

S2B

Specialised diagnostic service



TECHNICAL BROCHURE

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www.fiorentini.com

Who we are

We are a worldwide organisation specialised in the design and production of technologically advanced solutions for the treatment, transport and distribution of natural gas.

We are the ideal partner for operators in the Oil & Gas sector, with a business offer that goes across the whole natural gas chain.

We are in constant evolution to meet our customers' highest expectations in terms of quality and reliability.

Our aim is to be a step ahead of the competition, with customised technologies and an after-sale service program undertaken with the highest grade of professionalism.



Pietro Fiorentini advantages



Localised technical support

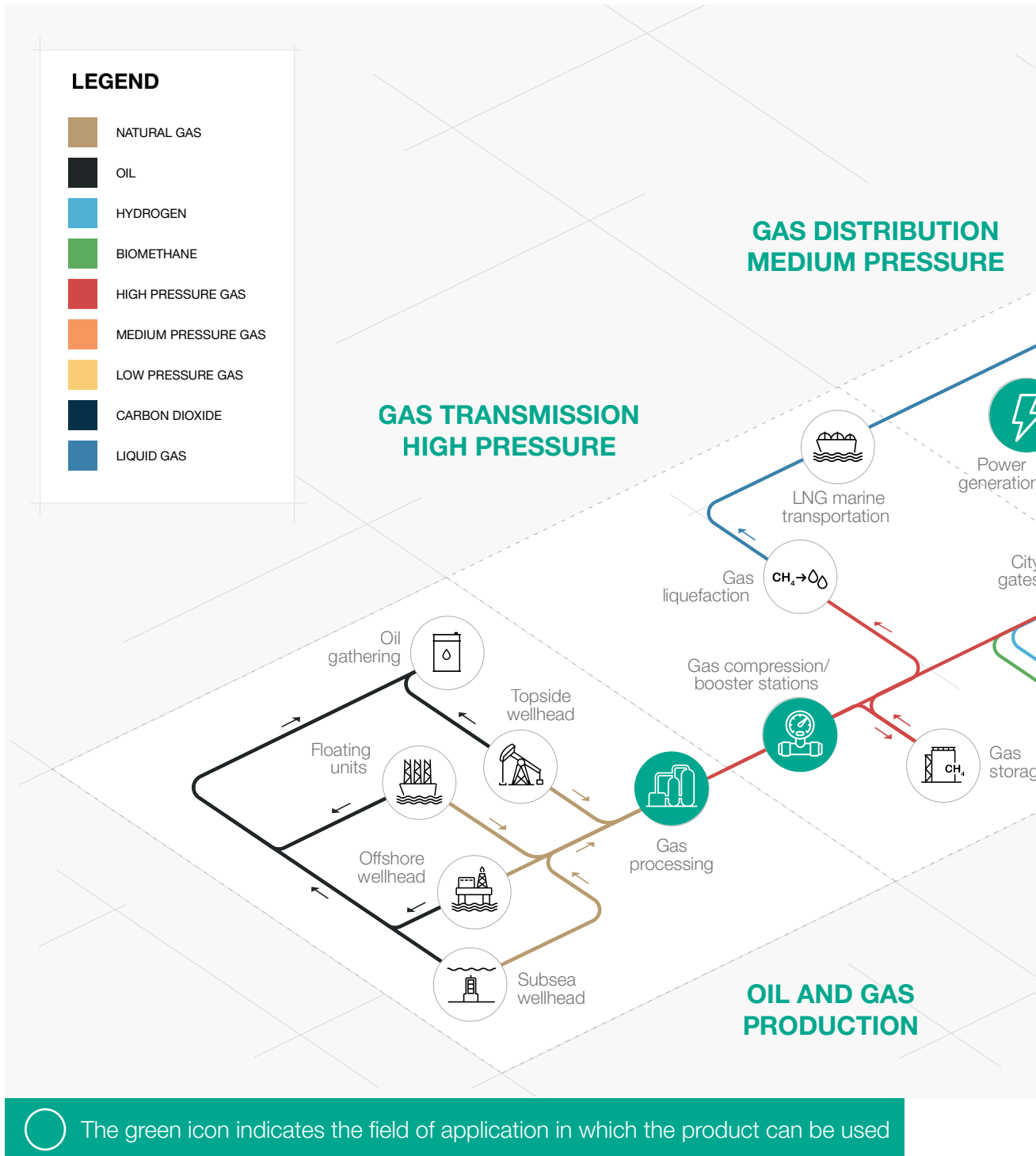
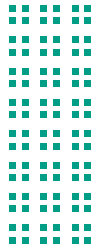


Experience since 1940



We operate in over 100 countries

Field of application



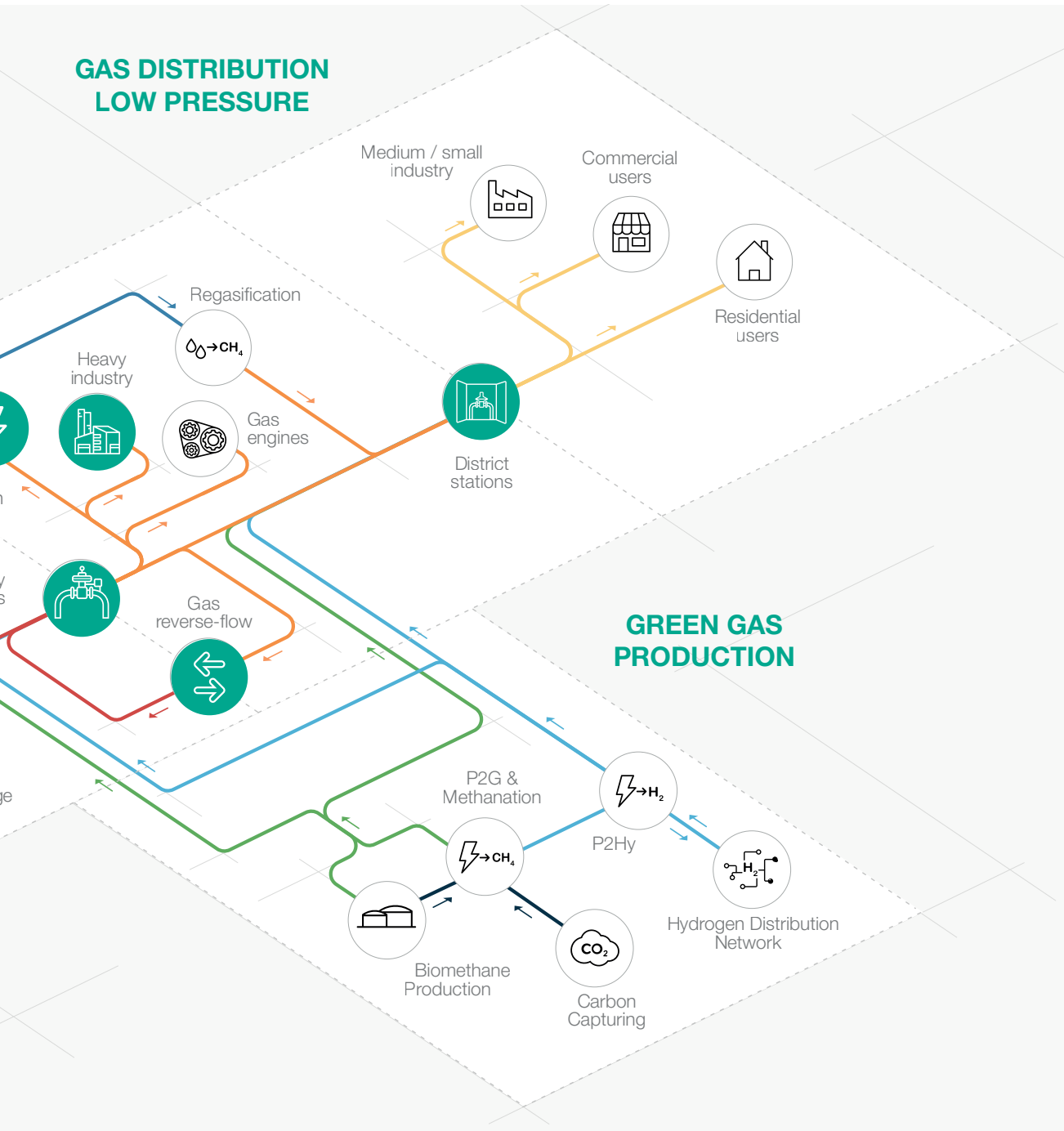


Figure 1 Map of fields of application



Service2Business

Functional characteristics of the Cathodic Protection monitoring module

S2B (Service to Business) is the new cloud platform to manage and monitor data from **Pietro Fiorentini** field datalogger devices.

S2B's goal is to become an instrument capable of accompanying every operation requiring full management of system parameters and of the apparatuses related to it (**Business**), up to management of documents and reports.

S2B fulfils the requirement of integrating the entire range of back-end tools that are the basis of the **Service** offered directly by Pietro Fiorentini in their **Information Center** in Rosate (Province of Milan), with the validation of all the particular functions of the customer support and data management centre, which make continuous analysis and monitoring of field data indispensable.

The **cathodic protection monitoring** module is a tool to view, supervise and manage the electrical parameters of the cathodic protection installations from field data loggers (remote and non) in a simple and complete way.

The collected data contribute to the provision of the documentation on **Authorities** (pursuant to Italian L.D.569/2019/R/Gas for the distribution of natural gas) with the calculation of the KT parameter for every electrical system, as indicated in the current APCE Guideline.

Possible use of the cloud also allows a constant update of information usability, functionality and security, besides the additions to the normative reference amendments and platform maintenance without the customer incurring any expense. This is all carried out in a transparent manner for the end user.

Since it is modular it allows access on smartphone and tablet devices via browser, which facilitates its use during routine field activities.



Login screen

Access is easy and secure by simply connecting to the production website <https://s2b.fiorentini.com/> from any browser.

Pietro Fiorentini will provide each user with the **login credentials** (username and password).

Every user corresponds to a template of privileges, which allow access and control of the various sections required by the profile during set up.

Every user can view the **Account information** and can always edit the **password and language** autonomously.

The user granted administrator rights during set up can create, edit and delete the various login templates for every user.

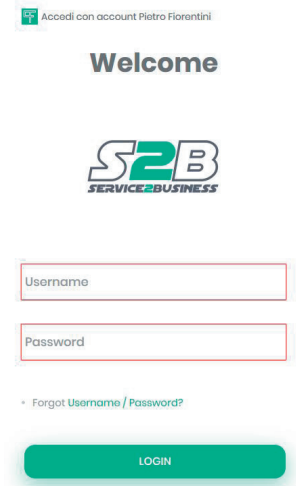


Figure 2 login screen

Tree structure

Displaying the company level in tree view allows you to understand the logic levels and the relevant electrical systems and to observe the registered measurement points

A number of visual indicators can easily communicate the current state of the reference level.

Navigation between the various levels is always easy and intuitive and allows the movement and final point with the relevant characteristics, in accordance with the applicable Authority code, location, attribute and the set-up of the installed remote monitoring devices.

The KT value, recalculated every 24h, is indicated for every Electrical System.

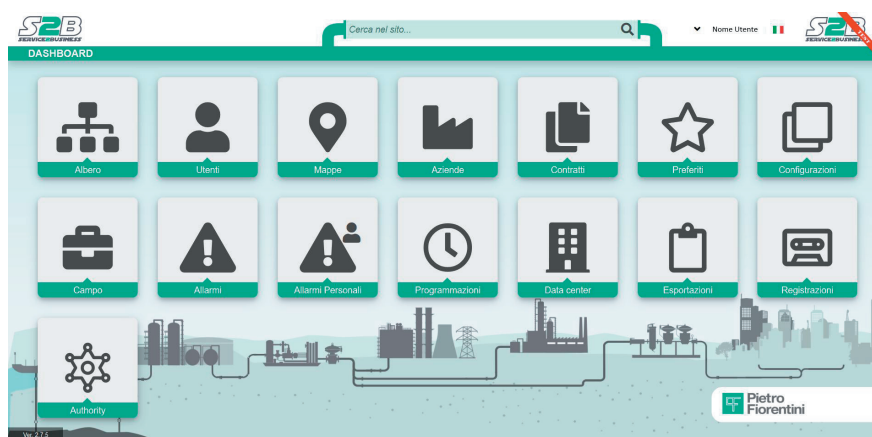


Figure 3 Homepage

Level organisation

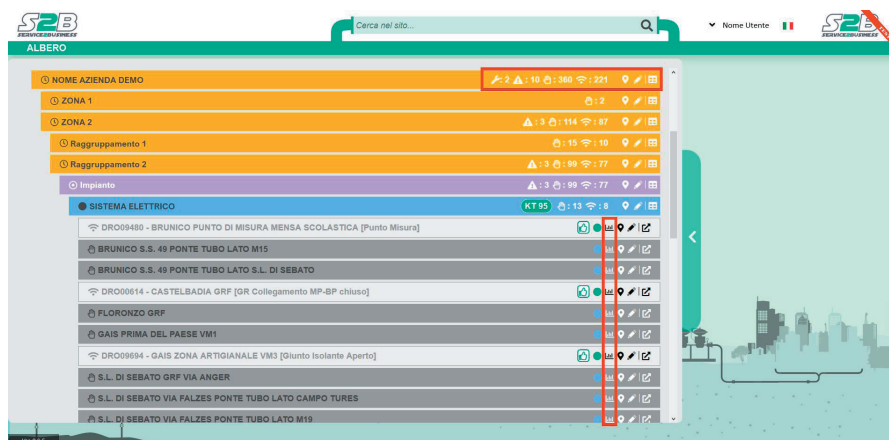
















Figure 4 Levels screen


Every level is organised as follows:

-  Orange identifies **the company or the levels**
-  Purple identifies **the installation**
-  Light blue identifies **the electrical system**
-  White identifies a **Remote monitored measurement point**
-  Grey identifies a **Manual measurement point**

The symbols at the end of the line indicate the various states of the level and/or of the system and/or of the measurement point:

-  Count of the **points being serviced**.
-  Count of the **points in alarm state**.
-  Count of the **manual points**.
-  Count of the **remote monitored points**.
-  Shows the **points on the map**.
-  Edited **descriptions**.
-  Opens the **table view** of the tree
-  Shows the daily **data table**.
-  Opens the page in another browser tab.

Every measurement point is accompanied by a visual description:

-  Measurement point **Conforming to APCE GL**
-  Measurement point **Non-Conforming to APCE GL**
-  Measurement point **working**.
-  Measurement point **under maintenance**.
-  **Manual** measurement point.
-  Measurement point **in alarm state**.

Users with administrator rights can create, modify, move and delete every level or point listed above, and can also indicate its management for regulatory purposes (according to the calculation of Authority, KT, Safety Report, "O" Table, etc.).

Details on measurement points

S2B allows a section dedicated to every measurement point to be consulted, which summarises all the information (also editable) of the point in a comprehensive view, such as:

- **Authority Code**
- **Conformity**
- **Location and geo-referencing (with the possibility of viewing the point on the map)**
- **Attribute**
- **Any installed remote monitoring device**
 - Serial Number
 - Battery state
 - Level of the GSM field
 - Firmware version
 - Associated telephone number
 - Last valid reading
 - Programming
 - Configurations
 - Active Channels
 - Any values of an applied shunt
 - Channel labels
- **Point state with relevant information on open operations (Installations, existence of MRI, SDI, removals)**
- **View recordings**
- **View manual measurement entry**
- **Availability of device certificate**



The daily statistical data and monthly averages of the measurement points can always be viewed and downloaded in table format, with the following being indicated for every configured channel on the device:

- **Date or reference period**
- **Label of the displayed quantity**
- **Minimum Value**
- **Average Value**
- **Maximum Value**
- **Standard Deviation**
- **Number of Alarms (NAL)**
- **Total time out of daily limit (TFL)**

In addition to the table view, the graph profiles can be extrapolated and downloaded, which can also be superimposed between the various channels of the same device.

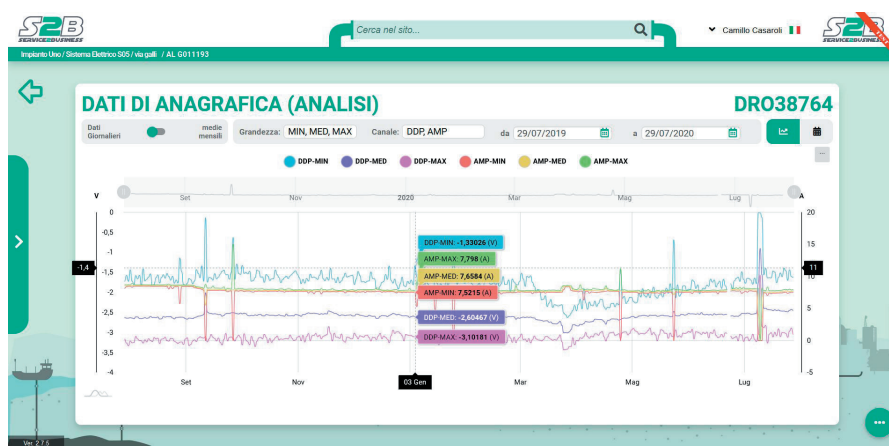


Figure 5 Master data screen

Search features

Every section allows you to query the platform by using the top horizontal bar, which is always present, and makes it easier to identify any tag within S2B. The search returns results for:

- **Authority Code of the measurement point**
- **Code of the device connected to the measurement point**
- **Location (address, road, country, etc.)**
- **Logic level**
- **Installation**
- **Electrical system**

Maps

The S2B Maps function allows you to view all the measurement points of the company or the installation or the electrical system and filters according to the state of the active alarm and attribute of the measurement point:

- Working
 - Under maintenance (open MRI)
 - In alarm state
- Programming in progress
 - With suspended alarm
 - Manual

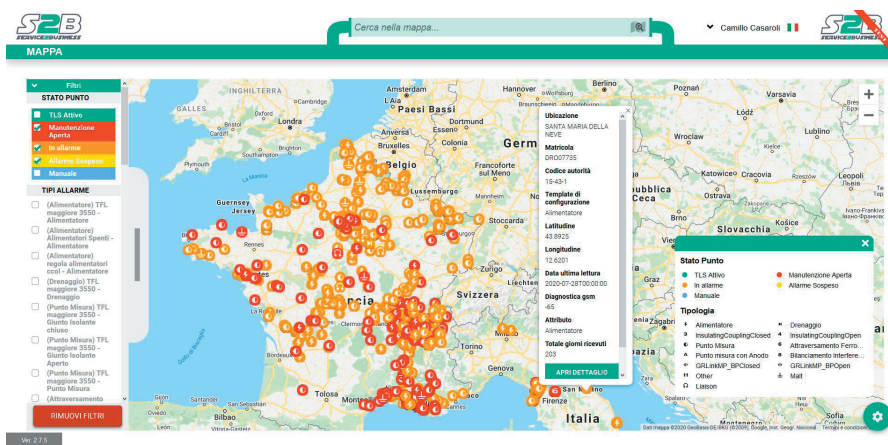


Figure 6 Map

Guided navigation can also be requested for every point shown on the map, to the installation position of the registered measurement point in the system.

Saving to favourites

A group of points can be added to the favourites, to monitor them more closely and access them quickly. Every chosen point can also be added, removed and grouped.



Configurations

A specific section allows you to prepare a number of configuration templates for every attribute of the measurement point and together with the individual remote monitoring device, in such a way as to be able to send the global programming of the devices directly in the field, without requiring manual reprogramming. Therefore, thresholds, labels, shunt values and opening/closing times of cyclic switches for E_{OFF} measurements can be set.

Field activities

The “Field” section is dedicated to operational activities, which require a field technician or operator to be involved so as to carry out one of the following actions:

- **Maintenance (MRI)**
- **Returns (WFR)**
- **Replacements (SDI)**
- **Installations (SIS)**
- **Removals**

Operations can be coordinated and instructions followed to open, manage and close the various requests through the customer support centre or autonomously (if included in the customer's equipment).

Besides the above mentioned operations, the field module allows the **battery replacement** to be managed and **manual operator measurements** to be entered.

The field technician can access the dedicated page (which is also enabled as the only user-accessible resource) on a smartphone or tablet, and a wizard will guide the input of every different type of measurement:

- **Brief**
- **Three-year**
- **Registered**
- **ON – OFF**

Once completed, the measurement will be entered and can be used for the counts in Table “O”. If the measurement is non-conforming or not considered valid, the head of the cathodic protection systems of the client company has the right to invalidate the measurement, which will therefore not be considered in the Authority calculations.

Management and configuration of alarms

The **S2B** alarm system has been developed for the user to have the greatest possible level of freedom when choosing the warning based on criteria that are established by combinations of several conditions, in a simple and reproducible way.

The list of alarms or group of alarms is sent every day by email to specific internal and/or external users of the organisation, together with a full report in Excel format. The report can also indicate a customised series of values of interest.

In addition to the daily report, the alarms are considered as an integration of the point state directly in the tree view for any critical situations to be immediately noted during navigation. This also helps the user to coordinate the operations, allowing them to be monitored immediately and their frequency and warning relevance managed: in fact, every alarm can be silenced (suspended) by means of a specific function, until its future resolution.

A specific “twin” section also allows you to manage **customised alarms** that every user can enter to monitor points or groups of points according to preset personal criteria. This mode does not contribute to the display on the company tree, where only national alarms are indicated (in the previous paragraphs).

Sending programming

A specific on-demand programming can be sent for every field device, for one of the following:

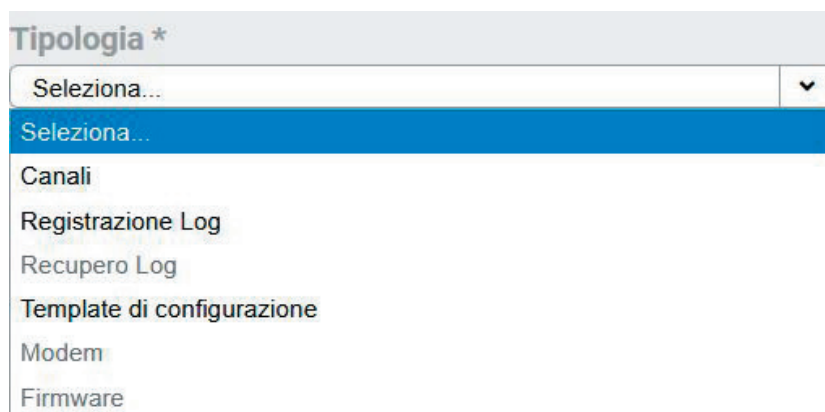


Figure 7 Selection menu

This function allows you to precisely fine-tune the measurement channels or send requests for continuous recording campaigns (per second) or statistics (per minute, per hour, etc.) to the device.



Authority

S2B contributes to the population and extraction of all documentation and reports to conform to the obligations set forth by the competent Authority (ARERA - Italian Regulatory Authority for Electricity Gas and Water) and required of companies operating in the gas sector.

This section is not only essential for the comprehensive year-end assessment, but also to be able to monitor the state of conformity for the KT APCE calculation. In fact, it is possible to view the updated progress of all the measurement points, which can be filtered by company code, measurement point code, installation and electrical system.

A section that is dedicated to the calculation of the KT parameter is added to this function by means of an editable page. This allows you to observe the estimated trends – based on values being entered manually – in the case of any variation in the calculation parameters (network extension, modified IPC number, equivalent registered number, etc.)

This category of functions also includes the possibility of extracting reports for the half-yearly minutes, where the system guides you when choosing the best recorded data.

At the end of the year, the entire Authority report file, containing:

- **Communication report (RCA)**
- **Table “O” complete (TABOcomplete) and standard (TABO)**
- **Self-Assessment Indicator (IDA)**
- **Annual Report on the Electrical State of the System (RASI)**

can be consolidated - under the responsibility of the client company - and closed to be saved and possibly downloaded to be filed offline.

The entire **S2B** System was developed and put into operation in compliance with the **quality** and **IT security** standards of the **ISO 9001** and **ISO/IEC 27001** data centres.

S2B and Data logger

Pietro Fiorentini S.p.A. produces and integrates the full range of its data loggers in S2B for remote monitoring of cathodic protection

NEXT



Figure 8 Next

Opto-isolated 4-channel high-range DC/AC device (shunt current, ddp, physical relay for EON/EOFF measurement)

KAIROS β



Figure 9 Kairos β

4-channel DC/AC, 4G-LTE programmable ladder device for multiple measurement (ddp ECOUPON / EOFF Voltages, electric current)

Kairos is the remote datalogger to acquire cathodic protection electrical quantities. It meets the current and future requirements of the market and complies with the technical rules intended for the sector in accordance with UNI EN ISO 15589-1.

- **LTE / UMTS / GPRS connection**
- **Galvanically isolated measurement channels**
- **Configurable measurement scales**
- **High precision measurements (<0.5% FS)**
- **Analogue channel with relay for configurable E_{ON} / E_{OFF} measurement**
- **Improved application sector with better performing data management routines**
- **Redesigned and more robust electric protections**
- **Can be installed in modules with optional external supply**



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