RHT SERIES

wert.i sensors & controls

TEMPERATURE & HUMIDITY TRANSMITTER

The RHT series relative Humidity and Temperature Transmitter are designed for building automation systems in the HVAC/R industry. The combination of high accuracy, stability and reliable operation makes this product the ideal choice for demanding applications.

Features

- High performance digital sensors and circuits, ensure accurate measurement and temperature compensation
- Digital technology applied, multiple outputs optional, over voltage and reverse polarity protection, high reliability and anti-interference capability
- LCD display temperature and humidity alternatively
- LCD & function keys can set parameters and calibrate output, so the product can be a stand alone controller

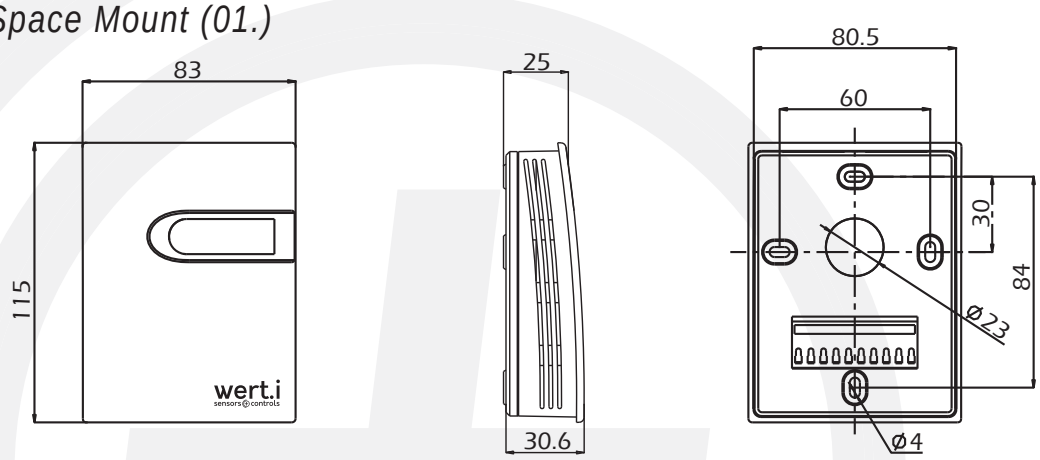
Specifications	
Humidity sensor	Digital polymer
Accuracy* at 25 °C	Standard : ±2 %RH (20...80 %RH), ±0.3 °C
Measurement range	0...50 °C/ 0...100 %RH
Drift	< ±0.5 %RH/year
Hysteresis	< ±1.0 %RH
Response time	< 10 s
Operating range	-30...70 °C (with display 0...50 °C) / 5...95 %rH non condensing
Output signal	Current: 4...20mA (DC) / Voltage: 0...10V (DC)
Communication	RS-485
Relay output	Max Switching voltage: 250 VAC ; Max Switching Current: 2.5A (*resistive load)
Power supply	Current model :18.5...35VDC (R_{load}=500Ω) Voltage model :16...35VDC / 16...28VAC
Min. / Max. load	≤500Ω (current), ≥2KΩ (voltage)
Housing material	ABS
IP Protection	Space mount: IP30 / Duct, Wall & Remote sensor : IP65

RHT SERIES

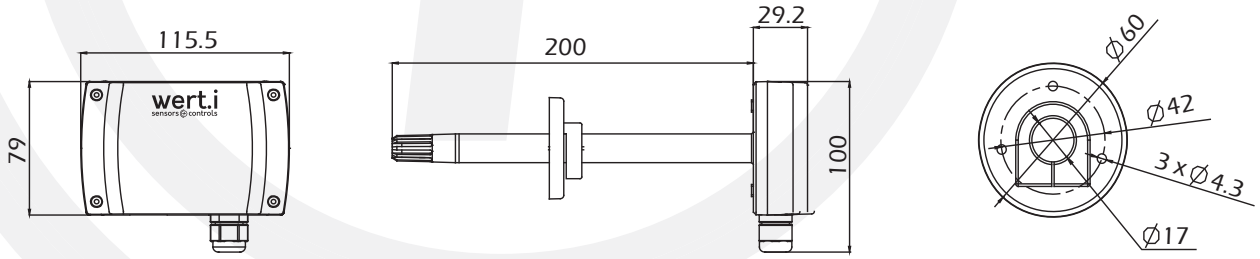
wert.i sensors controls

Dimensions (in mm)

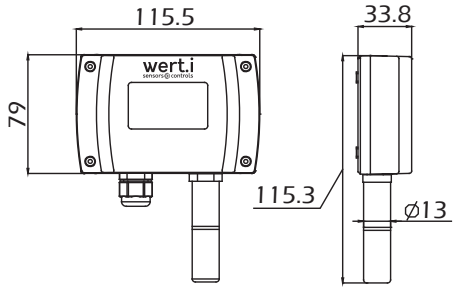
Space Mount (01.)



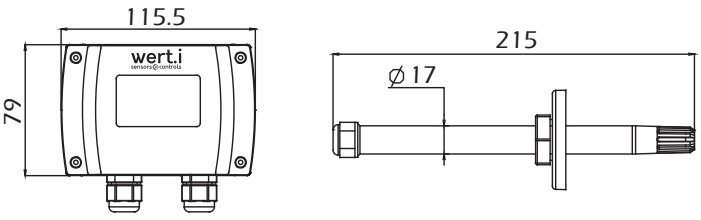
Duct Mount (02.)



Wall Mount (03.)



Remote Sensor (04.)

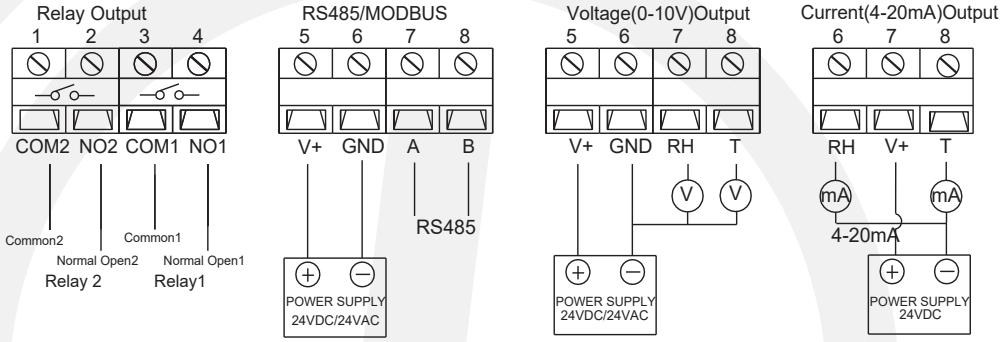


RHT SERIES

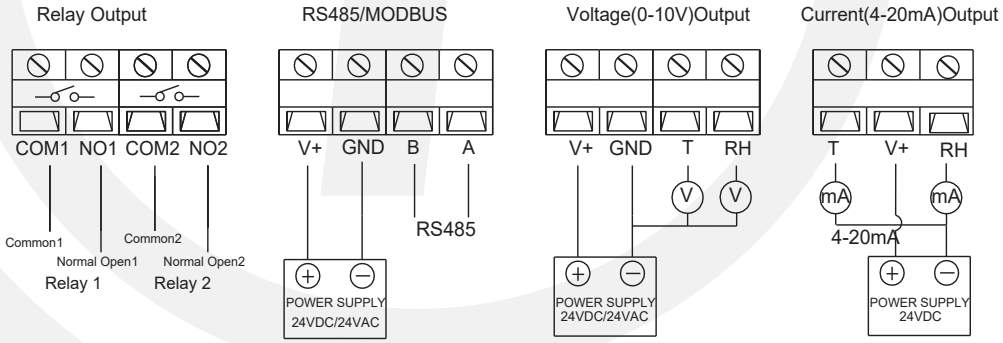
wert.i sensors controls

Connection Diagram

Space Mount



Duct Mount, Wall Mount & Remote Sensor



Ordering code

ITEM	CODE	
SERIES	RHT.	TEMPERATURE & HUMIDITY TRANSMITTER
TYPE	01.	Space Mount
	02.	Duct Mount
	03.	Wall Mount
	04.	Remote Sensor
OUTPUT SIGNAL	420	Current: 4 – 20mA DC (2 X 2 Wire)
	010	Voltage: 0 – 10V DC (3 / 4 Wire)
	485	RS485/ MODBUS
DISPLAY / KEYPAD	N	Without
	D	With Display
	K	Display with Keypad
CONTACT OUTPUT	N	Without
	R	2 X SPST (4 – 20mA N/A)

TT SERIES

wert.i sensors & controls

TEMPERATURE TRANSMITTER

The TT series temperature transmitter for measuring air temperature and other gaseous media (e.g. in ventilation and air conditioning systems). The TT series incorporate the best high accuracy and great stability temperature sensors. They convert the measured values into linear 4 to 20 mA and 0 to 10 Vdc output signals.

Features

- Space, Duct, Wall, Remote and Strap-On available
- Digital technology applied, multiple outputs optional, over voltage and reverse polarity protection, high reliability and anti-interference capability
- LCD & function keys can set parameters and calibrate output, so the product can be a stand alone controller
- Optional relay output for alarm or on/off control

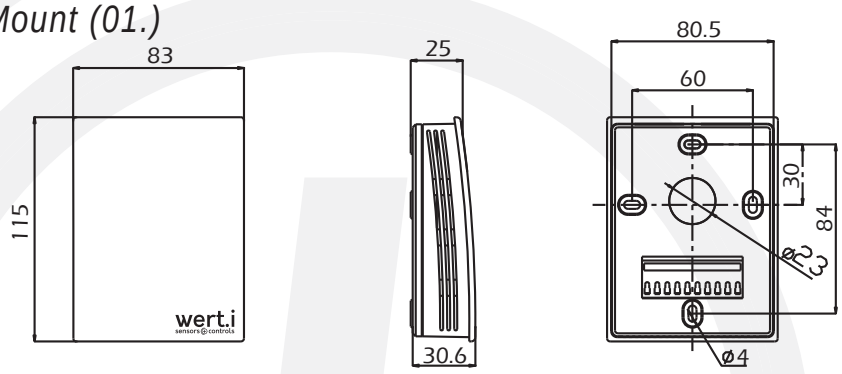
Specifications	
Measuring values	Temperature
Accuracy	±0.5 °C @ 0...50°C
Measuring range	Standard : 0...50 °C Option : 0...100 °C
Power supply	Current model 4...20mA 2 wire):18.5...35VDC Voltage model :16...35VDC / 16...28VAC
Output signal	Current: 4...20mA (DC) / Voltage: 0...10V (DC)
Output load	≤500Ω (current), ≥3KΩ (voltage)
Communication	RS-485 Modbus RTU
Relay output	1×SPST, 3A/30VDC, 3A /250VAC
Display and Keys	4 digits LCD, with unit indication, backlight, 3 touch keys,
Display Resolution	0.1 °C
Operating range	-30...70 °C (with display 0...50 °C) / 5...95 %rH non condensing
Cable for Remote Sensor (04.)	Black, silicone, 3*0.3mm², 1m length, -60...180°C, Rconductor=0.069Ω/m, Rinsulation >100MΩ (25°C)
Hose Clamp for Strap-on sensor(05.)	Stainless Steel, Diameter 15~150mm
Housing material	ABS + PC
IP Protection	Space mount: IP30 / Duct, Wall, Remote Sensor & Strap-On : IP65

TT SERIES

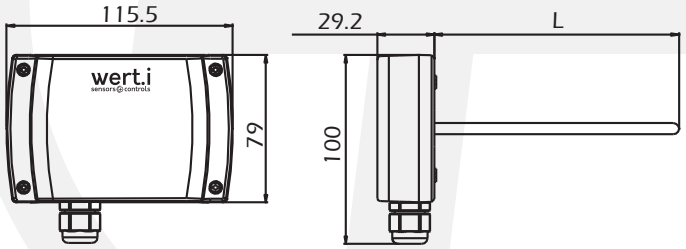
wert.i sensors & controls

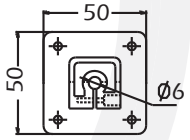
Dimensions (in mm)

Space Mount (01.)

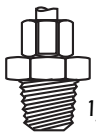


Duct / Immersion Mount (02.)



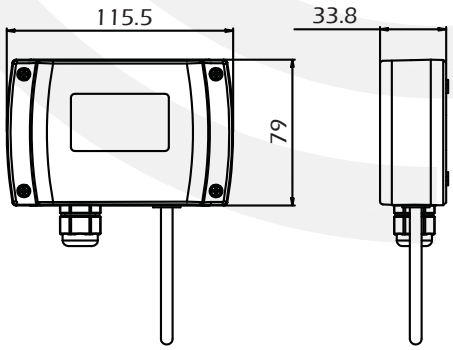


Flange for Duct mounting
(Standard accessories)

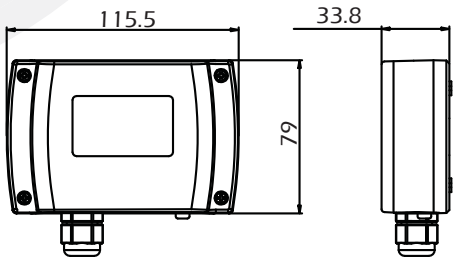


Compression Fitting
(Available upon request)

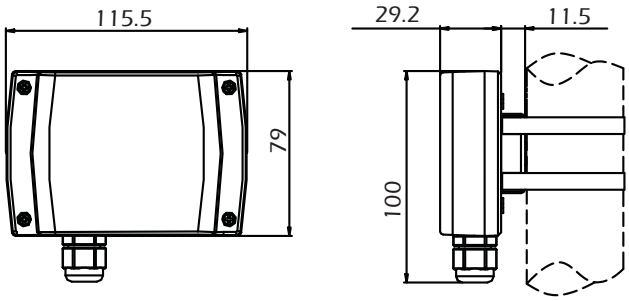
Wall Mount (03.)



Remote Sensor (04.)



Strap-on (05.)



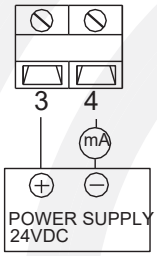
TT SERIES

wert.i sensors controls

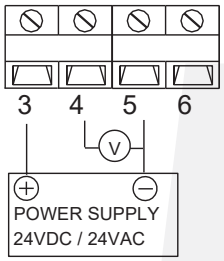
Connection Diagram

Space Mount

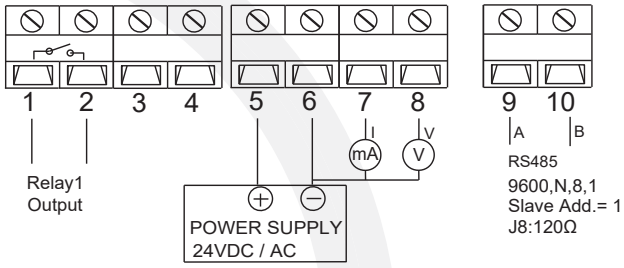
Output Code: 420
4 – 20mA DC (2 wire)



Output Code: 010
0 – 10V DC (3 wire)

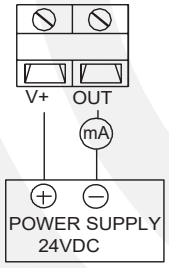


Output Code: Contact output (R) / 421 / 485
1 X SPST / 4 – 20mA DC / 0 – 10V DC / RS485 MODBUS

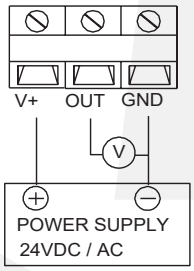


Duct Mount, Wall Mount, Remote Sensor & Strap-On

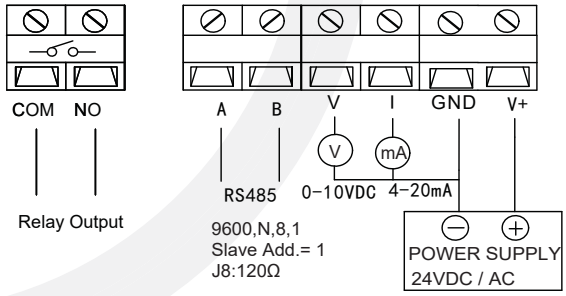
Output Code: 420
4 – 20mA DC (2 wire)



Output Code: 010
0 – 10V DC (3 wire)



Output Code: Contact output (R) / 421 / 485
1 X SPST / 4 – 20mA DC / 0 – 10V DC / RS485 MODBUS



Ordering code

ITEM	CODE				
SERIES	TT.				TEMPERATURE TRANSMITTER
TYPE		01.			Space Mount
		02.			Duct Mount
		03.			Wall Mount
		04.			Remote Sensor
		05.			Strap–On
OUTPUT SIGNAL			420		Current: 4 – 20mA DC (2 Wire)
			010		Voltage: 0 – 10V DC (3 Wire)
			421		4 – 20mA DC / 0 – 10V DC
			485		4 – 20mA DC / 0 – 10V DC / RS485 MODBUS
DISPLAY / KEYPAD				N	Without
				D	With Display
				K	Display with Keypad
CONTACT OUTPUT					N Without
					R 1 X SPST

*Display/Keypad/Contact only available for output signal code 421 & 485
*Standard probe length 200mm for duct mount sensor
*Standard temperature range 0...50°C

PTS SERIES

wert.i sensors & controls

PASSIVE TEMPERATURE SENSOR

The PTS series Duct/Immersion and Space mounted sensor for measuring air temperature and other gaseous media (e.g. in ventilation and air conditioning systems). Combined with a thermowell pocket it can be used as an immersion temperature sensor.

Features

- High performance thermistor & RTD, ensure accurate temperature measurement
- Easy to mount external tab housing and flange options for duct applications
- Wide temperature range and fast response
- High protection rate up to IP65

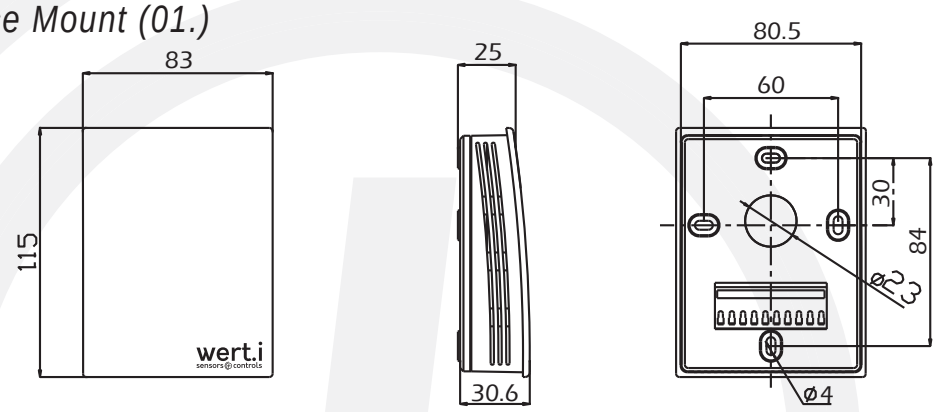
Specifications	
Measuring values	Temperature
Output passive	RTD-PT100 / Thermistor NTC10K-II
Accuracy	RTD-PT100 : ±0.2 °C @ 0 °C Thermistor NTC10K-II: ±0.4 °C @ 25 °C
Measuring range	Space mount : -30...70 °C Duct / Immersion : -40...100 °C
Connection type	2-wire / 3- wire connection
Cable gland	PG9 With Locknut, IP65, for cable diameter 4...9 mm
Protective tube (Duct / Immersion)	Stainless steel Ø6mm Insert length : 200 mm (standard)
Enclosure	ABS
Protection type	Space mount: IP30 | Duct mount / Immersion : IP65

PTS SERIES

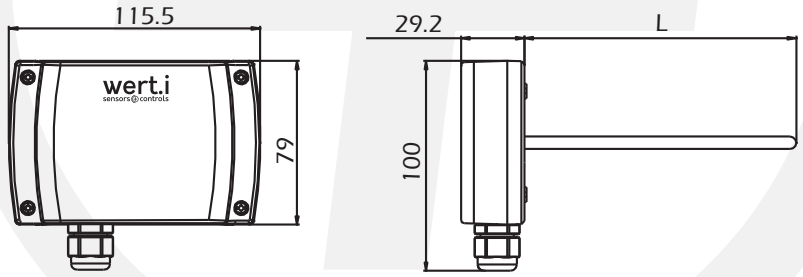
wert.i sensors controls

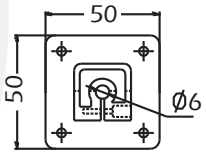
Dimensions (in mm)

Space Mount (01.)

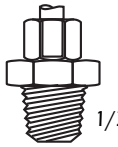


Duct / Immersion Mount (02.) 50





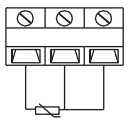
Flange for Duct mounting (Standard accessories)



Compression Fitting for Immersion mounting (Available upon request)

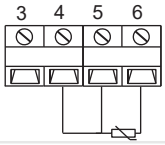
Connection Diagrams

Duct / Immersion mount



	2-wire	3-wire
1	Thermistor	PT100 (A)
2	Thermistor	PT100 (B)
3	-	PT100 (b)

Space mount



	2-wire	3-wire
4	-	PT100 (b)
5	Thermistor	PT100 (B)
6	Thermistor	PT100 (A)

Ordering code

ITEM	CODE			
SERIES	PTS.			TEMPERATURE SENSOR
TYPE		01.		Space Mount
		02.		Duct / Immersion Mount
SENSOR SIGNAL			100	RTD-PT100
			10K	THERMISTOR 10K-II
REMARKS				Without
			W	With

*Standard probe length 200mm
*Customize lengths available

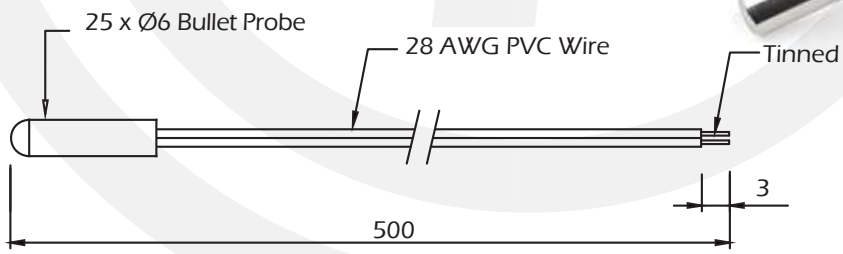
BP10K SERIES

wert.i sensors controls

1” NTC10K BULLET PROBE SENSOR

The BP10K series 1” NTC10K bullet probe sensor with 304 Stainless Steel sheath and flexible lead wire. The BP10K series temperature probes is of stainless steel construction giving the sensor protection in liquids and gases. It has fast response with excellent long term stability and accuracy.

Dimensions (in mm)



Specifications	
Sensor Type	Thermistor
Sensor Curve	Non-Liner,NTC (Nagative Temperature Coefficient)
Sensor Output	NTC 10 KΩ
Accuracy	±5.7 °C @ 25 °C
Response Time	<10 Seconds
Operation temperature	-30 °C ...90 °C
Resistance	R25 = 10KΩ ±3.0 %
B Value	B25/85 = 3975 K ±1.5 %
Probe Material	304 Stainless Steel
Dimensions	25mm x 6mmØ
Lead Length	500mm

CDT SERIES

wert.i sensors controls

CARBON DIOXIDE (CO_2) TRANSMITTER

The CDT series transmitter is a stand-alone carbon dioxide (CO_2) sensor for use in determining ventilation necessity with HVAC controllers. The CDT series measures the CO_2 concentration in the ventilated space or duct. The CDT is used in ventilation and air conditioning systems to control the amount of fresh outdoor air supplied to maintain acceptable levels of CO_2 in the space.

Features

- High performance NDIR digital sensor and circuit, ensure precise measurement and temperature compensation
- Stable, reliable and fast response
- over voltage and reverse polarity protection, high reliability and anti-interference capability
- 15 years sensor life without maintenance
- LCD & function keys can set various parameters, calibrate and adjust output, so the product can be a stand alone controller

Specifications	
Sensor	NDIR sensor, with ABC algorithm*
Sampling Method	Diffusion
Accuracy	50 ppm + 5 % reading & 40 ppm + 3% reading
Response time	<120s (30cc/min, low airflow)
Drift	<±10 ppm/year
Range	0~2000 ppm (measurement range 400~2000 ppm)
Output signal	Current: 4...20mA (DC) / Voltage: 0...10V (DC)
Communication	RS-485
Relay output	2×SPST, 3A-30VDC/250VAC
Load resistance	Resistance:≤ 500Ω(Current output), ≥2kΩ(Voltage output)
Power supply	16...35VDC / 16...28VAC
Display	Optional LCD, with unit display
Display resolution	1ppm
Working environment	0...50 °C, 0...85 %RH (Non-cond.)
Storage temperature	-20...60 °C
Housing	ABS+PC (Space mount), fireproof ABS+PC (Duct mount)
Protection	Space mount: IP30 / Duct mount : IP65 / IP30 (Probe)
Weight	Space mount: 135g, Duct mount: 240g

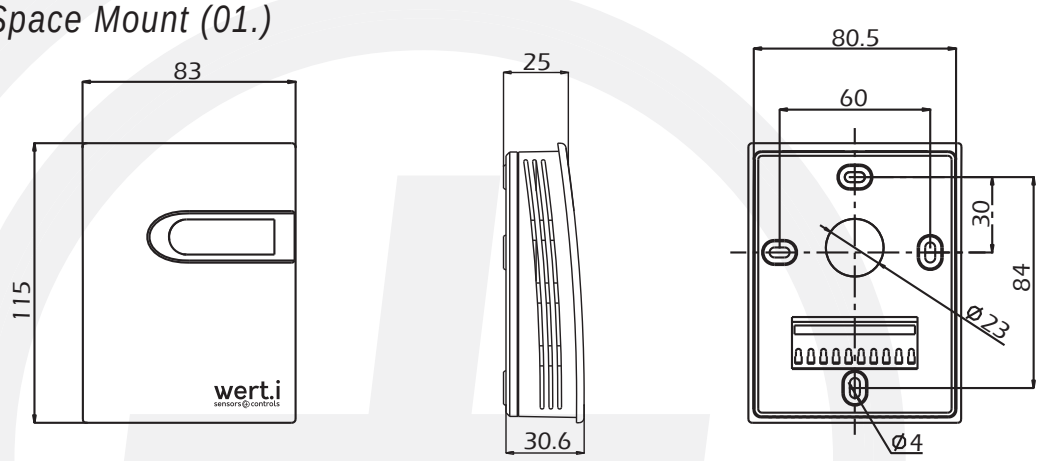
*ABC algorithm: Automatic Baseline Correction, it constantly keeps track of the sensor's lowest reading over a few days interval and slowly corrects for any long term drift detected as compared to the expected fresh air value of 400 ppm CO_2.

CDT SERIES

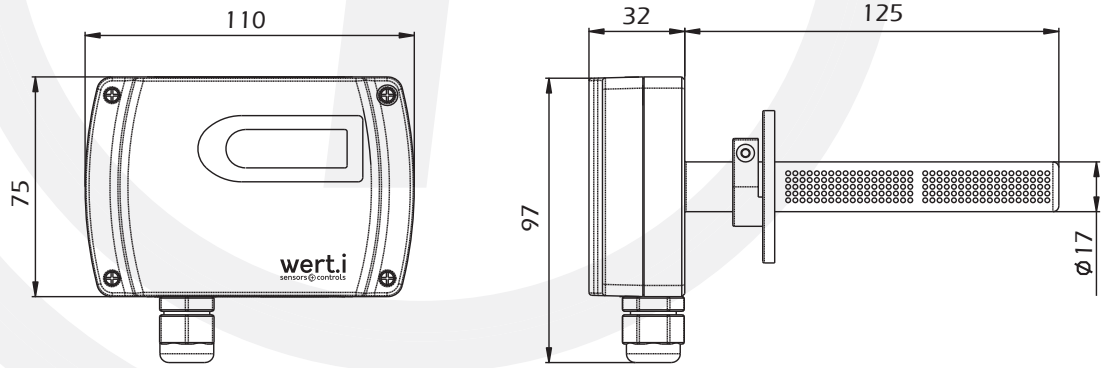
wert.i sensors & controls

Dimensions (in mm)

Space Mount (01.)



Duct Mount (02.)



Ordering code

ITEM	CODE				
SERIES	CDT.				CARBON DIOXIDE TRANSMITTER
ACCURACY	03.				40 ppm +3% of Reading
	05.				50ppm + 5% of Reading
TYPE		01.			Space Mount
		02.			Duct Mount
OUTPUT SIGNAL/ CONTACT OUTPUT			421.		4 – 20mA DC / 0 – 10V DC
			485.		RS485 MODBUS
			48R.		RS485 MODBUS & 2 X SPST Contact**
			R.		2 X SPST Contact **
DISPLAY / KEYPAD				N	Without
				D	With Display
				K	Display with Keypad**

**Applicable for Space Mount (01.) & Contact output (48R / R.) model only

PMT SERIES

wert.i sensors controls

PM2.5/10 PARTICULATE MATTER TRANSMITTER

The PMT series Particulate Matter Sensor is a laser-based sensor which detects and counts particles using light scattering. The detection concentration range is 0 µg/m3 to 1,000 µg/m3. The PMT series with high-quality and long-lasting components, enables accurate measurements from its first operation and throughout its lifetime of more than eight to ten years.

Features

- Long-term stability, consistency accuracy is up to +/-10% readings or +/-10 ug/m3
- Real-time response and support continuous acquisition
- Over voltage and reverse polarity protection, high
- LCD & touch function keys selectable

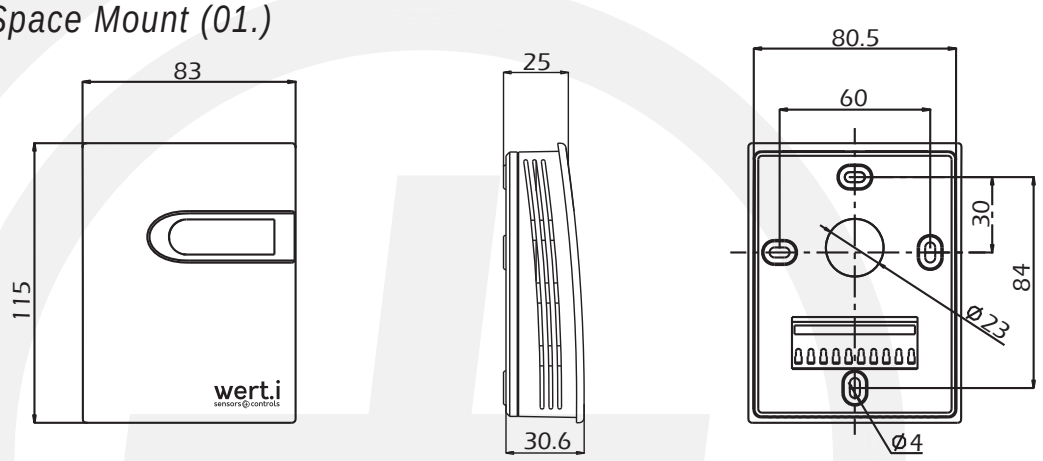
Specifications	
Sensor	Laser particulate matter sensor
Sampling Method	Laser scattering principle
Measurement range	0~500ug/m³ (measuring range >1000ug/m³)
Accuracy	±10 ug/m³ @0~100ug/m³, ±10% reading@100~500ug/m³
Resolution	1 ug/m³
Response time	in continuous service mode, sample time＜ 1s, response time＜10s,
Service Life	MBTF more than 3 years in continuous service mode, service life up to 8-10 years in auto (intermittent) service mode
Output signal	Current: 4...20mA (DC) / Voltage: 0...10V (DC)
Communication	RS-485
Relay output	Max Switching voltage: 250 VAC ; Max Switching Current: 2.5A (*resistive load)
Power supply	Voltage model :16...35VDC / 16...28VAC
Display	Optional LCD for all models
Keys	Optional for space mount model only
Working environment	0...50°C, 0...95%RH (Non-cond.)
Storage temperature	-30...70°C
Housing	ABS + PC
Protection	Space mount: IP30 / Duct mount : IP65
Weight	Space mount: 135g, Duct mount: 240g

PMT SERIES

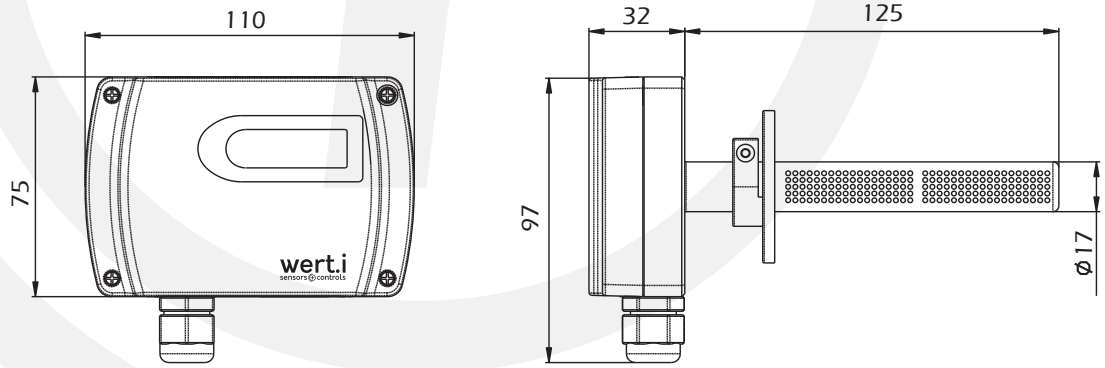
wert.i sensors & controls

Dimensions (in mm)

Space Mount (01.)



Duct Mount (02.)



Ordering code

ITEM	CODE				
SERIES	**PMT25.**				PARTICULATE MATTER 2.5
	PMT10.				PARTICULATE MATTER 10
TYPE		**01.**			Space Mount
		02.			Duct Mount
OUTPUT SIGNAL			**421**		4 – 20mA DC / 0 – 10V DC
			485		4 – 20mA DC / 0 – 10V DC / RS485 MODBUS
DISPLAY / KEYPAD				**N**	Without
				D	With Display
				K	Display with Keypad
CONTACT OUTPUT					**N** Without
					R 1 X SPST

WFS SERIES

wert.i sensors controls

PADDLE TYPE LIQUID FLOW SWITCH

The Model WFS Paddle Flow Switch offers an economical flow proving solution. Custom set points tailored for the application are enabled by field adjustable vanelayers and a set point adjustment screw. Paddles are adjustable to fit 1″ to 8″ size pipe. WSF is ideal for use in “flow or no flow” applications in cold and hotwater systems.

Features

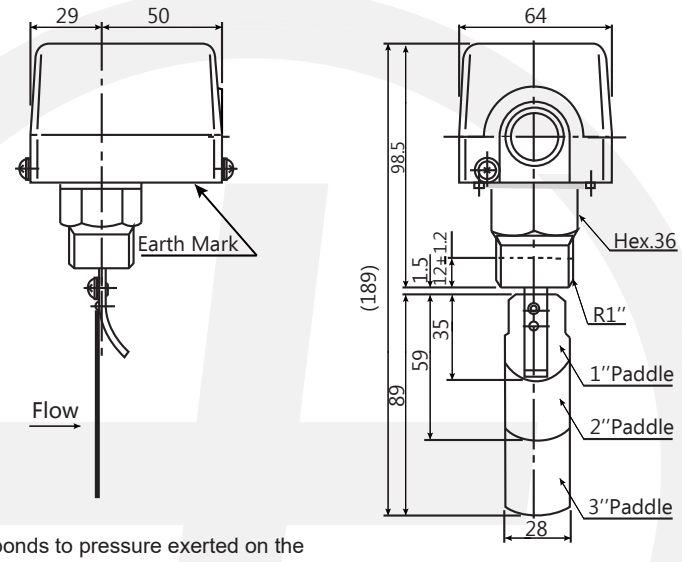
- Adjustable switching point.
- High capacity, fully encapsulated N/C, N/O micro-switch
- Suitable for applications up to 10bar (145 psi)

Specifications	
Sensing Element	Paddle
Type of Operation	On/Off, Single stage, Micro Switch
Flow Rates	Refer to Table Below
Bellows Life	500000 cycles
Temperature Limits	230°F (110°C)
Pressure Limits	145 psig (10 bar)
Switch Type	SPDT
Electrical Rating	10 A res, 3 A ind @ 250 VAC
Process Connection	1" male NPT , Optional: 1/2 male NPT , 3/8 male NPT
Mounting Orientation	Switch must be installed vertically on horizontal pipe runs
Set Point Adjustment	Four vane combinations and an adjustment screw
Housing material	Plastic (BA model) / Die-cast aluminum (CA model)
Paddle Materials	Stainless Steel
Body Materials	Standard : Forged brass Optional: Stainess steel

WSF SERIES

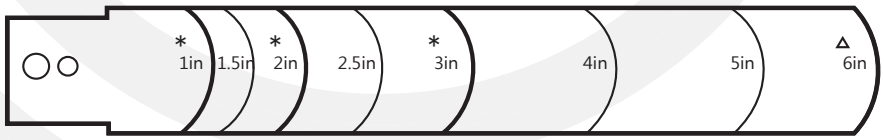
wert.i sensors controls

Dimensions (in mm)



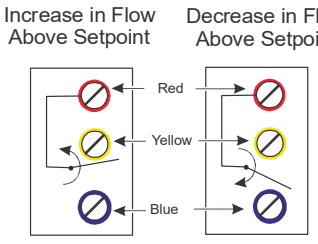
Operation
The flow switch responds to pressure exerted on the fluid paddle by the flowing fluid. A range adjustment screw adjusts the rate of the flow required to activate the switch.

Paddle Trimming



Notice:
With (*) leaves for the factory is installed;
With (△) for additional blades (not installed);
After the leaves trimmed to install. its top of the wall shall not have any friction with the wall and the bottom 5-10 mm gap.

Control Switch Action



Flow Action	Switch Closure
INCREASE	Red to Yellow
DECREASE	Red to Blue

The red terminal is the Common. Red to Yellow closes on flow increase. Red to Blue closes on flow decrease.

WFS SERIES

wert.i sensors & controls

Flow Rate Table

Flow Rates for Standard Models, 1-3 in. Paddles

		GPM (m^3/hr) Required to Activate Switch for Pipe Size (in.)									
		1	1-1/4[1]	1-1/2[1]	2	2-1/2[2]	3	4[3]	5[3]	6[3]	8[3]
Minimum Adjustment	Flow Increase (Close R to Y)	4.20 (0.95)	5.80 (1.32)	7.50 (1.70)	13.7 (3.11)	18.0 (4.09)	27.5 (6.24)	65.0 (14.8)	125 (28.4)	190 (43.2)	375 (85.2)
	Flow Decrease (Close R to B)	2.50 (0.57)	3.70 (0.84)	5.00 (1.14)	9.50 (2.16)	12.5 (2.84)	19.0 (4.32)	50.0 (11.4)	101 (22.9)	158 (35.9)	320 (72.7)
Maximum Adjustment	Flow Increase (Close R to Y)	8.80 (2.0)	13.3 (3.02)	19.2 (4.36)	29.0 (6.59)	34.5 (7.84)	53.0 (12.0)	128 (29.1)	245 (55.6)	375 (85.2)	760 (173)
	Flow Decrease (Close R to B)	8.50 (1.93)	12.5 (2.84)	18.0 (4.09)	27.0 (6.13)	32.0 (7.27)	50.0 (11.4)	122 (27.7)	235 (53.4)	360 (81.8)	730 (166)

1. Values for 2 in. paddle trimmed to pipe.
2. Values for a 3 in. paddle trimmed to fit pipe.
3. Values calculated for a factory-installed set of 1, 2, and 3 in. paddles.

Flow Rates for Standard Models, 6 in. Paddles

		GPM (m^3/hr) Required to Activate Switch for Pipe Size (in.)			
		4	5	6	8
Minimum Adjustment	Flow Increase (Close R to Y)	37.0 (8.40)	57.0 (12.9)	74.0 (16.8)	205 (46.6)
	Flow Decrease (Close R to B)	27.0 (6.13)	41.0 (9.31)	54.0 (12.3)	170 (38.6)
Maximum Adjustment	Flow Increase (Close R to Y)	81.0 (18.4)	118 (26.8)	144 (32.7)	415 (94.3)
	Flow Decrease (Close R to B)	76.0 (1.93)	111 (25.2)	135 (30.7)	400 (90.8)

Ordering code

ITEM	CODE				
SERIES	WSF.				PADDLE FLOW SWITCH
PROCESS CONNECTION		01.			1 “ NPT
		02.			1/2 “ NPT
		03.			3/4 ” NPT
COVER MATERIALS			BS.		Plastic
			CA.		Die-cast aluminum
BODY METERIAL				N	Forged brass
				S	Stainess Steel

WSA100

wert.i sensors controls

WIND SPEED ANEMOMETER SENSOR

The WSA100 series is a three-cup anemometer that monitors wind speed for the range of 0 to 60 m/s with a threshold of 0.8 m/s. The WSA100 is constructed of corrosion-resistant, stainless-steel and aluminum alloy.It's three-cup anemometer assembly contains a sealed magnetic reed switch. Rotation of the cupwheel produces a output signal that is directly proportional to wind speed.

Features

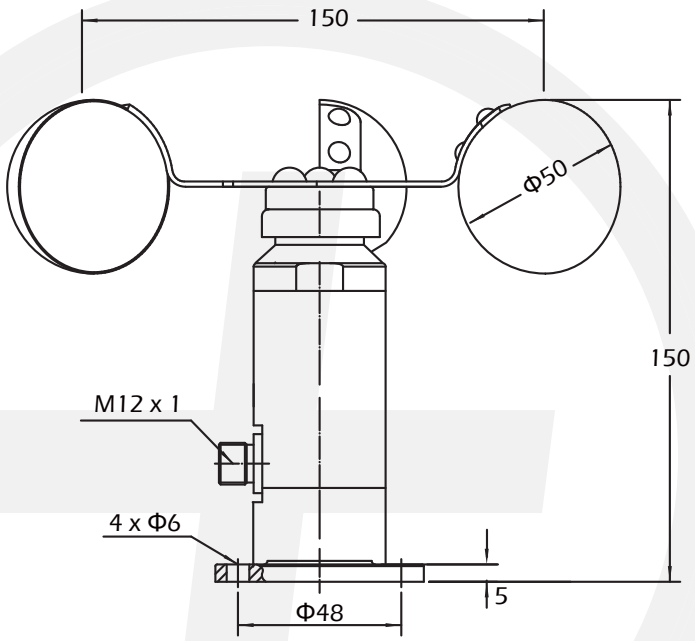
- Ideal for applications that do not require wind direction measurements
- Designed for continuous, long-term, unattended operation in adverse conditions

Specifications	
Parameters	Wind speed anemometer
Power supply	12...24V(DC)
Limits wind speed	70 m/s
Starting Threshold	< 0.8 m/s
Accuracy* at 25 °C	±3.0% F.S.
Measurement range	0...60 m/s
Output signal	4...20 mA / 0...5V / 1...5V / 0...10V / RS485 / Pulses
Operating Temperature	-30° to +70°C
Body materials	Aluminum Alloy
Cup materials	Stainless steel 304
Mounting	Wall mounting/ Pole mounting
Finishing	Polyester powder electrostatic spraying (black)
Weight	240g
IP protection	IP65

WSA100

wert.i sensors controls

Dimensions (in mm)



Connection Diagram

Connector		Pulses/Current	Voltage	RS485	Wireless
1	Red	Supply voltage +	Supply voltage +	Supply voltage +	Supply voltage +
2	Black	Supply voltage -	Supply voltage -		Supply voltage -
3	Yellow-Green	Signal		RS485A	
4	Blue		Signal	RS485B	

Ordering code

ITEM	CODE		
SERIES	WSA100.		WIND SPEED ANEMOMETER
OUTPUT SIGNAL		001	PULSES
		420	4 – 20mA DC
		005	0– 5V DC
		105	1– 5V DC
		010	0– 10V DC
		485	RS485
		433	WIRELESS 433HZ

DPS107

wert.i sensors controls

DIFFERENTIAL PRESSURE SWITCH

DPS107 series adjustable differential pressure switch for monitoring overpressure, vacuum and differential pressure of air or other noncombustible, non-aggressive gases for both HVAC and Energy Management Applications. Automatic reset and field adjustable setpoints.The differential pressure switch includes a SPDT relay rated for 1.5A @ 250V and can be set as low as 20 Pa.

Features

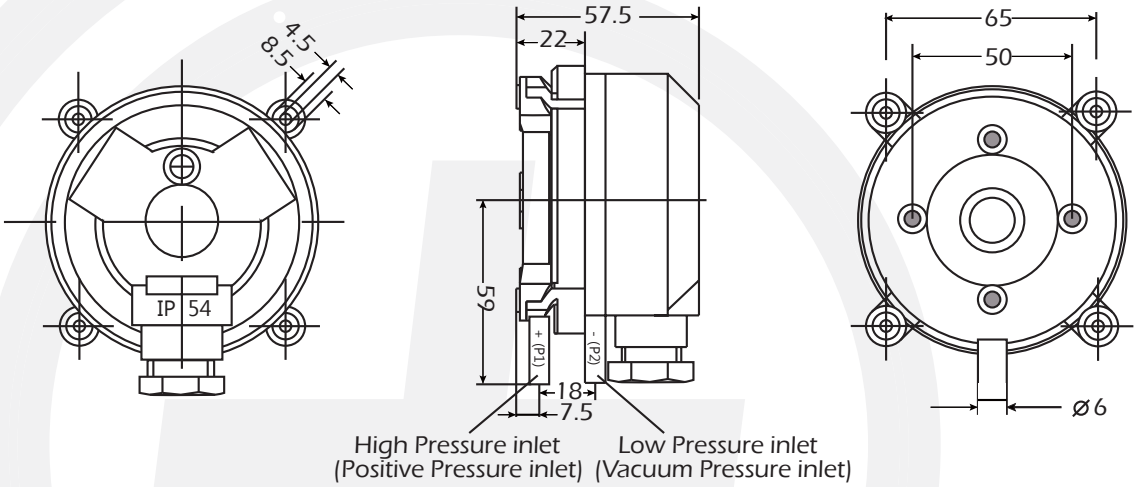
- High Quality, Low-Cost
- Adjustment knob enables easy switch point setting
- Transparent cover for setpoint confirmation
- Switch can be set up as N.O. or N.C.
- Installer kit with PVC tubing included

Specifications	
Medium	Air, non-combustible and non-aggressive gases
Pressure Limits	10 kPa for all pressure ranges
Switch Type	Single-pole double-throw (SPDT)
Electrical Rating	Max. 1.5 A res./0.4 A ind./250 VAC, 50/60 Hz; Max. switching rate: 6 cycles/min
Electrical connections	AMP flat plug 6.3x0.8 mm or push-on screw terminals
Temperature Limits	Process and ambient temperature from -4 to 185°F (-20 to 85°C).
Pressure connections	6.0 mm diameter for tube connection
Mounting Orientation	Vertically, with pressure connections pointing downwards
Housing materials	Switch body and cover of plastic
Protection category	IP54(With Cover),IP00 (without Cover)
Weight	With cover 150 g, without cover 110 g

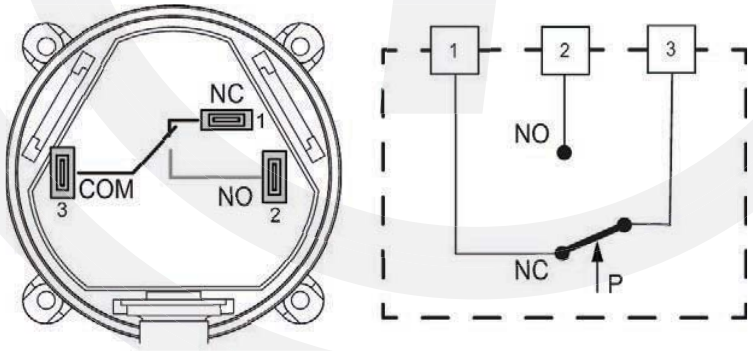
DPS107

wert.i sensors & controls

Dimensions (in mm)



Connection Diagram



Ordering code

ITEM	CODE		
SERIES	DPS107.		DIFFERENTIAL PRESSURE SWITCH
PRESSURE RANGES / DIFFERENTIAL / TOLLERANCE	220		20 – 200 PA / ≤ 10 PA / ≤ 15%
	330		30 – 300 PA / ≤ 10 PA / ≤ 15%
	440		40 – 400 PA / ≤ 20 PA / ≤ 15%
	550		50 – 500 PA / ≤ 20 PA / ≤ 15%
	210		200 – 1000 PA / ≤ 100 PA / ≤ 15%
	525		500 – 2500 PA / ≤ 150 PA / ≤ 15%
	150		1000 – 5000 PA / ≤ 150 PA / ≤ 15%

P8320

wert.i sensors controls

INDUSTRIAL PRESSURE TRANSMITTER

P8320 series pressure transmitter is designed to cover the majority of industrial applications in the field of industrial pressure measurement technology. High accuracy, compact design, robust construction and flexibility. The fully welded measuring system (without seals) made of high-grade stainless steel allows this device to be used in almost all media, even in harsh conditions. The structure ensures optimum protection against process medium leakage.

Features

- Measuring ranges from -1 ... 0.0 to 0 ... 600 bar
- Output 4 ... 20 mA, DC 0 ... 10 V, DC 0 ... 5 V and others
- Process connection G ¼ , ¼ NPT and others

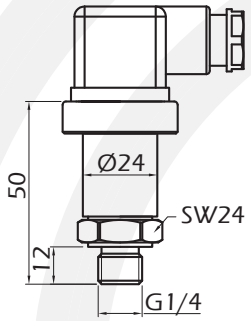
Specifications	
Output Signal	Standard 2-wire: 4-20 mA / Vs = 12-30 Vdc Optional 3-wire: 0.5-4.5 Vdc, 0-5 Vdc, 1-5 Vdc, 0-10 Vdc / Vs = 10-30 Vdc
Accuracy	±0.5% FSO (±1% FSO for pressures ≤ 45 psi (3 bar))
Response Time	<10 ms
Insulation	>100 MΩ @ 50V
Permissible Temperatures	Operating: -40°F to 212°F (-40°C to 100°C) (185°F (85°C) maximum zero span) Compensating: 14°F to 176°F (-10°C to 80°C) (158°F (70°C) maximum zero span)
Pressure Port / Housing	304 SS
Wetted Parts	Seals: NBR Diaphragm: Ceramic
Current Consumption	2-wire: 25mA max 3-wire voltage: 5mA (short-circuit current 20mA)
EMC	EMI: EN50081-1/-2 EMS: EN50082-2
Stability	Vibration: 10 g/ 5 Hz to 200 Hz Shock: 20 g/ 11 ms
Operation Life	2 M cycles

P8320

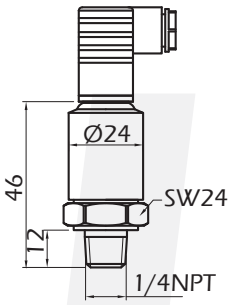
wert.i sensors & controls

Dimensions (in mm)

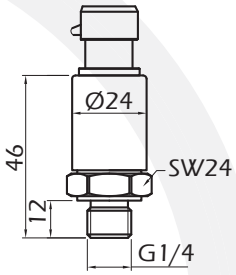
Connector DIN43650



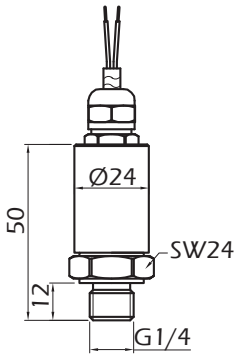
Connector Mini-Hirschmann



Packard connection



Cable outlet



Connection Diagrams

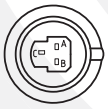
Connector DIN43650 / Mini-Hirschmann

	2-wire(current)	3-wire(voltage)
Supply+	1	1
Signal+	2	3
Gnd	-	2

Cable outlet

	2-wire(current)	3-wire(voltage)
Supply+	red	red
Signal+	black	green
Gnd	-	black

Packard Connection



	2-wire(current)	3-wire(voltage)
Supply+	A	A
Signal+	B	C
Gnd	-	B

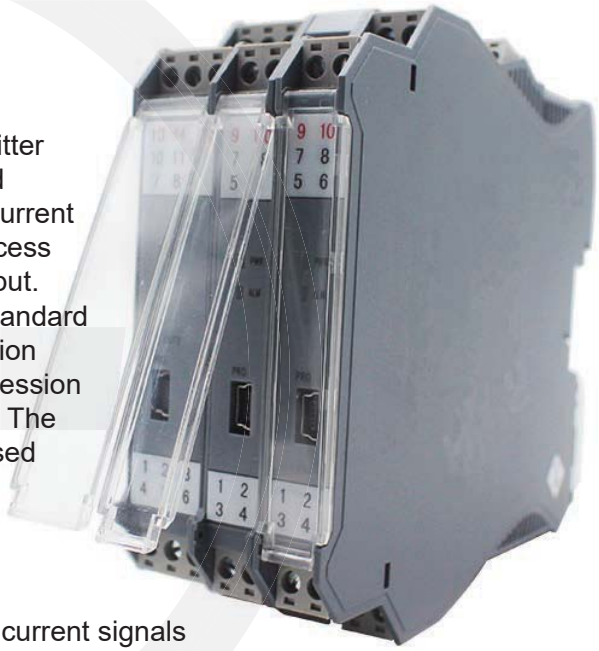
Pressure Ranges

Range	Over-pressure	Burst Pressure*
-1/0 bar	1 bar	2 bar
-1/3 bar	4.5 bar	9 bar
-1/4 bar	6 bar	12 bar
-1/6 bar	9 bar	18 bar
-1/10 bar	15 bar	30 bar
0/1 bar	2 bar	3 bar
0/1.6 bar	2 bar	5 bar
0/2.5 bar	4 bar	8 bar
0/4 bar	6 bar	12 bar
0/6 bar	9 bar	18 bar
0/10 bar	15 bar	30 bar
0/16 bar	24 bar	48 bar
0/25 bar	38 bar	75 bar
0/40 bar	60 bar	120 bar
0/60 bar	90 bar	180 bar
0/100 bar	150 bar	300 bar
0/160 bar	240 bar	480 bar
0/250 bar	375 bar	750 bar
0/300 bar	450 bar	900 bar
0/400 bar	600 bar	1,200 bar
0/500 bar	750 bar	1,500 bar
0/600 bar	900 bar	1,800 bar

8000 SERIES

wert.i sensors controls

SIGNAL CONDITIONER/ SPLITTER



The 8000 series isolated DIN rail signal conditioner/ splitter provides a competitive choice in terms of both price and technology for galvanic isolation of process voltage or current signals to SCADA systems or PLC equipment. Two process outputs are provided which mirror the single process input. The 8000 series can be used for signal conversion of standard process voltage or current signals. The unit offers isolation between input, output and supply, provides surge suppression and protects control systems from transients and noise. The 8000 series also eliminates ground loops and can be used for measuring floating signals

Features

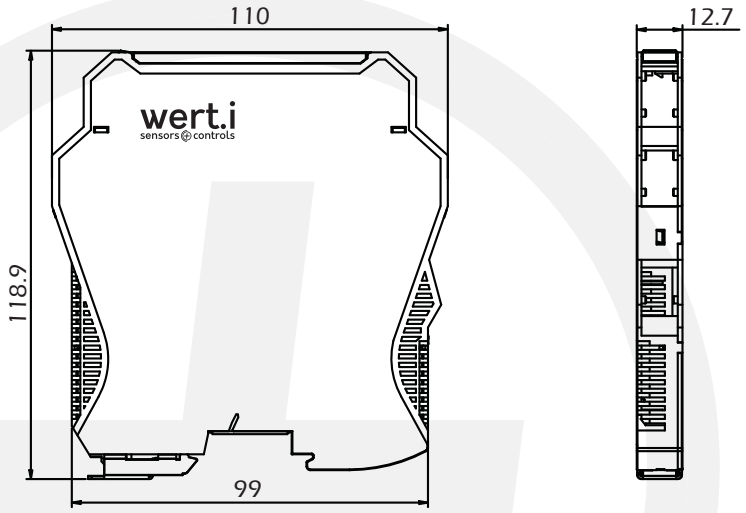
- Isolation and Conversion of standard DC voltage and current signals
- Splitter Function: 1 Process Input, 2 Process Outputs
- Isolation eliminates ground loop problems
- Excellent accuracy and fast response time
- Suitable for high vibration environments

Specifications	
Input signal	4...20mA, 0...20mA, 0...5V, 0...10V
Input resistance	Current model: ≤ 100Ω , Voltage model: ≥ 300KΩ
Output signal	4...20mA, 0...20mA, 0...5V, 0...10V
Output load	Current model: ≤ 500Ω , Voltage model: ≥ 10KΩ
Accuracy	±0.1% of span
Response time	<10ms
Temperature coefficient	±0.01% of span / ˚C
Supply voltage, DC	18...32V DC
Isolation voltage	2KVAC/min
Isolation resistance	≥ 100MΩ (DC500V)
Operating temperature	-20˚C...55˚C
Storage temperature	-20˚C...70˚C
Relative humidity	< 95% RH (non-cond.)
Dimensions	118.9 x 110 x 12.7 mm
Weight	70g
IP protection	IP20

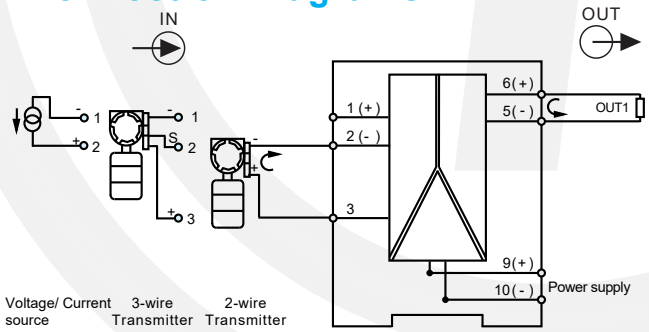
8000 SERIES

wert.i sensors controls

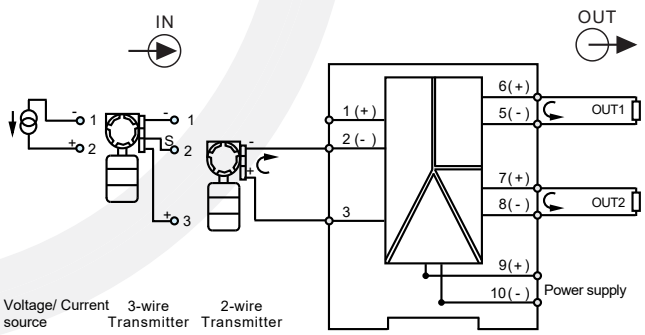
Dimensions (in mm)



Connection Diagrams



1 INPUT 1 OUTPUT



1 INPUT 2 OUTPUT

Ordering code

SERIES 8000		SIGNAL CONDITIONER/ SPLITTER	
ITEM	CODE	INPUT	OUTPUT
ISOLATED REPEATER (1 IN 1 OUT)	8018	4 – 20mA DC	4 – 20mA DC
	8019	0 – 10V DC	0 – 10V DC
ISOLATED CONVERTER (1 IN 1 OUT)	8028	4 – 20mA DC	0 – 10V DC
	8029	0 – 10V DC	4 – 20mA DC
ISOLATED REPEATER/ SPLITTER (1 IN 2 OUT)	8118	4 – 20mA DC	4 – 20mA DC
	8119	0 – 10V DC	0 – 10V DC
ISOLATED CONVERTER/ SPLITTER (1 IN 2 OUT)	8228	4 – 20mA DC	0 – 10V DC
	8229	0 – 10V DC	4 – 20mA DC

UFM SERIES

wert.i sensors controls

CLAMP-ON ULTRASONIC FLOWMETER

The UFM series Clamp-on Ultrasonic Flow Meters offer an ideal solution for liquid flow measurement in existing systems when it is impractical to install traditional inline or insertion style flow meters. The innovative design incorporates matched precision clamp-on transducers and signal processing circuitry to accurately measure the flow of most liquids over a wide velocity range.

Features

- Large, easy to read graphic display
- Continuous flow monitoring, with 'Totalised' option
- Two types of transducer sets supplied for use with pipes ranging 1″ ~ 200″ (25 mm ~ 5000 mm)

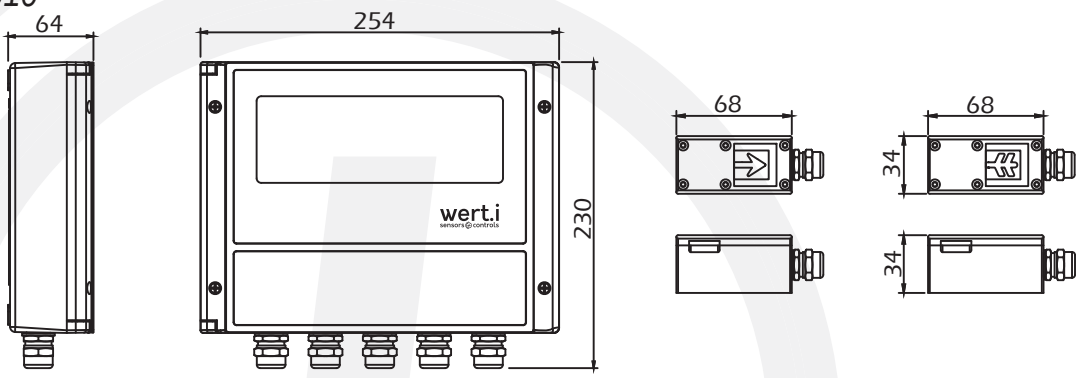
Specifications	
Flow velocity range	UFM.010 : Minimum velocity 0.1m/s – Max velocity 12m/s UFM.012 : Minimum velocity 0.03m/s – Max velocity 5m/s
Accuracy	UFM.010 : ±0.5% to ±3% of flow reading UFM.012 : ±1.0% to ±3% of flow reading
Repeatability	UFM.010 : ±0.15% of measured value UFM.012 : ±0.2% of measured value
Response time	< 500ms depending on pipe diameter
Displayed flow units	l/s, l/min, l/h, gal/min, gal/h, USgals/min, USgals/h, Barrel/h,Barrel/day, m³/s, m³/min, m³/h
Pipe Size	UFM.010 : 1″ ~ 200″ (25 mm ~ 5000 mm) UFM.012 : 1″ ~ 48″ (25 mm ~ 1200 mm)
Power supply	UFM.010 : 90-250VAC, 48-63Hz or 10-36VDC UFM.012 : 10-36VDC@1A max
Display	240 x 128 pixel graphic display, high contrast black-on-white
Analog Output	Current: 4...20mA (DC) max load 750 Ω
Open collector output	Pulse output: 0 ~ 9999 Hz, OCT (min. and max. frequency is adjustable)
Communication	RS-232, RS-485
Relay output	Max Switching voltage: 250 VAC ; Max Switching Current: 2.5A (*resistive load)
SD Card (Optional)	Max record: 512 days. Record time interval: 1 ~ 3600 s.
Operating temperature	Transmitter: - 40 °C...60 °C Transducer: Standard - 40 °C...80 °C, Optional up to 180 °C
Material	Die-cast aluminum
IP Protection	IP65

UFM SERIES

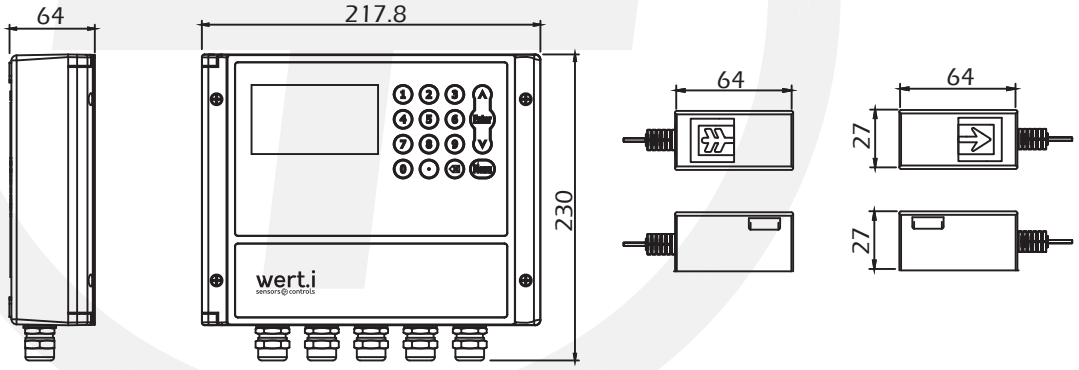
wert.i sensors controls

Dimensions (in mm)

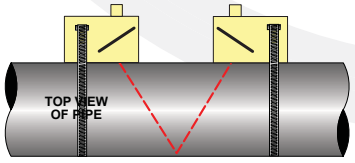
UFM.010



UFM.012

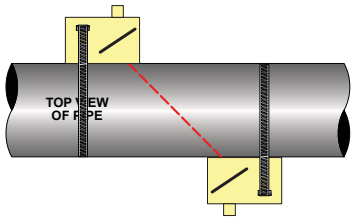


Transducer Installation Method



V Method

The V method is considered as the standard method. It usually gives a more accurate reading and is used on pipe diameters ranging from 25mm to 400mm (1~16”) approximately. Also, it is convenient to use, but still requires proper installation of the transducer, contact on the pipe at the pipe's centerline and equal spacing on either side of the centerline.



Z Method

The signal transmitted in a Z method installation has less attenuation than a signal transmitted with the V method When the pipes are too large, there are some suspended solid in the fluid, or the scaling and liner are too thick.This is because the Z method utilizes a directly transmitted (rather than reflected) signaling which transverses the liquid only once. The Z method is able to measure on pipe diameters ranging from 100mm to 5000mm (4 inch to 200 inch) approximately. Therefore, we recommend the Z method for pipe diameters over 300mm (12 inch).

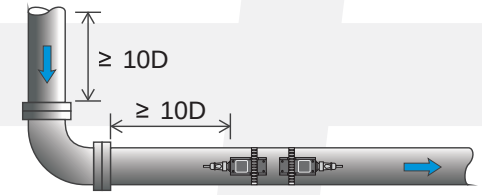
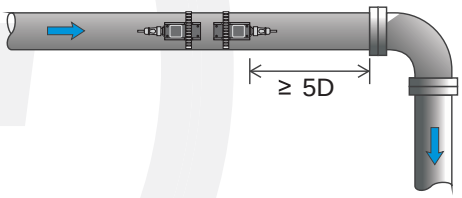
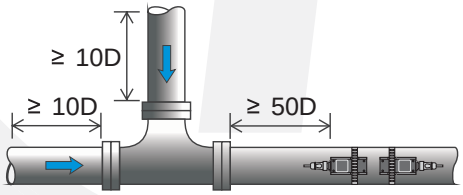
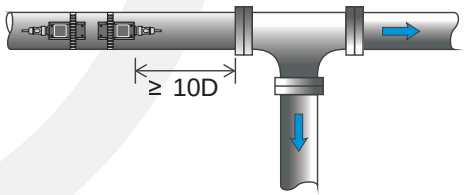
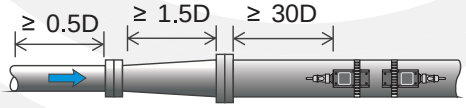
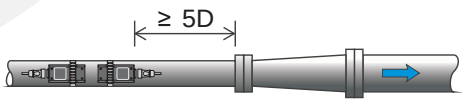
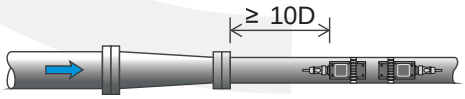
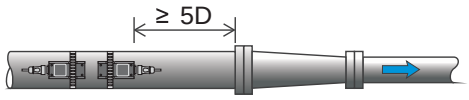
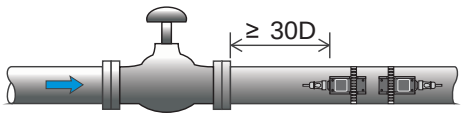
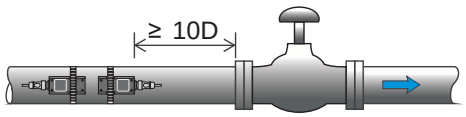
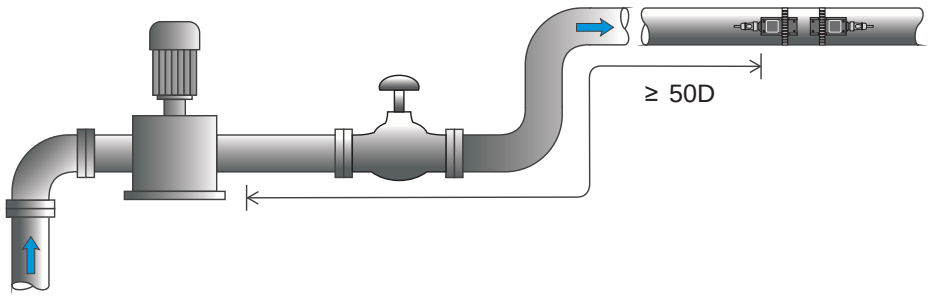
UFM SERIES

wert.i sensors controls

Measurement Site Selection

When selecting a measurement site, it is important to select an area where the fluid flow profile is fully developedto guarantee a highly accurate measurement. Use the following guidelines when to select a proper measurement installation site:
Choose a section of pipe, which is always full of liquid, such as a vertical pipe with flow in the upward direction or a full horizontal pipe.
Ensure that the pipe surface temperature at the measuring point is within the transducer temperature limits.Consider the inside condition of the pipe carefully. If possible, select a section of pipe where the inside is freeexcessive corrosion or scaling. Choose a section of sound conducting pipe.

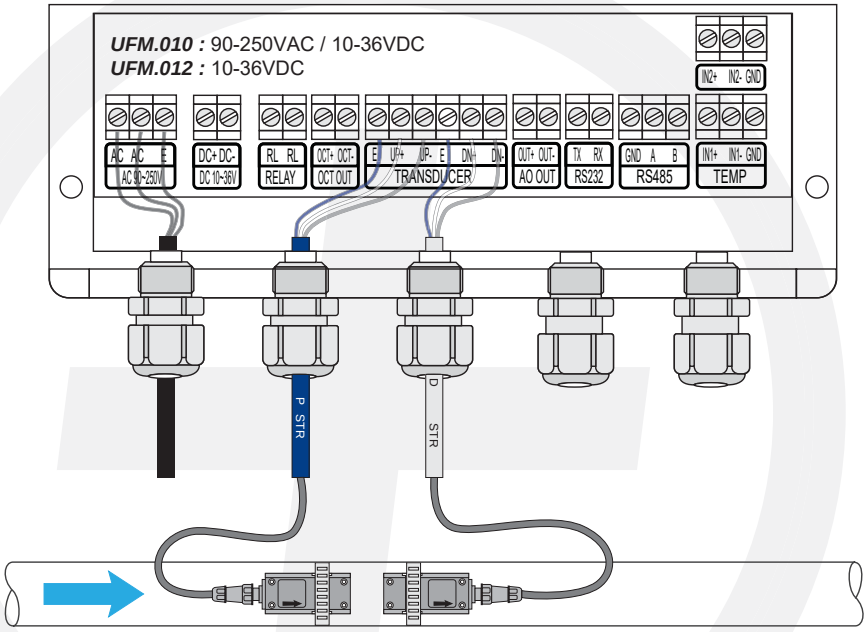
Examples acceptable measurement site selection is illustrated on the figure on the below.

	Installation point front straight section	Straight pipe section after installation point
90°bend		
Tee		
Diffuser		
Reduce		
Valve		
Pump		

UFM SERIES

wert.i sensors controls

Connection Diagram



Ordering code

ITEM	CODE				
SERIES	UFM.				ULTRASONIC FLOW METER
FLOW RANGE / ACCURACY / REPEATABILITY	010.				Flow range：±0.01m/s ~ ±12m/s Accuracy ：±0.5% of the measure value Repeatability：0.15% of the measure value
	012.				Flow range：±0.03m/s ~ ±5m/s Accuracy ：±1% of t he measure value Repeatability：0.2% of the measure value
OUTPUT		01.			OCT, Relay, RS232/RS485, 4-20mA
		02.			OCT, Relay, RS232/RS485, 4-20mA, RTD
TRANSDUCER			C1		Clamp-on, IP68. Operating temperature: -40 °C...80 °C
			C2		Clamp-on, IP68. Operating temperature: -40 °C...130 °C
			C3		Clamp-on, IP68. Operating temperature: 0 °C...180 °C
			W1		Insertion, IP68. Operating temperature: -40 °C...130 °C
			W2		Insertion, IP68. Operating temperature: 0 °C...180 °C
TRANSDUCER CABLE LENGTH				N	Standard length 30ft (9m)
				W	Max length to 900ft (274m)
TEMPERATURE SENSOR				N	Without
				W	Pt1000 temperature sensor