

Turbine flow meters for liquids

Turbotron VT... Series



Turbine flow sensors for liquids, Turbotron Series

1/2" BSP...accurate, compact and long-lasting!

VT 15 with pulse output

The Turbotron flow sensors are designed for flow rate measurement or dosing of liquids. With a compact shape, very wide measuring range and precise measurement, it has an almost unlimited application.



Superior features

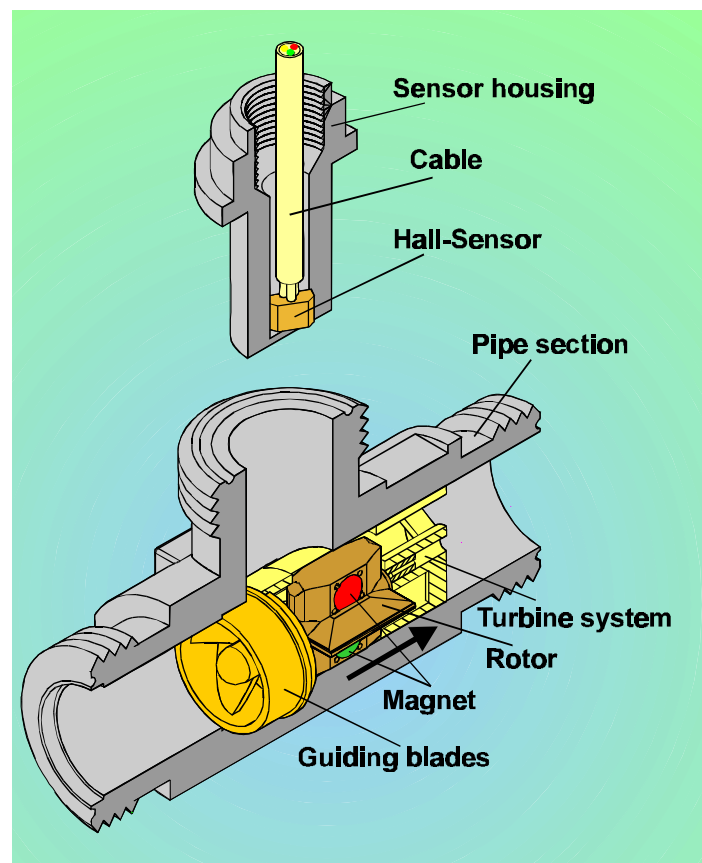
- fixed pulse rate, thus practically no deviation
- wide turn down ratio e.g. 1:20
- high accuracy of measurement $\pm 0,5\%$ or $\pm 1\%$, therefore reliable measured variables
- high quality sapphire bearing, low abrasion and extremely long running period
- specially designed guiding blades ensures uniform flow to the rotor from four sides producing a tremendous reduction in wear
- insensitive against pressure peaks, providing reliable measurement variables even under difficult conditions
- may be installed in any position

Flexible and perfectly equipped with the following options:

- 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. The uniform loading of bearing from four sides causes the forces to cancel themselves out and wear is reduced to a minimum. The extremely hard bearing materials, sapphire and hard metal, ensure 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 detects 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

Material pipe section	VTH economy-priced type for standard and serial applications		VTP high pressures, high temperatures, fuels		VTI magnet-free rotor, high measurement accuracy, high resolution	
	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	3289 pulses/Gal 0.31 mG/pulse square wave signal NPN open collector max. 10 mA		3289 pulses/Gal 0.31 mG/pulse square wave signal NPN open collector max. 10 mA		6904 pulses/Gal 0.16 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	185 °F		302 °F		185 °F	
Max. pressure rating	145 psi		p _{max} = 4350 psi		145 psi	
Diameter	½"					
Measurement range	0.52...10.4 GPM					
Signal output	starting from 0.08 GPM					
max. particle size in the medium	0.02 "					
General data						
Process connection	¾" BSP male thread with union nuts and washer			¾" BSP male thread or ¾" BSP female thread	¾" BSP male thread with union nuts and washer	
Electrical connection	5 Ft of PVC cable, shielded, (T _{max} = 158 °F) or 4- pin plug connector M12x1		5 Ft of silicone cable, shielded (T _{max} = 302 °F)		6.6 Ft of PVC cable, shielded, (T _{max} = 158 °F) or 4- pin plug connector M12x1	
Power supply	4.5...24 VDC				10...30 VDC	
Type of protection	IP 54 - NEMA 3					
Options						
Strainer	hat shape, mesh size 0.02 inch T _{max} = 140 °F (continuous) = 185 °F (max. 1h)		---		hat shape, mesh size 0.02 " T _{max} = 140 °F (continuous) = 185 °F (max. 1h)	
Integrated temperature sensor	RTD, Pt 100 or Pt 1000, 3 wire, class B (class A on request) 5 Ft of PVC cable, screened		---		RTD, Pt 100 or Pt 1000, 3 wire, class B (class A on request) 6.6 Ft 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 CuZn36Pb2As	Brass CuZn36Pb2As	Stainless steel 316 SS	PPO Noryl GFN3	Brass CuZn36Pb2As	
Sensor housing	X	PPO Noryl GFN3		Brass	Stainless steel 316 SS	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 316 SS		-		Brass or stainless steel 316 SS		
Strainer (option)	X	POM / stainless steel		-		POM / stainless steel		

Options

Please, specify in the order code:

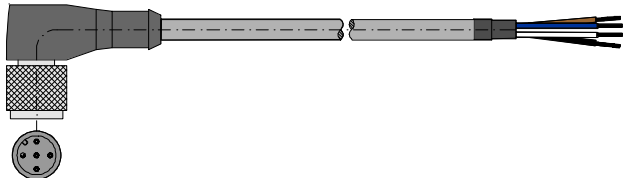
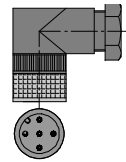
- integrated temperature sensor, resistance thermometer Pt 100 or Pt 1000, 3 wire, class B
PTC or NTC on request
immersion tube: brass or stainless steel
- Strainer, hat shape, in the inlet
- turbine flow transmitter, analog output 4...20 mA, description on page 20
- turbine flow switch (contact), description on page 22 and 23
- version for low flow rates, equipped with special bearings (with continuous flow max. 5.2 GPM)

Order code

Code number		VT15	XX	XX	X	X	X	X	X	4	X*	X*
Bearing	standard bearing	41										
	special bearings for low flow rates (with continuous flow max. 5.2 GPM)	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							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	3/4" BSP male								A			
	3/4" BSP female (possible only with VTP in stainless steel)								I			
Options												
Filter	Strainer										H	
	none										0	
Electronics	including transducer 4...20 mA (only with plug connector M12x1) corresponds with 0...1.5 GPM corresponds with 0...2.5 GPM corresponds with 0...5 GPM corresponds with 0...10 GPM											H I J K
	Switching output VE (only with plug connector M12x1)											6
	Switching output VE with pulse output (only with plug connector M12x1)											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 socket M12x1, angle type molded lead, sheathing material PUR, shielded, length 10 Ft ($T_{max} = 176\text{ }^{\circ}\text{F}$)	XVT 2053	
Connection cable on the top, cable length 16.5 Ft Connection cable on the top, cable length 33 Ft	XVT 2009 XVT 2070	
4-Pin cable socket M12x1 angle type unassembled	VT 1331	

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

hose barb, $\varnothing 0.4$, PA 6,6
 $T_{max} = 68\text{ }^{\circ}\text{F}$, 145 psi
 $T_{max} = 140\text{ }^{\circ}\text{F}$, 36 psi
Art-No. VT1317

hose barb, $\varnothing 0.5$, PP
 $T_{max} = 68\text{ }^{\circ}\text{F}$, 145 psi
 $T_{max} = 140\text{ }^{\circ}\text{F}$, 36 psi
Art-No. XVT1069

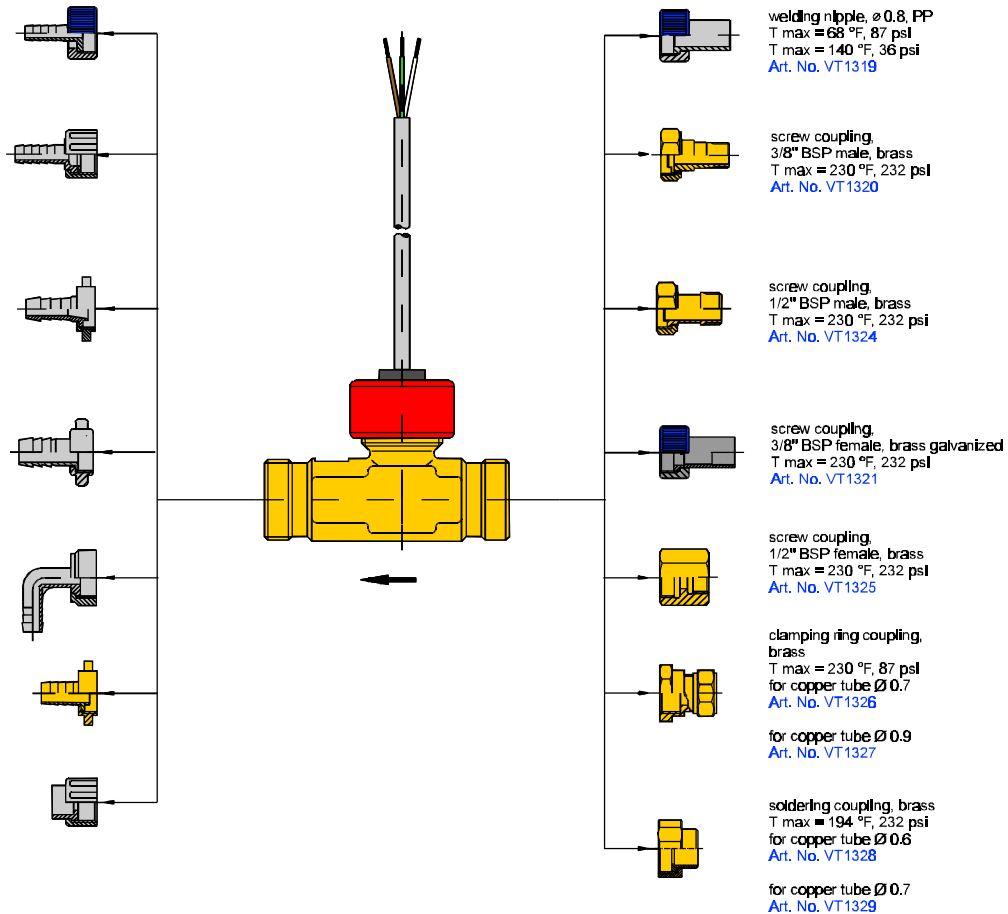
hose barb, $\varnothing 0.6$, HDPE
 $T_{max} = 68\text{ }^{\circ}\text{F}$, 145 psi
 $T_{max} = 140\text{ }^{\circ}\text{F}$, 36 psi
Art-No. VT1322

hose barb, $\varnothing 0.7$, HDPE
 $T_{max} = 68\text{ }^{\circ}\text{F}$, 145 psi
 $T_{max} = 140\text{ }^{\circ}\text{F}$, 36 psi
Art-No. VT1323

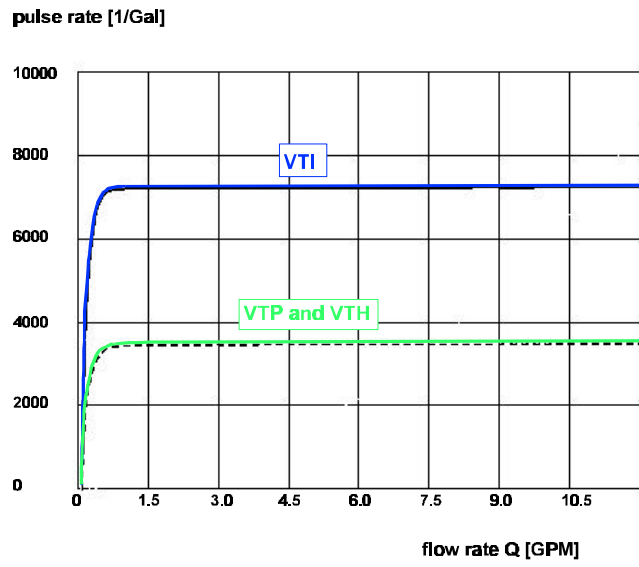
hose barb, angled shaped,
 $\varnothing 0.5$, PP
 $T_{max} = 140\text{ }^{\circ}\text{F}$, 145 psi
Art-No. VT1318

hose barb, $\varnothing 0.5$, brass
 $T_{max} = 194\text{ }^{\circ}\text{F}$, 145 psi
Art-No. XVT1005

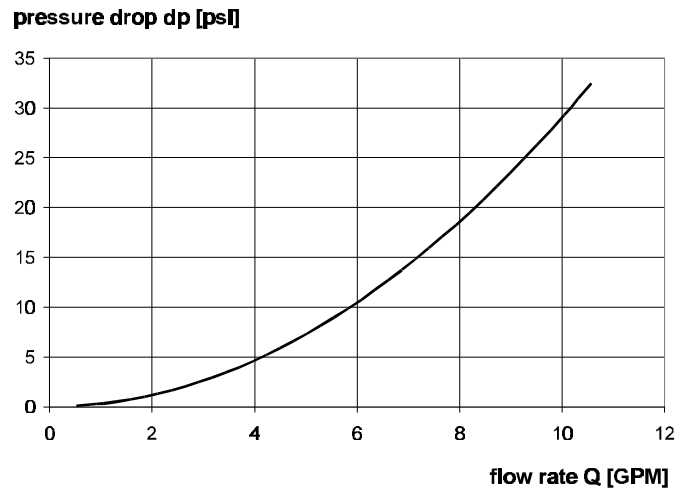
bonding socket, $\varnothing 0.9$, PVC
 $T_{max} = 68\text{ }^{\circ}\text{F}$, 145 psi
 $T_{max} = 140\text{ }^{\circ}\text{F}$, 36 psi
Art-No. VT1316



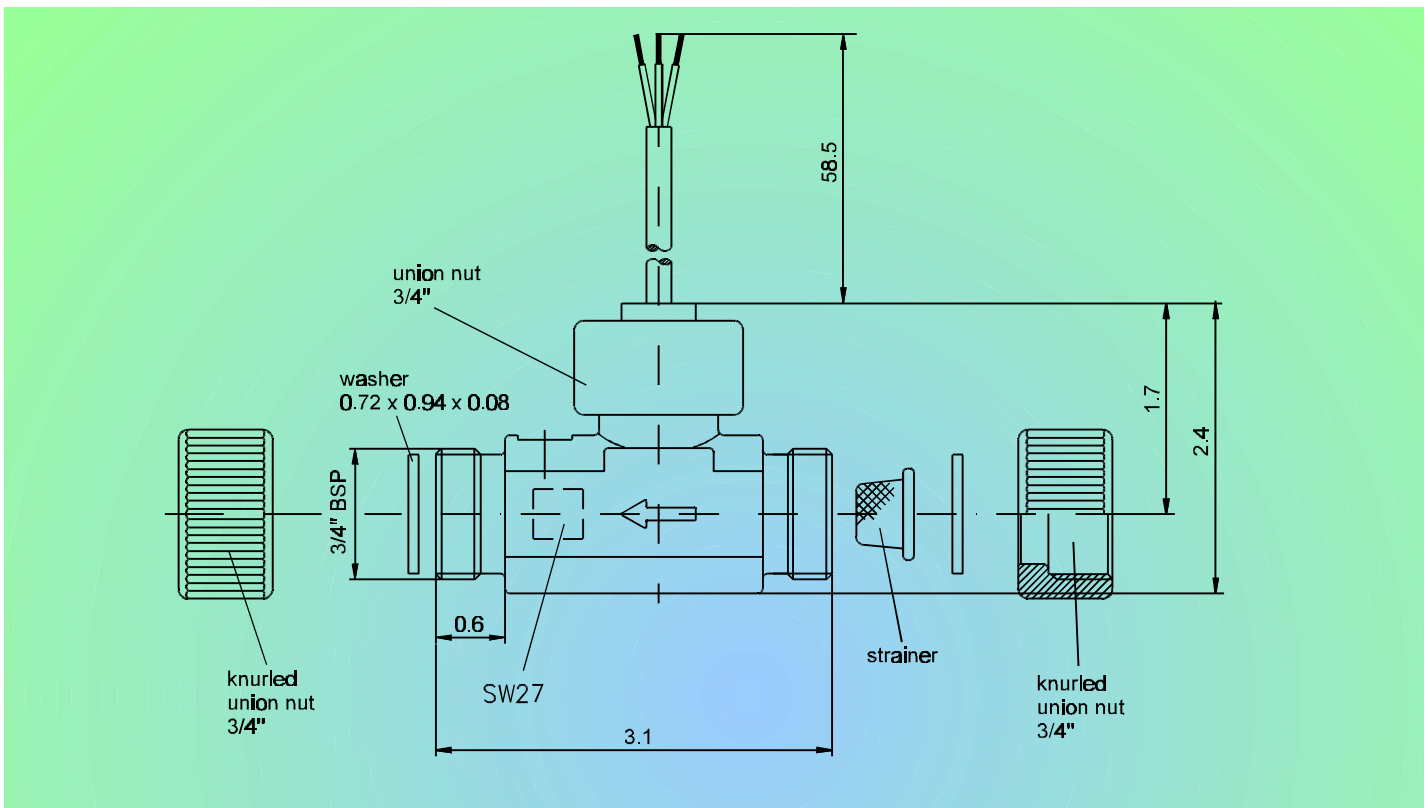
Characteristic curve



Pressure drop



Dimensions



Turbine flow sensors for liquids, Turbotron Series

1" BSP ... compact and reliable!

Turbotron VT 25 with pulse output

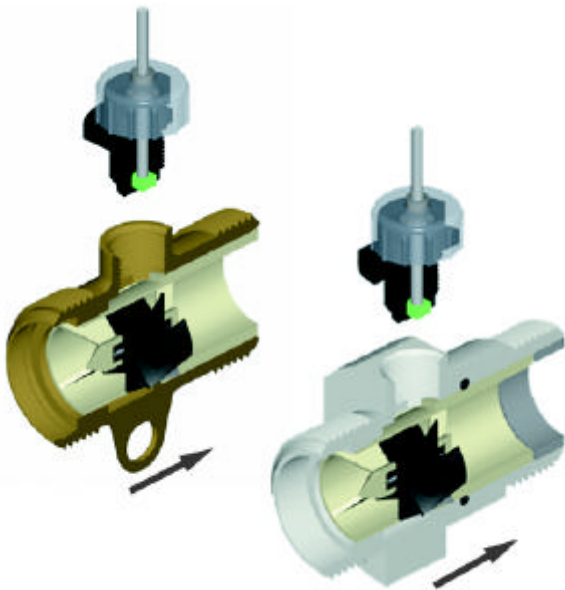
The Turbotron flow sensors are designed for flow rate measurement or dosing of liquids. With a compact shape, very wide measuring range and precise measurement, it has an almost unlimited application.

Superior features

- fixed pulse rate, thus practically no deviation
- wide turn down ration 1:40, universally usable
- high-quality sapphire bearing, low abrasion and extremely long running period
- may be installed in any position
- available materials: plastic, brass and stainless steel
- plug adapter or fixed connecting cable.



Design and function



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.

Schematic representation

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	
	brass	plastic PP	brass	stainless steel	brass	plastic PP
Material, pipe section	brass	plastic PP	brass	stainless steel	brass	plastic PP
Size	1"					
Measurement range	1.1...41.6 GPM, max. 20.8 GPM with continuous operation					
Accuracy	± 3 % of reading					
Reproducibility	± 0.5 %					
Signal output from	< 0.26 GPM					
Max. size of particles in the medium	0.02"					
Output signal - pulse rate / K-factor - resolution	258 pulses/GAL 3.9 mG/pulse					
Signal waveform	NPN open collector				PNP open collector	
Signal current	max. 20 mA				max. 10 mA	
Sensor	Hall effect sensor		Hall effect sensor		inductive proximity switch	
max. medium temperature	185 °F	176 °F at 29 psi 140 °F at 72.5 psi 85 °F at 145 psi	185 °F		140 °F	140 °F at 72.5 psi 85 °F at 145 psi
Nominal pressure	145 psi		725 psi		145 psi	
Process connection	1¼" BSP male thread*	1¼" BSP male thread	1¼" BSP male thread*			1¼" BSP male thread
Electrical connection	6.6 Ft PVC cable, shielded (T _{max} = 167 °F)		4-pin plug connector M12x1			
Power supply	4.5...24 VDC				10...30 VDC	
Type of protection	IP 54 - NEMA 3					
Option						
Strainer	Flat filter, mesh size 0.03"					

* 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 CW602N	PP	Brass CuZn36Pb2As CW602N	Stainless steel 316 SS	Brass CuZn36Pb2As CW602N	PP
Turbine cage	PPO Noryl GFN 3V 960					
Rotor	PPO Noryl GFN 2V 73701					
Rotor assembly	Magnets, Recona 28 nickel-plated				Stainless steel 303 SS	
Shaft	Stainless steel 316 SS					
Bearing	Sapphire / PA					
Housing for Hall sensor	PPO Noryl GFN 1630 V		Brass	Stainless steel 316 SS	POM Delrin 100 P	
O-ring	72 NBR 872					
Strainer (option) associated O ring	St. st. 304 SS 70 EPDM 281	-	Stainless steel 304 SS 70 EPDM 281			-
Spacer	-	PP	-	-	-	-

Options

Please specify in the order code:

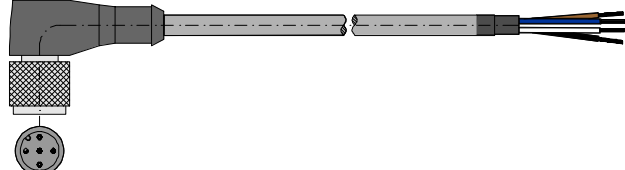

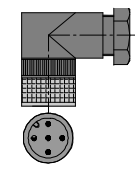
- Strainer, in the inlet
- turbine flow transmitter, analog output, 4...20 mA, description see page 20
- turbine flow switch (contact), description see page 22 and 23

Order code

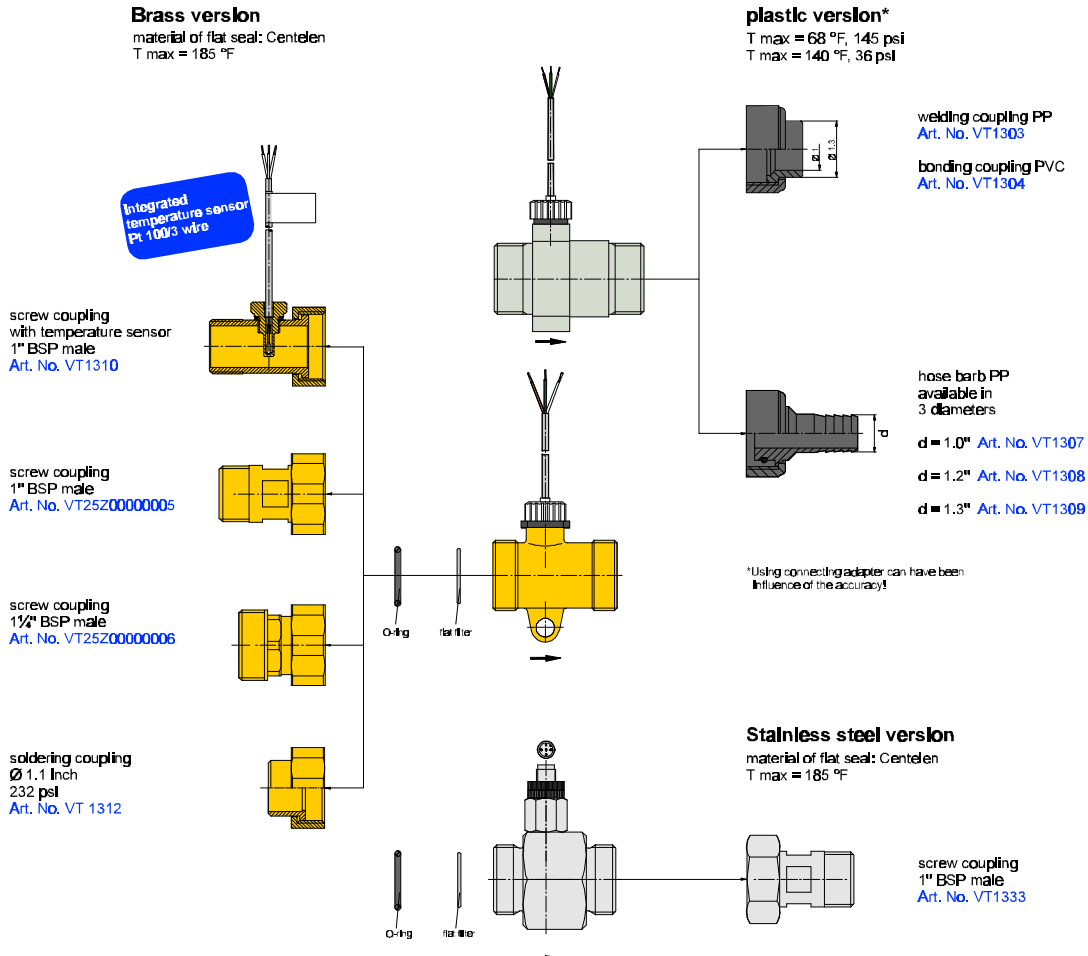
Order number	VT2511	XX	XX	X	000	X*	X*
Material of pipe section	Brass	MS					
	Plastic PP	K6					
	Stainless steel	VA					
Type	VTH		HN				
	VTM		MN				
	VTI		IP				
Electrical connection	Cable (only VTH)			P			
	4 pin connector M12x1 (only VTI, VTM)			S			
Options							
Filter	Flat filter (only brass or stainless steel version)					F	
	none					0	
Electronics	incl. transducer 4...20 mA (only with plug connector M12x1) corresponds with 0...15 GPM corresponds with 0...25 GPM corresponds with 0...40 GPM						L M N
	Switching output VE (only with plug connector M12x1)						6
	Switching output VE with pulse output (only with plug connector M12x1)						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.

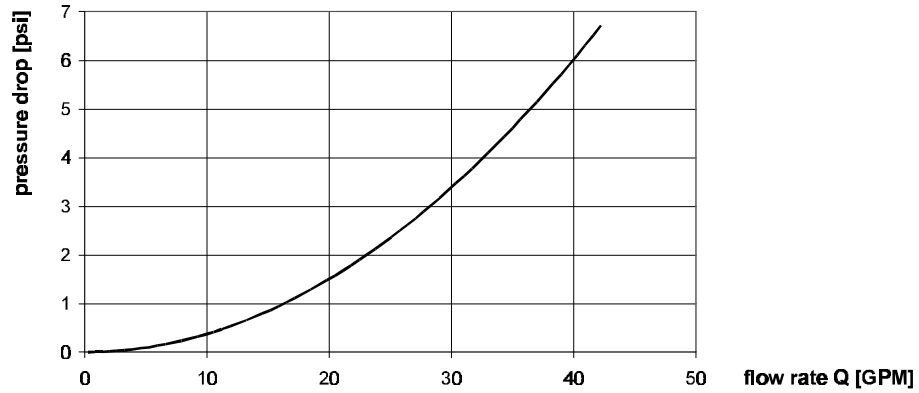
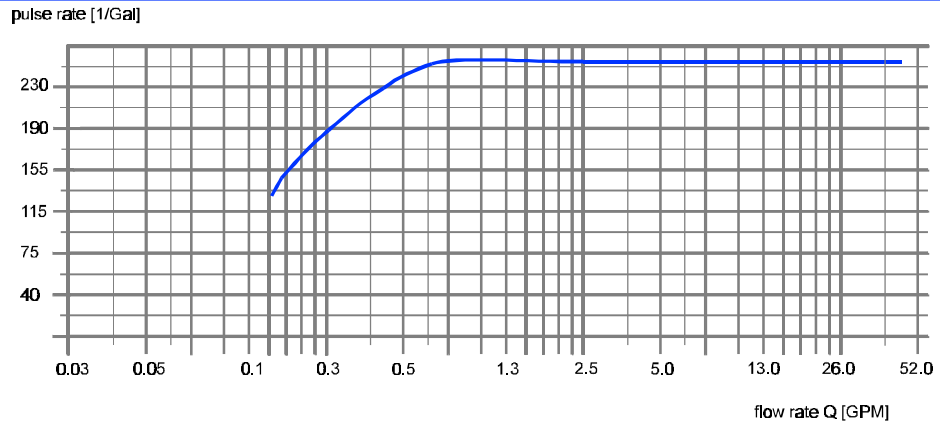
Accessory

Accessory part	Order code	
Connection cable with 4-pin cable socked M12x1, angle type, molded lead, sheathing material PUR, screened, length 10 Ft ($T_{max} = 176\text{ }^{\circ}\text{F}$)	XVT 2053	
Connection cable on the top, but length 16.5 Ft Connection cable on the top, but length 33 Ft	XVT 2009 XVT 2070	
4-Pin cable socket M12x1 angle type unassembled	VT 1331	

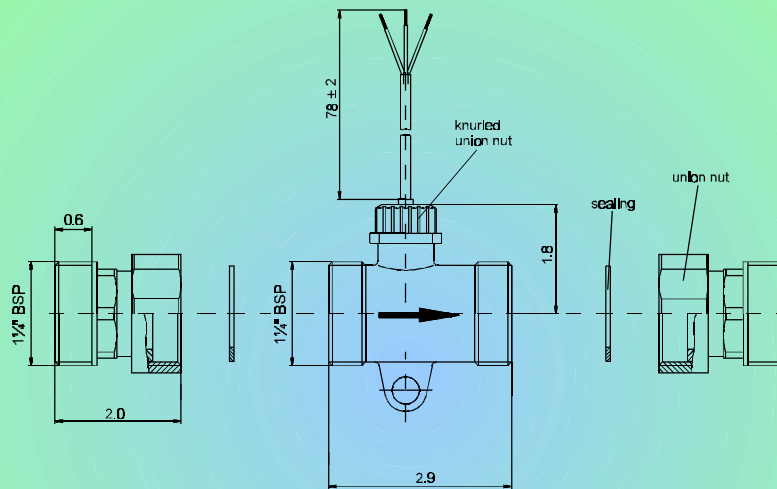
Connecting adapter, delivery piecemeal see following drawing.



Characteristic curve and pressure drop



Dimensions



Turbine flow sensors for fluids, Turbotron Series

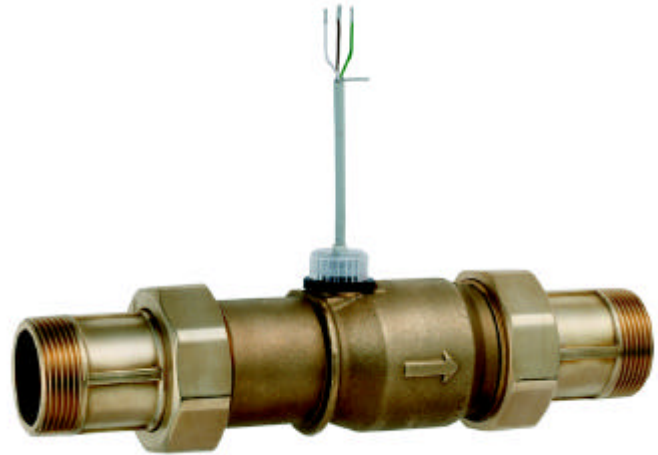
1½" BSP ...robust and versatile!

Turbotron VT 40 with pulse output

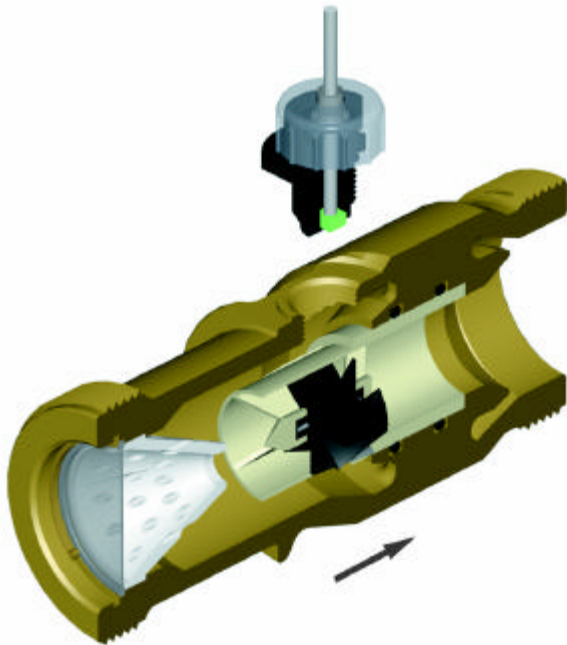
The Turbotron flow sensors are designed for flow rate measurement or dosing of liquids. With a compact shape, very wide measuring range and precise measurement, it has an almost unlimited application.

Convincing advantages

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



Design and function



Schematic representation

A plastic turbine system is placed in the center of the brass turbine body.

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
Size	1½"		
Measurement range	1.8...110 GPM		
Accuracy	±5 % of reading between 1.8...13.2 GPM ±3 % of reading between 13.2...110 GPM		
Reproducibility	±0.5 %		
Signal output starting from	0.44 GPM		
max. particle size in the medium	0.02"		
Output signal - pulse rate / K-factor - resolution	102.3 pulses/GAL 9.8 mG/pulse		
Signal waveform	NPN open collector		PNP open collector
Signal current	max. 20 mA		max. 10 mA
Sensor type	Hall effect sensor	Hall effect sensor	inductive proximity switch
Max. medium temperature	185 °F	185 °F	140 °F
Nominal pressure	145 psi	725 psi	145 psi
Process connection	2" BSP male thread, supplementary screwed connection recommended		
Electrical connection	6.6 " PVC cable, shielded (T _{max} = 167 °F)	4 pin plug connector M12x1	
Power supply	4.5...24 VDC		10...30 VDC
Type of protection	IP 54 - NEMA		
Integrated Strainer	Flat filter, mesh size 0.03 "		

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 303 SS
Shaft	Stainless steel 316 SS		
Bearing	Sapphire / PA		
Housing for Hall sensor	PPO Noryl GFN 1630 V	Brass	POM Delrin 100 P
O-ring	72 NBR 872		
Flow guiding cone	POM Celcom		
Strainer	Stainless steel 304 SS		
Retaining ring	Bronze 2.1030.34		

Options

Please specify in the order code:

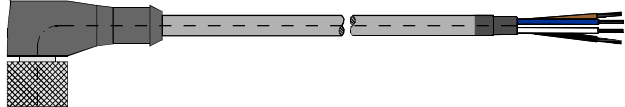

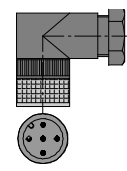
- turbine flow transmitter, analog output, 4...20 mA, description see page 20
- turbine flow switch (contact), description see page 22 and 23

Order code

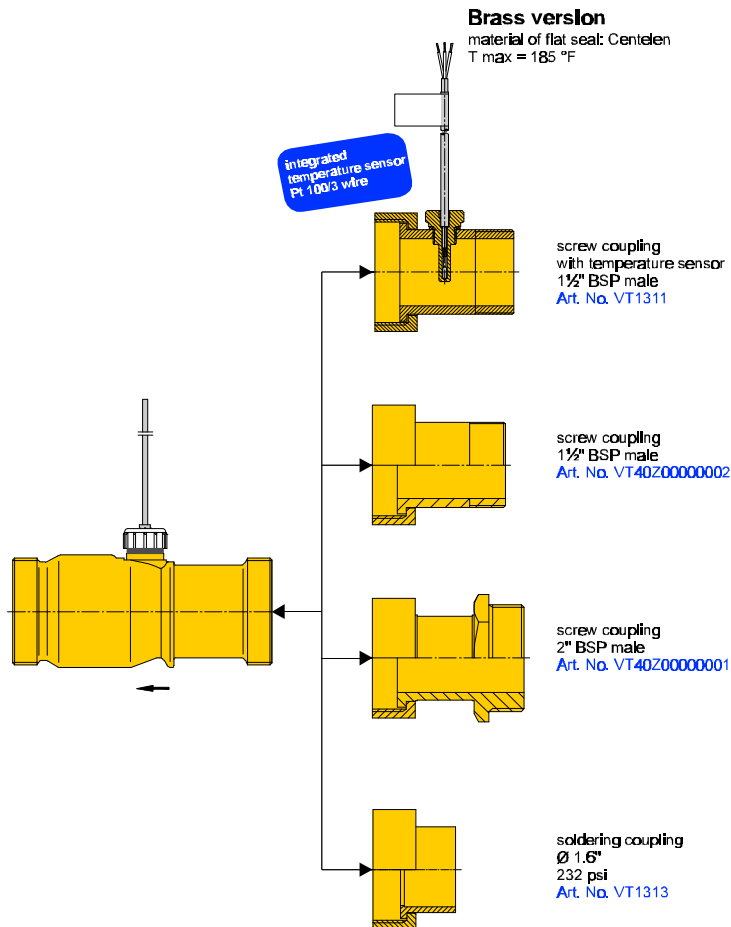
Order number		VT4025MS	XX	X	000	F	X*
Type	VTH		HN				
	VTM		MN				
	VTI		IP				
Electr. connection	Cable (only VTH)			P			
	4 pin connector M12x1 (only VTI, VTM)			S			
Options							
Electronics	including transducer 4...20 mA (only with plug connector M12x1) corresponds with 0...40 GPM corresponds with 0...65 GPM corresponds with 0...100 GPM						L M N
	Switching output VE (only with plug connector M12x1)						6
	Switching output VE with pulse output (only with plug connector M12x1)						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.

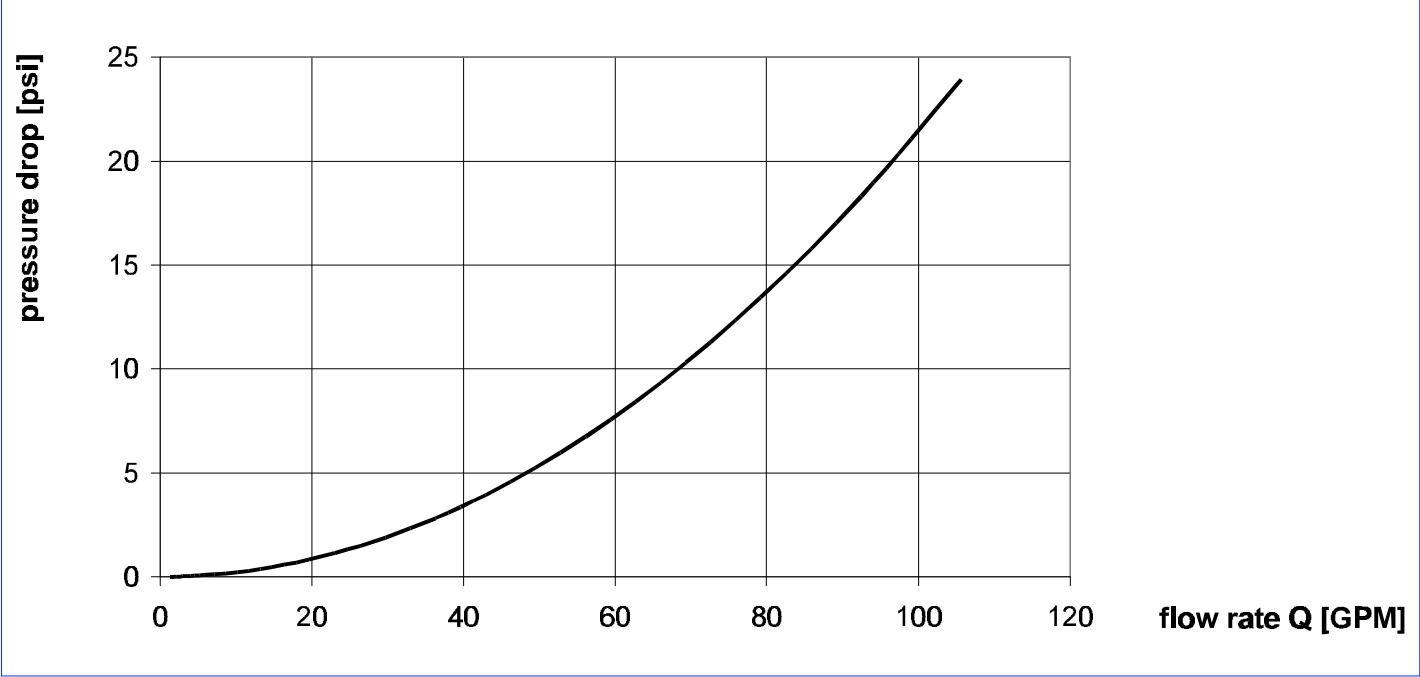
Accessory

Accessory part	Order code	
Connection cable with 4-pin cable connector M12x1, angle type, molded lead, sheathing material PUR, shielded, length 10 " ($T_{max} = 176 \text{ }^{\circ}\text{F}$)	XVT 2053	
Connection cable on the top, length 16.5 " Connection cable on the top, length 33 "	XVT 2009 XVT 2070	
4-Pin cable socket M12x1 angle type unassembled	VT 1331	

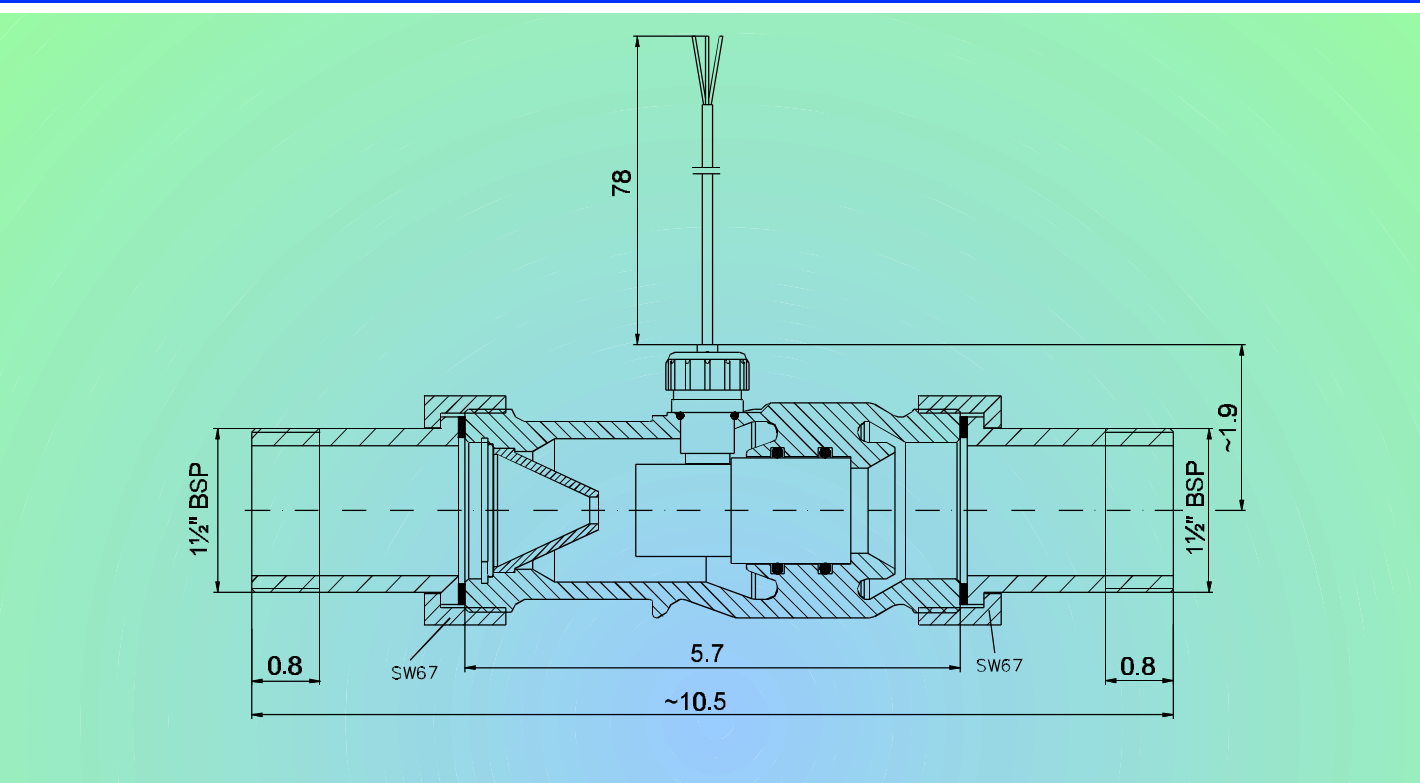
Connecting adapter, delivery unassembled see following drawing.



Pressure drop



Dimensions



Turbine flow transmitter, Turbotron AI with analog output

...flexible and of high performance!

Local transducer for flow sensors

Instead of the pulse signal, an analog current signal
4...20 mA is available.



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 176 °F
Casing material	plastic PA

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
- 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 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, m ³ /h, USGPM, IGPM total flow: l, m ³ , USGAL, GAL (UK) temperature: °C, resolution: 0.5 °C		
Casing	Dimensions	aluminum, hollow profile, golden anodized	5 x 2.7 x 0.8 " (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	

Turbine flow switch, Turbotron VE with switched output

High accuracy, adjustable switch - No set points.

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.

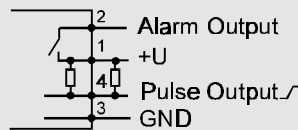
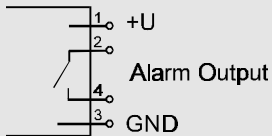
A great number of different applications are covered by a very simple selection of the set point.

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 a “no flow” condition)
- precise set point adjustment
- optical signaling by 2 LEDs, yellow = flow, red = no flow
- 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. A microprocessor 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 easily and precisely by means of a 16-position rotary switch (resting), the desired set point is selected (see page 23).



Set point tables



16-position rotary switch for set point adjustment

VT..15..VE (½" BSP)

Switch position	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
Set point decreasing flow (GPM)*	0.1	0.3	0.4	0.5	0.7	0.8	0.9	1.2	1.4	2.0	2.5	3.0	4.0	5.1	6.4	7.7
Set point increasing flow*	0.13 GPM above the set point decreasing flow															

VT..25..VE (1" BSP)

Switch position	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
Set point decreasing flow (GPM)*	0.8	1.3	1.6	2.1	2.6	3.1	3.9	4.7	5.2	6.5	7.8	9.1	10.4	13	18.2	26
Set point increasing flow (GPM)*	1.3	1.8	2.1	2.6	3.1	3.6	4.4	5.2	5.7	7.0	8.6	9.9	11.4	14.3	19.5	27.3

VT..40..VE (1½" BSP)

Switch position	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
Set point decreasing flow (GPM)*	1.8	2.6	3.9	5.2	6.5	7.8	9.1	10.4	13	16.9	20.8	26.0	33.8	41.6	52.0	71.5
Set point increasing flow (GPM)*	2.6	3.4	4.9	6.3	7.8	9.1	10.4	12.2	15.1	19.5	23.4	30	39	49.4	59.8	80.6

* The specified values refer to operation with water at 68 °F. 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	½" BSP 1" BSP 1½" BSP	0.1 ... 7.7 GPM / ±0.05 GPM and ±2% of set point 0.8 ... 26 GPM / ±0.2 GPM and ±4% of set point 1.8 ... 71.5 GPM / ±0.5 GPM 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 open collector, max. 100 mA	
Switching hysteresis	0.13 GPM (½" BSP)	0.5...1.3 GPM (1" BSP) 0.8...9.1 GPM (1½" BSP)
Power supply	12...24 VDC	
Current consumption	max. 25 mA	
Type of protection	IP 54 with closed sleeve and connected socket - NEMA 3	
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 176 °F	
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!

The compact turbine flow switches 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 set point adjustment are hardly accessible. Since the TU 8051-2 is equipped with two channels, even two measurement points can be monitored (precondition: two identical flow sensors).



Set point tables

for VT..15..VE (½" BSP)

Switch position	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
Set point decreasing flow (GPM)*	0.1	0.3	0.4	0.5	0.7	0.8	0.9	1.2	1.4	2.0	2.5	3.0	4.0	5.1	6.4	7.7
Set point increasing flow*	0.13 GPM above the set point decreasing flow															

for VT..25..VE (1" BSP)

Switch position	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
Set point decreasing flow (GPM)*	0.8	1.3	1.6	2.1	2.6	3.1	3.9	4.7	5.2	6.5	7.8	9.1	10.4	13	18.2	26
Set point increasing flow (GPM)*	1.3	1.8	2.1	2.6	3.1	3.6	4.4	5.2	5.7	7.0	8.6	9.9	11.4	14.3	19.5	27.3

for VT..40..VE (1½" BSP)

Switch position	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
Set point decreasing flow (GPM)*	1.8	2.6	3.9	5.2	6.5	7.8	9.1	10.4	13	16.9	20.8	26.0	33.8	41.6	52.0	71.5
Set point increasing flow (GPM)*	2.6	3.4	4.9	6.3	7.8	9.1	10.4	12.2	15.1	19.5	23.4	30	39	49.4	59.8	80.6

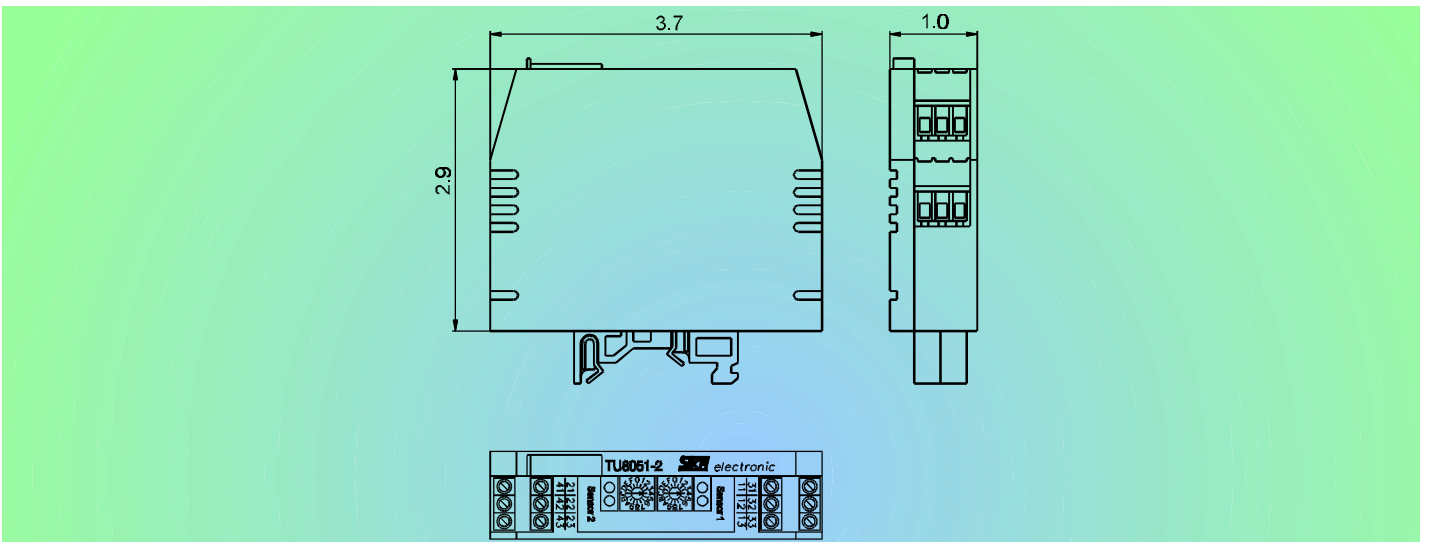
* The specified values refer to operation with water at 68 °F. Monitoring of fluids with higher viscosities is possible with the effect of deviations from the mentioned values.

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

Technical data

Signal input	Frequency signals of up to two identical flow sensors VTH 15 / VTP 15 VTI 15 VTH 25 / VTM 25 / VTI 25 VTH 40 / VTM 40 / VTI 40
Set point range	0.1...7.7 GPM with VT...15 0.8...26 GPM with VT... 25 1.8...71.5 GPM with VT...40
Set point adjustment	using two 16-position rotary switches, 16 different set 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	0.13 GMP with VT...15 0.5...1.3 GMP with VT...25 0.8...9.1 GMP with VT...40
Max. contact rating	250 VAC, 300 VA
Power supply	12...24 VDC
Casing	Plastic casings for assembly rail setup, 1.0 x 3.7 x 2.9 " (W x D x H)
Ambient temperature	32 ...140 °F
Storage temperature	14...176 °F

Dimensions



Order code

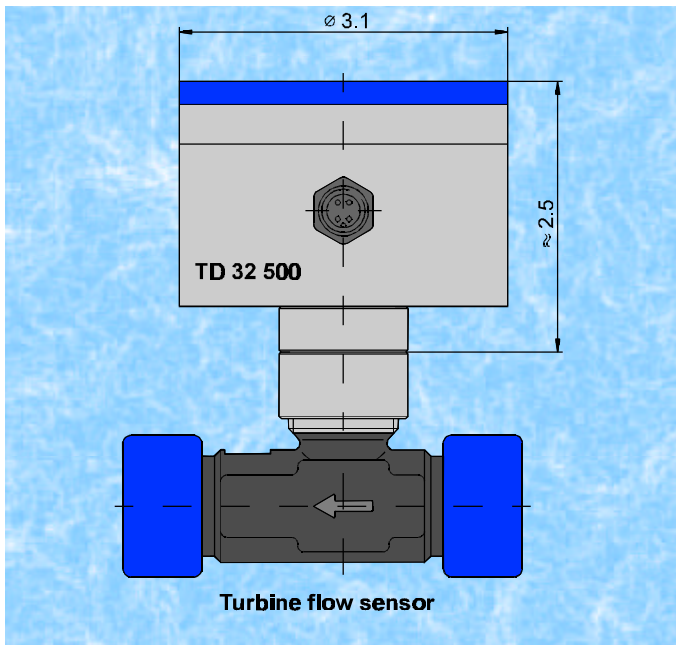
Order number	EU80500	XXX	2296
Connected turbine flow sensors	VTH 15 / VTP 15 VTI 15 VTH 25 / VTM 25 / VTI 25 VTH 40 / VTM 40 / VTI 40	H15 I15 H25 H40	

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



The perfect team!



Options

- additional temperature display, input for resistance thermometer Pt 100/ 3-wires
- analog 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 14...302 °F
Programming	Menu-driven with two light reflex buttons
Display	2-line LC-display with 16 characters per line, character height: 0.2 "
Programmable units	l/min, l/h, m ³ /h, GPM (US), GPM(UK) l, m ³ , GAL(US), GAL(UK), °C, °F
Power supply	12...24 VDC
Power supply to sensor	12 VDC
Ambient temperature	-4...140 °F
Temperature of medium through the flow sensor	depending on type of sensor, maximum -4..194 °F
Analog 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 3.1 ", height 2.2 ", 350° rotating
Protection class	IP 65 -NEMA 4
Electrical supply	PVC-connection cable, 6.6 Ft or plug connector M12x1

Order Code

Order number	ED 325	X	X	1000	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	6.6 Ft cable plug M12x1						1 2	
Number of pins/leads	laid down by SIKA, depending on requirements							0