuring range		
TL3P0-LQ	8"/DN 200 pump 2000 USgpm (Ø 219.1 mm)	800 ... 4000	USgpm	3000 ... 15000 lpm
TL3P0-LQR	8"/DN 200 pump 2000 USgpm (Ø 219.1 mm), color red	800 ... 4000	USgpm	3000 ... 15000 lpm
TL3P0-LQS	8"/DN 200 pump 2000 USgpm (Ø 219.1 mm), stainless steel	800 ... 4000	USgpm	3000 ... 15000 lpm
TL3P0-LR	8"/DN 200 pump 2500 USgpm (Ø 219.1 mm)	1000 ... 5000	USgpm	3800 ... 19000 lpm
TL3P0-LRR	8"/DN 200 pump 2500 USgpm (Ø 219.1 mm), color red	1000 ... 5000	USgpm	3800 ... 19000 lpm
TL3P0-LRS	8"/DN 200 pump 2500 USgpm (Ø 219.1 mm), stainless steel	1000 ... 5000	USgpm	3800 ... 19000 lpm
TL3P0-LS	8"/DN 200 pump 3000 USgpm (Ø 219.1 mm)	1200 ... 6000	USgpm	4500 ... 22000 lpm
TL3P0-LSR	8"/DN 200 pump 3000 USgpm (Ø 219.1 mm), color red	1200 ... 6000	USgpm	4500 ... 22000 lpm
TL3P0-LSS	8"/DN 200 pump 3000 USgpm (Ø 219.1 mm), stainless steel	1200 ... 6000	USgpm	4500 ... 22000 lpm
TL3P0-MT	10"/DN 250 pump 3500 USgpm (Ø 273.0 mm)	1400 ... 7000	USgpm	5300 ... 26500 lpm
TL3P0-MTR	10"/DN 250 pump 3500 USgpm (Ø 273.0 mm), color red	1400 ... 7000	USgpm	5300 ... 26500 lpm
TL3P0-MTS	10"/DN 250 pump 3500 USgpm (Ø 273.0 mm), stainless steel	1400 ... 7000	USgpm	5300 ... 26500 lpm
TL3P0-MU	10"/DN 250 pump 4000 USgpm (Ø 273.0 mm)	1600 ... 8000	USgpm	6000 ... 30000 lpm
TL3P0-MUR	10"/DN 250 pump 4000 USgpm (Ø 273.0 mm), color red	1600 ... 8000	USgpm	6000 ... 30000 lpm
TL3P0-MUS	10"/DN 250 pump 4000 USgpm (Ø 273.0 mm), stainless steel	1600 ... 8000	USgpm	6000 ... 30000 lpm
TL3P0-MV	10"/DN 250 pump 4500 USgpm (Ø 273.0 mm)	1800 ... 9000	USgpm	6800 ... 34000 lpm
TL3P0-MVR	10"/DN 250 pump 4500 USgpm (Ø 273.0 mm), color red	1800 ... 9000	USgpm	6800 ... 34000 lpm
TL3P0-MVS	10"/DN 250 pump 4500 USgpm (Ø 273.0 mm), stainless steel	1800 ... 9000	USgpm	6800 ... 34000 lpm
TL3P0-NW	12"/DN 300 pump 5000 USgpm (Ø 323.9 mm)	2000 ... 10000	USgpm	7600 ... 38000 lpm
TL3P0-NWR	12"/DN 300 pump 5000 USgpm (Ø 323.9 mm), color red	2000 ... 10000	USgpm	7600 ... 38000 lpm
TL3P0-NWS	12"/DN 300 pump 5000 USgpm (Ø 323.9 mm), stainless steel	2000 ... 10000	USgpm	7600 ... 38000 lpm

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