GMM Gas and Moisture Monitor

The Gas and Moisture Monitor - GMM performs the online monitoring of the amount of hydrogen dissolved in insulating mineral oil, emitting alarms for hydrogen levels above the set limit and for elevated increases in gas levels. The combustible gases dissolved in the oil of High-Voltage equipment are known as being one of the best indicators of the internal status of the equipment and its insulation. The detection of abnormal gas levels can indicate the occurrence of failures still in incipient stages. The GMM measures the hydrogen content dissolved in the insulating oil, since this gas is present in most of the types of failures that occur in transformers. The GMM also monitors the relative humidity in the oil (0 to 100%) and the associated oil temperature.

The Gas and Moisture Monitor is comprised of the Measurement (MM) and the MMI Modules. The Measurement Module is coupled to an oil valve in the transformer and contains the measurement sensors. It is provided with a RS-485 serial communication port through which information is transmitted to the MMI Module. The MMI makes the information locally available in its displays, remotely available through the analog outputs to dry contacts and through the RS-485 serial port. The MMI module also performs the calculations of trends and stores historical values in a non-volatile memory.

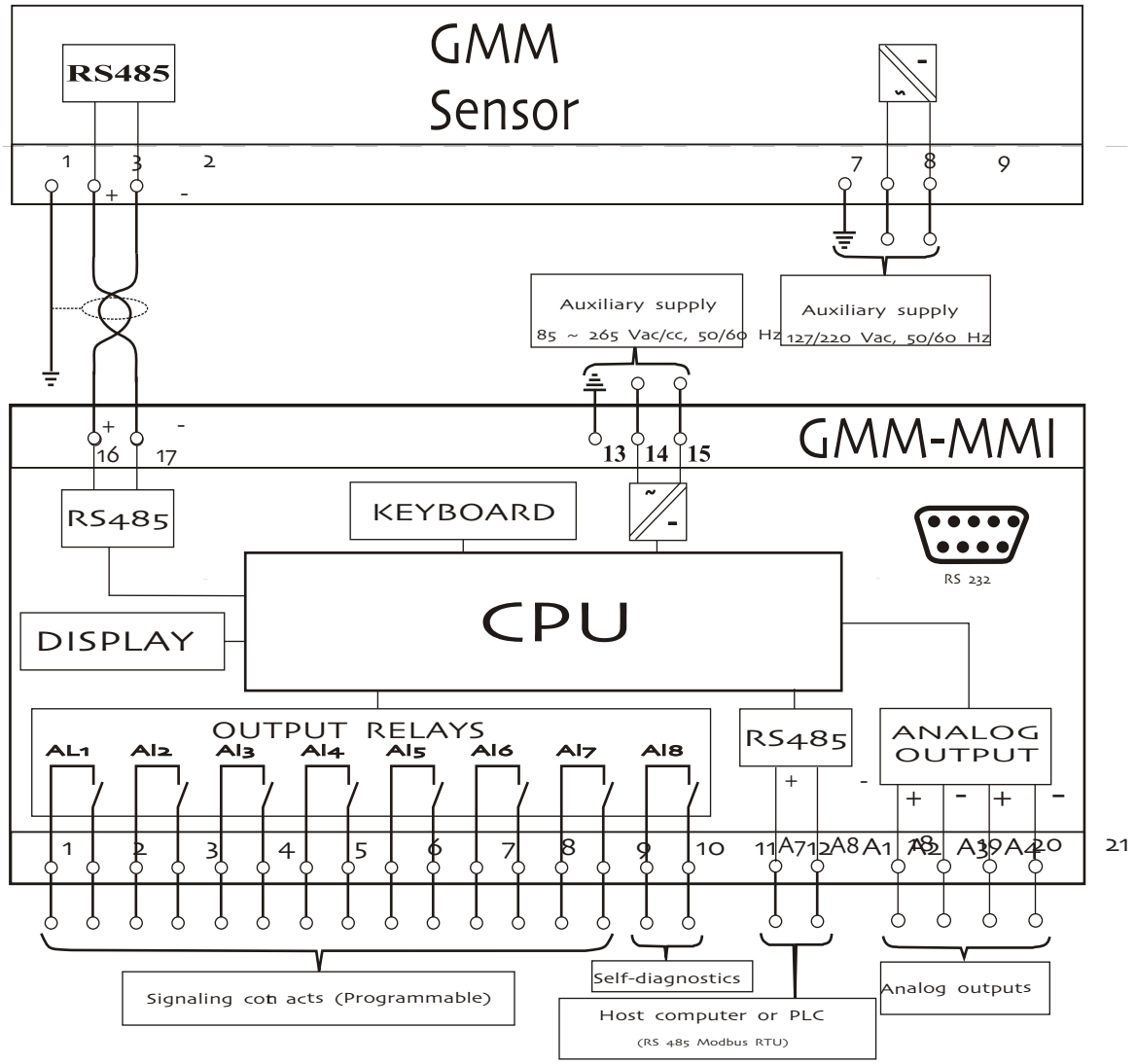
Dedicated versions only for gas measurement or only for moisture measurement are also available.

GMM Technical Characteristics

Power Supply:	127/220 Vca, 50/60Hz
Serial Communication:	RS 485 with protocol Modbus RTU (other protocols under consult)
Consumption:	< 100 W
Measurement Ranges:	Gas Concentration: 0 ~ 2000 ppm Relative humidity: 0 ~ 100 % Oil Temperature: 0 ~ 120 ºC
Precision:	Gas Concentration: ± 5% or ±20 ppm Relative humidity: ±2 % Temperature: ±0.5 % end scale
Ambient Temperature: Oil Temprature:	-10 to 70 ºC -10 to +120 ºC
Outputs:	7 Contacts, NO, free of potential, programmable for indication of: -Gas High -Gas Very High; -Water content High -Water content Very High -Trend of gas increase High -Trend of gas increase Very High; -Trend of water increase High; -Trend of water increase Very High; 1 Contact, NC, free of potential, for internal fault indication;
Protection Class:	Sensor Module: IP 65 MMI Module: IP 41
Oi Pressure:	Positive pressure 1MPa, Full Vacuum

TREE TECH SISTEMAS DIGITAIS

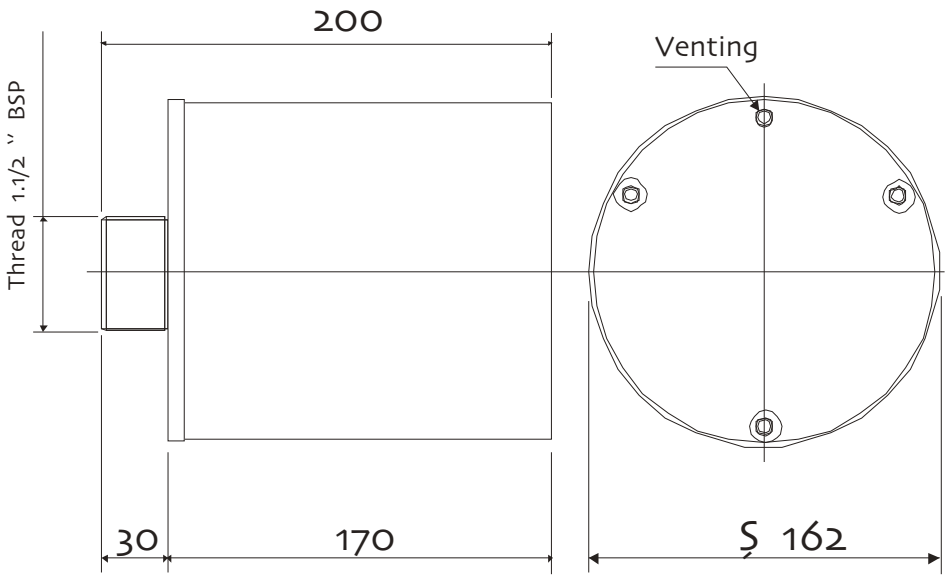
GMM Connection Diagram



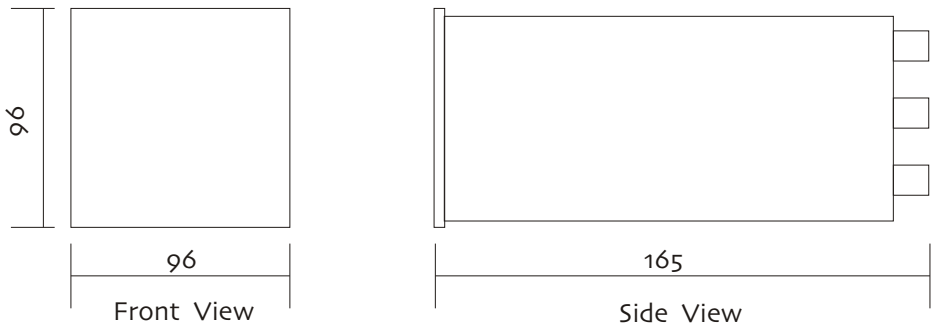
TREE TECH SISTEMAS DIGITAIS

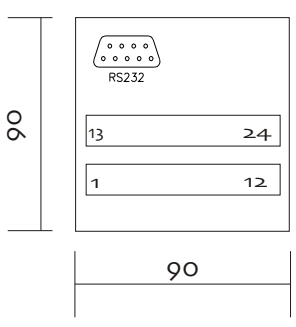
GMM Dimensions

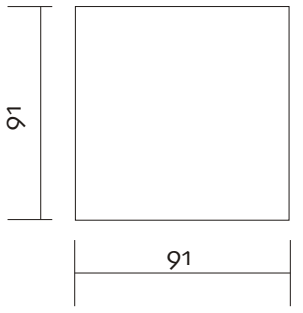
Sensor Module



MMI Module







GMM Accomplished Tests

Surges and transients (IEC 60255-6)	
Value of peak 1st cycle:	2.5 kV
Frequency:	1.1 MHz
Time:	2 s
Repetition rate:	400 (surtos/s)
Decline to 50%:	5 cycles
Impulse (IEC 60255-5)	
Wave form:	1.2/50 us
Amplitude:	5 kV
Number of pulses:	3 negative e 3 positive with interval of 5 seconds between pulses.
Energy:	0.5J
Insulation Voltage (IEC 60255-5)	
Insulation Voltage at industrial frequency :	2.0 kVrms, 60 Hz, during 1 minute between circuits and monting panel.
Eletromagnetic Susceptibility(IEC 61000-4-3)	
Severity Level:	3
Frequency:	26 to 2000MHz
Field Intensity:	10 V/m
Electrostatics Discharges(IEC 61000-4-2)	
Air Mode:	Level 3 (8kV)
Contact mode:	10 Discharges Level 3 (6kV)
Fast Electrical Transients (IEC 61000-4-4)	
Severity Level:	4
Test in power supply:	4kV
Test in inputs/outputs:	2kV
Climatic Test (IEC 60068-2-14)	
Temperature Range:	-40 to +85ºC (-40 to +185ºF)
Test Time:	120 hours

TREE TECH SISTEMAS DIGITAIS

GMM Specification For Order

The Gas and Moisture Monitor GMM is an universal device, in other words, the characteristics of its inputs and outputs can be programmed through the frontal panel or through the serials ports RS232 or RS485, using a parametering software.

For that reason, in the ordering of the device it should be specified only: Gas and Moisture Monitor GMM. A sensor module and MMI module are supplied.

Tree Tech USA
685 Mosser Rd. Ste 124 McHenry, MD 2154
Phone: 301-387-7012 - Fax: 301-387-7013
e-mail: info@treetechusa.com
www.treetechusa.com

Tree Tech Brasil
Praça Claudino Alves, 141 • Centro -
Atibaia - SP - CEP 12940-040
Tel.:/Fax (+55 11) 4413-5787
e-mail: comercial@treetech.com.br
www.treetech.com.br