



LEONARDO CYBER & SECURITY SOLUTIONS

VBRAIN

VBrain is the Leonardo Platform for supervision, control and automation of Buildings, Critical Infrastructures and IIOT.

Industries, enterprises and critical infrastructures are realizing the benefits of advances in digital technologies with the development of the Industrial Internet of Things (IIoT) and the related possibility to exploit all the collected data with the implementation of analysis to support operation decision, smart maintenance and early warning for safety and security.

This industrial transformation marries advanced operation techniques with the Internet of Things to create a digital enterprise that is not only interconnected, but communicates, analyses, and uses information to drive further intelligent action back in the physical world. Connected, smart technologies are providing industries and infrastructures with the opportunity to capture a new type of value.

This push for digitalization must be combined with the need to integrate existing systems for supervision, control and data acquisition that industries, plants and infrastructures implemented and the more and more increasing attention to cyber threats for the IT and OT networks.

VBRAIN

VBrain is the Leonardo platform, for different industrial and critical infrastructure domains, offering a common operation framework to remotely control and monitor all the mechanical, electrical and plumbing systems of plants, buildings and critical infrastructures.

VBrain is a suite composed by many modules developed following the OPC UA standard and the criteria of Cyber Security by design.

VBrain allows the integration and management of a wide range of heterogeneous systems implementing recognized standards both for signals acquisition and interoperability with third party systems through the Fieldbus element (OPC Unified Architecture, OLE for Process Control, Automation Device Specification, MODBUS, Simple Network Management Protocol, BACnet and others)

VBrain provides a real-time control of the operations, constantly guaranteeing service, timeliness of intervention and efficiency in maintenance, in order to prevent or reduce anomalies or interruptions of continuity of the operational service for local or distributed architectures.

Leonardo is furthermore available to implement customized integrations, where standard protocols do not cover the connection needs.





VBRAIN MAIN FEATURES

- Alarm detection based on priority levels and on thresholds defined in the configuration phase.
- Acknowledgment system of alarms with tracking in a database
- Detection of data acquisition failure
- Creation of Alarms and Aggregate and Compound Measures
- Application of expressions for the remodulation of the acquired values
- Correlations of Events and Alarms
- Execution of pre-configured sequences with verification of preconditions and postconditions for each step.

VBrain is designed for a wide range of applications, in particular:

Building Management System

VBrain can be used for the integrated management of all the technological systems of a building, as access control, video surveillance, fire detection, lighting control, elevators, air conditioning, energy plants.

Data Center Management

With VBrain suite is possible to integrate in a single system all technological equipment of a data center such as access control, fire detection, lights, air conditioning and network equipments.

Infrastructure Monitoring System

One of the VBrain hallmarks is to create geographically distributed systems where each node, while remaining independent, can be connected to higher hierarchical nodes. This allows to create distributed architectures and above all to create local and national operating rooms where to manage large scale infrastructures. Each Operation Centre can be provided in Business Continuity and Disaster Recovery configuration.

VBRAIN COMPONENTS

VBrain is a modular solution that is basically composed by the following applications:

VBRAIN SERVER: the core application, responsible for data acquisition from devices, data elaboration and normalization, commands actuation, alarms generation and publication of all measurements variations

VBRAIN SUPERVISOR: responsible for granting service continuity.

VBRAIN DATA MANAGER: responsible for logging all acquired and elaborated data.

VBRAIN CONFIGURATOR: used to configure the VBrain system instance environment, logics and users.

BRAIN NOTIFIER: for forwarding of information related to measures towards the operators through different communication services or peripheral devices (e-mail, SMS, printers, ...)

VBRAIN SCHEDULER: for the configuration and scheduling of automated tasks like commands.

VBRAIN WORKFLOW: for the management of automated activity flows, to design for example the actions required after that a specific alarm occurs on the system.

VBRAIN EXPORTER: to expose some REST APIs to third-party applications in order to allow the latter to send commands configured in VBrain and read the status of measures acquired by VBrain.

VBRAIN WEB SOCKET: to create a secure encrypted web socket channel for data exchange (measurement status, command execution, ...) between the VBrain Server components and the VBrain Web Client module in order to optimize traffic and be compliant with the HTML5 standard.

VBRAIN WEB CLIENT: to offer the operator a complete and efficient view of the operating state of all the monitored components of process, plant, site. Each graphical interface is defined accordingly to exact specifications, depending on the monitored environment and assets and customer needs.

VBrain Web Client has been designed and implemented on the basis of the latest technologies.

The main elements are:

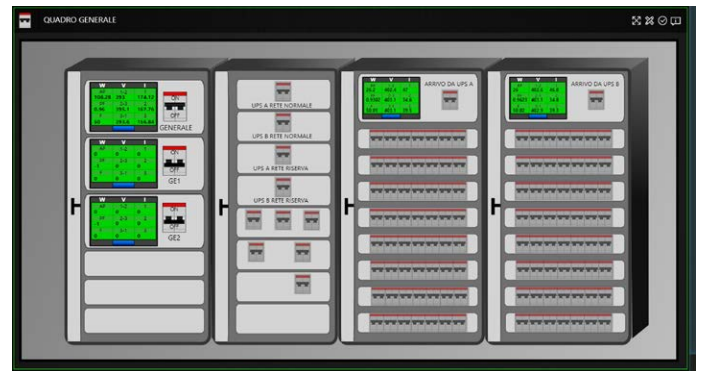
- Graphical interfaces;
- Visualization of the operating state and related measures of each device/plant/site;
- Treeview composed of nodes that allow the access to the different monitored devices/sites interfaces. Each node assumes a different color based on the status/condition of all the measurements present in the related interface
- Operator commands management;
- Reporting (allows users to access and consult stored data -both in runtime and historian DB- in order to perform analysis of the information).



VBrain Web Client



VBrain Web Client



VBrain Web Client

VBRAIN IS SECURE BY DESIGN AND ENSURES THE FOLLOWING PILLARS:

- Confidentiality – only allow access to data for which the user is permitted
- Integrity – ensure data is not tampered or altered by unauthorized users
- Availability – ensure systems and data are available to authorized users when they need it
- Resiliency – ensure systems are always running with policies for switching in case of fault

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