

# Thermal Mass Flowmeter FMT400-VTS, FMT400-VTCS (Sensyflow VT-S/VT-CS)

for gases, compact

**IndustrialIT**  
enabled™

- **Direct measurement of mass flow and gas temperature**
  - No additional pressure and temperature compensation required
- **Wide measuring range up to 1:100 with high measuring accuracy**
  - Factory-calibrated, with (optional) DKD calibration certificate
  - Process-calibrated with clean gases and gas mixtures (optional)
- **Quick response time of less than 0.5 seconds**
  - Optimized for sophisticated process control applications
- **Negligible pressure loss**
- **No moving parts, no wear, maintenance-free**
- **Defined, reproducible mounting position in the middle of the conduit**
  - Pipe components for DN 25...DN 200 (1"...8")
  - Weld-on adapters for larger diameters and square ducts
  - Reliable and convenient hot tap fittings
- **Compact design, with signal output at the sensor head**

#### Application-oriented models:

- **FMT400-VTS**  
**for process engineering**
  - robust and variable
- **FMT400-VTCS**  
**for the food and beverage industry**
  - hygienic version, suitable for CIP and SIP



**Direct mass flow measurement**  
**High accuracy**  
**Compact design**

**ABB**

## Type overview

### Operating principle and system design

The devices of the FMT400-series (Sensyflow VT-S and VT-CS) operate according to the thermal measuring principle of a hot film anemometer. This measuring method determines the gas mass flow directly, with the result that it is not necessary to correct pressure and temperature influences.

FMT400-VTS (Sensyflow VT-S) is used in the field of process engineering and FMT400-VTCS (Sensyflow VT-CS) in the food and beverage industry for flow measurement of gases and gas mixtures.

The measuring systems of the FMT400 series are made up of a transducer and a pipe component. The transducer comprises the sensor unit and an electronic transmitter circuit, and it directly

delivers an electrically isolated 0/4...20 mA output signal. It is designed as a flange-mounted insertion sensor and is installed in the pipe component in a defined way.

The pipe component is available in nominal sizes ranging from DN 25 to DN 200 and in various designs. It is also possible to install the transducer in square ducts or pipes of any size by using a weld-on adapter.

### Typical applications

- Gas flow measurement in the chemical and processing industries
- Compressed air balances
- Gas burner control
- Gas measurement for air separation systems
- Activation air measurement in sewage plants
- Hydrogen measurement in processes

Type	FMT400-VTS	FMT400-VTCS Hygienic version
<b>Application</b>	Process engineering	Food and beverage industry
Measured variable (measured gases)	Flow rate of gases and gas mixtures with known composition	Flow rate of air, N <sub>2</sub> , CO <sub>2</sub> , O <sub>2</sub>
Measuring ranges		
Nominal sizes		
DN 25	0      q <sub>min</sub> (1.6)      ...      q <sub>max</sub> 160	0      q <sub>min</sub> (1,6)      ...      q <sub>max</sub> 160
DN 40	0      (4)      ...      430	0      (4)      ...      430
DN 50	0      (7)      ...      700	0      (7)      ...      700
DN 80	0      (17)      ...      1.700	0      (17)      ...      1.700
DN 100	0      (30)      ...      3.000	
DN 150	0      (80)      ...      8.000	
DN 200	0      (130)      ...      13.000	
up to 3000 mm	0      (27.000)      ...      2.700.000	
(square ducts and larger diameters on request)	For air or nitrogen in kg/h (other gases on request) The above values are guide values for applications involving air under atmospheric conditions	
Explosion protection	Zone 2/22	-
<b>Output</b>		
Output signal, analog, load	0/4...20 mA, load < 750 Ω, electrically isolated, alarm signalling at < 3.5 or > 22 mA	
<b>Performance characteristic</b>		
<b>Measured error</b>	Under calibration conditions in the stated measuring range	
Air, nitrogen	≤ ± 0.9 % of measured value ± 0.05 % of possible end value in this nominal size (s. meas. ranges)	
other gases	≤ ± 1.8 % of measured value ± 0.10 % of possible end value in this nominal size (s. meas. ranges) For special calibration on request	
Repeatability error	< 0.25% of measured value	
Influence of medium temperature	< 0.05 % / K of measured value (dependent on type of gas)	
Influence of medium pressure	< 0.2 %/100 kPa (/bar) of measured value (dependent on type of gas)	
Response time	T <sub>63</sub> = 0.5 s (metal sensor 2 s)	T <sub>63</sub> = 2 s

### Parameter setting

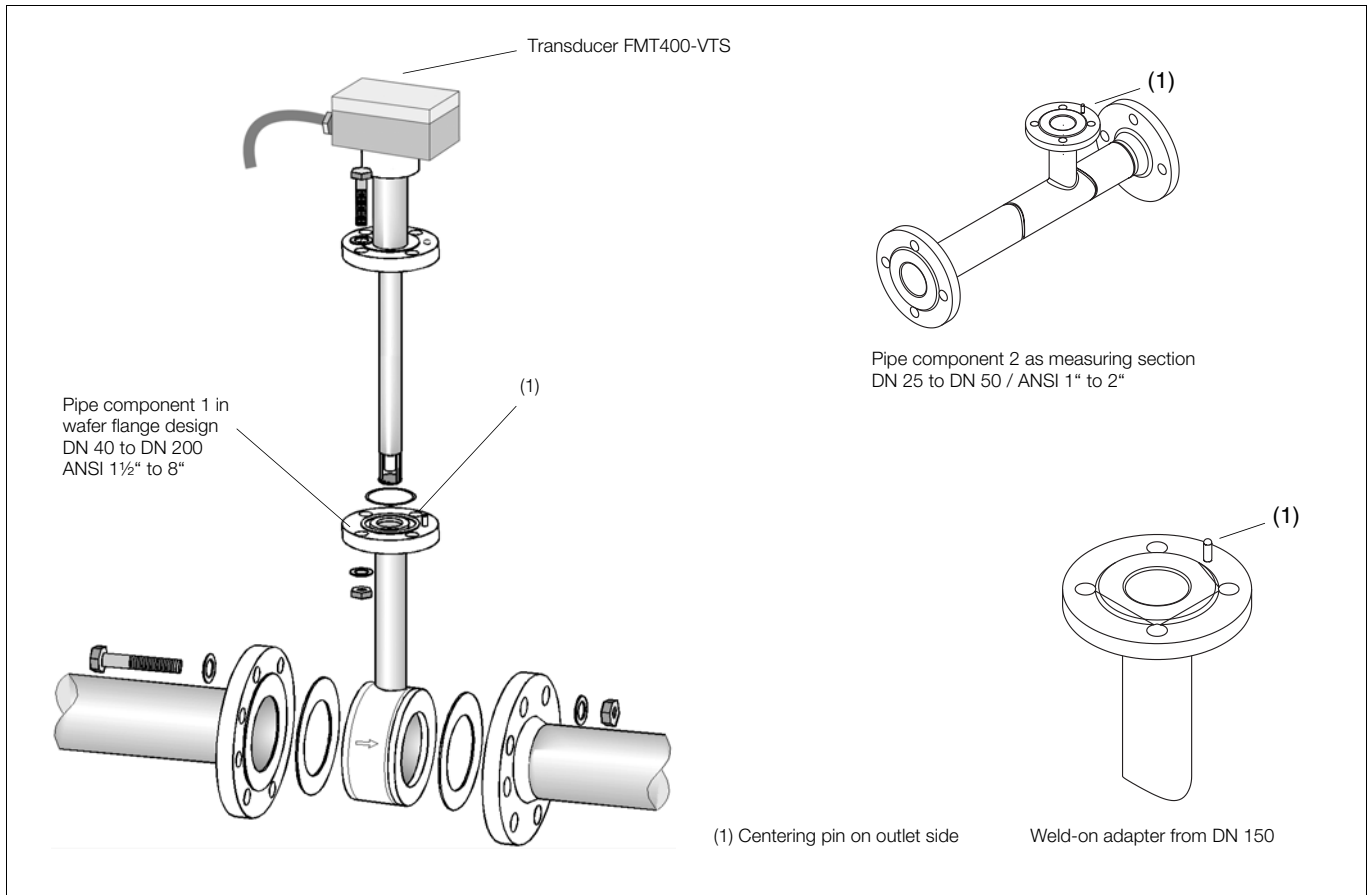
The output signal range of the FMT400-VTS/VTCS flowmeters can be set to either 0...20 mA or 4...20 mA. Additionally, the measuring range window can be extended such that a smaller span corresponds to a 20 mA current signal. Alarm signalling is possible at < 3.5 mA or > 22 mA (selectable).

The measuring instrument parameters can be set via the LKS-adapter. A standard PC or laptop allows you to change the used output signal and to adjust the measuring range.

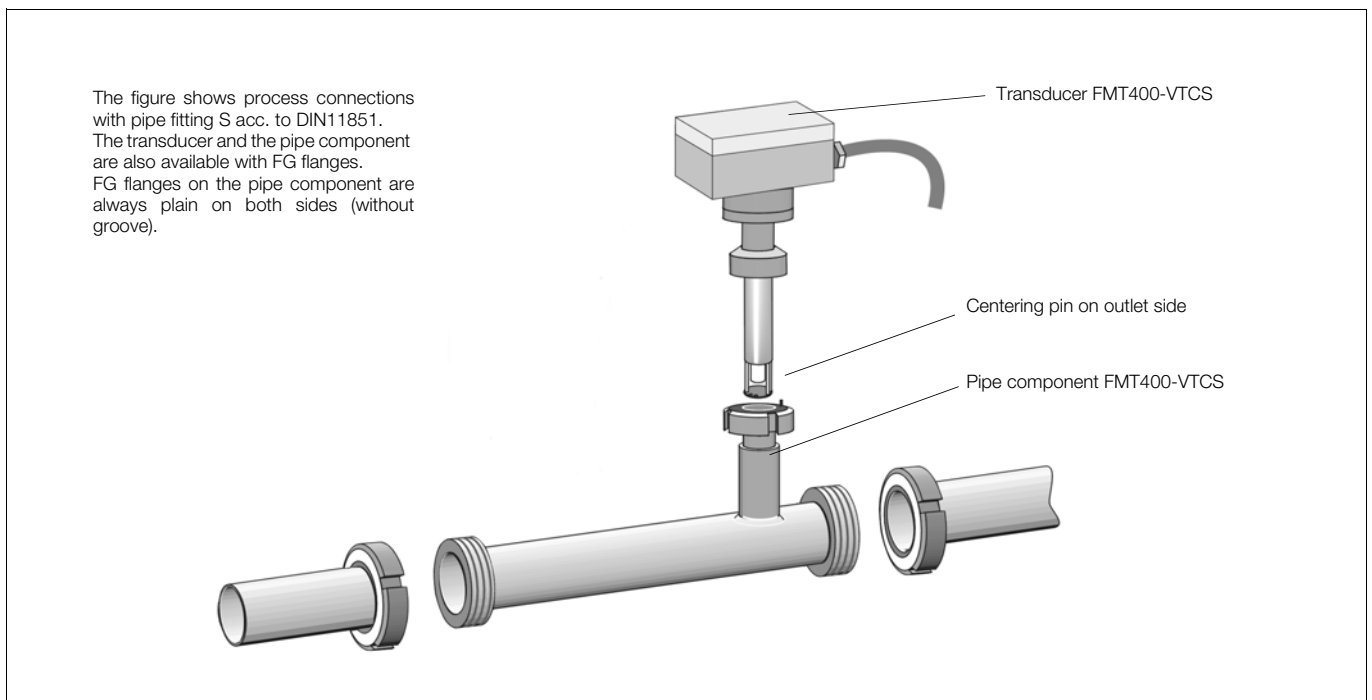
**Technical data**

Type	FMT400-VTS (Sensyflow VT-S)	FMT400-VTCS (Sensyflow VT-CS)
<b>Operating conditions</b>		
Recommended inlet and outlet runs	acc. to DIN EN ISO 5167-1 min. inlet 15 × D, outlet 5 × D	
<b>Environmental conditions</b>		
Ambient temperature	-25...+70 °C	
Connection head		
Storage temperature	-25...+85 °C	
<b>Process conditions</b>		
Operating temperature medium (transducer)	Ceramic sensor: -25...+300°C Metal sensor: -25...+250°C	-25...+150 °C
Operating pressure (max.)	40 × 10 <sup>5</sup> Pa (40 bar)	16 × 10 <sup>5</sup> Pa (16 bar) pipe fitting S (for DN 80: 10 × 10 <sup>5</sup> Pa (10 bar)) 10 × 10 <sup>5</sup> Pa (10 bar) FG flange
Pressure loss (logarithmic diagram)	<p>&lt; 1.0 kPa (10 mbar), typical value 0.1 kPa (1 mbar)</p> <p>Z-18927</p>	
<b>Mechanical construction</b>		
Design/dimensions/weight	dependent on nominal size	dependent on nominal size
Material (standard)	1.4571, Ceramics	stainless steel e.g. 1.4301
Process connection (standard)	Flange acc. to EN 1092-1 form B1, PN 40 or ANSI B 16.5 150/300 lbs	Pipe fitting S acc. to DIN 11851 or FG flange
Components	– VTS transducer – VT pipe component design 1 or 2 or weld-on adapter	VTCS transducer VTC pipe component
Standard nominal pipe sizes	Pipe component design 1: Wafer flange DN 40, 50, 80, 100, 150, 200 – ANSI 1½", 2", 3", 4", 6", 8" Pipe component design 2: measuring section DN 25, 40, 50 – ANSI 1", 1½", 2" Weld-on adapter for square ducts or pipe sizes ≥ DN 150	Pipe component hygienic version: measuring section DN 25, 40, 50, 80
Type of protection	IP 65	
<b>Auxiliary energy</b>		
Electrical power supply	24 V DC ± 25 %; 24 V AC ± 25 %, 48...62 Hz	
Voltage	< 15 W	
Power consumption	< 600 mA, slow-blow fuse of at least 2 A recommended	
Current drain		
Cable entry	M20 x 1.5	

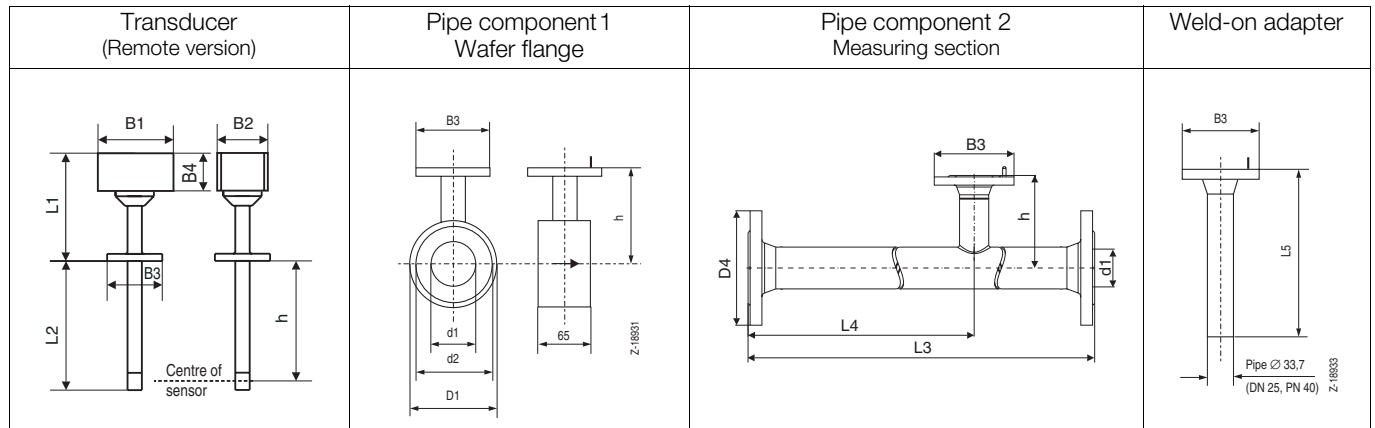
**Overview of measuring system FMT400-VTS (Sensyflow VT-S), version for process engineering**



**Overview of measuring system FMT400-VTCS (Sensyflow VT-CS), hygienic version**



**Dimensional drawings, version for process engineering** (dimensions in mm)



<b>PN 40</b>										
Nom. size		L2	h	D1	d1	d2	D4	L3	L4	L5
DN 25	L1 = 198 B1 = 125 B2 = 80 B3 = Ø115 B4 = 58	269	263	-	28.5	-	115	600	486	-
DN 40				94	43.1	88	150	860	731	-
DN 50				109	54.5	102	165	1000	837	-
DN 80				144	82.5	138	-	-	-	-
DN 100				170	107.1	162	-	-	-	-
DN 150				226	159.3	218	-	-	-	450
DN 200				293	206.5	285	-	-	-	450
> 350				431	425					
>700	781	775								
<b>ANSI 150 lb, Sch 40 S</b>										
ANSI 1"	L1 = 198 B1 = 125 B2 = 80 B3 = Ø115 B4 = 58	269	263	-	26.6	-	108	560	454	-
ANSI 1½"				85	40.9	73	127	864	741	-
ANSI 2"				103	52.6	92	154	1003	846	-
ANSI 3"				135	78.0	127	-	-	-	-
ANSI 4"				173	102.4	157	-	-	-	-
ANSI 6"				221	154.2	216	-	-	-	450
ANSI 8"				278	202.7	270	-	-	-	450
> ANSI 14"				431	425					
> ANSI 28"	781	775								
<b>ANSI 300 lb, Sch 40 S</b>										
ANSI 1"	L1 = 198 B1 = 125 B2 = 80 B3 = Ø115 B4 = 58	269	263	-	26.6	-	123.9	560	454	-
ANSI 1½"				94	40.9	73	155.4	864	741	-
ANSI 2"				110	52.6	92	165.1	1003	846	-
ANSI 3"				148	78.0	127	-	-	-	-
ANSI 4"				180	102.4	157	-	-	-	-
ANSI 6"				249	154.2	216	-	-	-	450
ANSI 8"				307	202.7	270	-	-	-	450
> ANSI 14"				431	425					
> ANSI 28"	781	775								

**Weld-on adapter for FMT400-VTS (Sensyflow VT-S)**

(1) Centering pin on outlet side

Sealing ring groove

Weld-on adapter (upon delivery)

Connection flange DN 25

450 mm

Ø D

min. 28 mm

Ø d

Direction of flow

Z-189341

Z-189342

**Required accuracy of mounting**  
Centric mounting <math>\lt; \pm 2 \text{ mm}</math>  
Twist <math>\lt; \pm 2^\circ</math>

Length h of the transducer (in mm)	Min./max. outer pipe diameter (in mm)
263	100...350
425	> 350...700
775	> 700...1400*

\* This maximum pipe diameter specification is only valid when installing the sensor centrally in the pipe. For larger diameters or angular ducts a non-centric sensor position is taken into account for calibration.

**Weld-on adapter with ball valve for FMT400-VTS (Sensyflow VT-S)**

Sealing ring groove

Weld-on adapter (upon delivery)

Connection flange DN 25

540 mm

Ø D

min. 28 mm

Ø d

Direction of flow

Z-20233

(1) Centering pin on outlet side  
(2) ball valve DN 40  
D Pipe diameter (outside)

**Required accuracy of mounting**  
Centric mounting <math>\lt; \pm 2 \text{ mm}</math>  
Twist <math>\lt; \pm 2^\circ</math>

Length h of the transducer (in mm)	Min./max. outer pipe diameter (in mm)
263	100...150
425	> 150...500
775	> 500...1150*

\* This maximum pipe diameter specification is only valid when installing the sensor centrally in the pipe. For larger diameters or angular ducts a non-centric sensor position is taken into account for calibration.

**Note:**

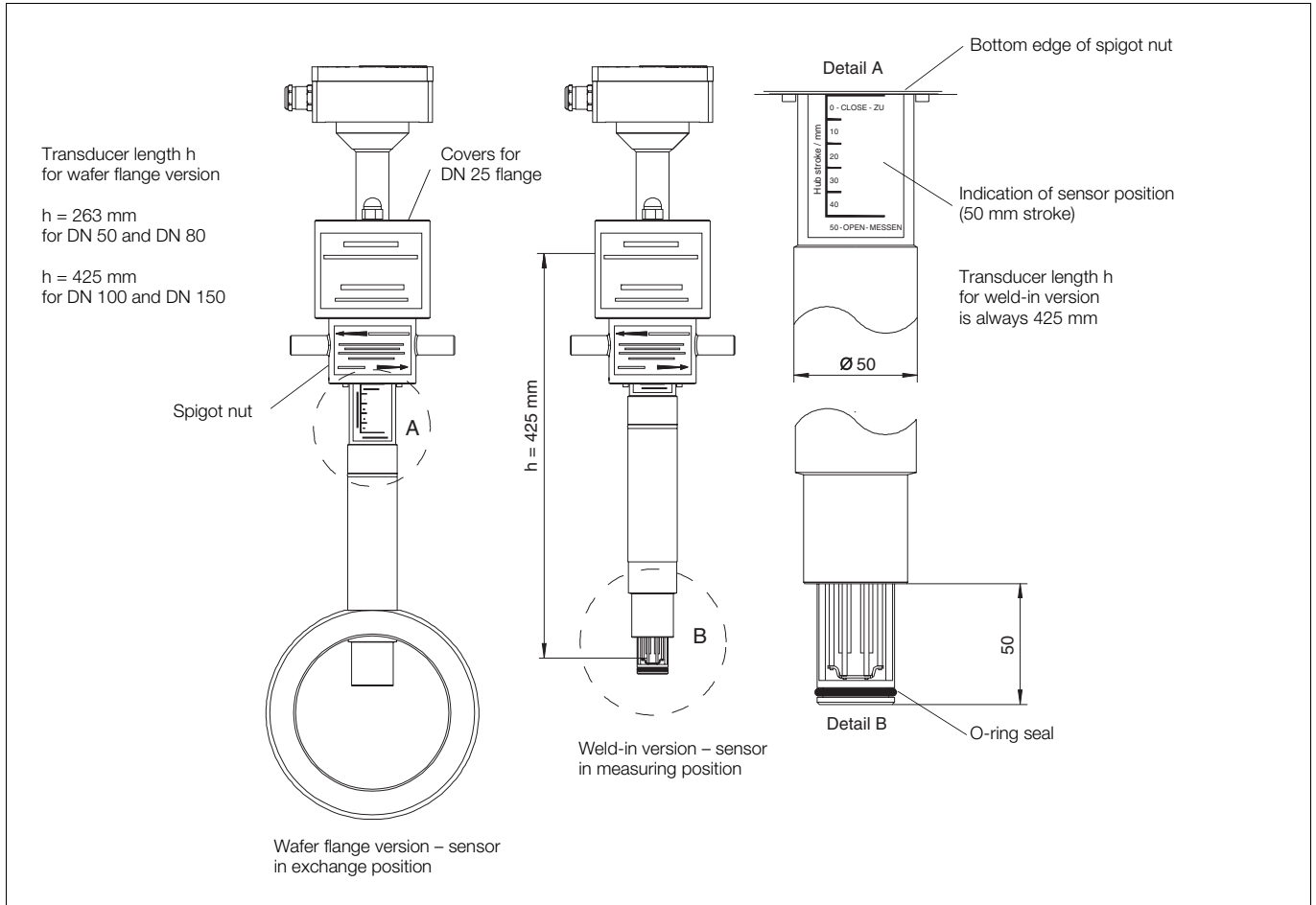
Prior to mounting the weld-on adapters must be shortened to length  $L = h - 1/2 D_{\text{outer}}$

The distance h between the upper flange edge and the pipe center line must be within a tolerance of  $\pm 2 \text{ mm}$ .

The right angle to the pipe center line must be observed (max. tolerance  $\pm 2^\circ$ )

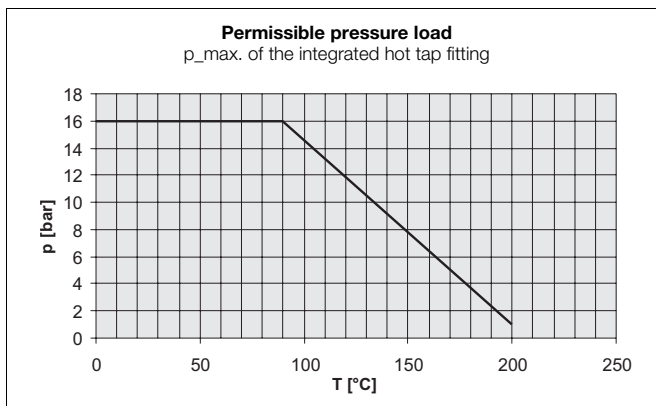
The centering pin of the adapter must be aligned centrally with the pipe center line in flow direction (on outlet run side, downstream of the measuring point).

**Integrated hot tap fitting for FMT400-VTS (Sensyflow VT-S)**



The integrated hot tap fitting is used instead of the pipe component and weld-on adapter assembly described above if the sensor must be exchangeable during operation with virtually no gas escaping from the system.

It is recommended to use the hot tap fitting for measurements in main conduits (e.g. compressed air systems) or for measuring points which otherwise require rinsing prior to removing the sensor. As a rule, hot tap fittings should be preferred for all systems where, otherwise, the entire system or parts of it must be switched off to replace a sensor.



Maximum pressure/temperature values for the integrated hot tap fitting

**Handling:**

The transmitter is screwed to the hot tap fitting through the DN 25 flange. Then the cover is put on. The sensor is set from the exchange position to the measuring position by turning the spigot nut. The bottom edge of the spigot nut indicates the current sensor position (see Detail A, sensor is in exchange position). Only when the measuring position 50 - OPEN - MESSEN (lower stop of the spigot nut) is reached, the sensor is placed exactly in the center of the pipe and exact measurement is ensured.

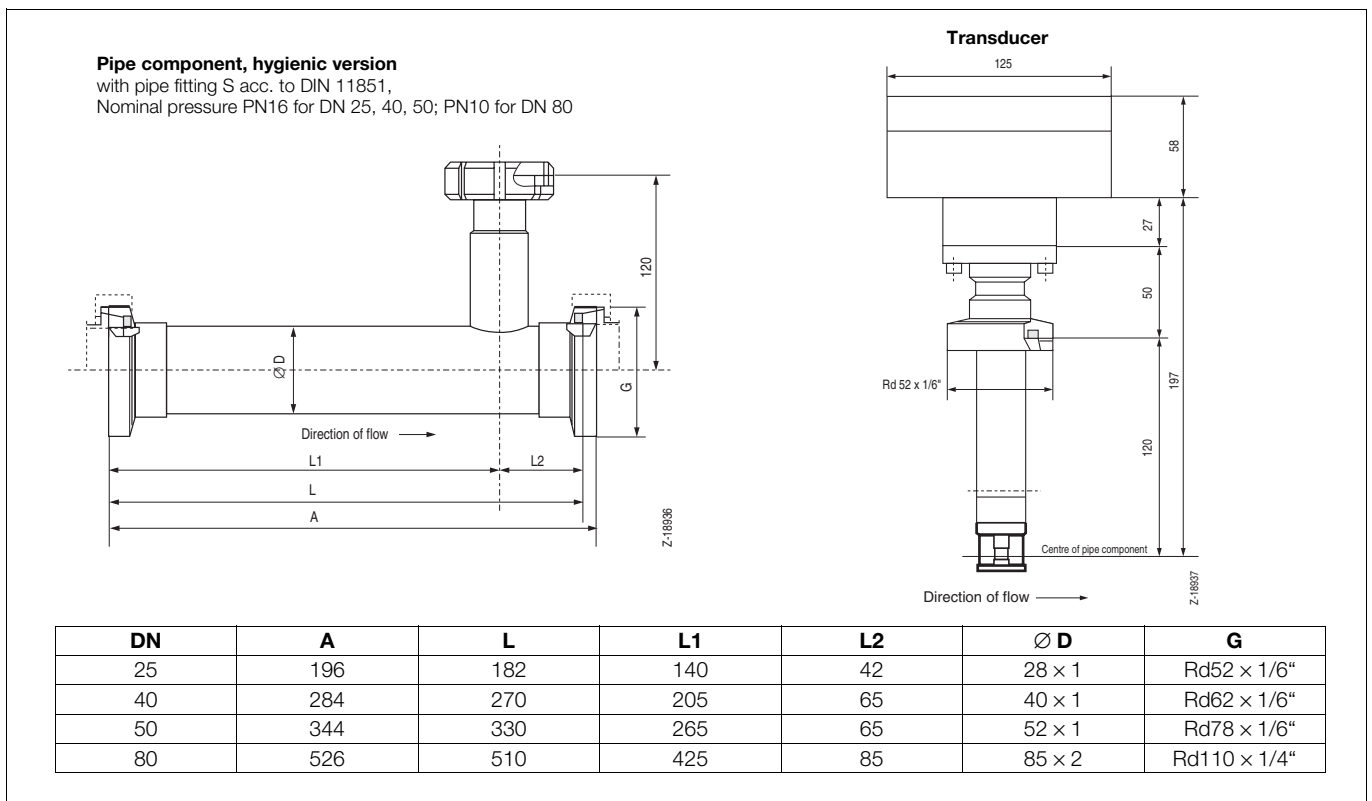
## FMT400-VTCS (Sensyflow VT-CS), hygienic versions

### Measuring ranges at atmospheric pressure

Type of gas	Air, nitrogen	Oxygen	Carbon dioxide
Operating temperature	-25...+150 °C	- 25...60 °C	- 25...150 °C
Nominal sizes:	Standard measuring ranges	Standard measuring ranges	Standard measuring ranges
DN 25	0 (1.6) ... 160 kg/h	0 (1.6) ... 160 kg/h	0 (1.8) ... 180 kg/h
DN 40	0 (4) ... 430 kg/h	0 (4) ... 430 kg/h	0 (4) ... 440 kg/h
DN 50	0 (7) ... 700 kg/h	0 (7) ... 700 kg/h	0 (7) ... 730 kg/h
DN 80	0 (17) ... 1700 kg/h	0 (17) ... 1700 kg/h	0 (19) ... 1900 kg/h

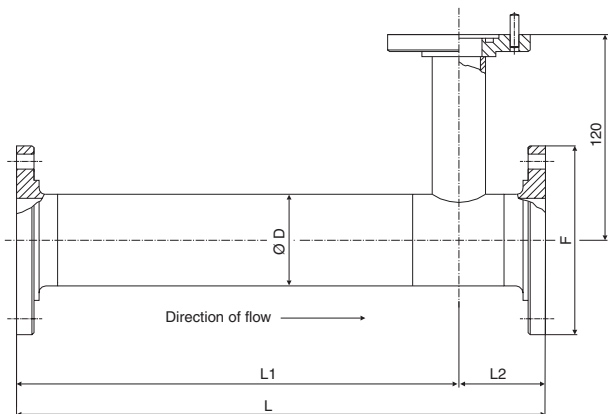
### Dimensional drawings (dimensions in mm)

#### FMT400-VTCS (Sensyflow VT-CS), hygienic version with pipe fitting S acc. to DIN 11851



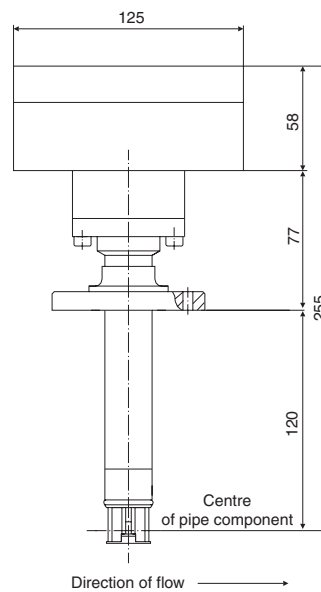
**FMT400-VTCS (Sensyflow VT-CS), hygienic version with FG flange**

**Pipe component, hygienic version**  
with FG flange: FG 1, PN10



DN	L	L1	L2	$\varnothing D$	F
25	175	133	42	29 × 1,5	83
40	270	205	65	42 × 2	100
50	330	265	65	54 × 2	110
80	510	425	85	85 × 2	142

**Transducer**



The FG flanges on the pipe component's process side are always smooth (without groove).

**Recommended steadying lengths according to DIN EN ISO 5167-1**

	Expansion $X = 15$
	Reducer $X = 15$
	90° elbow $X = 20$
	Two 90° elbow in 1 level $X = 25$
	Two 90° elbow in 2 levels $X = 40$
	Valve/slide $X = 50$

To achieve the stated measuring accuracy, the steadying lengths seen above must be provided. For combinations of inlet run disturbances, e. g. valve and reducer, you must always consider the longer inlet run length. In confined spaces at the mounting location the outlet run length can be shortened to 3 x D. The reduction of the minimum inlet run length, however, will impact on the achievable accuracy.

High repeatability of the measuring value is still provided. Under certain circumstances, special calibration can be performed for insufficient steadying lengths. For this purpose and in individual cases, consult the DKD Calibration Department at Alzenau. For gases with extremely low density (hydrogen, helium) the steadying lengths must be doubled.

## Ordering information

		Catalog No.						Code	
<b>Transducer FMT400-VTS</b>		<b>V14222-</b>							
1 Characteristic curve									
<b>Sensor unit</b>									
Ceramic sensor (standard)		0							
Metal sensor (special)		1							
<b>VTS, process technology version</b>		1							
<b>Operation temperature</b>									
Standard range -25...+150 °C		1							
Extended range (Ceramic sensor) -25...+300 °C		1) 2							
<b>Measured medium</b>									
Gases + gas mixtures (not for pure oxygen)		0							
Oxygen (only up to 150 °C) with O <sub>2</sub> -certificate		1 1							
DVGW Certification (only up to 150 °C)		1 2							
H <sub>2</sub> , He (1.5 MPa max.; always with process gas calibration)		2) 3							
<b>Material stainless steel 1.4571 (316Ti)</b>									
Mounting length 263 mm (DN 25...DN 350)		3) 1 0							
Mounting length 425 mm (> DN 350...DN 700)		3) 2 0							
Mounting length 775 mm (> DN 700)		3) 3 0							
<b>Analog output</b>		4)							
4...20 mA, alarm < 3.5 mA								1	
4...20 mA, alarm > 22 mA								2	
0...20 mA								3	
<b>1 Characteristic curve</b>								1	
(Code Nos. measuring-point parameter see additional ordering information for calibration)									

## Additional ordering information

		Code	
<b>DKD Certificate</b>		310	
Calibration with air on our DKD calibration bench (PTB approved DKD calibration facility No. 05701) DKD: German calibration service, PTB: German Physical and Technical Federal Institute			
<b>3.1 B Certificate</b> material certificate (only for transducer)		30A	

## Accessories

		Catalog No.		Code	
<b>LKS-Adapter</b>		7962828			
Local Communication Interface for parameterization incl. Communication software					
<b>Power supply unit</b>		7962800			
housing for rail mounting 62.5 mm x 75 mm x 139 mm Input 230 V AC Output 24 V DC / 2.5 A					

- 1) Metal sensor max. 250 °C
- 2) process gas calibration for other gases/gas mixtures on request
- 3) nominal size ranges when using pipe components or weld-on adapters without ball valve
- 4) Changeable via LKS adapter

**Ordering information**

		Catalog No.			Code		
<b>Pipe component design 2 for FMT400-VTS partial measuring section</b>		<b>V14233-</b>					
<b>PN 40, material stainless steel 1.4571 (316Ti)</b> (flange shape B1 according to EN 1092-1)							
Nominal size DN 25	Inner Ø 28.5	1)	1	1	0		
Nominal size DN 40	43.1		1	2	0		
Nominal size DN 50	54.5		1	3	0		
<b>ANSI 150 lb, Sch 40 S, material stainless steel 1.4571 (316Ti)</b>							
Nominal size ANSI 1"	Inner Ø 26.6	1)	2	A	0		
Nominal size ANSI 1 1/2"	40.9		2	B	0		
Nominal size ANSI 2"	52.6		2	C	0		
<b>ANSI 300 lb, Sch 40 S, material stainless steel 1.4571 (316Ti)</b>							
Nominal size ANSI 1"	Inner Ø 26.6	1)	3	A	0		
Nominal size ANSI 1 1/2"	40.9		3	B	0		
Nominal size ANSI 2"	52.6		3	C	0		
<b>Additional ordering information</b>							
						Code	
3.1 B Certificate, material certificate (only for pipe component)						30A	
<b>Ordering information</b>							
		Catalog No.					
<b>Weld-on adapter PN 40 for FMT400-VTS</b> recommended from DN 150							
<b>Material</b> stainless steel 1.4571 (316Ti) 1.0037		7962500 7962502					
<b>Weld-on adapter with ball valve/hot tap fitting for FMT400-VTS material stainless steel 1.4571 (316Ti)</b>							
Weld-on adapter with ball valve for pressureless, non gas-tight applications		7962832					
Weld-on adapter with integrated hot tap fitting for nominal size DN 100 to DN 125/ANSI 4" to 5" and transducers of 425 mm, for pressure applications up to 16 bars and gas-tight applications, material 1.4571		7964131					
Weld-on adapter with integrated hot tap fitting for nominal size DN 150 to DN 300/ANSI 6" to 12" and transducers of 425 mm, for pressure applications up to 16 bars and gas-tight applications, material 1.4571		7964132					
<b>Special pipe component for transducer FMT400-VTS</b> call Description:"....." "....."		7962767					
3.1 B Certificate, material certificate (only for pipe component)		7962839					

1) In order to achieve the specified measuring accuracy, the calibration of the transducer must be performed in the original pipe component DN25/1". If the transducer needs to be re-calibrated, it must be submitted together with the same pipe component.

**Ordering information**

	Catalog No.				Code		
<b>Pipe component design 1 for FMT400-VTS wafer flange version</b>	<b>V14232-</b>						
<b>PN 40, material stainless steel 1.4571 (316Ti) Inner diameter (mm)</b>							
Nominal size DN 40 43.1	1	2	0				
Nominal size DN 50 54.5	1	3	0				
Nominal size DN 80 82.5	1	4	0				
Nominal size DN 100 107.1	1	5	0				
Nominal size DN 150 159.3	1	6	0				
Nominal size DN 200 206.5	1	7	0				
<b>ANSI 150 lb, Sch 40 S, material stainless steel 1.4571 (316Ti)</b>							
Nominal size ANSI 1 1/2" 40.9	2	B	0				
Nominal size ANSI 2" 52.6	2	C	0				
Nominal size ANSI 3" 78.0	2	D	0				
Nominal size ANSI 4" 102.4	2	E	0				
Nominal size ANSI 6" 154.2	2	F	0				
Nominal size ANSI 8" 202.7	2	G	0				
<b>ANSI 300 lb, Sch 40 S, material stainless steel 1.4571 (316Ti)</b>							
Nominal size ANSI 1 1/2" 40.9	3	B	0				
Nominal size ANSI 2" 52.6	3	C	0				
Nominal size ANSI 3" 78.0	3	D	0				
Nominal size ANSI 4" 102.4	3	E	0				
Nominal size ANSI 6" 154.2	3	F	0				
Nominal size ANSI 8" 202.7	3	G	0				
<b>Ball valve or hot tap fitting</b>							
without				0			
Pipe component with ball valve for pressureless applications, non gas-tight material stainless steel 1.4571 (316Ti)				1			
Pipe component with integrated hot tap fitting for nominal size DN 50 or DN 80 (ANSI 2"/3") and transducer of 263 mm, for pressure applications up to 16 bars and gas-tight applications, material stainless steel 1.4571 (316Ti), flanges PN 40				4			
Pipe component with integrated hot tap fitting for nominal size DN 100 or DN 150 (ANSI 4"/6") and transducer of 425 mm, for pressure applications up to 16 bars and gas-tight applications, material stainless steel 1.4571 (316Ti), flanges PN 40				5			
<b>Additional ordering information</b>							
						Code	
<b>3.1 B Certificate</b> , material certificate (only for pipe component)						30A	

## Ordering information

	Catalog No.						Code		
<b>Transducer FMT400-VTCS</b>	<b>V14222-</b>								
<b>Hygienic version</b> Material stainless steel, mounting length 120 mm,	1		0		4	0			
<b>Connection</b> Male part screw connection S acc. to DIN 11851, nominal pressure PN 16 FG flange, nominal pressure PN 10	6								
<b>Measured medium</b> Gases + gas mixtures (not for pure oxygen) Oxygen with O <sub>2</sub> certificate					0				
<b>Analog output</b> 4...20 mA, alarm < 3.5 mA 4...20 mA, alarm > 22 mA 0...20 mA							1 2 3		
<b>1 Characteristic curve</b> (Code Nos. measuring-point parameter see additional ordering information for calibration)							1		
<b>DKD Certificate</b> Calibration with air on our DKD calibration bench (PTB approved DKD calibration facility No. 05701) DKD: German calibration service, PTB: German Physical and Technical Federal Institute							310		

<b>Additional ordering information</b>									
	Catalog No.						Code		
<b>Pipe component for FMT400-VTCS</b>	<b>V14234-</b>								
<b>Hygienic version</b> as partial measuring section, material stainless steel									
<b>Connection</b> Male part screw connection S acc. to DIN 11851, nominal pressure PN 16 FG flange, nominal pressure PN 10	6	0							
<b>Nominal size</b> DN 25 DN 40 DN 50 DN 80 (max. 10 bar)							1 2 3 4		

<b>Accessories</b>									
	Catalog No.								
<b>LKS-Adapter</b> Local Communication Interface for parameterization incl. Communication software	7962828								
<b>Power supply unit</b> housing for rail mounting 62.5 mm x 75 mm x 139 mm Input 230 V AC Output 24 V DC / 2.5 A	7962800								

- 1) not for FG flange  
2) Changeable via LKS adapter

**Additional ordering information for calibration**

<b>FMT400-VTS</b>		<b>Code</b>		
<b>Measuring point parameter</b>				
Gas 1, Vol %	(clear text)	511		
Gas 2, Vol %	(clear text)			
Gas 3, Vol %	(clear text)			
Gas 4, Vol %	(clear text)			
Gas 5, Vol %	(clear text)			
Gas 6, Vol %	(clear text)			
Gas 7, Vol %	(clear text)			
Gas 8, Vol %	(clear text)			
Gas 9, Vol %	(clear text)			
Gas 10, Vol %	(clear text)	516		
	(clear text)	517		
	Sum 100 %			
Operating temperature	(clear text)	512		
Operating pressure	(clear text)	513		
Nominal size, pipe inner diameter	(clear text)	518		
Measuring range	(clear text)	514		
Unit	(clear text)	515		
Standard state (e.g. 0 °C, 1013 mbar)		519		
Adjusted measuring range	(clear text)	520		

Add the 3-digit Code No to the Catalog No.

**Design parameters**

**Measuring point parameters**

Type of gas and composition (Vol %) <sup>1)</sup> ..... .....		Flow rate unit <sup>2)</sup> kg/h ..... <input type="checkbox"/> kg/min ..... <input type="checkbox"/> kg/s ..... <input type="checkbox"/> Nm <sup>3</sup> /h ..... <input type="checkbox"/> l/s ..... <input type="checkbox"/> Lb/h ..... <input type="checkbox"/> Lb/min ..... <input type="checkbox"/> SCFM ..... <input type="checkbox"/> SCFH ..... <input type="checkbox"/> SCFS ..... <input type="checkbox"/> Other ..... <input type="checkbox"/>		
Measuring range min..... normal ..... max.....				
Medium temperature (°C) min..... normal ..... max.....				
Operating pressure (bar abs.) min..... normal ..... max.....				
Pipe: nominal size DN ..... Nominal pressure PN .. Pipe inner Ø (mm) ..... Wall thickness (mm)				
Corrosive components of gas	no. .... <input type="checkbox"/> yes ..... <input type="checkbox"/>	what ..... .....	Material of pipe .....	
Condensable components	no. .... <input type="checkbox"/> yes ..... <input type="checkbox"/>	what ..... .....	Dew point (°C) .....	
Solids in medium	no. .... <input type="checkbox"/> yes ..... <input type="checkbox"/>	Size of particle (µm) .....	Quantity (mg/m <sup>3</sup> ) <sup>2)</sup> .....	
Tag	Initial equipment ..... <input type="checkbox"/>	Substitute ..... <input type="checkbox"/>	Existing equipment .....	

<sup>1)</sup> Please specify the composition of gas, e. g. North Sea natural gas: CH<sub>4</sub> = 90 Vol. %; C<sub>2</sub>H<sub>6</sub> = 5 Vol. %; N<sub>2</sub> = 3 Vol. %; CO<sub>2</sub> = 2 Vol. %  
<sup>2)</sup> Standard state related to 0 °C/1013 mbar (standard)

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**ABB Ltd.**  
Oldends Lane, Stonehouse  
Gloucestershire, GL10 3TA  
UK  
Tel: +44(0)1453 826661  
Fax: +44(0)1453 829671

**ABB Inc.**  
125 E. County Line Road  
Warminster, PA 18974  
USA  
Tel: +1 215 674 6000  
Fax: +1 215 674 7183

**ABB Inc.**  
3450 Harvester Road  
Burlington Ontario L7N 3W5  
Canada  
Tel: +1 905 681 0565  
Fax: +1 905 681 2810

**ABB Automation Products GmbH**  
Borsigstr. 2  
63755 Alzenau  
Germany  
Tel: +49 551 905-534  
Fax: +49 551 905-555  
CCC-support.deapr@de.abb.com