Turbine flow meters for liquids

Series Turbotron VT...

SIKA®
founded 1901
Dr. Siebert & Kühn GmbH & Co. KG

Turbine flow sensors for liquids, serie Turbotron

DN 15...disturbance insensitive and long-lived!

VT 15 with pulse output

The turbine flow sensors of the product line Turbotron are sensors for flow rate measurement or dosing applications for liquids. Through its especially compact type, its very wide measuring range and its convincing precision of measurement, it has an almost unlimited application.

Convincing advantages

Especially suitable and proved in numerous serial applications through

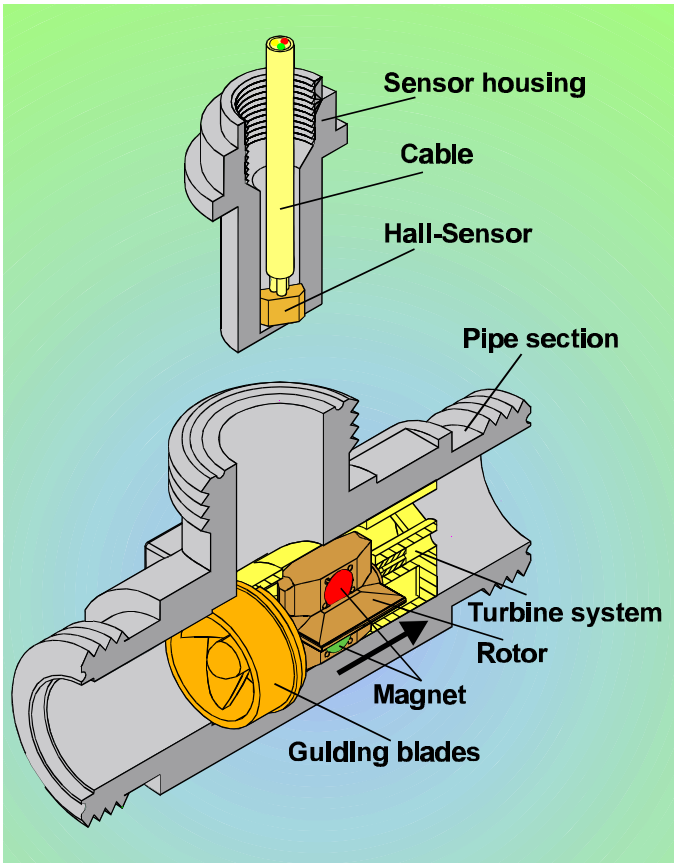
- fixed pulse rate, thus practically no serial deviation
- wide measuring range e.g. 1:20, universally usable
- high precision of measurement ±0,5% or ±1%, therefore reliable measured variables
- high quality sapphire bearing, low abrasion and extremely long running period
- specially designed guiding blades ensures uniform flow to the rotor from four sides, thus tremendous reduction of wear
- insensitive against pressure peaks, providing reliable measurement variables even under difficult conditions
- any position, can be versatile installed

Flexibel and perfectly equipped thanks to different arrangements:

- plastic, brass and stainless steel types
- plug connector or fixed connecting cable
- with reinforced bearings for extended life expectancy
- special bearings for low flow rates available as an option

Function

The liquid flowing into the Turbotron is divided by the guiding blades in four split beams. These hit the rotor from four directions and put it in motion. The uniform loading of bearing from four sides causes the forces to cancel themselves out for the most part and wear is reduced to a minimum.
The extremely hard bearing materials, sapphire and hard metal, ensure in addition an extraordinary life expectancy.



The rotor rotation rate is now converted into an electrical pulse signal (frequency):

- VTH and VTP are equipped with rotors which are fitted with magnets. A Hall effect sensor recognizes the rotation of the rotor.
- VTI has stainless steel pins in the rotor. An inductive proximity switch detects the rotor rotation.

In both cases, a flow-proportional frequency signal (square wave signal) is available.

SIKA Dr. Siebert & Kühn GmbH & Co. KG, Struthweg 7–9, D-34260 Kaufungen, Tel.: +49 5605 803-0, Fax: +49 5605 803-54, e-mail: info@sika.net, www.SIKA.net

Technical data

	VTH economy-priced type for standard and serial applications		VTP high pressures, high temperatures, fuels		VTI magnet-free rotor, high measurement accuracy, high resolution	
Material pipe section	**brass**	**plastic PPO**	**brass**	**stainless steel**	**brass**	**plastic PPO**
Measurement range:	2...40 l/min with special bearings for low flow rates with continuous flow max. 20 l/min					
Accuracy	± 1 % of range		± 1 % of range		± 0,5 % of range	
Reproducibility	± 0,2 %		± 0,2 %		± 0,1 %	
Signal output	starting from 0.3 l/min					
Max. medium temperature	85 °C		150 °C		85 °C	
Nominal pressure	PN 10		p_{max} = 300 bar		PN 10	
Diameter	DN 15					
Process connection	¾" BSP male thread with union nuts and flat seal			¾" BSP male thread or ¾" BSP female thread	¾" BSP male thread with union nuts and flat seal	
Sensor	Hall effect sensor		Hall effect sensor		inductive proximity switch	
Output signal - pulse rate / K-factor - resolution - signal shape - signal current	855 pulses/liter 1,2 ml/pulse square wave signal NPN open collector max. 10 mA		915 pulses/liter 1,1 ml/pulse square wave signal NPN open collector max. 10 mA		1795 pulses/liter 0,6 ml/pulse square wave signal PNP or NPN open collector max. 50 mA	
Electrical connection	1,5 m of PVC cable, screened, (Tmax = 70 °C) or 4- pin plug connector M12x1		1,5 m silicone cable, screened (Tmax = 150 °C)		2 m of PVC cable, screened, (Tmax = 70 °C) or 4- pin plug connector M12x1	
Power supply	4,5...24 VDC				10...30 VDC	
Type of protection	IP 54					
max. particle size in the medium	0,5 mm					
Options						
Screen filter	hat shape, mesh size 0,5 mm Tmax = 60 °C (continuous) = 85 °C (max. 1 h)		—		hat shape, mesh size 0,5 mm Tmax = 60 °C (continuous) = 85 °C (max. 1 h)	
Integrated temperature sensor	Pt 100 or Pt 1000, 3 wire, class B (class A on request) 2 m of PVC cable, screened		—		Pt 100 or Pt 1000, 3 wire, class B (class A on request) 2 m of PVC cable, screened	
Approvals*						
WRAS Water Regulations Advisory Scheme						

* VTP has no WRAS-approval

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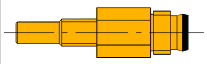
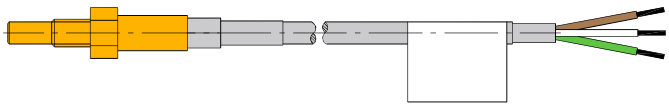
Materials

Type	mediums contacting	VTH 15 K5-..	VTH 15 MS-..	VTP 15 MS-..	VTP 15 VA-..	VTI 15 K5-..	VTI 15 MS-..
Pipe section	X	PPO Noryl GFN3	Brass CuZn36Pb2As	Brass CuZn36Pb2As	Stainless steel 1.4571	PPO Noryl GFN3	Brass CuZn36Pb2As
Sensor housing	X	PPO Noryl GFN3		Brass	Stainless steel 1.4571	PPO Noryl GFN3	
Union nut	-	PA GF 30		Brass	none	PA GF 30	
Turbine system / rotor	X	PEI ULTEM		PEEK Victrex 450G		PEI ULTEM	
O-ring / flat seal	X	NBR		FKM		NBR	
Bearing system / shaft	X	Shaft Arcap AP1D with hard metal pins in sapphire bearings					
Bearings support	X	Arcap AP1D					
Rotor assembly	X	Hard ferrite magnet				Stainless steel pins	
Temperature sensor (optional)	X	Brass or stainless steel 1.4571		–		Brass or stainless steel 1.4571	
Screen filter (option)	X	POM / stainless steel		–		POM / stainless steel	

Options

Please, specify in the order code:

Special bearing for low rates of flow (continuous flow max. 20 l/min)	Shaft bearing with reduced friction
Integrated temperature sensor with plug connection M8 resistance thermometer Pt 100 or Pt 1000, class B, 3 wire, immersion tube brass or stainless steel	
Integrated temperature sensor with fixed cable, resistance thermometer Pt 100 or Pt 1000, class B, PTC or NTC on request immersion tube brass or stainless steel	
Screen filter, hat shape, in the inlet	
Turbine flow transmitter, Analog output 4...20 mA,	Description on page 20
Turbine flow switch (contact)	Description on page 22 and 23

On request delivered:

Optional seal materials NBR FKM EPDM	

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Order code

Code number	VT15	XX	XX	X	X	X	X	X	4	X*	X*
Bearings	standard	41									
	for low rates of flow	40									
Material of pipe section	PPO Noryl (only VTH or VTI)		K5								
	Brass		MS								
	Stainless steel (only VTP)		VA								
Type	VTI			I							
	VTH			H							
	VTP			D							
Output signal	PNP (possible only with VTI)				P						
	NPN				N						
Electrical connection	Cable					P					
	4 pin plug connector M12x1					S					
Supplementary temperature sensor	none – none						0				
	Pt 100 – 3 pin plug connector M8 MS / VA						B / C				
	Pt 100 – fixed cable MS / VA						2 / 9				
	Pt 1000 – 3 pin plug connector M8 MS / VA						D / E				
	Pt 1000 – fixed cable MS / VA						7 / A				
Process connection	¾" BSP male							A			
	¾" BSP female (possible only with VTP in stainless steel)							I			
Options											
Filter	Screen filter									H	
	none									0	
Electronics	including transducer 4...20 mA corresponds with 0...5 l/min corresponds with 0...10 l/min corresponds with 0...20 l/min corresponds with 0...40 l/min										A B C D
	Switching output VE										6
	Switching output VE with pulse output										7
	Model for local display TD 32500 (display must be ordered separately)										4

* if you do not require one of the options, digits of the order code do not apply.

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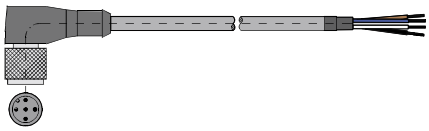
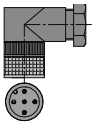
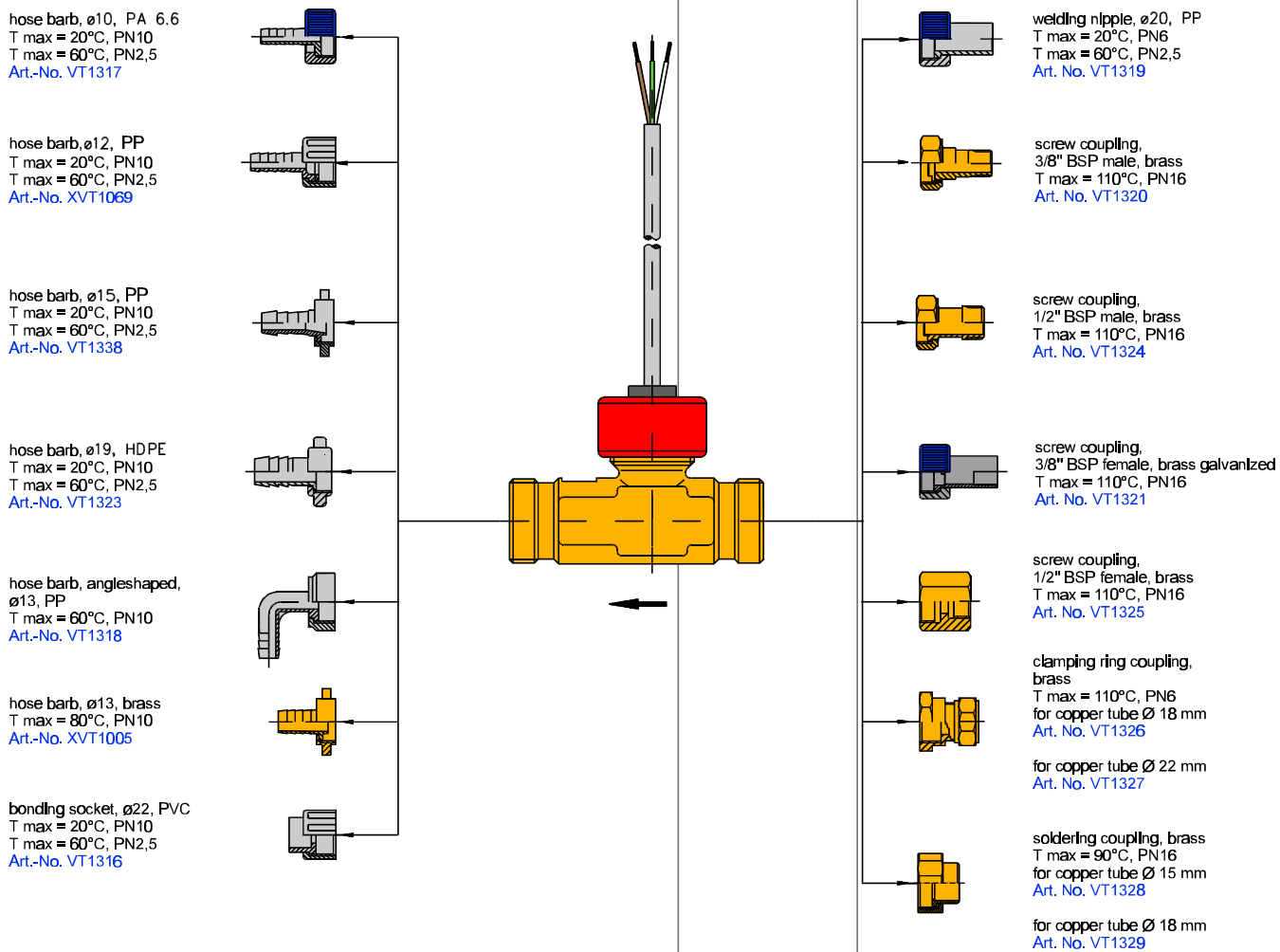
Accessory

Accessory part	Length	Order code	
Connection cable for turbine flow sensor with cable socked M12x1 molded lead, 4 pin, screened, sheathing material PUR (T_{max} = 80 °C)	3 m 5 m 10 m	XVT 2053 XVT 2009 XVT 2070	
4 pin cable socket M12x1 angle type unessembled		VT 1331	
Connection cable for temperature sensor with cable socked M8 molded lead, 3 pin, sheathing material PUR (T_{max} = 90 °C) UL-approval	2 m 5 m 10 m	XVT 2190 XVT 2191 XVT 2192	

Connecting adapter, delivery piecemeal see following drawing.
Using connecting adapter can have been influence of the accuracy !



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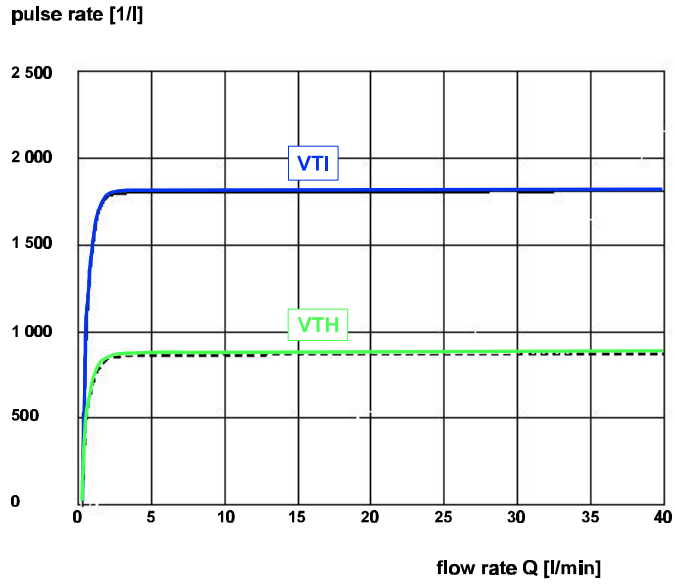
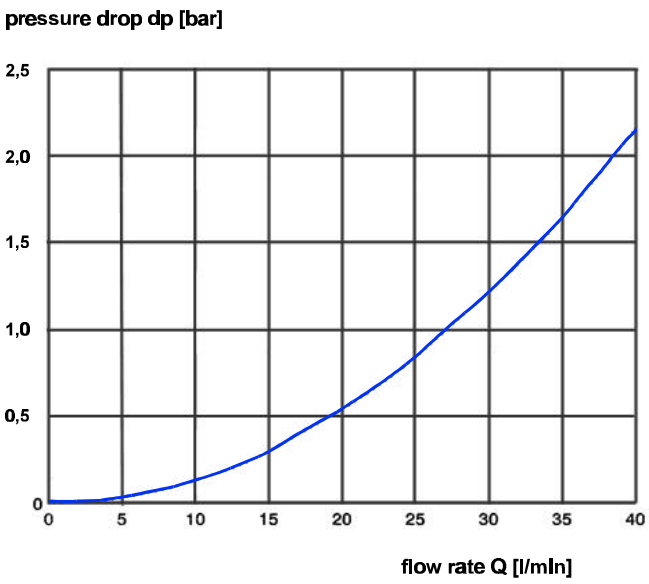
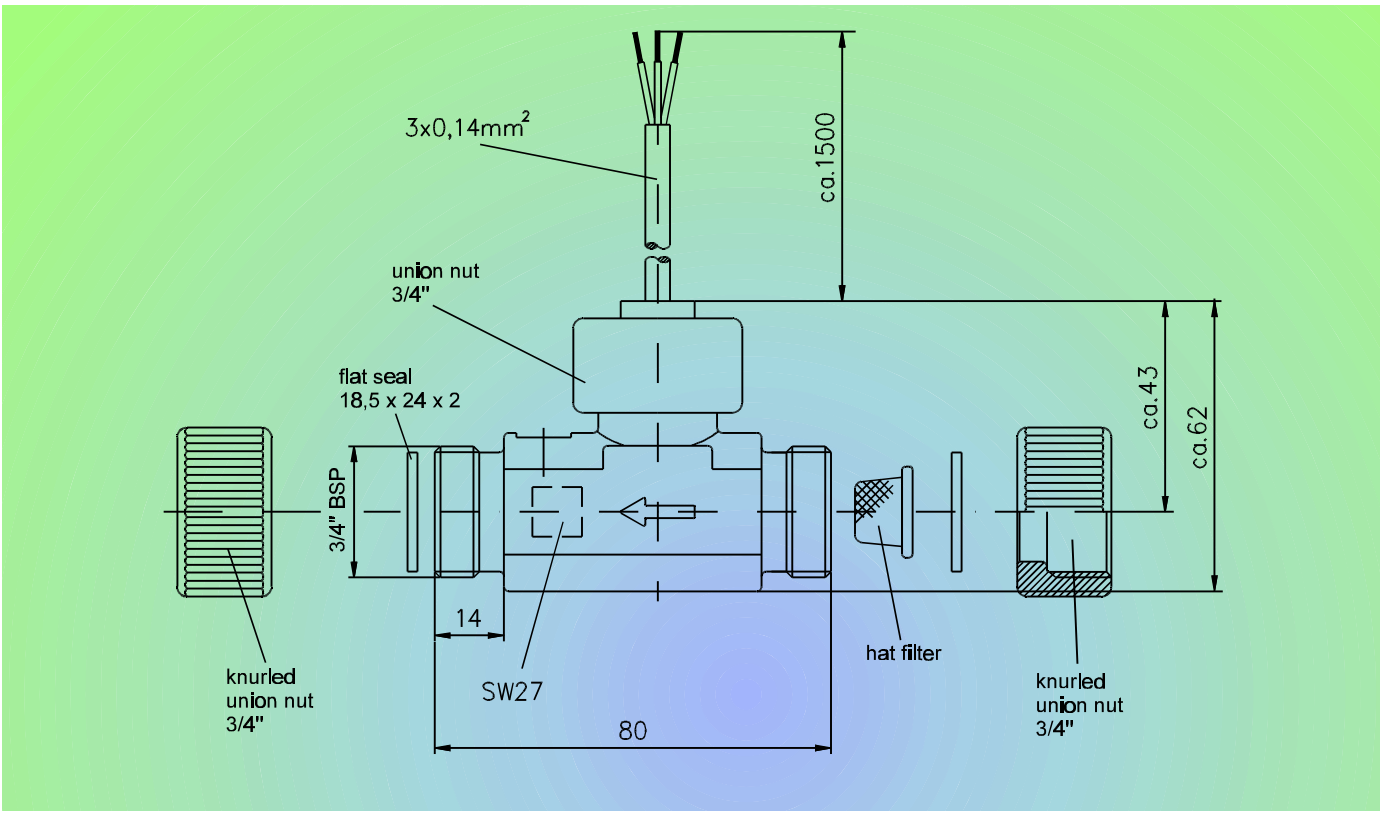
Characteristic curve



Pressure drop



Dimensions



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Turbine flow sensors for liquids, series Turbotron

DN 25 ... compact and reliable!

Turbotron VT 25 with pulse output

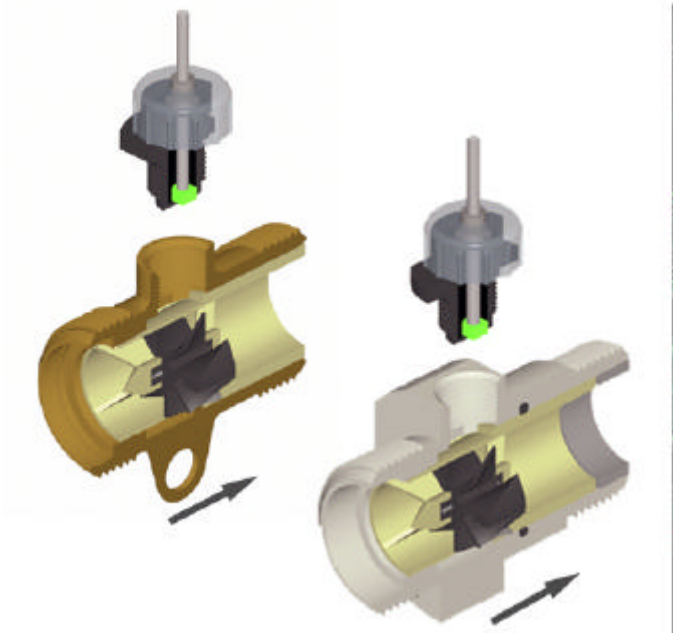
The turbine flow sensors of the product line Turbotron are sensors for flow rate measurement or dosing applications for liquids. Through its especially compact type, its very wide measuring range and its convincing precision of measurement, it has an almost unlimited application.

Convincing advantages

Especially suitable and proven in numerous serial applications through

- fixed pulse rate, thus practically no serial deviation
- wide measurement range 1:45, universally usable
- high-quality sapphire/PA bearing, low abrasion and extremely long running period
- any position, can be versatile installed
- available materials: plastic, brass and stainless steel, thus suitable for numerous applications
- plug adapter or fixed connecting cable.

Design and function



Schematic representation

The liquid which flows through the flow sensor, makes the turbine wheel rotate. The high-quality saphire-bearings and the low rotation rate provide the turbine with an exceptional life time.
The rotation of the rotor is now converted into an electrical pulsed signal (frequency):

- VTH and VTM have rotors which are equipped with magnets. A Hall-sensor recognizes the rotation of the rotor.
- The rotor of VTI is equipped with stainless steel pins. An inductive proximity switch detects the rotation of the rotor.

In both cases, a flow-proportional frequency signal (square wave signal) is available.

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Technical data

	VTH economy-priced type for standard and serial applications, fixed connection cable		VTM higher pressure, plug connection		VTI magnet-free rotor, plug connection	
Material, pipe section	**brass**	**plastic PP**	**brass**	**stainless steel**	**brass**	**plastic PP**
Measurement range	4...160 l/min, max. 80 l/min with continuous operation					
Accuracy	± 3 % of measured value					
Reproducibility	± 0,5 %					
Signal output from	< 1 l/min					
max. medium temperature	85 °C	80 °C at 2 bar 60 °C at 5 bar 30 °C at 10 bar	85 °C		60 °C	60 °C at 5 bar 30 °C at 10 bar
Nominal pressure	PN10		PN50		PN10	
Diameter	DN 25					
Process connection	1¼" BSP male thread*	1¼" BSP male thread	1¼" BSP male thread*			1¼" BSP male thread
Sensor	Hall effect sensor		Hall effect sensor		inductive proximity switch	
Output signal - pulse rate / K-factor - resolution - signal shape - signal current	65 pulses/liter 15 ml/pulse square wave signal NPN open collector max. 20 mA				65 pulses/liter 15 ml/pulse square wave signal PNP open collector max. 200 mA	
Electrical connection	2 m PVC cable, screened (T_{max} = 75 °C)		4-pin plug connector M12x1			
Power supply	4,5...24 VDC				10...30 VDC	
Type of protection	IP 54					
Max. size of particles in the medium	< 0,63 mm					
Option						
Screen filter	Flat filter, mesh size 0.63 mm					

* supplementary screwed connection required!

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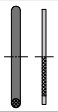
Materials

Type	VTH 25 MS-180	VTH 25 K6-180	VTM 25 MS-180	VTM 25V A-180	VTI 25 MS-180	VTI 25 K6-180
Pipe section	Brass CuZn36Pb2As CW602N	PP	Brass CuZn36Pb2As CW602N	Stainless steel 1.4571	Brass CuZn36Pb2As CW602N	PP
Turbine cage	PPO Noryl GFN 3V 960					
Rotor	PPO Noryl GFN 2V 73701					
Rotor assembly	Magnets, Recoma 28 nickel-plated				Stainless steel 1.4305	
Shaft	Stainless steel 1.4436					
Bearing	Sapphire / PA					
Housing for Hall sensor	PPO Noryl GFN 1630 V		Brass CuZn36Pb2As CW602N	Stainless steel 1.4571	PA66-natur	
O-ring	NBR					
Screen filter (option) associated O ring	St. st. 1.4301 70 EPDM 281	–	Stainless steel 1.4301 70 EPDM 281			–
Spacer	–	PP	–	–	–	–

Options

Please specify in the order code:

Screen filter with O-ring, in the inlet	
Turbine flow transmitter, analog output 4...20 mA,	Description see page 20
Turbine flow switch (contact)	Description see page 22 and 23

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Order code

Order number	VT2511	XX	XX	X	000	X*	X*
Material of pipe section	Brass	MS					
	Plastic PP	K6					
	Stainless steel	VA					
Type	VTH		HN				
	VTM		MN				
	VTI		IP				
Electrical connection	Cable (only VTH)			P			
	4 pin connector M12x1 (only VTI, VTM)			S			
Options							
Filter	Flat filter (only brass or stainless steel version)					F	
	none					0	
Electronics	incl. transducer 4...20 mA corresponds with 0...60 l/min corresponds with 0...100 l/min corresponds with 0...160 l/min						E F G
	Switching output VE						6
	Switching output VE with pulse output						7
	Version for local display TD 32500 (display must be ordered separately)						4

* if you do not require one of the options, digits of the order code do not apply.

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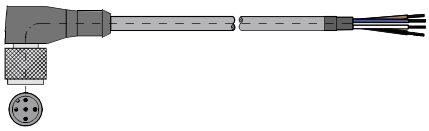
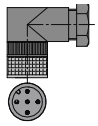
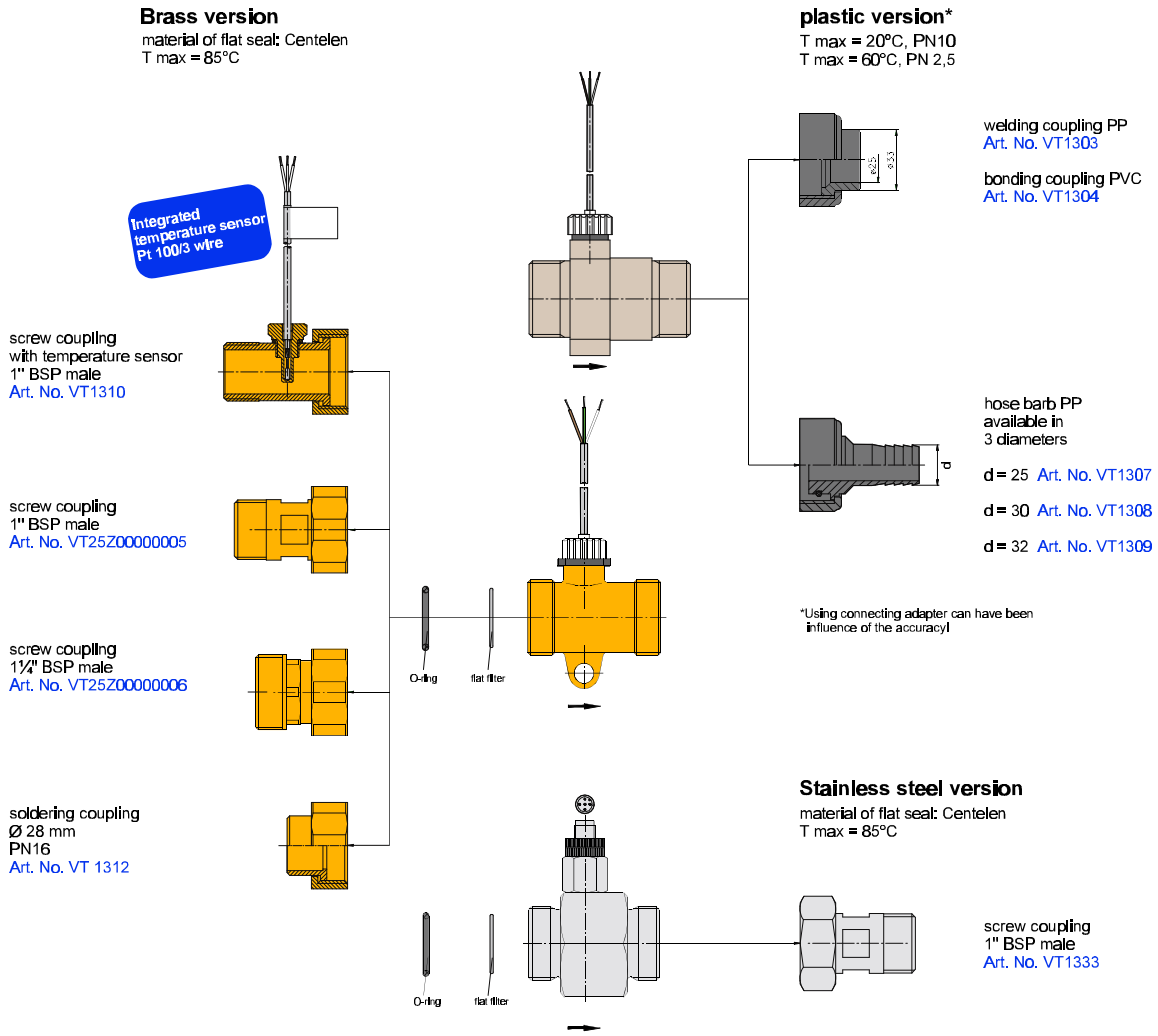
Accessory

Accessory part	Length	Order code	
Connection cable for turbine flow sensor with cable socked M12x1 molded lead, 4 pin, screened, sheathing material PUR (T_{max} = 80 °C)	3 m 5 m 10 m	XVT 2053 XVT 2009 XVT 2070	
4 pin cable socket M12x1 angle type unessembled		VT 1331	

Connecting adapter, delivery piecemeal see following drawing.



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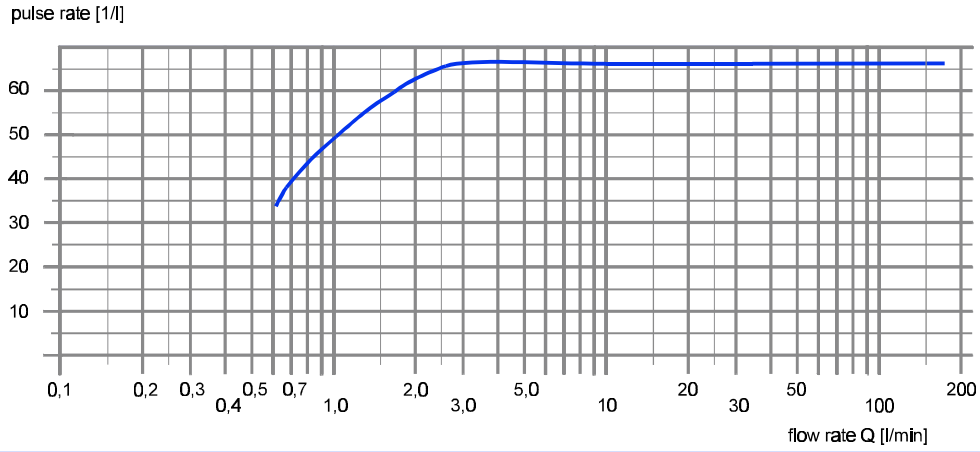
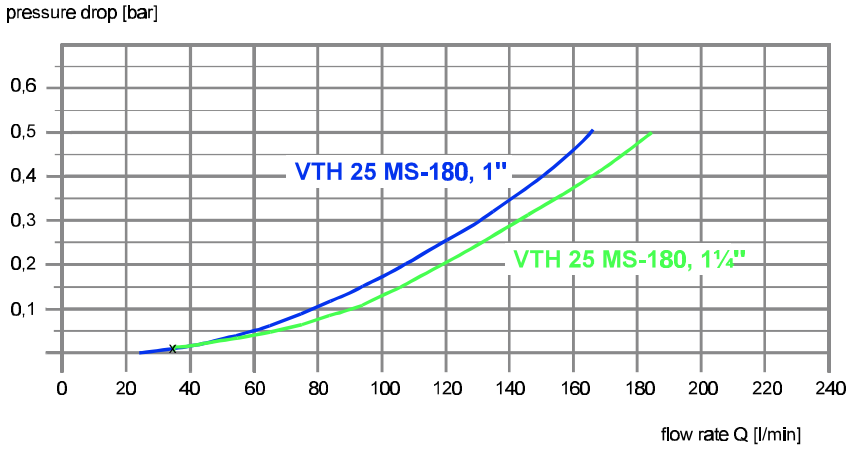
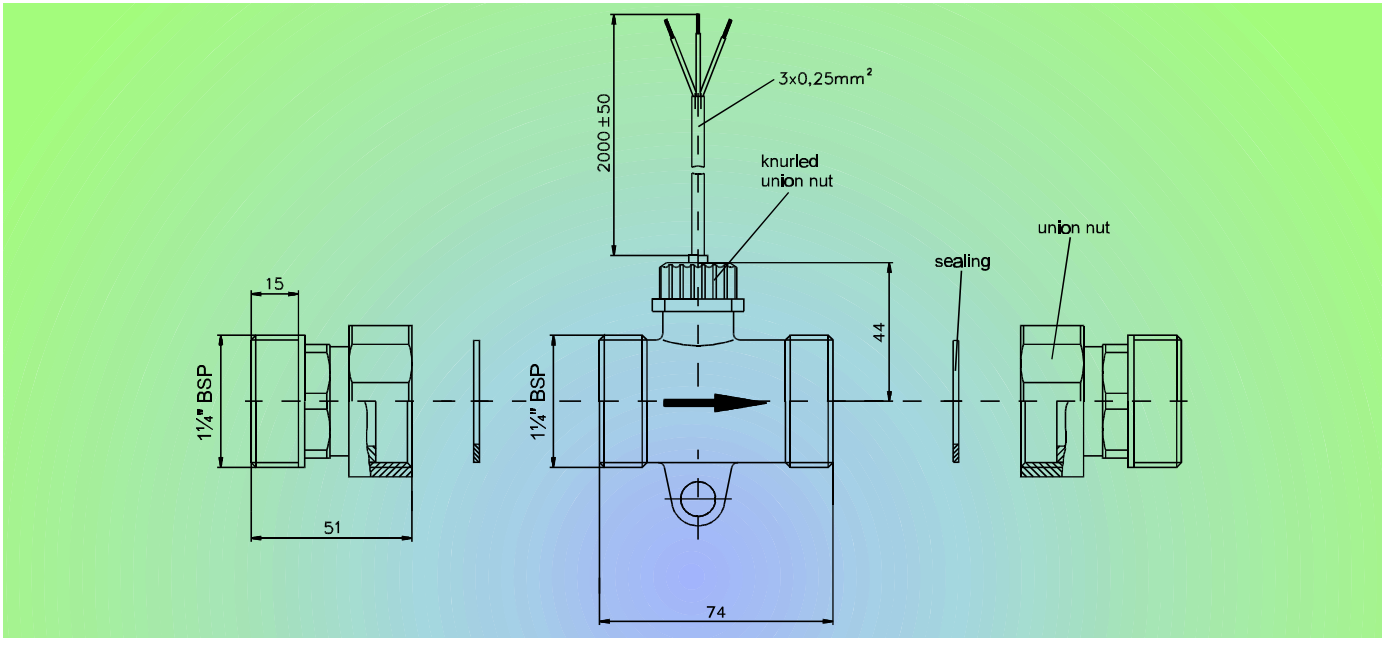
Characteristic curve and pressure drop





Dimensions



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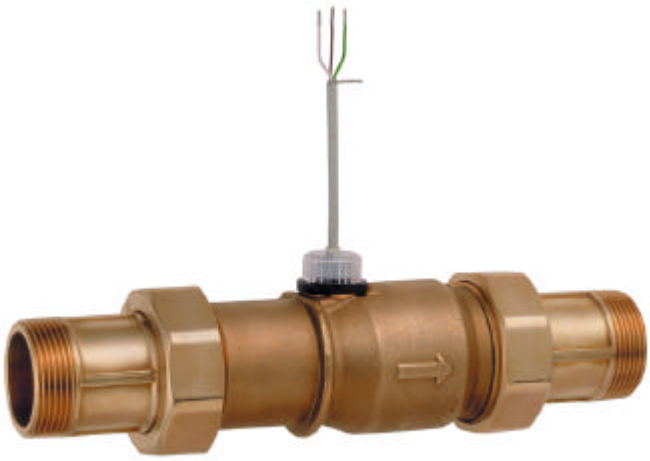
Turbine flow sensors for fluids, series Turbotron

DN 40 ...robust and versatile!

Turbotron VT 40 with pulse output

The turbine flow sensors of the product line Turbotron are sensors for flow rate measurement or dosing applications for liquids. Through its especially compact type, its very wide measuring range and its convincing precision of measurement, it has an almost unlimited application.

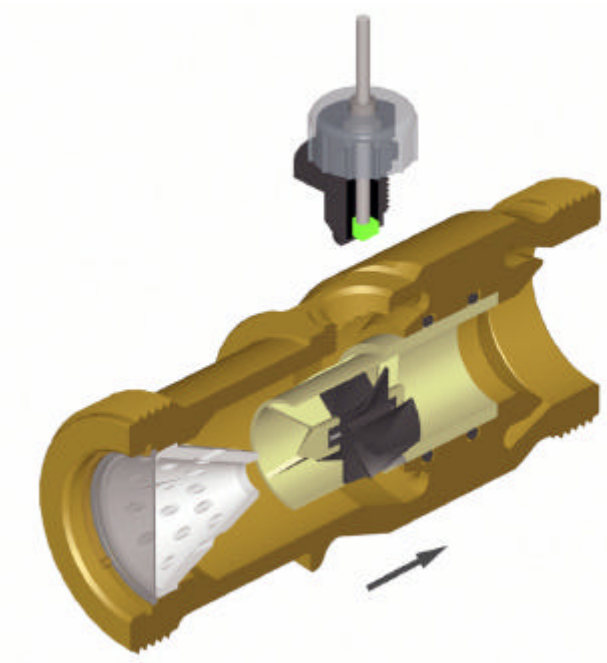


Convincing advantages

Especially suitable and proven in numerous serial applications through

- fixed pulse rate, thus practically no serial deviation
- wide measurement range, universally usable
- high-quality sapphire/PA bearing, low abrasion and extremely long running period
- any position, can be versatile installed
- plug adapter or fixed connecting cable

Design and function



Schematic representation

In the center of the brass turbine body there is the plastic turbine system. For design reasons, there is a ring gap around the turbine system. A part of the liquid flow makes the turbine rotate while the other part flows through the ring gap without obstruction. This special construction does not influence the measurement result, the output signal of the sensor is equal to the complete volume flow rate.
The high-quality saphire-bearings and the low rotation rate provide the turbine with an exceptional life time.
The rotation of the rotor is now converted into an electrical pulsed signal (frequency):

- VTH and VTM have rotors which are equipped with magnets. A Hall-sensor recognizes the rotation of the rotor.
- The rotor of VTI is equipped with stainless steel pins. An inductive proximity switch detects the rotation of the rotor.

In both cases, a flow-proportional frequency signal (square wave signal) is available.

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Technical data

	VTH economy-priced type for standard and serial applications, fixed connection cable	VTM higher pressure, plug connection	VTI magnet-free rotor, plug connection
Material of pipe section	**brass**	**brass**	**brass**
Measurement range	0,4...25 m³/h (6,7...417 l/min)		
Accuracy	±5 % of the measured value between 0,4...3 m³/h ±3 % of the measured value between 3...25 m³/h		
Reproducibility	±0,5 %		
Signal output starting from	0,1 m³/h		
Max. medium temperature	85 °C	85 °C	60 °C
Nominal pressure	PN10	PN50	PN10
Diameter	DN 40		
Process connection	2" BSP male thread, supplementary screwed connection recommended		
Sensor type	Hall effect sensor	Hall effect sensor	inductive proximity switch
Output signal - pulse rate / K-factor - resolution - signal shape - signal current	26,6 pulses/liter 37,6 ml/pulse square wave signal NPN open collector max. 20 mA		26,6 pulses/liter 37,6 ml/pulse square wave signal PNP open collector max. 200 mA
Electrical connection	2 m PVC cable, screened (T_{max} = 75 °C)	4 pin plug connector M12x1	
Power supply	4,5...24 VDC		10...30 VDC
Type of protection	IP 54		
max. particle size in the medium	< 0,63 mm		
Integrated screen filter	Flat filter, mesh size 0.63 mm		

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Materials

Type	VTH 40 MS-410	VTM 40 MS-410	VTI 40 MS-410
Pipe section	Brass CuZn36Pb2As CW602N		
Turbine cage	PPO Noryl GFN 3V 960		
Rotor	PPO Noryl GFN 2V 73701		
Rotor assembly	Magnets, Recona 28 nickel-plated		Stainless steel 1.4305
Shaft	Stainless steel 1.4436		
Bearing	Sapphire / PA		
Housing for Hall sensor	PPO Noryl GFN 1630 V	Brass CuZn36Pb2As CW602N	PA66-natur
O-ring	NBR		
Flow guiding cone	POM Celcom		
Screen filter	Stainless steel 1.4301		
Retaining ring	Bronze 2.1030.34		

Options

Please specify in the order code:

Turbine flow transmitter, analog output 4...20 mA	Description see page 20
Turbine flow switch (contact)	Description see page 22 and 23

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Order code

Order number	VT4025MS	XX	X	000	F	X*
Type	VTH	HN				
	VTM	MN				
	VTI	IP				
Electr. connection	Cable (only VTH)		P			
	4 pin connector M12x1 (only VTI, VTM)		S			
Options						
Electronics	including transducer 4...20 mA corresponds with 0...150 l/min corresponds with 0...250 l/min corresponds with 0...400 l/min					 E F G
	Switching output VE					6
	Switching output VE with pulse output					7
	Version for local display TD 32500 (display must be ordered separately)					4

* If you do not require any of the options, digits of the order code do not apply.

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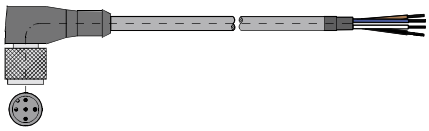
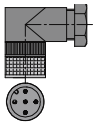
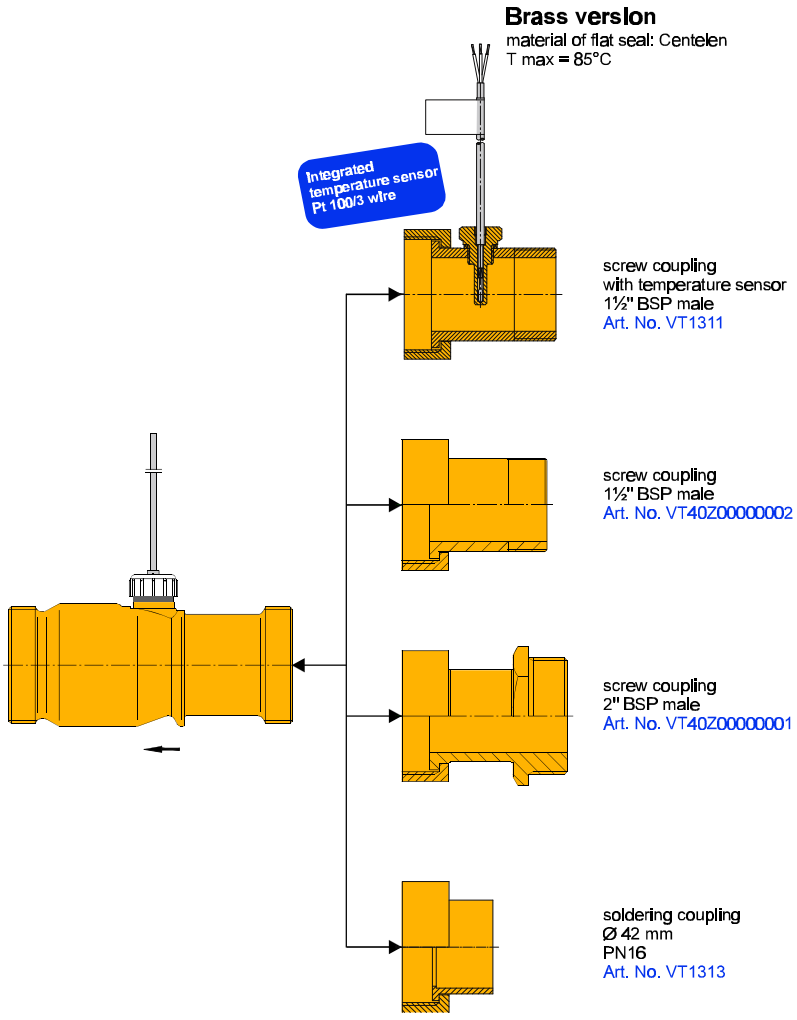
Accessory

Accessory part	Length	Order code	
Connection cable for turbine flow sensor with cable socked M12x1 molded lead, 4 pin, screened, sheathing material PUR (T_{max} = 80 °C)	3 m 5 m 10 m	XVT 2053 XVT 2009 XVT 2070	
4 pin cable socket M12x1 angle type unessembled		VT 1331	

Connecting adapter, delivery piecemeal see following drawing.



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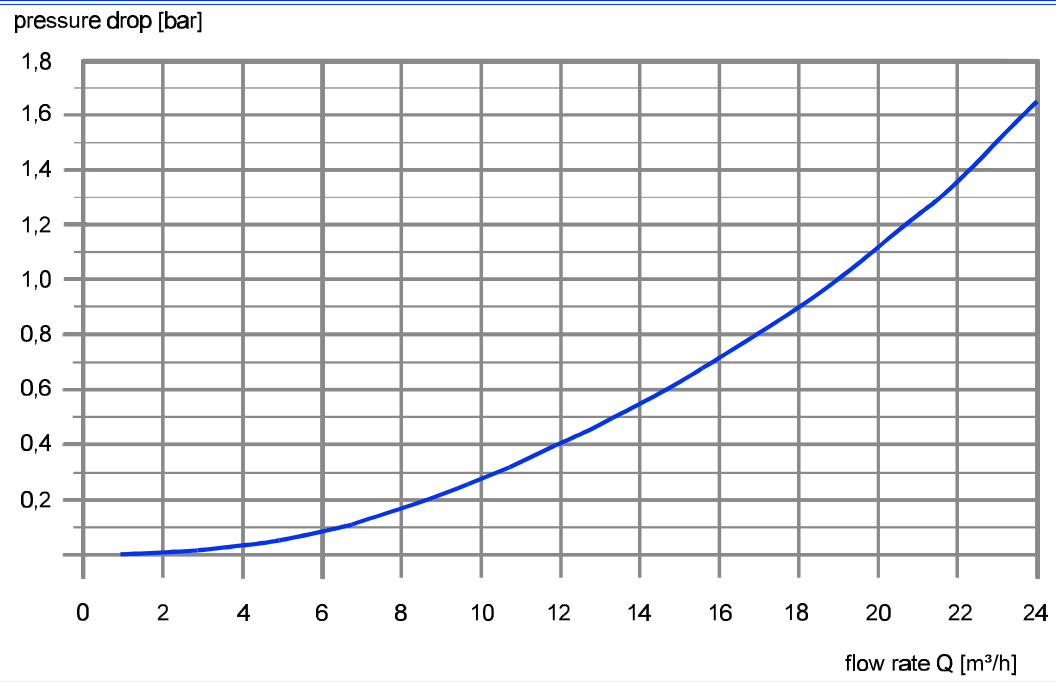
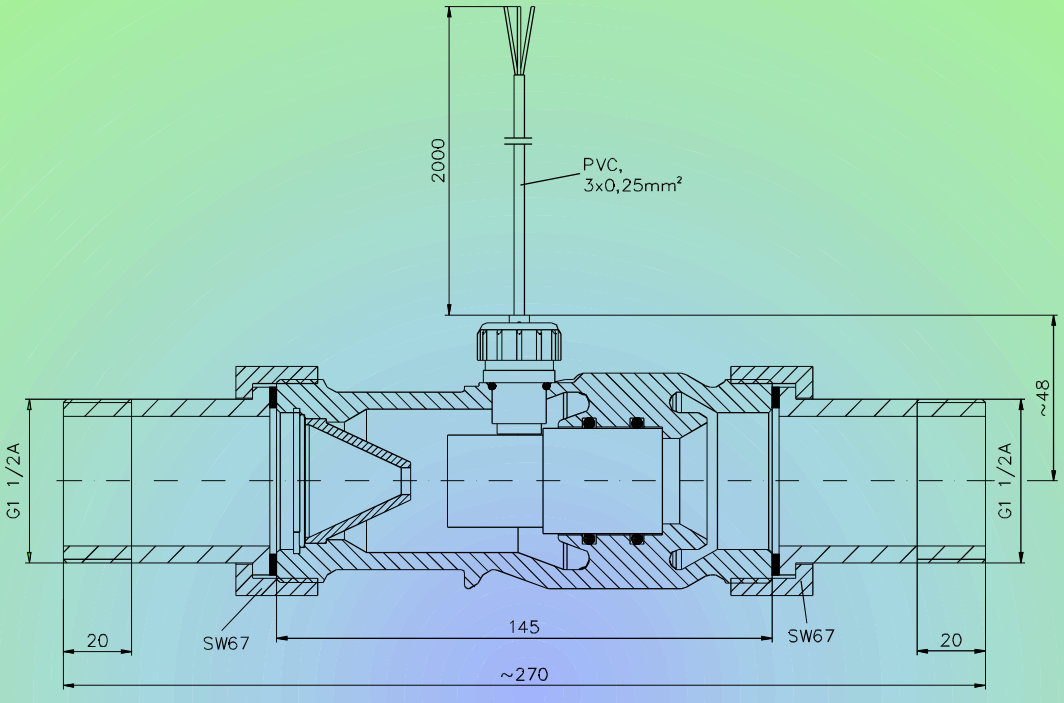
Pressure drop



Dimensions



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Turbine flow transmitter, series Turbotron AI, analogue output

...flexible and of high performance!

Local transducer for flow sensors

Instead of the pulse signal, an analogue current signal 4...20 mA is provided by installing an internal transducer onto the flow sensors described above.

Technical data

Output signal	4...20 mA
Current limit	approx. 26 mA
Scaling	4 different flow ranges, order code flow sensor (see page 5, page 11, or page 17) other scaling possible from 10 pieces and above
Power supply	18...30 VDC
Max. current consumption	30 mA
Max. resistance	250 Ω against GND
Residual ripple	0,2 mA $_{ss}$ over the entire range
Type	3 wire, galvanically not separated, common GND of power supply and output signal
Electrical connection	4-pin plug connector, M12x1
Max. medium temperature	dependent on the maximum temperature of the applied flow sensor, not exceeding 80°C
Casing material	plastic PA, brass with VTH 25 MS-180

Order code

Please, order through selection in the order code on page 5, page 11, or page 17

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Portable flow indicator FlowTest

Fast measurement on site!

SIKA® founded 1901
Dr. Siebert & Kühn GmbH & Co. KG

Digital display of flow, volume and temperature

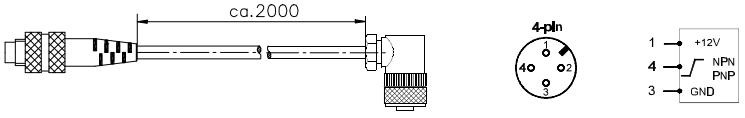
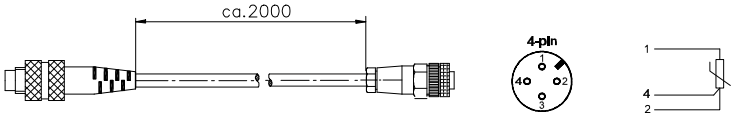
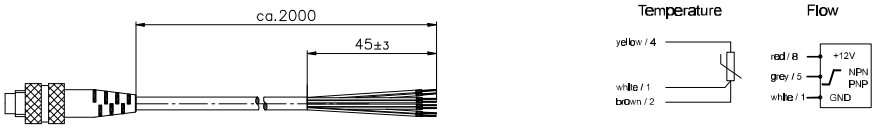
The SIKA FlowTest is a digital display unit for temporary connection to flow sensors and flow switches.
The following characteristics ensure a fast and user-friendly measurement on site:

- compact hand-held unit for service and startup
- display of flow rate or total flow
- power supply by rechargable battery also for the connected flow sensor, thus independent from local mains voltage supply
- supplementary measurement of temperature
- supply complete in a service case with battery charger and a measurement cable

Technical data

Sensor inputs		frequency signal of flow sensors NPN or PNP, Pt 100 / 3 wire
Adaptation to flow sensors		through programmable pulse rate
Power supply for sensor		12 VDC (by integrated battery)
Display		LCD
Display values and units		flow rate: l/min, l/h, m³/h, USGPM, IGPM total flow: l, m³, USGAL, GAL (UK) temperature: °C, resolution: 0,5 °C
Casing	Dimensions	aluminum, hollow profile, golden anodized — 130 x 70 x 20 (H x W x D)

Order code and accessory

Description	Order-No.	
Flow indicator FlowTest	**ET 7250**	**incl. measurement cable flow AD 2030, battery charger and service case**
Measurement cable flow (in ET 7250 included)	AD 2030	
Measurement cable temperature Pt 100/3-wire	AD 2037	
Measurement cable open, flow / temperature	AD 2039	
Hand-held temperature sensor	VGTF 401	

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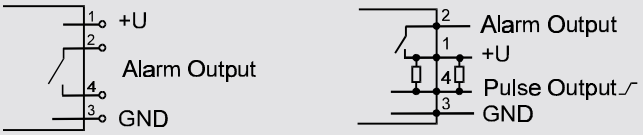
Turbine flow switch, series line Turbotron VE, with switched output

Reliability has a name!

For each application the proper device

If you make exceptionally high requirements on monitoring of liquid flow, the SIKA turbine flow switch will be the correct selection.
Its areas of application:
Monitoring of cooling circuits of high-quality equipment like laser installations or HF generators. It avoids costly consequential damages resulting from overheating.
A great number of different applications is covered by a very simple and exact selection of the set point.
As an option, a pulse signal is also available in addition to the switching output (contact). In such a case, in addition to safe monitoring, a continuous or temporary measurement of the flow (e.g. for adjustment jobs) can also be carried out.

only switching output or switching output and pulse output



Convincing advantages!

- very wide set point range, thus one flow switch suitable for any applications
- fail safe (locked impeller wheel is recognized as “water lack”)
- precise set point adjustment
- optical signaling by 2 LEDs, yellow = flow, red = flow lack
- safe monitoring of smallest volume flows

The reliable measuring principle

The core of the turbine flow switch is the extremely durable flow sensor SIKA- Turbotron which for years successfully demonstrated its reliability in many mass applications. It provides a flow-proportional frequency signal which is introduced to a microprocessor. This monitors the adjusted minimum flow and activates the electrically insulated alarm contact in the case of dwindling flow. Even a due blocking of the turbine system is clearly recognized and reliably signaled. The adjustment of the set point can be carried out very easy and precisely. By means of a 16-position rotary switch (resting), the desired set point is selected (see page 23).

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Set point tables

16-position rotary switch for set point adjustment

VT..15..VE (DN 15)

Switch position	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
Set point decreasing flow (l/min)*	0,5	1,0	1,5	2,0	2,5	3,0	3,5	4,5	5,5	7,5	9,5	11,5	15,5	19,5	24,5	29,5
Set point increasing flow*	0,5 l/min bove the set point decreasing flow															

VT..25..VE (DN 25)

Switch position	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
Set point decreasing flow (l/min)*	3	5	6	8	10	12	15	18	20	25	30	35	40	50	70	100
Set point increasing flow (l/min)*	5	7	8	10	12	14	17	20	22	27	33	38	44	55	75	105

VT..40..VE (DN 40)

Switch position	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
Set point decreasing flow (l/min)*	7	10	15	20	25	30	35	40	50	65	80	100	130	160	200	275
Set point increasing flow (l/min)*	10	13	19	24	30	35	40	47	58	75	90	115	150	190	230	310

* The specified values refer to operation with water at 20°C. Monitoring of fluids with higher viscosities is possible with the effect of deviations from the mentioned values.
If you order at least 25 units, individual set point tables can be implemented.

Technical data

Set point range (with decreasing flow) / accuracy	DN 15 0.5 ... 29.5 l/min / ±0,2 l/min and ±2% of set point DN 25 3 ... 100 l/min / ±0,8 l/min and ±4% of set point DN 40 7 ... 275 l/min / ±2,0 l/min and ±6% of set point
Set point adjustment	16 different set points selectable by means of a 16-position rotary switch
Output / max. contact rating	only switching output: electrically insulated contact, opens in the case of lack of flow max. contact rating 125 VAC/DC, 100 mA switching output and pulse output: - switching output against power supply max. contact rating 100 mA - pulse output: flow-proportional frequency signal NPN, max. 100 mA
Switching hysteresis	0,5 l/min (DN 15) 2...5 l/min (DN 25) 3...35 l/min (DN 40)
Power supply	12...24 VDC
Current consumption	max. 25 mA
Type of protection	IP 54 with closed sleve and connected socket
Casing	Plastic PA, transparent
Display, internal	LED yellow = ok (flow) LED red = Alarm (lack of flow)
Max. medium temperature	Dependent on the maximum temperature of the used flow sensor, not exceeding 80°C
Electr. connection	4-pin plug connector, M12x1

Order code

Please order by a the corresponding selection in the order code, page 5, 11, or 17.

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Switching transmitter TU 7050

Complete monitoring - safely!

Switching transmitter for Turbotron flow sensors - Remote mount version

The TU 7050 is a two channel switching transmitter for use with all Turbotron Series flow sensors. Pulse signals from flow sensors operate a dual set of galvanically insulated, dry contacts which in turn, may be used to activate alarms. Set point adjustments are allowed, in up to 16 increments, via a pair of rotary switches set into the module's front panel. The rear panel contains the DIN rail mounting assembly.
Two selectable modes are available:

- **Mode A**
  Two identical turbine flow sensors operate one set point each.
- **Mode B**
  One turbine flow sensor operates a pair of alarm set points (pre-alarm & main alarm or min & max).

The TU 7050 provides a failsafe mechanism as any malfunction of the flow sensor would immediately trigger the low flow alarm setting. The set points are very easily adjusted via the very visible, rotary dial settings and additional oversight is offered by 2 LED lights … the red LED will light in a no-flow condition and a green LED indicates flow.

Set point tables

for VT..15 (DN 15)

Switch position	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
Set point decreasing flow (l/min)*	0,5	1,0	1,5	2,0	2,5	3,0	3,5	4,5	5,5	7,5	9,5	11,5	15,5	19,5	24,5	29,5
Set point increasing flow *	0,5 l/min over the set point decreasing flow															

for VT..25 (DN 25)

Switch position	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
Set point decreasing flow (l/min)*	3	5	6	8	10	12	15	18	20	25	30	35	40	50	70	100
Set point increasing flow (l/min)*	5	7	8	10	12	14	17	20	22	27	33	38	44	55	80	110

for VT..40 (DN 40)

Switch position	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
Set point decreasing flow (l/min)*	7	10	15	20	25	30	35	40	50	65	80	100	130	160	200	275
Set point increasing flow (l/min)*	10	13	19	24	30	35	40	47	58	75	90	115	150	190	230	310

* The specified values refer to operation with water at 20 °C. Monitoring of fluids with higher viscosities is possible with the effect of deviations from the mentioned values.

If you order at least 25 units, individual set point tables can be implemented.

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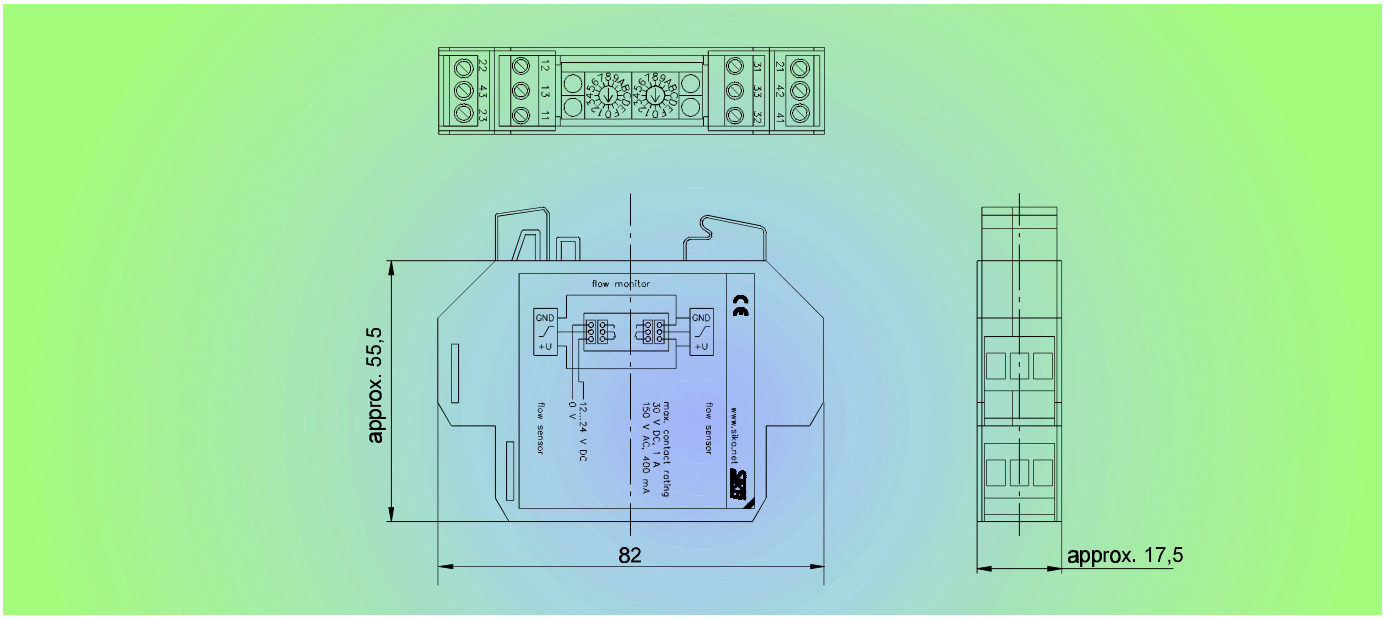
Technical data

Signal input	Frequency signals of up to two identical flow sensors VT...15 VT...25 VT...40			
Display per channel	LED green = ok		LED red = alarm	
Set point adjustment	using two 16-position rotary switches, 16 different set points can be selected per channel			
Set point range	VT...15: VT... 25: VT...40:	0,5...29,5 l/min 3...100 l/min 7...275 l/min	Switching hysteresis	0,5 l/min 2...10 l/min 3...35 l/min
Outputs	two independent, potential free c/o contacts			
Max. contact rating	30 VDC / 1 A		150 VAC / 400 mA	
Power supply	12...24 VDC ±10 %			
Casing	Plastic casings for assembly rail setup, approx. 17.5 x approx. 67 x 82 mm (W x D x H)			
Ambient temperature / storage temperature	0...60 °C / -10...80 °C			

Dimensions



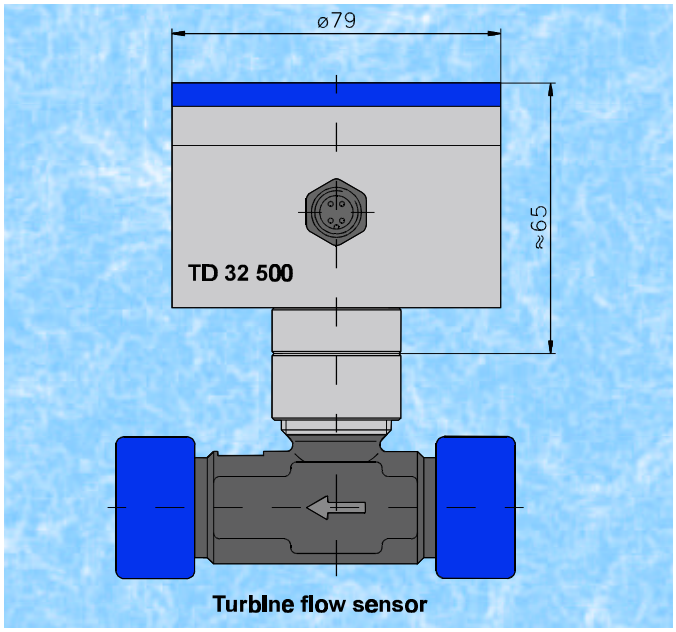
Order code

Order number	EU70500	XXX	2296
Connected turbine flow sensors	VTH 15 VTP 15 VTI 15, NPN VTI 15, PNP VTH 25 / VTM 25 VTI 25 VTH 40 / VTM 40 VTI 40	H15 D15 I15 P15 H25 P25 H40 P40	

TD 32 500 – local flow and volume measuring instrument

- delivery directly assembled on the turbine flow sensor of the product line Turbotron
- display switchable
  - flow rate
  - total flow (resettable)
  - fix total flow (not resettable)
  - optionally temperature
- in addition bargraph 0...100% to display flow rate, total flow (resettable) or optionally temperature
- menu-driven programming via two light-reflex buttons
- key lock for unintentional operation
- robust stainless steel casing, with a closed glass window front
- rotating case gives improved reading
- display selection German, English or French
- fixed connecting cable or plug connector M12x1

The perfect team!



Options

- additional temperature display, input for resistance thermometer Pt 100/ 3-wires
- analogue output 0/4... 20 mA or 0...10 V, freely adjustable, allocated to: flow rate, total flow (resettable) or optional temperature
- two fast-switching alarm outputs min or max, allocation selective: flow rate, total flow (resettable) or optional temperature
- a red LED signals clearly alarms
- pulse output for flow rate, if required with frequency divider (pulse reduction)

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Technical Data

Signal input	Fequency signal from flow or total flow sensor, 0,5...2000 Hz, pulse rate programmable
Additional temperature input (optional)	Pt 100 / 3-wires, measuring range -10...+150 °C
Programming	Menu-driven with two light reflex buttons
Display	2-line LC-display with 16 characters per line, character height: 5 mm
Programmable units	l/min, l/h, m³/h, GPM (US), GPM(UK) l, m³, GAL(US), GAL(UK), °C,°F
Power supply	12...24 VDC
Power supply to sensor	12 VDC
Ambient temperature	-10...+60 °C
Temperature of medium through the flow sensor	depending on type of sensor, maximum -20..+90 °C
Analogue output (optional)	0/4...20 mA (max. resistance 800 Ω with 24 VDC) or 0...10 V, adjustable for flow rate, total flow (resettable) or optional temperature
Alarm outputs (optional)	two PNP transistor open collector outputs, programmable for min- or max alarm, hysteresis programmable, allocation of flow rate, total flow (resettable) or optional temperature holding current or working current programmable
Pulse output with frequency divider (optional)	PNP open collector, TTL-level, programmable divider-rate
Casing	circular stainless steel casing, ø 80 mm, height 55 mm, 350° rotating
Protection class	IP 65
Electrical supply	PVC-connection cable, 2 m or plug connector M12x1

Order Code

Order number	ED 325	X	X	I000	XX	9	X	X
Input	flow sensor flow sensor and Pt 100	6 7						
Outputs	none analogue output pulse + frequency divider analogue + frequency divider		0 A F B					
Alarm output	none 2, programmable				00 29			
Electr. connection	2 m cable plug M12x1						1 2	
Number of pins/leads	laid down by SIKA, depending on requirements							0

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Our Production and Sales Range


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Subject to technical modification

Turbotron 09/2006/e