

MiniCRIOTEL

Remote monitoring system for Industrial cryogenic tanks

AMBRA Sistemi, operating for over 25 years in the branch of cryogenic gas production and distribution with support for their optimization and efficiency, presents **MiniCRIOTEL**: the smart telemetric system for local and remote cryogenic tanks monitoring.



MiniCRIOTEL communicates by a GPRS cellular network and sends data to the server by the web application **CrioSystem Supervisor**. The GPRS technology reduces significantly costs for data transfer allowing a high data communication frequency.

A continuous monitoring system helps gas suppliers to eliminate product shortage and/or extra deliveries and ensure sufficient level for each customer.

Level and pressure are available on two displays located on the front panel. Measurements are performed by AMBRA's DRT transducer, which is integrated in the equipment.

MiniCRIOTEL power is provided by solar cells or by an external 24 Vdc power pack supply; the housing is with protection proof IP65 and standard mounting facilities and allows installing the unit onboard of the cryogenic tanks quickly and in an easy way.

In order to minimize the energetic consumption, required for operations with solar cells, the device remains in sleep-mode and switches on the measurement cell and the GPRS modem at regular periods. For this reason, level and pressure are updated every 30 minutes. At every wake up the unit upgrades the measurements on the local display, keeping the indications available at any time.

It is possible to force the updating of level and pressure in real time, pushing the pushbutton on the front panel.

Remote data upgrade by the web application **CrioSystem Supervisor** is programmable by the user from 1 to 24 hours with minimum step of 1 hour.

Standard functions are:

- *Level and pressure measurements notified on the display;*
- *Transmission of periodic updates about level and pressure to the mainframe unit by GPRS;*
- *Transmission of low-level, low/ high pressure and low battery alarm messages to the mainframe unit;*

- Acquisition of the new setup parameter defined on **CrioSystem Supervisor**.

DRT sensor is a combined strength-gauge transducer integrated in the unit and patented by **AMBRA Sistemi**. It measures differential and relative pressure at gaseous phase at the same time.

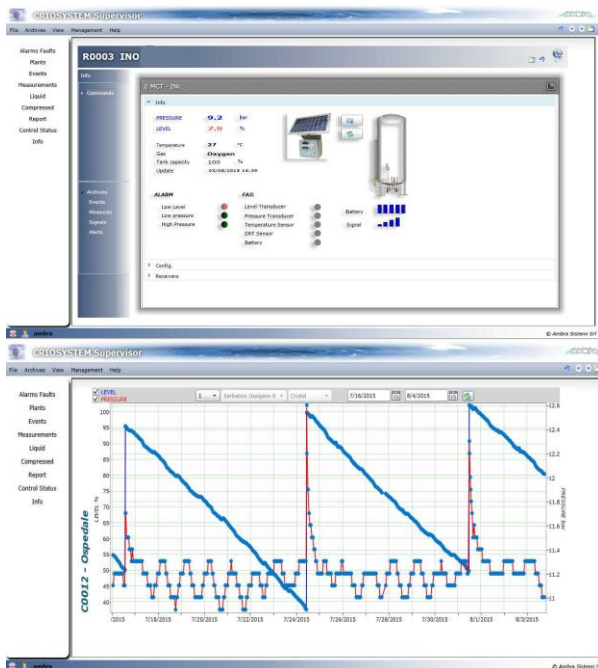
This sensor, specifically developed for cryogenic tanks under pressure, provides high performances regarding accuracy, endurance to mechanical bursts, reliability, compatibility, small size and low cost compared with whichever different solution available in the market.



Web application **CRIOSYSTEM Supervisor** allows monitoring networks based on **MiniCRIOTEL** units, by a power graphic interface and providing continuous daily information and real time alarm messages to operators and databases about cryogenic storages. Concerning database, different alphanumeric and graphical data processes are available, like minimum stock table, consumption diagram and histogram with alarm statistics.

CRIOSYSTEM Supervisor is a web platform and can be consulted by all standard browsers by authorized user access, defined in accordance with the user's responsibility and tasks.

Alarms messages can be forward to operators as SMS, email and voice messages. All flow and history alarm messages are available on **CRIOSYSTEM Supervisor** with the relative alarm acknowledge reports.



Code	Plant	Date	Status	Description
C0001	Test PNEUMERICA FASE	03/08/2015 09:09	OK	
C0002	Coltura Mediana GPR	10/07/2015 11:46	OK	
C0003	TEST CO2(3) SARTO	10/07/2015 17:12	OK	
C0004	Test Head A/B	11/07/2015 18:04	OK	
C0006	AMBULCA ON	02/07/2015 20:20	OK	
M0001	Messura 420	03/08/2015 08:04	OK	
M0002	Messura	03/07/2015 14:00	OK	
M0003	MBT	16/03/2015 16:03	OK	
M0004	MBT	26/03/2015 16:26	OK	Carbon Dioxide 20 AL
M0004	Coltura Micrototal	10/07/2015 11:03	OK	
M0005	Trapi	23/06/2015 12:17	OK	
M0006	micrototal prova Inde	14/07/2015 11:41	OK	
M0007	Test smpm access	14/07/2015 17:10	OK	
M0008	Test smpm access	23/06/2015 12:10	OK	
M0009	Test s	06/06/2015 09:05	OK	
M0010	Test s	19/06/2015 10:45	OK	
M0014	Test s	24/06/2015 16:15	OK	

Technical Characteristics:

Relative pressure transducer

Range	0 – 20 bar/ 0 - 50 bar on request
Resolution	100 mbar
Combined error (0...50 °C)	< ± 0.2 bar
Maximum overpressure	35 bar/ 65 bar (0 - 50 bar transducer)

Differential pressure transducer

Range	Programmable (2 bar max full scale)
Resolution	Dependent to the programmed range
Combined error (0...50 °C)	< ± 2% of full scale with range 150 mbar
Maximum overpressure	Limited by protection devices integrated in the cell

Power pack / Solar cell power supply

Voltage	7-24Vcc ±5%/ 100mA with max sunstroke
Current	0,3 A max
Backup battery	3,7V 3,6Ah Li-ion

Local tank monitoring

Every 30 min/real time updating by a pushbutton on the front panel

Remote tank monitoring

Programmable from 1 to 24 hours

Proof degree

IP 65

Communication

GPRS cellular network

