

Turbine flow meters for liquids

Series Turbotron VT...



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 $\pm 0,5\%$ or $\pm 1\%$, 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

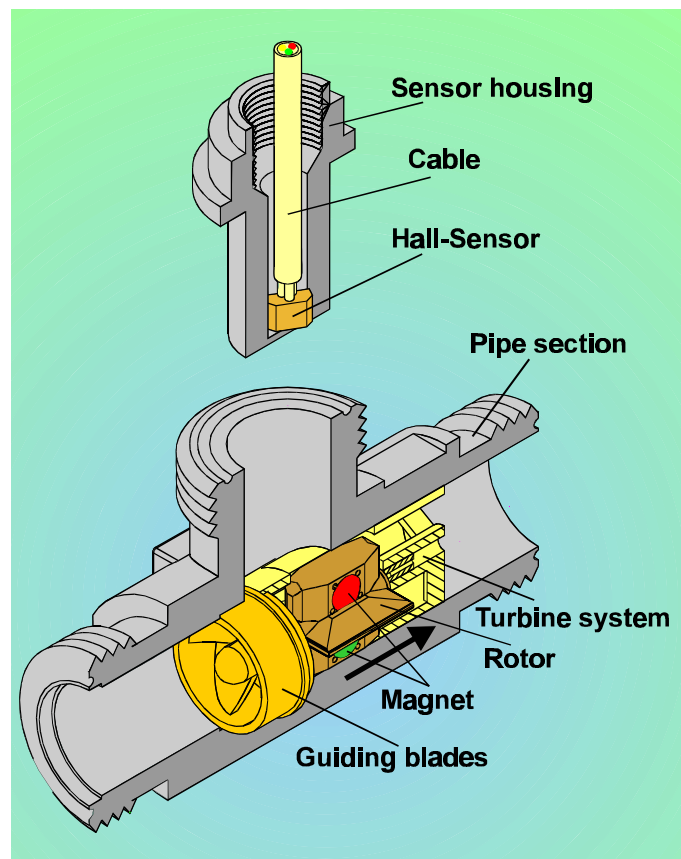
Flexibel and perfectly equipped thanks to different arrangements:

- plastic, brass and stainless steel types
- plug connector or fixed connecting cable
- optionally with reinforced bearing for extended life expectancy, best suited for continuous operation and higher flows.

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.

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
Accuracy	± 1 % of range		± 1 % of range		± 0,5 % of range	
Reproducibility	± 0,2 %		± 0,2 %		± 0,1 %	
Output signal - pulse rate / K-factor - resolution - waveform - signal current	855 pulses/liter 1,2 ml/pulse square wave signal NPN open collector max. 10 mA		855 pulses/liter 1,2 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. 10 mA	
Sensor	Hall effect sensor		Hall effect sensor		inductive proximity switch	
Max. medium temperature	85°C		150°C		85°C	
Nominal pressure	PN 10		p _{max} = 300 bar		PN 10	
Diameter	DN 15					
Measurement range: - standard bearing - reinforced bearing	2...40 l/min, with constant loading max. 20 l/min 4...40 l/min					
Signal output	starting from 0.3 l/min					
max. particle size in the medium	0,5 mm					
General data						
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	
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				12...24 VDC	
Type of protection	IP 54					
Options						
Screen filter	hat shape, mesh size 0,5 mm Tmax = 60°C (continuous) = 85°C (max. 1h)		—		hat shape, mesh size 0,5 mm Tmax = 60°C (continuous) = 85°C (max. 1h)	
Integrated temperature sensor	Pt 100 or Pt 1000, 3 wire, class B (class A on request) 1,5 m of PVC cable, screened		—		Pt 100 or Pt 1000, 3 wire, class B (class A on request) 1,5 m of PVC cable, screened	

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	Brass	Stainless steel 1.4571	PPO Noryl GFN3	Brass
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		PEI ULTEM		PEI ULTEM	
O-ring / flat seal	X	NBR		VITON		NBR (standard) or VITON	
Bearing system / shaft	X	Arcap shaft AP1D with hard-alloy ferrules 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:

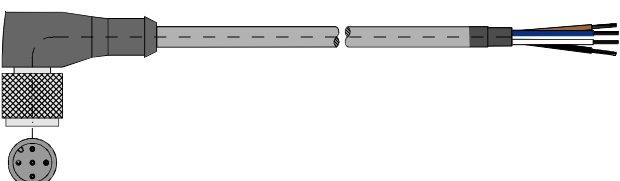
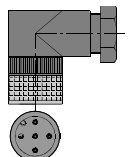
- integrated temperature sensor,
resistance thermometer Pt 100 or Pt 1000,
3 wire, class B
PTC or NTC on request
immersion tube: brass or stainless steel
- screen filter, hat shape, in the inlet
- turbine flow transmitter, analog output 4...20 mA,
description on page 20
- turbine flow switch (contact), description on page 22
and 23

Order code

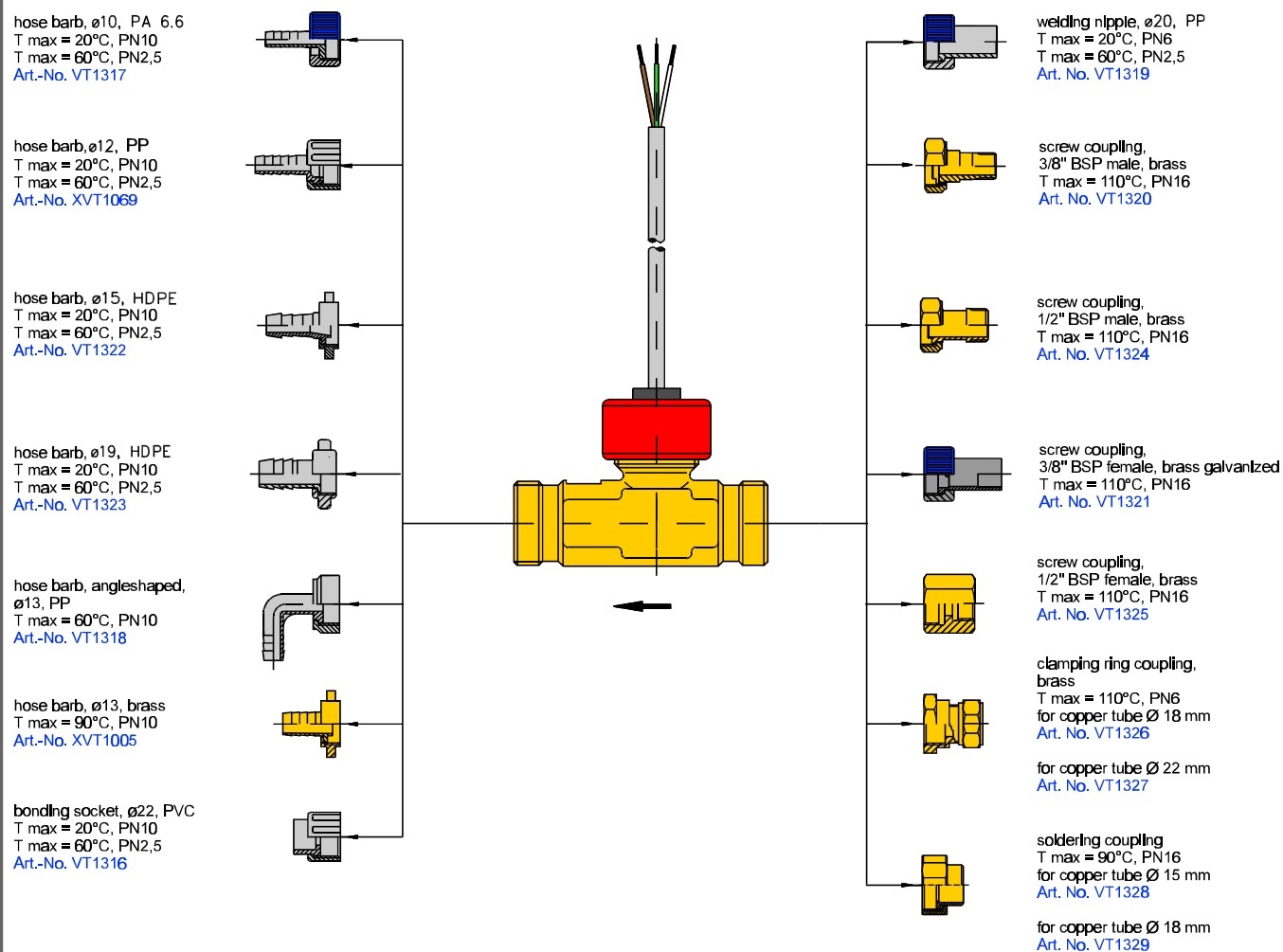
Code number		VT15	XX	XX	X	X	X	X	X	4	X*	X*
Measurement range	2...(20) 40 l/min, standard bearing	40										
	4...40 l/min, reinforced bearing	41										
Material of pipe section	PPO Noryl (only VTH or VTI)			K5								
	Brass			MS								
	Stainless steel (only VTP)			VA								
Type	VTI				I							
	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							0				
	Pt 100 integrated (brass)							2				
	Pt 100 integrated (stainless steel)							9				
	Pt 1000 integrated (brass)							7				
	Pt 1000 integrated (stainless steel)							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.

Accessory

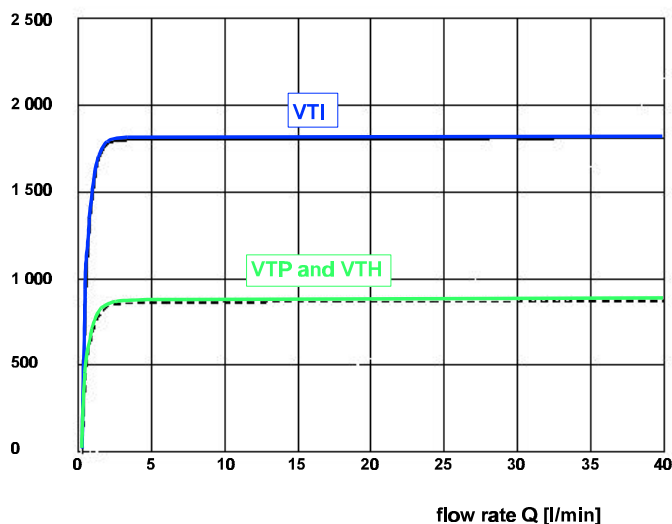
Accessory part	Order code	
Connection cable with 4-pin cable socked M12x1, angle type molded lead, sheathing material PUR, screened, length 3 m ($T_{max} = 80^{\circ}C$)	VT 1107	
Connection cable on the top, but length 5 m	VT 1108	
Connection cable on the top, but length 10 m	VT 1109	
4-Pin cable socket M12x1 angle type unassembled	VT 1331	

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



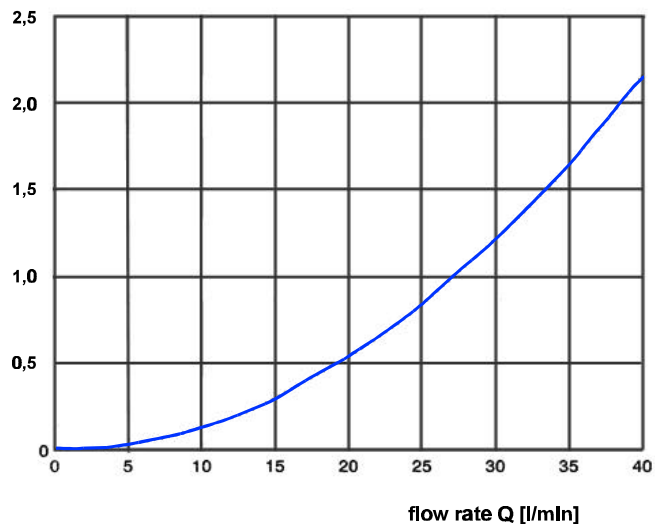
Characteristic curve

pulse rate [1/l]

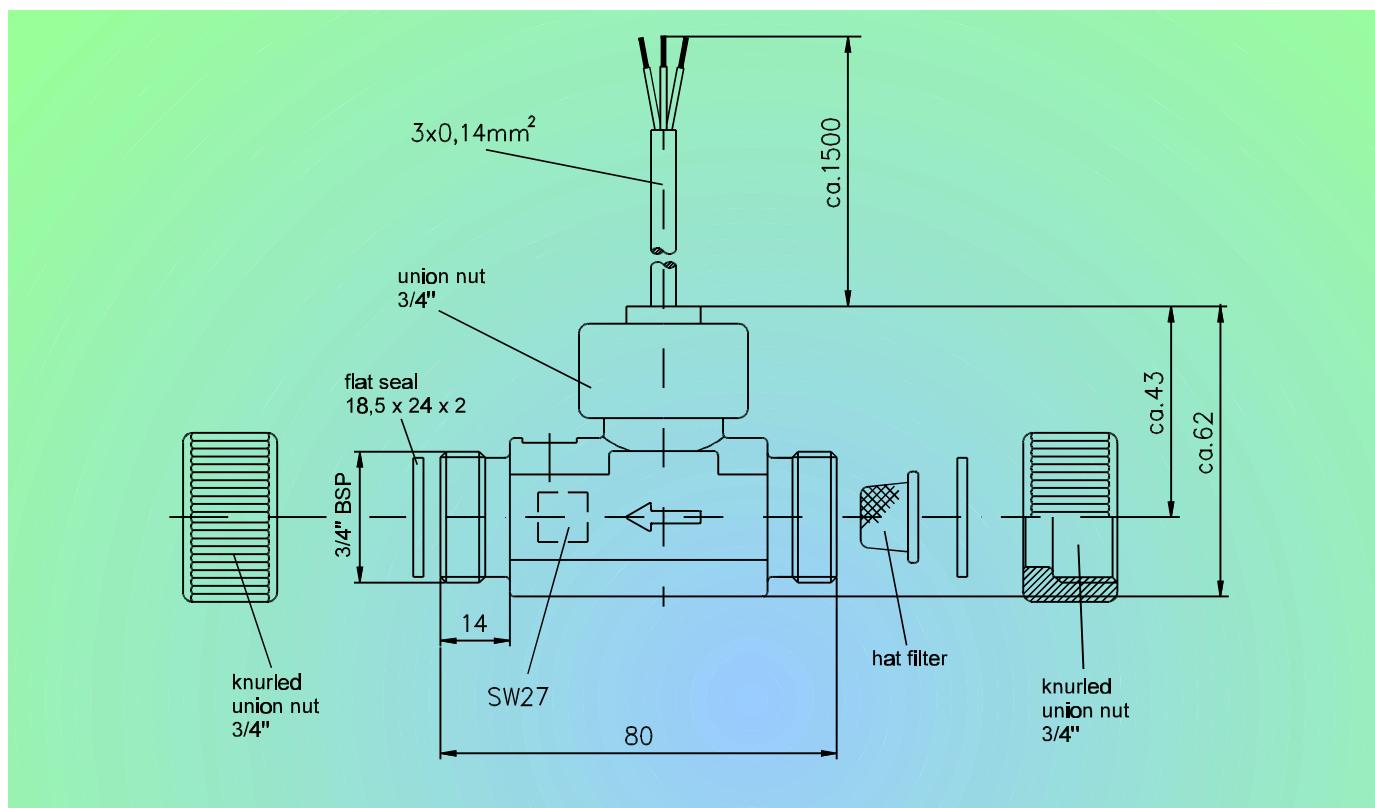


Pressure drop

pressure drop Δp [bar]



Dimensions



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.

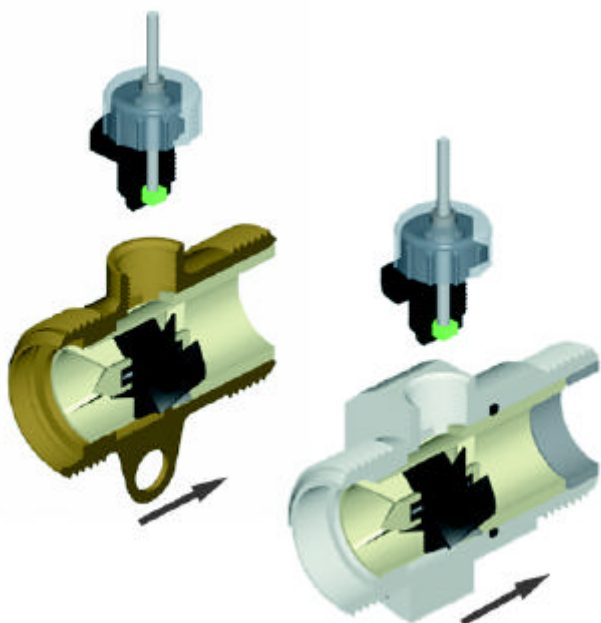
Convincing advantages

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 sapphire-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.

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
Diameter	DN 25					
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. size of particles in the medium	0,5 mm					
Output signal - pulse rate / K-factor - resolution	67 pulses/liter 15 ml/pulse					
Signal waveform	NPN open collector				PNP open collector	
Signal current	max. 100 mA				max. 10 mA	
Sensor	Hall effect sensor		Hall effect sensor		inductive proximity switch	
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	
Process connection	1¼" BSP male thread*	1¼" BSP male thread	1¼" BSP male thread*			1¼" BSP male thread
Electrical connection	2 m PVC cable, screened (T _{max} = 75°C)		4-pin plug connector M12x1			
Power supply	4,5...24 VDC				12...24 VDC	
Type of protection	IP 54					
Options						
Screen filter	Flat filter, mesh size 0.63 mm					

* supplementary screwed connection required!

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	PP	Brass CuZn36Pb2As	Stainless steel 1.4571	Brass CuZn36Pb2As	PP
Turbine cage	PA Grivory HTV4X1					
Rotor	PP					
Rotor assembly	Magnets, Recona 28 nickel-plated				Stainless steel 1.4571	
Shaft	Stainless steel 1.4436					
Bearing	Sapphire / PA					
Housing for Hall sensor	PPO Noryl GFN 1630 V		Brass	Stainless steel 1.4571	PPO Noryl GFN 1630 V	
O-ring	72 NBR 872					
Screen filter (option) associated O ring	Stainless steel 1.4301 70 EPDM 281					

Options

Please specify in the order code:

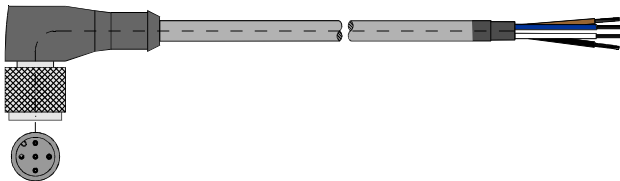
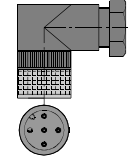
- screen filter, in the inlet
- turbine flow transmitter, analog output, 4...20 mA, description see page 20
- turbine flow switch (contact), description see page 22 and 23

Order code

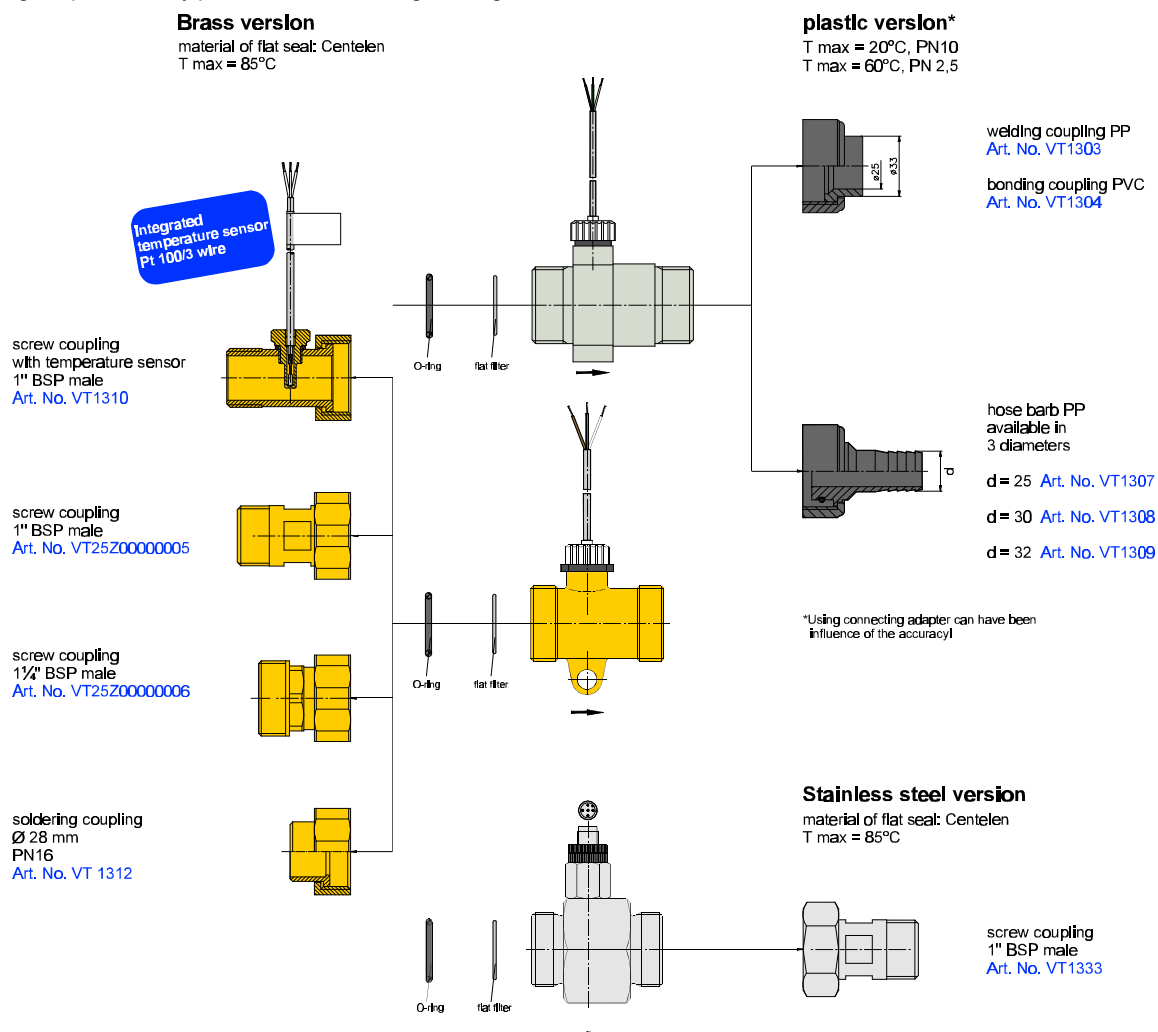
Order number		VT2511	XX	XX	X	000	X*	X*
Material of pipe section	Brass		MS					
	Plastic PP		K6					
	Stainless steel		VA					
Type	VTH			HN				
	VTM			MN				
	VTI			IP				
Electrical connection	Cable (only VTH)				P			
	4 pin connector M12x1 (only VTI, VTM)				S			
Options								
Filter	Flat filter						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.

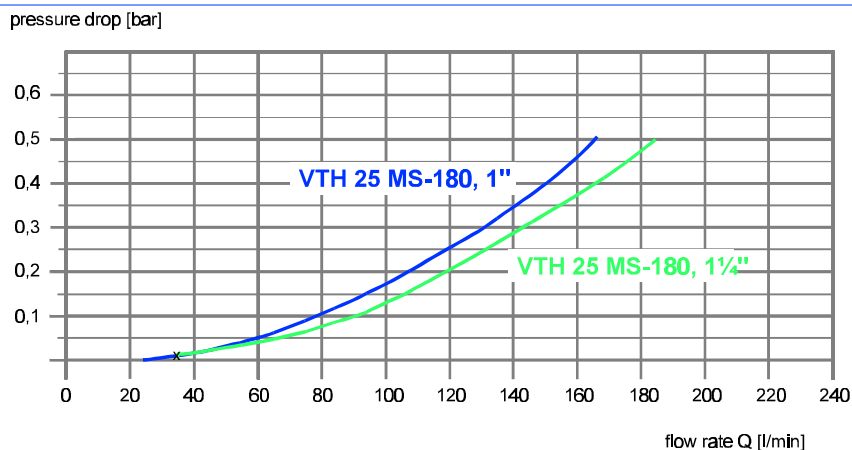
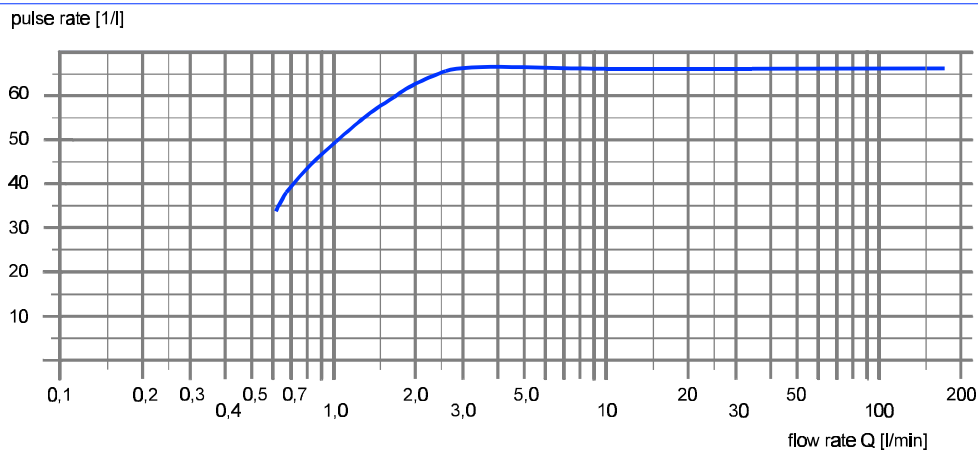
Accessory

Accessory part	Order code	
Connection cable with 4-pin cable socked M12x1, angle type, molded lead, sheathing material PUR, screened, length 3 m ($T_{max} = 80^{\circ}\text{C}$)	VT 1107	
Connection cable on the top, but length 5 m Connection cable on the top, but length 10 m	VT 1108 VT 1109	
4-Pin cable socket M12x1 angle type unassembled	Vt 1331	

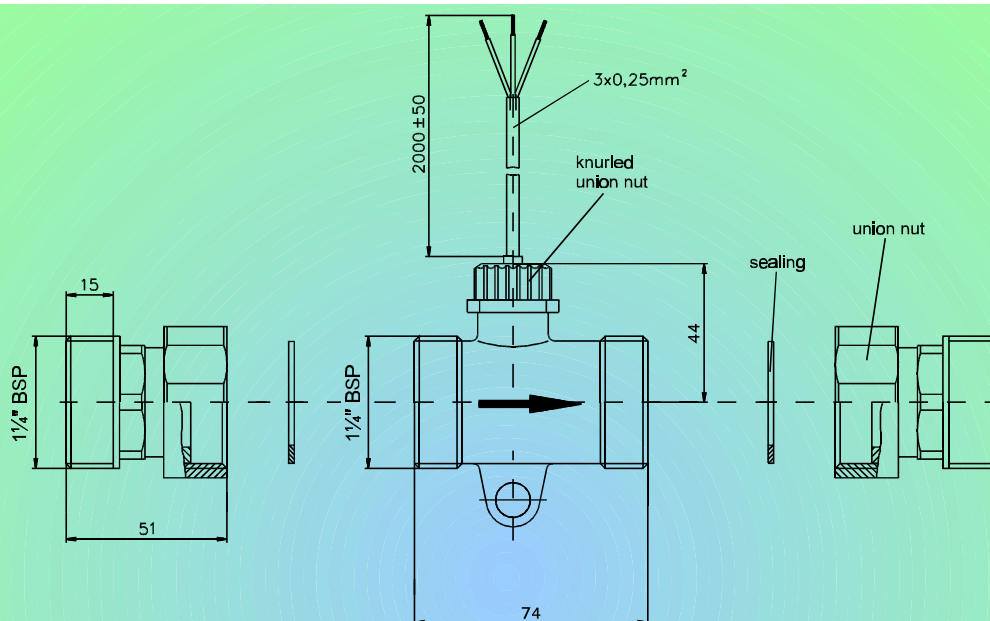
Connecting adapter, delivery piecemeal see following drawing.



Characteristic curve and pressure drop



Dimensions



Turbine flow sensors for fluids, series Turbotron

DN 40 ...robust and versatile!

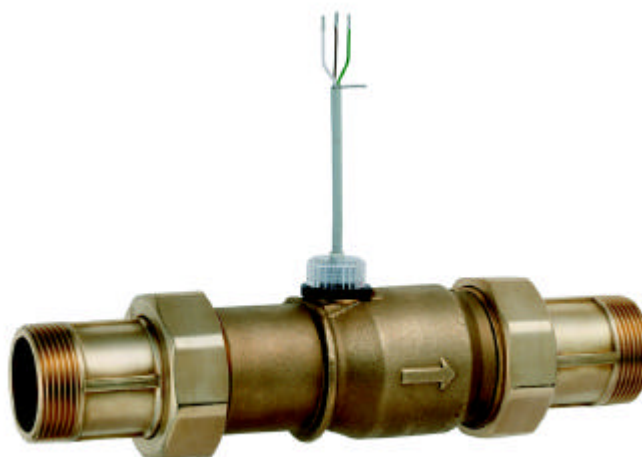
Turbotron VT 40 with pulse output

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.

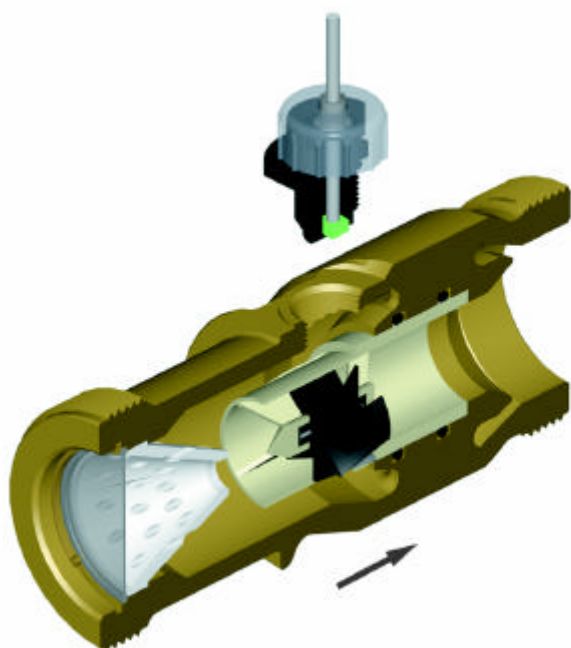
Convincing advantages

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 sapphire-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.

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
Diameter	DN 40		
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. particle size in the medium	0,5 mm		
Output signal - pulse rate / K-factor - resolution	26,6 pulses/liter 37,6 ml/pulse		
Signal waveform	NPN open collector		PNP open collector
Signal current	max. 100 mA		max. 10 mA
Sensor type	Hall effect sensor	Hall effect sensor	inductive proximity switch
Max. medium temperature	85°C	85°C	60°C
Nominal pressure	PN10	PN50	PN10
Process connection	2" BSP male thread, supplementary screwed connection recommended		
Electrical connection	2 m PVC cable, screened (T _{max} = 75°C)	4 pin plug connector M12x1	
Power supply	4,5...24 VDC		12...24 VDC
Type of protection	IP 54		
Integrated screen filter	Flat filter, mesh size 0.63 mm		

Materials

Type	VTH 40 MS-410	VTM 40 MS-410	VTI 40 MS-410
Pipe section	Brass CuZn36Pb2As		
Turbine cage	PA Grivory HTV4X1		
Rotor	PP		
Rotor assembly	Magnets, Recona 28 nickel-plated		Stainless steel 1.4571
Shaft	Stainless steel 1.4436		
Bearing	Sapphire / PA		
Housing for Hall sensor	PPO Noryl GFN 1630 V	Brass	PPO Noryl GFN 1630 V
O-ring	72 NBR 872		
Flow guiding cone	POM Celcom		
Screen filter	Stainless steel 1.4301		
Retaining ring	Bronze 2.1030.34		

Options

Please specify in the order code:

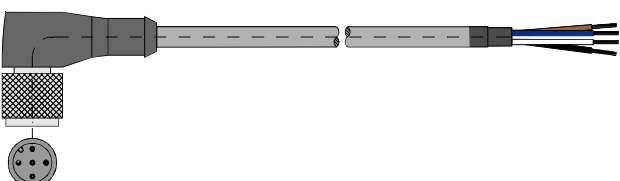
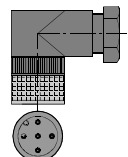
- turbine flow transmitter, analog output, 4...20 mA,
description see page 20
- turbine flow switch (contact),
description see page 22 and 23

Order code

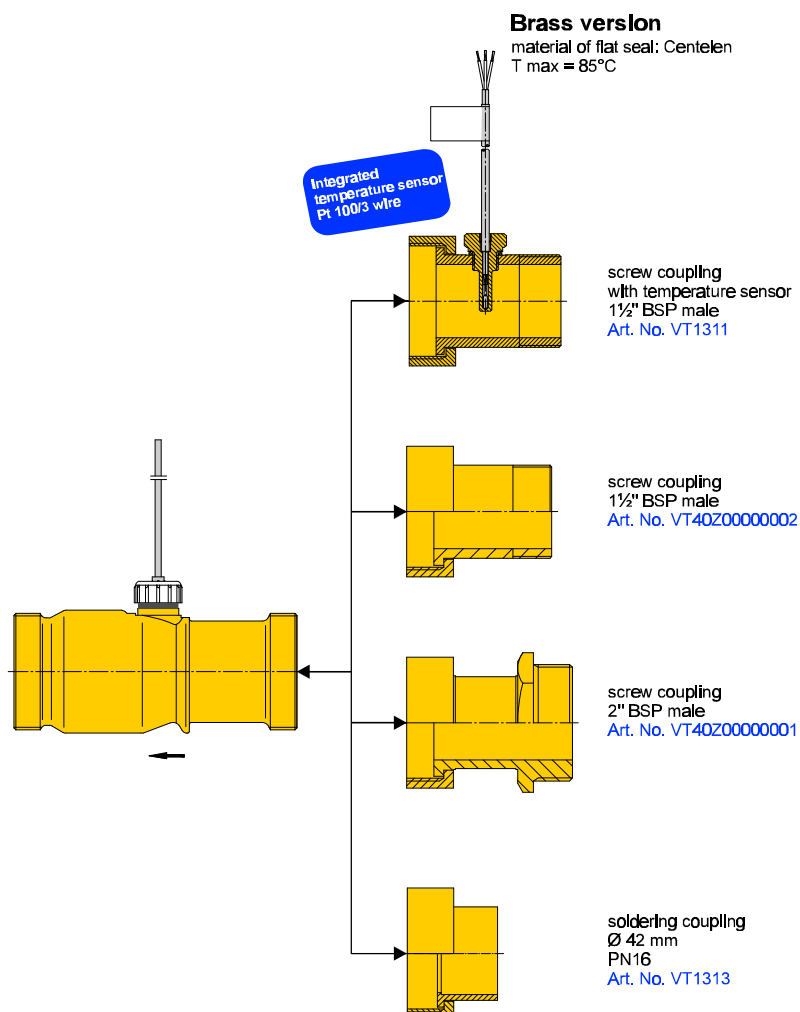
Order number		VT4025MS	XX	X	000	F	X*
Type	VTH		HN				
	VTM		MN				
	VTI		IP				
Electr. connection	Cable (only VTH)			P			
	4 pin connector M12x1 (only VTI, VTM)			S			
Options							
Electronics	including transducer 4...20 mA corresponds with 0...150 l/min corresponds with 0...250 l/min corresponds 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.

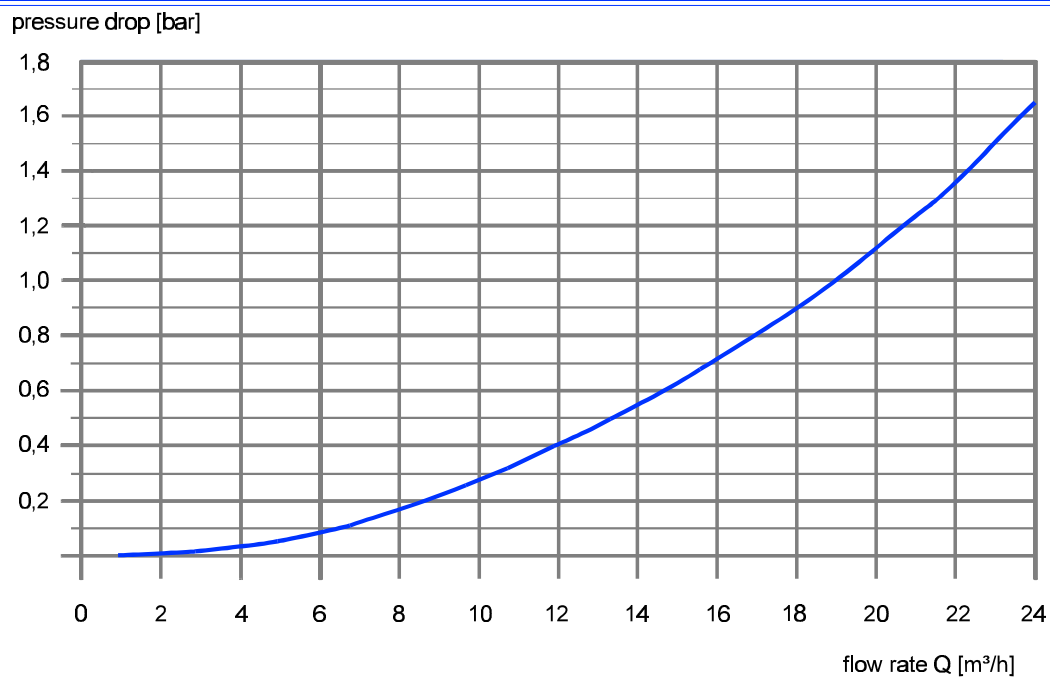
Accessory

Accessory part	Order code	
Connection cable with 4-pin cable socked M12x1, angle type, molded lead, sheathing material PUR, screened, length 3 m ($T_{\max} = 80^{\circ}\text{C}$)	VT 1107	
Connection cable on the top, but length 5 m	VT 1108	
Connection cable on the top, but length 10 m	VT 1109	
4-Pin cable socket M12x1 angle type unassembled	VT 1331	

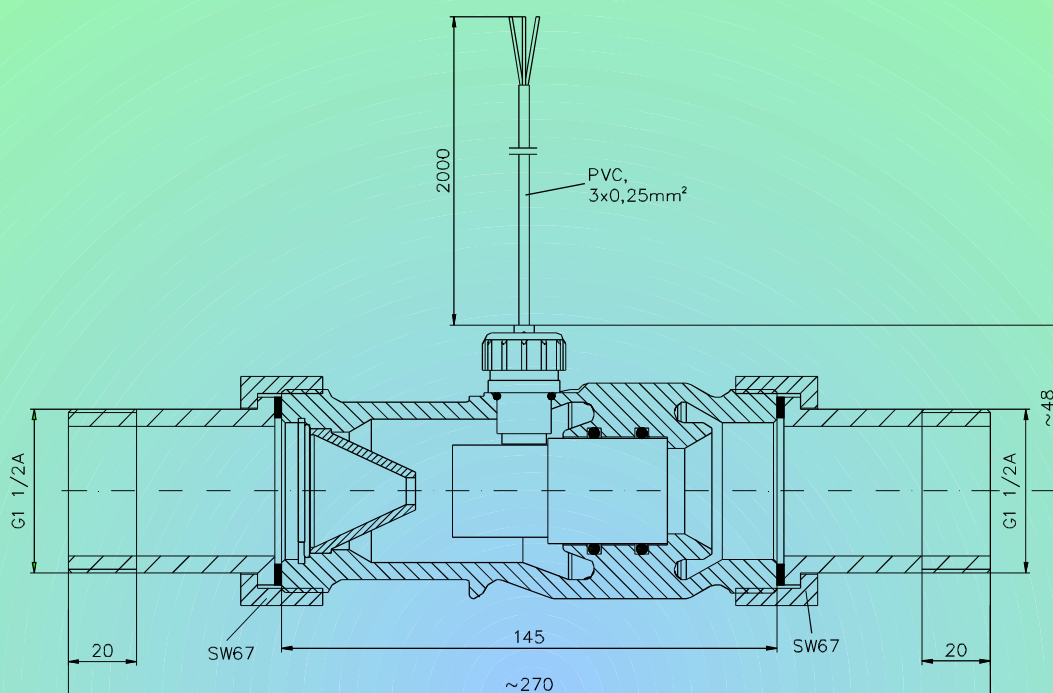
Connecting adapter, delivery piecemeal see following drawing.



Pressure drop



Dimensions



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

Portable flow indicator FlowTest

Fast measurement on site!



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
- connection to our flow sensors and turbine flow switches
- display of flow rate or total flow
- power supply by rechargeable battery also for the connected flow sensor, thus independent from local mains voltage supply
- supplementary measurement of temperature
- supply complete in a service suitcase with battery charger and a measurement cable
- serial interface via supplementary terminal adaptor



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, °F
Dimensions	130 x 70 x 20 (H x W x D)
Casing	aluminum, hollow profile, golden anodized

Delivery

- display unit
- flow measurement cable with 4 pin cable socket M12x1
- battery charger
- service suitcase

Order code

Order-No.	ET 7250
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For further measurement cables and further manual temperature sensors see special catalogue.

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.

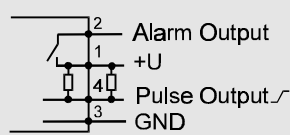
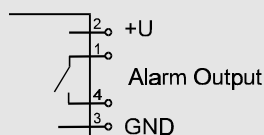
A great number of different applications is covered by a very simple and exact selection of the switching point.

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 switching point range, thus one flow switch suitable for any applications
- fail safe (locked impeller wheel is recognized as “water lack”)
- precise switching 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 switching point can be carried out very easy and precisely. By means of a 16-position rotary switch (resting), the desired switching point is selected (see page 23).



Switching point tables



16-position rotary switch for switching 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
Switch. pt. 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
Switching point raising flow*	0,5 l/min above the switching 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
Switch. pt. decreasing flow (l/min)*	3	5	6	8	10	12	15	18	20	25	30	35	40	50	70	100
Switching point raising 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
Switch. pt. decreasing flow (l/min)*	7	10	15	20	25	30	35	40	50	65	80	100	130	160	200	275
Switching point raising 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 switching point tables can be implemented.

Technical data

Switching point range (with decreasing flow) / accuracy	DN 15 0.5 ... 29.5 l/min / $\pm 0,2$ l/min and $\pm 2\%$ of switching point DN 25 3 ... 100 l/min / $\pm 0,8$ l/min and $\pm 4\%$ of switching point DN 40 7 ... 275 l/min / $\pm 2,0$ l/min and $\pm 6\%$ of switching point
Switching point adjustment	16 different switching 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 open collector, 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 sleeve 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.

Flow monitoring instrument TU 8051-2

Complete monitoring - safely!

A monitoring instrument for all Turbotrons

The compact turbine flow regulators are a one-piece device, i.e. turbine sensor and electronics form one unit. Alternatively, a separated version is available. Each turbine flow sensor of the product line Turbotron can be joined with the monitoring unit TU 8051-2. This arrangement will be especially useful if the measurement points for switching point adjustment are hardly accessible. Since the TU 8051-2 is equipped with two channels, even two measurement points can be monitored (pre-condition: two identical flow sensors).



Switching 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
Switching 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
Switching point raising flow *	0,5 l/min over the switching 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
Switching point decreasing flow (l/min)*	3	5	6	8	10	12	15	18	20	25	30	35	40	50	70	100
Switching point raising flow (l/min)*	5	7	8	10	12	14	17	20	22	27	33	38	44	55	75	105

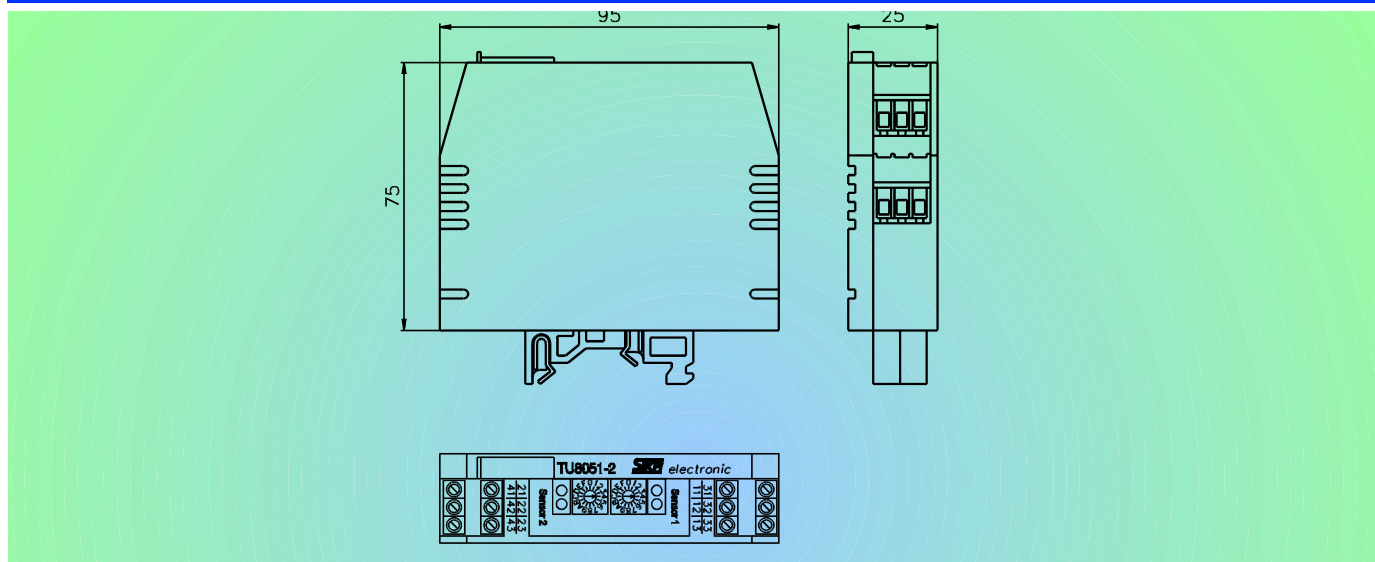
* The specified values refer to operation with water at 20°C. Monitoring of fluids with higher viscosities is possible with the effect of deviations from the mentioned values.

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

Technical data

Signal input	Frequency signals of up to two identical flow sensors VTH 15 / VTP 15 VTI 15 VTH 25 / VTM 25 / VTI 25
Switching point range	0,5...29,5 l/min with VTH / VTP / VTI 15 3...100 l/min with VTH 25
Switching point adjustment	using two 16-position rotary switches, 16 different switching points can be selected per channel
Outputs	two independent, galvanically insulated switching contacts
Display per channel	one LED green = ok (flow) one LED red = alarm (lack of flow)
Switching hysteresis	0,5 l/min with VTH / VTP / VTI 15 2...5 l/min with VTH 25
Max. contact rating	250 VAC, 300 VA
Power supply	12...24 VDC
Casing	Plastic casings for assembly rail setup, 25 x 90 x 95 mm (W x D x H)
Ambient temperature	0...60°C
Storage temperature	-10...80°C

Dimensions



Order code

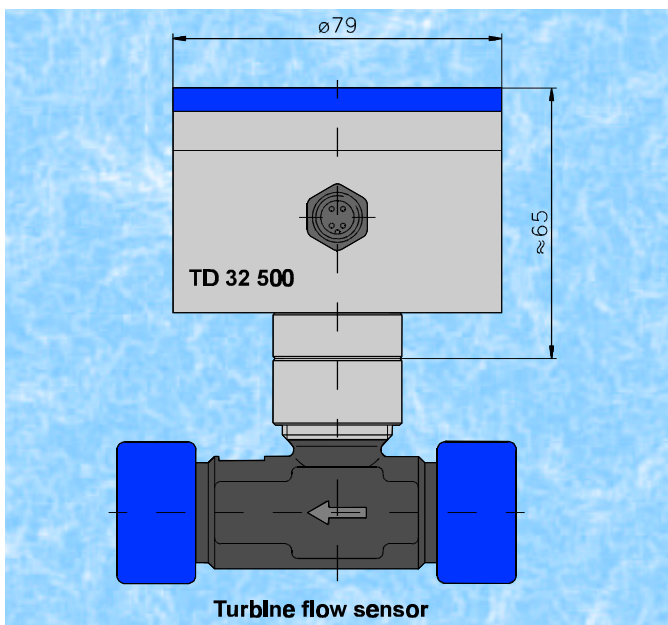
Order number	EU80500	XXX	2296
Connected turbine flow sensors	VTH 15 / VTP 15 VTI 15 VTH 25 / VTM 25 / VTI 25	H15 I15 H25	

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 English or German
- fixed connecting cable or plug connector M12x1

also with temperature display

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)

Technical Data

Signal input	Frequency 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	-20...+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