

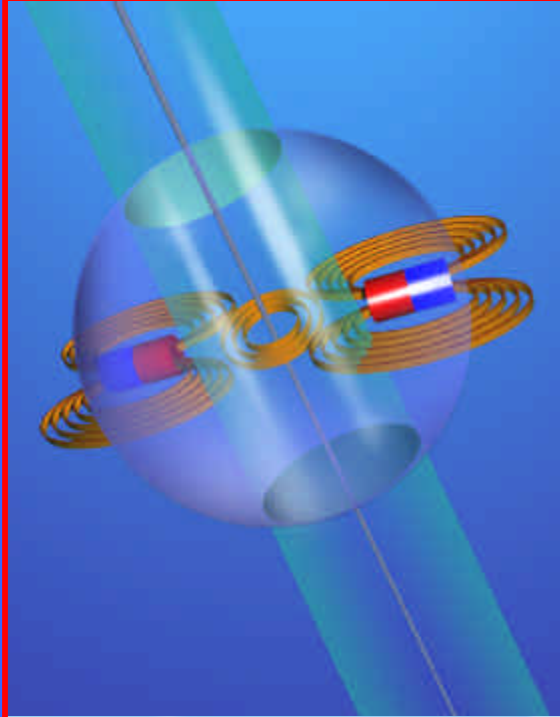


QUALITY ASSURANCE UNI EN ISO 9001:2000



LEVEL MONITOR AND TOP LEVEL CONSOLES

- INVENTORY MANAGEMENT
- PRECISION RECONCILIATION
- SALES DELIVERY REPORTS
- LEAKAGE DETECTION
- IFSF COMMUNICATION
- SOFTWARE SYSTEM SET UP
- DISPLAY UP TO 64 TANKS
- REMOTE MANAGEMENT
- TANK CALIBRATION
- INTERNET / INTRANET
- REMOTE ACCESS
- OPTIONS: PRINTER
- RELAIS CARD MODULE
- MODEM GSM/GPRS/GPS
- INTERSTITIAL AND SUMP
MONITORING



PETROL STATION
AND FUELS DEPOTS
AUTOMATION SYSTEM
MAGNETOSTRICTIVE TECHNOLOGY

MAGNETOSTRICTIVE LEVEL TRANSMITTER

- HIGH RESOLUTION 0,1mm
- COMPENSATED VOLUME
- AVERAGE TEMPERATURE
- WATER DETECTION
- BUS COMMUNICATION
- MAX. LENGTH 13.000 mm
- TELE - DIAGNOSTIC AND
MAINTENANCE FEATURE
- EASY INSTALLATION
- SUBMERSIBLE IP68
- DISPLAY LPG VERSION

INTERSTITIAL AND SUMP SENSORS

CE AND ATEX COMPLIANCE

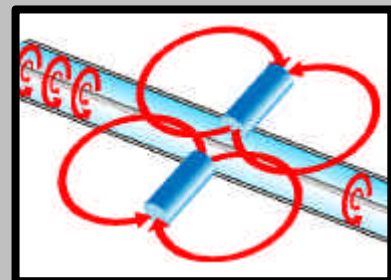
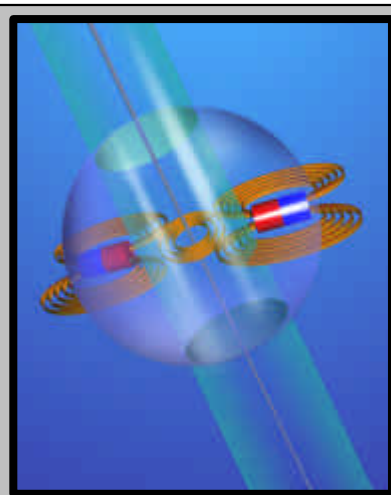
MAGNETOSTRICTIVE LEVEL TRANSMITTER

OPERATING PRINCIPLE

The operating principle of magnetostrictive level gauges is based on a physical property named "Wiedemann effect". This technology allows the continuous reading of liquid level with very high accuracy. Our DIGIMAG level transmitter is mainly constituted by a microprocessor electronic circuit positioned in an aluminium ex-proof box on the top of the stainless steel tube having in its internal part a waveguide fitted in the tank. A mechanical pulse caused by the magnetostrictive twist strain is generated in the exact meeting point with the magnetic field of the permanent magnet kept into floats. The mechanical pulse propagates into the waveguide at sound speed up to the sensor located in the measuring head. The measurement of the time between the initial pulse and the back pulse exactly defines the position of the floats.

MAIN FEATURES

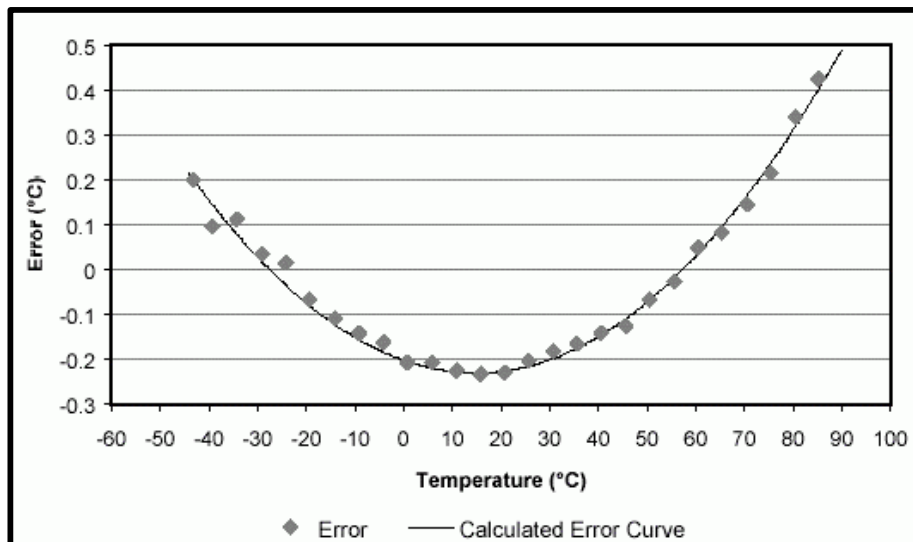
- Microprocessor electronic, no field calibration required
- Possibility to substitute internal sensor without removal waveguide from the tank
- Pipe sensor in stainless steel AISI 304/316L
- Measure range up to 6 meters
- Process connections to tank: adjustable threaded connection
- Digital outputs data for :
 - level of liquid in 0,1 mm
 - interface (water detection) in mm
 - temperature
- PVC or Spansil Floats
- Probe:
 - accuracy: $\pm 0,5\text{mm}$
 - resolution $\pm 0,1\text{mm}$
- Temperature :
 - accuracy: $\pm 0,2\text{mm}$ (ref. measuring range $-20 +40^{\circ}\text{C}$)
 - resolution $\pm 0,0625\text{mm}$
- Supply voltage: $9\div 30\text{ Vdc} < 30\text{ mA}$
- Serial output RS 485
- Tele-diagnostic and Tele-maintenance by GSM / Internet
- Average product temperature up to 10 digital sensors
- Explosion proof ATEX CESI and INERIS - OIML R85 (pending)
- CE Compliance



OPERATING PRINCIPLE



DIGIMAG XMT IP68



TEMPERATURE ERROR CURVE

MAGNETOSTRICTIVE TRIPLE FUNCTIONS: LEVEL INDICATOR LEVEL SWITCH LEVEL TRANSMITTER FOR LPG APPLICATION

LOCAL DISPLAY DIGITAL INDICATOR
LEVEL TRANSMITTER WITH N.3 SERIAL PORT OUTPUT
LEVEL SWITCH WITH N.4 RELAIS OUTPUT
DOUBLE SUPPLY: EXTERNAL OR BATTERY OPERATED
IT CAN SUBSTITUTE THE OBSOLETE MECHANICAL
GAUGE: WHEN TO FAIL EXTERNAL SUPPLY
THE MEASURE IS GUARANTIES BY AN INTERNAL
BATTERY WITH READING ON DEMAND

Alphanumerical backlight display 16x2 lines ,
Painted aluminium case IP 68 remote mounting
Contemporaneous visualization of:

- product level in mm
- volume in litres (calibration chart via software via PC)
- compensated volume 15°C
- configurable 0 ÷ 100 % bar-graph
- sensor diagnostic and alarms status

Measurement accuracy $\pm 0,5$ mm

Resolution $\pm 0,1$ mm

Four programmable relè outputs NO/NC 1A max.

Two serial port RS485 for bus communication

One serial port RS 232 for system set up

Pre arrangement for tele-diagnosis and tele-maintenance

Power supply 9 ÷ 30 VDC and PP3 internal battery 9VDC

Explosion proof ATEX CESI and INERIS - OIML R85 *(pending)*

CE Compliance

Available optional:

- Average product temperature up to 10 digital sensors
- Second float to detect and measure second liquid (water, wastes)



DIGIMON UP TO FOUR RELAIS
OUTPUT



EExd ATEX DISPLAY PLUS
VERSION

**MAGNETOSTRICTIVE LEVEL
INDICATOR / TRANSMITTER**



TECNICAL FEATURES

Tank Connections:

Adjustable threaded: 1/2" shaft 14 mm and 3/4" shaft 17 mm

Electrical Connections:

Cable Gland EExd 1/2"NPT IP68

Guide rod in AISI 304 / 316L:

Modello DIGIMAG XMT / DIGIMON XMT:

Ø 14 x 1,5 mm maximum length 4.000 mm

Ø 14 x 2,0 mm maximum length 6.000 mm

Floats:

SP-P Product float 50 x 50 mm

SP-A Water float 50 x 50 mm

Temperature:

Liquid: - 45°C +130°C

Head: - 25 + 85°C

ATEX version: -25 +60°C

Media Viscosiy: < 100 Cp

Cable:

Twisted double, shield, external min.Ø 8 mm
mod. FRXHH2R NPI 2x2x0,50

Power Supply:

Battery Operated 9V tipo PP3

External supply: 9-30 Vdc

I/O:

Serial RS 485 / RS 485 Modbus (pending)

2 o 4 relè SPDT 1A adjustable

Analogic 4-20 mA 4 wires

Compliance:

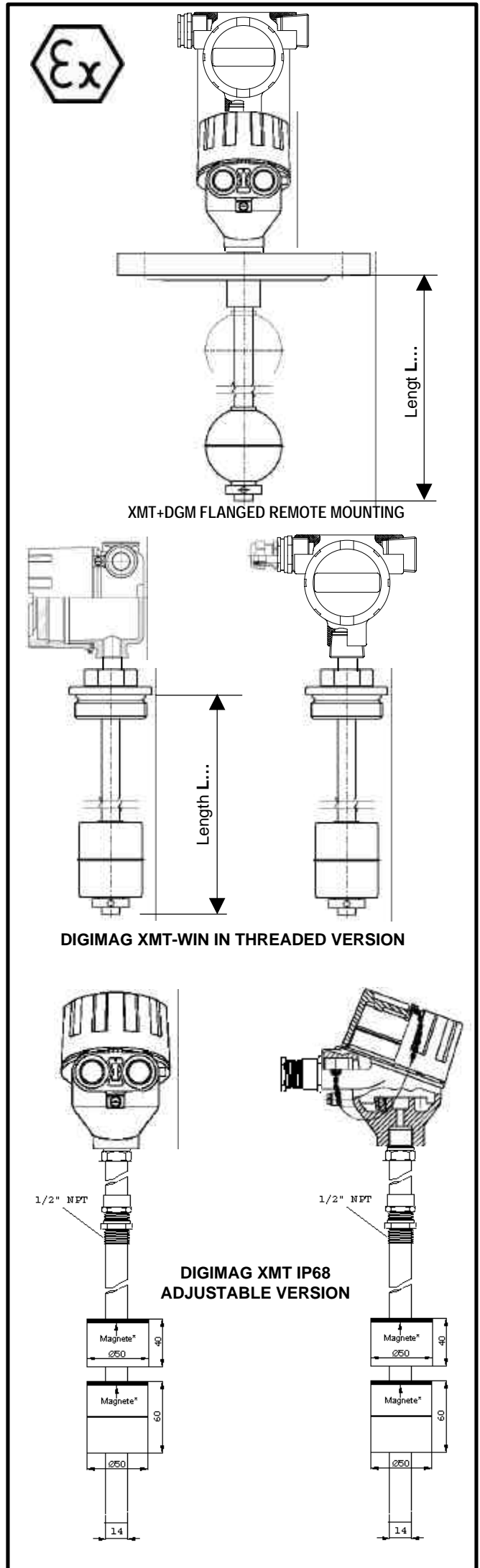
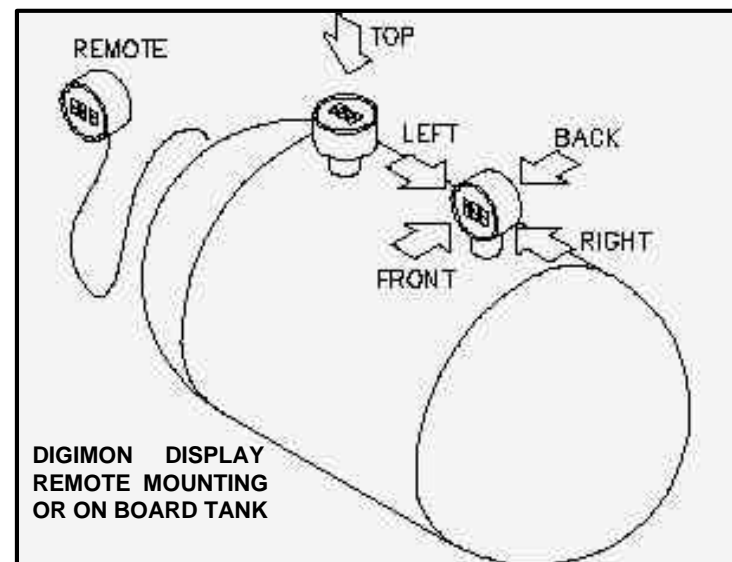
CESI 06 ATEX 020

II 1/2 GD EEx D IIC T6 IP66 T85°C

INERIS 06 ATEX 0051 :

II 2/1 GD EEx d IIC T6 T85°C IP66/68 (with stainless steel float)

II 2/1 GD EEx d IIB T6 T85°C IP66/68 (with Spansil float)



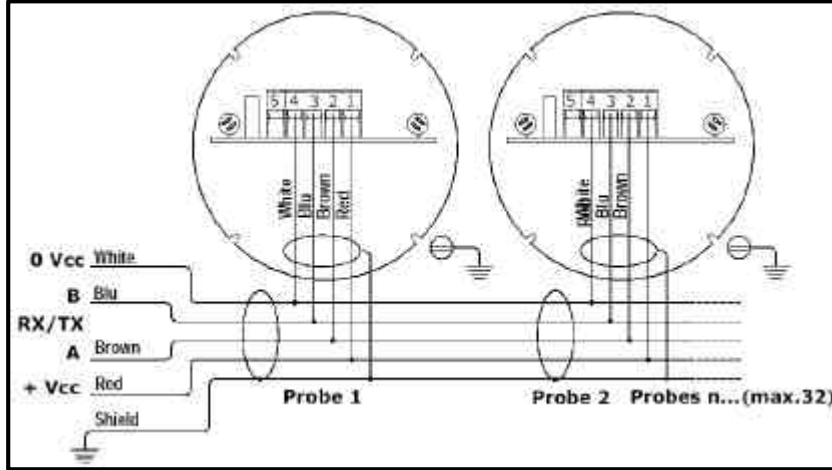
ELECTRICAL WIRING

DIGITAL OUTPUT VERSION RS 485

Technical characteristics

Multi-drop connection: max. power consumption = 30 mA Power supply supplied from visualization display or supplied from an external power supply unit. Serial connection RS485 allows 32 transmitters max.

Transmission distance max. 5 Km using twisted cable.

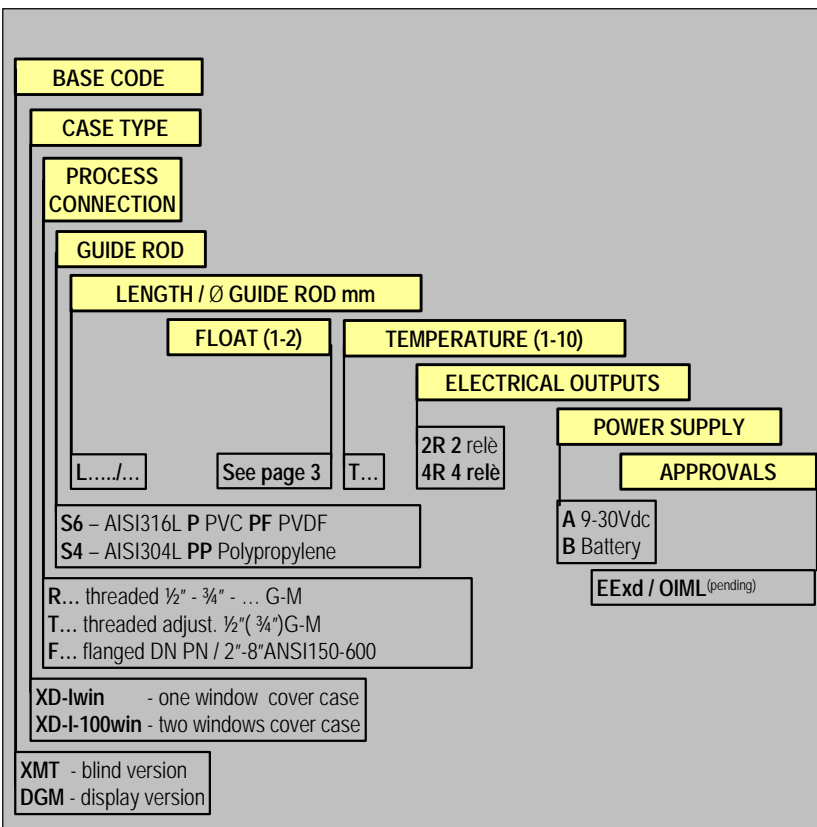


SERIAL OUTPUT RS 485 VERSION WIRING

EXPANDED PVC CLOSE CELL CYLINDRICAL FLOATS

Suitable for hydrocarbons with density > 0,4 Kg/dm³
 Maximum operating pressure: standard 30 bar, special executions up to 70 bar
 PVC working temperature range: -200 / +70°C
 Internal PVC shell with six anti-sticking effect winds

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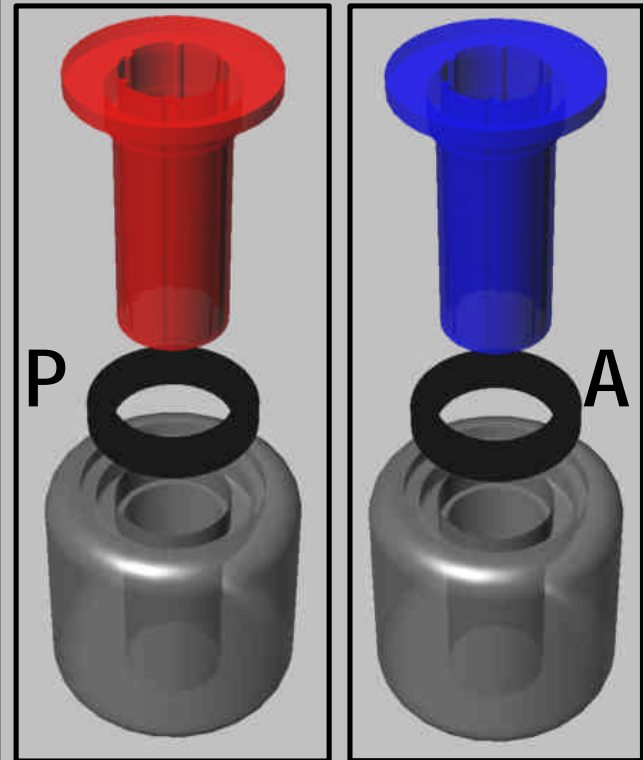


Example:

DGM XD-Iwin R 3/4" G-M S4 L5000/16 2PVC2 T05 2R A EExd

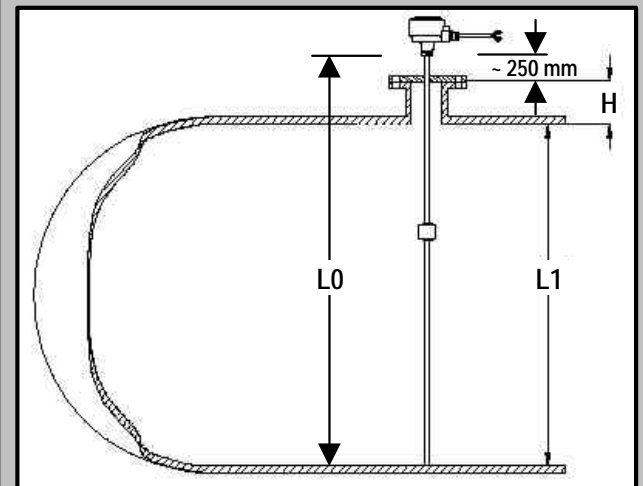
TERMINAL STRIPS	LEGEND	COLOUR WIRES
01	+ power sensor supply	RED
02	B data channel B	BROWN
03	A data channel A	BLU
04	- power sensor supply	WHITE

SERIAL OUTPUT RS 485 VERSION WIRING



P - PRODUCT SPANSIL FLOAT

CODE	Ø (mm) external	H (mm)	T (mm)	PRESS. MAX. (bar)	Weight (g)
SP-P(P)	50	50	16/19	25	-
SP-P(A)	50	50	16/19	25	-



L0 (mm)	Shaft total length (L1+H+250 mm)
L1 (mm)	Ø internal tank
H (mm)	Manhole height

DEFINITION OF GUIDE ROD LENGTH

LEVEL MONITOR CONSOLE UP TO 12 TANKS

ALPHANUMERIC LEVEL MONITOR CONSOLE

General characteristics of Console:

Level & Interstitial Monitor series monitoring exchange suitable to check simultaneously up to 12 magnetostrictive level sensors and 12 interstitial sensors. Possibility of integration in the Software Station Management.

Technical characteristics of console:

Microprocessor electronics 16 bit flash technology 16MHz

n° 4 alarms to programmable relays

Optic signaller and acoustic horns

Nr. 4 analogical inputs 4-20 mA, 2 wires technology

Nr. 4 digital inputs from external sensors

(overfilling, min. level switch, interstitial sensor, etc.)

n° 1 serial port RS485 for sensors bus input

n° 1 serial port RS232

Power supply: 9÷30 VDC / 220Vac

Aluminium case with integrated 5 key keyboard

Easy and reliable programming of mm / liters conversion chart up to 250 linearization points

Dynamic generation of tank strapping table by SmartTrack set up software or alternatively using a flow rate counter joined to our SmartCal Software.

Back-lighted alphanumeric display 4 lines 80 characters high visibility with simultaneously visualization of:

- product level in 0,1mm
- real volume in litres
- compensated volume at 15°C in litres
- water detection
- Product average temperature
- Ullage (empty part of the tank)
- Alarm signals, unit

Up to 12 channels version data's are shown alternatively.

The level monitor gives electrical supply directly to the level sensor.

EC Compliance

Options / Accessories:

Local printer

Single and double channel version without display

Industrial Modem GSM / GPRS

Wireless communication



CONSOLE LEVEL MONITOR UP TO 28 TANKS



CONSOLE LEVEL MONITOR UP TO 12 TANKS



SINGLE AND DOUBLE VERSION



LEVEL MONITOR CONSOLE UP TO 12 TANKS

TOP LEVEL TOUCH SCREEN CONSOLE UP TO 32 TANKS

FEATURES:

- CPU board a 400 MHz 256 MB SDRAM
- TFT Touch Screen 7" display 1024x768 up to 32 tanks
- Blind version: no visualization display
- Pre-installed Smartrack software
- Data Logger for data storage
- Tank leakage control
- Page and active icon selection with Touch/mouse/keyboard
- Visualization of:
 - Product level in mm
 - Volume in litres
 - Compensated volume at 15°C in liters
 - Liquid average temperature
 - Temperature profile
 - Empty volume in liters (Ullage)
 - Graphic indication of the tank status
 - Alarm messages, measure unit, probes diagnostic
- Linearization with unlimited points for the strapping table
- I / O:
 - N° 4 serial port RS 232
 - N° 1 serial port PS2 for mouse and keyboard
 - N° 1 USB port
 - VGA output for an external monitor
 - Ethernet Interface for Internet / Intranet
 - Power supply 220 Vac
- Probes diagnostic
- Tele-diagnostic and tele-maintenance via Internet / GSM
- CE Mark
- Operating temperature: -25°C +50°C
- Storage temperature: -25°C +80°C
- Vibration endurance: 2Grms w/CF
- Case dimensions:metallic painted box 270 x 270 x 90 mm

Complete with:

- Serial converter RS232/RS485
- N° 4 alarm relè output NO 250Vac 1A
- Direct power supply to the probes

Optional Interface card:

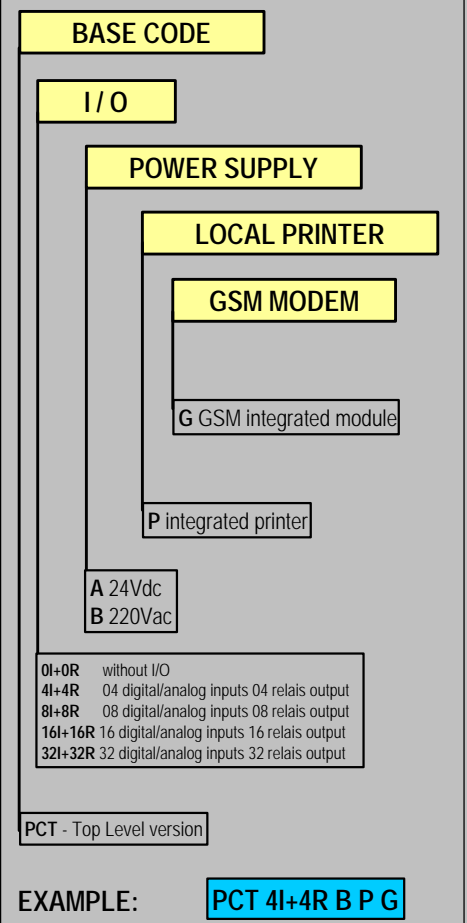
- RS485 serial port field bus
- N° 4 analog inputs 4-20 mA two wires technology
- N° 4 SPDT 250 Vac 1A programmable alarm relay outputs
- N° 4 digital inputs from external sensors

Option:

- Remote Graphical Printer
- Local Printer



ORDERING CODE



INTERSTITIAL AND PRODUCT DISCRIMINATOR SENSOR

General Characteristics

It senses and signals the presence of liquid into the interstitial of tanks with double walls and discriminates between water and diesel oil or between water and gasoline. The system is also able to carry out one quantitative evaluation of the level of filling of the interstitial.

The device is made up of one electronic card placed inside of the case and of the threaded sensor that can be easily inserted between the two layers of the tank through one of the scheduled accesses placed on top of the tank. Remote diagnostic of the sensor and possibility to re-calibrating according to the new operating environmental conditions. Presetting for possible interface with an external sensor of pressure.

Technical characteristics of the sensor:

Microprocessor Electronics

12Vdc supply provided directly from the console

N° 1 serial port RS485 for connection with the bus field

N° 1 analogue for the pressure sensor

ATEX Certification for combined execution of both intrinsic security and increased security for installation in zone 0.

Hydrocarbons-resistant threaded Sensor

Die-cast aluminium case protection standard IP68

EC Compliance

General characteristics of console:

Level & Interstitial monitor series monitoring exchange suitable to check simultaneously up to 12 magnetostrictive level sensors and 12 interstitial sensors. Possibility of integration in the Software Station Management.

Technical characteristics of console:

Microprocessor electronics

Back-lighted alphanumeric display 4 lines 80 characters

n° 4 alarms to programmable relays

Optic signaller and acoustic horns

n° 1 serial port RS485 for sensors bus input

n° 1 serial port RS232

Power supply: 9÷30 VDC/220Vac

Direct supply to the sensors 12Ddc

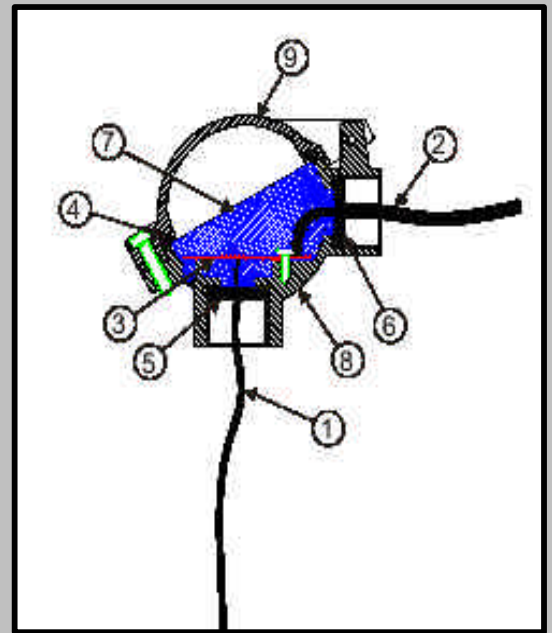
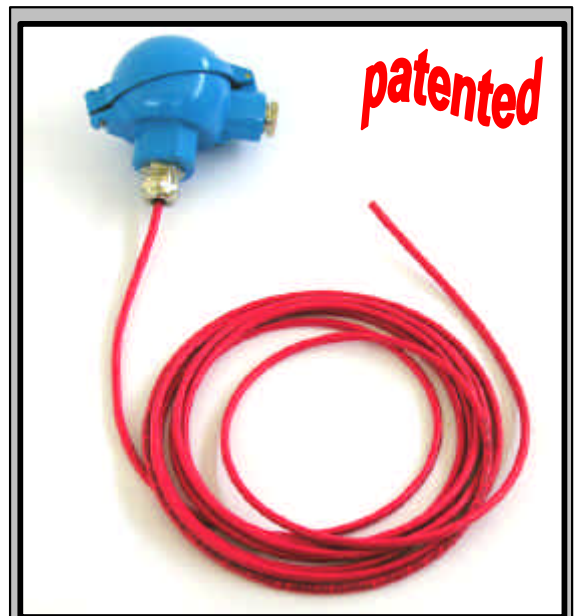
Aluminium case with integrated 5 key keyboard

EC Compliance

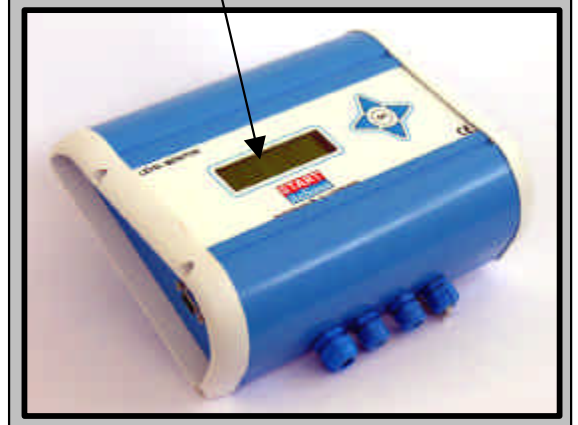
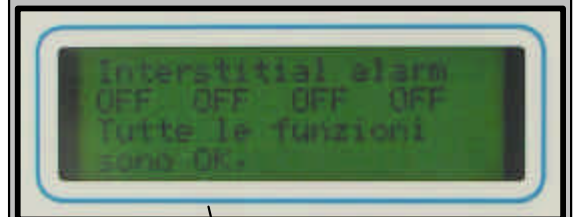
OPTIONS/ACCESSORIES:

Local printer

INTERSTITIAL AND PRODUCT DISCRIMINATOR SENSOR



1) SENSOR 2) FEEDING 3) PCB 4) Or-ring
5) 6) CABLE GLAND 7) RESIN 8) CASE
9) COVER





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