

# VA 520 - Inline flow meter

NEW: Modbus-RTU output

4...20 mA output for actual flow

Pulse output for total flow (counter reading), galvanically isolated or M-Bus (optionally)

Measuring device removable:

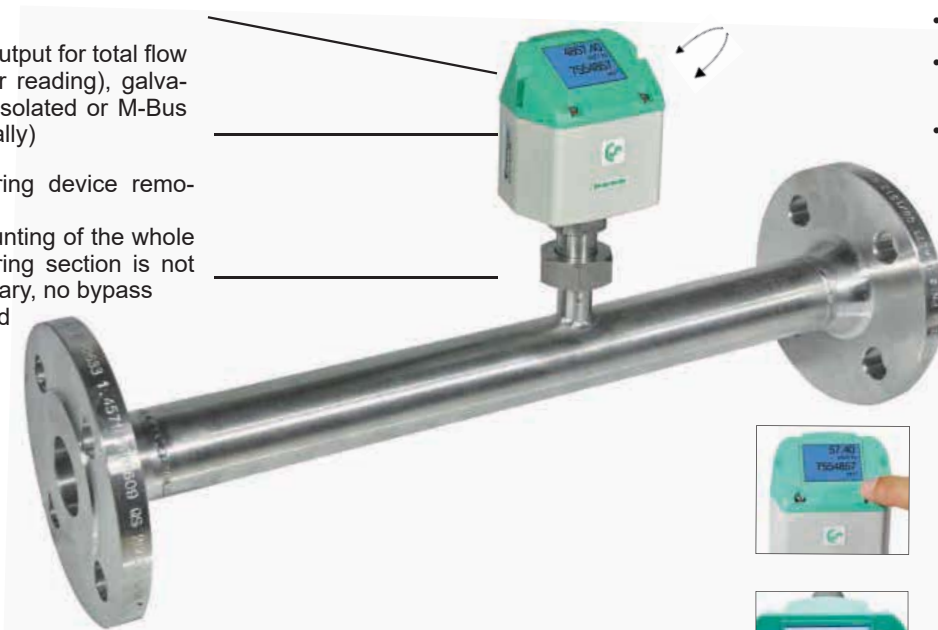
Dismounting of the whole measuring section is not necessary, no bypass required

Display turnable by 180°C  
e.g. in case of reverse flow direction

**Display shows 2 values at the same time:**

- Actual flow in m<sup>3</sup>/h, l/min,...
- Total consumption (counter reading) in m<sup>3</sup>, l
- resp. temperature measurement

Values indicated in the display turnable by 180°C, e.g. in case of overhead installation



**With a key stroke:**

- Reset of counter reading
- Selection of units
- Zero-point adjustment, leak flow volume suppression



**Option:**

Bi-directional measurement. Blue or green arrows in the display indicate the direction of flow.

A meter reading is available for each flow direction.

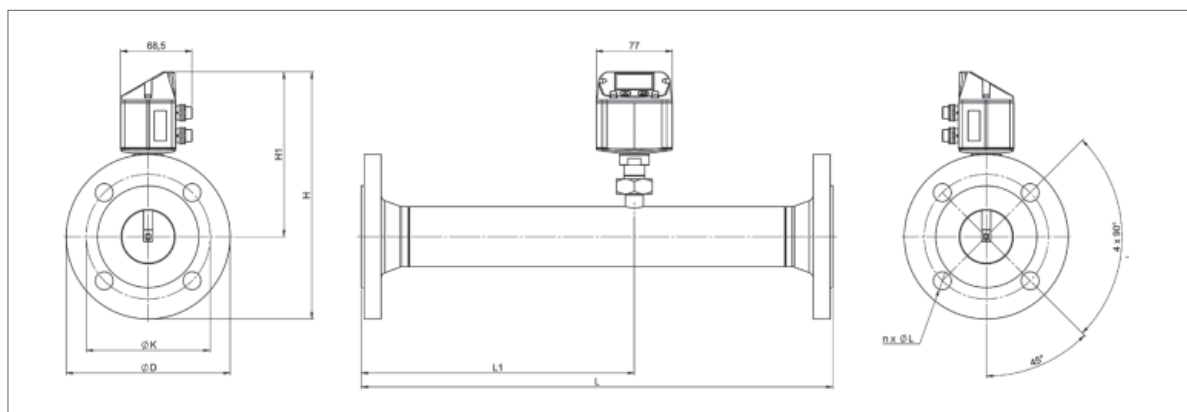


Easy installation into the existing pipeline due to integrated measuring section and weld neck flange (according to EN 1092-1 PN 40)

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

## Application-technological features of the flow meters VA 520:

- 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 m<sup>3</sup>/h, m<sup>3</sup>/min, l/min, l/s, kg/h, kg/min, kg/s, cfm
- Compressed air counter up to 1.999.999.999 m<sup>3</sup>. Resettable 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



Measuring ranges flow VA 520 (Max version 185 m/s) for compressed air (ISO 1217: 1000 mbar, 20°C) Measuring ranges for other types of gas see pages 94 to 97									Flange DIN EN 1092-1		
Measuring section	Outer pipe dia. mm	Inner pipe dia. mm	Measuring range m <sup>3</sup> /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.
VA 520 Flow meter with integr. DN 15 measuring section with Flange	0695 2521
VA 520 Flow meter with integr. DN 20 measuring section with Flange	0695 2522
VA 520 Flow meter with integr. DN 25 measuring section with Flange	0695 2523
VA 520 Flow meter with integr. DN 32 measuring section with Flange	0695 2526
VA 520 Flow meter with integr. DN 40 measuring section with Flange	0695 2524
VA 520 Flow meter with integr. DN 50 measuring section with Flange	0695 2525
VA 520 Flow meter with integr. DN 65 measuring section with Flange	0695 2527
VA 520 Flow meter with integr. DN 80 measuring section with Flange	0695 2528
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	Z695 6000
High-pressure version PN 40	Z695 0411
ANSI flange 150 lbs (instead of DIN flanges)	Z695 5013
ANSI flange 300 lbs (instead of DIN flanges)	Z695 5014
<b>Measuring ranges:</b>	
Low Speed (50 m/s)	Z695 0520
Standard (92,7 m/s)	Z695 0521
High Speed (224 m/s)	Z695 0522
<b>Options:</b>	
Special measuring range for VA 520 according to customer requirements	Z695 4006
1 % Accuracy of m.v. ± 0,3 % of f.s.	Z695 5005
Ethernet-Interface for VA500/520 and FA500	Z695 5006
Ethernet-Interface PoE for VA500/520 and FA500	Z695 5007
M-Bus board for VA500/520 and FA500	Z695 5004
ISO calibration certificate (5 calibration points) for VA sensors	3200 0001
Gas type: ____ (specify type of gas when ordering)	Z695 5009
Gas mixture: ____ (specify gas mixture when ordering)	Z695 5010
Real gas calibration	3200 0015
Special cleaning oil and grease-free (e. g. oxygen application)	0699 4005
Silicone-free version incl. cleaning free of oil and grease	0699 4007
Additional calibration curve stored in the sensor (selectable via display)	Z695 5011
Certificate of origin	Z695 5012

TECHNICAL DATA VA 520	
<b>Parameters:</b>	m <sup>3</sup> /h, l/min (1000 mbar, 20 °C) at compressed air or Nm <sup>3</sup> /h, NI/min (1013 mbar, 0 °C) for gases
<b>Units adjustable via keys at display:</b>	m <sup>3</sup> /h, m <sup>3</sup> /min, l/min, l/s, ft <sup>3</sup> /min, cfm, m/s, kg/h, kg/min, g/s, lb/min, lb/h
<b>Sensor:</b>	Thermal mass flow sensor
<b>Measuring medium:</b>	Air, gases
<b>Gas types are adjustable over CS service software or CS data logger:</b>	Air, nitrogen, argon, helium, CO <sub>2</sub> , oxygen, vacuum
<b>Measure range:</b>	See table above
<b>Accuracy:</b> (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.
<b>Operating temperature:</b>	-30...80 °C
<b>Operating pressure:</b>	-1 to 16 bar optional to PN 40
<b>Digital output:</b>	RS 485 interface (Modbus-RTU), optional: Ethernet-Interface PoE), M-Bus
<b>Analog output:</b>	4...20 mA for m <sup>3</sup> /h e. g. l/min
<b>Pulse output:</b>	1 Pulse per m <sup>3</sup> or per liter galvanically isolated. Pulse value can be set on the display. Alternatively, the pulse output can be used as an alarm relay
<b>Supply:</b>	18...36 VDC, 5 W
<b>Burden:</b>	< 500 Ω
<b>Housing:</b>	Polycarbonate (IP 65)
<b>Measuring section:</b>	stainless steel, 1.4301 or 1.4571
<b>Process connection:</b>	Flange (to DIN EN 1092-1 e. g. ANSI 150 lbs or ANSI 300 lbs)
<b>Mounting position:</b>	Any

Further accessories see pages 82 to 86

# VA 520 - Inline flow meter

NEW: Modbus-RTU output  
4...20 mA output for actual flow

Pulse output for total flow (counter reading), galvanically isolated or M-Bus (optionally)

Measuring device removable:  
Dismounting of the whole measuring section is not necessary, no bypass required

Display can be rotated by 180°C e. g. in case of reverse flow direction

**Display shows 2 values at the same time:**

- Actual flow in m<sup>3</sup>/h, l/min,...
- Total consumption (counter reading) in m<sup>3</sup>, l
- resp. temperature measurement

Values indicated in the display turnable by 180°C, e.g. in case of overhead installation

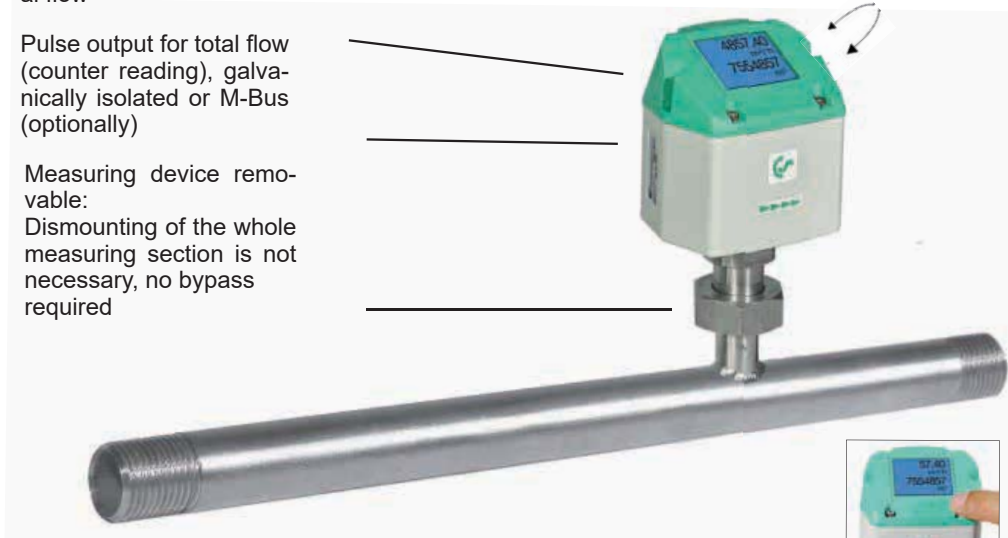
**With a key stroke:**

- Reset of counter reading
- Selection of units
- Zero-point adjustment, leak flow volume suppression

**Option:**

Bi-directional measurement. Blue or green arrows in the display indicate the direction of flow.

A meter reading is available for each flow direction.

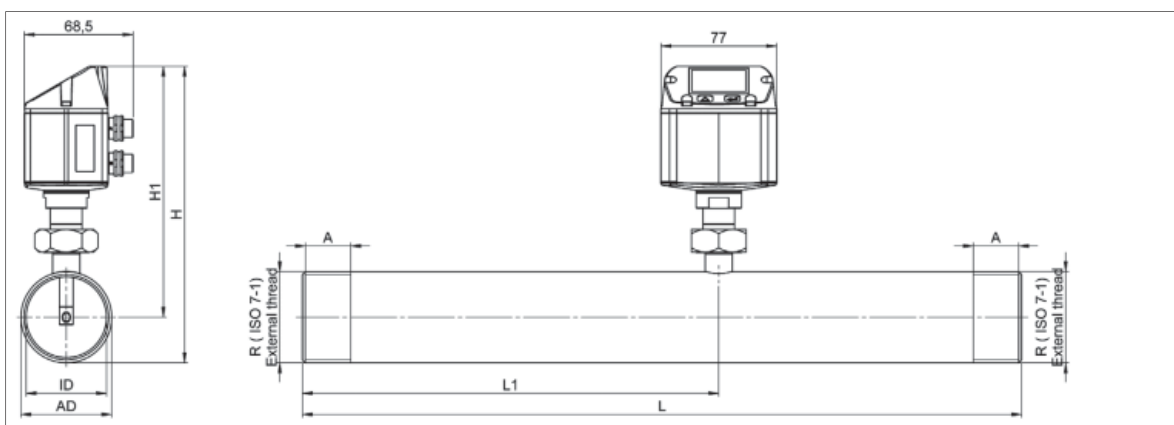


Easy installation in existing piping through integrated measuring section (1/4" to 2")

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

## Application-technological features of the flow meters VA 520:

- 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 m<sup>3</sup>/h, m<sup>3</sup>/min, l/min, l/s, kg/h, kg/min, kg/s, cfm
- Compressed air counter up to 1.999.999.999 m<sup>3</sup>. 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



**Measuring ranges flow VA 520 (Max. version 185 m/s) for compressed air (ISO 1217: 1000 mbar, 20 ° C) Measuring ranges for other types of gas see pages 94 to 97**

Measuring section	Outer pipe dia. mm	Inner pipe dia. mm	Measuring ranges		L mm	L1 mm	H mm	H1 mm	A mm
			m³/h	cfm					
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	TECHNICAL DATA VA 520
VA 520 Flow meter with 1/4" measuring section	0695 1520	0695 0520	<b>Parameters:</b> m³/h, l/min (1000 mbar, 20 ° C) at compressed air or Nm³/h, NI/min (1013 mbar, 0 ° C) for gases  <b>Units adjustable via keys at display:</b> m³/h, m³/min, l/min, l/s, ft/min, cfm, m/s, kg/h, kg/min, g/s, lb/min, lb/h  <b>Sensor:</b> Thermal mass flow sensor  <b>Measuring medium:</b> Air, gases  <b>Gas types are adjustable over CS service software or CS data logger:</b> Air, nitrogen, argon, helium, CO2, oxygen, vacuum  <b>Measure range:</b> See table above  <b>Accuracy:</b> ± 1.5 % of m.v. ± 0.3 % of f.s. (m.v.: of meas. value) (f.s.: of full scale) on request ± 1.0 % of m.v. ± 0.3 % of f.s.  <b>Operating temperature:</b> -30...80 ° C  <b>Operating pressure:</b> -1 to 16 bar optional to PN 40  <b>Digital output:</b> RS 485 interface (Modbus-RTU), optional: Ethernet-Interface PoE), M-Bus  <b>Analog output:</b> 4...20 mA for m³/h e. g. l/min  <b>Pulse output:</b> 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  <b>Supply:</b> 18...36 VDC, 5 W  <b>Burden:</b> < 500 Ω  <b>Housing:</b> Polycarbonate (IP 65)  <b>Measuring section:</b> Stainless steel, 1.4301 or 1.4571  <b>Process connection:</b> R 1/4" to R 2" (BSP British Standard Piping) or 1/2" to 2" NPT-thread  <b>Mounting position:</b> Any
VA 520 Flow meter with 1/2" measuring section	0695 1521	0695 0521	
VA 520 Flow meter with 3/4" measuring section	0695 1522	0695 0522	
VA 520 Flow meter with 1" measuring section	0695 1523	0695 0523	
VA 520 Flow meter with 1 1/4" measuring section	0695 1526	0695 0526	
VA 520 Flow meter with 1 1/2" measuring section	0695 1524	0695 0524	
VA 520 Flow meter with 2" measuring section	0695 1525	0695 0525	
Bi-directional measurement - includes 2 x 4 ... 20 mA analog outputs and 2x pulse outputs. These are omitted for Ethernet (PoE) and M-Bus		Z695 6000	
High-pressure version PN 40		Z695 0411	
NPT thread (instead of R thread) - only available for stainless steel 1.4571	Z695 5015		
<b>Measuring ranges:</b>			
Low Speed (50 m/s)		Z695 0520	
Standard (92,7 m/s)		Z695 0521	
High Speed (224 m/s)		Z695 0521	
<b>Options:</b>			
Special measuring range for VA 520 according to customer requirements		Z695 4006	
1 % Accuracy of m.v. ± 0,3 % of f.s.		Z695 5005	
Ethernet-Interface for VA 500/520 and FA 500		Z695 5006	
Ethernet-Interface PoE for VA 500/520 and FA 500		Z695 5007	
M-Bus board for VA 500/520 and FA 500		Z695 5004	
ISO calibration certificate (5 calibration points) for VA sensors		3200 0001	
Gas type: ____ (specify type of gas when ordering)		Z695 5009	
Gas mixture: ____ (specify gas mixture when ordering)		Z695 5010	
Real gas calibration		3200 0015	
Special cleaning oil and grease-free (e. g. oxygen application)		0699 4005	
Silicone-free version incl. cleaning free of oil and grease		0699 4007	
Additional calibration curve stored in the sensor (selectable via display)		Z695 5011	
Certificate of origin		Z695 5012	

Further accessories see pages 82 to 86