

# Flow Level and Pressure

Controllers

Sensors

Analysers

Samplers

Flow

Level

Pressure

Web App

Remote control

Data logging

Accessories

## Flow

### 4204 P

Ultrasonic meters

66

For measurements in open channels to be installed upstream of constricted sections or shaped weirs

### S103C

Electromagnetic meters

69

For measurements in pressurised full section piping  
Suitable for clean and dirty water with conductivity of at least 5  $\mu$ S  
Available with different types of flanges, Wafer, food connections  
High power / low voltage or battery

### Ultrasonic "transit time"

Meters

74

For measurements in pressurised full section piping  
Suitable for clean and dirty water with suspended solids up to a maximum of 10 g/l,  
non-conductive liquids, chemically aggressive products, oils

### Ultrasonic "Doppler" effect

Meters

76

For pressurised piping with liquids with a high content of suspended solids and sludge

### "Area x velocity"

Meters

78

For measurements in open channels without restrictions, partially filled piping

## Level

**4204 L/U**

Level/differential meter to control up to 5 pumps

80

**Ultrasonic and Piezometric**

Sensors

82

**Radar and guided microwave**

Transmitters

83

**EchoSmart™**

Sludge interface level measurement  
Ultrasonic measuring system with submerged sensor (Sonar)

86

**Piezoresistive**

Transmitters

88

## Pressure

**Piezoresistive**

Transmitters  
for applications in the water treatment and industrial processes

90

# FLOW METERS FOR OPEN CHANNELS WITH ULTRASONIC OR PIEZOMETRIC SENSOR

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## 4204 P

### Main features

- Flow rate measurements on channels with constrictions or weirs
- Preset calculation exponents or freely programmable by user
- Possibility of calibration with table of up to 20 points, for nonlinear functions
- Dual data logger for instantaneous measurements and totalized volumes
- Graphic display with indication of real-time values and stored values in graphical or tabular mode
- MODBUS RTU communication protocol

### Hardware features, software features and functions 4204 P

#### Measurement features

Measurement unit	Flow: mc/h, lt/sec – Level: mt, cm, mm – Temperature: °C
Measuring ranges	Flow 0 ÷ 9999 mc/h – Level 0.30 ÷ 5.00 mt. – Temperature 0 ÷ 100 °C
Precision	± 0.2% F.S.
Types of devices / exponents for calculating PMD (primary measuring device) flow	RETTANG (rectangular weir) / TRAPEZ (Cipolletti weir) / VENTURI (Venturi channel) / PARSHALL (Parshall channel) / L LEOPOLD (Leopold Lagco channel) / STRAM. V (V-shaped weir) OTHER (freely programmable exponent). Table with 20 points for free programming
Two (2) totalizers	<b>Absolute</b> 9-digit (saved on non-resettable Flash PROM) – <b>Partial</b> 9-digit resettable

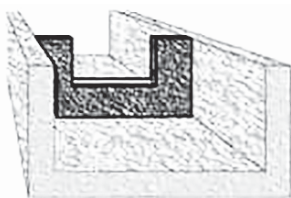
#### Hardware features

Display	Backlit 128x64 graphic STN LCD
	Simultaneous indication of: Instantaneous flow (absolute + bar graph for percentage of full scale), Totalized volume, Temperature, Status of digital outputs, Alarm events.
	In scrolling: Level, Status of analogue outputs, Resettable totalizer
Controls	6 keys
DATA LOGGER	Internal with 4 Mbit Flash
Serial output	One (1) RS485 MODBUS RTU galvanically isolated
Analogue outputs	Two (2) Programmable galvanically isolated
Relay outputs	Five (5) for Thresholds – One (1) for Alarm (max.load 1A at 230Vac resistive)
Digital inputs	Five (5) programmable
Power supply	100 ÷ 240Vac/dc 50-60Hz (Optional 24Vac/dc) – Transformer Insulation 4KV
Power consumption	< 12W
Dimensions /Weight	Dimensions: (L x H x P) 144 x 144 x 122.5mm – Weight: 1 Kg

### Hardware features, software features and functions 4204 P

<b>Measurement recording</b>	<b>Instantaneous flow rate</b>	<b>Totalized volume</b>
Recording interval	1/2/5/10/15/20/30/60 min	5/10/30 min. 1/2/6/12/24 h.
Type	Circular / Filling	Circular / Filling
Display	Graph: minimum, maximum and average values for the period and Zoom	Tabular
<b>Analogue outputs</b>	<b>Primary</b>	<b>Secondary</b>
Quantity	Flow / Temperature	Flow / Temperature / Level
Type	0.00 ÷ 20.00 mA / 4.00 ÷ 20.00 mA	
Range	Programming limits: Lower / Upper	
Maximum load	500 Ohm	
Alarm output	NAMUR 2.4 mA (with range 4/20mA)	
<b>Relay outputs (5)</b>		
Function – selectable	Thresholds	Pulses
Programming	ON-OFF with hysteresis	Scaler: 1, 10, 100 mc/h Duration: 250, 500, 1000, 2000 msec
<b>Alarm</b>		
Function	Echo loss alarm	
Programming	Time out (echo absence time): 00:00 ÷ 24:00 h	
<b>Operating conditions</b>		
Temperature	operating 0÷50°C ; storage and transport -25÷65°C	
Humidity	10-95% non-condensing	
Mechanical protection	Closed IP66 EN60529	
EMI / RFI	CEI-EN55011 – 05/99	

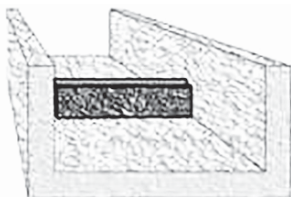
### Weirs



Regular weir with lateral constrictions



V-shaped weir



Rectangular weir without lateral constrictions



Trapezoidal weir

### "Venturi" type constriction



# ULTRASOUND LEVEL PROBE

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Ultrasonic level measurement, without contact, suitable for measurement of liquids, with integrated temperature sensor for temperature compensation.

## S425C

### Features and advantages

**PVDF body** resistant to aggressive environments

**High resolution measurement** 1mm

Double threaded connection

**Immediate installation** with disconnectable connector (IP67)

**Modbus RTU Protocol**

### Technical specifications S425C

Measuring ranges	30 cm - 500 cm
Measuring method	Ultrasonic with automatic temperature compensation
Emission angle	14° ±1°
Accuracy	± 0.2% of the measured distance (but not better than 2 mm)
Resolution	1 mm
Operating temperature	-10°C ÷ 75°C
Maximum pressure	0.5 bar ÷ 1.5 bar
Body materials	PVDF – PCV
Thread	1" g.m and 1.5" g.m.
Protection grade	IP67 ( IP68 optional)
Electrical connection	IP67 connector
Power supply	24 Vdc
Power consumption	2 W
Cable	5 meters (other on request)
Signal interface	Modbus RTU Standard Protocol RS485

## PIEZOMETRIC TRANSDUCER



The absence of a separation liquid between the membrane and the pressure sensor, the "Dry-Pressure" measuring technology, allows you to have superior technological overpressure performance, small thermal drifts, high stability and accuracy.

## KPL / 36 XKY

# ELECTROMAGNETIC FLOW METERS



The electromagnetic flow meter is used to measure the flow rate of conductive fluids and waste water.

The measurement is independent of the density, viscosity, temperature and pressure. The conductivity of the fluid must be greater than  $5\mu\text{S}/\text{cm}$ .

The measuring tube must not be crossed by fluids carrying solid bodies of high dimension that cannot be considered suspended solids. Load losses are absent and straight stretches reduced upstream and downstream of the instrument are necessary.

## Main application fields

- Sludge and water (primary, drinking and waste) treatment
- Control of civil and industrial wastes
- Measurement of industrial process water: chemical, paper, tanning, pharmaceutical, food
- Control of the chemical dosage
- Energy industry: generation and distribution
- Extractive industry: quarries, mines
- Environmental protection

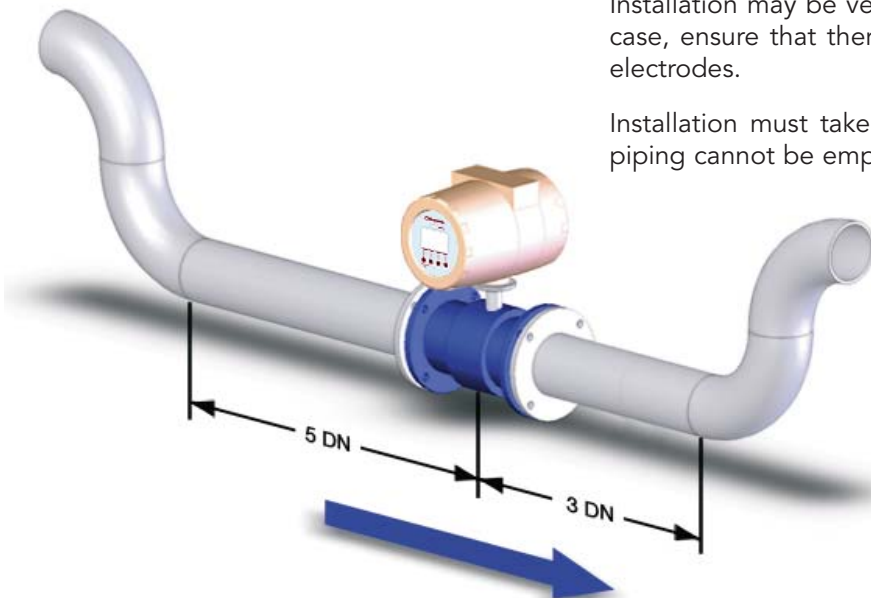
## S103C

### MOUNTING

The electromagnetic meter must be installed so that the pipe is always completely filled with fluid. In the case of a half-empty pipe, the meter must be installed in an underground channel, or in a "goose neck", to achieve a siphon effect.

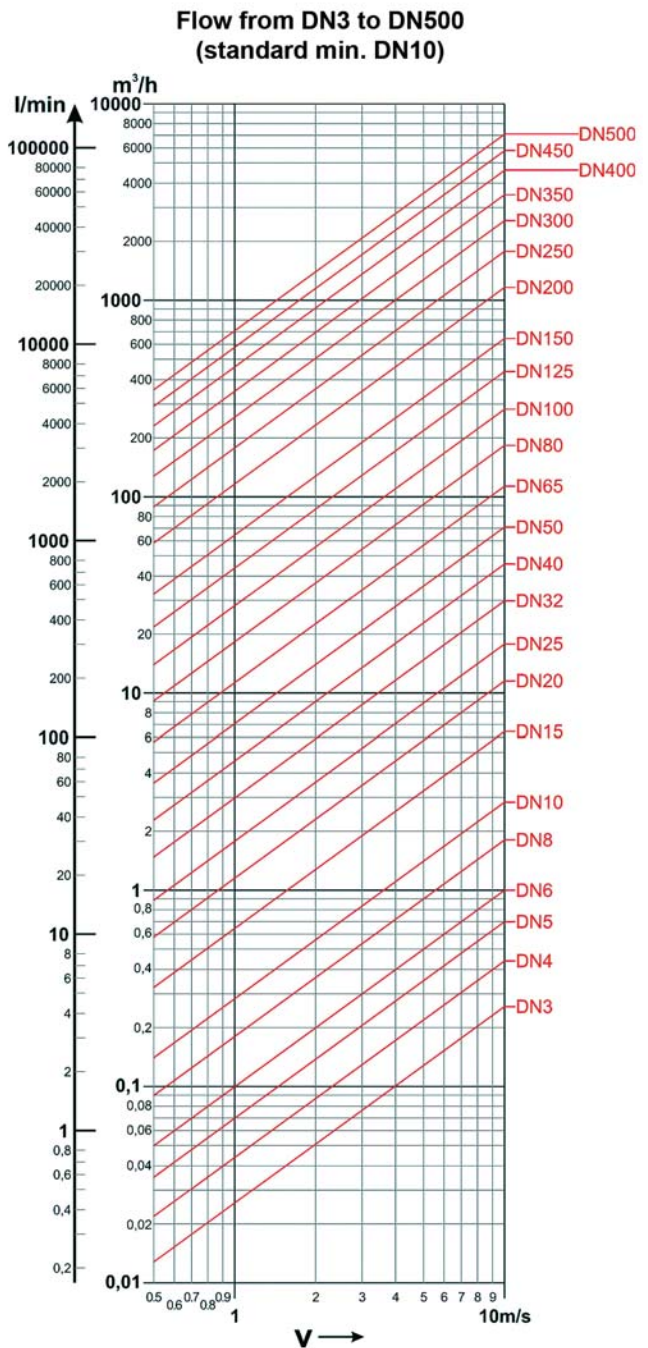
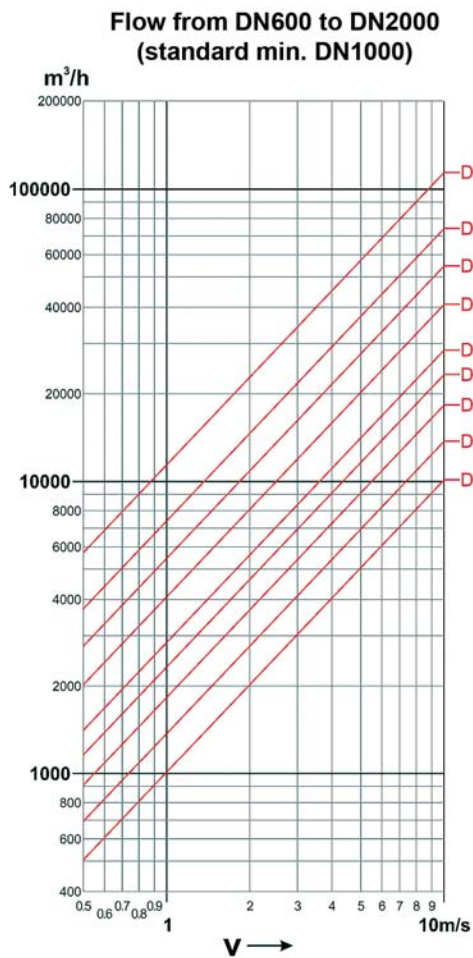
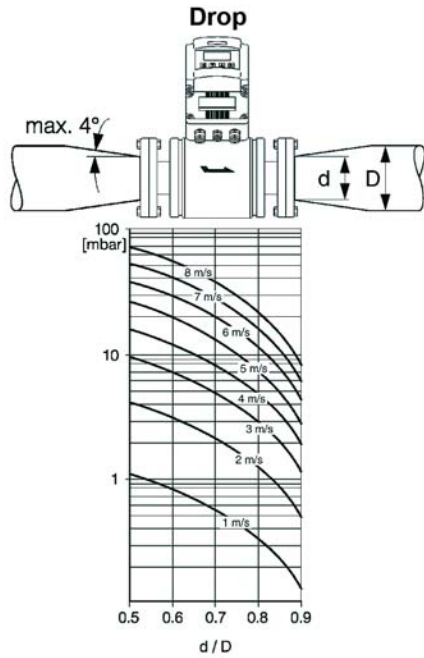
Installation may be vertical or horizontal but in the latter case, ensure that there is no deposit of material on the electrodes.

Installation must take place in such a position that the piping cannot be emptied.



# ELECTROMAGNETIC FLOW METERS DIAMETER SELECTION TABLE

## ABACUS FOR THE OPTIMAL SELECTION OF THE MEASURING TUBE



# ELECTROMAGNETIC FLOW METERS



## CH 608 A/B/R Converter

The 608 converter has been designed with the purpose of meeting all the requirements of modern water management systems.

It supports extended functions which make it perfectly suitable for measuring and billing in civil, industrial and agricultural sector and for flow measurement in residual water treatment.

### Hardware features, software features and functions CH 608 A/B/R

Converter installation	Compact on the sensor or remote on support, up to 100 m far from the sensor
Converter case	Epoxy painted aluminum, IP 67. With front window in toughened glass.
Power supply	<p>CH608A 90...264 Vac; 12/24 Vac/dc</p> <p>CH608B Battery powered or 12/24 Vac/dc ; Expected battery life T=0 / 50°C ( 32 / 122 °F) ; Internal battery pack 6-10 years</p> <p>CH608R Rechargeable battery + 10 Watt photovoltaic panel</p>
Output signals	<p>Active analogue output 4 ÷ 20 mA ; Digital output for pulses maxim 1000 Hz duty cycle max 50% for instant flow, positive only, positive and negative</p> <p>Programmable digital output for: – Maximum pulses 1000 Hz duty cycle max 50% for negative flow; – Negative flow indication; – Cumulative alarm</p> <p>Digital output in active frequency 0 ÷ 10 kHz</p>
Temperature	Process -10°C ÷ 70°C ; Ambient -20°C ÷ 60°C; Storing -30°C ÷ 70°C
Display	<p>graphic LCD 128x64 pixels, visual area 50x25mm, backlit</p> <p>simultaneous indications: counter, instant variable and status flags</p> <p>4 totalizers available (2 positive totals and 2 negative totals)</p>
Programming	<p>– with 4 push buttons for non-billing applications</p> <p>– through IrCOM interface and dedicated software</p> <p>– via RS485 MODBUS RTU protocol</p>
Process data logger	4 MB flash memory, 200,000 lines of data (one line includes: instant flow, 2 counters, date, time, temperature)
Diagnostics data logger	64 kB EEPROM, 2000 lines of data (one line includes: date, time, temperature, error codes, user actions with changes made)

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	CH2200	CH2500	CH2400	CH1000
				
<b>Connection to process</b>				
Dimensions	DN15...DN400	DN 450...DN2000	DN25...DN100	DN25...DN300
Connections	UNI 2223 on request ANSI 150; ANSI 300; AWWA CI.D; ANSI 600		TRICLAMP on request DIN 11851; SMS fil. male	WAFER
Pressure	PN10...PN64		PN10...PN40	PN16...PN40
<b>Accuracy</b>				
With liquid speed ≥ 0.2 m/s	0.2%	0.2%	0.2%	0.2%
<b>Materials</b>				
Inner lining	PFTE on request EBANITE	EBANITE on request PTFE	PFTE	PFTE on request EBANITE
Electrodes	HASTELLOY C on request Titanium, Tantalum, Platinum		HASTELLOY C on request Titanium, Tantalum	
No. of electrodes	3 x DN15...40 4 x DN50...400	4	2	3 x DN15...40 4 x DN50...300
Body	Carbon steel		AISI 304	Carbon steel
Flange	Carbon steel		AISI 304	-
<b>Process temperature</b>				
Compact version with converter integral with the sensor	-25 ÷ 80°C	-25 ÷ 80°C	-25 ÷ 80°C	-25 ÷ 80°C
Separated version with converter separated from the sensor	-25 ÷ 200°C	-25 ÷ 200°C	-25 ÷ 130°C	-25 ÷ 130°C
<b>Protection grade</b>				
Compact version with converter integral with the sensor	IP67	IP67	IP67	IP67
Separated version with converter separated from the sensor	IP68	IP68	IP68	IP68
<b>Certifications</b>				
ATEX II 2 GD EEx mb IIC T4 U	on request	on request	on request	on request

CH500	CH2660	CH2770	CH2700	CH1222
				
<b>Connection to process</b>				
DN3...DN20	DN80...DN500	DN100...DN4000	DN100...DN4000	DN40...DN1000
GAS on request NPT; TRICLAMP; DIN 11851	INSERTION THREADED	INSERTION FLANGED UNI2278 DN40	INSERTION Welded sleeve 2"	INSERTION
PN16	PN10		PN25	PN20
<b>Accuracy</b>				
0,2%	2%	2%	2%	2%
<b>Materials</b>				
PFTE	PFTE	PFTE	PFTE	PFTE
AISI316 L	AISI316 L	AISI316 L	AISI316 L	AISI316 L
2	2	2	2	2
AISI 304	AISI 304	AISI 304	AISI 304	AISI 304
AISI 316 L	-	Carbon steel	Ball valve AISI 316 L	
<b>Process temperature</b>				
-25 ÷ 80°C	-25 ÷ 80°C	-25 ÷ 80°C	-25 ÷ 80°C	-25 ÷ 80°C
-25 ÷ 130°C	-25 ÷ 130°C	-25 ÷ 130°C	-25 ÷ 130°C	-25 ÷ 130°C
<b>Protection grade</b>				
IP67	IP67	IP67	IP67	IP67
IP68	IP68	IP68	IP68	IP68
<b>Certifications</b>				
on request	on request	on request	on request	on request

# FIXED OR PORTABLE ULTRASONIC "TRANSIT TIME" FLOW METERS FOR PRESSURIZED LINES

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Mod. **S101F** for fixed installation



The flow measurement systems **S101F** and **200H** consist of a digital converter and two ultrasonic **clamp-on** or **insertion** transducers.

The transit time of a fluid inside a pipe with a cylindrical section is the operating principle on which the instrument is based to calculate the value of the instantaneous flow rate.

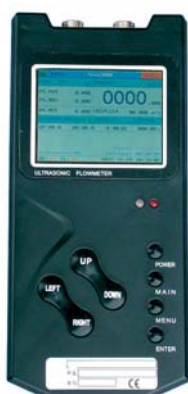
## DSP technology

Digital Signal Processing technology (DSP), ensures low sensitivity of the system to any potential disturbing factors.

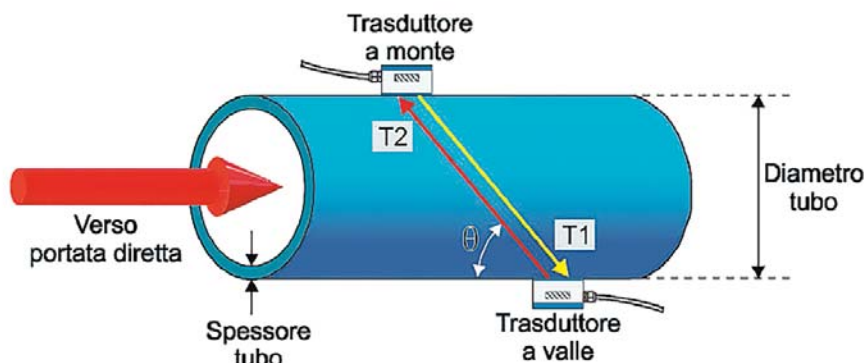
The pipe dimensions may vary from 20 to 4000 mm (by using different transducers) while liquids can be: ultra-pure, drinking water, chemicals, dirty water, cooling water, river water etc.

As far as the transducers are applied externally to the pipe, are not in contact with the liquid and have no moving parts, the transmitter will not be damaged by wear, deposits or pressure.

All the configuration values entered by user are saved on the EEPROM, which is password-protected to prevent accidental changes.



Mod. **200H** portable



DSP technology - diagram

## Hardware features, software features and functions

Models	S101F	200H
Measurement on pipes	from DN 20 to 4000mm	from DN 20 to 4000mm
Piping material	steel, stainless steel, cast iron, copper, PVC, aluminium, fibreglass-reinforced plastic (cement with insertion transducers)	
Measurement units (user selectable)	metres, cubic metres, litres, feet, cubic feet, U.S. gallons, imperial gallons, oil barrels, U.S. oil barrels, imperial oil barrels, millions of U.S. gallons	
Type of liquid	virtually all liquids that transmit sound waves	
Speed range	± 32m/s	
Linearity	0.5% ; repeatability: 0.2% ; total accuracy ± 1%	
Response time	programmable from 1 to 999s	
Display	2 x 2016 alphanumeric characters	4 lines 16 alphanumeric characters
Keypad	4 membrane buttons	8 buttons
Internal data logger	optional	storage capacity up to 16GB
Displayed data	instantaneous flow rate; total flow; other	
Internal volume totalizers	7 digit totalizer; 7 digit direct flow counter; 7 digit reverse flow counter	
Safety	setup and change settings password protected	
Selectable output	4 ÷ 20 mA or 0 ÷ 20 mA	–
Frequency output	programmable 0 ÷ 9999 Hz	–
Output relay	for pulse or alarm totalizer	–
Signal interface	RS485	
Communication protocol	MODBUS RTU; MODBUS ASCII	
Power supply	230Vac / 24Vdc	external p. supply 100 ± 253Vac
Rechargeable batteries	–	three (3) AAA Ni-mH integrated with autonomy >10 hours
Mounting	wall-mounted	portable
Housing	aluminium	ABS
Dimensions (L x H x P)	215 x 158 x 74 mm	case 460 x 400 x 110 mm
Weight	3.1 kg	4.5 kg
Operating temperature	-30 ÷ 80°C	–
Maximum humidity	85% RH non-condensing (40°C)	–
Process temperature	sensor 0 ÷ 150°C	–
Sensor humidity	98% RH non-condensing (40°C)	–

Controllers

Sensors

Analysers

Samplers

Flow

Level

Pressure

Web App

Remote control

Data logging

Accessories

# FIXED OR PORTABLE "DOPPLER" EFFECT FLOW METERS FOR PRESSURIZED LINES

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Flow

Level

Pressure

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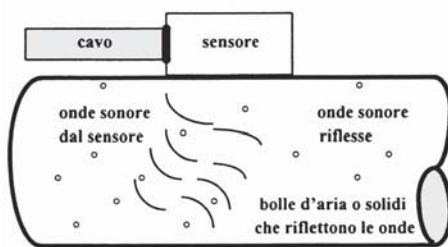
Accessories



**DFM-5.0** fixed meter



**PDFM-5.0** portable meter



operating principle - diagram

The **DFM-5.0** Doppler effect flow transmitter is suitable for most liquids, such as water, waste water, chemical liquids, sludge and viscous liquids. It controls, indicates, totalizes and transmits the flow rate in gallons, liters or other measurement units.

The **PDFM-5.0** Doppler effect flow meter is suitable for monitoring a flow rate or to identify problems encountered in a closed pipe.

## Operating principle

The sensor transmits high frequency sounds into the liquid, through the pipe wall. The pulses are reflected and sent back to the sensor by solid particles and air bubbles present into the fluid. Because of the fluid's movement, the reflected sounds return to the sensor with an altered frequency (Doppler effect). **DFM-5.0** and **PDFM-5.0** continuously measures the frequency deviation in order to ensure very precise measurement of the velocity of the fluid and thus the flow rate.

## Installation

Can be done without stopping the plant. There is no contact between the sensitive element and the fluid whose flow rate is to be measured and no cutting or drilling are required on the pipe. The sensor is of a parallelepiped shape, is not affected by dirt or deposits and is easy to mount on the outside of a pipe using a tape.

## Easy programming

Using the program buttons can be easily accessed the programming menu where it is possible to select the diameter of the pipe, to set the engineering units (gallons, litres etc.), the totalization velocity, the relays, the sensitivity and the damping. Totalisation and calibration data are password-protected and also protected against power failures.

## Application

**DFM-5.0** is recommended for liquids containing solids or air bubbles; the sensor is mounted on the outside of a pipe made off steel, iron, PVC or ABS.

**PDFM-5.0** is an ideal instrument for evaluating the performance of flow meters inserted in line. Can be installed, calibrated and commissioned in a few minutes and, therefore, used as a temporary substitution of an in line transmitter.

## Hardware features, software features and functions

Models	DFM-5.0	PDFM-5.0
Measuring range	0.08 ÷ 112.2 m/sec	0.03 ÷ 112.2 m/sec
Piping	1/2" ÷ 180" (12.7 mm ÷ 4.5 m)	
Precision	± 2% (suspended solids or air bubbles with a min. diameter of 100 microns and concentration of 75 ppm are required)	
Repeatability / Linearity	± 0.1% / ± 0.5%	
Sensitivity / Damping	adjustable / adjustable	
Protection	on sensor, signal and power supply	
Display	LCD 16 alphanumeric digits	
Indication	flow rate value 4 digits (19 mm); totalization; menu; status; signal	
Calibration keypad	3 frontal buttons	5 frontal buttons
Data logger	optional	programmable
Capacity	2,000,000 recordable points	300,000 recordable points printed with time or formatted report of the flow rate with total, minimum, maximum and average (time if required)
Output	4 ÷ 20 mA; 1000 ohm	4 ÷ 20 mA; 500 ohm (when powered by mains)
USB port	optional	included
Control relays	Two (2) SPDT; 5A; programmable (for alarms and/or pulses proportional to the flow rate)	–
Power supply	100 ÷ 160 Vca; 180 ÷ 260 Vca; 12 or 24 Vdc	integrated 12 Vdc AAA rechargeable batteries, 24 hours autonomy
Battery charger	–	built-in, network selectable 115 or 230 Vac or external 12 Vdc
Cable (optional)	up to 150 m	15 m
Mounting	wall	portable
Installation kit	stainless steel tape and 150 g of silicone paste	
Housing	watertight NEMA 4X (IP67), fibreglass and transparent front	ABS (IP 67) with case
Dimensions (L x H x P)	188 x 278 x 130 mm	110 x 204 x 41 mm
Weight	–	approx. 4 kg
Operating temperature	-5 ÷ 40°C	-23 ÷ 60°C
Sensor	<b>SE4 A</b> – external installation, for piping of internal diameter from 12.7 mm to 4.5 m	<b>PSE4</b> – external installation, for piping of internal diameter from 12.5 mm to 4.5 m or higher

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Analysers

Samplers

Flow

Level

Pressure

Web App

Remote control

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Accessories

# FIXED OR PORTABLE "AREA X VELOCITY" FLOW METERS

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Pressure

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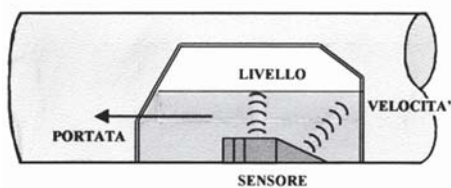
Accessories



**AVFM 5.0** fixed meter



**STINGRAY** portable meter



operating principle - diagram

The **AVFM 5.0** system simultaneously measures the level and the velocity of the fluid in order to calculate the flow rate into an open channel or a pipe.

The **STINGRAY** portable instrument works for a very long period of time powered by alkaline batteries and stores measurements of water level, velocity and temperature in open channels and in partially filled or pressurised pipes without the need for constrictions or weirs.

## Operating principle

The immersible ultrasonic sensor continuously monitors both the velocity and the level of the channel or piping by transmitting high frequency sounds into the liquid, through the pipe wall. The pulses are reflected and sent back to the sensor by solid particles and air bubbles present into the fluid. Because of the fluid's movement, the reflected sounds return to the sensor with an altered frequency (Doppler effect).

The best accuracy is achieved if the flow does not have an excessive turbulence and the velocity on the sensor is not less than 1 m/sec. The channel, right upstream of the sensor, must not have abrupt changes in the level of the bottom and a slope of no more than 3%. The conditions downstream of the sensor do not affect the measurement if the surface profile is not changed right above the sensor itself.

## Easy calibration

To calibrate **AVFM 5.0** just insert the pipe diameter or the channel width and choose the measurement unit from the menu. The flow rate, level and velocity can be expressed in gallons, litres, ft<sup>3</sup> or m<sup>3</sup>. The calibration parameters remain stored even in the absence of tension.

For **STINGRAY** no calibration is required. On the front there is a bar indicating the velocity, level, temperature, battery status and finally the used/available memory. The display automatically turns off after 60 seconds to save power. The software allows the user to set the sampling intervals, to download the files and to get an indication of the variables. The logger displays the files and the calculated velocity in trend graphs and tables, including the minimum and maximum values, the average and total flow rate in normal measurement units.

## Hardware features, software features and functions

Models	AVFM 5.0	STINGRAY
Precision	Level $\pm 0.25\%$ of the range ; Velocity $\pm 2\%$ of the reading	
Precision	$\pm 2\%$ (suspended solids or air bubbles with a min. diameter of 100 microns and concentration of 75 ppm are required)	
Repeatability / Linearity	$\pm 0.1\%$ / $\pm 0.5\%$	
Sensitivity / Damping	adjustable / adjustable	
Protection	on sensor, signal and power supply	
Display	LCD 16 alphanumeric digits	
Indication	flow rate value 4 digits (19 mm); totalization; menu; status; signal	
Calibration keypad	3 frontal buttons	5 frontal buttons
Data logger	optional	programmable
Capacity	2,000,000 recordable points	300,000 recordable points printed with time or formatted report of the flow rate with total, minimum, maximum and average (time if required)
Output	4 $\div$ 20 mA; 1000 ohm	4 $\div$ 20 mA; 500 ohm (when powered by mains)
USB port	optional	included
Control relays	Two (2) SPDT; 5A; programmable (for alarms and/or pulses proportional to the flow rate)	–
Power supply	100 $\div$ 160 Vca; 180 $\div$ 260 Vca; 12 or 24 Vcc	integrated 12 Vdc AAA rechargeable batteries, 24 hours autonomy
Battery charger	–	built-in, network selectable 115 or 230 Vac or external 12 Vdc
Cable (optional)	up to 150 m	15 m
Mounting	wall	portable
Housing	watertight NEMA 4X (IP67), fibreglass and transparent front	ABS (IP 67) with case
Dimensions (L x H x P)	188 x 278 x 130 mm	208 x 166 x 86 mm
Weight	–	approx. 4 kg
Operating temperature	-5 $\div$ 40°C	-23 $\div$ 60°C
Sensor	Standard sensor, <b>QZ02L</b> submersible – velocity and level measurements. Separate versions or for high temperatures on request	<b>QZ02L</b> Submersible level-velocity ultrasonic sensor. For high temperatures on request
Operating temperature	-40 $\div$ 95°C	-40 $\div$ 120 °C

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Pressure

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Accessories

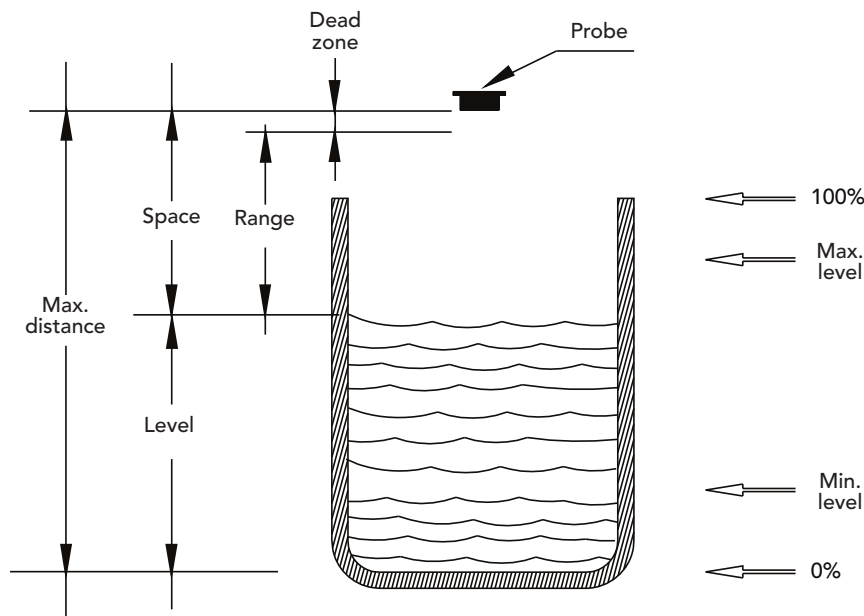


## 4204 L/U

### Main features

- Ultrasonic level measurement, single level, double level, differential level
- Automatic temperature compensation
- Programming keypad with 6 bubble-keys
- Graphic display
- Pumps operation: single, rotation or timed
- RS485 MODBUS RTU serial output
- 2 Programmable analogue outputs
- 5 Relay outputs for intervention thresholds for pumps control
- 1 Relay output for instrument anomaly alarm / for flow totalization / or level 2 alarm
- 5 Digital inputs pumps operation / anomaly

### Main operating settings



**DEAD ZONE** Distance of insensitivity of the transducer measured from the active surface of the transducer. (~ 30/40/70 cm in relation to the type of probe connected)

**DISTANCE** Interval between the transducer face and the liquid surface inside the tank or equivalent. The distance cannot be higher than the range of the transducer.

**RANGE** Measurement interval. Freely programmable within the range of the transducer - dead zone; is therefore the theoretical operating range of the System.

**LEVEL** The interval between the zero level and the liquid surface level inside the tank or equivalent.

**MAX LEV** It is the MAX operating level above which the system gives an alarm.

**MIN LEV** It is the MIN operating level below which the system gives an alarm.

**MAX DISTANCE** Max distance between the transducer surface and the vacuum level (zero).

**SPACE** Interval between the surface of the liquid inside the tank or equivalent and the dead zone.

## Hardware features, software features and functions 4204 L/U

<b>Measurement features</b>	
Measurement unit	Level: mt, cm, mm – Temperature: °C
Measuring ranges	Level 0.30 ÷ 5.00/0.40 ÷ 8.00/ 0.70 ÷ 12.00 mt (in relation to the probe connected) Temperature -25°C - +75°C
Precision	± 0.2% F.S.
<b>Hardware features</b>	
Display	Backlit 128x64 graphic STN LCD  Simultaneous indication of: Level (absolute / differential + bar graph for percentage of full scale), Temperature, Status of digital outputs (led), Alarm events.  In scrolling: Level 2, Status of analogue outputs
Controls	6 keys
DATA LOGGER	Internal with 4 Mbit Flash
Serial output	One (1) RS485 MODBUS RTU galvanically isolated
Analogue outputs	Two (2) Programmable galvanically isolated 1°Output: Level / Temperature – 2° Output: level 2, differential, temperature
Relay outputs	Five (5) for Thresholds – One (1) for Alarm (max.load 1A at 230Vac resistive)
Digital inputs	Five (5) programmable
Power supply	100 ÷ 240Vac/dc 50-60Hz (Optional 24Vac/dc) – Transformer Insulation 4KV
Power consumption	< 12W
Dimensions /Weight	Dimensions: (L x H x P) 144 x 144 x 122.5mm – Weight: 1 Kg
<b>Analogue outputs</b>	Primary Secondary
Quantity	Level Level / Temperature
Type	0.00 ÷ 20.00 mA / 4.00 ÷ 20.00 mA
Range	Programming limits: Lower / Upper
Maximum load	500 Ohm
Alarm output	NAMUR 2.4 mA (with range 4/20mA)
<b>Relay outputs (5)</b>	
Function – selectable	Thresholds Pulses
<b>Alarm</b>	
Function	Echo loss alarm
Programming	Time out (echo absence time): 00:00 ÷ 24:00 h
<b>Operating conditions</b>	
Temperature	operating 0÷50°C ; storage and transport -25÷65°C
Humidity	10-95% non-condensing
Mechanical protection	Closed IP66 EN60529
EMI / RFI	CEI-EN55011 – 05/99

# ULTRASOUND LEVEL PROBE

Controllers

Sensors

Analysers

Samplers

Flow

Level

Pressure

Web App

Remote control

Data logging

Accessories



Ultrasonic level measurement, without contact, suitable for measurement of liquids, with integrated temperature sensor for temperature compensation.

## S425C

### Features and advantages

**PVDF body** resistant to aggressive environments

**High resolution measurement** 1mm

Double threaded connection

**Immediate installation** with disconnectable connector (IP67)

**Modbus RTU Protocol**

### Technical specifications S425C

Models	S425C-5	S425C-8	S425C 12
Measuring ranges	30 cm - 500 cm	40 cm - 800 cm	70 cm - 1200 cm
Measuring method	Ultrasonic with automatic temperature compensation		
Emission angle	14° ±1°		7° ±1°
Accuracy	± 0.2% of the measured distance (but not better than 2 mm)		
Resolution	1 mm		
Operating temperature	-10°C ÷ 75°C		
Maximum pressure	0.5 bar ÷ 1.5 bar		
Body materials	PVDF – PCV		
Thread	1" g.m ; 1.5" g.m.		1" g.m
Protection grade	IP67 ( IP68 optional )		
Electrical connection	screw connector		
Power supply	24 Vdc		
Power consumption	2 W		
Cable	5 meters	8 meters	12 meters
Current output	optional max load 500 ohm		
Signal interface	Modbus RTU Standard Protocol RS485		

## PIEZOMETRIC TRANSDUCER



The absence of a separation liquid between the membrane and the pressure sensor, the "Dry-Pressure" measuring technology, allows you to have superior technological overpressure performance, small thermal drifts, high stability and accuracy.

## KPL / 36 XKY

# ULTRASONIC LEVEL TRANSMITTERS



The measurement technology used by the METER level transmitter is the emission of a short ultrasonic pulse. The ultrasonic wave propagates towards the surface of the product to be measured, bouncing back on its surface towards the sensor. The time interval that elapses between the emission and the reception of the wave is called the flight time and it is proportional to the distance measured, therefore to the level.

## METER

### Available versions

RANGE 5M	4 wires, 2 relays ; 4 wires, 2 relays, MODBUS 2 wires; 2 wires HART; 2 wires HART, ATEX
RANGE 8M	2 wires; 2 wires, HART, ATEX 4 wires, 2 relays; 4 wires, 2 relays, MODBUS

Programming takes place via a removable module (keypad/display). Once programming is complete, it is possible to remove the module (keypad/display), leaving the level transmitter operational but with no display on board.

### Hardware features, software features and functions METER

Measuring range	0.25 ÷ 5 m ; max. 0.4 ÷ 8 m (Distances expressed are valid for measurements of perfectly reflective surfaces, otherwise the maximum measurable distance is reduced)
Temp. compensation	digital between -30 ÷ +80°C
Accuracy	±0.5% (of the measured distance) but not less than ±3mm
Resolution	1 mm
Operating temperature	-30 ÷ +70°C; +80°C non-continuous
Pressure	from 0.5 to 1.5 bar (absolute)
Programming / Display	removable module with 4 keys and dot matrix LCD (or via HART / MODBUS RTU on request)
Housing material	PC or Al / PP or PVDF wetted part (ATEX certified versions only of PVDF)
Mechanical installation	2" GAS M (PP flange DN80 opt.)
Protection grade	IP67
Power supply	2 wires version 20 ÷ 30Vdc ; 4 wires version 24Vdc
Power Consumption	2 wires version 0.6 W ; 4 wires version 1.5 W
Analogue output	4÷20mA, max 750ohm (4 wires version)
Output relays	4 wires version two (2) 3A 230Vac (n.a.)
Digital communication	2 wires version (opt.) HART ; 4 wires version MODBUS RTU
Ex-proof	ATEX II 1/2G Ex ia II C T6

# MICROWAVE LEVEL TRANSMITTERS (RADAR)

Controllers

Sensors

Analysers

Samplers

Flow

Level

Pressure

Web App

Remote control

Data logging

Accessories



RPL devices are instruments for level measurement without contact with the product. The radar pulses emitted by the antenna are reflected from the surface of the product and subsequently received by the antenna itself. The integrated management system of the RPL devices uses the flight time to obtain the distance of the surface of the product from the probe and, consequently, the level.

## RPL

### Features

- Continuous level measurement without contact of solids, liquids, pastes and sludges
- Measurement independent from physical features variations of the product
- Dust, vapours and temperature variations do not interfere with measurement
- Configuration with guided menu using the alphanumeric display
- 2/4 wires technology

### Hardware features, software features and functions RPL

Models	RPL51	RPL52	RPL55	RPL56	RPL58
Type	with threaded fitting			with threaded fitting and emission cone	
Applications	Highly aggressive liquids with nondemanding process conditions	Highly aggressive liquids	Highly aggressive liquids	Extreme process conditions	Extreme process conditions
Measuring range	30 m	30 m	10 m	30 m	70 m
Accuracy	± 10 mm	± 10 mm	± 5 mm	± 3 mm	± 15 mm
Operating temperature	-20 ÷ 100° C -20 ÷ 120° C	-40 ÷ 150 °C	-40 ÷ 120° C	-40 ÷ 200 °C	-40 ÷ 200 °C
Process pressure	-1 ÷ 3 bar	-1 ÷ 16 bar	-1 ÷ 3 bar	-1 ÷ 40 bar	-1 ÷ 16 bar
Connection to process	G 1" ½ A PVDF	Flange AISI 316L DN50, DN80, DN100, DN150 PN16	G 1" ½ A PTFE	G 1" ½ A AISI 316L Additional flange	G 1" ½ A Additional flange
Antenna material	PP PTFE	PTFE	PTFE	AISI 316L PTFE	AISI 316L PTFE
Frequency range	6GHz	6GHz	6GHz	26GHz	26GHz
Output signal	2/4 wires ; 4 ÷ 20mA ; HART				
Protection grade	IP67				

# MICROWAVE LEVEL TRANSMITTERS (RADAR)



The instrument emits high frequency pulses. The "GODA" measuring technique, combined with the management system, allows the RWL units to be used even in particularly demanding process conditions such as: high temperature, high pressure, low dielectric constant etc.

## RWL

### Features

Continuous measurement of dust levels on solid materials of variable consistency and liquids (dust, vapours and temperature variations do not interfere with the measurement)

Available probes:

- rope probes for measuring loose solids, measuring range up to 30 m
- rod probes in particular for measuring liquids, measuring range up to 6m
- coaxial probes for liquid products, measuring range up to 6m

Configuration with guided menu and calibration by means of entering the empty and full distances without product movement, through alphanumeric display

Storage and recognition system of false signals

### Hardware features, software features and functions RWL

Models	RWL51	RWL52	RWL53	RWL54
Probe type	rope Ø 4/6mm rod Ø 10mm	rod Ø 10mm	coaxial Ø 28mm	rope Ø 4/6mm rod Ø 10mm
Applications	for liquids/solids	for liquids/solids	for liquids with low dielectric constant	for liquids with high process temperatures / pressures
Measuring range	rope 30 m rod 3 m	rod 3 m	coaxial 3 m	rope 30 m rod 3 m
Accuracy	± 10 mm			
Operating temperature	-40 ÷ 150 °C			-40 ÷ 250 °C
Process pressure	-1 ÷ 40 bar			
Connection to process (AISI 316L)	1 ½" G 2" G	DN50 PN16 DN80 PN16 DN100 PN16 DN150 PN16	1 ½" G 2" G	1 ½" G 2" G
Display	level and curve measurement of echo signal shown on alphanumeric display			
Rope/Rod material	AISI 316L / PTFE			
Gaskets	Viton ( -30 ÷ 130°C ) ; Kalrez ( -40 ÷ 150°C )			
Protection grade	IP67			
Communication protocol	HART optional			
Certifications	CENELEC			

Controllers

Sensors

Analysers

Samplers

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Level

Pressure

Web App

Remote control

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Accessories

# SLUDGE INTERFACE LEVEL METER

Controllers

Sensors

Analysers

Samplers

Flow

Level

Pressure

Web App

Remote control

Data logging

Accessories



Control unit



Power supply unit



Level Sensor

Level (otp. Turbidity) Sensor with wiper

## EchoSmart™

Ultrasonic measuring system with submerged sensor (Sonar)

### EchoSmart™ Sensors

EchoSmart sensors generate and process the ultrasound signal for real-time measurement with maximum flexibility of the liquid/solid interface.

They have greater signal control and the performance of the control algorithms, specifically developed and field tested, has been confirmed in the U.S. and around the world.

### Flexibility

#### Available options

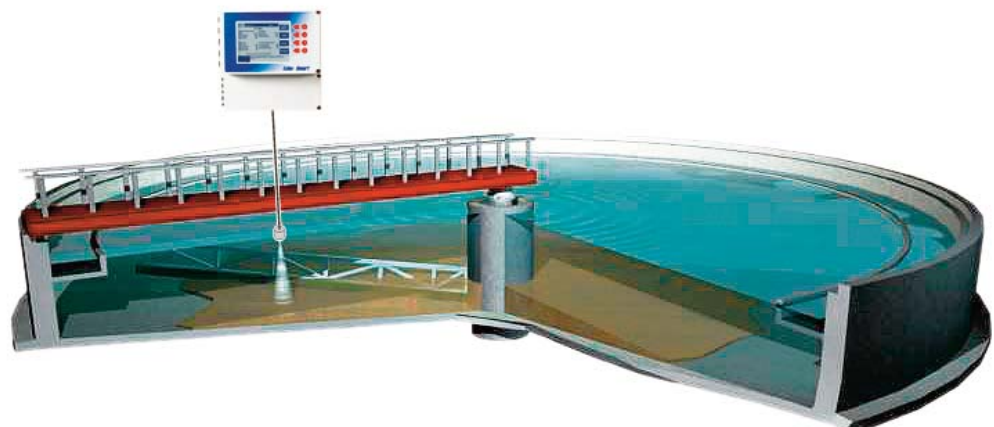
- EchoSmart sensor in conjunction with the EchoSmart control unit
- EchoSmart with sensor in conjunction with the power supply unit (remote programming via EchoSmart Console SW)

#### EchoSmart Networks

- Network interconnection of up to 128 EchoSmart sensors
- Communication via RS-485 or Ethernet
- RF compatible ZigBee network integration

### Easy to use

- Large display with intuitive screens for quick entry of parameters
- Soft Keys operation with Guide for all settings
- Initialisation and automatic calibration for quick start-up with no process interruption



### EchoSmart Network

- An EchoSmart network consists of 2 and up to 128 sensors interconnected with a wired or wireless network
- For the wired networks here are available **RS-485 Serial - MODBUS RTU** or Ethernet connections
- The ZigBee wireless system is also available and it is the ideal choice, considering the enormous reduction plant engineering (wiring and piping) costs

### Features

- Up to 16 EchoSmart sensors can be connected in a network with a single EchoSmart controller with optimised operation and significantly reduced costs
- ZigBee with "self-healing" mesh technology ensures reliable communication by eliminating unnecessary piping and wiring costs

### Hardware features, software features and functions EchoSmart™

	Sensor	Control unit	Power supply unit
Measuring range	0.305 ÷ 10.0 mt	-	-
Measuring principle	Ultrasonic submersion	-	-
Measuring interval	Adjustable	-	-
Resolution	3.05 mm ÷ 3 m	-	-
Accuracy	0.03 m ÷ 3 m	-	-
Operating temperature	1 ÷ 52°C	-	-
Calibration	Factory calibrated; Adjustable speed of sound	-	-
Display	-	Monochrome graphic Backlit 320 x 240 pixels ; visual area 92 x 122 mm	-
Material	ABS and Epoxy	Polycarbonate NEMA 4X with IP65 protection	
Self-cleaning wiper	Silicon (Optional)	-	-
Environmental conditions	-	- 40° ÷ 60° C	- 40° ÷ 60° C
Power supply	15 VDC	100 ÷ 240 VAC, 50/60 Hz 1A – optional 24VDC	
Power	3W with wiper 6W	65 W (fuse)	20 W 1.34A
Relay (optional)	-	four (4) 10A @ 250 VAC; 10A@ 30VDC	-
Mounting	Fixed or flexible	wall or pipe	-
Dimensions (L x H x P)	standard 62 x 75 mm with wiper 146 x 75 mm	235 x 229 x 115 mm	181 x 181 x 61 mm
Weight	standard 1.02 kg with wiper 1.25 kg	approx. 1.36 kg	approx. 0.68 kg



# PIEZORESISTIVE LEVEL TRANSMITTERS

Controllers

Sensors

Analysers

Samplers

Flow

Level

Pressure

Web App

Remote control

Data logging

Accessories



## KPL

An ideal instrument for automating the process for measuring levels with hydrostatic head in duty applications. The absence of a separation liquid between the membrane and the pressure sensor, "Dry-Pressure" measurement technology, allows getting of superior technological performance in terms of overpressure, small temperature drifts, high stability and accuracy.

Measurement	from 0.1 bar (1m H <sub>2</sub> O) to 20 bar (200m H <sub>2</sub> O)
Accuracy / Stability	±0.5 % FS / ±0.1 % FS
Operating temperature	product -20°÷60° C ; ambient -20°÷70° C ; storing -40÷80°C
Output signal	4 ÷ 20mA
Power supply	10 ÷ 36Vdc, 2 wires
Material	membrane AISI316L ; probe submerged AISI304 ; cable PU (polyurethane)
Protection grade	IP68
Dimensions	probe submerged Ø 27 mm ; cable Ø 8 mm



## Series 36 XKY

Specifically designed for extended service in sewage lift station environments, the 36 XKY features a relatively wide sensing diaphragm yet small overall size. The 36 XKY incorporates a monolithic diaphragm made of Kynar® which combines the non-stick quality of Teflon with superior toughness and abrasion resistance that simplify installation and eliminate the need for bulky and expensive protective cages.

Standard pressure ranges (FS) and Overpressure in Bar			
PR-36 XKY	1	3	10
Overpressure	3	5	20
Output	2-cables analogue		RS485 only
Digital interface	4...20 mA		RS 485
Digital interface	RS485 <sup>1)</sup>		RS485
Power supply (VDC) <sup>2)</sup>	8...28 V		6...28 V
Accuracy at ambient temperature <sup>3)</sup>	+/- 0.3 %FS		+/- 0.3 %FS
Total error band <sup>4)</sup> 0...50 °C	8...28 V		6...28 V

<sup>1)</sup> During RS485 communication the analog signal will be influenced

<sup>2)</sup> With lightning protection: minimum supply voltage increase by 1 V

<sup>3)</sup> Includes linearity (BFSL), hysteresis and repeatability

<sup>4)</sup> Includes accuracy as well as temperature coefficients of zero and span tolerance.

Resolution	0.002 % FS
Linearity (BFSL)	+/- 0.2 % FS
Temperature	storage -10...80 °C ; compensated 0...50 °C
Communication	MODBUS RTU, 9600 baud and 115200 baud
Material in contact	stainless steel 316L / Kynar®
Dimensions	Ø 32 mm

# PIEZORESISTIVE LEVEL TRANSMITTERS



## Series 36 X S (STRAIT LINE)

These pressure transmitters are designed for level measurement in applications such as downhole in limited spaces, where the highest accuracy is required. Diameter of only 16 mm. The 36 XS level transmitter is available in two different versions:

- PAA-36 X S Absolute pressure, when the atmospheric pressure is measured by a separate barometer
- PR-36 X S Relative pressure, through tube for pressure compensation

### Standard pressure ranges (FS) and Overpressure in Bar

PR-36 X S	1	3	10
PAA-36 X S		0.8...3	0.8...10
Overpressure	3	5	20

Output	4...20 mA / RS 485
Power supply (U)	10...30 Vdc
Error band <sup>(*)</sup>	0.2 %FS (within the compensated temperature range)

<sup>(\*)</sup> Linearity + Hysteresis + Repeatability + Temperature Coefficients + Zero + Span Tolerance

Linearity / Resolution	0.025 % FS / 0.002 %FS
Long term stability	Range ≤ 1 bar 2 mbar ; Range > 1 bar 0.2 % FS
Temperature	storage / operating -20 ÷ 80 °C ; compensated 0 ÷ 50 °C
Material in contact	stainless steel AISI 316L / Viton® / PE
Protection grade	IP68



## Series 36 X W

High accuracy level transmitter digitally compensated / variable range / analogue and digital output. It is based on the stable, piezoresistive transducer and a micro-processor electronics with integrated 16 bit A/D converter. Temperature dependencies and non-linearities of the sensor are mathematically compensate.

### Standard pressure ranges (FS) and Overpressure in Bar

PR-36 X W	1	3	10	30
PAA-36 X W	1	3	10	30
Overpressure	3	5	20	60

Output	(digital) RS 485	(analogue) 4...20 mA (2 wires)	(analogue) 0...10 V (3 wires)
Power supply (U)	8...28 Vdc	8...28 Vdc	13...28 Vdc
Accuracy, Error band <sup>(*)</sup> 0...50 °C	0.1 %FS	0.15 %FS	0.15 %FS

<sup>(\*)</sup> Linearity + Hysteresis + Repeatability + Temperature Coefficients + Zero + Span Tolerance

Linearity / Resolution	0.025 % FS / 0.002 %FS
Long term stability	Range ≤ 1 bar 1 mbar ; Range > 1 bar 0.1 % FS
Temperature	storage/operating -20...80 °C
Pressure endurance	10 million pressure cycles 0...100 % FS at 25 °C
Contact material	stainless steel 316L (DIN 1.4435) / Viton® / PE
Protection grade	IP 68, resistant to ice

# PIEZORESISTIVE PRESSURE TRANSMITTERS

Controllers

Sensors

Analysers

Samplers

Flow

Level

Pressure

Web App

Remote control

Data logging

Accessories



## Series 21 Y

The Y-line transmitters have an extremely small temperature error. This result is achieved by using an additional circuit containing a temperature sensor that subdivides the temperature range into fields that are 1.5 Kelvin (K) wide. The TK zero and TK compensation values are calculated for each field and programmed into the additional circuit.

<b>Pressure ranges</b> (all intermediate ranges possible)	<b>PR-21 Y</b> 2...10 bar FS	<b>PAA-21 Y / PA-21 Y</b> 2...1000 bar FS
<b>Overpressure</b>	2 x pressure range, max 1100 bar	
<small>PAA: absolute values, zero at vacuum PA: sealed gauge, zero at 1000 mbar absolute PR: vented gauge, zero at atmospheric pressure</small>		
<b>Accuracy</b>		
<b>Linearity (best fitted straight line) <sup>1)</sup></b>	standard $\pm 0.25$ % FS ; max. $\pm 0.5$ %FS	
<b>Total error band <sup>2)</sup></b>	0...50 °C max. $\pm 1.0$ % FS ; 10...80 °C max. $\pm 1.5$ % FS	
<small><sup>1)</sup>Including hysteresis + repeatability <sup>2)</sup>Linearity + hysteresis + repeatability + temperature coefficients + zero + span tolerance</small>		
<b>Temperature</b>	storage / operating -40...100 °C	
<b>Stability</b>	PR Version max. $\pm 0.5$ % FS ; PAA/PA Version max. $\pm 0.3$ % FS	
<b>Signal output</b>	<b>2-cable model</b>	4...20 mA
<b>Power supply</b>	<b>2-cable model</b>	8...32 VDC



## Series 33 X • Series 35 X

This high precision 0.01 %FS is available as an option (the standard Series 33 X 33 X has an accuracy of 0.05% FS). These Series are based on the stable, floating piezoresistive transducer and a newly developed micro-processor with integrated 16 bit A/D converter. With the READ30 software and with the cable K-107, the calculated pressure can be displayed on a Laptop or a PC.

<b>Standard pressure ranges (FS) and Overpressure in Bar</b>									
PR 33 X / PD 33 X / PR 35 X		1	3	10	30				
PA(A) 33 X / PA(A) 35 X	0.8...1.2	1	3	10	30	100	300	700	1000
Overpressure	2	2	5	20	60	200	400	1000	1000
Overpr. referential press. side PD		2	5	7	20				
PD, static line pressure <sup>(*)</sup> / standard / high pressure						200 bar / 600 bar			
Output	(digital) RS 485					(2-cables analogue) 4...20 mA			
Power supply (U)	8...28 V / 3.5...12 V					8...28 V			
Accuracy, Error band	(10...40 °C)	0.05 %FS				(10...40 °C)	0.1 %FS		
	(-10...80 °C)	0.1 %FS				(-10...80 °C)	0.15 %FS		
Optional: Precision <sup>(**)</sup>	(10...40 °C)	0.01 %FS							
<small><sup>(*)</sup>Influence static line pressure &lt; 0.005 %FS/bar <sup>(**)</sup>Only for Series 33 X and for ranges <math>\geq 10</math> bar.</small>									
<b>Resolution</b>	0.002 % FS								
<b>Typical long term stability</b>	Relative: 1 mbar or 0.05 %FS Absolute: 0.5 mbar or 0.025 %FS (10...40 °C)								
<b>Temperature</b>	storage / operating -40...120 °C								
<b>Material in contact</b>	stainless steel 316L (DIN 1.4435) / Viton								
<b>Protection grade</b>	IP 65 on request: IP 67 or IP 68 (with cable)								

# PIEZORESISTIVE PRESSURE TRANSMITTERS



## Series 41 X • Series 41 X Ei

The Series 41 X combines the ceramic measurement cell for low pressure ranges with the  $\mu$ P electronics of the digital transmitter. The values can be displayed and stored on a PC via an RS485 interface. It is also available as intrinsically safe version (Series 41 X Ei) category 1 and 2.

Standard FS pressure ranges in mbar			
PR-41 X (relative) • PD-41 X (differential)	30	100	
Overpressure	300	1000	300
Negative overpressure	30	100	1500
Power supply (U) 41 X / 41 X Ei	(2-cables version) 8...28 VDC / 10...28 VDC		300
Analogue output (scaleable)	(2-cables version) 4...20 mA		
Stability	FS $\geq$ 100 mbar: $\pm$ 0.1 %FS FS $\leq$ 100 mbar: $\pm$ 0.1 mbar		
Temperature	operating -20...80 °C ; compensated 10...50 °C		
Error band <sup>(*)</sup>	$\pm$ 0.1 %FS standard		$\pm$ 0.2 %FS max.
<sup>(*)</sup> Within the compensated temperature range			
Pressure connection	G1/4" male, Viton® flat seal		
Material in contact	Stainless steel (AISI 316L) ; Nitrile O-ring; Gold-coated ceramic diaphragm		
Protection grade	IP40		
Special versions IP 67 ; alternative plugs ; with cable ; negative/positive pressure ranges: e.g. -10...+10 bar			



## Series PRD-33 X

The Series PRD-33 X has been developed for applications that require a high accuracy differential pressure measurement. Thanks to a second integrated pressure sensor, the line, or common mode, pressure can now be measured along with the differential pressure.

Differential pressure measurement (P1)			
Pressure range <sup>(*)</sup>	0...350 mbar	0...1 bar	0...3 bar
Precision <sup>(**)</sup> / Resolution	$\pm$ 0.1 %FS / 0.01 %FS	$\pm$ 0.05 %FS / 0.005 %FS	$\pm$ 0.05 %FS / 0.005 %FS
Total error band <sup>(***)</sup>	$\pm$ 1 % FS	$\pm$ 0.4 % FS	$\pm$ 0.2 % FS
Commune mode / line	0...40 bar abs	0...40 bar abs	0...40 bar abs
Line / Absolute pressure measurement (P2) <sup>(1)</sup>			
Pressure range	0...40 bar absolute		
Precision <sup>(**)</sup> / Resolution	$\pm$ 0.1 %FS / 0.005 %FS		
Total error band <sup>(***)</sup>	0.3 % FS		
<sup>(1)</sup> Measured at the High (+) pressure connection <sup>(*)</sup> Other pressure ranges on request <sup>(**)</sup> Includes linearity (BFSL) + Repeatability + Hysteresis <sup>(***)</sup> With temperature -30...+ 60 °C, includes Precision, Temperature error, Static line dependence			
Interface	Standard RS485	Low voltage RS485	
Network voltage	Standard 8...32 VDC	Low voltage 3.2...32 VDC	
Pressure connection	G1/4" female		
Temperature	storage/operating -40...+ 80 °C ; compensated -30...+ 60 °C		
Material in contact with media	Positive pole: stainless steel AISI 316L, silicon O-ring Negative pole: additionally gold, silicon		
Protection grade	IP 65, IP 67 or IP 68 optional		