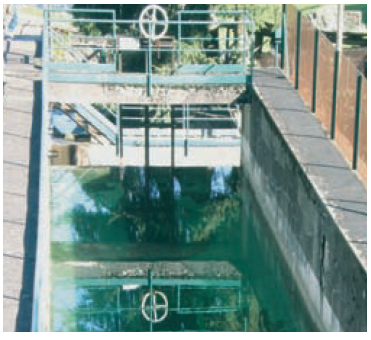
SMU

Stratigraph interface measurement solid - liquid

It is the ideal tool for the automatic management of sedimentation tanks.
Detecting the height of the layer separating a liquid surface from a solid or between two liquid surfaces of different densities is an almost impossible task for the vast majority of level gauges on the market today. The Terry Ferraris **Stratigraph**, which uses state-of-the-art ultrasonic technology, is able to perform these measurements with absolute precision, repeatability and accuracy. The Stratigraph is designed to measure the height of layers by detecting the height of the separating surface between one layer and another, and to do this it uses state-of-the-art microprocessors and a SW based on proven algorithms. The measuring device consists of one or two transducers and a control electronics.
The Stratigraph is the ideal tool for the automatic control and management of sludge levels in primary and secondary sedimentation tanks or thickeners of sewage treatment equipment. It works on round/rectangular tanks or tubs and can be used either in a fixed position or mounted on a mobile bridge. The electronics can control two tanks simultaneously using two immersion transducers or one tank with one immersion transducer and one level with one UTF transducer. The Stratigraph is equipped with an effective system for checking for faults or abnormal operation.
The Stratigraph reduces sludge pumping times, eliminates manual measurements, automatically controls sedimentation tanks and thickeners, and optimises the dosing of chemical additives. Transducers can be mounted up to 200 metres from the electronics. The Stratigraph has 2 programmable 0/4 to 20mA outputs, an RS232 digital output, 6 SPDT relays, 5A 240Vac. The graphic display shows the layer level, tank ecoprofile, alarm levels, tank depth and status of multiple tanks. The transducer operating underwater is equipped with a rotating brush to clean the radiating face of the transducer to avoid material build-up and maintain system performance. For mobile bridge mountings, the transducer is supplied with a protective rod to prevent it from being damaged.
Non-immersed transducers are maintenance-free.



Continuous product development may lead to changes in the data displayed.

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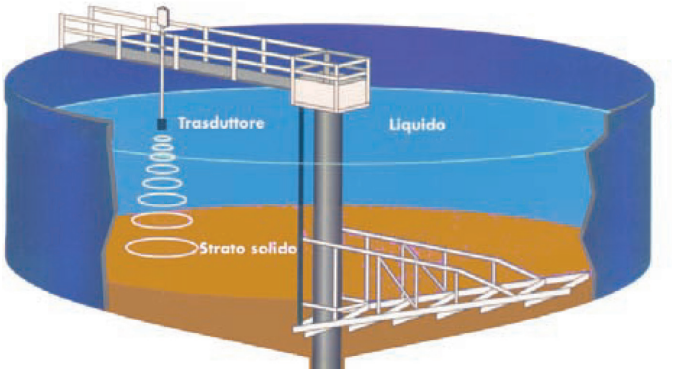
Principle of operation

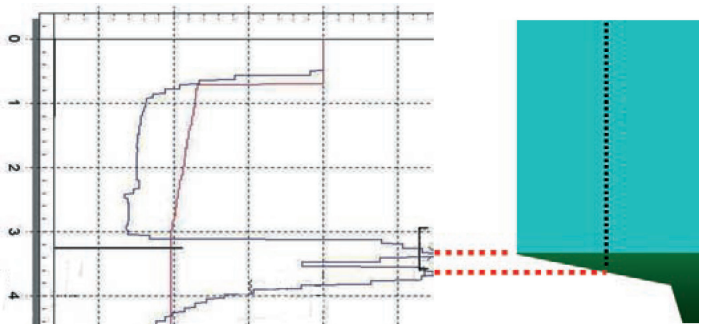
The Stratigraph normally consists of 2 elements: a transducer and control electronics. The transducer is placed just below the surface of the liquid in the tank to be monitored. The electronics can be located up to 200m away with a shielded 4-wire cable. The electronics process the echoes reflected by each density change in the propagation medium, determine their exact position and convert them into a 4 to 20mA or digital signal. In this way, the processor creates a complete profile of the tank. The profile is determined on an average basis, so that an accidental reflection, due to debris or the passage of a skimmer, does not result in false readings. Once the instrument SW has identified the chosen layer height (as programmed by the operator during instrument calibration), the display shows the height of the sediment relative to the tank bottom or its distance from the transducer. The graphic display is updated to show the entire profile of the tank: a peak of the reflected energy indicates the height of the layers with different densities. The size of each peak is a function of the relative density of the layers: the light layer in suspension, above the more consistent layer, will appear in the profile as a lower and wider peak. Programming of the Stratigraph is done via the integrated keyboard.

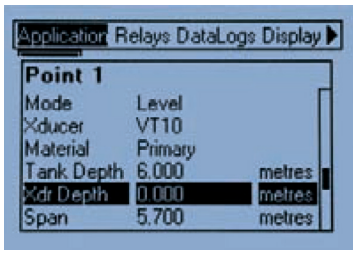
Profile of reflected echoes

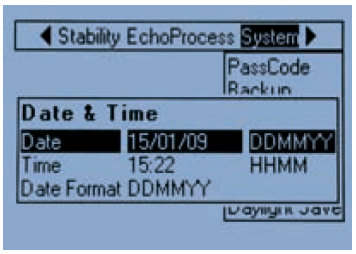
The display normally shows the graph obtained by continuously updating the return signals, and shows a profile of the tank with the intensity of the return echo at different heights. With experience, the operator is able to see not only the height of the different layers, but can also get a precise idea of the speed at which the solids are deposited and how they are distributed within the tank.

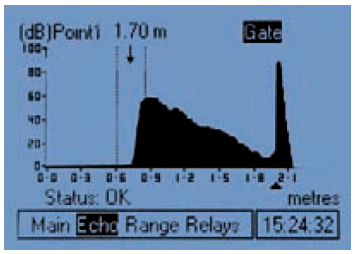
Functions

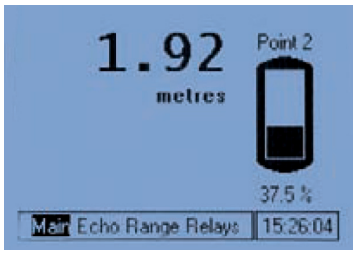


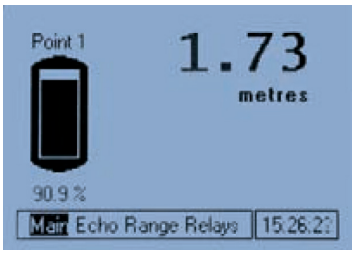


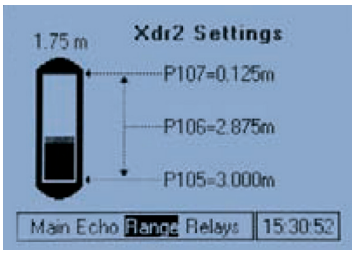


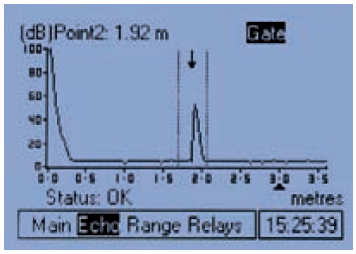


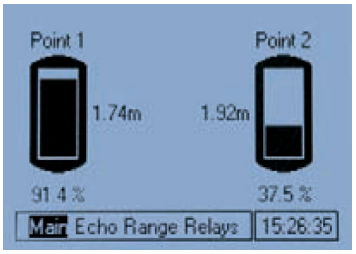


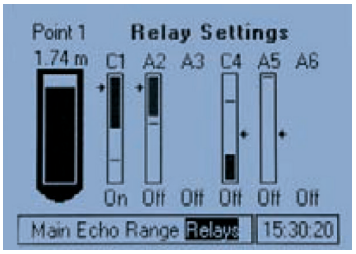












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Technical specifications

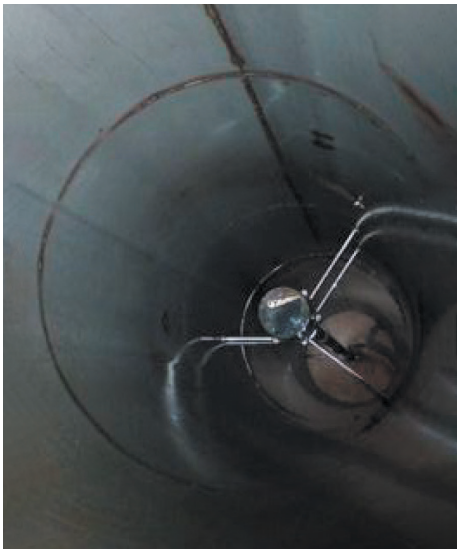
ELECTRONICS

Power supply	universal 100 ÷ 240Vac, 50/60Hz, 22÷28Vdc, max. 14W
Measurement range	0.3 to 10m if interface or 0.3 to 40m if as simple level measurement
No. of monitorable measures	2
Upper dead zone	300mm from the transducer front side
Accuracy	0.25 for cent of the measuring range or 30 mm, whichever is larger
Solution	0.25 for cent of the measuring range or 10 mm, whichever is larger
Transducer working temperature	standard transducer: max. 50°C if as interface measurement; if as simple level measurement see transducer brochure used
Electronic working temp.	-20 ÷ 50°C
Enclosure	polycarbonate, 235 x 184 x 120mm (W x H x D); Weight 1Kg
Protection rating	IP65 enclosure
Display	backlit LCD graphic 192 x 128 pixels

Output
Analogue Resolution Serial Relay — 2 isolated outputs 0/4 ÷ 20mA max 1KΩ, wireless compatible 0.1% half duplex RS232 6 (SPDT) 5A @ 240Vac

Transducer enclosure	material PVC, epoxy paint
weight	0.5Kg
dimensions	max. Ø 100 x 200mm
opening angle	6° whether as interface measures
operating frequency	666KHz
transducer cleaning	built-in rotary brush
Certification	EC, approvals: 2004/108/EC EMC
Cable	4 poles + shield, length Std 10m (max 200)
Modem	wireless (on request) max. distance 500m
Communication	RS485 Modbus RTU/ASCII or Profibus DPV0 DPV1
Programming	via local keyboard, via PC and RS232 serial port
Safety	via programmable and modifiable access code
Calibration protection	via non-volatile RAM memory

VIPER TRANSDUCER



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