

**C**CATHODIC  
NEUTEL

**NEUTEL**  
TELEMETRY

# CATHODIC NEUTEL



Specifically designed for your underground steel network, CATHODIC is Neutel's solution to the problem of monitoring corrosion on transport, distribution and stocking infrastructure. Measurements are read every second and collected daily.

The service is based on the measurement of  $E_{on}$  and  $E_{off}$  potential, DC and AC current, and all parameters that may be measured at tests posts along the network, using battery powered or grid powered units.





Neutel creates

telemetry **solutions**, combining

**technology** with **platforms**

for data management

For the **Water, Oil and Gas** sector Neutel offers solutions for remote monitoring of Cathodic Protection and Operating Pressure, at both pressure reduction stations and end points.

Loggers



Data platform



# Loggers



## DOT



*The DOT unit is equipped with 2 high precision analog inputs, for voltages in the  $\pm 150\text{mV}$  and  $\pm 20\text{V}$  range, measuring continuous (DC) and alternating (AC) current.*

*It is commonly installed at test points of cathodic protection systems. An integrated cyclic switch can be used to measure ON/OFF potential with respect to a buried coupon. The DOT unit can be used to provide feedback to BOX-8 units.*

*The unit uses no external power source. The integrated batteries guarantee a standard operating lifespan of 60 months.*

*It will relay data to a remote datacenter over the cell network (GSM/GPRS/2G/3G/4G) and locally over a serial USB cable*

*Three buttons and corresponding LEDs provide access to basic installation and diagnostic functions.*

*It comes with a 10 pin IP68 bayonet coupling or a screw terminal connector for field terminal connections.*

*Measurements and configurations are recorded on Flash memory, and will survive power outages due to battery discharge or battery replacement.*

*The recorded measurements are sent to Futura, a web based purpose built data platform for data archival, analysis and report generation. The recorded data can be forwarded to third party systems, based on customer requirements. Futura also has a supporting mobile App, to assist field technicians in maintenance operations and management of field units.*

# CAT

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*CAT is a battery-operated data logger for AC and DC electrical measurements.*

*The CAT unit is equipped with 4 high precision analog inputs, for voltages in the  $\pm 100V$ ,  $\pm 20V$  and  $\pm 150mV$  range, measuring continuous (DC) or alternating (AC) current using a True-RMS algorithm.*

*The analog input channels are galvanically separated up to a peak rated voltage value  $\geq 500V$ . All channels can measure simultaneously.*

*The CAT unit is commonly installed at test points of impressed current cathodic protection systems, especially at power supplies, drainages and road crossings. An integrated cyclic switch can be used to measure ON/OFF potential with respect to a buried coupon.*

*The unit uses no external power source. The integrated batteries guarantee a standard operating lifespan of 4 years.*

*It will relay data to a remote datacenter over the cell network (GSM/GPRS/2G/3G/4G) and locally over a serial USB cable. Three buttons and corresponding LEDs provide access to basic installation and diagnostic functions.*

*It comes with a 10 pin IP68 bayonet coupling or a screw terminal connector for field terminal connections.*

*Measurements and configurations are recorded on Flash memory, and will survive power outages due to battery discharge or battery replacement.*

*The recorded measurements are sent to Futura, a web based purpose built data platform for data archival, analysis and report generation. The recorded data can be forwarded to third party systems, based on customer requirements. Futura also has a supporting mobile App, to assist field technicians in maintenance operations and management of field units.*





## **BOX-8<sup>®</sup>**



*The BOX-8 unit records and controls analog electrical (AC/DC) quantities. The BOX-8 unit comes with 8 high precision analog inputs, for voltages in the ranges of  $\pm 100V$  and  $\pm 20V$ , to measure continuous or alternating values with a True-RMS algorithm.*

*These units are installed at Transformer/Rectifiers and may control their output.*

*It may also be used for remote monitoring of physical quantities in transport, distribution, stocking and flow-lines of Water, Oil and Gas. In particular it has been designed with specialized functions to monitor and control Cathodic Protection Transformer Rectifiers that provide an RS485 communication port and a compatible protocol.*

*It requires a 12VDC power supply. It may be powered by solar panels or from the grid, using the provided power adaptor and backup battery.*

*BOX relays data to the remote datacenter over the cell network (GSM/GPRS/2G/3G/4G) or Ethernet/LAN.*

*Designed to be mounted on a DIN rail (8 units), it provides slot-in screw terminal connectors to test points that simplify installation and maintenance operations. Three push-buttons on the top provide access to basic setup and diagnostic operations.*

*Data is stored internally on Flash memory and SD Card. Operators can access the data through the onboard webserver, using a standard browser, or configure the unit to relay the data to a remote datacenter.*

# DAT

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DAT is a datalogger for electrical measurements with 4 channels:  $\pm 20V$  and  $\pm 150mV$  on connector A and  $\pm 100V$  e  $\pm 20V$  on connector B. All channels are galvanically isolated with high input impedance.

This datalogger is configured with specific functions designed to monitor the effectiveness of cathodic protection.

It is powered by 3 AAA batteries. DAT uses a Bluetooth connection to communicate with PCs and smartphones. It comes with two bayonet couplings with 4 wires each for electrical connections to the field. All data is recorded to internal Flash memory with a capacity for >200K records and may be downloaded to PC or smartphone.

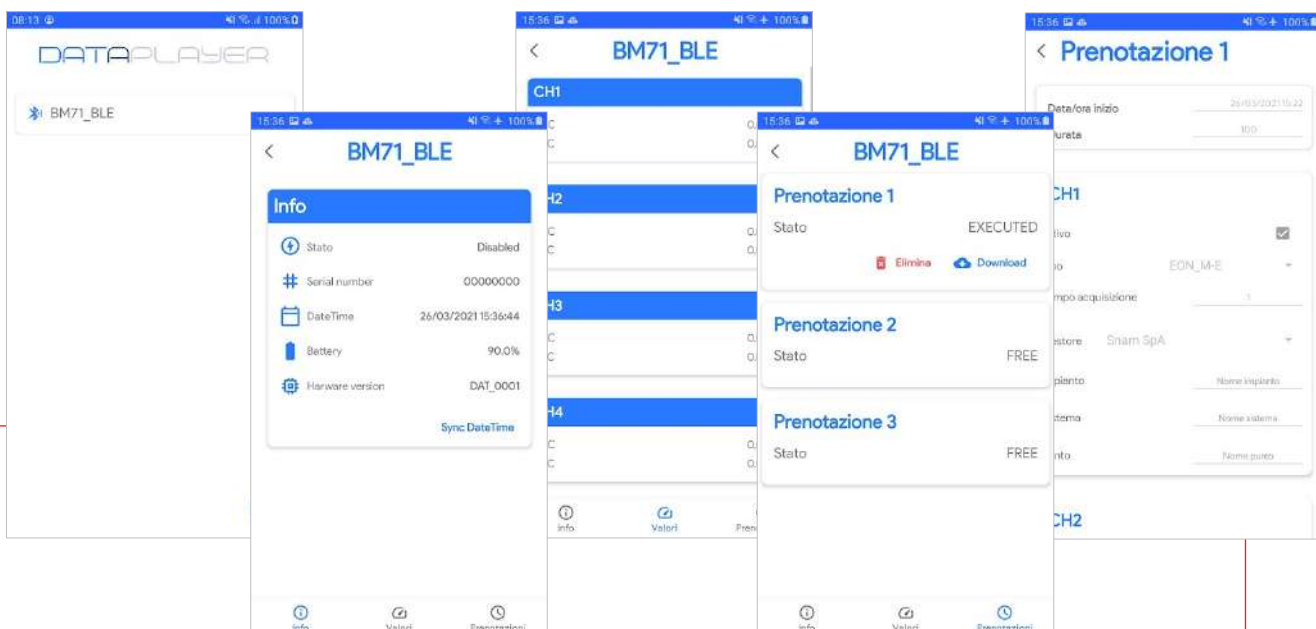
The ease of use and configuration make it one of the top instruments in its field. It may be programmed using a PC with Bluetooth connection using the dedicated DATAPLAYER software or the smartphone App. The collected field data is downloaded using the DATAPLAYER software, where it can be visualized, graphed and exported.



## DATAPLAYER

DATAPLAYER is a dedicated App to program and download data from DAT units. It is also used to configure the parameters used in viewing the data graphs.

DATAPLAYER is available for both Windows PCs and smartphones. Single or multiple units may be programmed in one pass.



## Data platform



## FUTURA

FUTURA is a web platform designed to manage remote monitoring and control of field units installed on critical transport and distribution infrastructure.

It has been optimized for acquisition and intelligent management of all data arriving from the field related to the Cathodic, Pressure, Analysis, Level and Flow solutions.

The field devices are time synchronized: FUTURA collects the data from the field units, aligned to midnight every day.



Maps



Reports



Devices



Dashboard



Charts



Events

The data is presented and filtered in different sections of the website. It may be viewed as tables, graphs or maps, with geolocation of the field units.

The system provides automatic creation of daily reports. Every morning the reports are sent via email, and describe the alerts signaled in the previous 24 hours. Operators can monitor events without needing to log into the website.



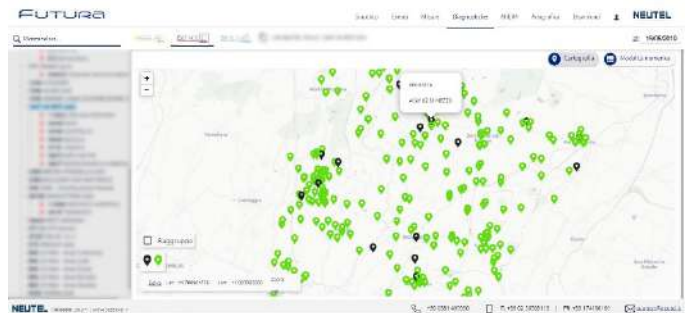
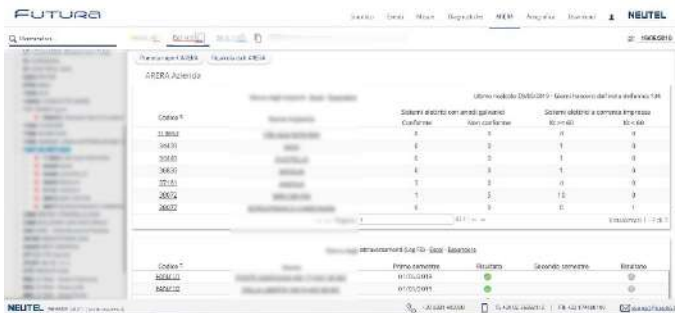
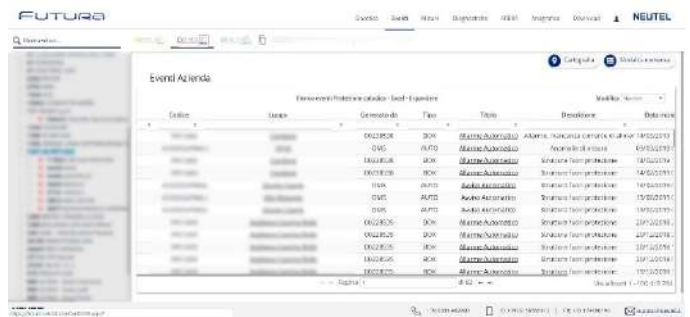
Features

- **Individual accounts and passwords;**
- **Specific management for cathodic protection, pressure monitoring and odorization;**
- **Over limit alarm report;**
- Daily reports on device health;
- Annual reports and custom regulatory reports;
- Batch programming of limit values on field units;
- Multi-column ordering and filtering on the table view;
- High availability: 99.97% service uptime measured daily;
- Frequent updates and new features;
- All data is exportable to the customers servers.

FUTURA is available as a smartphone App. This tool is specifically tailored for field technicians, allowing them to check the status of the company’s networks using a smartphone or tablet.

Events and loggers that are not communicating are easily viewed, as are the most recent alarms, measurements and health check on the field units. Google Maps is also integrated into the app, allowing operators to navigate straight to the inspection site.

Replacement of field units is now easier thanks to a guided procedure that scans the barcode on the loggers.

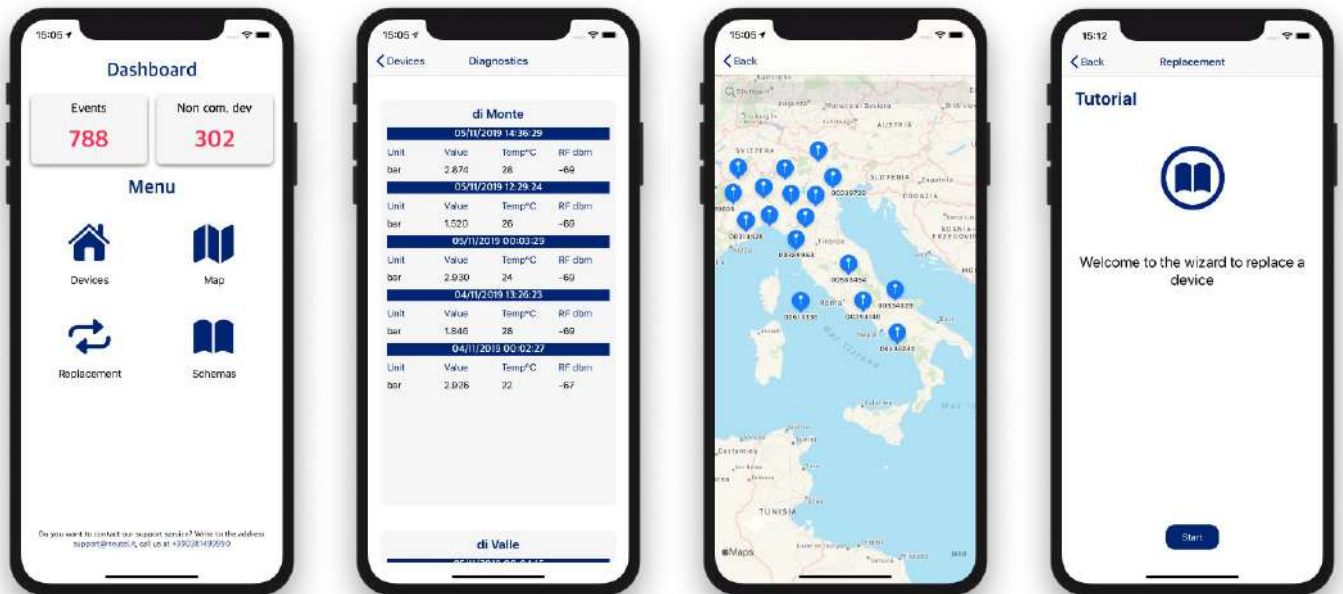




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	<b>BOX-8</b>	<b>CAT</b>	<b>DOT</b>	<b>DAT</b>	
<b>ANALOG INPUTS/OUTPUTS</b>	Analog inputs – n. of channels and type	8 AC+DC galvanically isolated	4 AC+DC galvanically separated	2 AC+DC galvanically separated	4 AC+DC galvanically separated
	Physical measurement scale	4x +/-100V; 4x +/-20V	+/-100V; 2x +/-20V; +/-150mV	+/-20V; +/-150mV	+/-100V; 2x +/-20V; +/-150mV
	Measurement resolution for each scale	< 0.05% FS (24 bit converter– 1ms)	< 0.1% FS (24 bit converter – 500µs)	< 0.1% FS (24bit converter – 500µs)	< 0.1% FS (24bit converter – 500µs)
	Input impedance	> 10Mohm (20V CH)	> 10MΩ	> 10MΩ	> 10MΩ
	Integrated linearization thermometer	-40°C to +85°C 0.5°C resolution	---	--	--
	Analog outputs – n. of channels and type (resolution)	2 channels (0-10V and 4-20mA, common ground) – res. 5%	--	--	--
<b>DIGITAL INPUT / OUTPUT CHANNELS</b>	Digital inputs – n. of channels and type	8 + 8 logical channels for voltage and current values at compatible T/Rs	--	--	--
	Digital outputs – N. of channels and type	2	--	--	--
<b>COMMUNICATION INTERFACES</b>	Local connection	Ethernet 100BASE-T RS-485	RS232	RS232	Bluetooth
	Programming port	USB 2.0			
	Data server connection	GSM/GPRS/2G/3G/4G or LAN/Ethernet	GSM/GPRS/2G/3G/4G	GSM/GPRS/2G/3G/4G	--
<b>FIELD CONNECTOR</b>	Available field connectors	slot-in screw terminals	slot-in screw terminals / IP68 bayonet coupling	slot-in screw terminals / IP68 bayonet coupling	Bayonet coupling + 8 wires
<b>ELECTRICAL AND MECHANICAL SPECIFICATIONS</b>	Power Supply	12V DC 1A. With power supply.	3.6V 39Ah Primary Lithium battery	3.6V 26Ah Primary Lithium battery	3x 1.5V AAA batteries
	IP Protection Rating	IP20 – IP56 in provided plastic container	IP65	IP65	IP65
	Dimensions	160x90x60mm (8x DIN modules) 300x220x130mm (with plastic container for battery and power supply)	220x80x57mm (IP68 bayonet coupling) 160x90x57mm (screw terminals)	170x80x57mm (IP68 bayonet coupling) 120x90x57mm (screw terminals)	145x79x28mm



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