Treetech®

ACCESSORIES CATALOG

treetech.com.br

ACCESSORIES THAT FURTHER OPTIMIZE THE PERFORMANCE OF OUR PRODUCTS!

To enhance your experience with Treetech products, we have created this accessories catalog. Here, we have gathered a selection of accessories recommended for and compatible with your project. Our goal is to help you optimize and fully leverage the potential of our IEDs.

To make your search even easier, the accessories are organized by category (temperature, CTs, PTs, position or SF6 measurement, communication, panels and special panels, among others).

Discover the complete solution on the Treetech website!

ACCESSORIES INDEX BY CATEGORY

CONTENTS

TEMPERATURE 3

Temperature Sensor - Pt100
Weather Shelter
Thermowell

CTs 12

Split-core Window-type External CT
Regulating CT
Shunt Resistor

PTs 15

Regulating PT
Auxiliary PT

POSITION OR SF6 MEASUREMENT 19

DEP
Encoder
SF6 Density Sensor

COMMUNICATION 24

Lupa Modem
TRB145 Modem
TRB245 Modem
RUT200 Modem

PANELS 32

200x200x250
600x600x250
800x600x400

OTHER 35

CP-MBR

SINGLE PT100 TEMPERATURE SENSOR

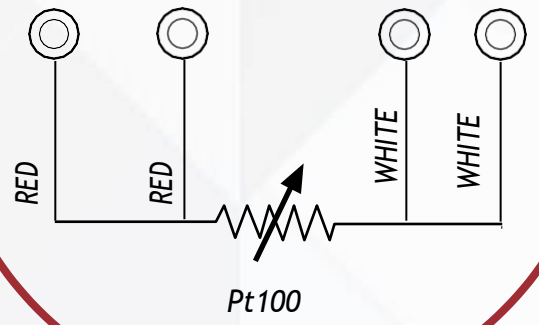
Top-oil temperature measurement in power transformers is generally performed using a temperature sensor installed in a thermowell located on the transformer cover. The sensors used must be of the Pt100 Ω (at 0°C) type.

TEMPERATURE SENSOR - Pt100

PARTNUMBERS:
Pt100 1/2" BSP
Pt100 3/4" BSP
Pt100 1/2" NPT
Pt100 3/4" NPT

FEATURES	RANGE/DESCRIPTION
Standard	ASTM E1137, class B
Resistance coefficient	0.3850 ohms / ºC
Temperatures	Range -55...+200 ºC
Cylinder head	Cast aluminum, Munsell N 6.5 epoxy coating
Bulb (stem)	Stainless steel
Cable gland, chain, screws	Nickel-plated brass or stainless steel
Anilha	PTFE (Teflon)
Insulation	**2.5 kV**, 50/60 Hz, 1 min
Protection rating	IP65
Maximum error	1 %

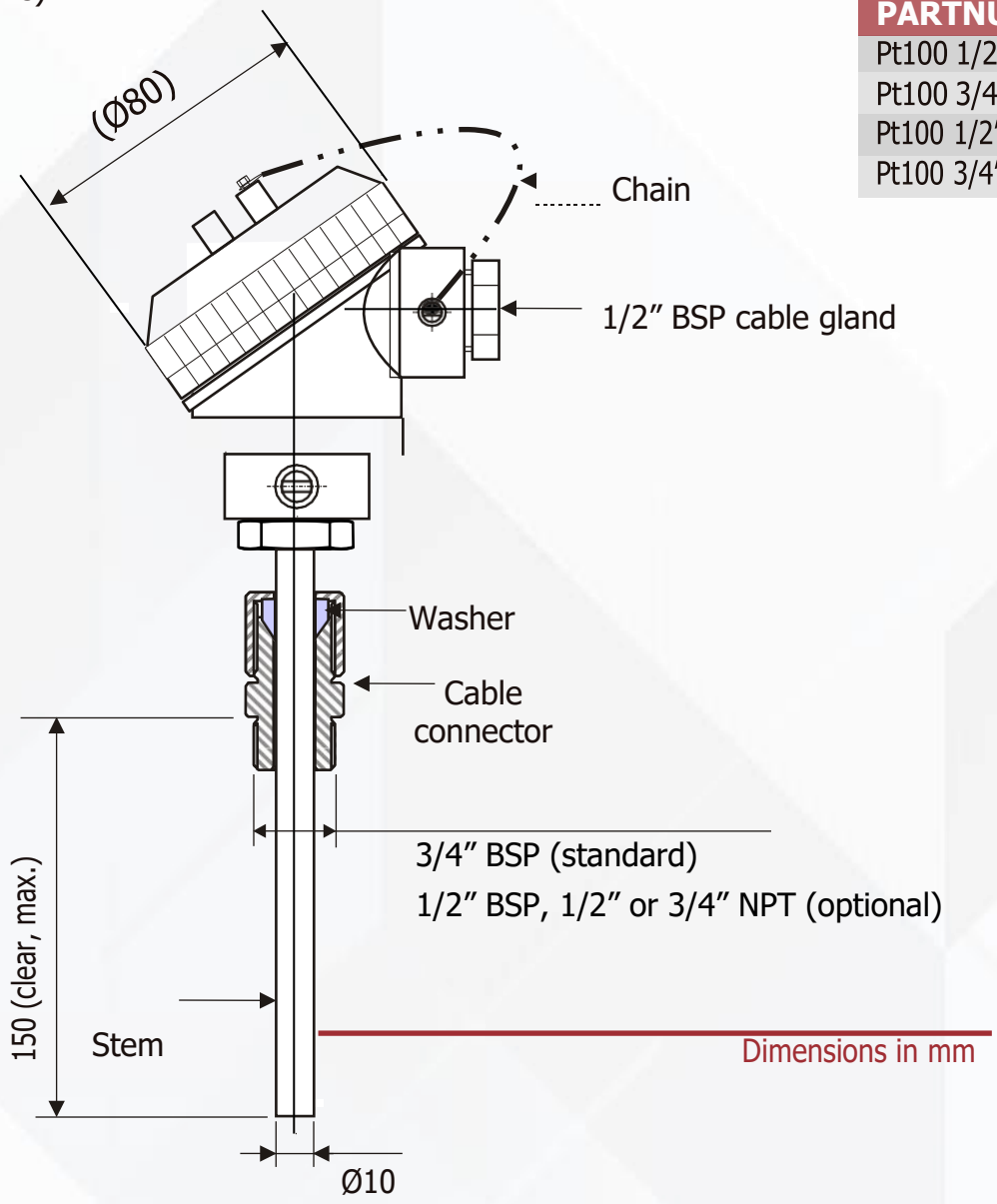
CONNECTION AND IDENTIFICATION



SINGLE PT100 TEMPERATURE SENSOR

Treetech offers a sensor suitable for thermowell installation, as shown in the drawing below (contact us regarding special dimensions).

PARTNUMBERS:
Pt100 1/2" BSP
Pt100 3/4" BSP
Pt100 1/2" NPT
Pt100 3/4" NPT



Dimensions in mm

DUAL PT100 TEMPERATURE SENSOR

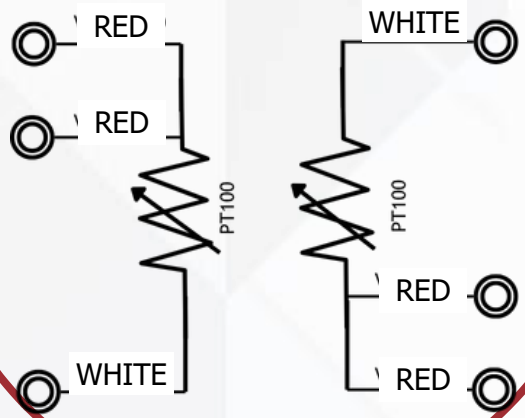
Top-oil temperature measurement in power transformers can also be performed using a dual Pt100 sensor installed in the thermowell on the transformer cover. This type of sensor features two independent sensing elements within a single housing, enabling simultaneous readings by two separate systems.

TEMPERATURE SENSOR - Pt100

PARTNUMBERS:
PT100 2X 1/2 BSP
PT100 2X 3/4 BSP
PT100 2X 1/2 NT
PT100 2X 3/4 NPT

FEATURES	RANGE/DESCRIPTION
Standard	ASTM E1137, class B
Resistance coefficient	0.3850 ohms / ºC
Temperatures	Range -55...+200 ºC
Cylinder head	Cast aluminum, Munsell N 6.5 epoxy coating
Bulb (stem)	Stainless steel
Cable gland, chain, screws	Nickel-plated brass or stainless steel
Washer	PTFE (Teflon)
Insulation	2.1 kV, 50/60 Hz, 1 min
Protection rating	IP65
Maximum error	1 %

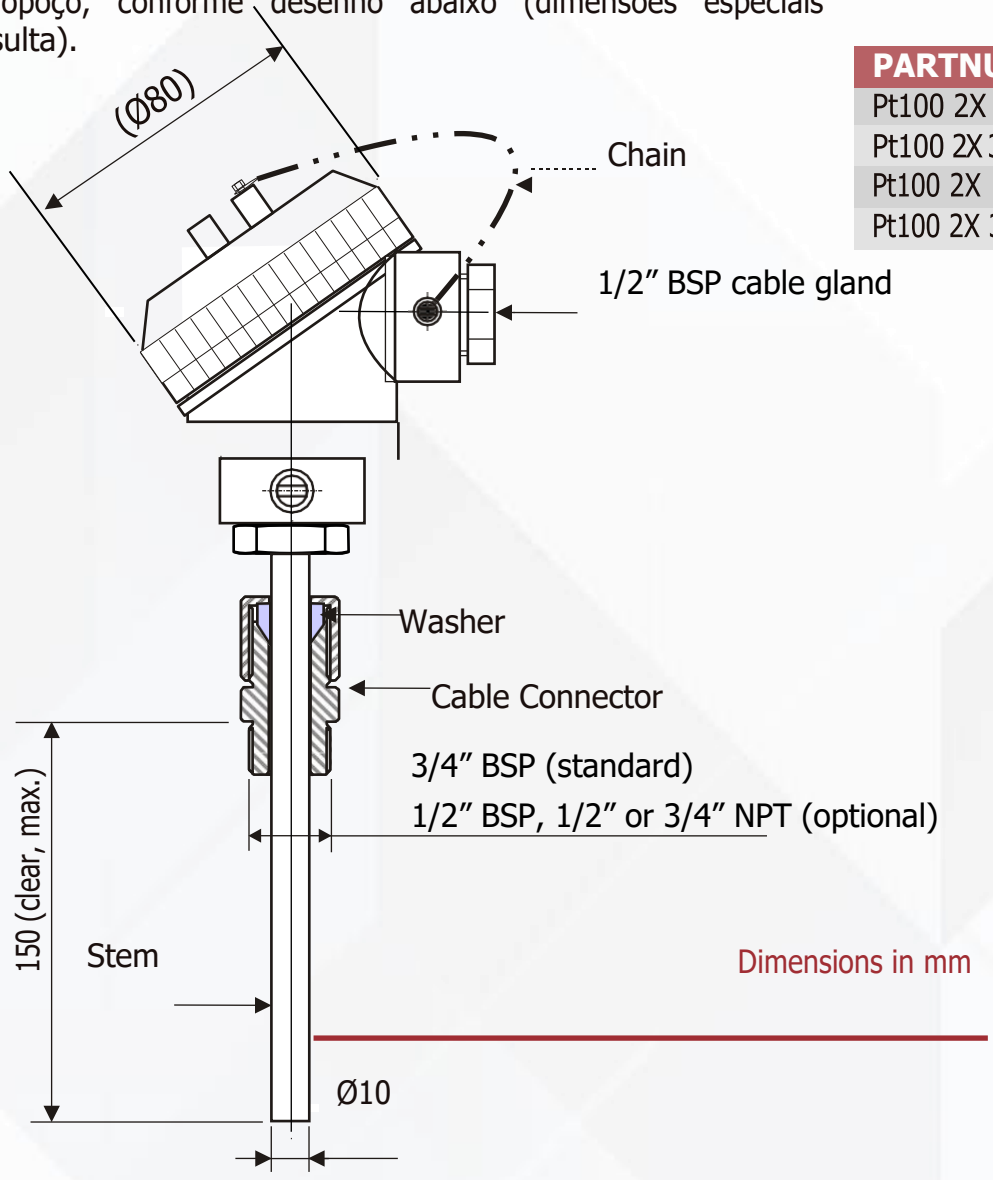
CONNECTION AND IDENTIFICATION



DUAL PT100 TEMPERATURE SENSOR

A Treetech dispõe de um sensor adequado para instalação em termopoço, conforme desenho abaixo (dimensões especiais consulta).

PARTNUMBERS:
Pt100 2X 1/2 BSP
Pt100 2X 3/4 BSP
Pt100 2X 1/2 NPT
Pt100 2X 3/4 NPT



Dimensions in mm

PT100 – DRY-TYPE TRANSFORMER

TEMPERATURE SENSOR - Pt100

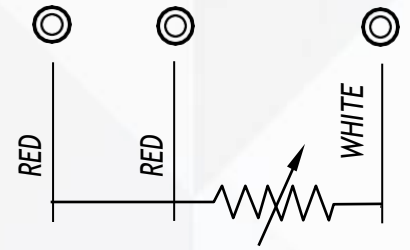
Temperature measurement in dry-type transformers, panels, motors, generators, and other equipment can be performed using Pt100 Ω (at 0°C) temperature sensors.

PARTNUMBERS:

Pt100 TR seco

FEATURES	RANGE/DESCRIPTION
Standard	ASTM E1137, class A
Resistance coefficient	0.3850 ohms / ºC
Temperatures	Range -55...+200 ºC
Cable	3x24 AWG copper wire. Silicone insulation.
Sensor protection	PTFE (Teflon) tube
Insulation	2 kV, 50/60 Hz, 1 min
Protection rating	IP65
Maximum error	1 %

CONNECTION AND IDENTIFICATION



Pt100

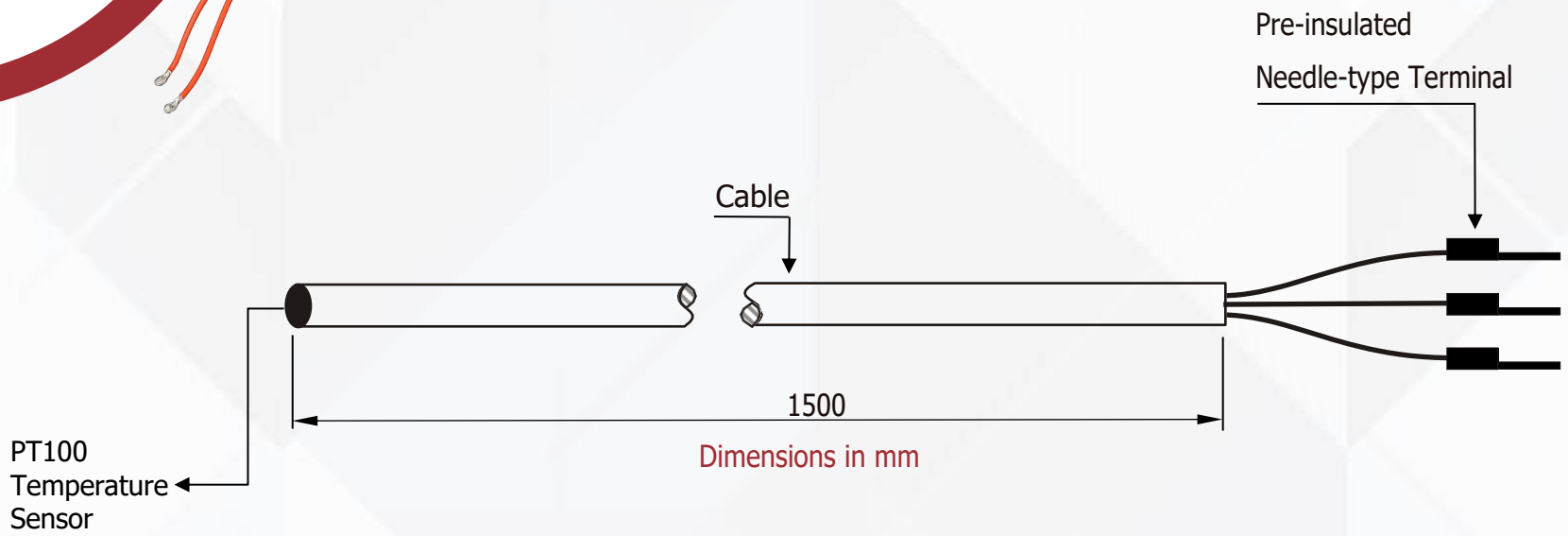
PT100 – DRY-TYPE TRANSFORMER

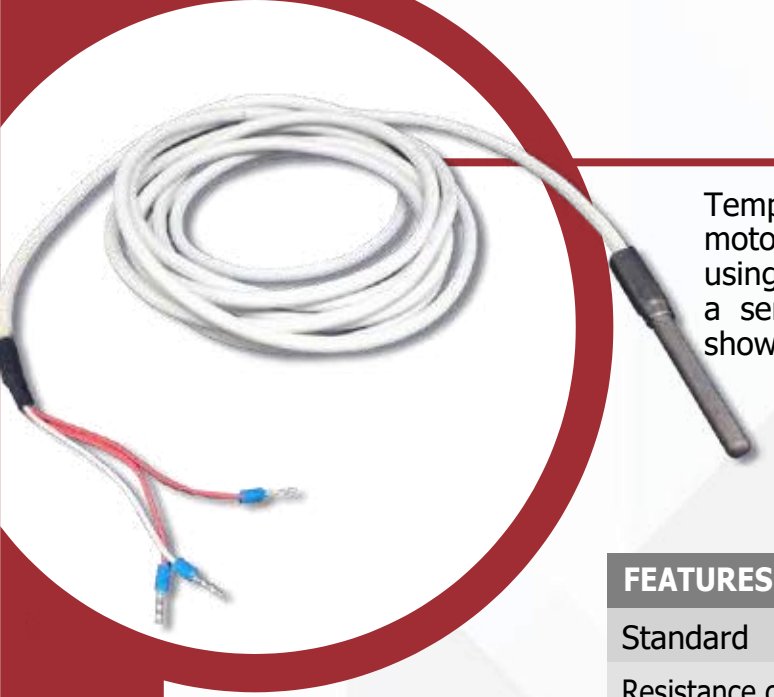
Temperature measurement in dry-type transformers, panels, motors, generators, and other equipment can be performed using Pt100 Ω (at 0°C) temperature sensors.

TEMPERATURE SENSOR - Pt100

PARTNUMBERS:

Pt100 TR seco





PT100 - INTERNAL

Temperature measurement in dry-type transformers, panels, motors, generators, and other equipment can be performed using Pt100 Ω (at 0°C) temperature sensors. Treetech offers a sensor suitable for installation in these applications, as shown in the drawing and description below.

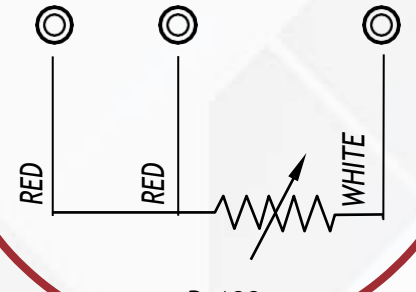
TEMPERATURE SENSOR - Pt100

PARTNUMBERS:

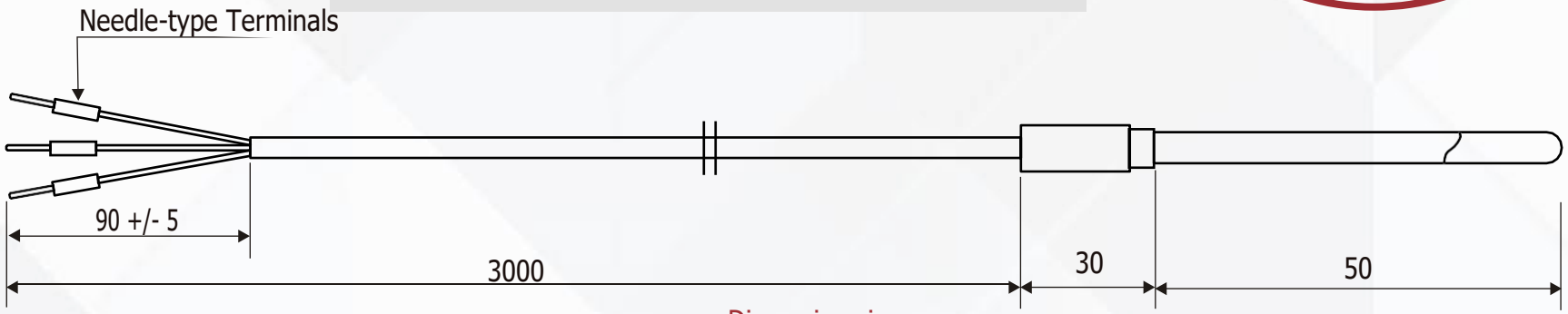
Pt100 3F 50mm

FEATURES	RANGE/DESCRIPTION
Standard	ASTM E1137, class B
Resistance coefficient	0.3850 ohms / ºC
Temperatures	Range -60...+250 ºC
Cable	3x24 AWG. Silicone insulation.
Sensor protection	6 mm 304 stainless steel tube
Insulation	2 kV 50/60 Hz 1 min.
Protection rating	IP65
Maximum error	1 %

CONNECTION AND IDENTIFICATION



Pt100



Dimensions in mm

WEATHER SHELTER

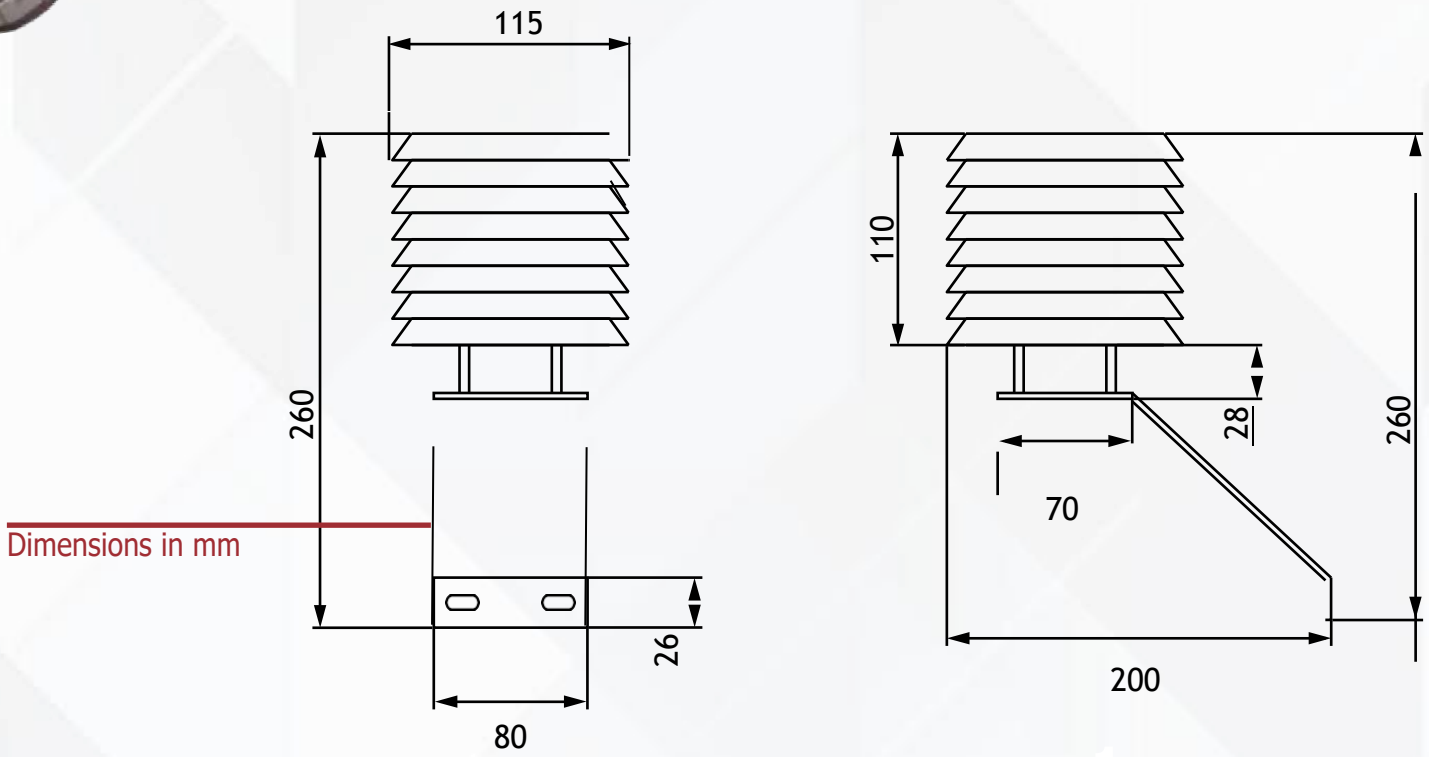
WEATHER SHELTER

If ambient temperature measurement in exposed locations is required, a meteorological shelter must be used to protect the Pt100 sensor, thereby minimizing measurement errors caused by sun, rain, wind, etc.

PARTNUMBERS:

Abrigo meteorológico

FEATURES	RANGE/DESCRIPTION
Material	Anodized aluminum
Number of plates	8
Sensor mounting	3/4" BSP
Standards met	ASTM B244, DIN 17611/2



Dimensions in mm

THERMOWELL

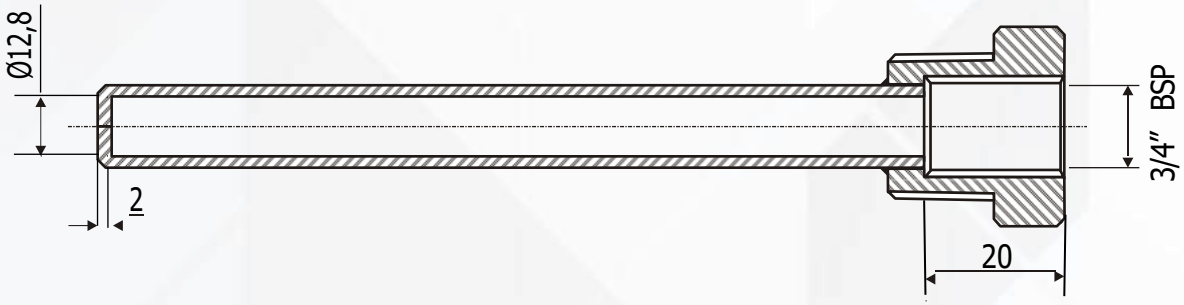
THERMOWELL

The primary function of the thermowell is to protect the measurement point against pressure loss, leaks, or potential contamination. Added to these benefits is the ease of removing and replacing the sensor for maintenance purposes.

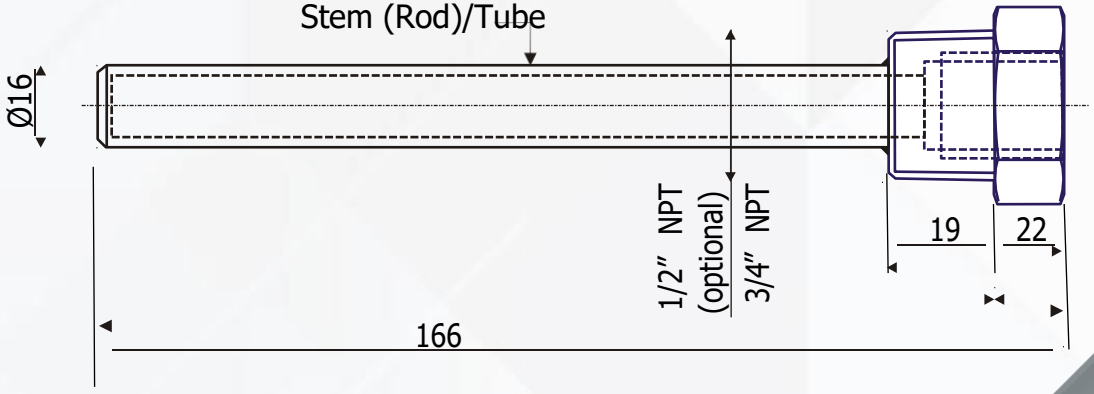
PARTNUMBERS:

Poço term 1/2" NPT
Poço term 3/4" NPT

FEATURES	RANGE/DESCRIPTION
Body	AISI 304 stainless steel
Protection rating	IP65



Dimensions in mm



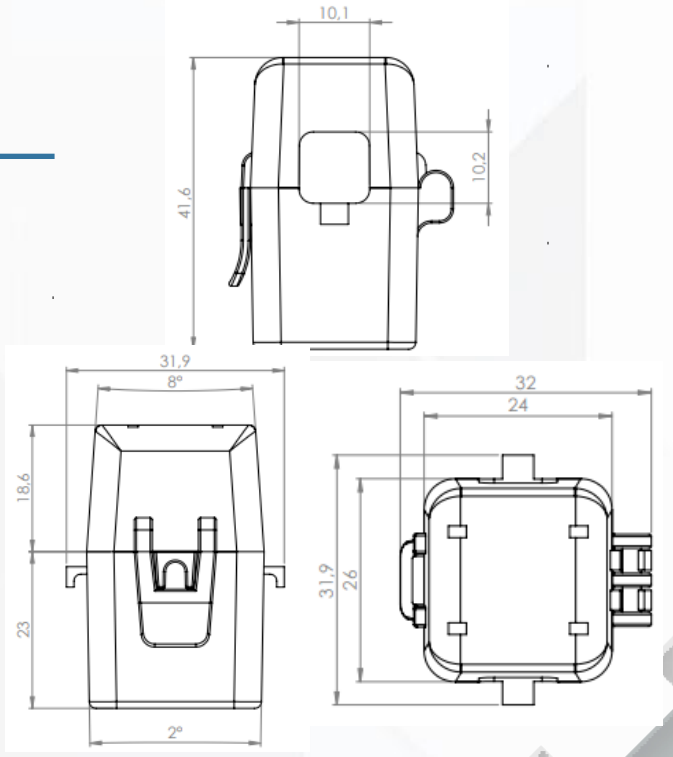
SPLIT-CORE WINDOW-TYPE EXTERNAL CT

External window-type or clip-on current transformers (CTs) allow for the installation of an IED (Intelligent Electronic Device) that receives current measurements without requiring intervention in the secondary current circuit of the substation's power CTs, ensuring user safety during installation, servicing, and maintenance.
Applications: AC current measurement (transformer loads, motors, heating elements, etc.).

PARTNUMBERS:

TC ext

Dimensions in mm



FEATURES	RANGE/DESCRIPTION
Measurement	Range 0...10 Aca
Maximum primary measurement current	75 Arms 50/60 Hz
Ratio	3000
Maximum secondary resistance	1000 Ω
Maximum error (linearity)	1% with a 300 Ω load
Power	≤ 0.5 VA (measurement only)
Cabling	18 AWG 600 V 105 ºC
Operating temperature	Range -40...+65 ºC
Protection	Secondary with load-disconnection protection

REGULATING CT

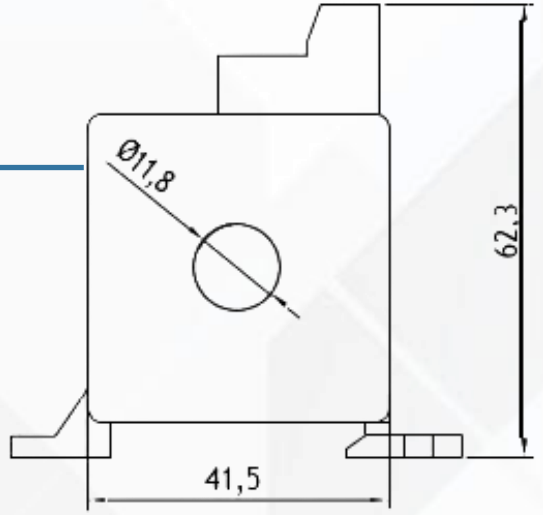
The use of a regulating CT or metering CT is required for the transformer voltage control system and for IEDs such as TMV, SDV, or AVR_v2. This item is supplied in the quantity required for the specific application, and the quantity must be specified in the purchase order.

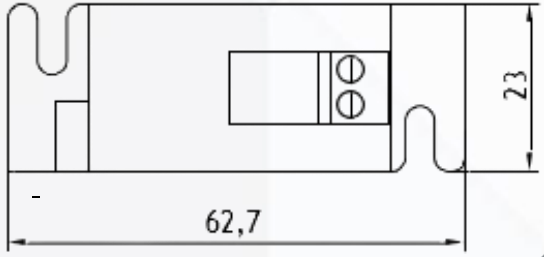
PARTNUMBERS:

TC ext reg

FEATURES	RANGE/DESCRIPTION
Measurement	Range 0...10 Aca
Maximum primary measurement current	10 Arms 50/60 Hz
Ratio	3030
Maximum secondary resistance	200 Ω
Maximum error (linearity)	1 % with a 300 Ω load
Maximum phase error	≤ 1 º with a 300 Ω load
Power	≤ 0.5 VA (measurement only)
Operating temperature	Range -40...+85 ºC
Protection	Secondary side with protection against load disconnection and external electrical transients

Dimensions in mm





CT

SHUNT RESISTOR

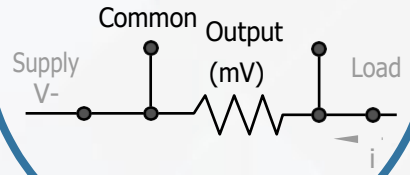
The shunt resistor consists of resistive elements and is used for current measurement (via voltage drop) in direct current motors. An important characteristic of the shunt is its maximum current rating, as the higher the current flowing through it, the greater the temperature rise.
For continuous operation, it is recommended that a shunt not operate at more than 80% of its rated current under normal conditions.

PARTNUMBERS:
Shunt

FEATURES	RANGE/DESCRIPTION
Accuracy class	0.5 %
Resistive material	Manganin
Terminals	Brass
Operating temperature	-20...+60 ºC
Permanent overload	1.2 x In
Short-term overload[1]	2000 A = 5 x In
	2000...10000 A = 2 x In
Temperature coefficient	20 ppm/K

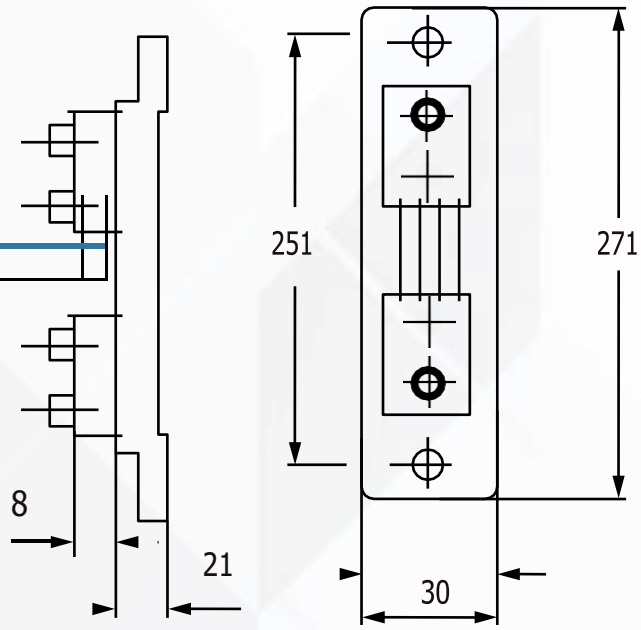
[1] 5 seconds.

CONNECTION AND IDENTIFICATION



Standard model: 300 mV / 10 A

Dimensions in mm



Busbar screw: M5 X 12
Output connection (mV) - M5 X 8 screw

CT

REGULATING PT

Auxiliary voltage or power transformers (PTs) for regulation enable isolation between the IED (Intelligent Electronic Device) and the regulation PT. To maintain voltage regulation, this PT features enhanced saturation and linearity characteristics, ensuring high fidelity to the primary voltage signal while stepping down the voltage to a level suitable for the IED.
Applications: measurement of AC voltage from the PT for voltage regulation.

PARTNUMBERS:

TP Aux reg

FEATURES	RANGE/DESCRIPTION
Enclosure	Housing for 35 mm DIN rail mounting
Maximum primary measurement voltage	185 Vrm 50/60 Hz
Maximum secondary measurement voltage	1.03 Vrms (nominal NP/NS = 180)
Power	≤ 1 VA (measurement only)
Maximum phase error	±1 % with a 1 kΩ load
Dielectric strength	2500 Vrms; 60 Hz/1 min and 5 kV impulse (1.2/50 µs) between: primary and secondary; primary and shield; and secondary and shield
Maximum capacitance[1]	50 pF
Temperatures	Range -40...+85 ºC
Protection[1]	Available via an external grounding terminal[2]

[1] Primary-to-secondary capacitance.
[2] Objective: capacitive decoupling to prevent interference with other measurements.

REGULATING PT

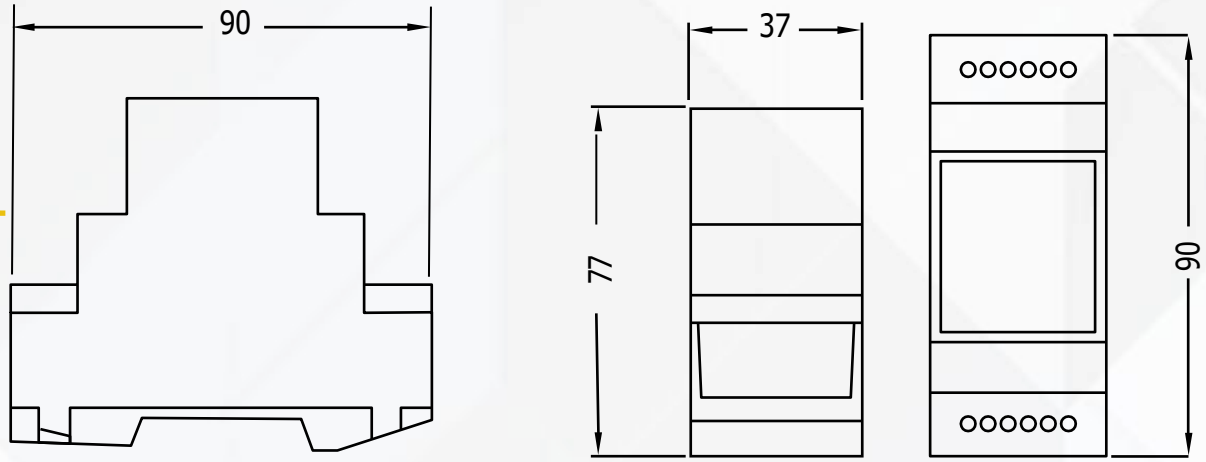
REGULATING PT

Auxiliary voltage or power transformers (PTs) for regulation enable isolation between the IED (Intelligent Electronic Device) and the regulation PT. To maintain voltage regulation, this PT features enhanced saturation and linearity characteristics, ensuring high fidelity to the primary voltage signal while stepping down the voltage to a level suitable for the IED.
Applications: AC voltage measurement from the voltage regulation PT.

PARTNUMBERS:

TP Aux reg

Dimensions in mm



PT

AUXILIARY PT

AUXILIARY PT

Auxiliary voltage or power transformers provide isolation between the IED (Intelligent Electronic Device) and the voltage circuit being measured, in addition to stepping down the voltage when it exceeds the IED's measurement limit.
Applications: AC voltage measurement (control circuits, motors, opening and closing coils, among others).

PARTNUMBERS:

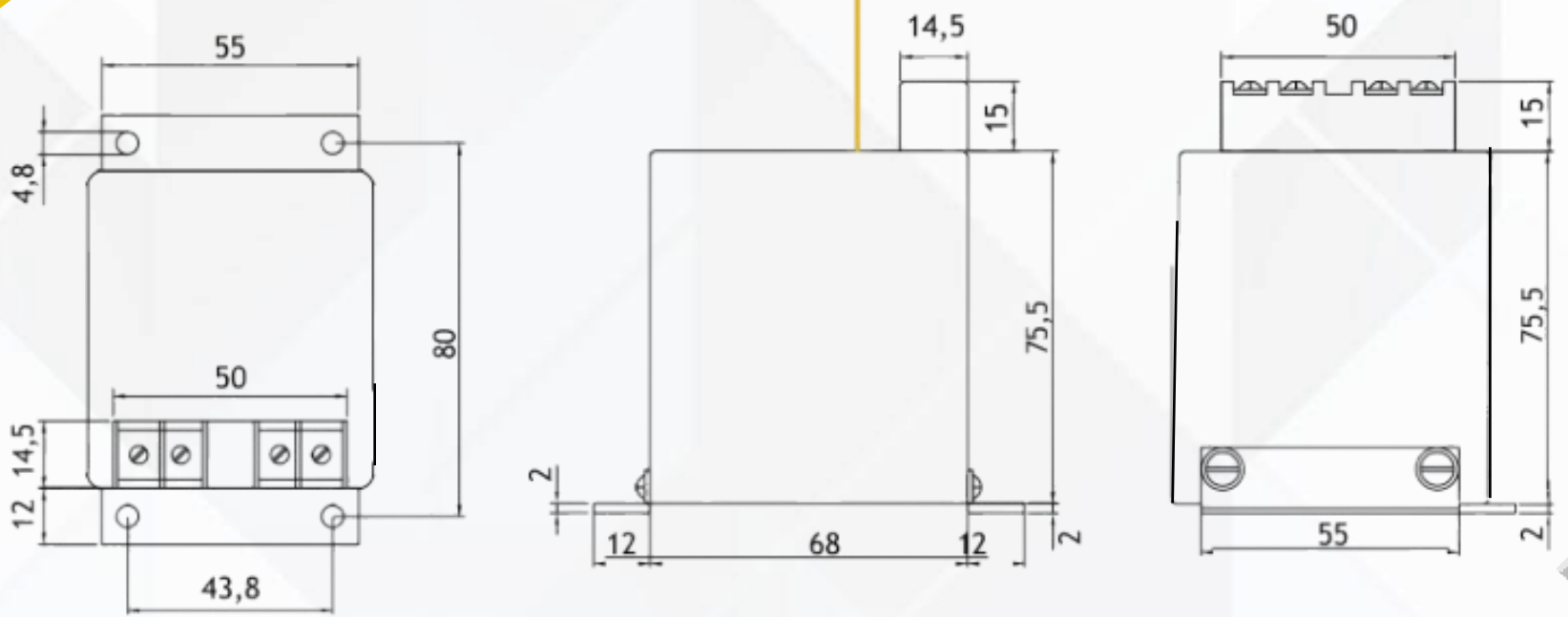
TP Aux

FEATURES	RANGE/DESCRIPTION
Insulation	Dry
Power	15 VA
Primary voltage	550 Vrms 50/60 Hz
Secondary voltage	220 Vrms 50/60 Hz
Insulating material	Class F (155 ºC)
Insulation class	1.2 kV (T.A.D: 4 kV)
Winding	Epoxy-encapsulated electrolytic copper
Protection rating	IP20
Maximum error	3%

AUXILIARY PT

Auxiliary voltage or power transformers provide isolation between the IED (Intelligent Electronic Device) and the voltage circuit being measured, in addition to stepping down the voltage when it exceeds the IED's measurement limit.
Applications: AC voltage measurement (control circuits, motors, opening and closing coils, among others).

Dimensions in mm



PT

DEP

The Device for Encoder Protection and Digital Density and Temperature – DEP provides protection and complete electrical isolation for the sensors of position, density and temperature of SF6 used in Treetech's IDX, SDX, IDS, and SDS products.

DEP

PARTNUMBERS:

DEP

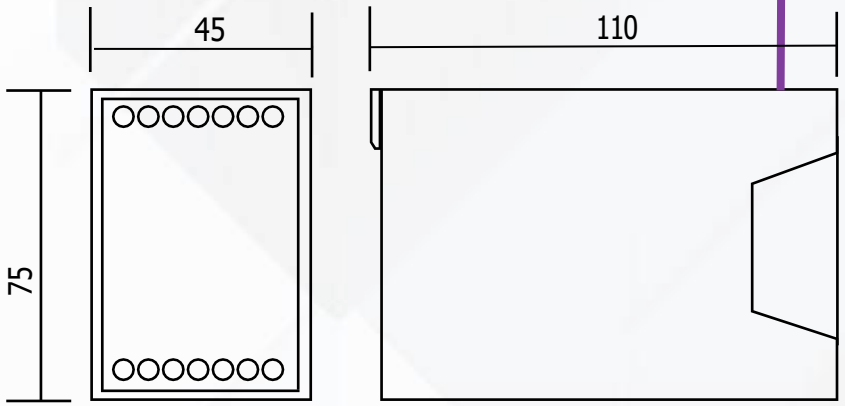
FEATURES	RANGE/DESCRIPTION
Supply voltage	85...265 Vca/Vcc 50/60 Hz
Consumption	< 3 W
Relay operating temperature	-40...+85 ºC
Inputs	1 digital position sensor (incremental optical encoder type, pulse-based) 1 SF6 density and temperature sensor with digital pulse output, Trafag model or similar
Outputs	1 output for connection to the IDX/SDX/IDS/SDS of the digital position sensor (incremental optical encoder type, pulse-based) 1 output for connection to the IDX/SDX of the SF6 density and temperature sensor with digital pulse output, Trafag model or similar
Device protection rating	IP20
Relay mounting	35 mm DIN rail
Connections	0,3 a 2,5 mm², 22 a 12 AWG

DEP

The extended protection and insulation provided by the use of DEP enhance the durability and reliability of sensors when used in electrically harsh environments, such as high- and extra-high-voltage substations.

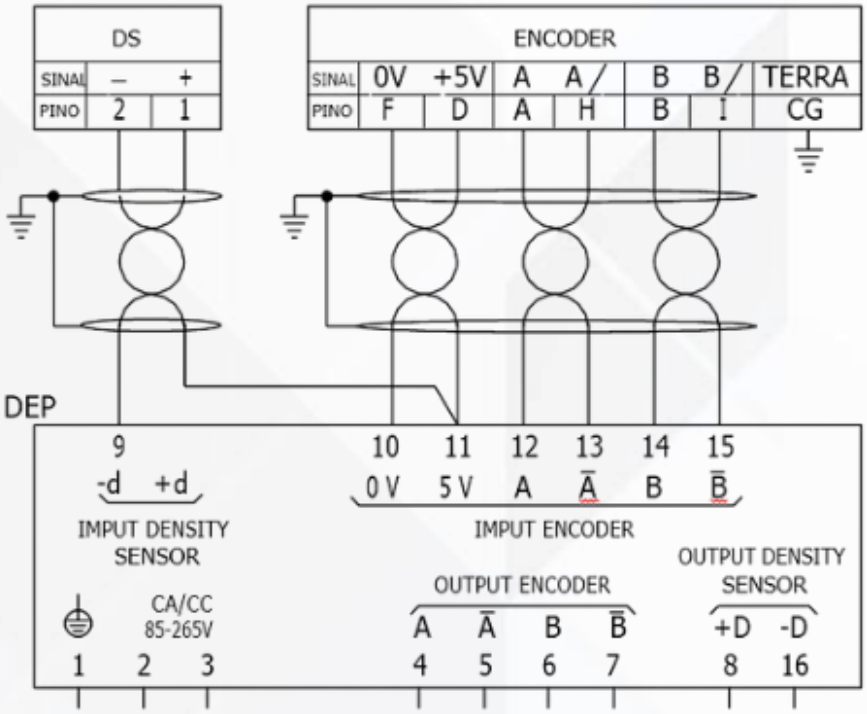
PARTNUMBERS:
DEP

Dimensions in mm



Front view

Side view



SF6

ENCODER

ENCODER

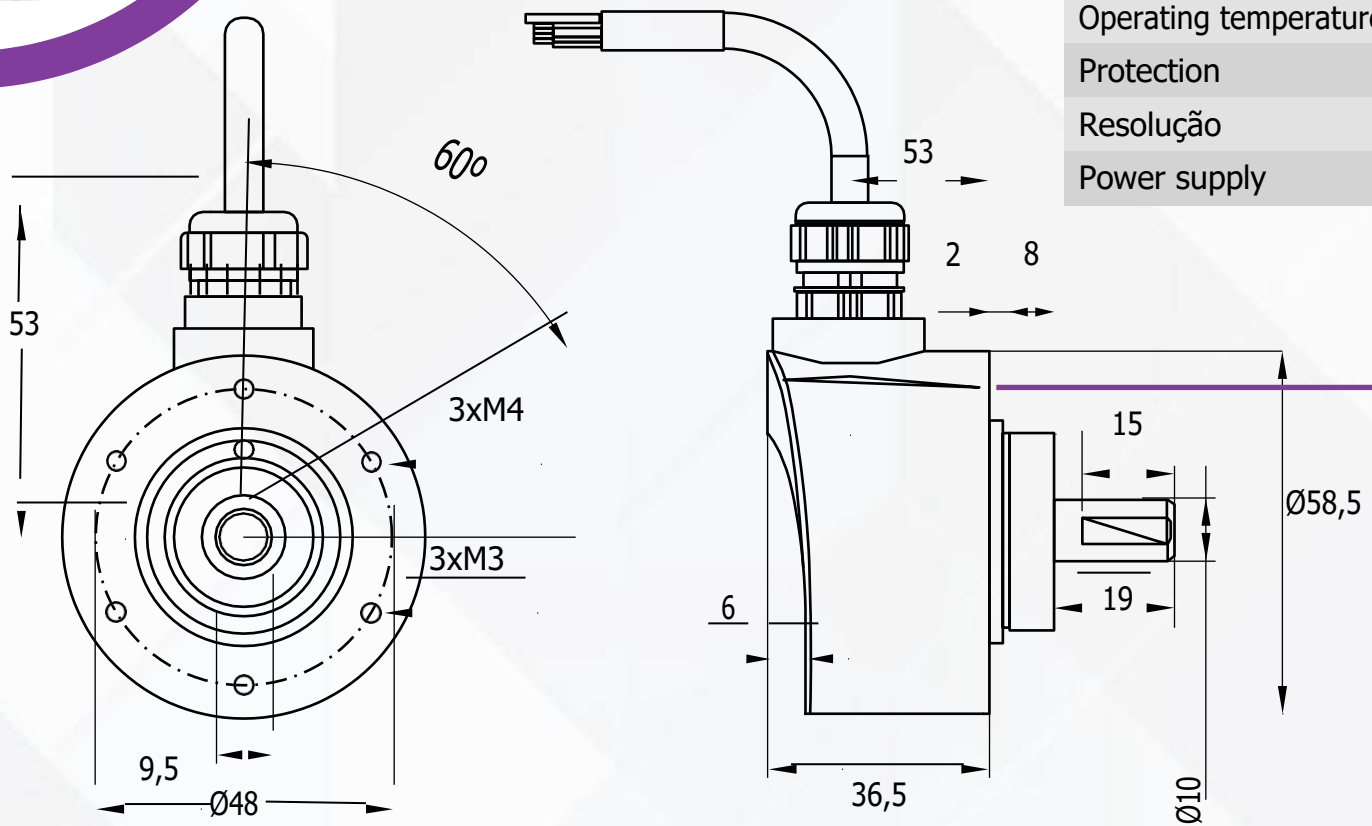
Monitoring contact position in disconnectors and circuit breakers requires the use of position sensors (encoders). Treetech offers robust rotary encoder models with excellent resistance to shock and vibration. Treetech also provides elastic couplings designed to compensate for misalignment and the transmission of vibrations or loads.

PARTNUMBERS:

Encoder DHM5.10-PG59

Acoplamento elástico

FEATURES	RANGE/DESCRIPTION
Insulation	1000 Vrms
Operating temperature	-30...+100 ºC
Protection	IP65
Resolução	5000...10000 pulsos por rotação
Power supply	5...30 Vdc



Dimensions in mm

SF6 GAS DENSITY SENSOR

SF6 GAS DENSITY SENSOR

PARTNUMBERS:
Wika GDHT-20

The GDHT-20 model transmitter is a multi-sensor system with digital output for the measured parameters of pressure, temperature, and humidity. Based on these values, condition-related data can be determined.
In addition to calculating gas density, the GDHT-20 transmits information on humidity and dew point, enabling monitoring in accordance with CIGRE guidelines and IEC standards.
Due to its high long-term stability, the transmitter is maintenance-free and requires no recalibration.

Key features:
- High-accuracy sensor technology
- MODBUS® output protocol via RS-485 interface
- IP65 protection
- Excellent long-term stability and electromagnetic compatibility features.

FEATURES	RANGE/DESCRIPTION
Dew point	50...30 ºC
Density	0...60 g/l (8.87 bar abs. at 20 °C)
Temperature	-40...+80 ºC
Pressure	0...15 bar absolute
Burst pressure	52 bar absolute
Overload protection	Up to 30 bar absolute
Pressure reference	Absolute
Ua power supply	17...30 Vcc
Energy comsumption	Max. 0.5 W[1]

[1] Max. 3 W during the humidity sensor warm-up phase.

FEATURES	RANGE/DESCRIPTION[2]
Dew point	Approx. 3K
Density	±0.60%, ±0.35 g/liter (-40...+80 ºC)
Temperature	± 1 K
Pressure	±0.20 % ±32 mbar (-40...<0 ºC)
Burst pressure	±0.06 % ±10 mbar (0...80 ºC)

[2] Specifications valid only for clean SF6 gas.

SF6 GAS DENSITY SENSOR

The gas density sensor uses a quartz tuning fork to directly detect gas density.
Via the digital signal, the sensor enables comprehensive SF6 gas monitoring or SF6 gas trend analysis for circuit breaker components.

SF6 GAS DENSITY SENSOR

PARTNUMBERS:
Trafag 8774

FEATURES	RANGE/DESCRIPTION
Application	High and medium voltage
Category	Gas density sensor
Dielectric strength	250 Vac 50 Hz
Measurement principle	Measurement of quartz oscillation
Vibration	15 g (max. 6 mm), (5...2000 Hz)
Average temperature	Range -40...+70 ºC
Shock	100 g/6 ms
Protection	IP65
Output signal	Digital
Measurement range	0...60 kg SF6/m³ 10...253 Hz

LUPA MODEM

LUPA MODEM

The Horus communication module is designed to provide enhanced communication availability during contingencies by switching connections between two different carriers and between two connection servers per carrier. It utilizes the GSM mobile network and enables GPRS connections.

Key features:
- Main CPU operates independently of the cellular module.;
- Anti-lock algorithm for resetting the cellular module;
- 2G/3G connection (internet connection charged based on data traffic);
- Auxiliary applications (Horus Server, Web Horus, and Lupa Horus).

PARTNUMBERS:
Modem Horus 3G

FEATURES	RANGE/DESCRIPTION
Supply voltage	10...40 Vcc
Average power	15 W (max.)
Input	1 RS-485 serial port
No. SIMs	2 SIM card slots
Operating temperature	-20...+85 ºC
Frequency bands	GSM/GPRS 850/900/1800/1900 MHz UMTS/HSPA 800/850/900/1700/1900/2100 MHz
Mounting	35 mm DIN rail

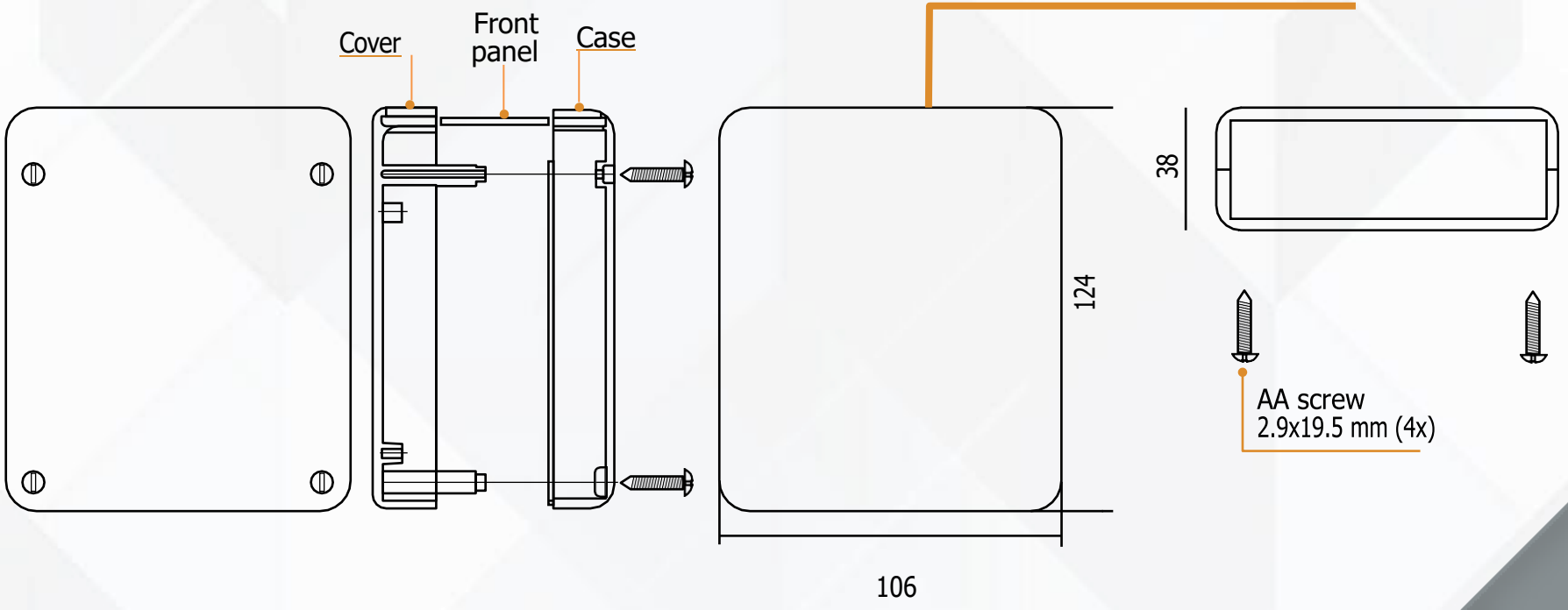
LUPA MODEM

LUPA MODEM

PARTNUMBERS:

Modem Horus 3G

Dimensions in mm



TRB145 MODEM

TRB145 MODEM

The TRB145 modem is a compact, intelligent industrial communication platform that connects devices with an RS485 interface to an LTE Cat 1 cellular network, enabling data transmission via a wireless TCP/IP network.

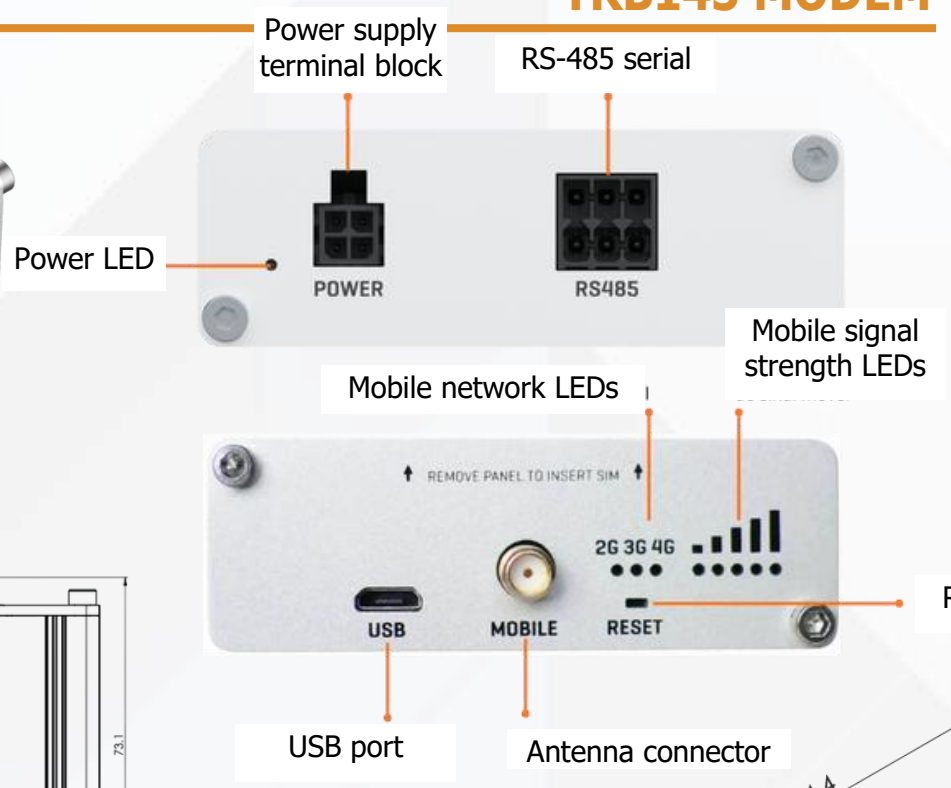
PARTNUMBERS:

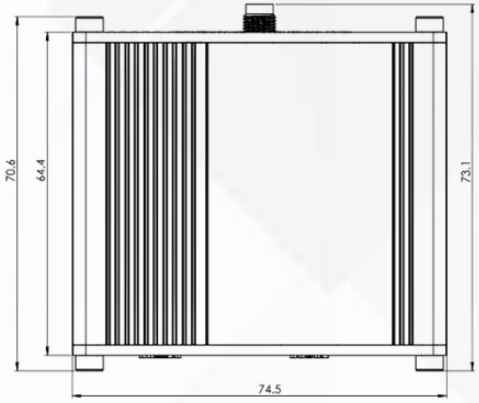
TRB145003000 - TRB145 LTE Cat 1 RS485 Gateway

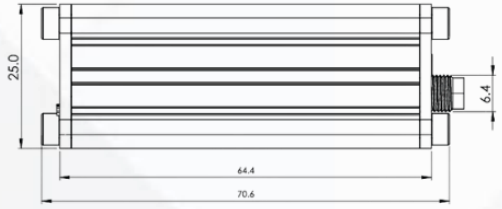
FEATURES	RANGE/DESCRIPTION
Supply voltage	9...30 Vcc
Power	< 5 W
Operating temperature	-40...+75 ºC
Interfaces	1 RS-485 serial port 1 micro-USB input for configuration
No. SIMs	1 SIM Card slot (Mini SIM – 2FF), 1.8 V/3 V
Frequency bands	• **4G (LTE-FDD):** B1 (2100 MHz), B2[2] (1900 MHz), B3 (1800 MHz), B4 (1700 MHz), B5 (850 MHz), B7 (2600 MHz), B8 (900 MHz), B28 (700 MHz) **4G (LTE-TDD):** B40 (2300 MHz) • **3G:** B1 (2100 MHz), B2 (1900 MHz), B5 (850 MHz), B8 (900 MHz) • **2G:** B2 (1900 MHz), B3 (1800 MHz), B5 (850 MHz), B8 (900 MHz)
Mounting	DIN rail, wall mount, flat surface (all require an additional kit)

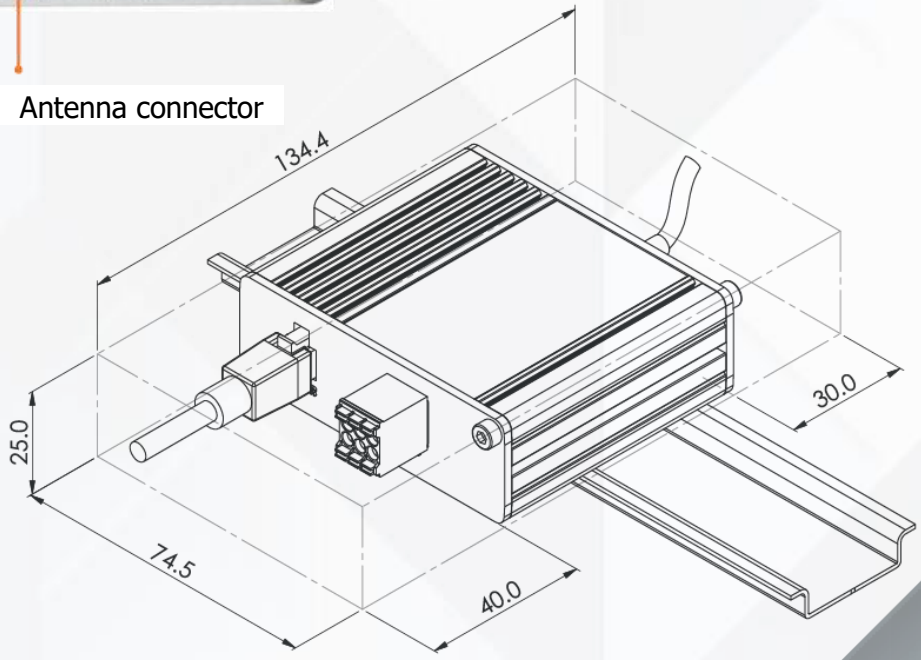
TRB145 MODEM

TRB145 MODEM









PARTNUMBERS:

TRB145003000 - TRB145 LTE Cat 1 RS485 Gateway

TRB245 MODEM

The TRB245 modem is a versatile communication platform that integrates Ethernet, RS232, and RS485 interfaces, enabling the connection of various industrial devices to an LTE Cat 4 cellular network. With dual SIM support and I/O functions, it offers reliable and flexible connectivity for M2M and IoT applications.

TRB245 MODEM

PARTNUMBERS:

TRB245000000 - desc. -TRB245 LTE Cat 4 Gateway

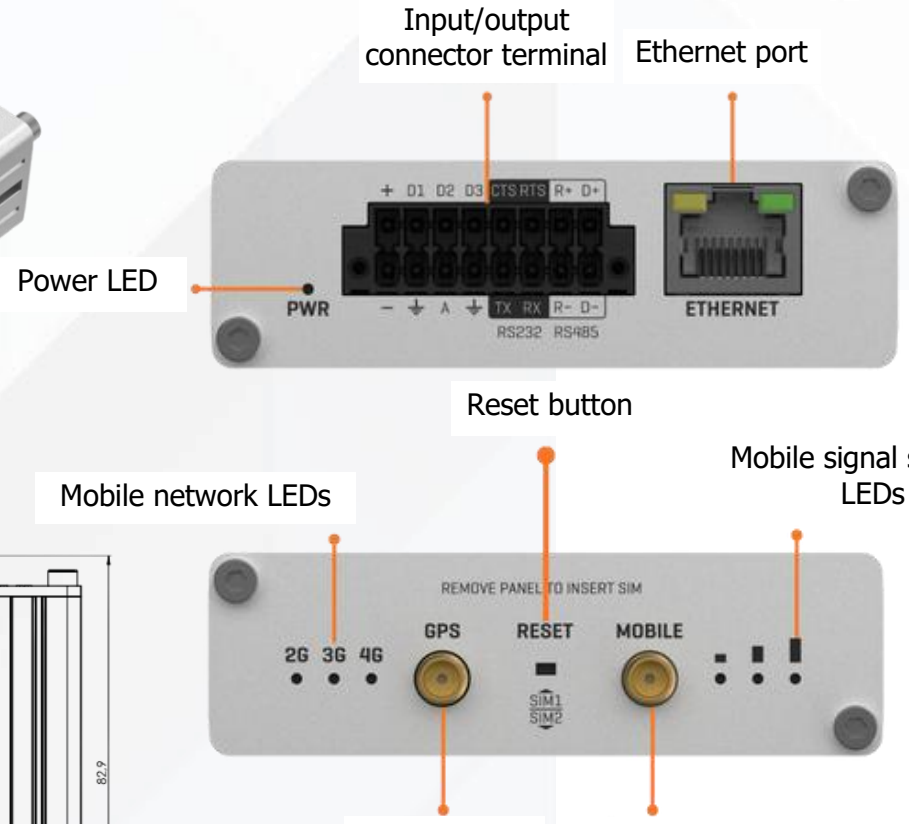
FEATURES	RANGE/DESCRIPTION
Supply voltage	9...30 Vcc
Power	< 1.2 W, Max: < 5 W
Operating temperature	-40...+75 °C
Interfaces	4-pin RS232 to 16-pin terminal block (TX, RX, RTS, CTS) 4-pin RS485 to 16-pin terminal block (D+, D-, R+, R-) Ethernet 1 RJ45 port, 10/100 Mbps
No. SIMs	2 SIM Card slot (Mini SIM – 2FF), 1.8 V/3 V
Frequency bands	• **4G (LTE-FDD):** B1 (2100 MHz), B2[2] (1900 MHz), B3 (1800 MHz), B4 (1700 MHz), B5 (850 MHz), B7 (2600 MHz), B8 (900 MHz), B28 (700 MHz) **4G (LTE-TDD):** B40 (2300 MHz) • **3G:** B1 (2100 MHz), B2 (1900 MHz), B5 (850 MHz), B8 (900 MHz) • **2G:** B2 (1900 MHz), B3 (1800 MHz), B5 (850 MHz), B8 (900 MHz)
Mounting	DIN rail, wall mount, flat surface (all require an additional kit)

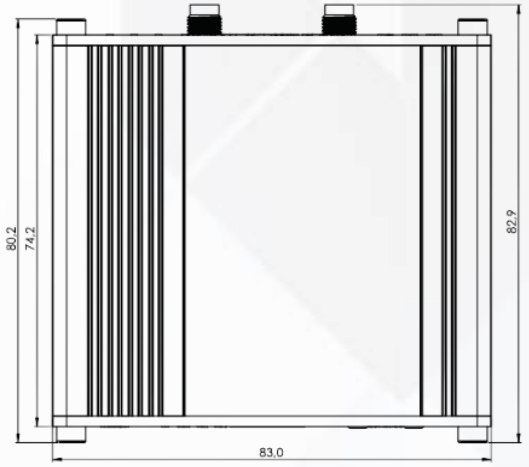
TRB245 MODEM

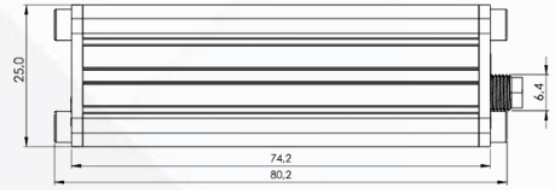
TRB245 MODEM

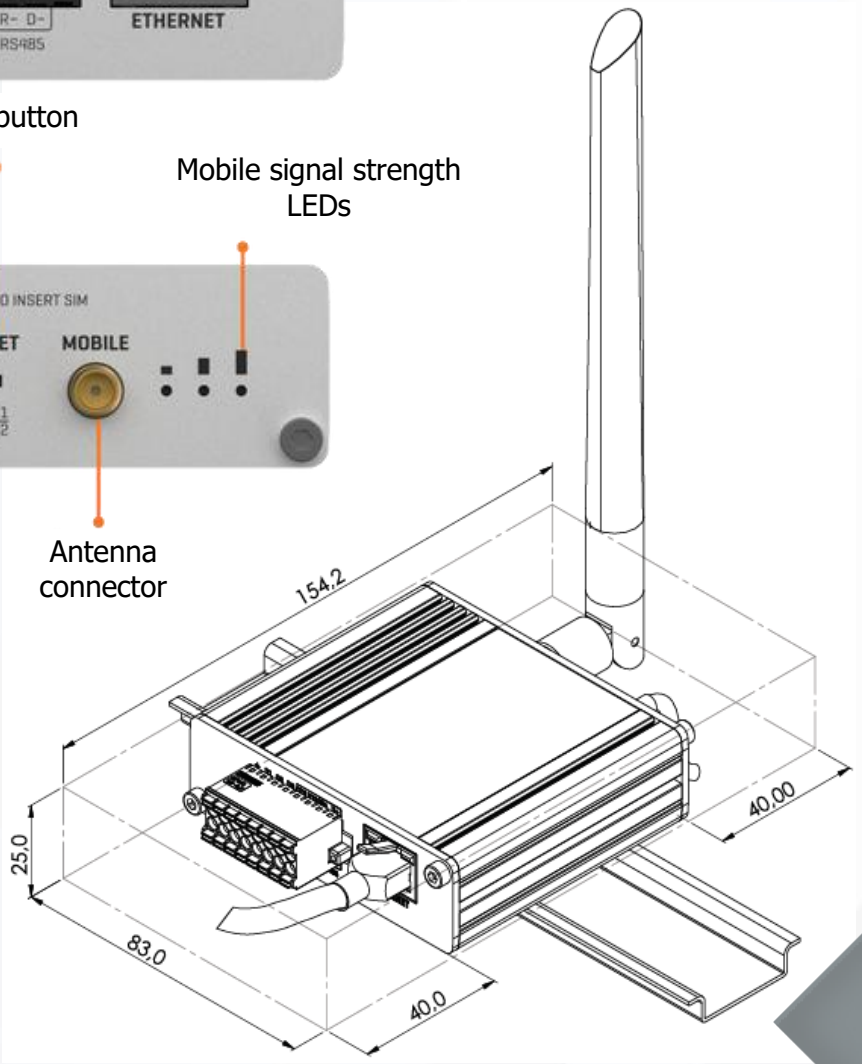
PARTNUMBERS:

TRB245000000 - desc. -TRB245 LTE Cat 4 Gateway









RUT200 MODEM

The RUT200 modem is a 4G LTE communication platform with Wi-Fi and Ethernet router capabilities that connects wired or wireless devices to a cellular TCP/IP network.

RUT200 MODEM

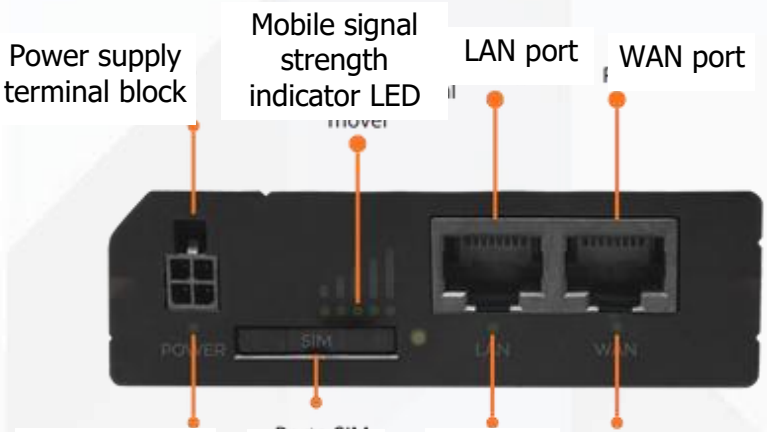
PARTNUMBERS:
RUT200002000

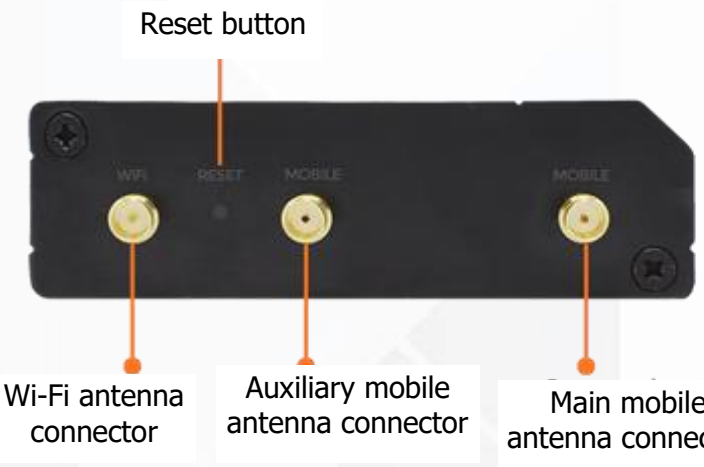
FEATURES	RANGE/DESCRIPTION
Supply voltage	9...30 Vcc
Power	< 6.5 W Max
Operating temperature	-40...+40 ºC
Interfaces	Ethernet 2 RJ45 ports, 10/100 Mbps
No. SIMs	1 SIM Card slot (Mini SIM – 2FF), 1.8 V/3 V
Frequency bands	• **4G (LTE-FDD):** B1 (2100 MHz), B2[2] (1900 MHz), B3 (1800 MHz), B4 (1700 MHz), B5 (850 MHz), B7 (2600 MHz), B8 (900 MHz), B28 (700 MHz), B66 (1700 MHz) • **4G (LTE-TDD):** B40 (2300 MHz) • **3G:** B1 (2100 MHz), B2 (1900 MHz), B5 (850 MHz), B8 (900 MHz) • **2G:** B2 (1900 MHz), B3 (1800 MHz), B5 (850 MHz), B8 (900 MHz)
Mounting	DIN rail, wall mount, flat surface (all require an additional kit)

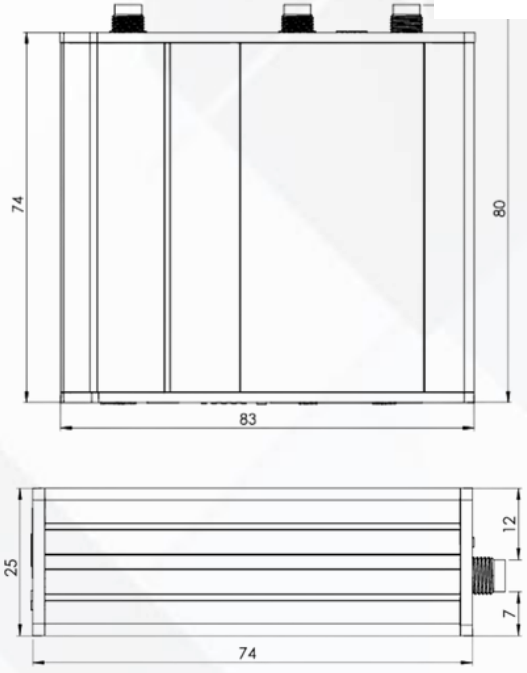
RUT200 MODEM

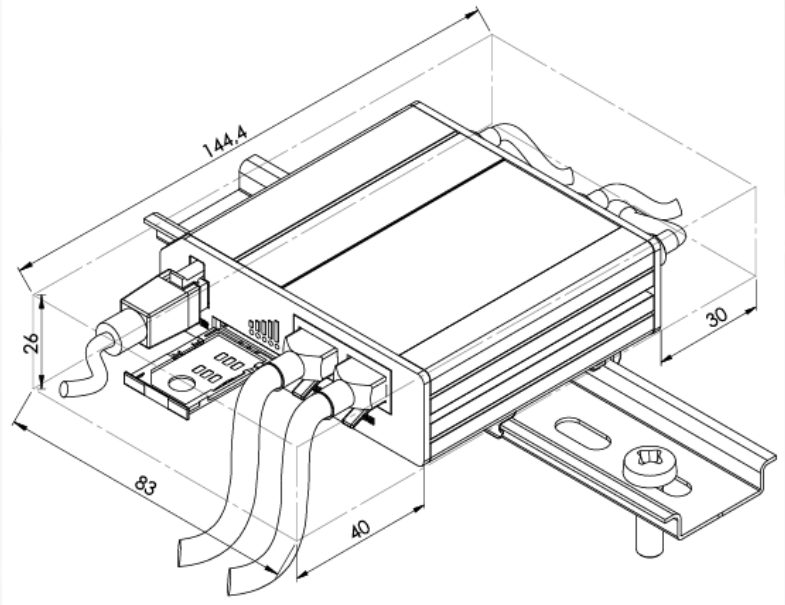
RUT200 MODEM

PARTNUMBERS:
RUT200002000



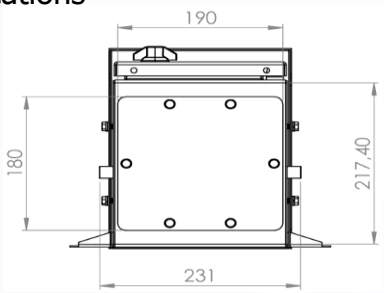


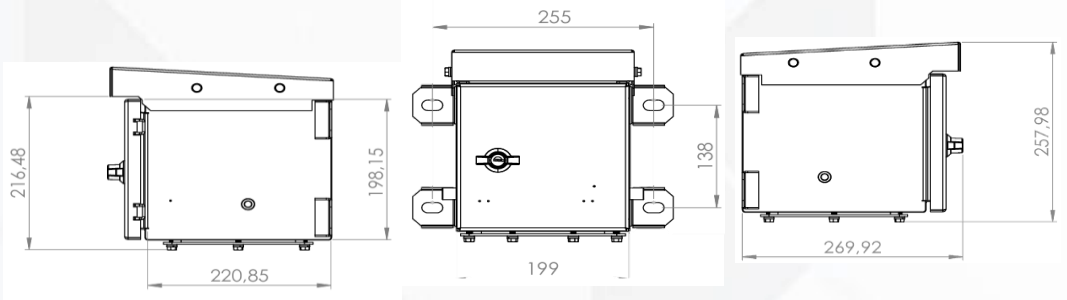


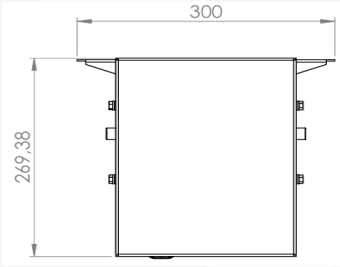


INSTALLATION PANEL 200x200x250

The Treetech 200x200x250 Installation Panel was developed to facilitate the assembly and installation of IEDs — as well as command, control, and protection devices — on substation equipment. It is ideal for compact applications and locations with limited space.





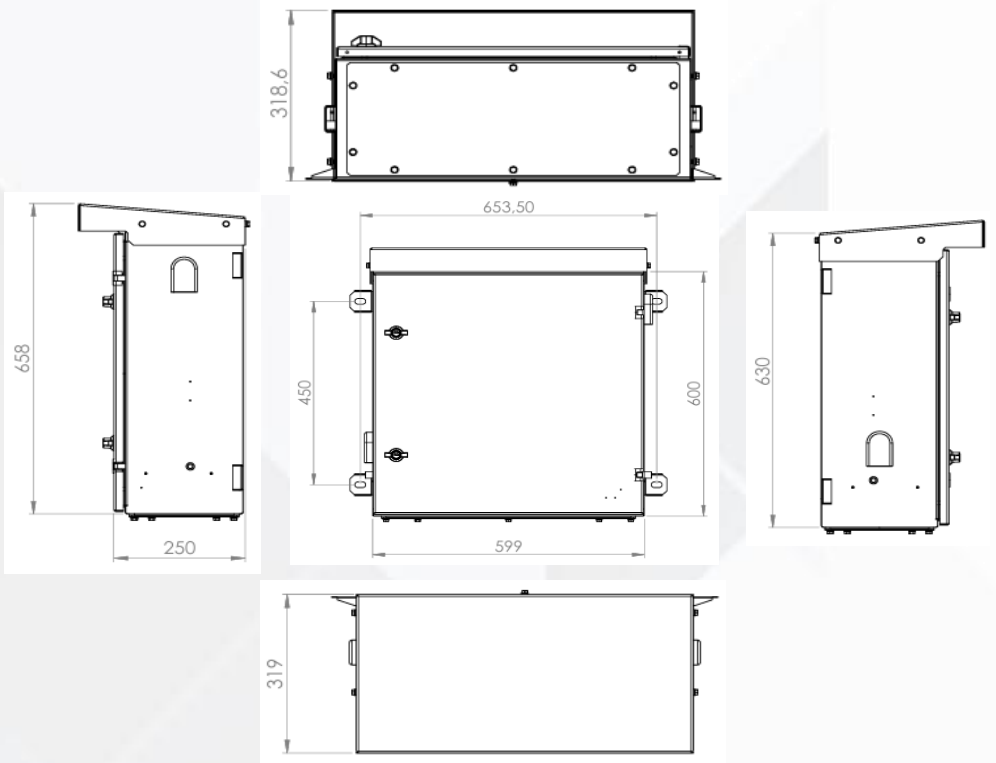


All dimensions in mm

FEATURES	RANGE/DESCRIPTION
Material	Carbon steel, 1.9 mm plate
Painting	Munsell N6.5 electrostatic powder coating
Inputs (raw materials)	Zinc-plated and copper
Corrosivity index	C5 in accordance with NBR 16680
Surface treatment	Near-white metal abrasive blast cleaning process, visual standard Sa 2 1/2, in accordance with ISO 8501-1. Layer conversion via phosphating.
Environment	Outdoor
Protection rating	IP65
Door opening angle	130º

INSTALLATION PANEL 600x600x250

The Treetech 600x600x250 Installation Panel is designed for medium-complexity applications, offering optimized space for the integration of IEDs and measurement, control, and protection devices.

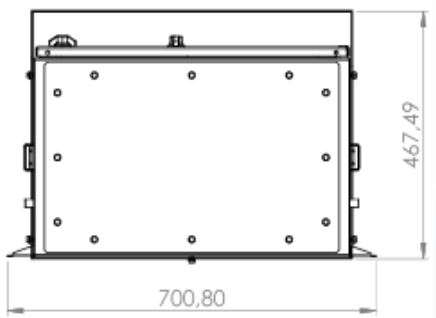


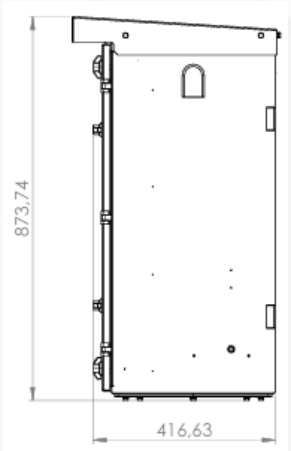
FEATURES	RANGE/DESCRIPTION
Material	Carbon steel, 1.9 mm plate
Painting	Munsell N6.5 electrostatic powder coating
Inputs (raw materials)	Stainless steel and copper
Corrosivity index	C5 in accordance with NBR 16680
Surface treatment	Near-white metal abrasive blast cleaning process, visual standard Sa 2 1/2, in accordance with ISO 8501-1. Layer conversion via phosphating.
Environment	Outdoor
Protection rating	IP 65
Door opening angle	130º

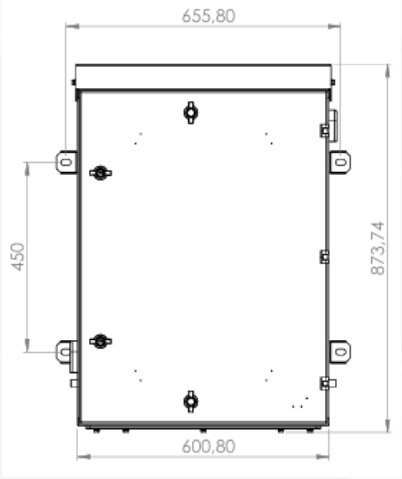
INSTALLATION PANEL 800x600x400

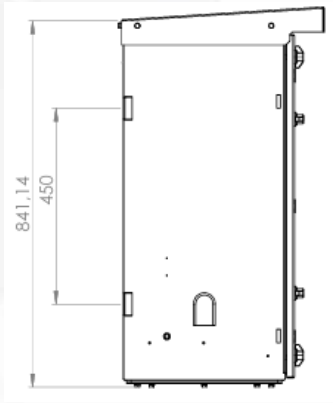
INSTALLATION PANEL
800x600x400

The Treetech 800x600x400 Installation Panel is a robust model, suitable for systems requiring a larger number of devices and greater interconnection capacity.









FEATURES	RANGE/DESCRIPTION
Material	Carbon steel, 1.9 mm plate
Painting	Munsell N6.5 electrostatic powder coating
Inputs (raw materials)	Stainless steel and copper
Corrosivity index	C5 in accordance with NBR 16680
Surface treatment	Near-white metal abrasive blast cleaning process, visual standard Sa 2 1/2, in accordance with ISO 8501-1. Layer conversion via phosphating.
Environment	Outdoor
Protection rating	IP 65
Door opening angle	130º

CP-MBR

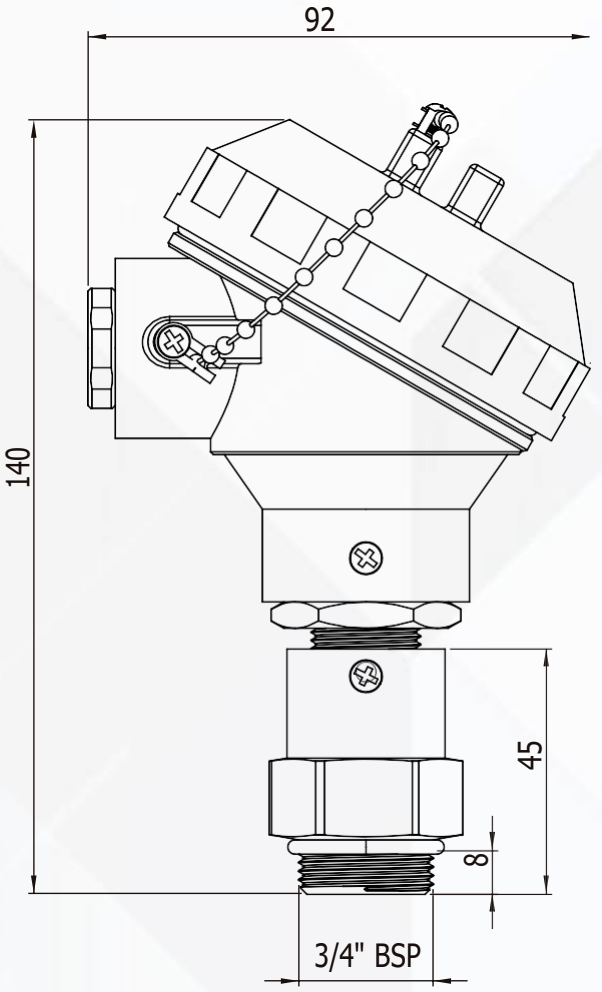
CP-MBR

The CP-MBR junction box facilitates the connection between the sensor installed inside the expansion tank and the MBR relay, while maintaining the system's seal.
The CP-MBR must be installed in a threaded hole or a 3/4” BSP (NPT optional) valve that allows direct access to the expansion tank.

PARTNUMBERS:

CP-MBR
CP-MBR NPT

FEATURES	RANGE/DESCRIPTION
Cylinder head	KNC, painted aluminum
Cable gland	Nickel-plated brass or stainless steel 1/2” BSP thread
Inlet thread	3/4” BSP (NPT optional)
Chain, screw, and adapter	Nickel-plated brass or stainless steel
Bearable pressure	1 bar

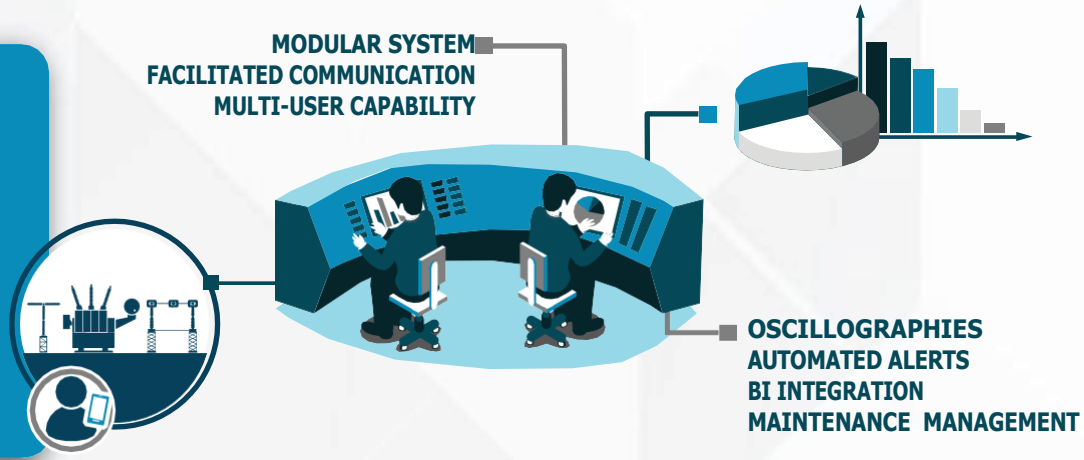


01 WANT A HELPING HAND FROM AN EXPERT? **LET TREETECH HANDLE THE INSTALLATION!**

Backed by a team of highly qualified and experienced designers, technicians, and engineers, Treetech can handle the design, installation, commissioning, and training for all the monitoring solutions offered. Inquire about the terms and conditions to facilitate the implementation of these new technologies.

02 ENTER THE **SUBSTATION 4.0** ERA WITH **SIGMA ECM®**

The **Sigma ECM®** (Equipment Condition Monitoring) software integrates the company's entire electrical infrastructure into a single platform and enables online monitoring of the operation of all assets within power substations.



03 ELECTRICAL ASSET MANAGEMENT IS THE SECRET! **TREETECH TAKES CARE OF IT FOR YOU**

The specialized **SAM®** team, with over 40 years of industry experience, provides services and consulting across all processes — from asset conception to the end of its service life — integrating with the areas of maintenance engineering, operations, planning, and capital projects.

Rua José Alvim, 112 - Centro, Atibaia - SP - CEP: 12940-750
Contact: +55 11 2410-1190

Check the list of our distributors on:
www.treetech.com.br