

HOTPACK

AN EXTRA DEGREE OF CONTROL

Hotpack LOVE Series Controller Operation and Setup Guide

This guide is intended for use as a guide only.
If you are not experienced with the controller you should NOT
attempt adjustments to the controllers operating parameters.

It will likely result in loss of control of the unit.

Table of Contents

- I. How to use the keys and displays**
- II. Error Codes**
- III. General Operation and Startup**
- IV. Changing Setpoint Values**
- V. Locking and Unlocking the Controller**
- VI. Changing Alarm Values**
- VII. Calibration**

I. How to Use the Keys and Displays

Upper Display	Normally indicates chamber temperature, CO2 or humidity condition. May also indicate the operating parameter value when working in PID menus or the presence of an open sensor.																								
Lower Display	Normally indicates the temperature or humidity setpoint. May also indicate the operating parameter being changed when working in PID menus, Percentage output or the applicable alarm code when in an alarm condition.																								
Index Key	Pressing the INDEX Key advances the display to the next menu item. May also be used in conjunction with the other keys as noted below.																								
UP Key	Increases or changes the value of the displayed parameter. A light touch increases the value by one. Holding the key down increases the value at a rapid rate.																								
DOWN Key	Decreases or changes the value of the displayed parameter. A light touch decreases the value by one. Holding the key down decreases the value at a rapid rate.																								
ENTER Key	Pressing ENTER stores the value or the item changed. If not pressed the previously stored value or item will be retained																								
UP Key and ENTER Key	Pressing these keys simultaneously for approximately three seconds brings up the Secondary Menu starting at the Auto/Manual selection. Pressing these keys for 5 seconds will bring up the Secure Menu.																								
INDEX and DOWN Key	Pressing these keys simultaneously will allow backing up one menu item, or if at the first menu item they will cause the display to return to the Primary Menu.																								
INDEX and ENTER Keys	<p>While pressing and holding the index and enter keys upon start-up the controller will go into the configuration mode, see chapter three for details. Pressing these keys simultaneously and holding them for 5 seconds allows recovery from the various error messages. The following menu items will be reset:</p> <table><tr><td>Lpbr</td><td>-</td><td>Loop break</td><td>SEnC</td><td>-</td><td>Sensor rate of change</td></tr><tr><td>ALIH</td><td>-</td><td>Alarm inhibit</td><td>OPEnInP</td><td>-</td><td>Open input error</td></tr><tr><td>bAd InP</td><td>-</td><td>Bad input error</td><td>ArEA</td><td>-</td><td>Area error</td></tr><tr><td>CHEC CAL</td><td></td><td>Check calibration</td><td></td><td></td><td></td></tr></table> <p>Correct the problems associated with the above conditions first before using these reset keys. More than one error could be present. Caution is advised since several items are reset at one time.</p> <p>While in the Primary or Secondary Menus, if no key is pressed for 30 seconds, the display will return to the HOME position displaying the chamber condition and setpoint values. The time is increased to 1 minute when in the Secure Menu.</p>	Lpbr	-	Loop break	SEnC	-	Sensor rate of change	ALIH	-	Alarm inhibit	OPEnInP	-	Open input error	bAd InP	-	Bad input error	ArEA	-	Area error	CHEC CAL		Check calibration			
Lpbr	-	Loop break	SEnC	-	Sensor rate of change																				
ALIH	-	Alarm inhibit	OPEnInP	-	Open input error																				
bAd InP	-	Bad input error	ArEA	-	Area error																				
CHEC CAL		Check calibration																							
SP1 Light	When lit, this LED indicates the control contacts for output one are being energized or de-energized from its normal operating condition.																								
Alarm Light	When lit, this LED indicates the process variable is outside the alarm band (process or deviation) Limit set in the secondary menu.																								
SP2 Light	When lit, this LED indicates the control contacts for output two are being energized or de-energized from its normal operating condition.																								
F Light	Indicates display is reading degrees Fahrenheit.																								

C Light

Indicates display is reading degrees Celsius.

II. Error Codes

DISPLAY	MEANING	SP1, SP2, and ALARM OUTPUTS	ACTION REQUIRED
UFL or OFL	Underflow or overflow, chamber condition has exceeded input range ends set by SCAL or SCAH.	Setpoint outputs active, alarms active.	Input signals may normally go above or below range ends. If not, check input and correct.
bAd InP OPEn InP	UFL or OFL will sequence to display one of the following error messages if the InPt is set for a time value: bAd InP or OPEn InP. For RTD, CURRENT or VOLTAGE inputs; input error has occurred. For THERMOCOUPLE inputs; thermocouple is open	Setpoint outputs inactive. Alarms active.	To reset use the INDEX and ENTER keys. When InPt (Input fault timer) has been set for a time, the outputs will be turned off after the set time. Setting the time to OFF causes the outputs to remain active, however UFL or OFL will still be displayed. Correct or replace sensor. To reset use the INDEX and ENTER keys.
LOOP bAd	The sensor may be defective, heater open or the final power output device is bad.	Setpoint outputs inactive. Alarms active.	Correct or replace sensor, or any element in the control loop that may have failed. To reset use the INDEX and ENTER keys, or PRESS the ENTER key while in the LPBr menu item.
SEnC bAd	Sensor rate of change exceeded the programmed limits set for SenC	Setpoint outputs inactive. Alarms active.	Check the cause. The value setting may be too slow for the process, or the sensor is intermittent. To reset use the INDEX and ENTER keys.
#### ArEA	Area appears if the controller's ambient temperature nears specification ends. -5C (+23F) - +50C (+122F)	Setpoint outputs active. Alarms active.	Correct the ambient temperature conditions. Ventilate the area of the unit or check for clogged filters.
(blank) ArEA	Area appears if the controller's ambient temperature nears specification ends. -10C (+14F) - +55C (+131F)	Setpoint outputs inactive. Alarms active.	Correct the ambient temperature conditions. Ventilate the area of the unit or check for clogged filters. To reset use the ENTER and INDEX keys.
CHEC CAL	Check calibration appears as an alternating message if the instrument calibration nears tolerance edges.	Set point outputs active. Alarms active	Remove the instrument for service and / or calibration. To reset use the INDEX and ENTER keys.
	Check calibration appears as a flashing message if the instrument calibration exceeds specifications.	Set point outputs active. Alarms active	
No displays lighted	Both displays are blank. Instrument may not be getting	Setpoints inactive Alarms inactive	Check that the power supply is on, or that the external fuses are good.

	power, or the supply voltage is too low.		
FAIL tEst	Fail test appears upon power up if the internal diagnostics detect a failure. This message may occur during operation if a failure is detected. Displays flash.	Set points inactive Alarms inactive	Press the INDEX key to display the following messages: FAcT dFL1: Memory may be corrupted. Press the ENTER and DOWN keys to start the factory default procedure. Re-check controller programming. bAdA-d: The A/D board is bad, return to factory. rEt FAcT: Can not recover from error, return to factory for service.
CHEC SCAL or CHEC SCAH	The difference between scale low and scale high is programmed for more than 11,998 or less than 100 counts during programming of the voltage or current ranges.	Setpoints inactive Alarms inactive	Program parameter within the allowed count range.
CHEC SP1, CHEC #SP1, CHEC SP1d, CHEC SP2, CHEC ALLo, CHEC ALHi, or CHEC CFSP	One or more of these messages will appear upon power up if any of these setpoints or differentials are set outside of the SPL or SPH values, or the range ends (SCAL or SCAH).	Setpoints inactive Alarms inactive	Check that each of the setpoints are within SPL, SPH range, or reprogram SPL and / or SPH values to be at or beyond the setpoints values found in error. Do not exceed the range ends (SCAL or SCAH).
CHEC SPL or CHEC SPH	This message appears at power up if SPL or SPH values are programmed above or below the range ends (SCAL or SCAH). This message also appears if one or more setpoints are set above or below SPL or SPH during normal programming.	Setpoints inactive Alarms inactive	Correct the SPL or SPH values by programming new values. CAUTION: The old values are retained when these messages appear during setpoint programming.
CHEC POL or CHEC POH	This message appears if the POL or POH values are incorrectly programmed.	Setpoints active Alarms inactive	Correct the POL or POH by programming new values.

CAUTION:

Electrical noise or a noise event, vibration or excess environmental moisture or temperature may cause errors to occur. If the cause of the error is not otherwise apparent, check for these.

III. General Operation and Startup

General Operation

When SP1 is lit the contacts for output one are either energized or de-energized from there normal condition, indicating that the controller is trying to achieve the set value. When the light is on constantly the process variable is outside the controlling parameters (proportional band) and the controller has an output of 100%. When the SP1 light is flashing the process variable is within the proportional band and is proportioning the output from the contacts. When there is a SP2, it usually is for an alarm condition and should not be changed from the factory setting.

Startup

Power ON

Place the power switch in the ON position. The controller displays will light, perform a self-test and the chamber fan will energize.

NOTE:

Under normal operating conditions, the actual chamber temperature or humidity condition is shown on the upper display; the chamber temperature or humidity setpoint is shown on the controller's lower display.

When the controller is in an alarm condition the appearance will be as follows.

- X AL Light flashes and SP1 Light flashes or is on steady. Upper Display value is less than the Lower Display. This is a Low Alarm condition
- X AL Light flashes. Upper Display value is more than the Lower Display. This is a High Alarm condition

IV. Changing the Setpoint Value

Using this step you may change the temperature, humidity or C02 setpoint.

To change the temperature, humidity or C02 setpoint, press the INDEX Key until SP1 appears in the Lower Display. Use the UP or DOWN Keys to set the desired value in the UPPER Display. Press ENTER to store the new Setpoint. (If you do not press ENTER, the display will return to the previously saved Setpoint value). Take care to enter only values within the designed operating range of the unit the controller is installed in.

NOTE:

Changing the Setpoint to a value outside the alarm band will activate the audible alarm and Alarm Light. The Alarm Light will stay ON until actual conditions return to within the factory set alarm band.

V. Locking and Unlocking the Controller

In order to change most of the controllers factory pre-set values, you must first unlock its security protection.

WARNING:

Changing factory pre-sets is not recommended and may result in operational failure. Chamber mal-function due to user misconfiguring of the controller is not covered under the warranty.

Unlocking

To unlock, proceed as follows:

1. Press and hold the UP and ENTER Keys until SECr appears (it will be the second screen change) in the Lower Display and the numerical lock value (it should be 2 if the controller was locked as it should be) appears in the Upper Display.
2. Release the UP and ENTER Key.
3. Press the UP or DOWN Key as needed to set the number 111 in the Upper Display and press ENTER. The number 4 should appear in the Upper Display. This will allow you to access all menu options. This menu contains user or technician programmable parameters (Calibration Offset, Deviation Alarms) as well as factory pre-set parameters (proportional band, reset/integral, etc.). Only those parameters outlined in the attached tables should be altered by the user or a person not thoroughly familiar with the unit. Operational malfunctions may result from changes in factory set parameters.

Locking

To return to normal operation, proceed as follows:

1. Press and hold the UP and ENTER Keys until SECr appears in the Lower Display and the numerical lock value (4 if the controller is in the unlocked condition) appears in the Upper Display.
2. Release the UP and DOWN Keys.
3. Press the UP or DOWN Key as needed to set the number 1101 in the Upper Display and then press ENTER. The number 2 should appear in the Upper Display.
4. The controller is now locked.

WARNING:

If you do not go back to SECr value 2, the security of the controller will be compromised. Factory set parameters can be inadvertently changed and operation mal-function can occur. If this happens, repairs are not covered by the warranty.

VI. Changing Deviation Alarm Values

In some applications the controller may not be set up to use both Low and High Deviation Alarms. In this case as you scroll through the menu choices you will not see the alarms which are not used.

NOTE:

For users attempting to change the pre-set alarm band, it is not recommended however if you must, the value entered is in the form of a deviation from setpoint such as +1 and -5 degrees. Do not attempt to enter a low and high alarm value using the actual low and high numerical values.

The controller permits the use of both Low and High Deviation Alarms. These are programmed via the Operation Menu.

CAUTION:

Pressing the UP and DOWN Keys simultaneously provides access to the Setup Menu. The values contained in this menu are also factory set and should not be changed or operational failure may result.

Change the LOW Alarm

1. Unlock the controller using the instructions in the previous section.
2. Press the UP and ENTER Key until Auto appears in the Lower Display.
3. Press the INDEX Key until ALLo appears in the Lower Display.
4. Press the UP or DOWN Key to program the number of degrees or percent humidity below the setpoint value that chamber conditions must fall to activate a deviation alarm. Press ENTER to store the new value.

NOTE:

This value should be the number or percent below setpoint, not the actual alarm value. For instance, if the setpoint is 60 degrees C and you desire the low alarm to sound at 55 degrees, the deviation alarm value should be set at -5 degrees not 55 degrees.

5. Relock the controller using the instructions in the previous section.

WARNING:

If you do not go back to SECr value 2, the security of the controller will be compromised. Factory set parameters can be inadvertently changed and operation mal-function can occur. If this happens, repairs are not covered by the warranty.

Change the HIGH Alarm

1. Unlock the controller using the instructions in the previous section.
2. Press the UP and ENTER Key until Auto appears in the Lower Display.
3. Press the INDEX Key until ALHi appears in the Lower Display.
4. Press the UP or DOWN Key to program the number of degrees or percent humidity above the setpoint value that chamber conditions must rise to activate a deviation alarm. Press ENTER to store the new value.

NOTE:

This value should be the number or percent above setpoint, not the actual alarm value. For instance, if the setpoint is 60 degrees C and you desire the low alarm to sound at 65 degrees, the deviation alarm value should be set at +5 degrees not 65 degrees.

4. Relock the controller using the instructions in the previous section.

WARNING:

If you do not go back to LOC value 2, the security of the controller will be compromised. Factory set parameters can be inadvertently changed and operation mal-function can occur. If this happens, repairs are not covered by the warranty.

VII. Calibrating the Controller

It may sometimes be necessary to change the Calibration Offset Value.

To calibrate the controller, place an accurate standard in the geometric center of the chamber and allow the chamber to stabilize at the setpoint value for a minimum of 30 minutes.

1. Unlock the controller using the instructions in the previous section.
2. Once the chamber has stabilized at the Setpoint (temperature or humidity, depending on the controller) press the UP and ENTER Keys until Auto appears in the Lower Display.
3. Press the INDEX Key repeatedly until InPC appears in the Lower Display.
4. Press the UP or DOWN Key to enter the difference between the controller readout and the actual chamber temperature or humidity according to the standard.
5. Press the ENTER Key to store the new value.

EXAMPLE:

If the controller readout is 55 degrees C and the actual chamber condition is 50 degrees C, a value of -5.0 degrees C must be entered.

6. Relock the controller using the instructions in the previous section.

WARNING:

If you do not go back to SECr value 3, the security of the controller will be compromised. Factory set parameters can be inadvertently changed and operation mal-function can occur. If this happens, repairs are not covered by the warranty.