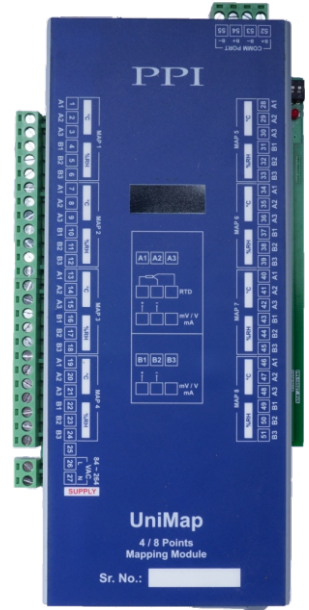


**Micro PLC Control Unit**



**Mapping Unit**



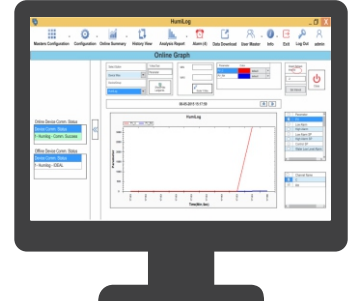
**Touch Panel**



**GSM Module**



**PC Software**



**PC Interface with 21 CFR Software**  
**8 / 16 Channel Mapping**  
**GSM Module for SMS Alerts**  
**Password Protected Door Locking**

## Features

- 7" TFT, 65536 Color Touch Screen Display
- Accurate Temperature & Humidity Monitoring (Universal Input : RTD Pt100, mA, V)
- 8 (4T + 4RH) or 16 (8T + 8RH) Channel Temperature & Humidity Mapping (Optional, Add-on Module)
- Precise Temperature & Humidity Control (Independent Self-Tune PID Control)
- Comprehensive Alarm System (Process Deviations, Door Open, Water Level Low, Mains Fail)
- Standby Sensors & Control Gadgets Interface (Optional Analog Inputs & Digital Outputs)
- Date / Time Stamped Process & Event Data Recording
- Boiler (Steam Generator) Water Level Monitoring (Digital Input for Float Switch & Thermostat)
- Password Protected Door Opening & Status Monitoring (Digital Input for Door Switch & Digital Output for Door Lock Solenoid)
- Mains-Fail Detection & Automatic Change Over to Battery / Inverter

## Specifications

Display	
Type	7" TFT Color Display with Touch Panel
Viewing Area	152.4 X 91.5 mm
Resolution	800 X 480 pixels
Touch Type	Analog Resistive Film
Touch Life	Greater than 1 Million Operations
Analog Inputs	
Temperature (User Programmable)	1 or 2 Analog Inputs for Main & Standby Sensor. RTD Pt100, 3 wire DC Linear : 0-20 mA, 4-20 mA 0-5 V, 0-10 V, 1-5 V
Humidity (%RH) (User Programmable)	1 or 2 Analog Inputs for Main & Standby Sensor. DC Linear : 0-20 mA, 4-20 mA 0-5 V, 0-10 V, 1-5 V
Accuracy	RTD Pt100 : ± 0.25% of reading ± 1°C DC Volts/Current : ± 0.25% of reading ± 1 LSD
Display Resolution	Temperature : 0.1 Fixed %RH : 0.1 Fixed
Zero Offset	User Adjustable over Full Range for Both Temperature & %RH
ADC	16 Bit (±32,768 Counts), Sigma-Delta (ΣΔ)
Sampling Time	500mS (2 Samples per Second)
Common Mode Rejection	> 100dB at 50/60 Hz
Signal Conditioning	R-C Analog Filter on Each Input
Excitation Voltage	
Ratings	5 V @ 15 mA
Digital Inputs	
Type	Potential-free Contacts
Functions	DI-1 : Door Open Detection DI-2 : Power Fail Detection DI-3 : Alarm ACK DI-4 : Main Water Level Detection DI-5 : Main Thermostat * DI-6 : Standby Water Level Detection * DI-7 : Standby Thermostat
Digital Outputs	
Type	SSR Voltage Drive rated 12 VDC @ 40 mA, Short-circuit Protected
Functions	DO-1 : Alarm DO-2 : Main Heater DO-3 : Main Humidifier DO-4 : Main Compressor * DO-5 : Standby Heater * DO-6 : Standby Humidifier * DO-7 : Standby Compressor DO-8 : Main Set Select * DO-9 : Standby Set Select ** DO-10 : Door Lock

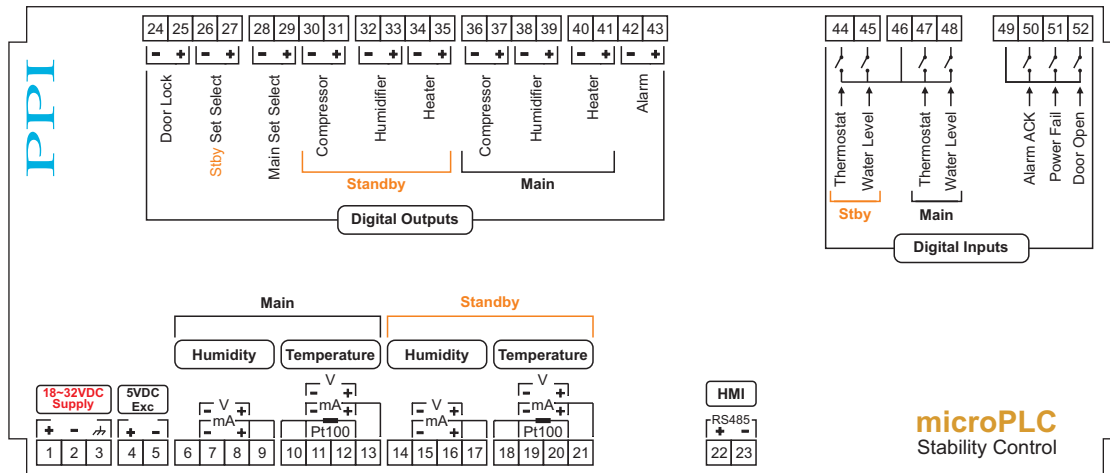
<b>Alarm System</b>	
Process Alarm	Programmable High / Low Process Alarms for Temperature & Humidity
Door Open Alarm (Optional)	Alarm on Chamber Door Remaining Open for More than Set Time Period
Water Level Alarm (Optional)	Alarm on Boiler Water Level Low Detection
Mains Fail Alarm (Optional)	Alarm on Change-over from Mains Power to Alternate Power Source (Battery, Inverter, etc.)
Output	SSR Output for Remote Switching of Audio / Visual Gadget on Alarms
Alarm Acknowledge	<ul style="list-style-type: none"> <li>• Rear Panel Digital Input (DI-3) for Connecting Remote Alarm Acknowledge (Mute) Button</li> <li>• Touch Button on HMI Main (Home) Screen</li> </ul>
<b>Heat Control</b>	
Type	Self Tune PID
Control Parameters	Proportional Band, Integral Time, Derivative Time, Cycle Time
Output	SSR Drive Voltage (DO-2 & DO-5)
<b>Humidity Control</b>	
Type	Self Tune PID
Control Parameters	Proportional Band, Integral Time, Derivative Time, Cycle Time
Output	SSR Drive Voltage (DO-3 & DO-6)
<b>Compressor Control</b>	
Type	On-Off with Programmable Time Delay & Hysteresis
Control Strategy (Programmable)	<ol style="list-style-type: none"> <li>1. Can be Switched ON-OFF Manually</li> <li>2. Based on Programmable Temperature SP Threshold. Compressor is ON for Temperature SP Below Threshold &amp; OFF Above</li> <li>3. Cool Control. Switches ON-OFF Based on Temperature PV &amp; SP</li> </ol>
Output	SSR Drive Voltage (DO-4 & DO-7)
<b>Data Recording</b>	
Storage Device	In-built Flash Memory
Record Capacity	5,000 Records
Recording Interval	User Programmable (1 to 250 Minutes)
Recording Data (Date/Time Stamped)	<p><b>Process Values</b></p> <ul style="list-style-type: none"> <li>• Measured Temperature,</li> <li>• Measured Humidity</li> </ul> <p><b>Events</b></p> <ul style="list-style-type: none"> <li>• Power-up,</li> <li>• Change in Temperature SP,</li> <li>• Change in Date/Time Settings,</li> <li>• Change in Recording Interval</li> <li>• Chamber Door Open/Close,</li> <li>• Boiler Water Level Low</li> <li>• Mains Power Fail/Resumption</li> <li>• Change - over from Main to Standby Sensor Set</li> <li>• Change - over from Main to Standby Control Gadget Set</li> </ul>
<b>Power Supply</b>	
Type	Switch Mode (SMPS)
Supply Voltage	24 VDC @ 1.1A (25 Watts) HMI + Micro PLC

Physical	
7" HMI	<b>Mounting :</b> Plug-in with Panel Mounting Clamps <b>Overall Dimensions :</b> 204 (W) X 145 (H) X 34 (D), mm <b>Panel Cutout :</b> 192 (W) X 138 (H), mm
Micro PLC Control Unit	<b>Mounting :</b> Base / Wall Mounting <b>Overall Dimensions :</b> 179 (L) X 116 (W) X 77 (H), mm
8 / 16 Channel T+RH Mapping Unit	<b>Mounting :</b> Base / Wall Mounting <b>Overall Dimensions :</b> 229 (L) X 98 (W) X 50 (H), mm

\* Available if Standby Control Gadget Outputs are ordered.

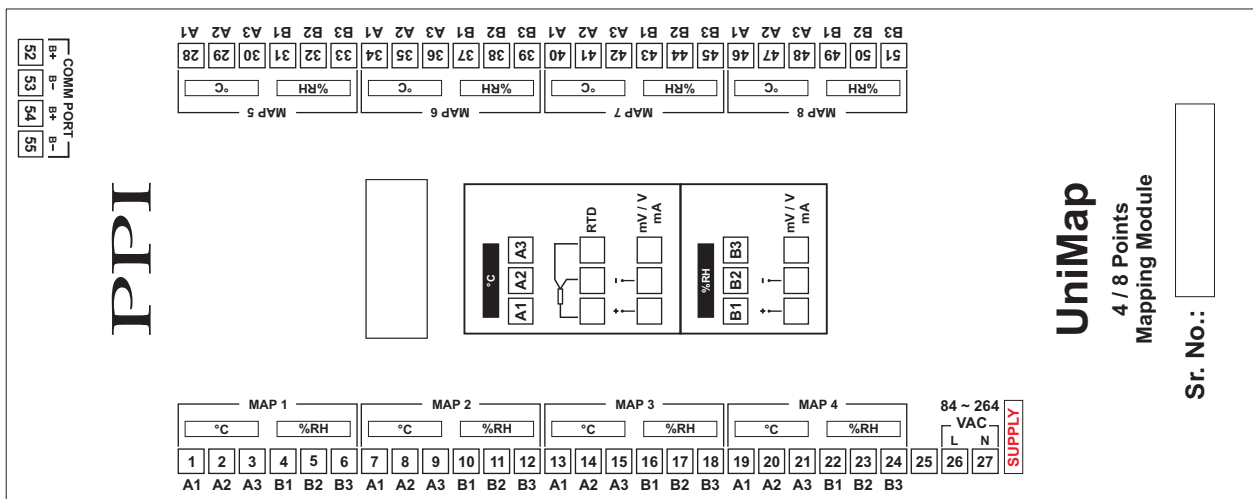
\*\* Available if Door Lock Outputs is ordered.

## microPLC Electrical Connections

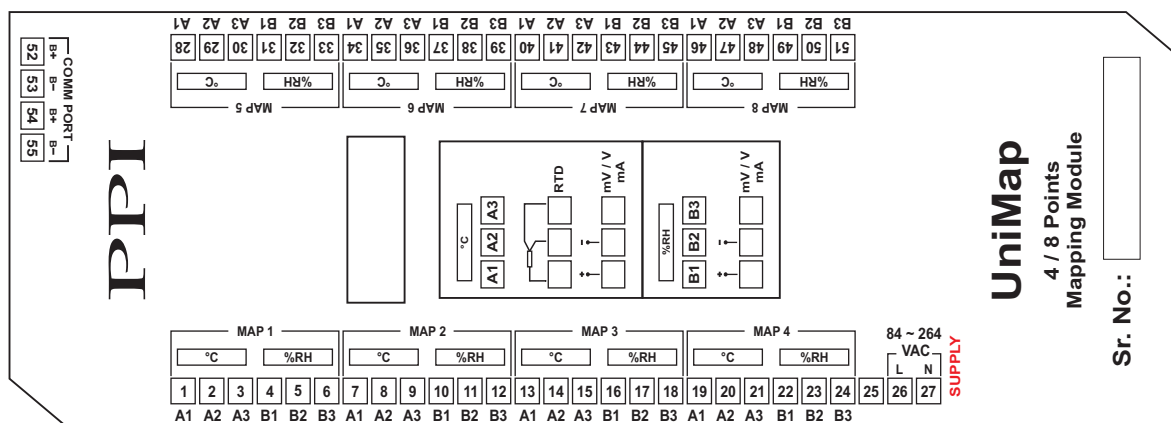


## Mapping Module Electrical Connections

### New Version

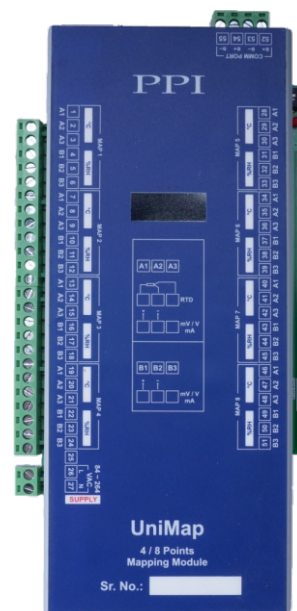


## Old Version



## 8 / 16 Channel Mapping Unit

Mapping Channels	8 Channel (4T + 4RH) or 16 Channel (8T + 8RH)
Input Type (Independently Programmable for Each Channel)	RTD Pt100, 3 wire (For Temperature Channels Only) DC Linear : 0-20 mA, 4-20 mA 0-50 mV, 0-200 mV 0-1.25 V, 0-5 V, 0-10 V, 1-5 V
Accuracy	For RTD Pt100 : $\pm 0.25\%$ of reading $\pm 1^\circ\text{C}$ For DC Linear Volts / Current : $\pm 0.25\%$ of reading $\pm 1$ LSD
Zero Offset	User Adjustable over Full Range
ADC	16 Bit ( $\pm 32,768$ Counts), Sigma-Delta ( $\Sigma\Delta$ )
Sampling Time	500mS Per Channel
Signal Conditioning	L-C Analog Filter
Power Supply	85~264 VAC, 50/60 Hz, Single Phase
Dimensions (mm)	229 (L) X 98 (W) X 50 (D)
Mounting	Wall Mounting
Connections	Screw Type, Male-Female Detachable



## GSM Interface (Optional Add-on Device)

Controller Interface Port	RS485 Serial
Frequency Band	Quad (850/900/1800/1900 MHz)
SMS Alert Events	<ul style="list-style-type: none"> <li>High/Low Temperature &amp; Humidity Alarms</li> <li>Door Open Alarm</li> <li>Low Boiler Water Level Alarm</li> <li>Mains Failure Alarm</li> </ul>
Recipients	Up to 10; User Programmable through SMS by Secured Access
Supply Voltage	10~30 VDC (24 VDC Nominal)



**\* The Module does not support Jio SIM Card.**

## PC Interface with 21 CFR Compliant Software

Supported Operating Systems (OS)	<ul style="list-style-type: none"> <li>• Windows Vista</li> <li>• 32 bit / 64 bit Windows 8</li> <li>• Windows 7</li> <li>• 32 bit / 64 bit Pentium Dual Core</li> </ul>
Minimum PC Configuration Requirements	<ul style="list-style-type: none"> <li>• 2.8 GHz Clock Speed</li> <li>• 40 GB Hard Disk</li> <li>• 2 GB RAM</li> </ul>
PC Software Features (USFDA 21 CFR Part 11 Compliant)	<ul style="list-style-type: none"> <li>• Supports Multiple Chambers on Single Installation</li> <li>• Auto Start-up on PC Power-up</li> <li>• Online Display of Process Values &amp; Stored Records in Graphical &amp; Tabular Forms with Alarm Indications</li> <li>• SMS and/or Email Alerts on Alarm Conditions</li> <li>• Mean Kinetic Temperature (MKT) Computation</li> <li>• Automatic Periodic Downloading of Records Stored in Controller</li> <li>• Access Control According to Authority Level</li> <li>• User Actions with Signing &amp; Authorization</li> <li>• Automatic Password Expiry</li> <li>• Manual &amp; Auto Back-up Facility with Archiving</li> <li>• Data Log Reports with User Configurable Title, Footer &amp; Header</li> <li>• Data Log Report, Alarm Log Report, History Graph &amp; Audit Trail Report in PDF &amp; EXCEL formats</li> <li>• Audit Trail History of Critical Events &amp; User Actions</li> </ul>

