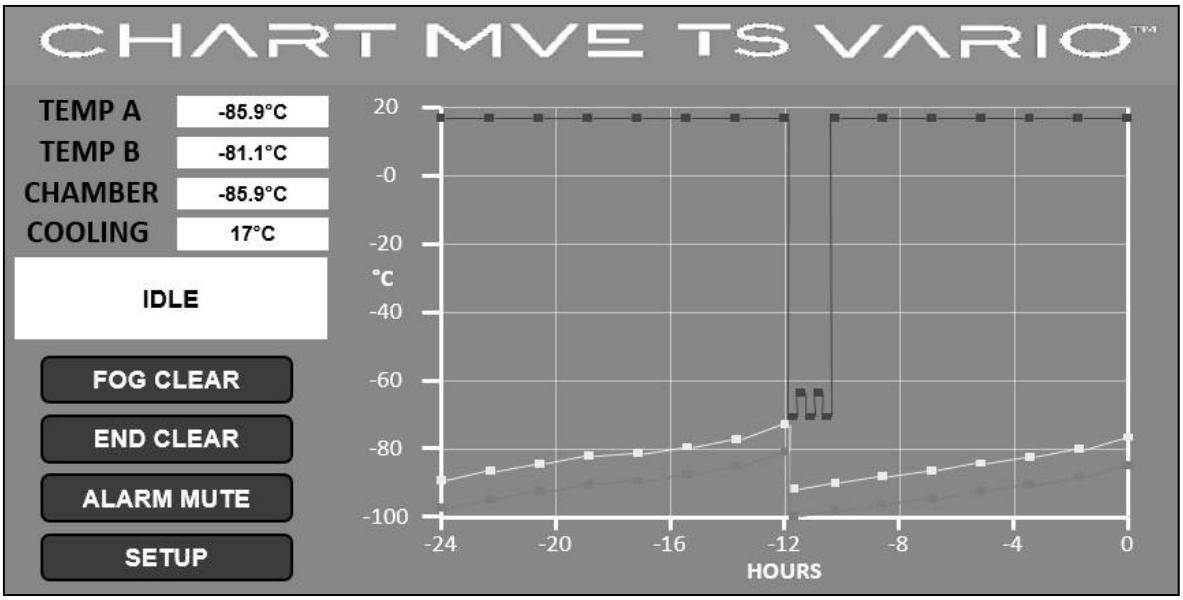
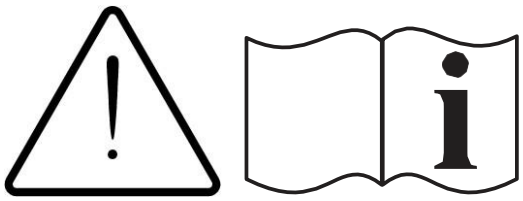
MVE Vario™ TS Controller

(Touch Screen)





Quick Reference Guide

MVE Vario TS Quick Reference Guide

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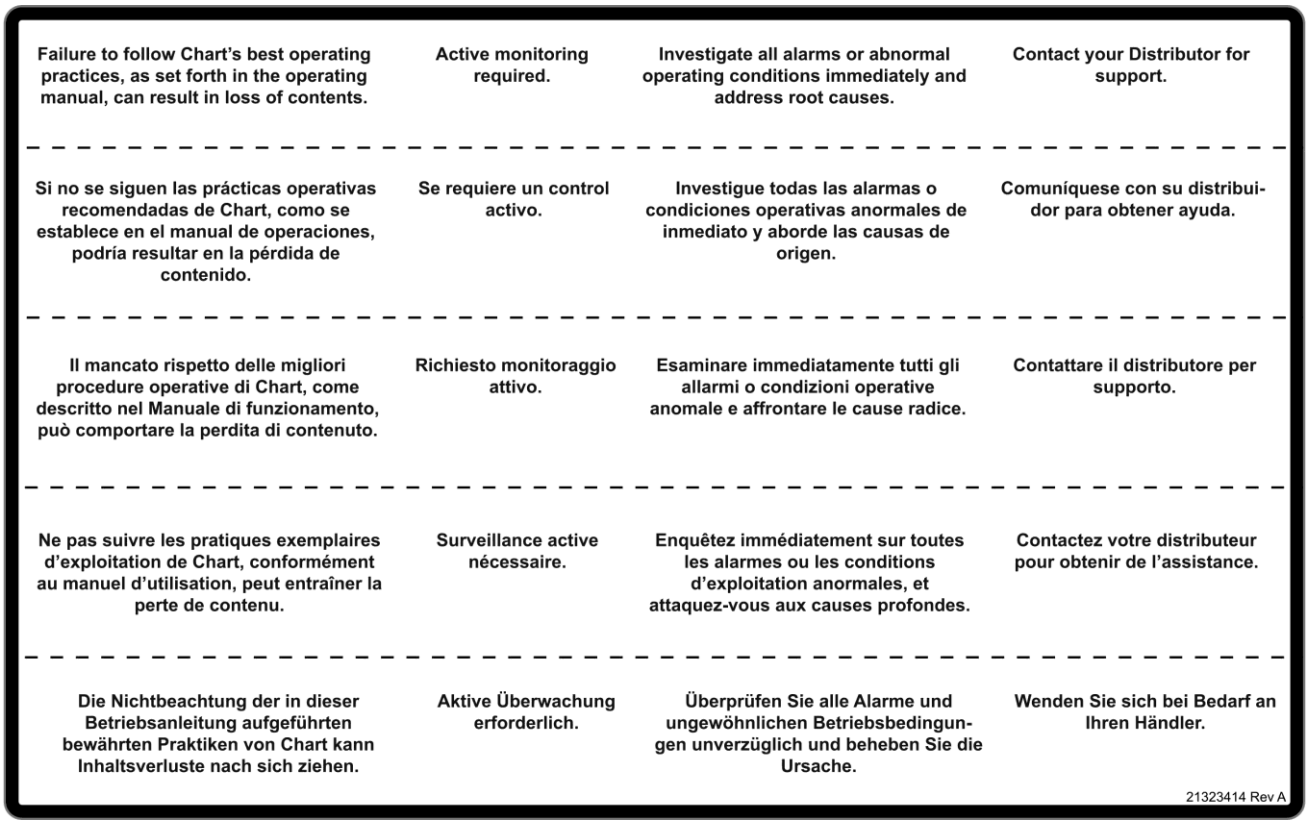

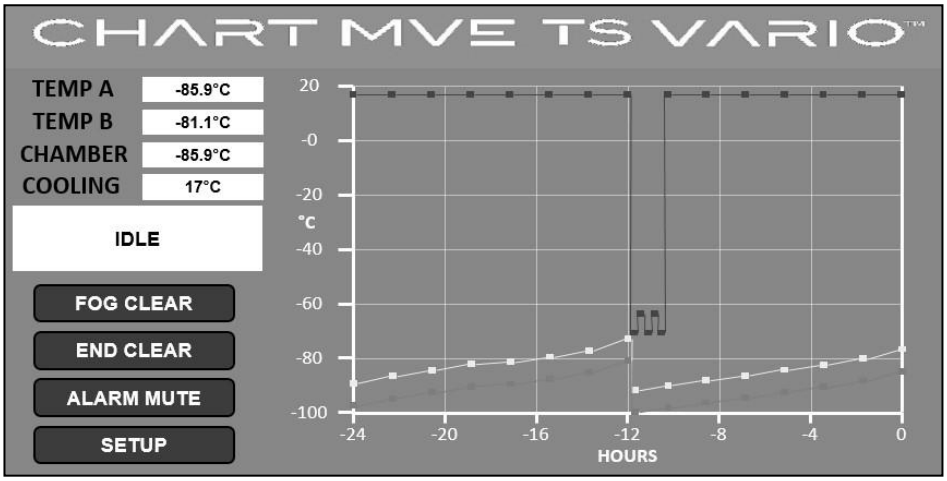

Table 1: Front Panel Identification

Display	6” touchscreen, backlight
Freezer Status	Displays “IDLE”, “BYPASSING”, or “COOLING” based on the current freezer status
FOF CLEAR Key	Used to manually clear the fog from the storage area to increase visibility
END CLEAR Key	Used to manually terminate the fog clearing process
ALARM MUTE Key	Used to silence the audible alarm. Will reset the latching alarm once it has been corrected
SETUP Key	Used to access Setup Menus and parameters
Trend Graph	Visual X,Y graph parameter adjustable days and cooling temperature

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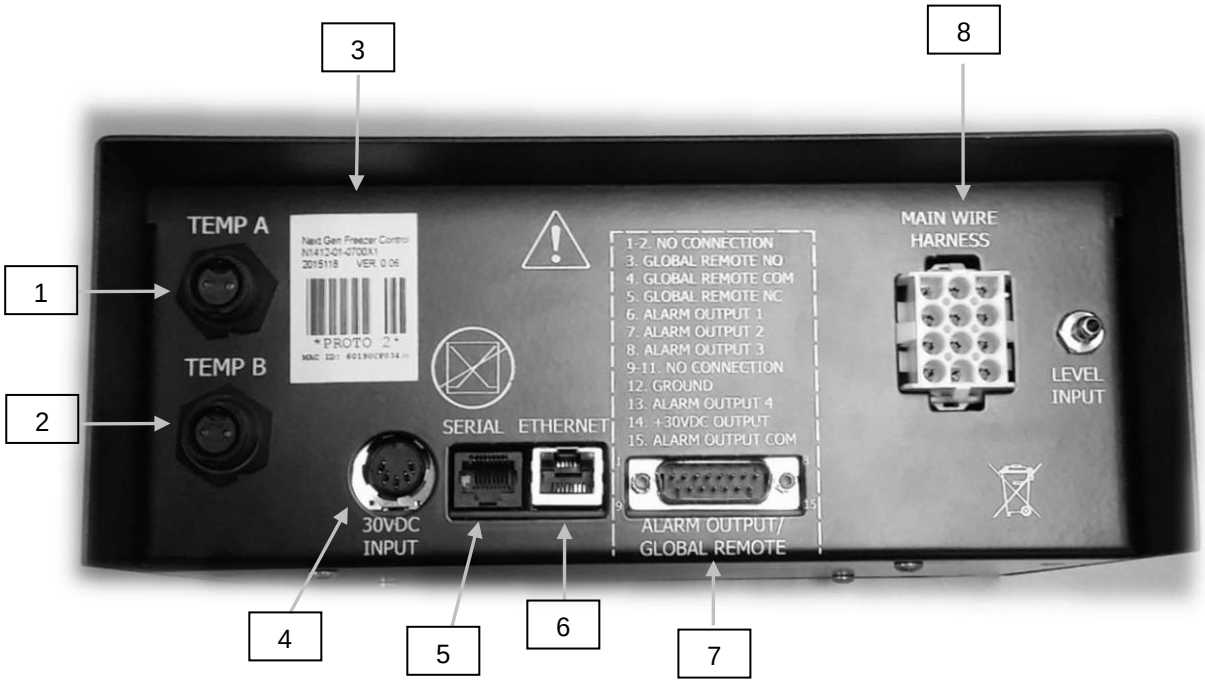
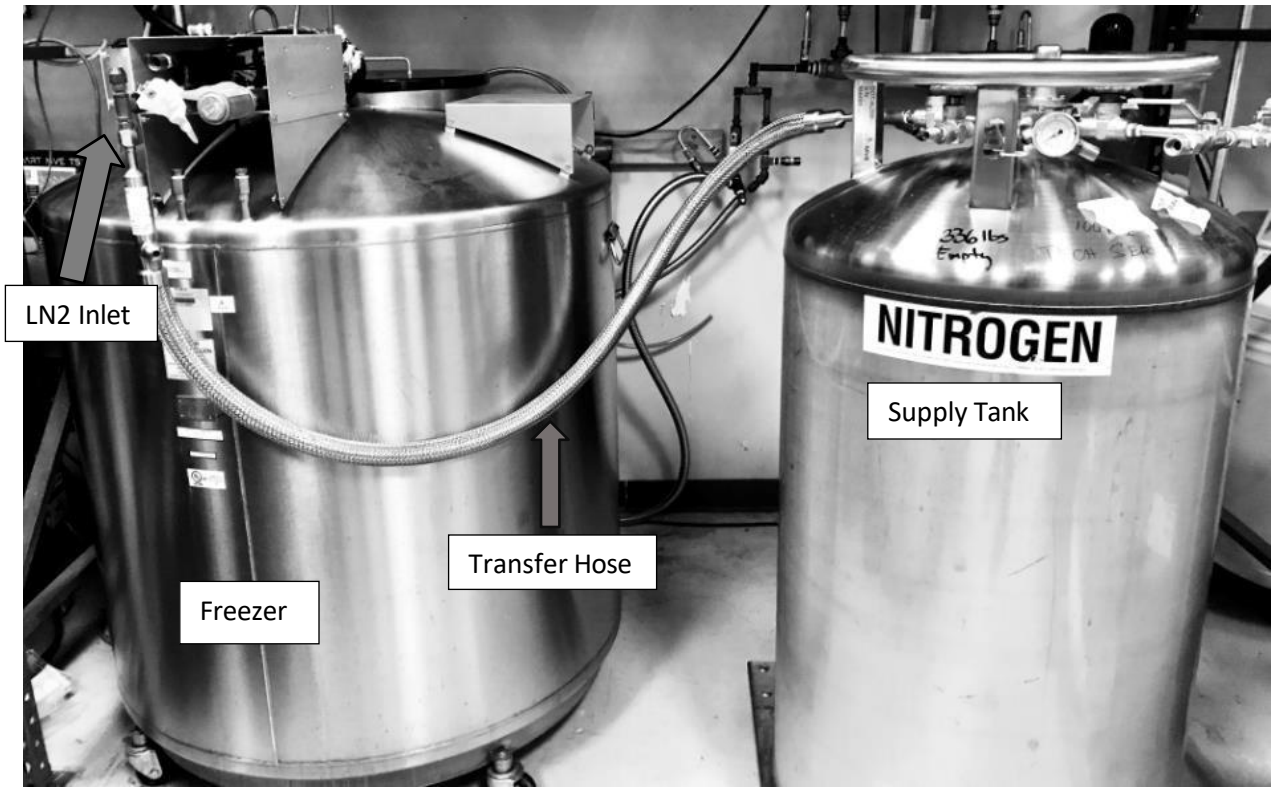


1	Temp A Port	Connection for Temp A probe
2	Temp B Port	Connection for Temp B probe
3	Serial Number Barcode	Chart TS serial number written below barcode
4	30 VDC Power Input	Main power supply connection
5	Serial Port	RJ-45 connection for Serial/COM
6	Ethernet Port	Ethernet connection for networking
7	Global/Discrete Alarm Dry Contacts	Output connection for the remote monitoring of alarm conditions
8	Wire Harness Connection	12-pin wire harness connection to plumbing assembly, lid switch, and battery backup

Dewar Plumbing Connections

Connect a transfer line (included with freezer) from an LN2 supply tank to the fill connection at the rear of the freezer. Optimum supply tank pressure is 22 to 35 psi (1.5 to 2.4 bar). Although the plumbing assembly has a 50 psi (3.45 bar) pressure relief device, it is recommended that the supply tank be pressurized below 35 psi (2.4 bar) to reduce the LN2 "flash-off" rate during filling and to maximize the cryogenic valve life. The supply line can be insulated to minimize LN2 transfer losses. After the transfer hose is securely coupled to the freezer and supply tank, ensure all connections are leak free by opening the valve of the LN2 supply tank and apply a soap and water solution to each field joint. You should not see bubbles forming at any joint. Wipe away excess soap and water when finished. Before removing the transfer hose, ensure the LN2 supply tank valve is closed. Slowly and carefully loosen the transfer hose connection to vent any remaining pressure in the line before disconnecting the hose.



Adjusting Temperature A & B and Inlet Alarm Settings

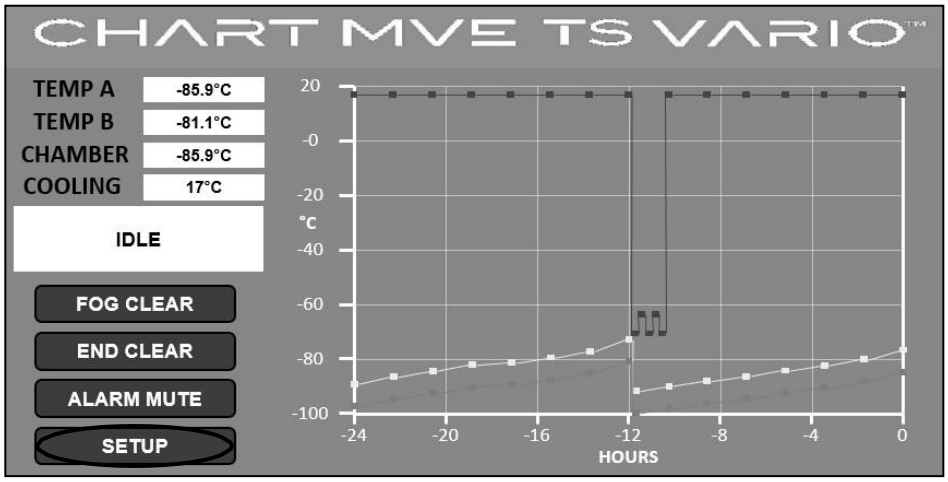
The following section describes how to adjust temperature alarm settings. At any time during the following procedure, the user may exit the menu by pressing the “EXIT” button to return to the “monitor” display mode. After 60 seconds of inactivity, the controller will automatically return to the “monitor” display mode.

NOTE: Security Level 2 or higher is required to adjust temperature settings (see “Password and Security Setup” section for details).

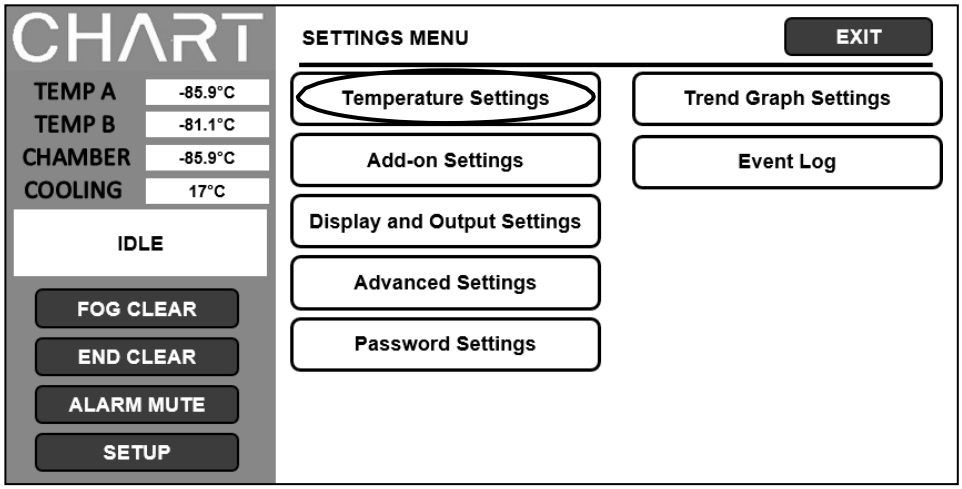
To exit any menu screen and return to the previous menu, press “<” key.

1. Press “Setup”

Controller may prompt for a password. Type in the password using the number pad that appears and press “Enter”.

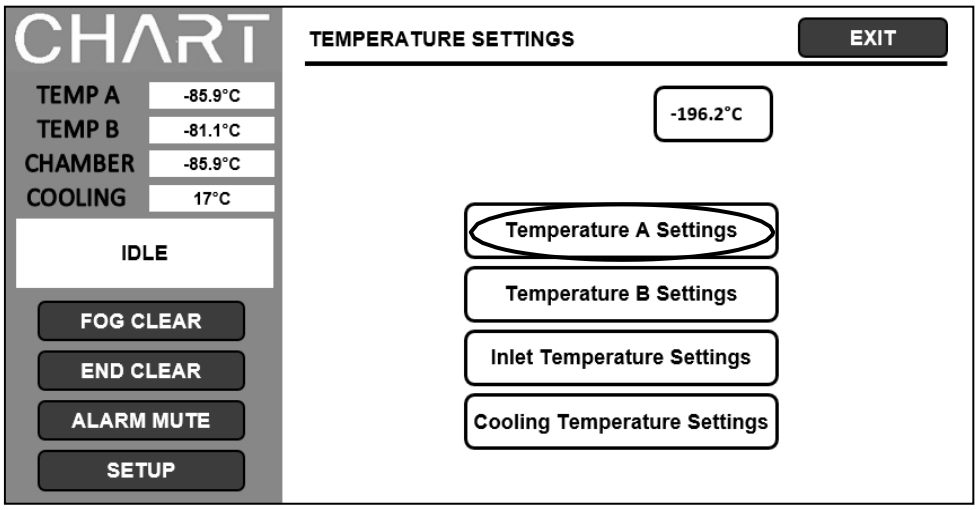


2. Press “Temperature Settings”



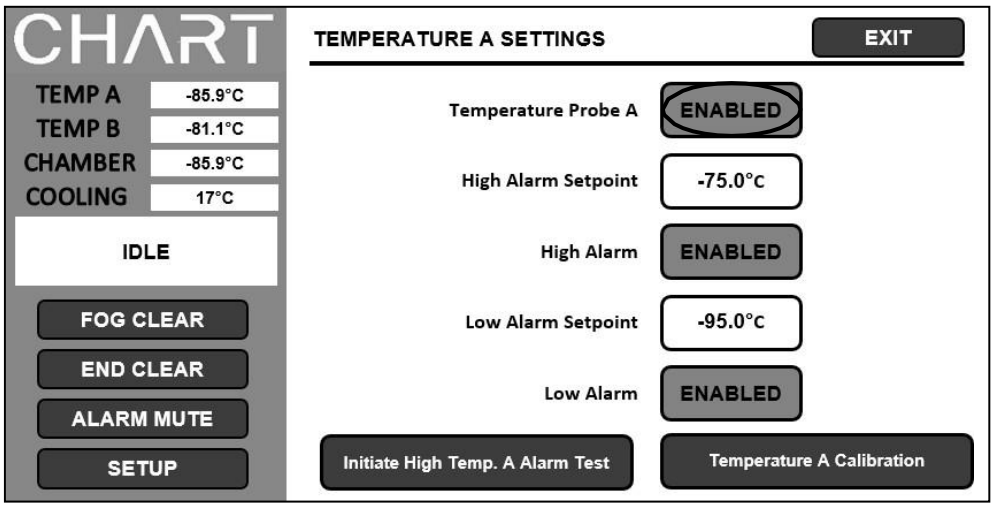
3. Press “Temperature A Settings”

NOTE: To access Temperature B Settings select “Temperature B Settings” instead.



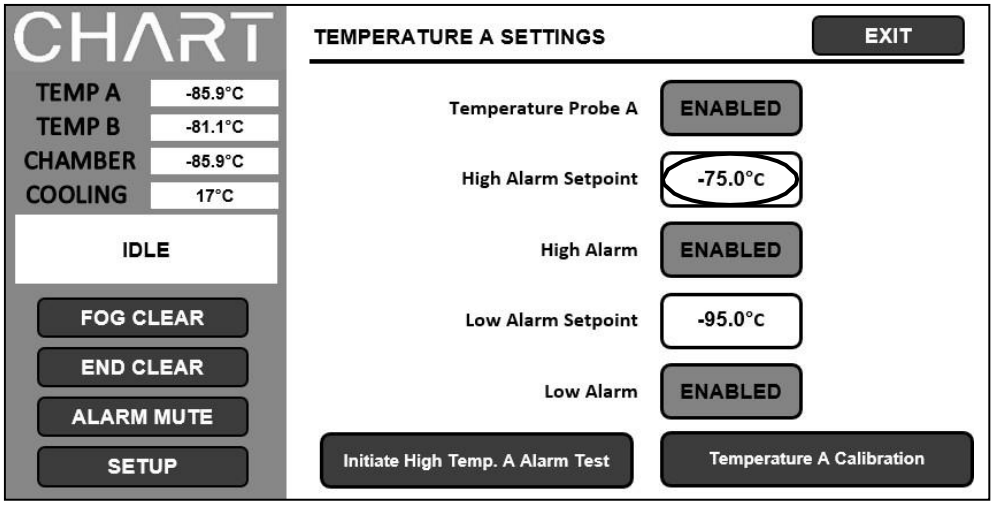
4. Press “ENABLED” or “DISABLED” next to “Temperature Probe A”

This will enable or disable the selected temperature probe. Pressing “ENABLED” will change the probe status to “DISABLED” and pressing “DISABLED” will change the probe status to “ENABLED”.



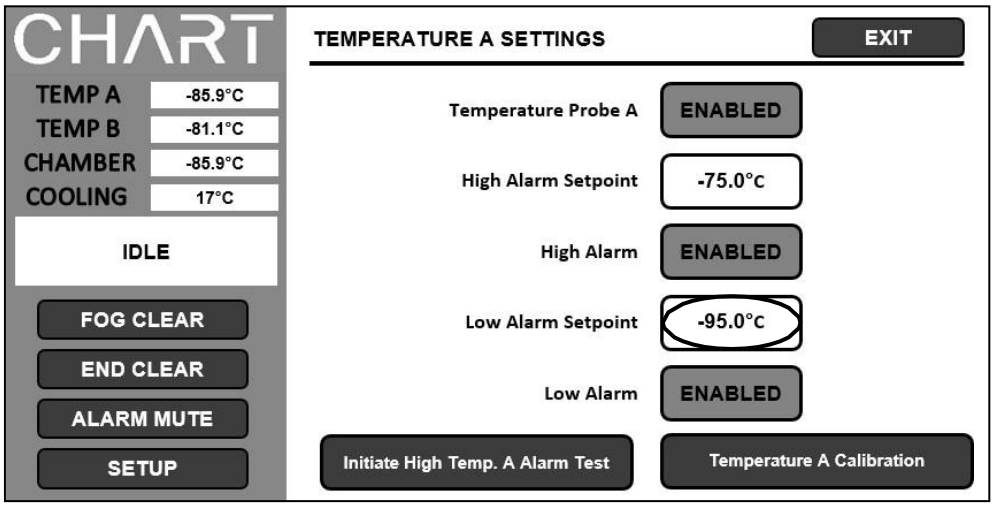
5. Press the value displayed next to “High Alarm Setpoint”

The number pad will be displayed once the value to be adjusted is selected. Type in a new value for the High Alarm Setpoint using the number pad that appears on screen and then press “Enter” to save the new value. Be sure to include “-“ when entering negative values.



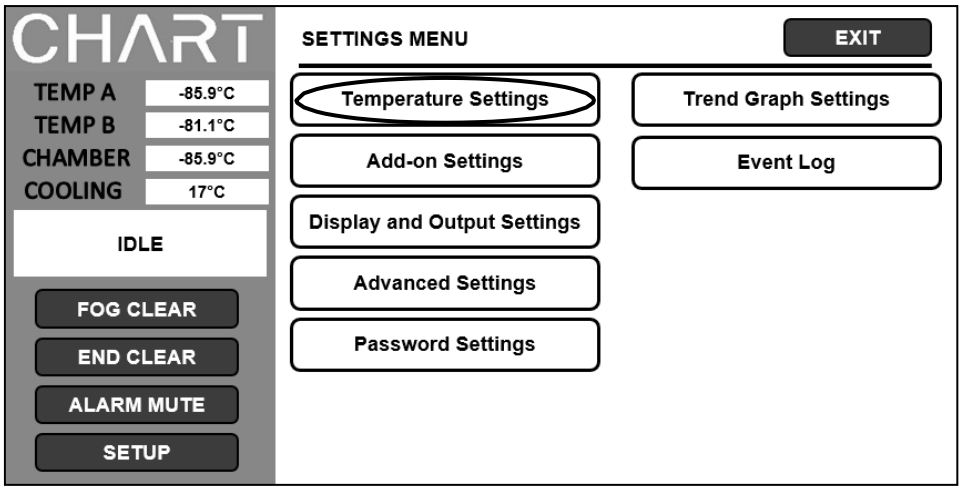
6. Press the value displayed next to “Low Alarm Setpoint”

The number pad will be displayed once the value to be adjusted is selected. Type in a new value for the Low Alarm Setpoint using the number pad that appears on screen and then press “Enter” to save the new value. Be sure to include “-“ when entering negative values.

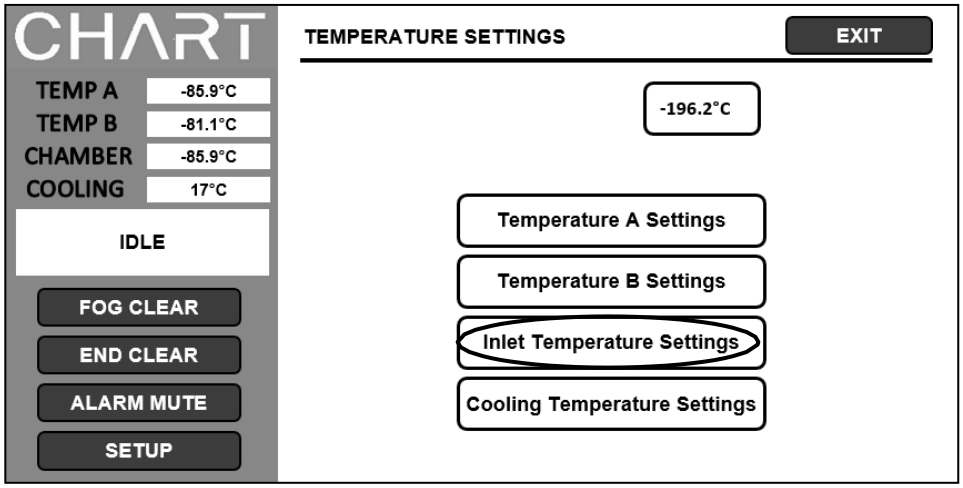


Adjusting Inlet Temperature Settings

1. **Press "Temperature Settings"**

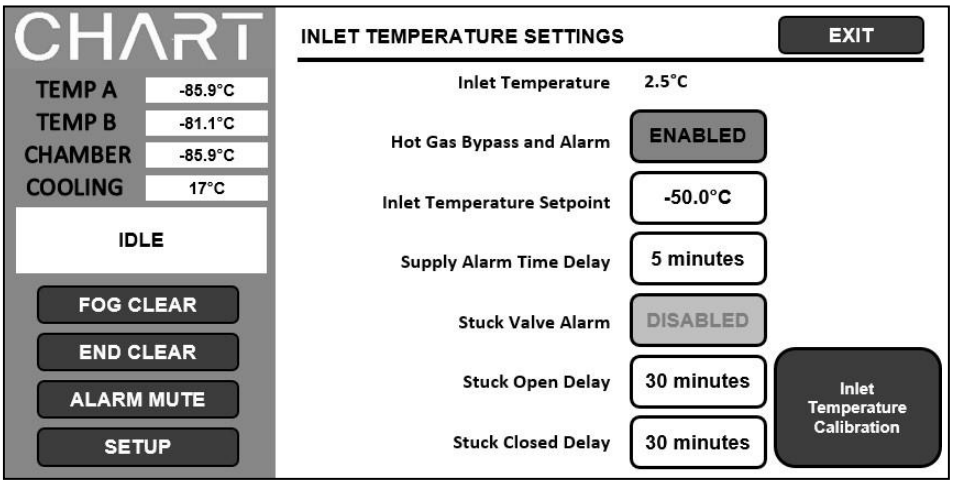


2. **Press "Inlet Temperature Menus"**



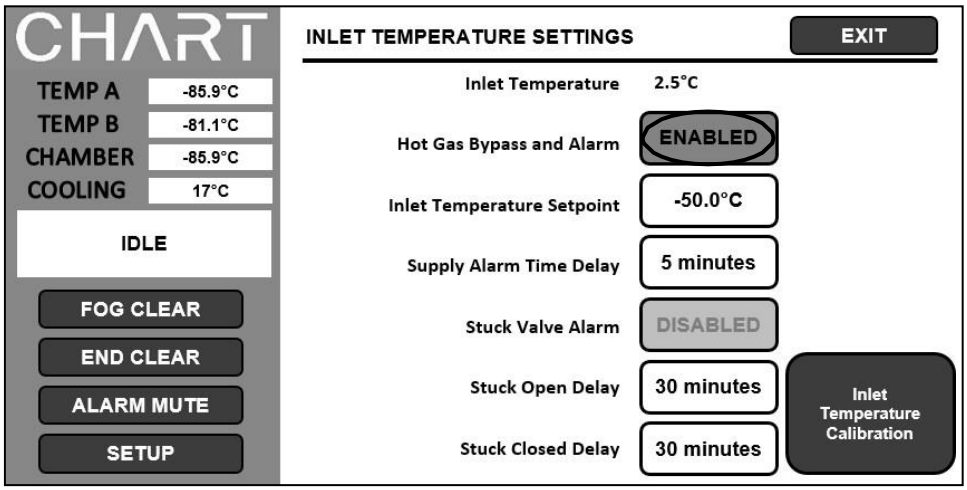
3. The current Hot Gas Bypass settings will be displayed

The current inlet temperature is displayed, along with the hot gas bypass setpoints.



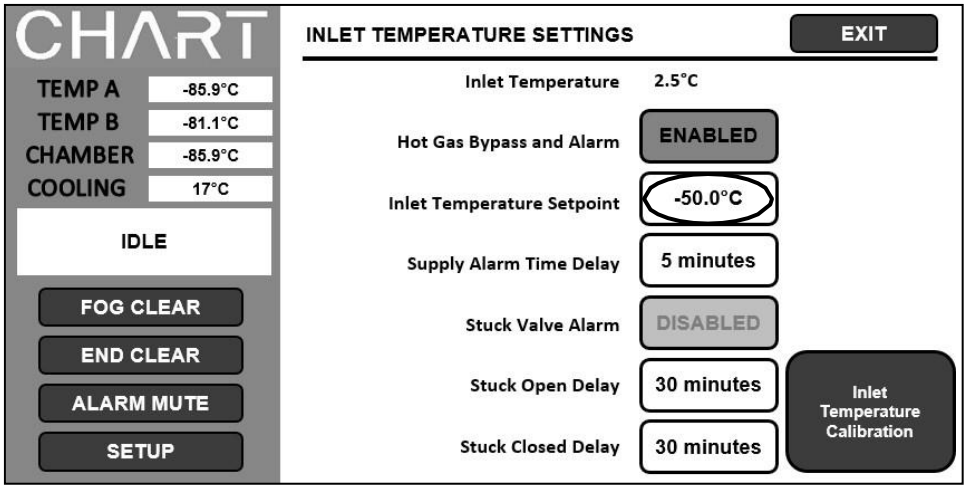
4. Press “ENABLED” or “DISABLED” next to “Hot Gas Bypass and Alarm”

This will enable or disable the Hot Gas Bypass feature. Pressing “ENABLED” will change the hot gas bypass status to “DISABLED” and pressing “DISABLED” will change the hot gas bypass status to “ENABLED”.



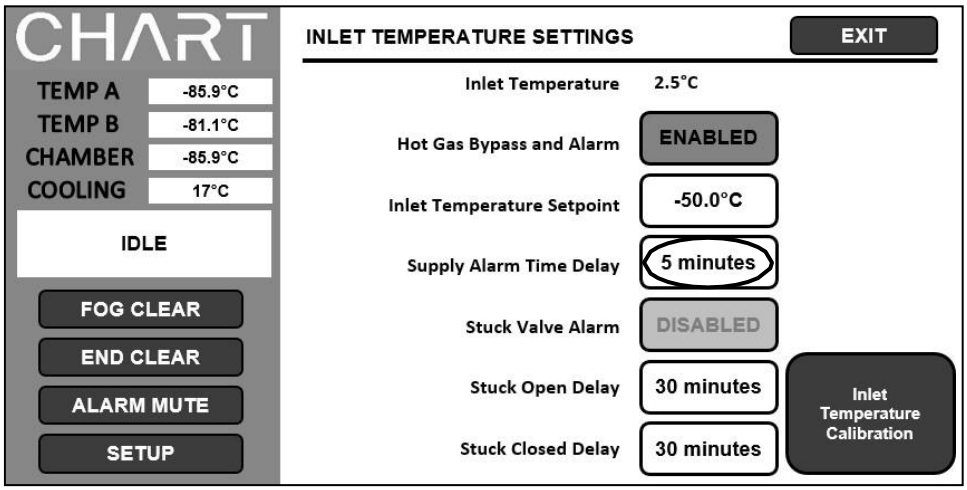
5. Press the value displayed next to “Inlet Temperature Setpoint”

The number pad will be displayed once the value to be adjusted is selected. Type in a new value for the inlet temperature setpoint (if desired) using the number pad that appears on screen and then press “Enter” to save the new value.



6. Press the value displayed next to “Hot Gas Bypass Alarm Delay”

The number pad will be displayed once the value to be adjusted is selected. Type in a new value for the hot gas bypass alarm delay (if desired) using the number pad that appears on screen and then press “Enter” to save the new value.



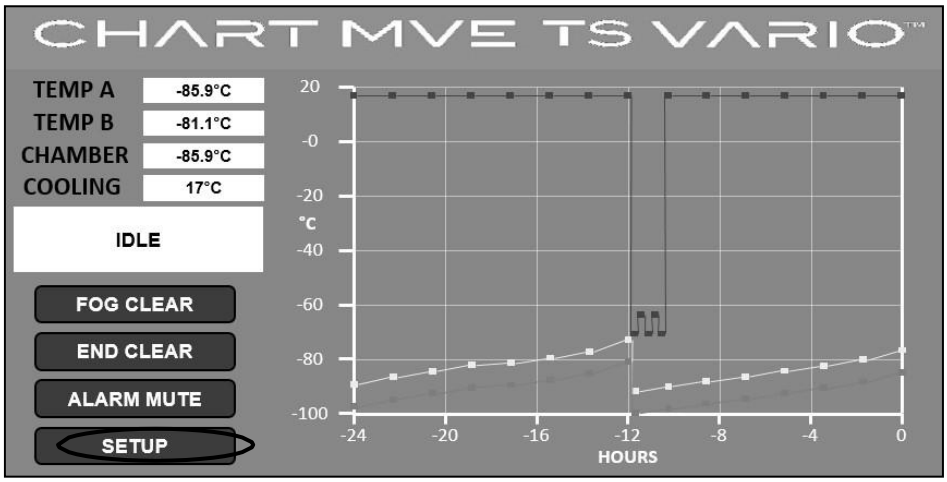
Adjusting Display and Output Settings

The units of measurement displayed by the MVE TS may be adjusted to accommodate the needs of the user. Temperature measurement may be displayed in Kelvin (K), degrees Celsius (°C), or degrees Fahrenheit (°F).

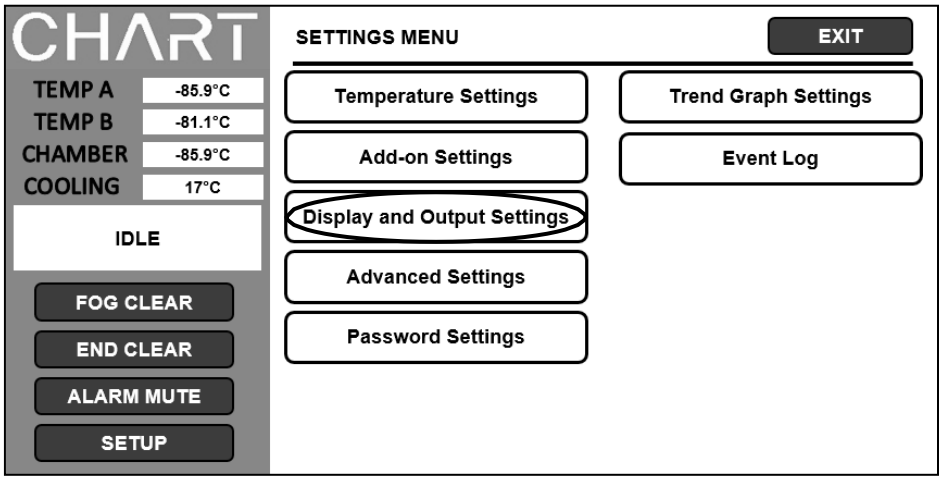
NOTE: Security Level 1 is required to adjust the display and output settings (See "Password and Security Setup" section for details).

1. Press "Setup"

Controller may prompt for a password. Type in the password using the number pad that appears and press "Enter".

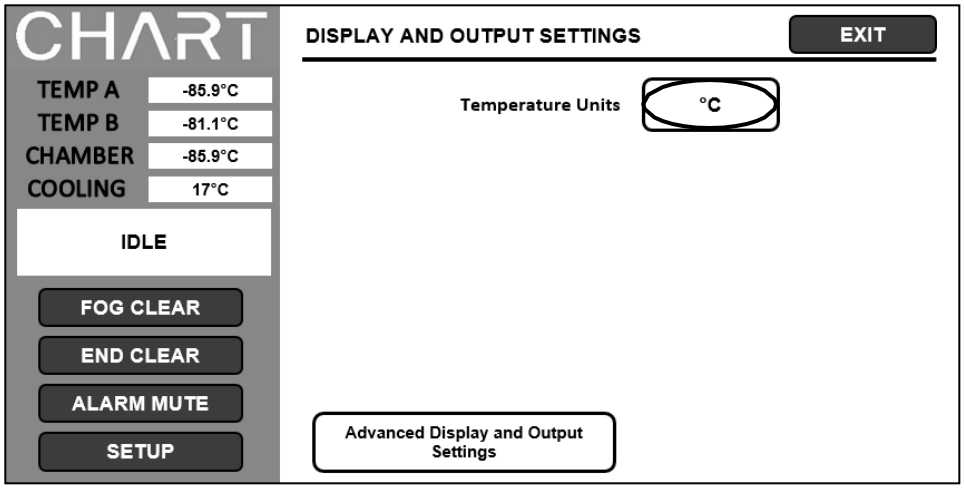


2. Press "Display and Output Settings"



3. Press the units displayed next to “Temperature Units”

Press the “°C”, “°F”, or the “K” option for “Temperature Units”.



Password and Security Setup

The MVE TS can store up to 10 different passwords. Each password can be assigned its own security level ranging from Level 1 to Level 4. Table 3 below shows which settings can be changed with each security level. A security level of 4 is required to adjust any password. The default (or "Global") password for the MVE TS is "3456". All parameters may be adjusted by using this password. Record all passwords and security settings and store in a safe place. NOTE: MVE recommends changing the global password, as it is common to all units. If the global password has been forgotten, contact MVE Customer Service for details on how to reset passwords.

Table 3: Security Levels and Definitions

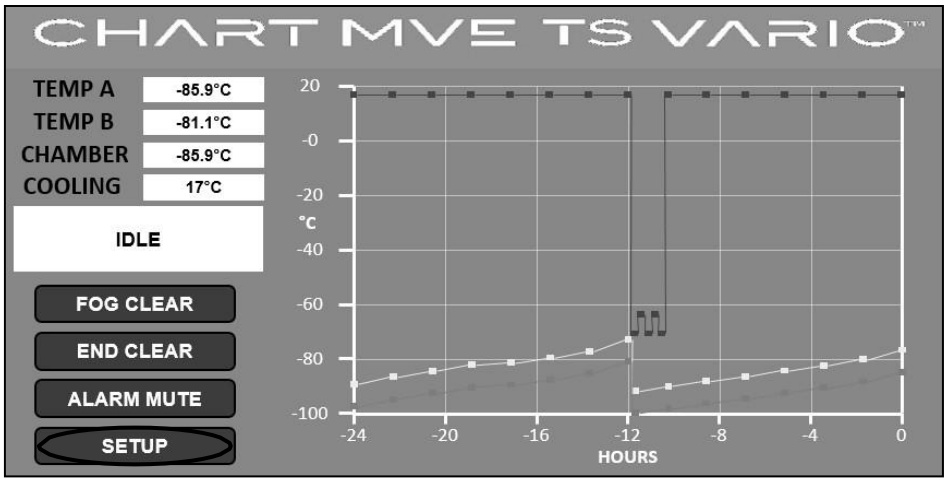
FEATURE	LEVEL 1	LEVEL 2	LEVEL 3	LEVEL 4
Fog Clear	X	X	X	X
End Clear	X	X	X	X
Alarm Mute	X	X	X	X
Change Display Units	X	X	X	X
Temp Settings		X	X	X
Time/Date		X	X	X
Calibration Probes		X	X	X
Change Languages		X	X	X
Hot Gas Bypass Settings		X	X	X
Communication Settings			X	X
Programming			X	X
Password Settings				X

This section details how to enable / disable password entry mode as well as how to change and setup multilevel security passwords.

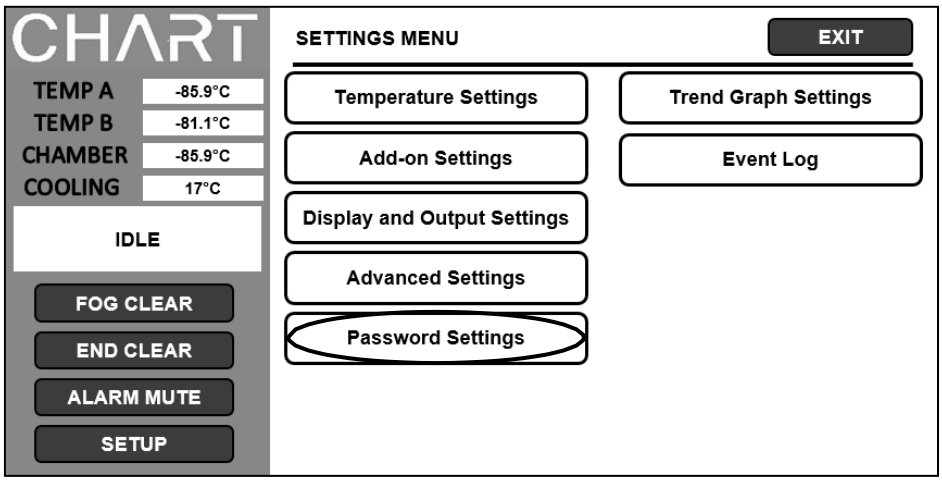
NOTE: Security Level 4 is required to setup or change passwords.

1. Press “Setup”

Controller may prompt for a password. Type in the password using the number pad that appears and press “Enter”.

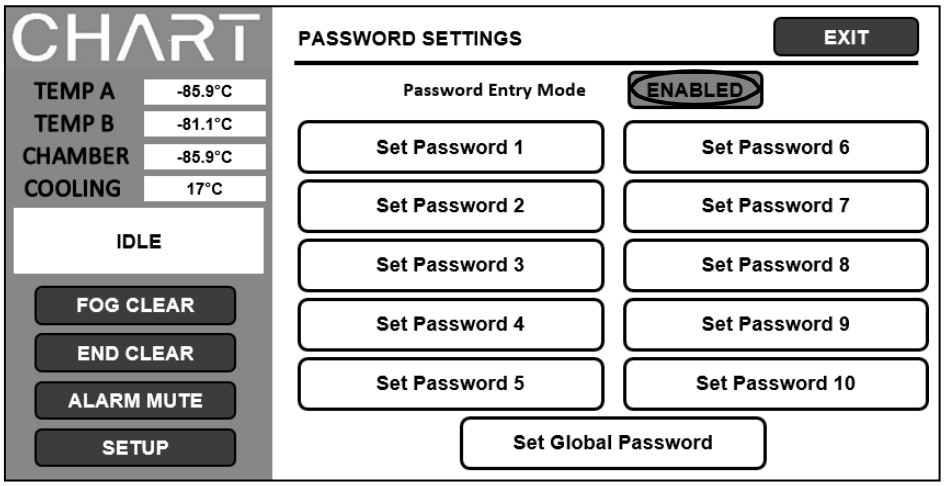


2. Press “Password Settings”

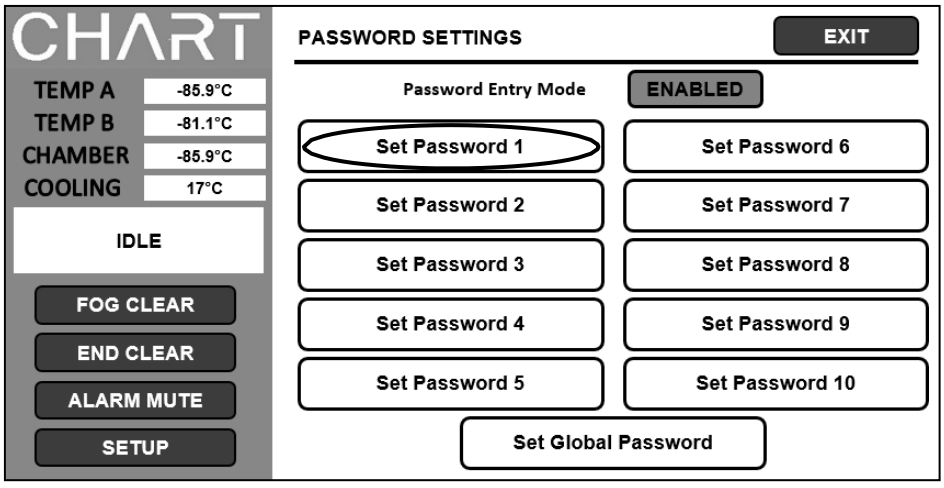


3. Press “ENABLED” or “DISABLED” next to “Password Entry Mode”

This will enable or disable the password entry mode. Pressing “ENABLED” will change the password entry mode to “DISABLED” and pressing “DISABLED” will change the password entry mode to “ENABLED”.



4. Press the desired password to setup or adjust.



5. Enter a new password and password level.

Alarms and Descriptions

Table 4: Alarms and Desciptions

Alarm Display	Description
High Temp A	The temperature of Probe A is above the user defined High Temperature setting.
High Temp B	The temperature of Probe B is above the user defined High Temperature setting.
Low Temp A	The temperature of Probe A is below the user defined Low Temperature setting.
Low Temp B	The temperature of Probe B is below the user defined Low Temperature setting.
Cooling Time	The amount of time required to complete a cool cycle exceeds the user defined Cool Time setting.
Bypass Time	The amount of time required to complete a bypass cycle exceeds the user defined Bypass Time setting.
Temp A Calibration	The temperature of Probe A is lower than absolute zero.
Temp B Calibration	The temperature of Probe B is lower than absolute zero.
Bypass Calibration	The temperature of the Bypass Probe is lower than absolute zero.
Low Battery	The voltage of the back up batteries has dropped below 21 volts.
Power Failure	The primary power has been disconnected for at least 60 minutes.
Lid Open	The lid on the freezer has been open longer than the user specified time.
Communication Loss	The controller has lost communications with the display.

If any alarms occur, contact your authorized MVE Distributor or customer / technical service.

Customer/Technical Service:

USA:
Phone: 1-844-683-2796
Fax: 1-470-552-2200

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Intended Use & Indication for Use for Cryogenic Storage and/or Transport

STORAGE ONLY

MVE Freezers are intended for the maintenance of cryogenic temperatures during storage for the indication of preserving human or animal biological products, samples, or specimens (e.g., blood, blood products, cells, tissues, etc.) during storage.

STORAGE AND TRANSPORT

MVE Dewars and Vapor Shippers are intended for the maintenance of cryogenic temperatures during storage or transportation for the indication of preserving human or animal biological products, samples, or specimens (e.g., blood, blood products, cells, tissues, etc.) during storage and or transportation.

Ref 21124996 Rev D