Treetech

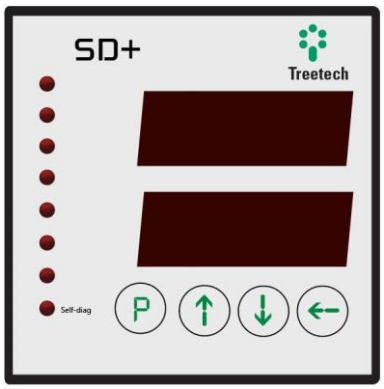
SC+

SMART DEVICE GATEWAY

PRODUCT CATALOG

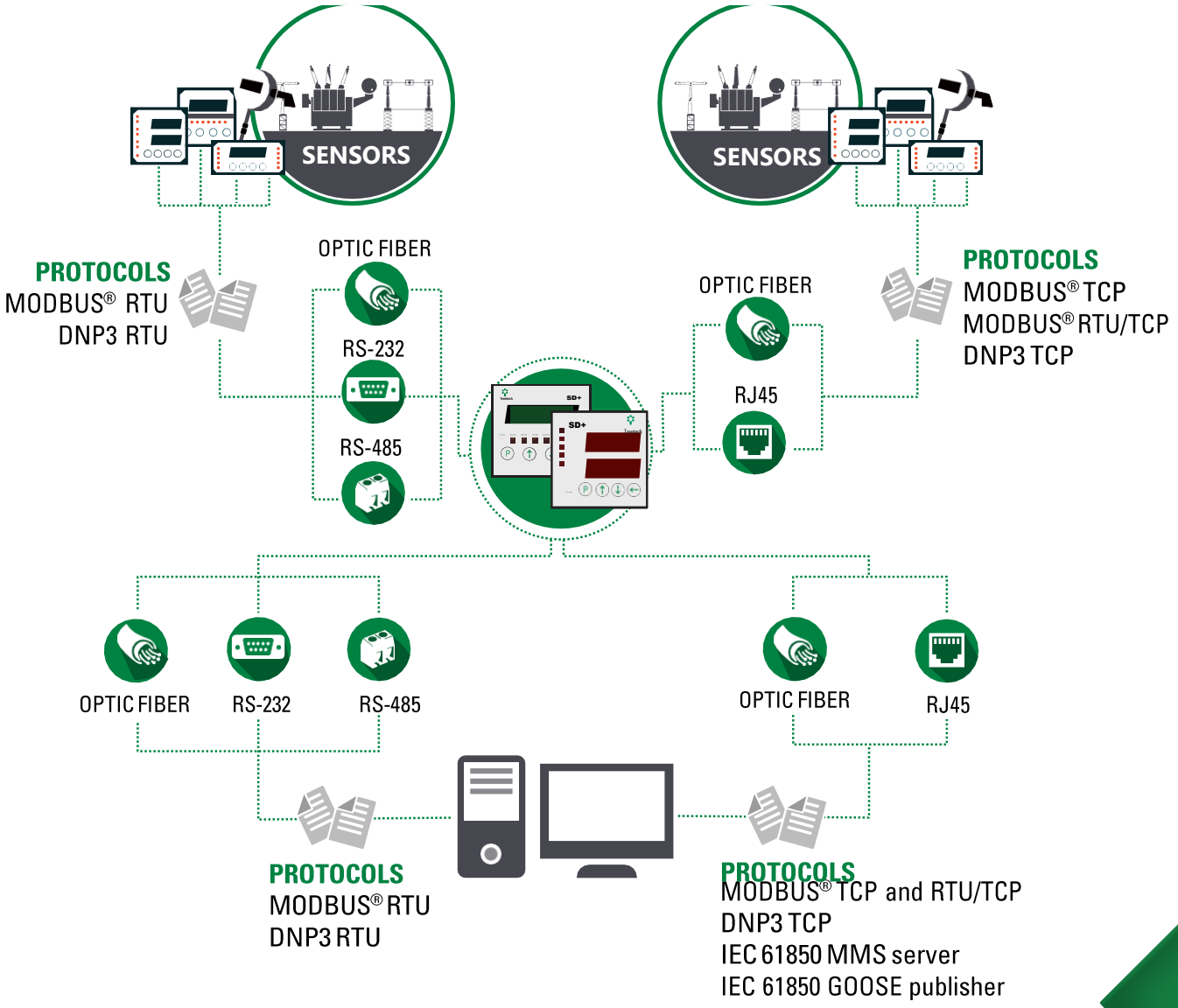
treetech.com.br

HOW ARE YOUR EQUIPAMENT COMMUNICATING WITH EACH OTHER?



The Smart Device Gateway – SD+ was created to fully aggregate information from any equipment compatible with the Modbus and/or DNP3 protocols and redistribute it in a highly customizable way in these protocols and also in the IEC 61850 standard.
Thus, SD+ enables the integration of systems that may or may not have the same protocols or physical means of communication. Also, data is easily presented and managed through an intuitive and friendly web interface.

SYSTEM TOPOLOGY



REMOTE INFORMATION

All product management and configuration is done directly through a friendly web interface, which makes the updates process easy and intuitive, and even better: all this without the need for a license or installation of proprietary software.

- Measured values in real-time
- Access security by HTTPS
- Profiles with different levels of operation permission
- Clock configuration and timing by NTP protocol
- Communication status and error statistics
- Download logs and oscillographies

EXTENDED COMMUNICATION

- High-speed communication by Ethernet or serial
- Redundancy or distribution to various systems through their multiple outputs:
  - FOFO - 2 Ethernet F.O;
  - FOSR - 1 Ethernet F.O. + 1 serial F.O;
  - RJ45 - 2 Ethernet RJ45;
  - 1 serial communication port RS-485/RS-232;
  - 1 serial communication port RS-485.
- Standard delivery communication protocols:
  Modbus® RTU, Modbus® TCP, Modbus® RTU/TCP;
  DNP3 RTU, DNP3 TCP;
  IEC 61850 MMS *server*;
  IEC 61850 GOOSE *publisher*.

SELF-DIAGNOSIS

- Self-diagnosis for internal fault detection.

COOLING COMMAND

- Exceeds ECM (Electromagnetic Compatibility) standards for supportability;
- It has no mechanical parts for parametrization or calibration;
- Reduced size;
- High brightness, readable in high light and temperature conditions with contrast adjustment;
- Versatile feeding range.

HARDWARE	RANGE/DESCRIPTION
Supply voltage	85...265 Vca/Vdc, 50/60 Hz
Maximum consumption	≤ 13 W
Operating temperature	-40...+85 °C
Degree of protection	IP20
Connections	0,3...2,5 mm², 22...12 AWG
Fixation	Panel mounting
LED panel	8 high brightness 14-segment LED displays divided into 2 lines
VFD panel	2 x 16 high gloss alphanumeric display in flourescent vacuum
INPUT	**RANGE/DESCRIPTION**
Dry contacts	12 potential-free
Contacts supply	Internal reference source
OUTPUT	**RANGE/DESCRIPTION**
Relay outputs	Up to 3 reversible relays + 2 NO
Maximum switching power	70 W (dc)/220 VA (ca)
Maximum switching voltage	250 Vdc/250 Vca
Maximum switching current	5 A

NETWORK INTERFACES	DESCRIPTION
Serial communication	1 TIA-485-A (RS-485) and 1 TIA-485-A (RS-485)/1 TIA-232-F (RS-232)
IEEE 802.3 Communication Ports (10/100 Mbps)[1]	2 Ethernet RJ45 (10/100BASE-T) or 2 Ethernet F.O. (10/100BASE-FX; MM 1310 nm connector SC) or 1 Ethernet F.O. (10/100BASE-FX; MM 1310 nm connector SC) + 1 Serial F.O. (MM 850 nm connector SC)
Master/Client Protocols	Modbus ® (RTU e TCP) e DNP3 (RTU e TCP)
Slave/Server Protocols	Modbus ® (RTU e TCP) e DNP3 (RTU e TCP) IEC 61850 (MMS server/GOOSE publisher)[2]

[1] The customer must choose one of the three options.
[2] The .icd file can be created from any .icd generator software and later imported by the SD+ web inteface

CHARACTERISTICS

Rugged hardware
The SD+ was designed to work in an electrical substation environment and can be installed directly on the transformer panel.

Embedded operating system
The SD + gateway has an embedded operating system, customized by Treetech and tested in various security and stability requirements. It ensures better reliability of product operation, in addition to being future proof

LED or VFD (Vacuum Fluorescent Display) type display
The SD+ is available in versions VFD - Fluorescent Vacuum Display and LED. Both displays have high brightness, making it possible to view panel information in any lighting and temperature conditions.

User management and access profiles
In order to ensure access and data security, the SD+ gateway works with profiles of different access levels for operation, configuration, and administration.

Reduced size
Despite its advanced features, the SD+ has a reduced physical size of 96 x 96 x 125 mm.

Customization of IEDs protocol maps
Through a friendly interface, the user can edit or create customized mappings of the IEDs, including merging IEDs and converting protocols.

Remote update
Through the web interface, the firmware update process becomes extremely simple and intuitive.

Clock timing
The SD+ gateway allows for clock synchronization configuration by NTP protocol.

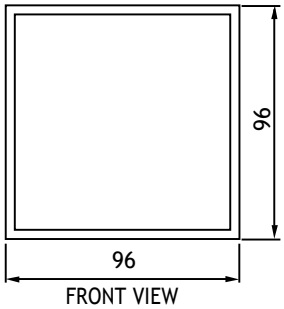
Communication log download
SD+ provides a download of the communication protocols logs in its interface to facilitate network diagnosis.

Expertise in embedded systems
Treetech has specialists in embedded operating systems with extensive experience in the field. This knowledge has been added to SD +, making it an extremely safe and stable product, while remaining easy to operate

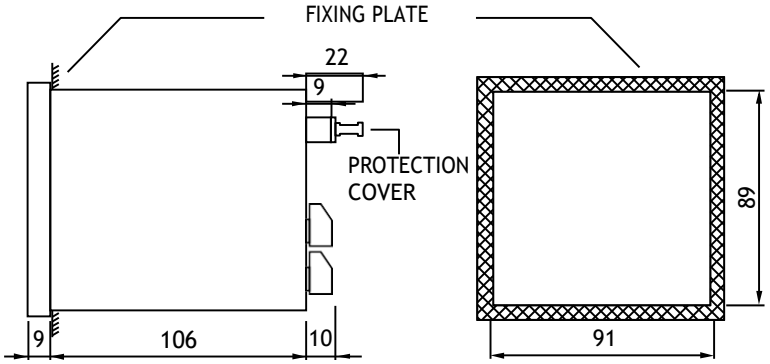
Digital inputs and outputs
The VFD model also adds the function of digital inputs. There are 12 fast-acting inputs for the supervision of accessories and protections. They operate with an internal low voltage reference providing safety to the user. It also includes 4 more digital relay outputs for signaling, with a fast action of fewer than 7 milliseconds. The outputs can mirror states of an individual input or a grouping of inputs (OR logic).

TYPE TESTS (SMART SENSOR 3 PLATAFORM)
Surge immunity (IEC 60255-22-5 and IEC 61000-4-5)
Immunity to electrical transients (IEC 60255-22-1, IEC 61000-4-12 and IEEE C37-90-1
Voltage surge (IEC 60255-5)
Applied voltage (IEC 60255-5)
Immunity to irradiated electromagnetic fields (IEC 60255-22-3 and IEC 61000-4-3)
Immunity to conducted electromagnetic disturbances (IEC 60255-22-6 and IEC 61000-4-6)
Immunity to industrial frequency magnetic fields (IEC 61000-4-8)
Electrostatic discharge (IEC 60255-22-2, IEC 61000-4-2 and IEEE C37-90-3)
Immunity to fast electrical transients (IEC 60255-2-4, IEC 61000-4-4 and IEEE C37-90-1)
Power failure (IEC 60255-22-11 and IEC 61000-4-11)
Withstand cold (IEC 60068-2-1)
Withstand dry heat (IEC 60068-2-2)
Withstand wet heat (IEC 60068-2-78)
Thermal cycle (IEC 60068-2-14)
Vibration response (IEC 60255-21-1)
Vibration durability (IEC 60255-21-1)
Electrical safety (EN 61010-1)

PRODUCT DIMENSIONAL



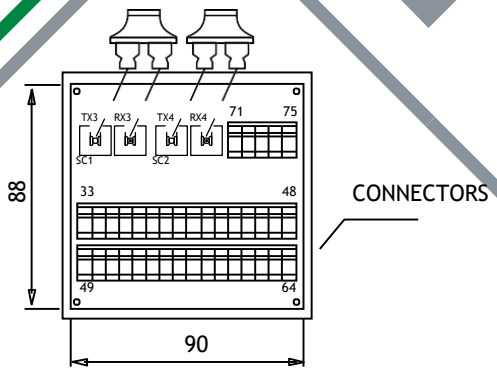
FRONT VIEW



SIDE VIEW

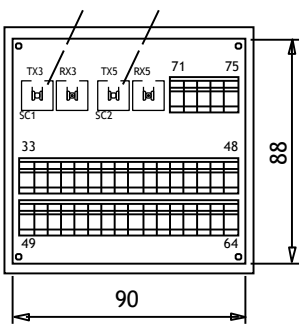
CUT FOR ASSEMBLY

PRODUCT DIMENSIONAL

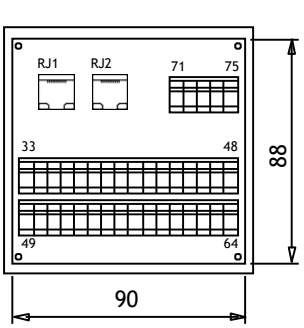


REAR VIEW
ETHERNET/OPTIC FIBER PORTS

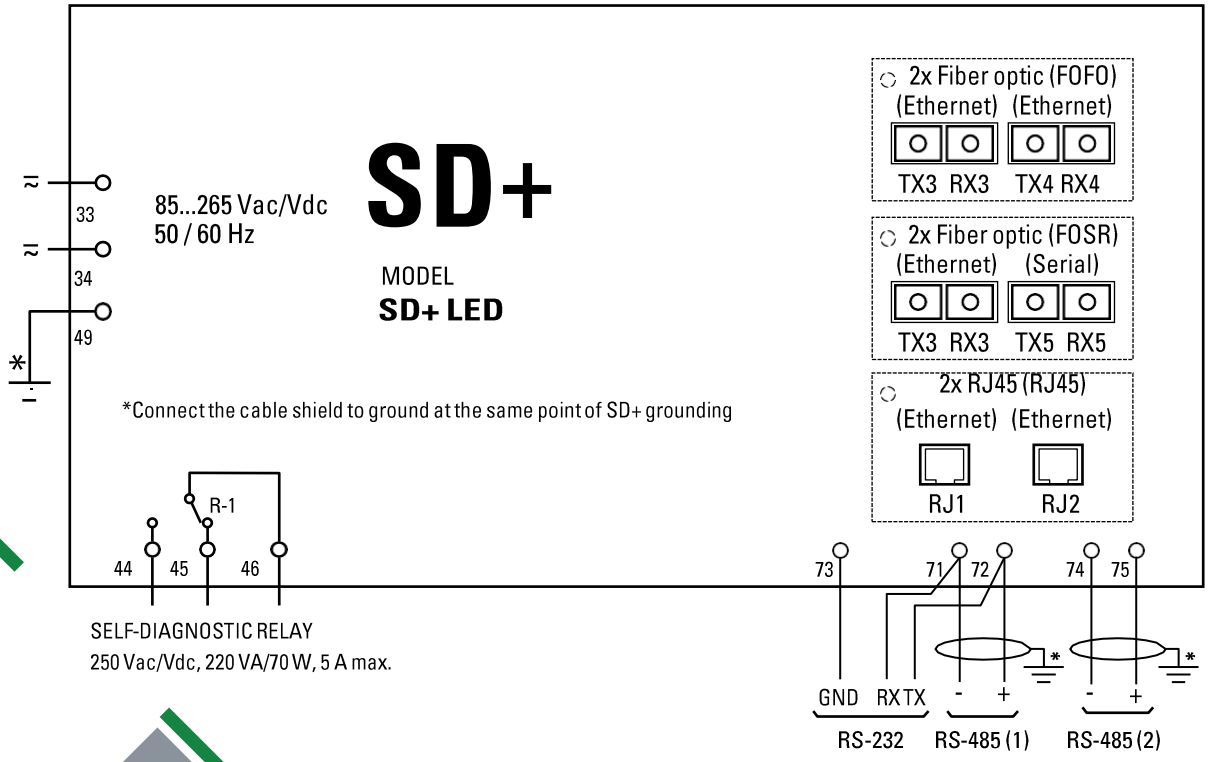
ETHERNET SERIAL



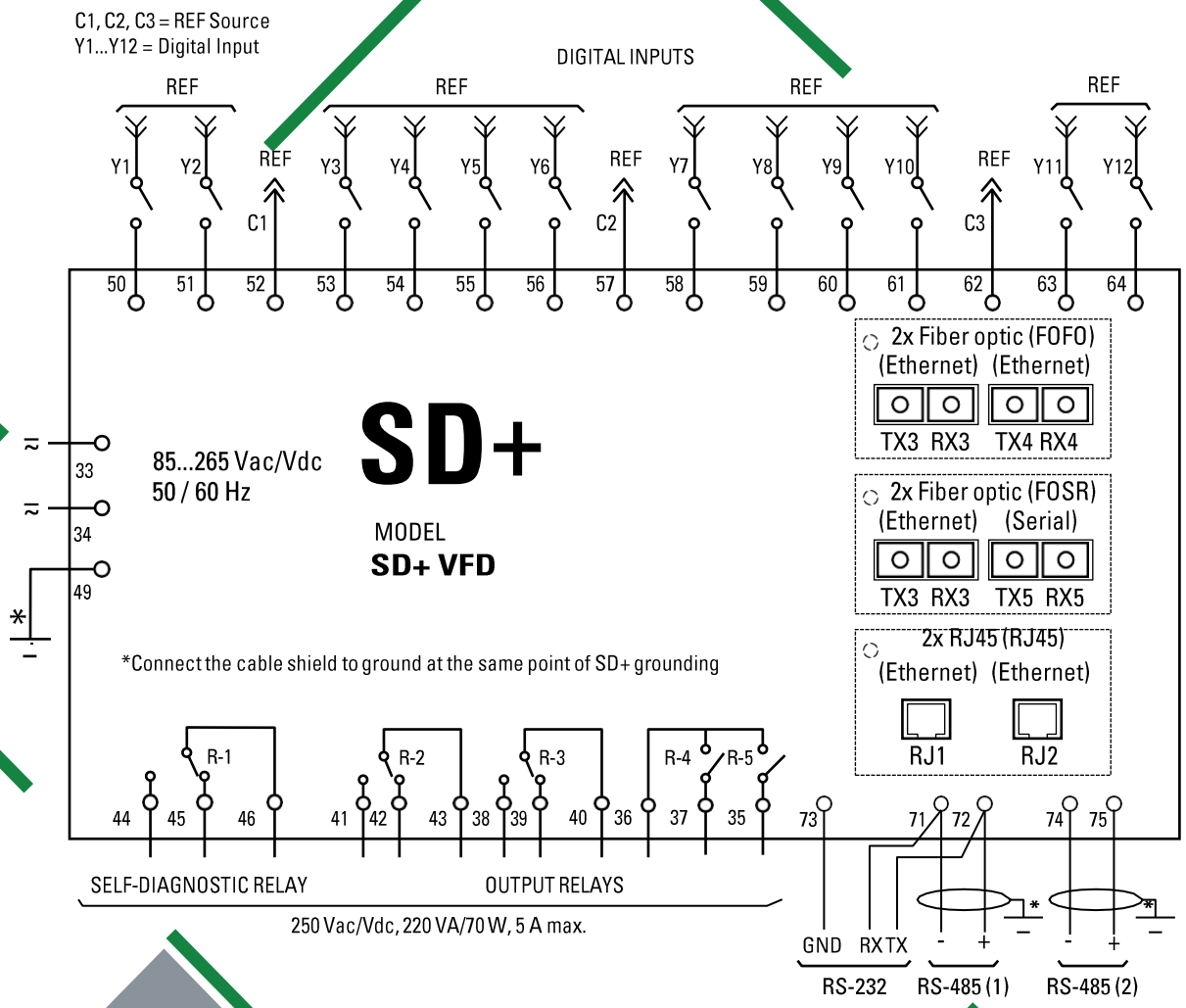
REAR VIEW
ETHERNET/ SERIAL PORTS



REAR VIEW
ETHERNET/RJ45
PORTS



CONNECTION DIAGRAM (SD+ LED)



CONNECTION DIAGRAM (SD+ VFD)

ORDER SPECIFICATION

In the purchase order of the products it is necessary to specify:
-Product's name;
-Model;
-Communication configuration;
-Accessories.

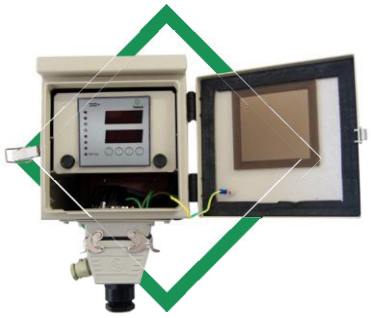
MODEL: Choose one of the following options:

SDV LED - 8 LED displays - 14 high-brightness segments divided into 2 lines;
SDV VFD - 2 x 16 high gloss alphanumeric display in fluorescent vacuum.

COMMUNICATION CONFIGURATION:

FOFO – 2 Ethernet F.O;
FOSR – 1 Ethernet F.O. + 1 Serial F.O;
RJ45 – 2 Ethernet RJ45.

RECOMMENDED ACCESSORIES



QUICK INSTALLATION PANEL - PIR

The Quick Installation Panels - QIP from Treetech were developed to facilitate the assembly and installation of IEDs, in addition to protecting them from external weather conditions such as rain, sun, wind, etc.

CHARACTERISTICS	
Models	PIR-1 for an SD+ PIR-2 or PIR-3 for other Treetech IEDs
Transformer fixation	Screwed or with magnets with a high load capacity
SD+ fixation	In withdrawable rack
Wiring connection	Removable multipolar plugs at the bottom of the case
Degree of protection	IP55
Insulation test	2 kV, 50/60 Hz, 1min

For more information: consult our accessories catalog!

01

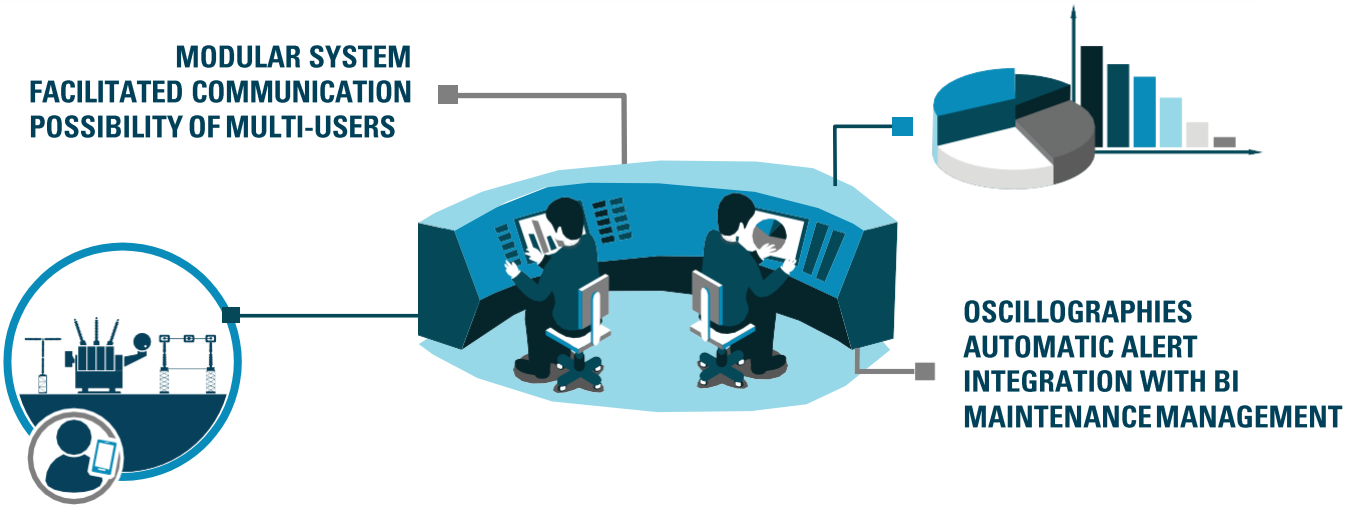
WANT A SPECIALIST HANDLE?
LET TREETECH INSTALL!

With a team of highly trained and experienced designers, technicians, and engineers, Treetech can be responsible for the design, installation, commissioning and training of all monitoring solutions offered. Consult the conditions and facilitate the implementation of new technologies.

02

ENTER THE AGE OF **SUBSTATION 4.0** WITH **SIGMA ECM**

The Sigma **ECM**® (Equipment Condition Monitoring) software integrates all of the company's electric park in a single platform and allows online monitoring of the operation of all the assets of the power substations.



03

MANAGEMENT OF ELECTRICAL ASSETS IS THE SECRET!
TREETECH TAKE CARE FOR YOU!

The **SAM**® , specialized team, with more than 40 years of experience in the sector, provides services and consultancy in all processes from the conception of the asset to the end of its useful life, with interfaces in the areas of maintenance engineering, operation, planning, and enterprises.

Treetech

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