

**USER'S OPERATING MANUAL FOR FAAC**  
**(Model: FAAC)**



**FAAC**  
(96 X 96)

**SPECIFICATIONS : -**

- 1. DISPLAY TYPE** : 16 x 2 Character LCD
- 2. STATUS LED'S** :
  - HEATER** : Heater Control Output Status
  - PURGING/EXHAUST** : Purg / Exhaust Output Status
  - EOC** : End Of Cycle Status
- 3. INPUT**
  - Temperature Input : RTD Pt-100
  - Resolution :  $\pm 0.1^{\circ}\text{C}$
  - Accuracy :  $\pm 0.3^{\circ}\text{C}$
  - Sampling Time : 125 msec.
  - LWC for Pt-100 : Built in up to 18E max.
  - Digital Filter : 1 to 10 Sec.
- 4. RELAY OUTPUT**
  - Contact type : N/O, COM
  - Contact Rating : 5A @ 250VAC or 30 VDC
  - Life expectancy : > 5,00,000 operations
  - Isolation : Inherent
- 5. SSR DRIVE OUTPUT**
  - Drive Capacity : 12V @ 30mA.
  - Isolation : Non-Isolated.
- 6. FUNCTION**
  - Output 1 : Heater output
  - Output 2 : Purg / Exhaust
  - Output 3 : Alarm Output
  - Control Action : ON-OFF/PID (Select)
- 7. ENVIRONMENTAL**
  - Operating Range :  $0 \sim 50^{\circ}\text{C}$ , 5~90% Rh
  - Storage Humidity : 95% Rh (Non-condensing)
- 8. POWER SUPPLY**
  - Supply Voltage : 90~270VAC, 50/60Hz.
  - Consumption : 4W Maximum.
- 9. PHYSICAL**
  - Housing : ABS Plastic

**INSTALLATION GUIDELINES**

1. Prepare the cut-out with proper dimension as shown in figure.
2. Remove clamp from Controller.
3. Push the Timer through panel cut-out and secure the Controller in its place by tightening the side clamp.

**SAFETY INSTRUCTION**

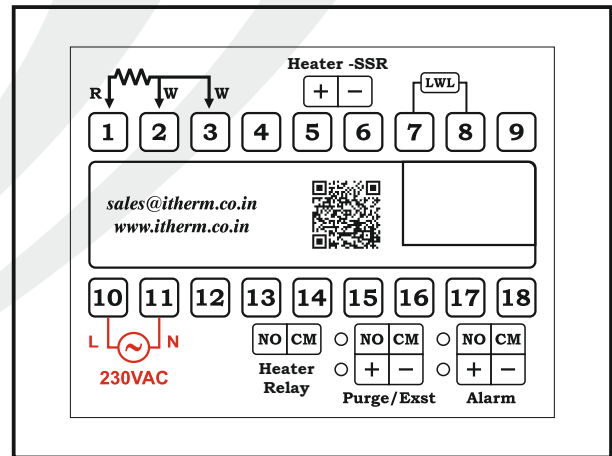
**MECHANICAL**

- ❖ Ambient temperature and relative humidity surrounding the Controller must not exceed the maximum specified limits.
- ❖ The Controller in its installed state must be protected against excessive electrostatic or electromagnetic interferences.

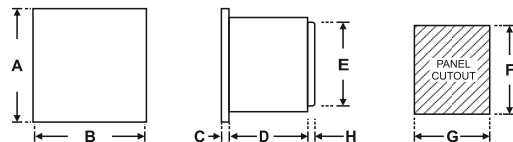
**ELECTRICAL**

- ❖ The Controller must be wired as per wiring diagram & it must comply with local electrical regulation.
- ❖ The Electrical noise generated by switching inductive loads might create momentary Fluctuation in display, latch up, data loss or permanent damage to the instrument. To reduce this use snubber circuit across the load.

**TERMINAL CONNECTIONS :**



**OVER ALL DIMENSIONS & PANEL CUT OUT (IN MM)**



Model	Dim	A	B	C	D	E	F	G	H
FAAC		96	96	10	45	89	92	92	9

## PROGRAMMING

**USER LIST :** To access the user list Press & Release MENU key once.

Parameter	Upper Display	Lower Display	Range	Description	Default
<b>Sterilization Temperature Setpoint</b>	STERI.TEMP. SP	121.0	0 ~ HSPL	This parameter sets the sterilization temperature. The instrument maintains the PV at this temperature for defined sterilization time set via soak time parameter in the USER list.	121 °C
<b>Sterilization Time</b>	STERI.TIME (MIN)	20	1 ~ 99	This parameter sets the sterilization time for the process. The instrument maintains PV at SP for this time.	20 min
<b>Purge Off Setpoint</b>	PURGE-OFF SP	99.0	0 ~ SP	This parameter sets the temperature at which Purge output (i.e. Output2) is deactivated.	99.0 °C
<b>Purge On Setpoint</b>	PURGE-ON SP	90.0	0 ~ SP	This parameter sets the temperature at which Purge output (i.e. Output 2) is activated after the START command is issued via front panel.	90.0 °C
<b>Exhaust Setpoint</b>	EXHAUST SETPOINT	105.0	0 ~ HSPL	This parameter set the temperature at which the Output 2 deactivates when cycle is over. Output2 works as a Purge output when cycle is in progress & works as an Exhaust output when cycle is over.	105 °C
<b>High Alarm Setpoint</b>	HIGH ALARM SET	125.0	0.0 ~ 150.0	This parameter sets the temperature at which alarm should occur. The Alarm output & End of cycle outputs are OR Ed together on Output3 of the controller. The user can connect DC buzzer on this output.	125 °C

## CONTROL LIST :

- (1) To enter in this mode press MENU & UP key simultaneously for 5 Sec.
- (2) Press UP or DOWN key to scroll between parameter options.
- (3) Press Enter key to Store the current parameter & move on to the next parameter.

Parameter	Upper Display	Lower Display	Range	Description	Default
<b>Proportional Band</b>	PROP. BAND	1.5	0.0 to 99.9°C	This parameter sets the bandwidth over which the output power is adjusted between minimum to maximum level depending upon the error (SV-PV). The proportional band is expressed in the same unit as PV. The value of this parameter is automatically set by Auto tuning function. If the value of this parameter set to 0.0 then instrument works as an on-off controller.	1.5 °C
<b>Control Hysteresis</b>	CNTL HYSTERESIS	0.2	0.1 to 100.0	This parameter will be prompted only if selected control action is On-Off (i.e Proportional band : 0.0 ). It sets the dead band between the On & Off switching of the output. The large value of hysteresis minimize the number of On-Off operations to the load. This increases the life of the actuators like contactors but also produces large errors.	0.2
<b>Integral Time</b>	INTEGRAL TIME	90	0 to 3600 Sec.	This parameter value expressed in seconds sets the time taken by the controller to remove steady state error signals. The value of this parameter is automatically calculated by auto tuning function. Integral action can be disabled by setting this parameter value to 0. This parameter is also referred as Reset as the integral action resets the proportional band per unit time in the direction that will remove any steady state error signals. Small integral times do not allow the process to respond to new output value. This causes over compensation & leads to an unstable process with excessive overshoot. Large integral time causes the slow response to steady state errors.	90
<b>Derivative Time</b>	DERIVATIVE TIME	15	0 to 300 Sec.	This parameter value expressed in seconds defines how strongly the controller will react to rate of change of PV. The value of this parameter is automatically calculated by Auto tuning function. High derivative time may cause the output to oscillate. Small derivative time causes decreased stability with higher overshoots.	15

Parameter	Upper Display	Lower Display	Range	Description	Default
<b>Cycle Time</b>	CYCLE TIME	16.0	1.0 to 100.0 Sec.	The value of this parameter depends upon the type of output being used for output1. For better control accuracy, cycle time should be kept much lower than the Integral time. For Relay output, the cycle time should be as large as possible in order to maximize relay life. For an SSR output, the cycle time may have a lower value to satisfy the requirement of the fast changing process.	16.0
<b>Purge Hysteresis</b>	PURGE HYSTERESIS	0.2	0.1 to 99.9	The value of this parameter defines the On-off differential for Purge off & Purge On set points.	0.2
<b>Soak End Time</b>	SOAK END TIME	0	0 to 180 Sec.	The value of this parameter sets the activation time for ALARM when SOAK TIMER is over. Setting this parameter to '0' will make ALARM output continuously ON at the end of SOAK time till USER starts next cycle.	0 Sec.
<b>Lock Code</b>	LOCK CODE	0	0 ~ 9999	Set this parameter to 77 (DEFAULT LOCK CODE) to access User List, Control List, Configuration List for 3 min.	0

### CONFIGURATION LIST :

- (1) To enter in this mode, Press and hold MENU & DOWN key simultaneously for 5 sec.
- (2) Press UP or DOWN key to scroll between parameter options.
- (3) Press Enter key to Store the current parameter & move on to the next parameter.

Parameter	Upper Display	Lower Display	Description	Default
<b>High Set Limit</b>	HIGH SET LIMIT	135.0	This parameter value sets the maximum limit for the Set point adjustments.	135.0 °C
<b>PV Offset</b>	PV OFFSET	0.0	The function of this parameter is to add/subtract a constant value to the measured PV to obtain the final PV for control applications. This parameter value can be altered to match the display value with another recorder or indicator measuring the same PV. This parameter value should be set with care since adjustment to this parameter affects calibration. Also there is no front panel indication when the parameter is set to non zero value.	0 °C
<b>Control Offset</b>	CONTROL OFFSET	0.0	The function of this parameter is to add/subtract a constant value to set SV to obtain final SP for control applications. This parameter value should be set with care since adjustment to this parameter affects control. Also there is no front panel indication when the parameter is set to nonzero value.	0.0
<b>Digital Filter</b>	DIGITAL FILTER	0.5	The controller is equipped with an adaptive digital filter which is used to filter out any extraneous pulses on the PV. The filtered PV value is used for all PV dependent functions. If the PV value is fluctuating too greatly due to noise, increase the filter time constant value.	0.5
<b>Control Output</b>	Control Output	RELAY ▼ ▲ SSR	User has to set this parameter very carefully in accordance with the output used. (Separate terminal for RELAY & SSR :- Refer electrical installation) Select Relay if LOAD is connected via contactor. Whenever user selects Relay, Cycle time will automatically set to 16 Sec. User can modify cycle time via Control List. Select SSR if LOAD is connected via SSR (DC voltage pulses). Whenever user select SSR, Cycle time will automatically set to 1 sec. User can modify cycle time via Control List.	RELAY
<b>Tunning</b>	TUNNING	DISABLE ▼ ▲ ENABLE	This parameter allows the user to lock auto tuning function when the process is already set. Setting this parameter to disable will lock the auto tuning function. This parameter allows the supervisory control over the operator level to protect the PID values against any accidental changes or unauthorized tampering.	ENABLE
<b>Control SP</b>	CONTROL SP	DISABLE ▼ ▲ ENABLE	This parameter allows the user to lock the control SP adjustments. For locking the control SP adjustments, set the parameter value to disable. This parameter builds the supervisory control above the user level to protect control SP value against any accidental changes or unauthorized tampering.	ENABLE
<b>Purge SP</b>	PURGE SP	DISABLE ▼ ▲ ENABLE	This parameter allows the user to lock the purge SP adjustments. For locking the purge SP adjustments, set the parameter value to disable. This parameter builds the supervisory control above the user level to protect purge SP value against any accidental changes or unauthorized tampering.	ENABLE
<b>Exhaust SP</b>	EXHAUST SP	DISABLE ▼ ▲ ENABLE	This parameter allows the user to lock the exhaust SP adjustments. For locking the exhaust SP adjustments, set the parameter value to disable. This parameter builds the supervisory control above the user level to protect exhaust SP value against any accidental changes or unauthorized tampering.	ENABLE

Parameter	Upper Display	Lower Display	Description	Default
Alarm SP	ALARM SP	DISABLE ▼ ▲ ENABLE	This parameter allows the user to lock the alarm SP adjustments. For locking the alarm SP adjustments, set the parameter value to disable. This parameter builds the supervisory control above the user level to protect alarm SP value against any accidental changes or unauthorized tampering.	ENABLE
Admin Lock	ADMIN LOCK	0	Set this parameter to 0 (Default LOCK CODE) to access Lock Code parameter. If this value is set to anything other than 0, all the parameters will be locked.	0

**AUTO TUNING MODE :** To enter in this mode, Press & hold UP & DOWN key for minimum 5 sec in the Run Mode.

Parameter	Upper Display	Lower Display	Description	Default
Auto Tuning Mode	TUNNING	NO ▼ ▲ YES	This function will be executed only if Auto Tune Mode is kept Enable in the CONFIGURATION LIST. Auto Tuning Function can be started by setting this parameter to 'YES'. The AT led continuously flashes till Auto tuning function is in progress. During Auto-tuning, Controller learns the process characteristics by itself & calculates required P,I & D values. User can cancel or abort this feature by setting this parameter to 'NO'.	NO



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