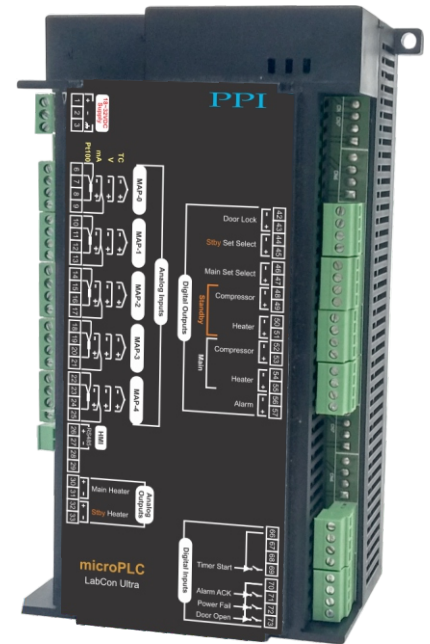


Touch Panel



Micro PLC Control Unit



PC Software



- 7" TFT, 65536 Color Touch Screen Display
- 5 Temperature Channels for Control & Mapping
- Universal Input : Thermocouples, RTD Pt100, mA, V
- On-Off & Self Tune PID Temperature Control
- Settable 'Heat - Only', 'Cool - Only' & 'Heat + Cool' Control
- SSR or DC LINEAR (V / mA) Control Outputs
- Programmable Timer Delay for Compressor Switching
- In-built Programmable Timer
- Comprehensive Alarm System  
(Process Deviations, Door Open, Mains Fail)

- Standby Control Gadgets Interface (Optional Digital Outputs)
- Date / Time Stamped Process & Event Data Recording
- 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
- Serial Port for PC Interface with 21 CFR Compliant Software
- **Optional** GSM Interface Module for SMS Alerts

## 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	
MAP-0 Temperature Input	Thermocouple : J, K, T, R, S, B, N RTD Pt100, 3 wire DC Linear : 0-20 mA, 4-20 mA 0-5 V, 0-10 V, 1-5 V
MAP-1 to MAP-4 Temperature Inputs	<b>Selection Common for MAP-1 to MAP-4</b> Thermocouple : J, K, T, R, S, B, N RTD Pt100, 3 wire DC Linear : 0-20 mA, 4-20 mA 0-5 V, 0-10 V, 1-5 V
Accuracy	<b>Thermocouple</b> : $\pm 0.25\%$ of reading $\pm 1$ LSD <b>RTD Pt100</b> : $\pm 0.25\%$ of reading $\pm 1^\circ\text{C}$ <b>DC Volts/Current</b> : $\pm 0.25\%$ of reading $\pm 1$ LSD
Display Resolution	0.1°C
Zero Offset	User Adjustable over Full Range (Independent for Each Input)
ADC	16 Bit ( $\pm 32,768$ Counts), Sigma-Delta ( $\Sigma\Delta$ )
Sampling Time	250 mS (2 Samples per Second)
Common Mode Rejection	> 100dB at 50/60 Hz
Signal Conditioning	R-C Analog Filter on Each Input
Digital Inputs	
Type	Potential-free Contacts
Functions	DI-1 : Door Open Detection      DI-3 : Alarm ACK DI-2 : Power Fail Detection      DI-4 : Timer Start Command
Digital Outputs	
Type	SSR Voltage Drive rated 12 VDC @ 40 mA, Short-circuit Protected
Functions	DO-1 : Alarm      *DO-5 : Standby Compressor DO-2 : Main Heater      *DO-6 : Main Set Select DO-3 : Main Compressor      *DO-7 : Standby Set Select *DO-4 : Standby Heater      **DO-8 : Door Lock
Analog Outputs (Optional)	
Type	0 - 5/10 VDC or 0/4 - 20 mA (Factory Configurable)
Functions	AO-1 : Main Heater      *AO-2 : Standby Heater

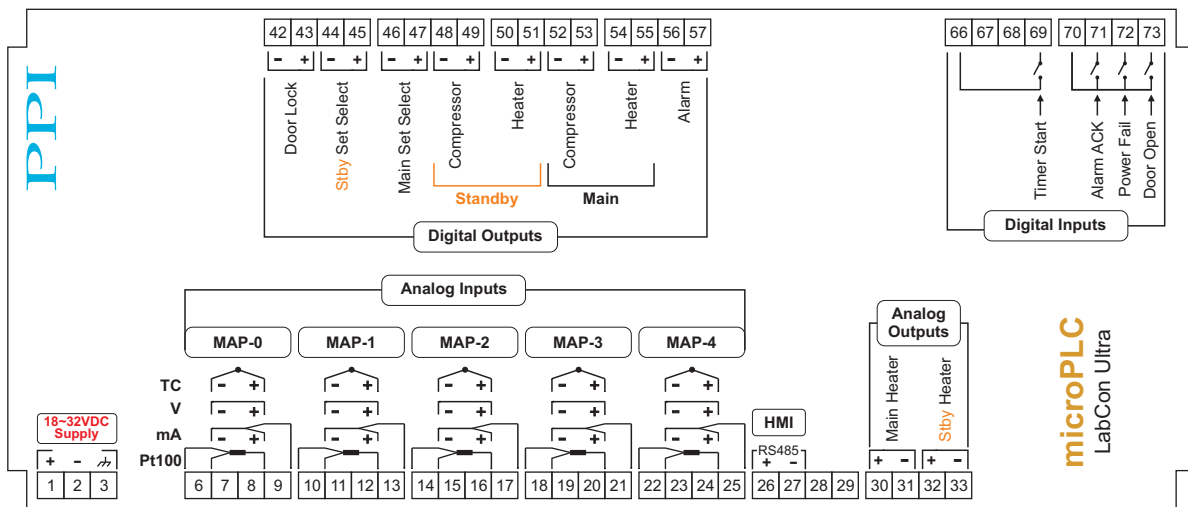
\* Available if Standby Control Gadget Outputs are ordered.

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

<b>Alarm System</b>	
Process Alarm	Independent High / Low Deviation Process Alarms
Door Open Alarm (Optional)	Alarm on Equipment Door Remaining Open for More than Set Time Period
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>Temperature Control Loop</b>	
Type	User Settable : Self Tune PID or ON-OFF
Control Parameters	PID : Proportional Band, Integral Time, Derivative Time, Cycle Time ON-OFF : Hysteresis
Output	SSR Drive Voltage (DO-2 & DO-4)
<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-3 & DO-5)
<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)	<ul style="list-style-type: none"> <li>• <b>Process Values</b> Measured Control &amp; Mapping Temperatures</li> <li>• <b>Events</b> Power-up Process Value Alarm Toggle Change in Control SP Change in Date/Time Settings Change in Recording Interval Equipment Door Open/Close Mains Power Fail/Resumption</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

## microPLC Electrical Connections



## 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 Alarms (Control &amp; Mapping)</li> <li>Door Open 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>

