PCM Pro / OCM Pro "active" sensors

Wedge sensors:

Water-ultrasonic combi sensor

Air-ultrasonic level sensor

Pipe sensor:

Measurement principle	• **Ultrasonic transit time (level measurement)** • **Piezoresistive pressure measurement (level measurement)** • **Correlation with digital pattern detection (flow velocity)**
Measuring frequency	1MHz
Protection	IP 68
Ex approval (optional)	II 2 G EEx ib IIB T4
Operating temperature	-20° C to +50° C (-4° F to 122° F) (+40° C (104° F) in Ex Zone 1)
Storage temperature	-30° C to +70° C (-22° F to 158° F)
Operating pressure	max. 4 bar (combi sensor with pressure element max. 1bar)
Cable length	10/15/20/30/50/100 m (33/50/66/99/165/330 ft), extendable up to 250 m max. (820 ft) cable length, in case of using sensors with pressure measurement after 30 m (99 ft) a pressure compensation element is required
Cable types	• Combi sensor with pressure measurement: LiYC11Y 2x1.5 + 1x2x0.34 + PA 1.5/2.5 • Sensors without pressure measurement: LiYC11Y 2x1.5 + 1x2x0.34
Outside cable diameter	• Combi sensor with pressure measurement: 8.7 ±0.25 mm (0.34 ±0.010 in) • Sensors without pressure measurement: 7.6 ±0.25 mm (0.3 ±0.010 in)
Sensor connection	• pre-configured cable end for connection to OCM Pro, for sensor types “K” and “L” • cable with plug for connection to PCM Pro, for sensor without pressure measurement, type “S” • cable with plug and exchangeable filter element for connection to PCM Pro, for sensors with pressure measurement, type “F”
Sensor types	• Flow velocity sensor with v-measurement using cross correlation and temperature measurement to compensate the temperature effect on sound velocity • Combi sensor with flow velocity sensor using cross correlation, level measurement via water-ultrasonic and temperature measurement to compensate the temperature effect on sound velocity • Combi sensor with flow velocity sensor using cross correlation, level measurement via pressure and temperature measurement to compensate the temperature effect on sound velocity • Combi sensor with flow velocity sensor using cross correlation, level measurement via water-ultrasonic as well as redundant pressure measurement and temperature measurement to compensate the temperature effect on sound velocity
Types of construction	• Wedge sensor for installation on channel bottom • Pipe sensor for installation in pipes with nozzle and cutting ring
Medium contacting materials	Polyurethane, stainless steel 1.4571, PPO GF30, PA (wedge sensor only) Option: sensor made of PEEK, resistant to chemical substances, Hastelloy mounting plate, Titanium mounting plate, cable with FEP coating

PCM Pro / OCM Pro "active" sensors

Level measurement – water-ultrasonic	
Measurement range	0 to 200 cm (0 to 6.56 ft), lowest absolutely measurable level 5 cm (0.16 ft)
Zero drift	absolutely stable zero point
Measurement error	less than ±2 mm (±0.08 in)
Level measurement - pressure	
Measurement range	0 to 350 cm (0 to 11.5 ft)
Zero drift	max. 0.75 % of final value (0 to 50° C (32° F to 122° F))
Measurement error (standing medium)	≤0.5 % of final value
Level measurement - external sensor	
Measurement range	depending on device used
Zero drift	
Measurement error	
Flow velocity measurement	
Measurement range	-100 cm/s to +600 cm/s (- 3.28 fps to 19.7 fps)
Number of scan layers	max. 16
Zero drift	absolutely stable zero point
Error limits (per scan layer)	≤1 % of measurement value (v >1 m/s (3.28 fps)) ≤0.5 % of measurement value +5 mm/s (0.2in/s) (v <1 m/s (3.28 fps))
Number of sensors	1 to 3 per measurement transmitter
Sonic beam angle	±5 degrees
Temperature measurement	
Measurement range	-20° C to +60° C (-4°F to 140°F)
Measurement error	±0.5 K

Active sensor air-ultrasonic	
Measurement principle	Ultrasonic transit time
Measuring frequency	120kHz
Protection rating	IP68
Ex approval	II 2 G EEx ib IIB T4
Operating temperature	-20° C to +50° C (-4° F to 122° F) (+40° C (104° F) in Ex Zone 1)
Storage temperature	-30° C to +70° C (-22° F to 158° F)
Operating Pressure	max. 1 bar
Cable length	10/15/20/30/50 m (33/50/66/99/165 ft), extendable up to250 m max. (820 ft) cable length
Cable type	LiYC11Y 2x1.5 + 1x2x0.34
Cable outside diameter	7.6 ±0.25 mm (0.3 ±0.010 in)
Sensor connection	• pre-configured cable end for connection to OCM Pro, for sensor type “K” • cable with plug for connection to PCM Pro, for sensor type “S”
Types of construction	Wedge sensor for installation in channel vertex
Medium contacting materials	Polyurethane, stainless steel 1.4571, PPO GF30, PA
Level measurement	
Measurement range	0 to 200 cm (0 to 6.56 ft)
Dead zone	10 cm (0.33 ft)
Measurement error	less than ±5 mm (0.2in)
Temperature measurement	
Measurement range	-20° C to +50° C (-4°F to 122°F)
Measurement error	±0.5 K