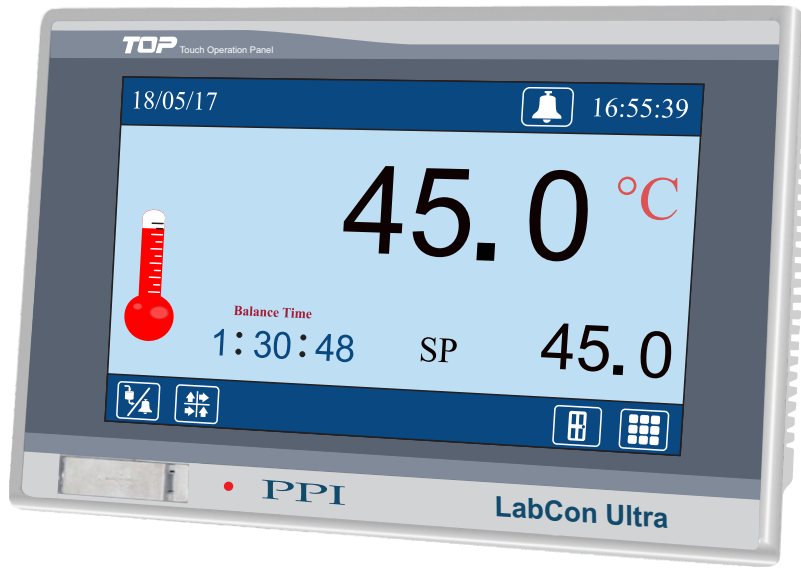
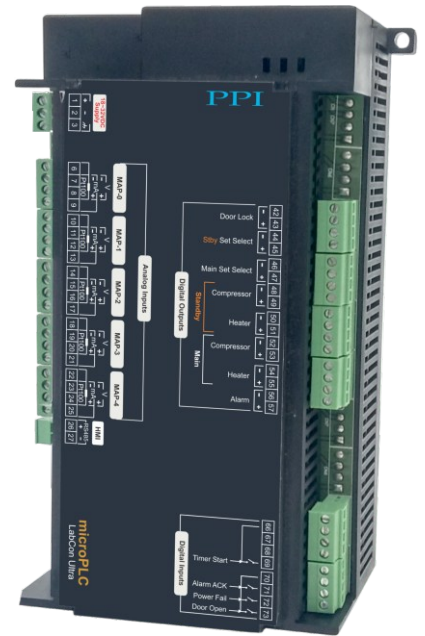


Touch Panel



Micro PLC Control Unit



PC Software



- 4.3" or 7" TFT, 65536 Color Touch Screen Display
- 5 Temperature Channels for Control & Mapping
- Universal Input for each Channel : RTD Pt100, mA, V
- On-Off & Self Tune PID Temperature Control
- Settable 'Heat - Only', 'Cool - Only' & 'Heat + Cool' Control
- PV or SP based Compressor Control Strategy
- In-built 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	4.3" or 7" TFT Color Display with Touch Panel
Viewing Area	90.04 X 52.86 mm for 4.3" & 152.4 X 91.5 mm for 7"
Resolution	480 X 272 pixels for 4.3" & 800 X 480 pixels for 7"
Touch Type	Analog Resistive Film
Touch Life	Greater than 1 Million Operations
Analog Inputs	
MAP-0 Temperature Input	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	Selection Common for MAP-0 to MAP-4 RTD Pt100, 3 wire DC Linear : 0-20 mA, 4-20 mA 0-5 V, 0-10 V, 1-5 V
Accuracy	RTD Pt100 : $\pm 0.25\%$ of reading $\pm 1^\circ\text{C}$ DC Volts/Current : $\pm 0.25\%$ of reading ± 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-2 : Power Fail Detection DI-3 : Alarm ACK DI-4 : Timer Start Command
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 Compressor *DO-4 : Standby Heater *DO-5 : Standby Compressor *DO-6 : Main Set Select *DO-7 : Standby Set Select **DO-8 : Door Lock

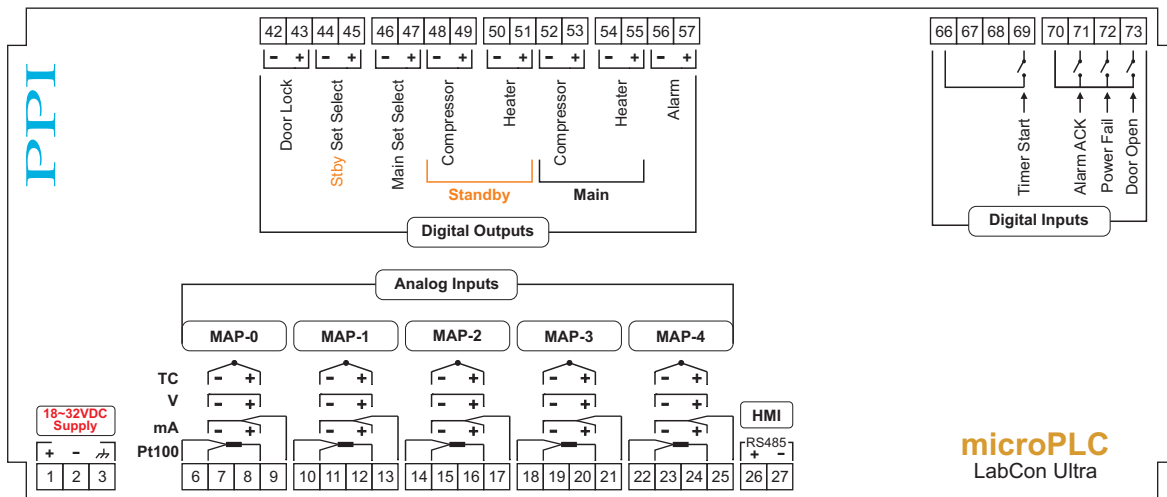
* Available if Standby Control Gadget Outputs are ordered.

** Available if Door Lock Outputs is ordered.

Alarm System	
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"> • Rear Panel Digital Input (DI-3) for Connecting Remote Alarm Acknowledge (Mute) Button • Touch Button on HMI Main (Home) Screen
Temperature Control Loop	
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)
Compressor Control	
Type	On-Off with Programmable Time Delay & Hysteresis
Control Strategy (Programmable)	<ol style="list-style-type: none"> 1. Can be Switched ON-OFF Manually. 2. Based on Programmable Temperature SP Threshold. Compressor is ON for Temperature SP Below Threshold & OFF Above. 3. Cool Control. Switches ON-OFF Based on Temperature PV & SP
Output	SSR Drive Voltage (DO-3 & DO-5)
Data Recording	
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"> • Process Values Measured Control & Mapping Temperatures • Events 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
Power Supply	
Type	Switch Mode (SMPS)
Supply Voltage	24 VDC @ 1.1A (25 Watts) HMI + Micro PLC

Physical	
4.3" HMI	Mounting : Plug-in with Panel Mounting Clamps Overall Dimensions : 128 (W) X 102 (H) X 55 (D), mm Panel Cutout : 121 (W) X 95 (H), mm
7" HMI	Mounting : Plug-in with Panel Mounting Clamps Overall Dimensions : 206 (W) X 136 (H) X 44 (D), mm Panel Cutout : 199 (W) X 129 (H), mm
Micro PLC Control Unit	Mounting : Base / Wall Mounting Overall Dimensions : 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"> High/Low Temperature Alarms (Control & Mapping) Door Open Alarm Mains Failure Alarm
Recipients	Up to 10; User Programmable through SMS by Secured Access
Supply Voltage	10~30 VDC (24 VDC Nominal)



PC Interface with 21 CFR Compliant Software

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

