

Vertical Autoclave



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Vertical Autoclave

A sturdy and tension free Autoclave which can safely be operated repeatedly even in remote places, Ideal for Microbiology, Tissue Culture, etc. Double walled chamber, inside chamber and reservoir are fully stainless-steel grade and the outer chamber made out of mild steel sheet with attractive colour finished paint / stainless steel.

The lid made out of 304 grade plate & the supporting ring also made out of stainless-steel flat plate. The lid is tightened with wing nut locking system. Heating elements are immersion type heaters industrial grade energy efficient type heater. The unit is fitted with neoprene rubber gasket to ensure tight sealing. All autoclaves are hydraulically tested up to 40 psi as safety measure. We can offer various capacity ranging from 22 Litres to 178 Litres and above 200 Litres customized on request.

Lid fitted with Pressure gauge, safety valve, Pressure release valve, and drain valve at bottom.



Technical Specification

Models	LIT-VA-22	LIT-VA-35	LIT-VA-53	LIT-VA-75	LIT-VA-96	LIT-VA-178
Capacity in Litres	22	35	53	75	96	178
Inner Chamber Size Dia x H in mm	250 x 450	300 x 500	350 x 550	400 x 600	450 x 600	550 x 750
Load in KW	2.0	2.0	3.0	4.0	4.5	6.0
Temperature Range	121°C					
Temperature Resolution	0.1°C					
Controller	Microprocessor based, PID Digital Temperature Indicator with LED Display cum Controller (Optional: Microprocessor based LCD Display with 21CFR Part 11 Compliance Software)					
Sensor	PT 100					
Construction	Exterior: SS; Interior: Stainless Steel (External: Powder Coated Mild Steel - Optional)					
Power	Single Phase 230 V AC, 50 Hz / Three Phase 440 V AC, 50 Hz					

Micro PLC Controller and 21 CFR Part 11 Software

PC Software



Controller with Graphic Display

Printer Module



Equipment Name : Clavex Plus_112N94509803		Operator By : admin				
Print Date Time : 04-Feb-17 17:42:14		BATCH NAME : 20170204170804				
OPERATOR NAME : Not Logged in						
REMARK :						
STERILIZATION TEMPERATURE : 121 °C						
STERILIZATION HOLD TIME : 18 Min						
STERI_STOP TEMPERATURE : 120.5 °C						
STERI_RESET TEMPERATURE : 120 °C						
OVERSHOOT TEMPERATURE : 121 °C						
HOLD PRESSURE : 15 psi						
CONTROL BAND : 0.2 °C						
PRINT INTERVAL TIME : 15 Seconds						
DATE TIME	Control °C	Map1 °C	Map2 °C	Map3 °C	Map4 °C	Pressure (psi)
24-02-2017 17:06:54						
24-02-2017 17:06:55	120.2	120.2	OPDN	-1.0	OPDN	55.2
24-02-2017 17:06:55			---Air_Valve_Close---			
24-02-2017 17:06:55			---Sterilization_Start---			
24-02-2017 17:06:49	120.2	120.2	OPDN	-1.0	OPDN	55.2
24-02-2017 17:01:50	120.2	120.2	OPDN	-1.0	OPDN	55.2
24-02-2017 17:01:18	120.2	120.2	OPDN	-1.0	OPDN	55.2
24-02-2017 17:01:25	120.2	120.2	OPDN	-1.0	OPDN	55.2
24-02-2017 17:01:48	120.2	120.2	OPDN	-1.0	OPDN	55.2
---Air_Valve_Open---						
---Sterilization_End---						
ACTUAL F0 VALUE : 49.83						F0 VALUE : 49.83
Seq_Commands - Normal Stop						
Registered By	Approved By	Checked By				

Features

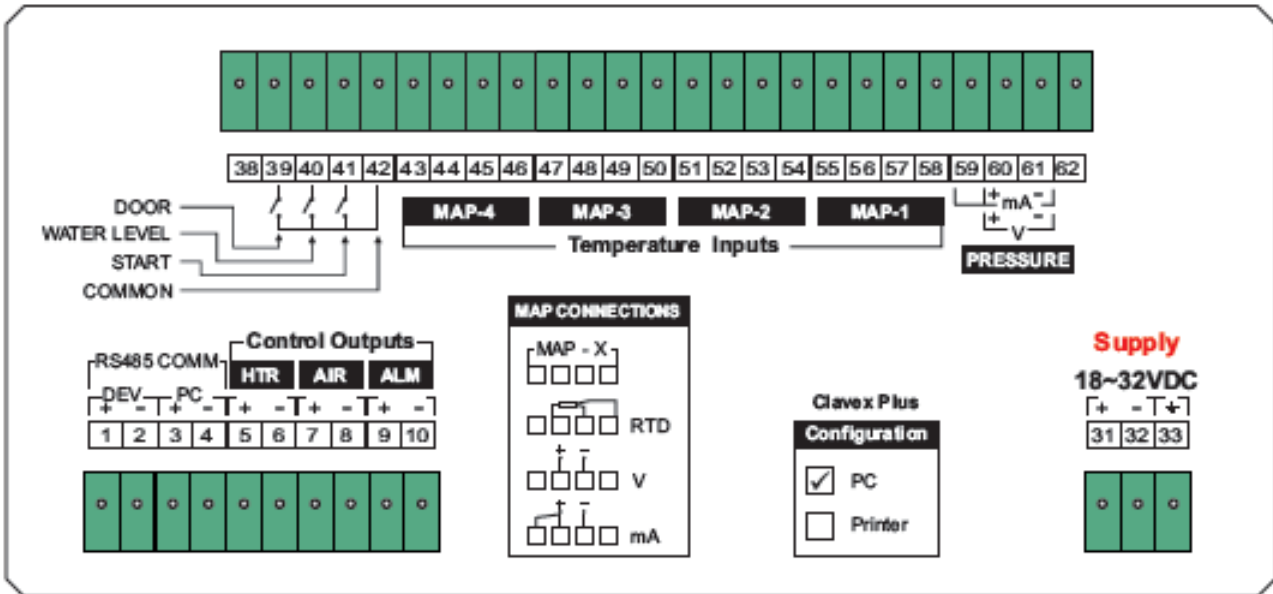
- 160 X 80 Monochrome Graphic Display for Comprehensive Process Information
- 4 Universal Temperature Inputs for Control & Mapping
- User Programmable Temperature Measurement Strategy (MAP-1 or Average of MAP-1 to MAP-4 or Min/Max of All Mappings)
- 1 Universal Input (mA / V) for Pressure Indication with Programmable Units (PSI, KG/CM², BAR & EU)
- Digital Inputs for Door Open & Low Water Level Detection
- Digital Outputs (SSR Drive) for Heating, Air Exhaust Valve and Alarm
- Programmable Sterilization Timer with Setpoints for Timer Pause & Reset
- Programmable Setpoint for Air Exhaust Valve Closing
- Automatic Cycle Abortion at High Temperature Safety Limit & Low Water Level
- Front/ Remote Sterilization Cycle Start Command
- F0 Value Calculation & Indication
- Programmable Cycle-End Strategy :
 - > Immediate upon End of Sterilization Time
 - > After Preset Temperature Drop from End of Sterilization
 - > After Preset Time Elapse from End of Sterilization
- In-built Huge Memory for Autoclave Cycle Data Recording with Settable Interval
- 21 CFR Compliance PC Software for Report Generation with User Programmable Company Name/Logo & Footer
- Optional Printer Interface Module for Direct Printout of Report on 80/132 Column Dot-Matrix Printer

Specifications

Display	
Graphic LCD	160 X 80 STN Monochrome
Keys	
Type	6 Tactile Switches
Functions	SCROLL UP PAGE DOWN START / STOP & ALARM ACK ENTER
Analog Inputs	
4 Temperature Inputs (Control & Mapping)	User Programmable (Common for all 4 Inputs) RTD Pt100, 3 wire DC Linear : 0-20 mA, 4-20 mA, 0-5 V, 0-10 V, 1-5 V
Strategy for Computing Temperature for Control	User Programmable <ul style="list-style-type: none"> • MAP-1 Temperature as Final Temperature • Average of MAP-1 to MAP-4 • Default MAP-1. If MAP-1 Sensor fails then Average of other MAPs • Min / Max of MAP-1 to MAP-4 for different Cycle States
Pressure Input	User Programmable : 0-20 mA, 4-20 mA, 0-5 V, 0-10 V, 1-5 V
Accuracy	RTD Pt100 : $\pm 0.25\%$ of reading $\pm 0.1^\circ\text{C}$ DC Volts/Current : $\pm 0.25\%$ of reading ± 1 LSD
Display Resolution	For Temperature : 0.1°C For Pressure User Programmable : 1 / 0.1 / 0.01 / 0.001
Zero Offset	User Adjustable over Full Range (Independent for Each Input)
ADC	16 Bit ($\pm 32,768$ Counts), Sigma-Delta ($\Sigma\Delta$)
Sampling Time	250mS (4 Samples per Second)
Common Mode Rejection	> 100dB at 50/60 Hz
Signal Conditioning	L-C Analog Filter on Each Input
Door Status Monitoring	
Input	Digital Input (Potential-free Contacts) from Door Switch
Action (Door Open)	Abort Running Cycle / Ignore Start Command & Alarm
Water Level Monitoring	
Input	Digital Input (Potential-free Contacts) from Float Switch
Action (Water Level Low)	Abort Running Cycle / Ignore Start Command & Alarm
Alarm System	
Process Alarm	High Temperature Safety Limit
Door Alarm	Alarm on Door Open
Water Level Alarm	Alarm on Water Level Low in Steam Generator
Audio Alert	In-Built Buzzer (Beeper)
Output	SSR Output (12 VDC @ 30 mA, Short - Circuit Protected)
Alarm Acknowledge	Front Panel Alarm Acknowledge (Mute) Key
Temperature Control Loop	
Type	ON-OFF
Control Parameters	Control Band (Hysteresis)
Output	SSR Drive (12 VDC @ 30 mA, Short - Circuit Protected)

Air Exhaust Control	
Type	On-Off
Control Strategy (Programmable)	<ul style="list-style-type: none"> Remains open till temperature reaches Air Outlet SP Closes after reaching Air Outlet SP until Cycle - End
Output	SSR Drive (12 VDC @ 30 mA, Short - Circuit Protected)
Data Recording	
Storage Device	In-built Micro SD Card (2 GB)
Recording Interval	User Programmable
Recording Data (Date/Time Stamped)	<ul style="list-style-type: none"> Process Values Mapping Temperatures & Pressure Events Start Command Air Valve Close Sterilization Start Air Valve Open Sterilization End Sterilization Reset Stop Command Change in Date/Time Settings Change in Recording Interval Change in Parameter Values Autoclave Door Open Fail Safe Low / High Alarm Final F0 Value
Power Supply	
Type	Switch Mode (SMPS)
Line Voltage	18 ~ 32 VDC, nominal 24 VDC @ 1A Min. Note : In case of looping multiple instruments on one power source, make sure that the source is capable of supplying minimum 1A current per instrument.
Consumption	5VA Max
Physical	
Mounting	Plug-in with Panel Mounting Clamps
Overall Dimensions	80 (H) X 160 (W) 144 (D)
Panel Cutout	78 (H) X 154 (W), mm
Terminals	3.5 mm Pitch, Pluggable Terminal Blocks
Environmental	
Operating Ambient	0~55°C & 5~90%RH Non-condensing
Storage Temperature	-10 to +70 °C
Atmospheres	Not Suitable for use in Corrosive or Explosive Atmospheres. The Panel in which the Instrument is Mounted must be free of Electrically Conductive Pollution.

Back Panel Terminations



PC Interface with 21 CFR Compliant Software

Supported Operating Systems (OS)	<ul style="list-style-type: none"> • Windows Vista • 32 bit / 64 bit Windows 8 • Windows 7 • 32 bit / 64 bit Pentium Dual Core
Minimum PC Configuration Requirements	<ul style="list-style-type: none"> • 2.8 GHz Clock Speed • 40 GB Hard Disk • 2 GB RAM

Printer Interface (Optional Add-on Device)

Controller Interface Port	RS485 Serial
Printer Interface Port	Centronix (Parallel Interface)
Printer Support	80/132 Column Dot-Matrix (EPSON LX-300-II or Equivalent)
Print Data	Well-Formatted, Date-Time Stamped Process value & Event Records (PC Tool for user Programmable Header & Footer)
Supply Voltage	10~30 VDC (24 VDC Nominal)



Sample Report:

Data Log Report

Equipment Name : Clavex_Plus_113N/34509893B
 Print Date Time : 24-Feb-17 17:42:14
 OPERATOR NAME : Not Logged In
 REMARK :
 STERILIZATION TEMPERATURE : 121 °C
 STERILIZATION HOLD TIME : 15 Min
 STER. STOP TEMPERATURE : 120.5 °C
 STER. RESET TEMPERATURE : 120 °C
 OVERSHOOT TEMPERATURE : 131 °C
 HOLD PRESSURE : 15 psi
 CONTROL BAND : 0.2 °C
 PRINT INTERVAL TIME : 15 Seconds

Reported By : admin
 BATCH NAME : 20170224170034

DATE TIME	Control °C	Map1 °C	Map2 °C	Map3 °C	Map4 °C	Pressure (psi)
24-02-2017 17:00:34			-----Start_Command-----			
24-02-2017 17:00:35	126.2	126.2	OPEN	-1.6	OPEN	55.2
24-02-2017 17:00:35			-----Air_Valve_Close-----			
24-02-2017 17:00:35			-----Sterilization_Start-----			
24-02-2017 17:00:48	126.2	126.2	OPEN	-1.6	OPEN	55.2
24-02-2017 17:01:03	126.2	126.2	OPEN	-1.6	OPEN	55.2
24-02-2017 17:01:18	126.2	126.2	OPEN	-1.6	OPEN	55.2
24-02-2017 17:01:33	126.2	126.2	OPEN	-1.6	OPEN	55.2
24-02-2017 17:01:48	126.2	126.2	OPEN	-1.6	OPEN	55.2
24-02-2017 17:02:03	126.2	126.2	OPEN	-1.6	OPEN	55.2
24-02-2017 17:02:18	126.2	126.2	OPEN	-1.6	OPEN	55.2
24-02-2017 17:02:33	126.2	126.2	OPEN	-1.6	OPEN	55.2
24-02-2017 17:02:48	126.2	126.2	OPEN	-1.6	OPEN	55.2
24-02-2017 17:03:03	126.2	126.2	OPEN	-1.6	OPEN	55.3
24-02-2017 17:03:18	126.2	126.2	OPEN	-1.6	OPEN	55.3
24-02-2017 17:14:18	126.2	126.2	OPEN	-1.6	OPEN	56.7
24-02-2017 17:14:33	126.2	126.2	OPEN	-1.6	OPEN	56.8
24-02-2017 17:14:48	126.2	126.2	OPEN	-1.6	OPEN	56.8
24-02-2017 17:15:03	126.2	126.2	OPEN	-1.6	OPEN	56.9
24-02-2017 17:15:18	126.2	126.2	OPEN	-1.6	OPEN	57
24-02-2017 17:15:33	126.2	126.2	OPEN	-1.6	OPEN	57
24-02-2017 17:15:38	126.2	126.2	OPEN	-1.6	OPEN	56.9
24-02-2017 17:15:38			-----Air_Valve_Open-----			
24-02-2017 17:15:38			-----Sterilization_End-----			
24-02-2017 17:15:38			ACTUAL FD VALUE : 49.83			
24-02-2017 17:15:38			Stop_Command - Normal Stop			

Registered By

Approved By

Checked By

For details, please contact:



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