



# **GMP**

## **GAS AND MOISTURE MONITOR**

**PRODUCT  
CATALOG**

[treotech.com.br](http://treotech.com.br)

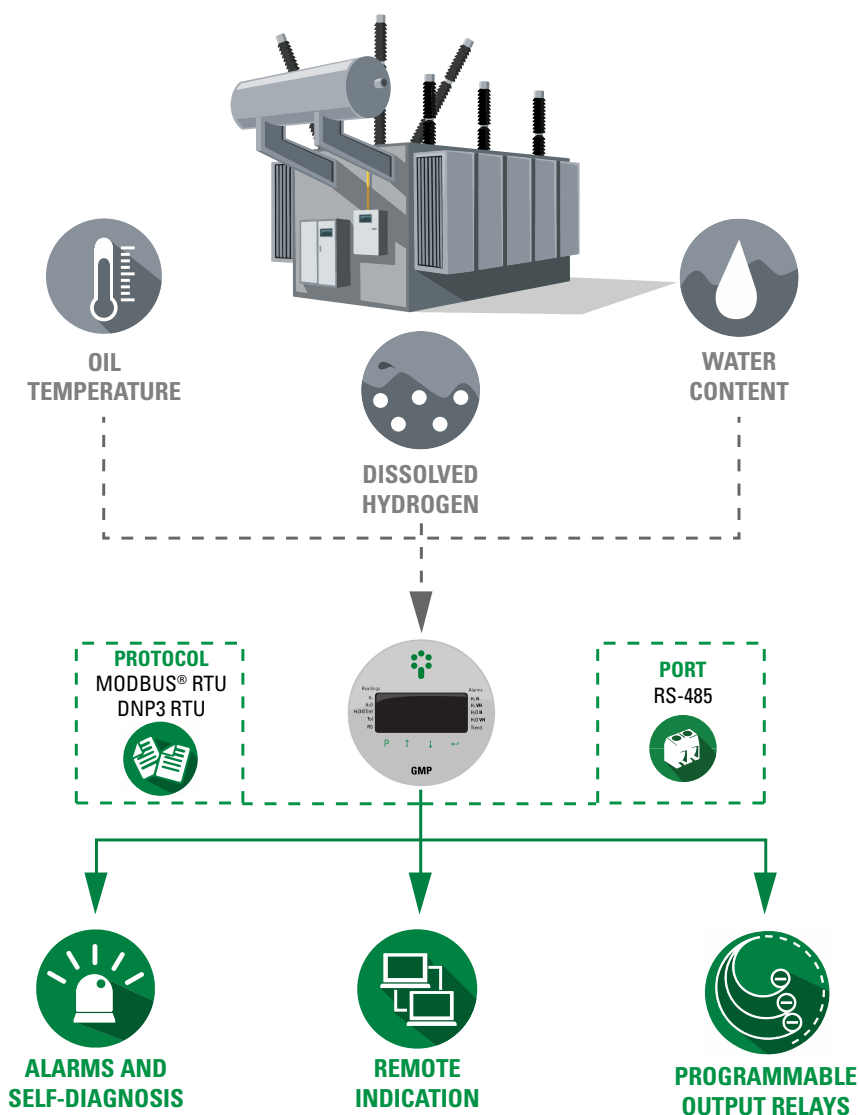
## DO YOU KNOW HOW INSULATING OIL MONITORING CAN INDICATE THE HEALTH OF YOUR TRANSFORMER?



The analysis of insulating oil from transformers and reactors is an important tool to verify defects in evolution and verify what puts the asset's operation at risk.

The Specialist Sensor for Gas and Moisture - GMP from Treotech monitors in real-time the presence of hydrogen ( $H_2$ ) and water ( $H_2O$ ) dissolved in the oil, detecting mainly evolutions and signaling risks still in the early stages.

### SYSTEM TOPOLOGY





## **ALARMS AND SELF-DIAGNOSIS**

- Alarm emission in case of abnormality;
- Alarm for the trend of evolution of the concentrations of  $H_2$  and  $H_2O$ ;
- Self-diagnosis for detecting internal failures or lack of power.



## **REMOTE INDICATION**

- Remote indication of alarms;
- Real-time monitoring of relative saturation (%) and  $H_2O$  content (ppm) and  $H_2$  content in oil;
- Real-time monitoring of oil temperature;
- Evolution trend indication and forecast of the remaining time for alarms;
- Two programmable outputs of current loops (mA).



## **PROGRAMMABLE OUTPUT RELAYS**

- Programmable output relays for indicating alarms and self-diagnostic.



## **BENEFITS**

- Monitors any sort of oil, mineral or vegetable;
- Exceeds ECM (Electromagnetic Compatibility) standards for supportability;
- It has no mechanical parts for parametrization or calibration;
- Reduced size;
- High brightness display, readable in any lighting and temperature conditions;
- Versatile feeding range;
- Degree of protection IP66 withstanding adverse installation conditions exposed to the weather;
- Open communication protocols.

HARDWARE	RANGE/DESCRIPTION
Supply Voltage	38...265 Vdc/85...265 Vac, 50/60 Hz
Maximum consumption	≤ 8 W
Operating temperature - ambient	-40...+85 °C
Operating temperature - insulating oil	-20...+85 °C
Degree of protection	IP66, NEMA 4
Connection to insulating oil <sup>1</sup>	1/2" BSP, 1/2" NPT
Electrical connections <sup>2</sup>	1,0...1,5 mm <sup>2</sup> , 17...16 AWG
Withstand oil pressure	0,1 MPa, full vacuum
RELAY OUTPUTS	RANGE/DESCRIPTION
Output relays	3 NO + 1 NC
Maximum switching power	70 W(dc)/250 VA(ac)
Maximum switching voltage	250 Vdc/Vac
Maximum switching current	1 A, as long as the sum of the currents of the four relays does not exceed 2 A at the common point (terminal 5)
ANALOG OUTPUTS	RANGE/DESCRIPTION
Current loop analog outputs	2 outputs
Maximum error of analog outputs	0,5 % of full scale
Selectable options and maximum load	0...1 mA, 10 kΩ 0...5 mA, 2 kΩ 0...10 mA, 1 kΩ 0...20 mA, 500 Ω 4...20 mA, 500 Ω

<sup>1</sup>Supplied adapter for 1/2" NPT and recommended using a ball or drawer valve.

<sup>2</sup>Supplied adapters for the seal tube.

HYDROGEN MEASUREMENT	RANGE/DESCRIPTION
Measuring range	30...5.000 ppm
Maximum error	±20 % of measurement or ±25 ppm, whichever is greater
PERCENTAGE MEASUREMENT OF WATER SATURATION	RANGE/DESCRIPTION
Measuring range	0...100 % water saturation
Maximum error	±2 % water saturation
TEMPERATURE MEASUREMENT	RANGE/DESCRIPTION
Temperature measurement	One (oil inside the sensor module)
Measuring range	-55...+200 °C
Maximum error at 20 °C	0,5 % of full scale
MEMORY INFORMATION	RANGE/DESCRIPTION
Mass memory	Non-volatile type FIFO ( <i>First In First Out</i> )
Recording interval	1...1.440 minutes
Capacity	55.000 Records - 6,2 years with an interval of 60 minutes; 55.000 Records - 37,6 years with a 6-hour interval; 55.000 Records - 50,2 years with a 8-hour interval;
COMMUNICATION INTERFACE	DESCRIPTION
Serial communication port	1x TIA-485-A (RS-485)
Communication protocols	Modbus® RTU, DNP3 RTU

**TYPE TESTS (GAS MONITOR PLATAFORM)**

Outbreak immunity (IEC 60255-22-5)

Immunity to RF-induced disturbances (IEC 60255-22-6/IEC 61000-4-6)

Immunity to electrical transients (IEC 60255-22-4/IEC 61000-4-4)

Surge voltage (IEC 60255-5)

Immunity to irradiated electromagnetic fields (IEC 60255-22-3/IEC 61000-4-3)

Electrostatic discharge (IEC 60255-22-2/IEC 61000-4-2)

Immunity to fast electrical transients (IEC 60255-22-4/IEC 1000-4-4)

Withstand cold (IEC 60068-2-1)

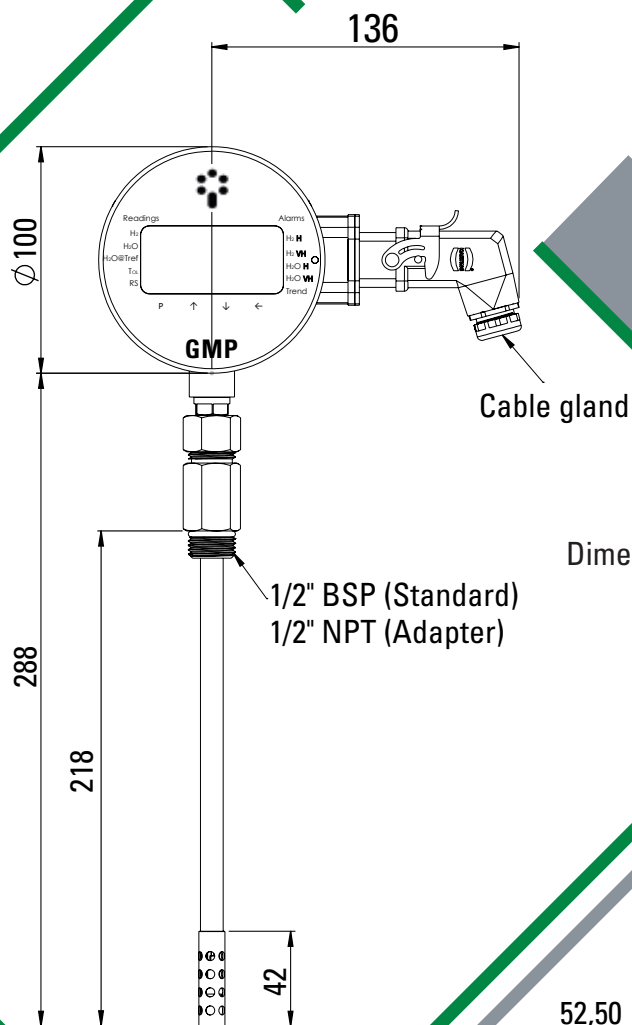
Withstand dry heat (IEC 60068-2-2)

Withstand wet heat (IEC 60068-2-78)

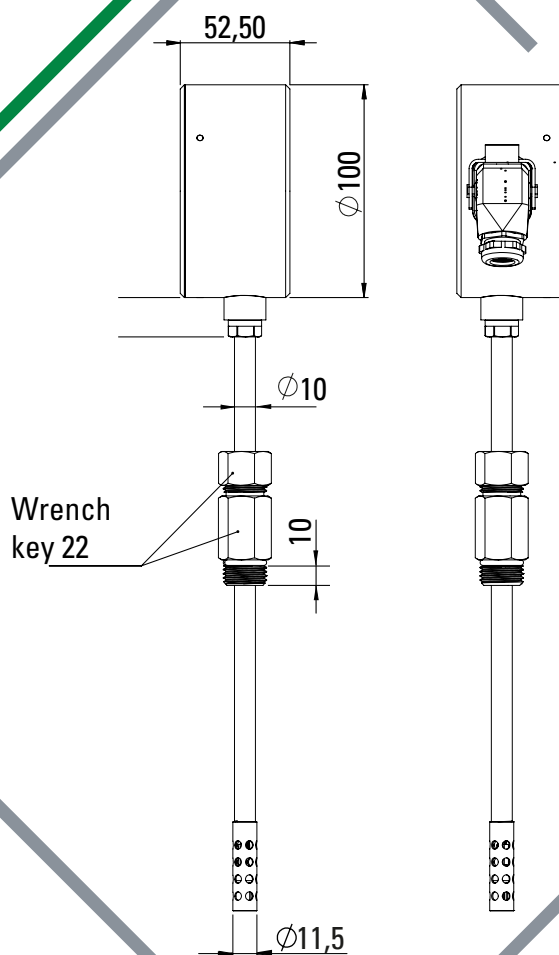
Climatic test of thermal cycle (IEC 60068-2-14)

Vibration respose (IEC 60255-21-1)

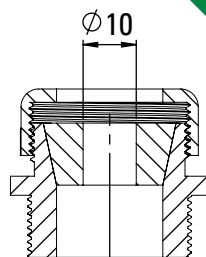
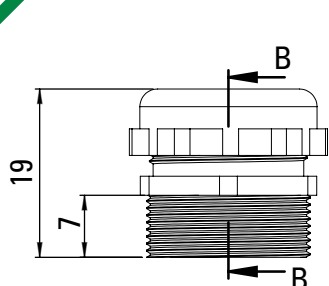
Vibration durability (IEC 60255-21-1)



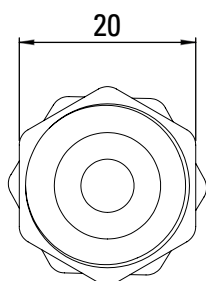
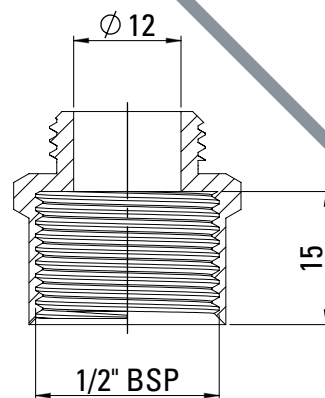
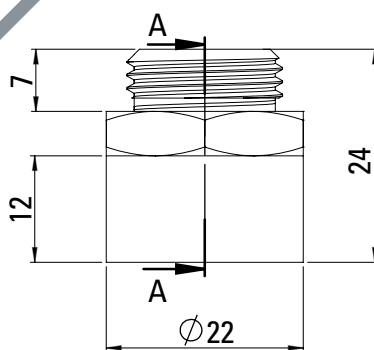
Dimensions in mm

FRONT  
VIEWSIDE  
VIEWS

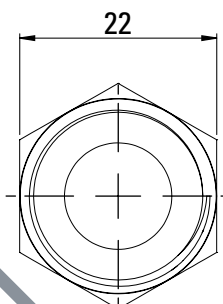
Dimensions in mm



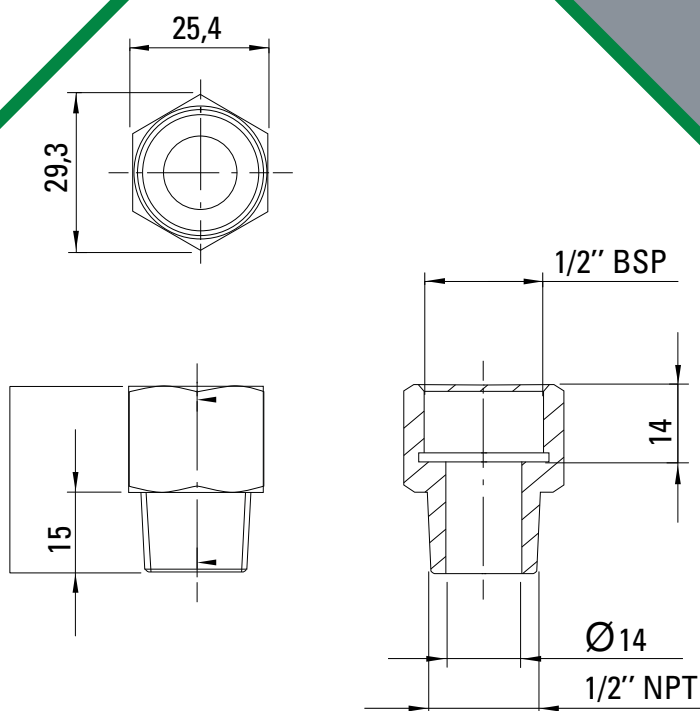
Dimensions in mm

CABLE  
GLANDSEALTUBE  
ADAPTER

Dimensions in mm



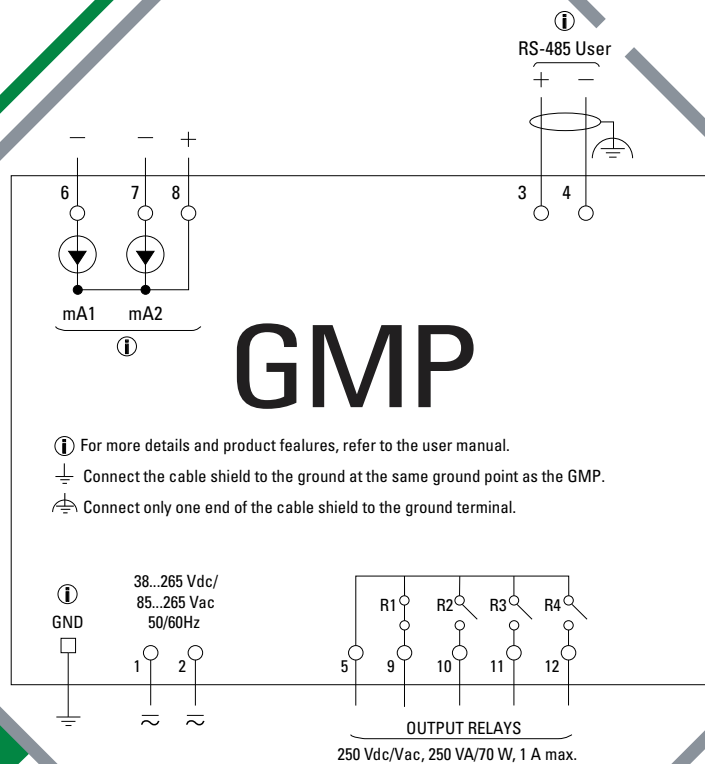




Dimensions in mm

**BSP/NPT  
ADAPTER**

## CONNECTION DIAGRAM



## ORDER SPECIFICATION

In the purchase order of the products it is necessary to specify:

- Product's name;
- Quantity.



# 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.

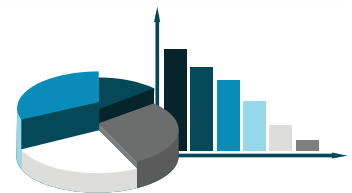
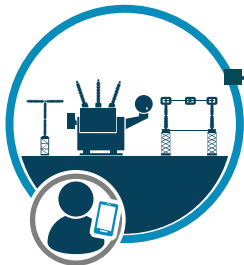


# 02

## 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.

**MODULAR SYSTEM  
FACILITATED COMMUNICATION  
POSSIBILITY OF MULTI-USERS**



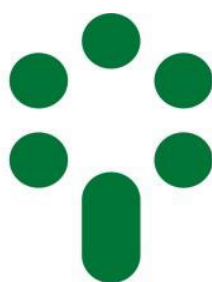
**OSCILLOGRAPHIES  
AUTOMATIC ALERT  
INTEGRATION WITH BI  
MAINTENANCE MANAGEMENT**

# 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

Treetech Tecnologia  
Rua José Alvim, 112, Centro  
CEP 12940-750 - Atibaia/SP  
+ 55 11 2410-1190