

# Power Systems Automation

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## Automation

With over 40 years of experience in the development of advanced technology for supervision, control and automation of energy systems, we provide innovative products and solutions tailored to each market.

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### Brief Description

**The Automation area develops and supplies customised products and solutions for the control, automation, and management of electric power networks.**

Bringing together system and technology skills, we provide solutions for control centres, namely systems for the safe and efficient management of energy generation, transmission, and distribution infrastructures, for the centralised management of renewable energy generation systems, and also for the management of electric traction infrastructures for transport systems, such as light rail or railway networks.

In addition, we provide digital protection, automation and control solutions for distribution and transmission substations, as well as solutions for power supply systems.

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## Offer Portfolio

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- Grid Management
- Protection, Automation & Control (PAC)
- Power Supply Systems (UPS and Battery Chargers)

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### Applicable to

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#### Transmission and Distribution Grids and Power Generation

- Grid Management Systems (SCADA/ADMS/OMS/REMS)
- Telecontrol and Operations Management Solutions
- Substation Automation Systems
- Distribution Automation
- Protection Relays
- DC and AC Power Supply Systems

#### Transportation

- Railway Electrification Management Systems
- Infrastructure Technical Supervision and Operations Management
- Substation Automation Systems
- DC and AC Power Supply Systems
- Traction Rectifiers

#### Industry & Utilities

- Telecontrol and Operations Management Solutions
- Substation Automation Systems
- Protection Relays
- DC and AC Power Supply Systems



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## Innovation

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Efacec maintains a dedicated R&D team that enables to develop high quality and competitive products and systems, designed according to the needs and specifications of our clients.

Automation delivers a full range of solutions in three major product platforms: **ScateX#**, **CLP500** and **Efapower**. Efacec product portfolio is developed in-house by highly experienced teams by combining state-of-art technology with innovation in accordance with industry standards.

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## Engineering services

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Solutions are designed to be highly adaptable to specific customer requirements whether new systems, expansions or upgrades are considered.

Efacec engineering services, delivered in accordance with certified quality, environmental and other management systems, include:

- Supply of turn-key solutions
- Project management and execution
- Integration of multi-vendor solutions
- System design, configuration and integration (including enclosures, control room integration, testing and commissioning)
- Training
- Maintenance and Support
- Consulting and Related Services

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## QES Certifications

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### Brazil

ISO 9001 (Quality)

### Central Europe

ISO 9001 (Quality)

ISO 14001 (Environment)

ISO 45001 (Safety)

### Portugal

ISO 9001 (Quality)

ISO 14001 (Environment)

ISO 27001 (Information Security)

ISO 45001 (Safety)

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## Product certifications in the world

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### Europe

CE marking

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## Main Geographies

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Europe, Latin America, Middle East and Asia, and Maghreb



# Grid Management



The latest instalment of the long running network SCADA solution from Efacec, enables our customers to deploy solutions for medium to large SCADA networks; advanced ADMS, OMS, or REMS applications for electrical transmission, distribution or generation; railway and metro integrated management; supervision of technical infrastructures; operator training systems and field crew management, among others.



Is the unified, modular and scalable solution by Efacec for the ADMS segment. It bundles the core distribution operations functions of a SCADA system, outage management, switching and the advanced applications of grid analysis and optimization into a single solution that can be used through a single user interface with a common user experience. It offers real-time supervision, optimal predictive operation, planned and unplanned outages management, data analytics with reporting and dashboarding, as well as asset predictive maintenance and IT integration capability.



Prepared for smart grid deployments with an enormous number of data-points in one reliable and integrated SCADA/OMS solution. It is an open, modular and distributed system for the control and management of a power system. It targets the distribution utilities as it provides tools that enhance the control over the distribution quality of service, as well as tools that support a fast and safe service restoration to customers upon the occurrence of network outages. It provides a fully integrated WEB user interface for OMS functionalities, including the interface to the enterprise systems like IVR, AVL and MDM.



Efacec Renewable Energy Management System (REMS) provides suitable management features to allow promoters operating renewable assets to early detect any system faults and to maximize the system economic and technical performance. Our solution accommodates an open API to facilitate system functions extension and third-party systems integration, an optimal predictive dispatcher support system, a generation forecast, a renewable asset condition monitoring, or a predictive maintenance management. It's an open and scalable solution, suitable to provide multiple configurations, and to support big databases. Therefore, delivering an optimal and centralised management of the renewable assets' portfolio considering technical, environmental and market criteria.



For electrical, oil, gas and water utilities and industries, ScateX# TECH bundles all the features required for advanced grid operations and infrastructure management in a highly scalable extensible SCADA platform, including advanced grid-aware supervision and control applications in a unified user interface for 24/7 system operation and management.



ScateX# RAIL bundles SCADA, operations management, power applications, condition monitoring and technical supervision. Suited for the railway electrification systems, including tractions substations, catenaries and all associated infrastructure.

# Protection, Automation & Control (PAC)

The unified automation solution provides an extended range of RTU, Protection Relays, Controllers, Gateways and Station SCADA/HMI products in a seamlessly integrated and open platform concerning communications, programming, user interface and engineering. The CLP 500 products are tailored to fit a variety of applications ranging from substation automation, through water management systems to power plant DCS, just to name a few.



## Digital Substation Automation System

Efacec integrated substation automation solution for Transmission, Distribution, Industrial or Railways applications.

CLP 500SAS combines the unified Efacec relay, controller and full web HMI platform with IEC 61850 ed. 2.1 and IEC 61131-3 open systems integration.



## Power Plant Automation System

The CLP 500PAS power plant automation system is a unified distributed control system platform tailored for the automation of hydro and small hydro power plants.



## Remote Terminal Unit

Targeted for telecontrol and automation of plants, substations or similar technical infrastructures,

CLP 500RTU is a flexible and scalable distributed remote terminal unit and programmable automation system.



# Automation Products Families

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## UC 500(E) Station Servers and HMI

The station server family, available with multiple hardware options, and modular and scalable software architectures. A fully featured SCADA/HMI platform for user interface, operations management or data analysis.



## Merging Unit & Circuit Breaker Controller

Part of Digital Substation solution, a state-of-the-art IED for near-process applications and integration of smart power equipment in process bus architectures, including both stand-alone merging unit (SAMU) for current & voltage signals acquisition and circuit breaker & switch controller (BIED) for interfacing switching devices.



## Series 500 IED

A range of protection relays and controllers, offers fast and reliable protection and control algorithms together with recording and monitoring. Targets high-end applications, such as power transmission utilities or generation power plants.



## Series 450 IED

Protection and control relays, designed for sub-transmission and distribution applications. Offer a range of fast, reliable and field-proven protection functions combined with control, measurement and monitoring.



## Series 430 IED

Multifunctional cost-effective protection and control relays for line/feeder or capacitor bank in HV/MV systems.



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### Series 220 IED

Compact protection and control relays (TPU 220), recloser (RCU 220) and sectionalizer (DCU 220) controllers, renewable plant controllers are a cost-effective secure solution for distribution and industry utilities applications.



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### Automation Studio

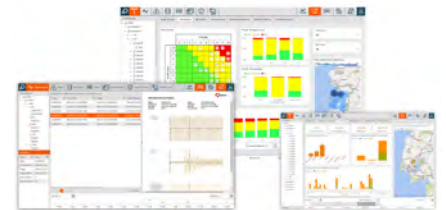
Unique, open, "all-in-one" easy to use engineering environment for the automation engineer or system integrator, the only required tool for Efacec automation products.



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### Transformer Monitoring Unit

An advanced solution for the aggregation and correlation of information from different sources, specially designed to be part of a power transformer asset management system.



## Power Supply Systems

Efacec offers a wide range of equipment like Battery Chargers (from 24 Vdc to 220 Vdc), and UPS's (single and three phase) that covers several segments (Telecommunications, Energy applications, Industry and Services, Railways, Tramways or Subways).

### ☑ CIBS

#### DC Battery Chargers for Telecommunications and Energy Applications

- Compact design
- High efficiency
- Modular design (Switch Mode Technology)
- Customizable solutions



### ☑ UPS

#### UPS - Uninterruptible Power Supplies for Railways, Industry and Hospitals

- Topology: online double conversion
- Construction: modular Assembled in 19" rack
- Type of parallel: parallel distributed architecture
- Redundancy N+1: high reliability
- Upgrade capacity: add modules
- Accessibility: from front for operation and maintenance
- Efficiency: up to 95% (double conversion) and 520 kVA



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