VIRASENSE® GEN 1

TEMPERATURE & RELATIVE HUMIDITY MONITOR

FOR CLEANROOM AND HVAC APPLICATIONS

CLEANROOM SOLUTION

FANAVARAN VIRA PHARMED ENGINEERING CO.

IN SEARCH OF INNOVATION

INTRODUCTION

Modern cleanroom facilities rely on accurate environmental monitoring to maintain product quality, process integrity, and regulatory compliance. Among all environmental parameters, temperature and relative humidity (RH) are two of the most critical indicators of cleanroom performance.Proper control of temperature and relative humidity helps maintain stable environmental conditions, protect product quality, prevent moisture-related contamination risks, and ensure that controlled manufacturing environments operate within specified conditions.In pharmaceutical production facilities, biotechnology laboratories, healthcare environments, and medical device manufacturing plants, maintaining the correct temperature and humidity levels is essential for compliance with GMP guidelines and ISO 14644 cleanroom standards. Even small deviations from specified environmental limits may affect product stability, process performance, operator comfort, or material conditions and may indicate HVAC control issues that require corrective action. ViraSense® Gen 1 has been developed as a dedicated Temperature and Relative Humidity Monitoring Solution for cleanroom and controlled-environment applications. Designed with both functionality and aesthetics in mind, the device features a flush-mounted architecture that integrates seamlessly into cleanroom wall systems while providing continuous real-time monitoring of room temperature and relative humidity.The instrument measures temperature over a range of -10 to +70 °C with an accuracy of ±0.5 °C, and relative humidity from 0 to 100 %RH with an accuracy of ±5 %RH. These specifications make ViraSense® Gen 1 particularly suitable for pharmaceutical, healthcare, biotechnology, and other controlled environments where reliable monitoring of temperature and humidity is required.Real-time temperature and relative humidity values are displayed on a high-resolution 2.8-inch full-color TFT-LCD display with a resolution of 240 × 320 pixels, allowing operators to quickly assess room environmental conditions and identify deviations from specified operating parameters.The device can also be integrated into a centralized monitoring or BMS/EMS system through Modbus communication, enabling continuous data acquisition, centralized monitoring, and improved environmental control across multiple controlled areas.

APPLICATIONS

ViraSense® Series Devices Are Designed For A Wide Range Of Applications In HVAC/R, Cleanroom, And Air-Handling Systems, Including Temperature And Relative Humidity Monitoring; Environmental Condition Monitoring In Cleanrooms And Controlled Environments; Temperature And Humidity Monitoring In Pharmaceutical Manufacturing Facilities; Environmental Monitoring In Biotechnology And Healthcare Laboratories; Temperature And Humidity Monitoring In Storage And Warehouse Areas; Environmental Monitoring In Stability And Storage Rooms; Temperature And Humidity Monitoring In HVAC And Air-Handling Systems; Continuous Monitoring Of Critical Environmental Conditions In Controlled Areas; Monitoring Of Temperature And Humidity In Clean Air Distribution Systems; Integration With BMS/EMS For Centralized Environmental Monitoring; And Monitoring And Control Of Environmental Conditions In Processes And Facilities Where Stable Temperature And Relative Humidity Are Critical.

TECHNICAL SPECIFICATIONS

PARAMETER	SPECIFICATION
PRODUCT MODEL	RHT-MOD
MEASUREMENT RANGE	-10 TO 70 °C - 0 TO 100%
MEASUREMENT ACCURACY	±0.5 °C
SENSOR TECHNOLOGY	CMO SENS®
DISPLAY TYPE	TFT LCD
DISPLAY SIZE	2.8 INCH
RESOLUTION	240 × 320 PIXELS
COLOR DEPTH	65K COLORS
DISPLAY CONNECTION	FPC
DISPLAY INTERFACE	SPI / PARALLEL
COMMUNICATION	RS485 MODBUS RTU
BAUD RATE	9600–115200 BPS
ADDRESS	1–128
POWER SUPPLY	12-24 VDC
PROTECTION CLASS	IP54
HOUSING MATERIAL	ABS
HOUSING COLOR	MATTE WHITE
OPERATING TEMPERATURE	-15 °C TO +75°C
BODY DIMENSIONS	100 × 110 MM
FRONT FRAME DIMENSIONS	130 × 120MM
TERMINAL TYPE	SCREW TERMINAL
REFERENCE TUBE LENGTH	NA
PRESSURE FITTINGS	NA
MOUNTING TYPE	FLUSH MOUNTED
WEIGHT	350 G
COMPANY WITH MANAGEMENT SYSTEM CERTIFIED BY DNV GL ISO 9001 = ISO 14001	CE

INSTALLATION, CONFIGURATION

1. Panel Preparation Before installation, switch OFF the power supply. Prepare a panel cut-out of 105 × 112 mm. After cutting, carefully remove all burrs and sharp edges from the cut-out area. Thoroughly clean the cut surface and surrounding area from dust, oil, grease, and other contaminants using a suitable degreasing cleaner compatible with the panel material. Allow the surface to dry completely before installation.

2. Sensor Installation :Install the ViraSense sensor into the prepared panel cut-out and ensure that it is securely and properly positioned.

3. Modbus Address ConfigurationSet the required Modbus slave address using the Modbus Configuration DIP Switch according to the binary addressing scheme and the assigned address in the control system.

4. Baud Rate Configuration Set The Required RS-485 Baud Rate Using The Dedicated Baud Rate DIP Switch (W01).

The Default Configuration Is:

0-1	0-2	Baud Rate
OFF	OFF	1200 bps
ON	ON	9600 bps
ON	OFF	19200 bps
OFF	ON	56000 bps

After Changing The Baud Rate, Switch The Device OFF And ON To Apply The New Setting.

5. Modbus Connection
Connect The RS-485 Communication Lines To The Corresponding Terminals:

• A	RS-485	A
• B	RS-485	B

Ensure That The A And B Connections Are Correctly Wired And Securely Tightened.

6. Power Connection Connect The 24 VDC Power Supply To The Designated Power Terminals :

+24V	Positive
GND	Negative

Always Verify The Power Supply Voltage And Polarity Before Energizing The Device.

7. Final Check & Commissioning Before Powering On The Device, Verify That The Sensor Is Securely Installed And That The Modbus Address, Baud Rate, A/B Communication Lines, And Power Connections Are Correctly Configured.
After Powering On The Device, Verify The Displayed Measurement And Confirm Successful Modbus RTU Communication With The Monitoring Or Control System.

IMPORTANT SAFETY INSTRUCTIONS

Read All Instructions Before Installation Or Use.
Disconnect Power Before Installation, Wiring, Maintenance, Or Servicing. Use Cables Rated For The Device's Maximum Operating Voltage. Do Not Use In Explosive Or Flammable Environments Unless Specifically Approved.
Installation And Servicing Must Be Performed By Qualified Personnel. Follow All Applicable Standards, Regulations, And Installation Requirements.Keep This Manual For Future Reference.Vira Pharmed Is Not Responsible For Improper Installation, System Design, Or Use Outside The Specified Requirements.

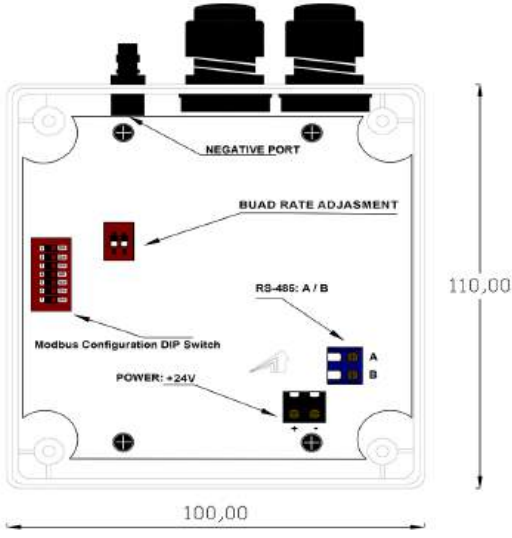
⚠ WARNING:

Disconnect The Power Supply Before Installation, Wiring, Or Servicing. Incorrect Wiring, Reversed Polarity, Or Omproper Configuration May Result In Malfunction Or Damage To The Device.

SCHEMATICS



DIMENSIONAL DRAWINGS



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