



# FUSION-TEC™/LV1000 Free Cooling Unit System

## Quick Start Guide

The LV1000 controller and TEC-EYE™ hand-held diagnostic tool will both be used to set up the Bard Free Cooling Unit system. The TEC-EYE diagnostic tool is shipped inside the controller. Use password 1313. See FUSION-TEC/LV1000 System Installation Instructions 2100-674, FUSION-TEC Service Instructions 2100-670 or LV1000 Service Instructions 2100-673 if more information is needed.

### SYSTEM SET-UP

Set up and configuration must be done to each wall-mount unit using the TEC-EYE hand-held diagnostic tool. Use the LV1000 controller for the remaining steps.

**IMPORTANT:** *When working with circuit board components, Bard recommends the use of an anti-static wrist strap to prevent static electricity shorts to electronic controls.*

#### Address wall unit and select unit of measure (UOM) and economizer control type (TEC-EYE)

The address of the unit being looked at will be listed in the upper right hand corner on the status screen. The available addresses are 1-4.

1. Connect TEC-EYE™ to wall-mount unit.
2. Press MENU key to access the Main Menu screen.
3. Press UP or DOWN keys and ENTER key to enter password 1313.
4. Press UP or DOWN keys to scroll to **Sys Config**; press ENTER key.
5. Press UP or DOWN keys to scroll to **Unit Setup (A1)** screen.
6. Press UP or DOWN keys to change address to value between 1 and 4.

**NOTE:** *Each unit must have a unique address for the communication to work properly. Bard also recommends labeling each unit for ease in identification.*

7. Press ENTER key to save and scroll to **UOM**.
8. If desired, press UP or DOWN keys to change the value from **USA** to **SI, NC, LON, CAN** or **UK**. Units are preconfigured for each selection.
9. Press ENTER key to save and move the cursor back to the top left position.
10. Press DOWN key to navigate to **Economizer Setup (A2)** screen.
11. Press ENTER key to scroll to **Type**.
12. Press UP or DOWN keys to change economizer type to **None, Drybulb, Temperature and Humidity** or **Enthalpy**.
13. Press ENTER key to save and move the cursor back to the top left position.

#### Execute a run test on each unit to verify the equipment is functioning correctly (TEC-EYE)

1. Use UP or DOWN keys to scroll to **Run Test (A10)** screen.
2. Press ENTER key to scroll to **Run Test Enable** parameter.
3. Use UP or DOWN key to change value to **ON**. The run test will begin.

#### Run Test Approximate Timings (in Minutes)

- 0:00 • Blower starts.
  - Damper begins to open to damper test volts parameter. To verify damper operation, open unit side door. Inspect upper and lower blades.
- 2:30 • Damper closes. Compressor Stage 1 turns on. Condenser fan may also turn on depending on ambient conditions.
- 3:00 • Compressor Stage 2 turns on.
- 3:30 • Compressor turns off. Condenser fan turns off (if applicable).
  - Heat turns on.
- 4:30 • Heat turns off.
- 5:30 • Blower turns off.

#### Clear unit alarm logs

To clear the wall-mount unit alarm logs:

1. Press MENU key to go to the Main Menu screen.
2. Use UP or DOWN keys and ENTER key to enter password 1313.
3. Press UP or DOWN keys to scroll to **Settings**; press ENTER key.
4. Press UP or DOWN keys to scroll to **Initialization**; press ENTER key.
5. Press ENTER key to scroll to **Delete Alarm Logs?**
6. Press UP or DOWN key to value to **YES**; press ENTER key.
7. Press ESCAPE key several times to return to Main Menu screen.

After first unit has been set up and configured, follow the above steps to set up and configure the remaining units.

#### Set LV Controller Timezone and Date/Time (LV Controller)

1. Press MENU key to access the Main Menu screen.

2. Use UP or DOWN keys and ENTER key to enter password 1313.
3. Press the UP or DOWN keys to scroll to the **Settings** menu; press ENTER key.
4. Press UP or DOWN keys to scroll to **Date/Time** menu; press ENTER key.
5. Press UP or DOWN keys to scroll to **Timezone**; press ENTER key.
6. Press UP or DOWN keys to scroll through available timezones.
7. Press ENTER key to scroll to **Update Timezone**.
8. Press UP or DOWN key to change value to **YES**.
9. Press ENTER key to save and scroll to top of screen.
10. Press UP or DOWN keys to navigate to **Date/Time change**.
11. Press ENTER key to scroll to the desired value to be changed.
12. Press UP or DOWN keys to change the value.
13. Press ENTER key to save.
14. Press the ESCAPE key several times to return to Main Menu screen.

#### Configure Sensors (LV Controller)

The LV is capable of utilizing three temperature sensors and three humidity sensors. The controller must be configured to match the sensors for the shelter. The available sensors are **Indoor Humidity 1, Indoor Humidity 2, Indoor Humidity 3, Indoor Temperature 1, Indoor Temperature 2** and **Indoor Temperature 3**.

If necessary, the sensors could be calibrated at this time too. For information on calibrating the sensors, see page 41 in the manual 2100-674.

To enable/disable **Indoor Humidity 1**:

1. Press UP or DOWN keys to scroll to **IO Config**; press ENTER key.
2. Press UP or DOWN keys to scroll to **Indoor Hum 1 (C3)**.
3. Press ENTER key to scroll to **Enable**.
4. Press UP or DOWN key to change value to ON to enable sensor (or change value to OFF to disable sensor).
5. Press ESCAPE key until back at **IO Config**; press ENTER key.

Enable/disable the remaining sensors using the same steps as listed above.

See LV1000 Service Instructions manual 2100-673 for information on setting up the smoke, hydrogen and power loss relays (if applicable).

#### Enter total units (LV Controller)

1. Press MENU key to go to the Main Menu screen.


2. Use UP or DOWN keys and ENTER key to enter password 1313.
3. Press UP or DOWN keys to scroll to **Sys Config**; press ENTER key.
4. Press ENTER key to scroll to **Total Units**.
5. Press UP or DOWN keys to adjust value to correct number of units.
6. Press ENTER key to save.
7. Press ESCAPE key until back at Main Menu.

#### Verify units are online (LV Controller)

Once a unit is uniquely addressed, communication can be verified at the LV controller.

With the correct number of units set at the LV controller, each unit can be remotely viewed from the LV controller information screen.

To view these screens:

1. Press ESCAPE key to view the Status screen. (May need to be pressed more than once.)
2. Press UP or DOWN key until the Quick Menu in the lower right corner of the screen displays the Information icon (  ); press ENTER key.
3. Press UP or DOWN keys to scroll through the Information screens until the desired unit Information screen appears. Three Info screens are available for each unit. Unit serial number and model number and 24-hour run time information can also be viewed on these screens.

In addition to being able to remotely view the units, an alarm will be generated on the LV controller for units not communicating.

#### Clear Controller Alarm Logs (LV Controller)

To clear the LV controller alarm logs:

1. Press MENU key to go to the Main Menu screen.
2. Use UP or DOWN keys and ENTER key to enter password 1313.
3. Press UP or DOWN keys to scroll to **Settings**; press ENTER key.
4. Press UP or DOWN keys to scroll to **Initialization**; press ENTER key.
5. Press ENTER key to scroll to **Delete Alarm Logs?**
6. Press UP or DOWN key to value to **YES**; press ENTER key.
7. Press ESCAPE key several times to return to Main Menu screen.

Once all the installation steps have been completed, all alarms and alarm logs have been cleared and system verification and run test results were satisfactory, the installation can now be considered “complete”.