

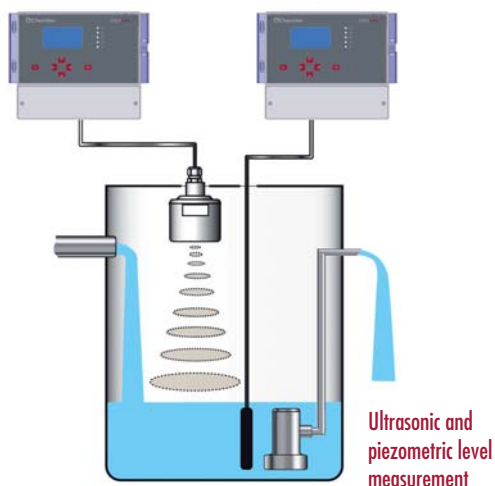


Levels & Pressure

Ultrasonic and piezometric level measurement

4004

Level meter/Differential level control with 5 pumps



Specifications

Level Range	Keyboard selectable 0.30 ÷ 5.00/0.40 ÷ 8.00/ 0.70 ÷ 12.00m in relation to the connected probe - Resolution ± 0.01 m - Precision: ± 0.2% FS
Temperature Range	-25 ÷ +75.0 °C – Resolution: 1°C - Precision: 1% F.S.
Tastiera di programmazione	6 keys
Graphic Display	Graphic DISPLAY LCD STN 128x64 back lighted. Simultaneous display of: level/flow and temperature measurement, digital output status. Analogues output values.
Internal Data logger	(flash 4 Mbit) with the possibility to display graphical and tabular trend of the measures with indication of the minimum, maximum and average period.
No.5 SET POINT	independent pump control, with programming of the working field (hysteresis) and logic operation between single, rotation and timed.
Alarm Digital Output	for minimum / maximum and malfunctions.
No. 5 Digital Input	Control Operation / pump malfunction.
Primary Analog Output	Level 1 , temperature. Programmable limits within the the probe measuring range
Secondary Analog Output	Level 1 , Temperature, Level 2 or differential. Programmable limits within the probe measuring range.
Hardware Specifications	Graphic DISPLAY LCD STN 128x64 back lighted Nr. 2 analog outputs 0/4÷20mA 500Ω galvanically separated Nr. 5 Set Point - Relay (max load. 1A a 230Vac resistive) Nr. 1 Alarm - Relay (max. load 1A a 230Vac resistive) Nr. 1 serial output RS 485 MODBUS protocol Nr. 5 digital inputs - 24V dc/ac
Power	90÷260Vac/dc 50-60Hz – (Optional 24Vac/dc) - Transformer Isolation 4KV
Power Consumption	<12W
Enclosure	ABS wall mounting - IP 65. - Dimensions: (L x H x P) 230x185x120mm / Weight: 1 Kg

S425 Ultrasonic and piezometric level sensors

S425 ULTRASONIC LEVEL SENSOR

S425/5 Ultrasonic level sensor with Measuring range of 0,3...5m

- ▶ Precision: +/- 0.5% V.L. (measured distance) or +/- 1 mm
- ▶ Resolution: 0.2 mm
- ▶ Transmission angle: 7°
- ▶ Temperature Compensation: PT100 from -30 to +80°C
- ▶ View: red LED x power-on, yellow LED x echo
- ▶ Power: 24Vdc (from ACP 4004)
- ▶ Power consumption: 1 W
- ▶ Communication port: RS485
- ▶ Operating Temperature: - 30 a + 80°C
- ▶ Pressure: from 0,5 to 1,5bar (absolute)
- ▶ Housing material: PP
- ▶ Dimensions: mm. 90x109 (0 x 1)
- ▶ Mechanical installation: 1"G.M.
- ▶ Protection Degree / Electrical connection: IP 68 with outgoing cable 4 pin 3m IP 65 with screw connector + 5m cable with connector



S425/ 8 Ultrasonic level sensor with Measuring range of 0,4...8m

- ▶ Precision: +/- 0.5% V.L. (measured distance) or +/- 1 mm
- ▶ Resolution: 0.2 mm
- ▶ Transmission angle: 7°
- ▶ Temperature Compensation: PT100 from -30 to +80°C
- ▶ View: red LED x power-on, yellow LED x echo
- ▶ Power: 24Vdc (from ACP 4004)
- ▶ Power consumption: 1 W
- ▶ Communication port: RS485
- ▶ Operating Temperature: - 30 a + 80°C
- ▶ Pressure: from 0,5 to 1,5bar (absolute)
- ▶ Housing material: PP
- ▶ Dimensions: mm. 90x109 (0 x 1)
- ▶ Mechanical installation: 1"G.M.
- ▶ Protection Degree / Electrical connection: IP 68 with outgoing cable 4 pin 3m IP 65 with screw connector + 5m cable with connector

S425/12 Ultrasonic level sensor with Measuring range of 0,7...12m

- ▶ Precision: +/- 0.5% V.L. (measured distance) or +/- 1 mm
- ▶ Resolution: 0.2 mm
- ▶ Transmission angle: 7°
- ▶ Temperature Compensation: PT100 from -30 to +80°C
- ▶ View: red LED x power-on, yellow LED x echo
- ▶ Power: 24Vdc (from ACP 4004)
- ▶ Power consumption: 1 W
- ▶ Communication port: RS485
- ▶ Operating Temperature: - 30 a + 80°C
- ▶ Pressure: from 0,5 to 1,5bar (absolute)
- ▶ Housing material: PP
- ▶ Dimensions: mm. 120x109 (0 x 1)
- ▶ Mechanical installation: 1"G.M.
- ▶ Protection Degree / Electrical connection: IP 68 with outgoing cable 4 pin 3m IP 65 with screw connector + 5m cable with connector

P-L PIEZOMETRIC TRANSDUCER

- ▶ Standard range from 0 to 6m (others on request - up to 100m)
- ▶ Non-linearity, hysteresis and repeatability $\pm 0.5\%$ FS (Others on request)
- ▶ Power 24Vcc
- ▶ Signal output 4 \div 20mA (two-wire technique)
- ▶ Liquid Temperature - 20.+70 °C.
- ▶ Dimension 0mm 26
- ▶ Body: AISI 316L
- ▶ Diaphragm: AISI 316L
- ▶ Complete with 10m submersible shielded cable, atmospheric pressure compensation (others on request)



Ultrasonic level measurement

METER

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



Available Versions:



- ▶ 4 wires, 2 relays, MODBUS, range 5m
- ▶ 2 wires, range 5m
- ▶ 2 wires HART, range 5m
- ▶ 2 wires HART, range 5m, ATEX ~4 wires, 2 relays, range 5m
- ▶ 2 wires, range 8m
- ▶ 2 wires, HART, range 8m, ATEX
- ▶ 4 wires, 2 relé, range 8m
- ▶ 4 wires, 2 relé, MODBUS, range 8m

Programming by a removable module (keypad / display). After programming, it is possible to extract the module (keyboard / display), leaving the level transmitter working without display on board.

Specifications

Body Probe Material	PP
Housing Material	PBT
Mechanical Installation	2" GAS M with flanges in PP DN50 o DN80 on request
Protection Degree	IP65
Electrical connection	Pressure terminal blocks
Operating Temperature	-30°C ÷ +70°C ; +80°C non continuous
Pressure	da 0,5 a 1,5 bar (absolute)
Power	24Vdc
Power consumption	0.6W (2 wires) 1.5W (4 wires)
Analog output	4 ÷ 20mA max 750 ohms
Relays output	N.2 - 2A 230Vac (normally open)
Digital communication	HART
Max. Operating Range	0.25 - 5m / 0.4 - 8m <i>(Distances expressed are valid for measures on perfectly reflective surface, otherwise the maximum measurable distance is degraded.)</i>
Blocking distance	0.25m for 5 m of field 0.4m for 8 m of field
Temperature compensation	PT100 from -30 to +80 °C
Accuracy	0,5% (of measured distance) or no less of ±2mm
Resolution	1 mm
Calibration	4 keys or HART
Thermal stabilization	10 minutes typical
Display	Removable 4 keys keyboard/Display and matrix LCD

S106



Specifications	S106/5	S106/10-15
		
Housing Material	PP	PBT
Body Probe Material	PP	PP
Mechanical Installation	2" G.M	With wishbone bracket 2 1/2" fixed flange DN150 PN6
Protection Degree	IP66 or IP68	IP65
Max. Measuring Range	5 m (7 m higher range) (Distances expressed are valid for measures on perfectly reflective surface, otherwise the maximum measurable distance is degraded.)	S106/10 10 m S106/15 15 m
Blocking Distance	0.25m 0.4m with higher range	S106/10 0.6 m S106/15 0.7 m
Precision	+/- 0.5% but not better than +/- 1 mm	+/-1% (of measured distance)
Resolution	0.2 mm	3 mm
Calibraton	Using 2 Keys or RS485	Using 2 Keys or RS485
Operating Temperature	-30 ÷ +70°C; +80°C discontinuous	-30 to +60°C
Temperature Compensation	PT100 from -30 to +80°C	PT100 from -30 to +60°C
Pressure	from 0,5 to 1,5bar (absolute)	from 0,7 to 1,3 bar (absolute)
Electrical connection	Internal removable connector (IP66ver.) Outgoing cable (IP68 ver.)	Internal removable connectors
Power	24Vdc or 24/115/ 230Vac	24Vdc or 24 /48/115/230Vac
Power consumption	2,0 W	6 W
Analog output	4÷20mA max load 750 ohm	4÷20mA max load 750 ohm
Serial communication	RS485	RS485
Relays output	n°2 contacts NO 2A 230Vac	n°2 contacts NO 2A 230Vac

Microwave radar level measurement

RPL

RPL transmitters are used for continuous, non-contact level measurement. The radar pulses emitted by the antenna are reflected by the product surface and received back by the antenna. The time gap between the emission and the return of the pulse is named "fly time". The fly time is proportional to the product surface distance and its processing by the electrical components inside the RPL allows the level measurement. Through the matrix display it is possible to input all necessary data for the level measurement and to show and recognize false echo signals. The software is suitable to configure and gauge the HART protocol, by means of PC and COMWAY converter.

RPL51	RPL52	RPL53	RPL54
			
Radar Level Transmitter Threaded mount	Radar level transmitter flange mount	Radar level transmitter flange mount and emission cone	Radar level transmitter flange mount and emission cone

RPL55	RPL56	RPL58
		
Radar Level Transmitter Threaded mount	Radar Level Transmitter Threaded mount and emission cone	Radar Level Transmitter Threaded mount and emission cone

Features

- ▶ Continuous, non-contact level measurement for solids, liquids, pulps and slurries
- ▶ Measurement not affected by product physic variation, temperature changes, powders or vapours.
- ▶ Easy on-site configuration via menu-driven matrix display (plug-in)
- ▶ Easy on-site calibration without product handling. Empty and full distance setting via matrix display
- ▶ Two-wire technology
- ▶ Visu Level measurement and echo signal curve visualisation on matrix display

Models	RPL51	RPL52	RPL53	RPL54	RPL55	RPL56	RPL58
Type	Radar Level Transmitter Threaded mount	Radar level transmitter flange mount	Radar level transmitter flange mount and emission cone	Radar level transmitter flange mount and emission cone	Level Transmitter Threaded mount	Radar Level Transmitter Threaded mount and emission cone	Radar Level Transmitter Threaded mount and emission cone
Applications	Very aggressive liquids with not onerous process conditions	Very aggressive liquids with known temperatures and pressures limits	For Storage or process applications in harsh conditions		Very aggressive liquids with not onerous process conditions	Level measurement where limits of pressure and temperature in the process are not extreme conditions	Level measurement in tanks where process conditions are extreme
Range	30m			70m	10m	30m	70m
Accuracy	± 10mm			± 20mm	± 5mm	± 3mm	± 15mm
Process connection	G1 ½ A PVDF 1 ½ NPT PVDF	Flange AISI 316L DN50 PN16 DN80 PN16 DN100 PN16 DN150 PN16	Flange AISI 316L DN50 PN16 DN80 PN16 DN100 PN16 DN150 PN16 DN200 PN16 DN250 PN16	Flange AISI 316L DN150 PN16 DN200 PN16 DN250 PN16	G 1" ½ A	G 1" ½ A 1"½ NPT	Flange AISI 316L G 1" ½ A 1"½ NPT
Antenna Material	PP PTFE	PTFE	AISI 316L PTFE	AISI 316L PTFE	PTFE	AISI 316L PTFE	AISI 316L PTFE
Temperature	-40...+120 °C -40...+150 °C	-40...+150 °C	-40... +200 °C		-40...+130 °C	-40...+200 °C	
Pressure	-1... 3 bar	-1...16 bar	-1...40 bar		-1... 3 bar	-1...40 bar	-1...16 bar
Frequency Range	6GHz				26GHz		
Signal output	2/4 wires - 4÷20mA - HART						
Casing	PBT						
Protection Degree	IP65						

Microwave radar level measurement

RWL

The high frequency pulses, emitted by the transmitter, travel along the detecting component (steel rope, probe or rod). They are reflected by the product surface, recorded by the electronic unit and converted in level data. The measurement technique "GODA", combined with the management system, allows the RWL unit to be used with very severe process conditions such as high temperature, high pressure, low dielectric constant, etc.

Features





- ▶ Continuous powder level measurement for solids and liquids
- ▶ Measurement not affected by temperature changes, powder or vapours
- ▶ Measure range for rope version: up to 30m
- ▶ Measure range for rod version: up to 6m
- ▶ Measure range for coax probe: up to 6m. Process temperature: from a - 40 to +150°C
- ▶ Process pressure: from -1 to 40 bar
- ▶ Easy on-site configuration via menu-driven matrix display
- ▶ Easy on-site calibration without product handling. Empty and full distance setting via matrix display
- ▶ Two-wire and four-wire technology
- ▶ Analogic output 4÷20mA
- ▶ HART protocol (optional)
- ▶ Level measurement and echo signal curve visualisation on matrix display
- ▶ Storage and recognition system for false echo signals
- ▶ CENELEC EExia IIC T6 certifications "ATEX" (PENDING)








Models	RWL51	RWL52	RWL53	RWL54
Type	Ø4 / 6mm (Rope) Ø10mm (Rod)	10mm (Rod)	Ø28mm (Coaxial)	Rope Ø4mm / 6mm Rod Ø10mm
Applications	Level measurement for solids and liquids		Level measurement for liquids with low dielectric constant	Level measurement for liquids with high-temperature and pressure process
Range	30m	6m		Rope 30m Rod 6m
Accuracy	± 10mm			
Process connection (AISI 316L)	1 1/2" G 1 1/2" NPT 2" G	DN50 PN16 DN80 PN16 DN100 PN16 DN150 PN16	1 1/2" G 2" G	1 1/2" G 1 1/2" NPT 2" G
Antenna Material	AISI 316L / PTFE			
Temperature Range	-40 ÷ +150 °C			-40 ÷ +200 °C
Process Pressure	-1 ÷ 40 bar			
Case and blind lid	PBT			
Transparent lid	Polycarbonate			
Gasket/seals	Viton (-30 ÷ +130°C) Kalrez (-40 ÷ +150°C)			
Protection Degree	IP65			

Capacitive - continuous measurement

Continuous Level Measurement

CLT4	CLT5	CLT7	CLT8
 <p>Capacitance rod probe for level measurement</p> <ul style="list-style-type: none"> ▶ Continuous level measurement, general purpose, suited for level measurement in conductive and not conductive liquids ▶ Ø10mm rod capacitance probe ▶ Upper-part of the tank installation max. 3m ▶ IP65 protection 	 <p>Capacitance double rod probe for level measurement</p> <ul style="list-style-type: none"> ▶ Continuous level measurement, general purpose, suited for level measurement in conductive and not conductive liquids ▶ Ø10mm double rod capacitance sensor ▶ Installation in the top of metallic and non-metallic tanks max. 3m ▶ IP65 protection 	 <p>Capacitance rope probe for level measurement in granulate and bulk solid</p> <ul style="list-style-type: none"> ▶ Rope capacitance probe, continuous level measurement, general purpose, suited for level measurement in granulate and bulk solid, ▶ Upper-part of the tank installation. ▶ IP65 protection 	 <p>Capacitance rope probe for food and farma-chemical ind. level measurement</p> <ul style="list-style-type: none"> ▶ Rope probe for continuous level measurement. ▶ Suitable for level measurement in conductive liquids, paste. ▶ Upper-part of the tank installation. ▶ IP65 protection

Capacitive level on/off control

CLS2	CLS4	CLS7	CLS8	CLS9
 <p>Capacitance rod probe for level control</p> <ul style="list-style-type: none"> ▶ General purpose capacitance ON-OFF rod probe ▶ Upper-part or side of the tank installation. ▶ Electrode type: Ø15mm; L. 250mm ▶ Electrode material: AISI316; carbon steel ▶ IP65 protection. 	 <p>Capacitance rod probe for level control</p> <ul style="list-style-type: none"> ▶ Ø10mm rod capacitance probe, level control, general purpose, suited for level control in conductive and not conductive liquids ▶ Upper-part or side of the tank installation ▶ IP65 protection 	 <p>Isolated rope probe for level measurement in granulate</p> <ul style="list-style-type: none"> ▶ Rope capacitance probe, level control, general purpose, suited for level control in granulate and bulk solid ▶ Upper-part or side of the tank installation. ▶ IP65 protection. ▶ Certifiable ATEX Zone 22 (TL41 e TC30 only), on request 	 <p>Capacitance rope probe for food and farma-chemical ind. level control</p> <ul style="list-style-type: none"> ▶ Rope probe for on/off level control. ▶ Suitable for level control in conductive liquids, paste. ▶ Installation in the top of metallic tanks. ▶ IP65 protection. 	 <p>Capacitance rod probe for acids and other chemical agent level control</p> <ul style="list-style-type: none"> ▶ Capacitive level ON/OFF control ▶ Rope electrode capacitance sensor for application in plastiktanks with into aggressive chemical products: acids and other. ▶ IP65 protection.

Pressure measurement

Pressure transmitters for applications in water treatment and food industry

P-8



P-8 series miniature pressure transmitters can be accurately adjusted and calibrated for its "Zero" and full scale output. The pressure sensors in P-8 series miniature pressure transmitters are all welded stainless steel body with built-in pressure sensing die and isolated membrane. The body is filled with silicon oil.

P-8J



The sensor uses micro-melt technology, introduced into aviation application science and technology; the micro processing silicon varistor strain gauge melts on the steel diaphragm by high temperature glass. The pressure cavity use stainless steel single unit integration structure to guarantee better seal performance. The characteristics of product is no O-ring, no welded, no silicon oil or other organic and structural durability .

Pressure transmitters for applications in industrial processes

P-AK



P-AK is an intelligent pressure transmitter, which has a long term stability and accuracy due to its automatic measure compensation system, related to working temperature modification. It can be used in different applications: steel, pharmaceutical, food industries. The insulating diaphragm transmits the process pressure to the sensing membrane placed in the middle of the sensor, which is bended proportionally to the applied pressure. The bending is converted into an analogic 4÷20mA signal. There are 3 different sensor types:

- Ceramic sensors (C) - Silicon sensors (A) - Metal ceramic sensors (C1)

P-K1
con protocollo
HART



With pressure transmitters P-K1 is possible to change the value of full scale using the buttons on board. The absence of a separating liquid between membrane and the pressure sensor, ("Dry-Pressure" technology)allows superior performance for overpressure, small thermal drift, high stability and accuracy. Different possible configurations, like the connection to the processed material, ensure that the pressure transmitter P-K1 qualify in most industries application (oil, chemical, energy, metallurgical, pharmaceutical and food) including different operating conditions.

Hydrostatic level transmitter

P-L



The absence of a separating liquid between membrane and the pressure sensor, ("Dry-Pressure" technology)allows superior performance for overpressure, small thermal drift, high stability and accuracy. Different possible configurations, like the connection to the processed material, ensure that the pressure transmitter P-L qualify in most industries application (oil, chemical, energy, metallurgical, pharmaceutical and food) including different operating conditions.

These characteristics make it the ideal tool in an automatic process to measure hydrostatic levels

Differential pressure transmitters for flow measurements

P-BA



Transmitters (P-B Transmitter for short) are more stable in performance with the automatic temperature compensation function. Compact construction, small and light, conformable with HART protocol, the WP-B transmitter are widely used in petrochemical, iron and steel, power plant, chemical, light industry and other industries The process pressure is transmitted through the isolating diaphragm and the oil fill to the sensing diaphragm, placed in the middle of the sensor. In the same way the reference pressure is transmitted to the opposite side of the sensing diaphragm, which is bended proportionally to the applied pressure. The bending of the sensing diaphragm produces a capacity difference between the condensers, which are composed by the same sensing diaphragm and by two capacitor metal plates. The capacity difference produced by the sensor, guided by a stable oscillator, is converted into a 2-wire analogic 4÷20mA signal .Two-way communication HART available.

Models		P-8	P-9	P-K1	P-L	P-AK	P-BA
Type		Miniature pressure transmitters	Miniature pressure transmitters	"General Purpose" Transmitters with view	Hydrostatic Pressure Transmitters	HART Pressure Transmitters	Differential pressure flowmeter
Range					0 ÷ 10 bar (0 ÷ 100m) Others on request	Min. 0÷0.01...0.06 bar Max. 0÷40...200 bar Absolute/relative/ referred	
Relative Pressure	Min. Max.	0 ÷ 0.04 bar 0 ÷ 600 bar	0 ÷ 10 bar 0 ÷ 60 bar	0 ÷ 0.04 bar 0 ÷ 600 bar	-	-	-
Absolute Pressure	Min. Max.	0 ÷ 0.2 bar 0 ÷ 60 bar	-	0 ÷ 0.2 bar 0 ÷ 4 bar	-	-	-
Negative Related Pressure	Min. Max.	-0.02 ÷ +0.02 bar -1 ÷ +20 bar	-	-0.02 ÷ +0.02 bar -1 ÷ +20 bar	-	-	-
Differential Pressure		-	-	-	-	-	P-BADP Min. 0÷0.01...0.06 bar Max. 0÷16...68 bar P-BADR Min. 0÷0.001...0.16 bar
Accuracy		±0.1%FS	±0.5%FS	±0.1%FS	±0.1%FS	0.1/0.2/0.5/0.075 Sensor depending	±0,075%FS
Stability (12 months)		±0.1%FS	±0.25%FS	> ±0.1%FS	> ±0.1%FS	-	-
Overload Capacity		1.5 times F.S	2 times F.S	1.5 times F.S	1.5 times F.S	-	-
Power		12,5÷36Vdc (2 wires)	12,5÷30Vdc (2 wires)	12,5÷36Vdc (2 wires)	18÷36Vdc (2 wires)	12÷45Vdc	12÷45Vdc
Output		4÷20mA	4÷20mA	4÷20mA	4÷20mA	4÷20mA	4÷20mA
Noise Level		-	<2mv RMS	-	-	-	-
Bandwidth		-	DC a 1 KHz (-3db)	-	-	-	-
Operating Temperature		-10° ÷ +80°C	-40° ÷ +85°C	20° ÷ +80°C	-20° ÷ +70°C	-	-
Communication Protocol		-		-	-	HART	HART
Zero & Span Calibration		Zero +/- 5% F.S. +/- 20%	-	Zero +/- 5% F.S. +/- 20%	-	by keys	by keys
Data View		Opt. Display LCD	-	Opt. Display LCD	-	Opt. Display LCD Alphanumeric display backlit	Alphanumeric display
Memory		-		-	-	EEPROM	EEPROM
Protection Degree		IP65	connector Version P65 Outgoing cable Version IP67	IP65	Security probe immersed (wet side) probe immersed + outgoing cable P68	IP67	IP67
Certification		-	-	-	-	-	ATEX II 2 G Exd II C T6



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