

Flow

The basic principle of Pneumatech's flow meters is calorimetric measuring. This means, while measuring the thermal mass flow or standard volume flow, no additional temperature and pressure compensation is required. The standard volume is a common volumetric unit used to compare gas quantities at different pressures and temperatures. To meet various standards, the reference conditions can be set directly on the display of each flow meter. Thus, our reliable flow meters grant consumption and flow measurement according to the individual standard our customers wish to use them.

All flow measurement devices come with a factory calibration certificate.

Flow Check Universal - Flow meter for compressed air and gases

Features & Benefits

- Incl. temperature measurement
- RS 485 interface, Modbus-RTU as a standard
- Integrated display for m³/h and m³
- Usable from 1/2“ to DN 1000
- Easy installation under pressure
- 4-20 mA analog output for m³/h resp. m³/min
- Pulse output for m³ or M-Bus (optional)
- Inner diameter adjustable via keypad
- Total counter resettable
- **Adjustable via keys at the display:** Reference conditions, °C and mbar, 4-20 mA scaling, pulse weight
- Option: Bi-directional measurement. Blue or green arrows in the display indicate the flow direction. A meter reading is available for each flow direction
- Inner diameter adjustable via keypad

Options

Bi-directional measurement. Blue ~~or~~ green arrows in the display indicate the flow direction. A meter reading is available for each flow direction

Description	Order no.
Flow Check Universal flow sensor in basic version: Standard (92.7 m/s), probe length 220 mm, without display	2255332455
Option: Bi-directional measurement - includes 2 x 4 - 20 mA analog outputs and 2x pulse outputs. These are not available for Ethernet (PoE) and M-Bus interface	2255332627
Options for Flow Check Universal :	
Display	2255332628
Max version (185 m/s)	2255332629
High Speed version (224 m/s)	2255332630
Low speed version (50 m/s)	2255332631
1 % Accuracy of m.v. ± 0,3 % of f.s.	2255332632
Ethernet-Interface for Flow Check/ Flow Check Universal	2255332633
Ethernet-Interface PoE for Flow Check/ Flow Check Universal	2255332634
M-Bus board for Flow Check/ Flow Check Universal	2255332635
Probe length 120 mm	2255332636
Probe length 160 mm	2255332637
Probe length 300 mm	2255332638
Probe length 400 mm	2255332639
Probe length 500 mm	2255332640
Probe length 600 mm	2255332641
ISO calibration certificate (5 calibration points) for Flow sensors	2255332642
Gas type: ___ (specify type of gas when ordering)	2255332643
Gas mixture: ___ (specify gas mixture when ordering)	2255332644
Real gas calibration	2255332645
Special cleaning oil and grease-free (e. g. oxygen application)	2255332646
Silicone-free version incl. cleaning free of oil and grease	2255332647
Additional calibration curve stored in the sensor (selectable via display)	2255332648
Certificate of origin	2255332649

Technical data flow check universal	
Parameters	m³/h, l/min (1000 mbar, 20 °C) in case of compressed air resp. Nm³/h, Nl/min (1013 mbar, 0 °C) in case of gases
Units adjustable via keys at display	m³/h, m³/min, l/min, l/s, ft/min, cfm, m/s, kg/h, kg/min, g/s, lb/min, lb/h
Adjustable via keypad	Diameter for volume flow calculation, counter resettable
Sensor	Thermal mass flow sensor
Measuring medium	Air, gases
Gas types are adjustable over PMH service software or PMH data logger	Air, nitrogen, argon, helium, CO2, oxygen, vacuum
Measure range	See table page 75
Accuracy (m.v.: of meas. value) (f.s.: of full scale)	± 1.5 % of m.v. ± 0.3 % of f.s. on request ± 1.0 % of m.v. ± 0.3 % of f.s.
Operating temperature	-30-110 °C probe tube -30-80 °C housing
Operating pressure	-1-50 bar
Digital output	RS 485 interface (Modbus-RTU), Optional: Ethernet-Interface PoE), M-Bus
Analog output	4-20 mA for m³/h e. g. l/min;
Pulse output	1 Pulse per m³ or per liter galvanically isolated. Pulse value can be set on the display. Alternatively, the pulse output can be used as an alarm relay
Supply	18-36 VDC, 5 W
Burden	< 500 Ω
Housing	Polycarbonate (IP 65)
Probe tube	Stainless steel, 1.4301 Mounting length 220 mm, Ø 10 mm
Mounting thread	G 1/2“
Ø Casing	65 mm
Mounting position	any

Further accessories see pages 54 to 58

Easy installation and removal under pressure

- Even under pressure, the flow sensor Flow Check Universal is mounted by means of a standard 1/2“ ball valve. During mounting and dismounting the circlip ring avoids an uncontrolled ejection of the probe which may be caused by the operating pressure.

  For the mounting into different pipe diameters Flow Check Universal is available in the following probe lengths: 120, 160, 220, 300, 400 mm. So the flow sensors are being mounted into existing pipelines with inner diameters of 1/2“ upwards.

  The exact positioning of the sensor in the middle of the pipe is granted by means of the engraved depth scale. The maximum mounting depth corresponds with the resprective probe length. Example: Flow Check Universal with probe length 220 mm has a maximum mounting depth of 220 mm.

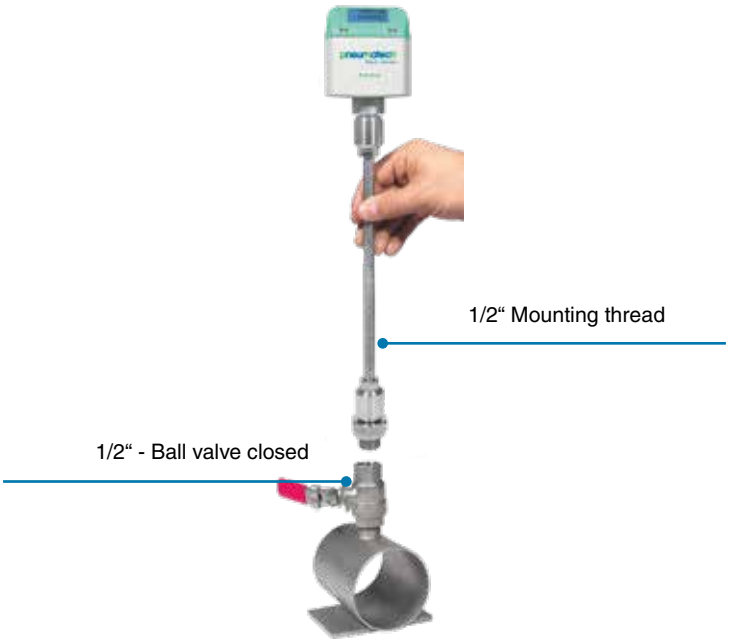
- If there is no suitable measuring point with 1/2 “ball valve, there are two easy ways to set up a measuring point:
  A. Weld on a 1/2“ screw neck and screw on a 1/2“
  ball valve

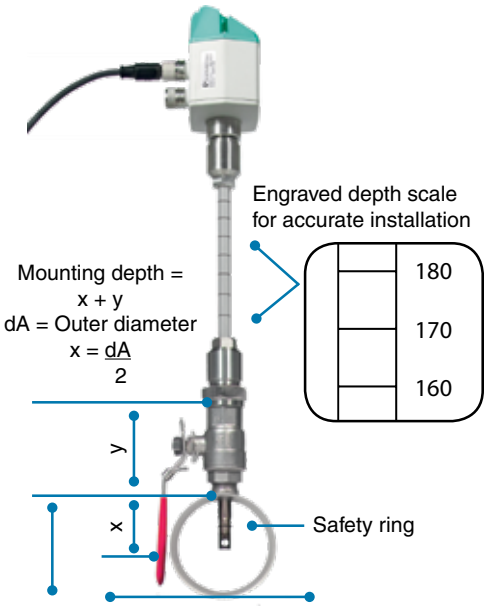
  B. Mount spot drilling collar incl. ball valve (see accessories)

  Drill holes can be drilled through the 1/2” ball valve into the existing tubing with the help of the drilling device, the drill chips are collected in a filter, then the probe is installed as described under 1).

- Due to the large measuring range of the probe even extreme requirements to the flow measurement (high volume flow in small pipe diameters) can be met.

  The measuring range is depending on the pipe diameter - see table on the right hand side.





Options


A Screw neck


B Spot drilling collar


Drill under pressure with the PMH Drill

Measuring ranges Flow Flow Check Universal for compressed air (ISO 1217: 1000 mbar, 20°C) Measuring ranges for other types of gas see pages 70-73

Inner diameter of pipe			**Flow Check Universal Standard (92,7 m/s)**		**Flow Check Universal Max. (185,0 m/s)**		**Flow Check Universal High Speed (224,0 m/s)**	
Inch	mm		Measuring range m³/h	(cfm)	Measuring range m³/h	(cfm)	Measuring range m³/h	(cfm)
1/2“	16,1	DN 15	759 l/min	26	1516 l/min	53	1836 l/min	64
3/4“	21,7	DN 20	89 m³/h	52	177 m³/h	104	215 m³/h	126
1“	27,3	DN 25	148 m³/h	86	294 m³/h	173	356 m³/h	210
1 1/4“	36,0	DN 32	266 m³/h	156	531 m³/h	312	643 m³/h	378
1 1/2“	41,9	DN 40	366 m³/h	215	732 m³/h	430	886 m³/h	521
2“	53,1	DN 50	600 m³/h	353	1197 m³/h	704	1450 m³/h	853
2 1/2“	68,9	DN 65	1028 m³/h	604	2051 m³/h	1207	2484 m³/h	1461
3“	80,9	DN 80	1424 m³/h	838	2842 m³/h	1672	3441 m³/h	2025
4“	110,0	DN 100	2644 m³/h	1556	5278 m³/h	3106	6391 m³/h	3761
5“	133,7	DN 125	3912 m³/h	2302	7808 m³/h	4594	9453 m³/h	5563
6“	159,3	DN 150	5560 m³/h	3272	11096 m³/h	6530	13436 m³/h	7907
8“	200,0	DN 200	8785 m³/h	5170	17533 m³/h	10318	21229 m³/h	12493
10“	250,0	DN 250	13744 m³/h	8088	27428 m³/h	16141	33211 m³/h	19544
12“	300,0	DN 300	19814 m³/h	11661	39544 m³/h	23271	47880 m³/h	28177

Flow Check - Inline flow meter

Easy installation into the existing pipeline due to integrated measuring section and weld neck flange (according to EN 1092-1 PN 40)

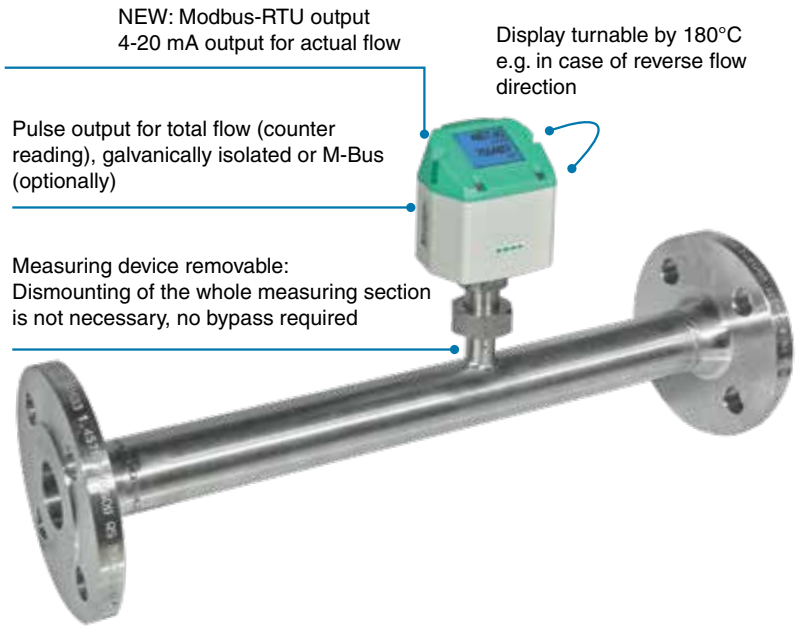
High measuring accuracy due to defined measuring section (inlet and outlet section)

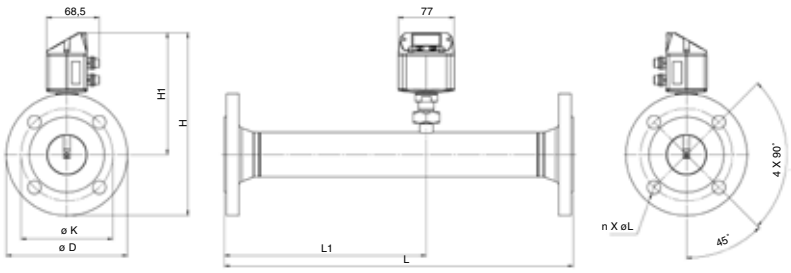
Display shows 2 values at the same time:

- Actual flow in m³/h, l/min
- Total consumption (counter reading) in m³, l resp. temperature measurement
- Values indicated in the display turnable by 180°C, e.g. in case of overhead installation

Application-technological features of the flow meters Flow Check:

- Digital interfaces such as Modbus RTU, Ethernet (PoE) and M-Bus enable connection to higher-level systems such as energy management systems, building management systems, SPS
- Easy and affordable installation
- Units freely selectable via keys at the display m³/h, m³/min, l/min, l/s, kg/h, kg/min, kg/s, cfm
- Compressed air counter up to 1.999.999.999 m³. Resetable to „zero“ via keypad
- Analogue output 4-20 mA, pulse output (galvanically separated)
- High measuring accuracy also in the lower measuring range (ideal for leakage measurement)
- Negligibly small loss of pressure
- Calorimetric measuring principle, no additional pressure and temperature measurement necessary, no mechanically moved parts
- Comprehensive diagnosis functions can be read out at the display or by remote access via Modbus-RTU like e. g. exceeding Max./Min values °C, calibration cycle, error codes, serial number. All parameters can be read out and changed via Modbus





Options

Zero-point adjustment, leak flow volume suppression

Bi-directional measurement. Blue or green arrows in the display indicate the direction of flow. A meter reading is available for each flow direction.

Measuring ranges flow Flow Check (Max version 185 m/s) for compressed air (ISO 1217: 1000 mbar, 20°C). Measuring ranges for other types of gas see pages 74 - 77									Flange DIN EN 1092-1		
Measuring section	**Outer pipe dia. mm**	**Inner pipe dia. mm**	**Measuring range m³/h**	**(cfm)**	**L mm**	**L1 mm**	**H mm**	**H1 mm**	**ØD mm**	**ØK mm**	**n x ØL**
DN 15	21,3	16,1	90	50	300	210	213,2	165,7	95	65	4 x 14
DN 20	26,9	21,7	170	100	475	275	218,2	165,7	105	75	4 x 14
DN 25	33,7	27,3	290	170	475	275	223,2	165,7	115	85	4 x 14
DN 32	42,4	36,0	530	310	475	275	235,7	165,7	140	100	4 x 18
DN 40	48,3	41,9	730	430	475*	275	240,7	165,7	150	110	4 x 18
DN 50	60,3	53,1	1195	700	475*	275	248,2	165,7	165	125	4 x 18
DN 65	76,1	68,9	2050	1205	475*	275	268,2	175,7	185	145	8 x 18
DN 80	88,9	80,9	2840	1670	475*	275	275,7	175,7	200	160	8 x 18
*Attention: Shortened inlet section! Please observe the recommended minimum inlet section (length = 15 x inner diameter) on site											

Description	**Order no.**
Flow Check 2F Flow meter with integr. DN 15 measuring section with Flange	2255332650
Flow Check 3F Flow meter with integr. DN 20 measuring section with Flange	2255332651
Flow Check 4F Flow meter with integr. DN 25 measuring section with Flange	2255332652
Flow Check 5F Flow meter with integr. DN 32 measuring section with Flange	2255332653
Flow Check 6F Flow meter with integr. DN 40 measuring section with Flange	2255332654
Flow Check 7F Flow meter with integr. DN 50 measuring section with Flange	2255332655
Flow Check 8F Flow meter with integr. DN 65 measuring section with Flange	2255332656
Flow Check 9F Flow meter with integr. DN 80 measuring section with Flange	2255332657
Bi-directional measurement - includes 2 x 4 - 20 mA analog outputs and 2x pulse outputs. These are not available for Ethernet (PoE) and M-Bus interface	2255332627
High-pressure version PN 40	2255332658
ANSI flange 150 lbs (instead of DIN flanges)	2255332659
ANSI flange 300 lbs (instead of DIN flanges)	2255332660
Measuring ranges	
Low Speed (50 m/s)	2255332661
Standard (92,7 m/s)	2255332662
High Speed (224 m/s)	2255332663
Options	
Special measuring range for Flow Check according to customer requirements	2255332664
1 % Accuracy of m.v. ± 0,3 % of f.s.	2255332632
Ethernet-Interface for Flow Check/ Flow Check Universal	2255332633
Ethernet-Interface PoE for Flow Check/ Flow Check Universal	2255332634
M-Bus board for Flow Check/ Flow Check Universal	2255332635
ISO calibration certificate (5 calibration points) for Flow sensors	2255332642
Gas type: ___ (specify type of gas when ordering)	2255332643
Gas mixture: ___ (specify gas mixture when ordering)	2255332644
Real gas calibration	2255332645
Special cleaning oil and grease-free (e. g. oxygen application)	2255332646
Silicone-free version incl. cleaning free of oil and grease	2255332647
Additional calibration curve stored in the sensor (selectable via display)	2255332648
Certificate of origin	2255332649

Technical data Flow Check	
Parameters	m³/h, l/min (1000 mbar, 20 °C) at compressed air or Nm³/h, Nl/min (1013 mbar, 0 °C) for gases
Units adjustable via keys at display	m³/h, m³/min, l/min, l/s, ft/min, cfm, m/s, kg/h, kg/min, g/s, lb/min, lb/h
Sensor	Thermal mass flow sensor
Measuring medium	Air, gases
Gas types are adjustable over PMH service software or PMH data logger	Air, nitrogen, argon, helium, CO2, oxygen, vacuum
Measure range	See table above
Accuracy (m.v.: of meas. value) (f.s.: of full scale)	± 1.5 % of m.v. ± 0.3 % of f.s. on request ± 1.0 % of m.v. ± 0.3 % of f.s.
Operating temperature	-30-80 °C
Operating pressure	-1 to 16 bar optional to PN 40
Digital output	RS 485 interface (Modbus-RTU), optional: Ethernet-Interface PoE), M-Bus
Analog output	4-20 mA for m³/h e. g. l/min
Pulse output	1 Pulse per m³ or per liter galvanically isolated. Pulse value can be set on the display. Alternatively, the pulse output can be used as an alarm relay
Supply	18-36 VDC, 5 W
Burden	< 500 Ω
Housing	Polycarbonate (IP 65)
Measuring section	stainless steel, 1.4301 or 1.4571
Process connection	Flange (to DIN EN 1092-1 e. g. ANSI 150 lbs or ANSI 300 lbs)
Mounting position	Any

Flow Check - Inline flow meter

Easy installation in existing piping through integrated measuring section (1/4˝ to 2“)

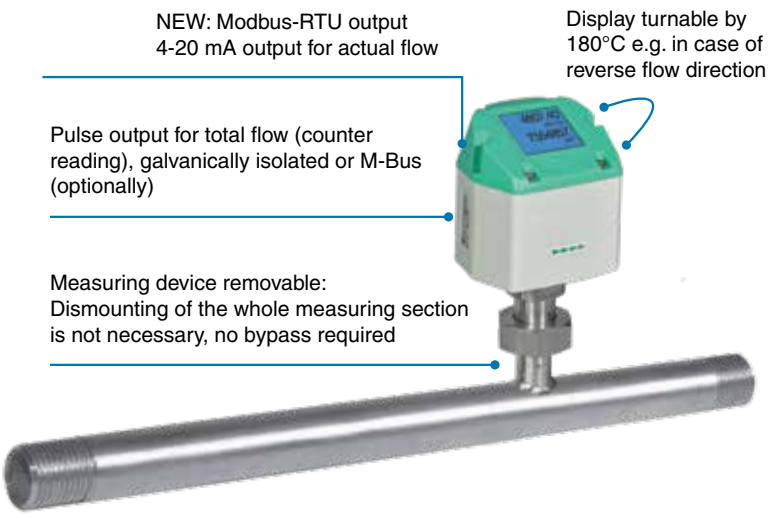
High measuring accuracy due to defined measuring section (inlet and outlet section)

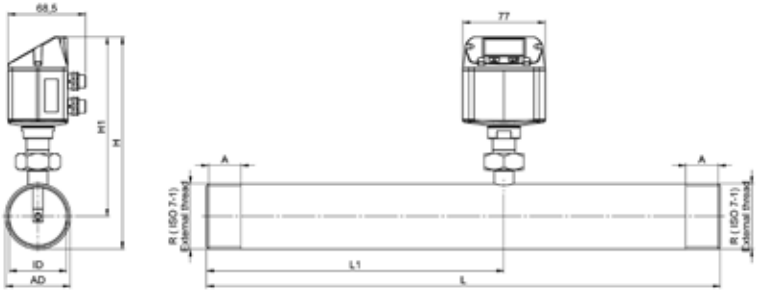
Display shows 2 values at the same time:

- Actual flow in m³/h, l/min,-
- Total consumption (counter reading) in m³, l resp. temperature measurement
- Values indicated in the display turnable by 180°C, e.g. in case of overhead installation

Application-technological features of the flow meters Flow Check:

- Digital interfaces such as Modbus RTU, Ethernet (PoE) and M-Bus enable connection to higher-level systems such as energy management systems, building management systems, SPS,-
- Easy and affordable installation
- Units freely selectable via keys at the display m³/h, m³/min, l/min, l/s, kg/h, kg/min, kg/s, cfm
- Compressed air counter up to 1.999.999.999 m³. Resetable to „zero“ via keypad
- Analogue output 4-20 mA, pulse output (galvanically separated)
- High measuring accuracy also in the lower measuring range (ideal for leakage measurement)
- Negligibly small loss of pressure
- Calorimetric measuring principle, no additional pressure and temperature measurement necessary, no mechanically moved parts
- Comprehensive diagnosis functions can be read out at the display or by remote access via Modbus-RTU like e. g. exceeding Max./Min values °C, calibration cycle, error codes, serial number. All parameters can be read out and changed via Modbus





Options

Zero-point adjustment, leak flow volume suppression

Bi-directional measurement. Blue or green arrows in the display indicate the direction of flow. A meter reading is available for each flow direction.

Measuring ranges flow Flow Check (Max. version 185 m/s) for compressed air (ISO 1217: 1000 mbar, 20 ° C) Measuring ranges for other types of gas see pages 74-77

Measuring section	Outer pipe dia. mm	Inner pipe dia. mm	Measuring ranges m³/h	cfm	L mm	L1 mm	H mm	H1 mm	A mm
R 1/4“	13,7	8,9	105 l/min	3,6	194	137	174,7	165,7	15
R 1/2“	21,3	16,1	90	50	300	210	176,4	165,7	20
R 3/4“	26,9	21,7	170	100	475	275	179,2	165,7	20
R 1“	33,7	27,3	290	170	475	275	182,6	165,7	25
R 1 1/4“	42,4	36,0	530	310	475	275	186,9	165,7	25
R 1 1/2“	48,3	41,9	730	430	475*	275	186,9	165,7	25
R 2“	60,3	53,1	1195	700	475*	275	195,9	165,7	30

*Attention: Shortened inlet section! Please observe the recommended minimum inlet section (length = 15 x inner diameter) on site

Description	Order no. Stainless steel 1.4571	Order no. Stainless steel 1.4301
Flow Check 1 Flow meter with 1/4“ measuring section	2255332744	2255330393
Flow Check 2 Flow meter with 1/2“ measuring section	2255332738	2255330394
Flow Check 3 Flow meter with 3/4“ measuring section	2255332739	2255330395
Flow Check 4 Flow meter with 1“ measuring section	2255332740	2255330396
Flow Check 5 Flow meter with 1 1/4“ measuring section	2255332741	2255330397
Flow Check 6 Flow meter with 1 1/2“ measuring section	2255332742	2255330398
Flow Check 7 Flow meter with 2“ measuring section	2255332443	2255330399
Bi-directional measurement - includes 2 x 4 - 20 mA analog outputs and 2x pulse outputs. These are omitted for Ethernet (PoE) and M-Bus		2255332627
High-pressure version PN 40		2255332658
Measuring ranges		
Low Speed (50 m/s)		2255332661
Standard (92,7 m/s)		2255332662
High Speed (224 m/s)		2255332663
Options		
Special measuring range for Flow Check according to customer requirements		2255332664
1 % Accuracy of m.v. ± 0,3 % of f.s.		2255332632
Ethernet-Interface for Flow Check/ Flow Check Universal		2255332633
Ethernet-Interface PoE for Flow Check/ Flow Check Universal		2255332634
M-Bus board for Flow Check/ Flow Check Universal		2255332635
ISO calibration certificate (5 calibration points) for Flow sensors		**2255332642**
Gas type: ___ (specify type of gas when ordering)		2255332643
Gas mixture: ___ (specify gas mixture when ordering)		2255332644
Real gas calibration		2255332645
Special cleaning oil and grease-free (e. g. oxygen application)		2255332646
Silicone-free version incl. cleaning free of oil and grease		2255332647
Additional calibration curve stored in the sensor (selectable via display)		2255332648
Certificate of origin		2255332649

Technical data flow check	
Parameters	m³/h, l/min (1000 mbar, 20 ° C) at compressed air or Nm³/h, Nl/min (1013 mbar, 0 °C) for gases
Units adjustable via keys at display	m³/h, m³/min, l/min, l/s, ft/min, cfm, m/s, kg/h, kg/min, g/s, lb/min, lb/h
Sensor	Thermal mass flow sensor
Measuring medium	Air, gases
Gas types are adjustable over PMH service software or PMH data logger	Air, nitrogen, argon, helium, CO2, oxygen, vacuum
Measure range	See table above
Accuracy (m.v.: of meas. value) (f.s.: of full scale)	± 1.5 % of m.v. ± 0.3 % of f.s. on request ± 1.0 % of m.v. ± 0.3 % of f.s.
Operating temperature	-30-80 °C
Operating pressure	-1 to 16 bar optional to PN 40
Digital output	RS 485 interface (Modbus-RTU), optional: Ethernet-Interface PoE), M-Bus
Analog output	4-20 mA for m³/h e. g. l/min
Pulse output	1 Pulse per m³ or per liter galvanically isolated. Pulse value can be set on the display. Alternatively, the pulse output can be used as an alarm relay
Supply	18-36 VDC, 5 W
Burden	< 500 Ω
Housing	Polycarbonate (IP 65)
Measuring section	Stainless steel, 1.4301 or 1.4571
Process connection	R 1/4“ to R 2“ (BSP British Standard Piping) or 1/2“ to 2“ NPT-thread
Mounting position	Any

Accessories Flow Check/ Flow Check Universal

Description	Order no.
Connection cable for Flow/ PDP series, 5 m	2255460213
Connection cable for Flow/ PDP series, 10 m	2255460214
Connection cable for Flow/ PDP series, 20 m	2255460215
Cable for alarm / pulse output, with M12 plug, 5 m	2255332609
Cable for alarm / pulse output, with M12 plug, 10 m	2255332610
Connection cable for Flow/ PDP series, 5 m shielded	2255332607
Connection cable for Flow/ PDP series, 10 m shielded	2255332608

Connection cable

Description	Order no.
Ethernet connection cable, length 5 m, M12 connector x-coded (8 pol.) on RJ 45 plug	2255332614
Ethernet connection cable, length 10 m, M12 connector x-coded (8 pol.) on RJ 45 plug	2255332615

Ethernet connection cable

Description	Order no.
M12 T-connector for Flow Check/ Flow Check Universal for connecting several sensors to an M-Bus or Modbus network	2255332666

M12 T-connection for flow check

Description	Order no.
M12 plug for Flow Check/ Flow Check Universal	2255332611
M12 plug angled 90°	2255332612

M12 plug for Flow Check

M12 plug angled 90°

Description	Order no.
Drilling jig incl. drill (Ø 13 mm)	2255332667

Accessories Flow Check/ Flow Check Universal

Description	Order no.
High pressure protection recommended for installations from 10 to 50 bar (Flow Check Universal)	2255332668

- Only suitable for Flow Check Universal with sensor length: 160 mm, 220 mm, 300 mm. For further sensor length on request

Description	Order no.
Thickness meter PMH 0495 incl. case and calibration block	2255332669

Thickness meter

Description	Order no.
Welding Nipple, L = 35 mm, male thread, R 1/2″ stainless steel 1.4301	2255332670
Welding Nipple, L = 35 mm, male thread, R 1/2″ stainless steel 1.4571	2255332671

Description	Order no.
X-connection for connection of pressure and dew point sensor at the same measuring point (incl. 2x quick-release coupling)	2255332673

Description	Order no.
Ball valve I / I G 1/2″ stainless steel	2255332672

Description	Order no.
Thread adapter G 1/2″ female thread to NPT 1/2″ male thread	2255332674

Thread adapter G 1/2

Accessories for all Flow Check

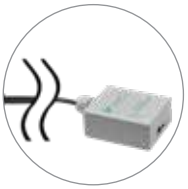
Description	Order no.
Power supply in wall housing for max. 2 sensors of the Flow / PDP Sens series 100-240 V, 23 VA, 50-60 Hz / 24 VDC, 0.35 A	2255332616
Power supply in wall housing for max. 4 sensors of the Flow Check/ Flow Check Universal series 100-240 V, 23 VA, 50-60 Hz / 24 VDC, 0.35 A	2255332690

Power supply in wall housing

Description	Order no.
Plug-in power supply 100-240 V, AC / 24 V for Flow / PDP Sens	2255332617

Plug-in power supply

Description	Order no.
PMH service software incl. PC connection set, USB port and interface adapter to the sensor	2255332597



PMH service software

Description	Order no.
External gateway PROFIBUS for connection to integrated RS 485 interface	2255332467
External gateway PROFINET for connection to integrated RS 485 interface	2255332676

External gateway PROFIBUS

Description	Order no.
Transport case for all sensors (dimensions: 500 x 360 x 120 mm)	2255332518

Transport case for all sensors

External thread	Pipe (outside ø thickness)	Total length	Order no.
R 1/2“	21,3 x 2,6 mm	500 mm	2255332678
R 3/4“	26,9 x 2,6 mm	600 mm	2255332679
R 1“	33,7 x 3,2 mm	750 mm	2255332680
R 1 1/4“	42,4 x 3,2 mm	900 mm	2255332681
R 1 1/2“	48,3 x 3,2 mm	1000 mm	2255332682
R 2“	60,3 x 3,6 mm	1250 mm	2255332683
R 2 1/2“	76,1 x 3,6 mm	1500 mm	2255332684
From DN 80 with flange DIN 2633			
DN 80/88,9	88,9 x 2,0 mm	1850 mm	2255332685
DN 100/114,3	114,3 x 2,0 mm	2104 mm	2255332686
DN 125/139,7	139,7 x 3,0 mm	2860 mm	2255332687
DN 150/168,3	168,3 x 3,0 mm	3110 mm	2255332688

Practical accessories measuring sections

Measuring sections for precise measurements: Measuring section in stainless steel 1.4301 incl. ball valve, up to DN 65 (R 2 1/2″) with R male thread, from DN 80 with welding neck to DIN 2633.

Measuring section 1/2“

Description	DN	Order no.
Spot drilling collar for pipe-Ø 032 - 036 mm, length: 100 mm*		2255332689
Spot drilling collar for pipe-Ø 036 - 040 mm, length: 100 mm*		2255332691
Spot drilling collar for pipe-Ø 040 - 044 mm, length: 150 mm*		2255332692
Spot drilling collar for pipe-Ø 044 - 051 mm, length: 200 mm*		2255332693
Spot drilling collar for pipe-Ø 048 - 055 mm, length: 200 mm*	40	2255332694
Spot drilling collar for pipe-Ø 052 - 059 mm, length: 200 mm*		2255332695
Spot drilling collar for pipe-Ø 057 - 064 mm, length: 200 mm*	50	2255332696
Spot drilling collar for pipe-Ø 063 - 070 mm, length: 200 mm*		2255332697
Spot drilling collar for pipe-Ø 070 - 077 mm, length: 200 mm*	65	2255332698
Spot drilling collar for pipe-Ø 075 - 083 mm, length: 200 mm*		2255332699
Spot drilling collar for pipe-Ø 082 - 090 mm, length: 200 mm*		2255332700
Spot drilling collar for pipe-Ø 087 - 097 mm, length: 200 mm*	80	2255332701
Spot drilling collar for pipe-Ø 095 - 104 mm, length: 200 mm*		2255332702
Spot drilling collar for pipe-Ø 102 - 112 mm, length: 200 mm*		2255332703
Spot drilling collar for pipe-Ø 108 - 118 mm, length: 200 mm*	100	2255332704
Spot drilling collar for pipe-Ø 118 - 128 mm, length: 200 mm*		2255332705
Spot drilling collar for pipe-Ø 125 - 135 mm, length: 200 mm*		2255332706
Spot drilling collar for pipe-Ø 133 - 144 mm, length: 200 mm*	125	2255332707
Spot drilling collar for pipe-Ø 145 - 155 mm, length: 250 mm*		2255332708
Spot drilling collar for pipe-Ø 151 - 161 mm, length: 250 mm*	150	2255332709
Spot drilling collar for pipe-Ø 159 - 170 mm, length: 250 mm*		2255332710
Spot drilling collar for pipe-Ø 168 - 180 mm, length: 250 mm*		2255332711
Spot drilling collar for pipe-Ø 180 - 191 mm, length: 250 mm*	175	2255332712
Spot drilling collar for pipe-Ø 193 - 203 mm, length: 300 mm*		2255332713
Spot drilling collar for pipe-Ø 200 - 210 mm, length: 300 mm*		2255332714
Spot drilling collar for pipe-Ø 209 - 220 mm, length: 300 mm*	200	2255332715

*Incl. 1/2″ ball valve
* not suitable for copper and plastic pipes

Useful accessories-spot drilling collars for compressed air lines

- If there is no measuring site with 1/2“ ball valve present it can be set up by means of spot drilling collars
- The spot drilling collar is imposed onto the pipe and tightened via thread rods. The enveloping rubber gasket is pressure-tight up to 10 bar. By means of the drilling jig it is possible to drill through the 1/2“ ball valve into the existing pipe.
- **Important**: Please indicate the exact outer diameter of the existing pipe when placing the order resp. please select the suitable spot drilling collar from the adjoining list.