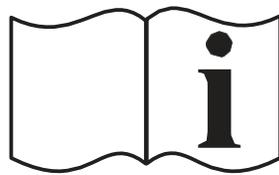
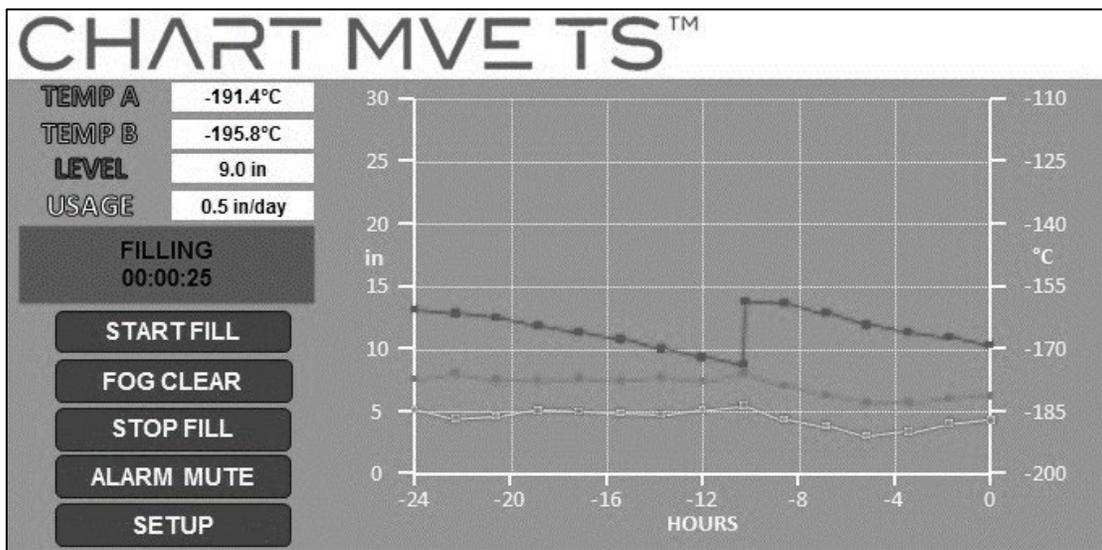




# *MVE TS Controller (Touch Screen)*



Quick Reference  
User Manual

# MVE TS Quick Reference Guide

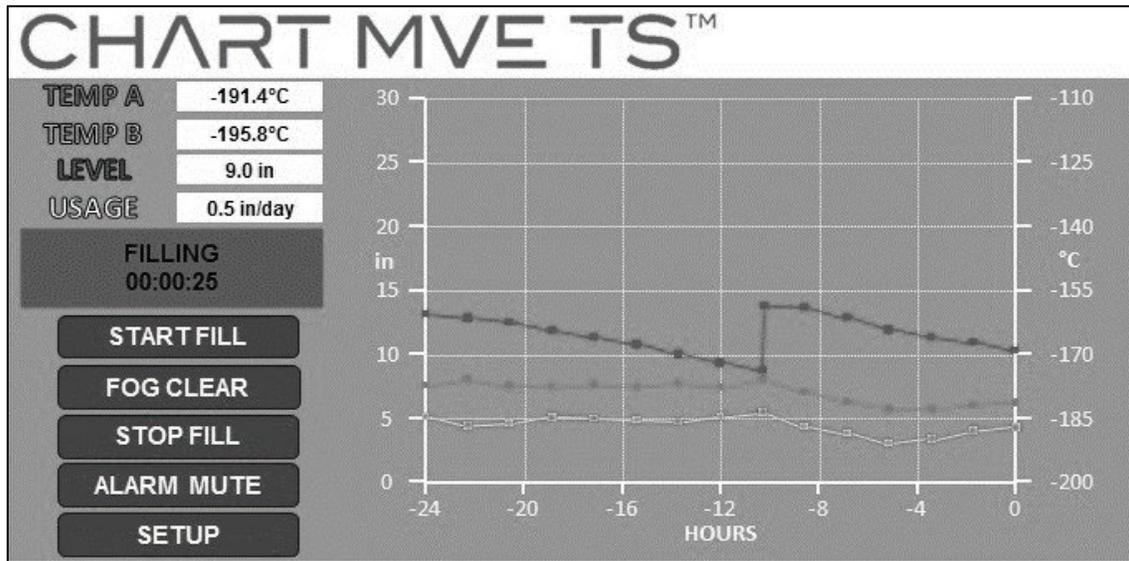
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## Table of Contents

Product Identification	
Display / Control Panel.....	2
Bottom Panel / Electrical / Physical Connections .....	3
Dewar Plumbing Connections .....	4
Adjusting Temperature Alarm Settings.....	5
Adjusting Inlet Temperature Settings .....	8
Adjusting Liquid Level & Liquid Level Alarm Settings.....	12
High Level Alarm Setting	
High Level Setting	
Low Level Setting	
Low Level Alarm Setting	
Adjusting Display and Output Settings.....	15
Password and Security Setup.....	18
Alarms and Definitions.....	21
Contact Information .....	21

NOTE: Please refer to your distributor for maintenance and information pertaining to maintenance. Additional technical information is available on the MVE website.

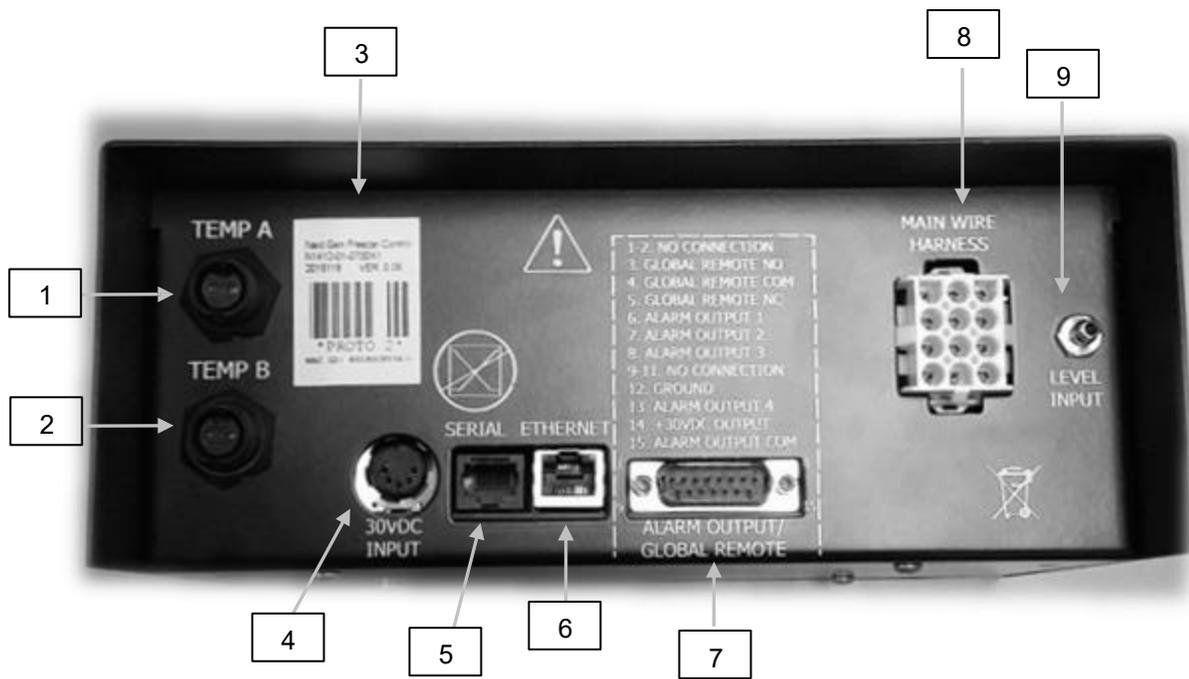
# MVE TS Quick Reference Guide



**Table 1: Front Panel Identification**

Display	6" touchscreen, backlight
Freezer Status	Displays "IDLE", "BYPASSING", or "FILLING" based on the current freezer status
START FILL Key	Used to manually initiate a fill
FOG CLEAR	To clear fog when opening the lid or to perform a manual fill. Momentary circuit
STOP FILL Key	Used to manually terminate a fill – Disables Auto Fill for 30 minutes
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	Adjustable graph of historical level and temperature data. Visual X,Y Graph parameters adjustable in days, temperature, and level ranges.

# MVE TS Quick Reference Guide



1	Temp A Port	Connection for Temp A probe
2	Temp B Port	Connection for Temp B probe
3	Serial Number Barcode	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 Contacts	15 pin alarm output. 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
9	Level Connection	Level signal input. Clear, vinyl tube connects to hose barb

# MVE TS Quick Reference Guide

## 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.



# MVE TS Quick Reference Guide

## A & B and Inlet (Hot Gas Bypass)

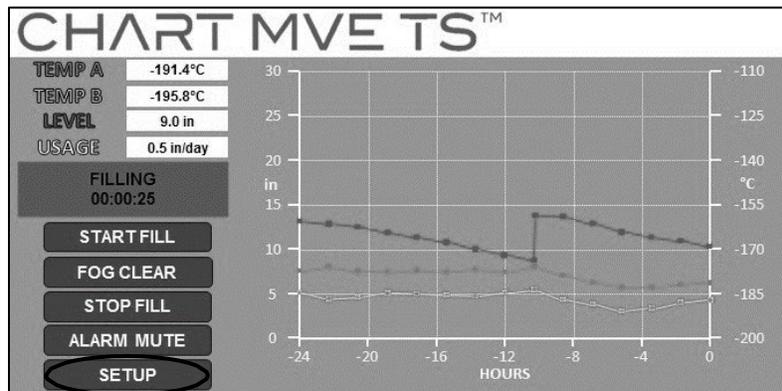
The following section describes how to adjust temperature alarm settings. At any time during the following procedure, the user may exit the menu by pressing the “EXIT” button to return to the “monitor” display mode. After 60 seconds of inactivity, the controller will automatically return to the “monitor”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

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

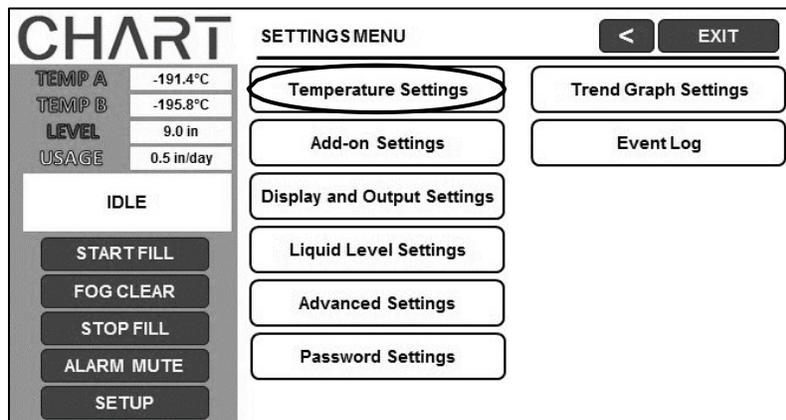
To exit any menu screen and return to the previous menu, press “<” key.

### 1. Press “Setup”

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



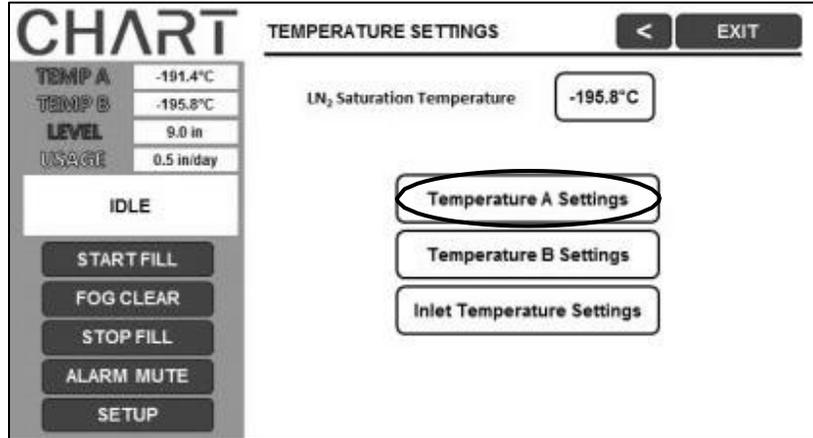
### 2. Press “Temperature Settings”



# MVE TS Quick Reference Guide

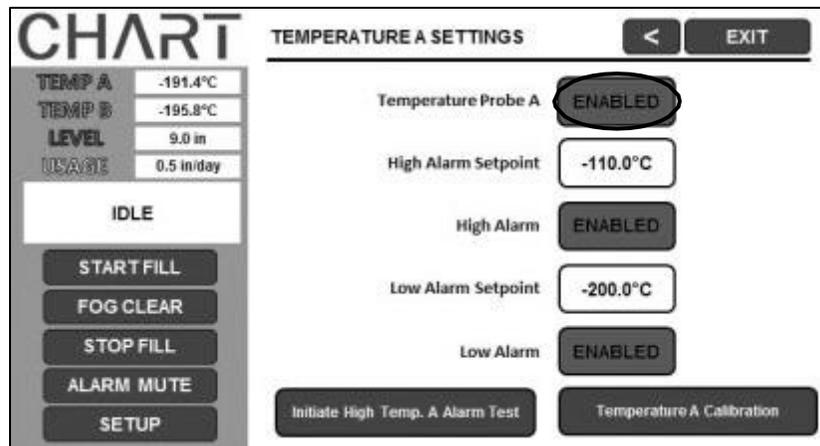
## 3. Press “Temperature A Settings”

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



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

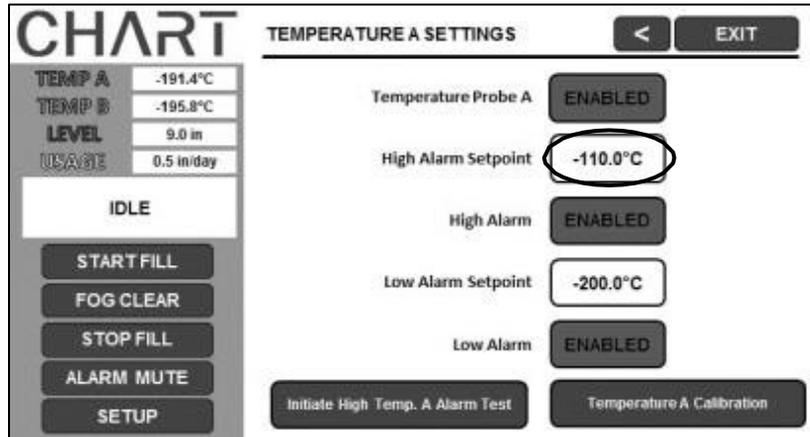
This will enable or disable the selected temperature probe. Pressing “ENABLED” will change the probe status to “DISABLED” and pressing “DISABLED” will change the probe status to “ENABLED”.



# MVE TS Quick Reference Guide

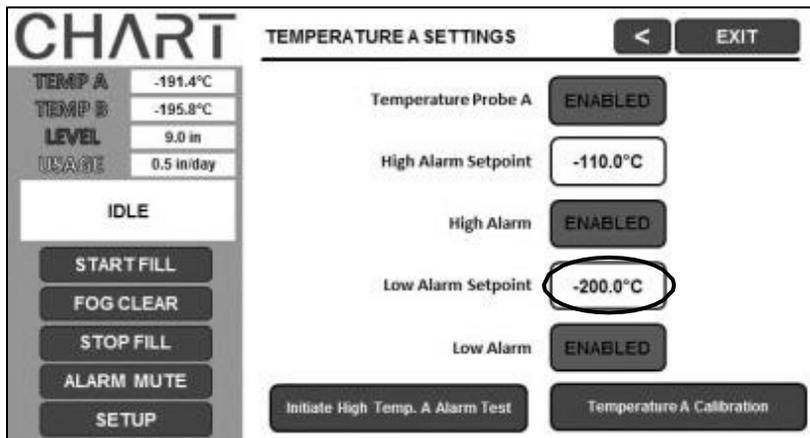
## 5. Press the value displayed next to “High Alarm Setpoint”

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”

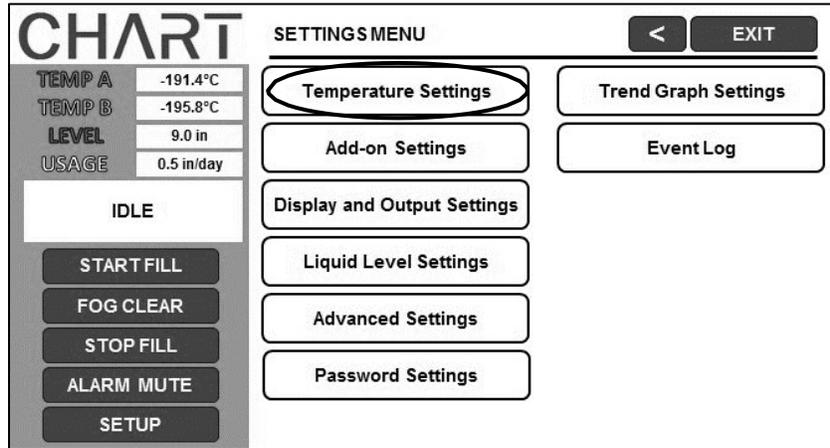
The number pad will be displayed once the value to be adjusted is selected. Type in a new value for the Low Alarm Setpoint using the number pad that appears on screen and then press “Enter” to save the new value. Be sure to include “-“ when entering negative values.



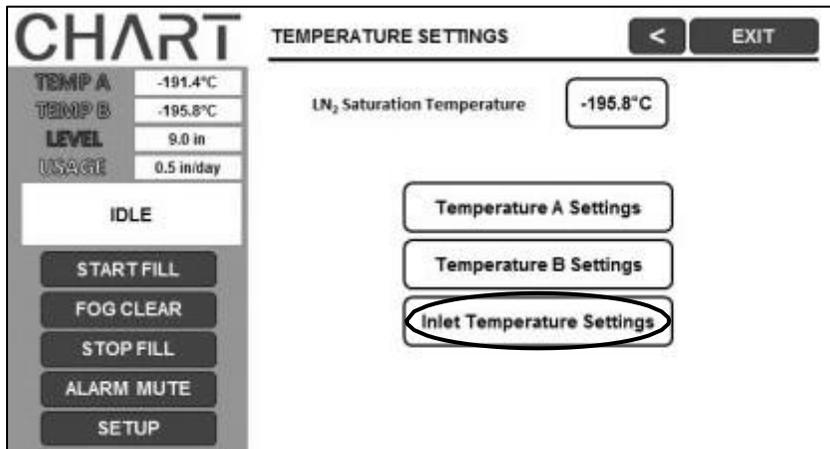
# MVE TS Quick Reference Guide

## Adjusting Inlet Temperature Settings (Hot Gas Bypass)

### 1. Press “Temperature Settings”



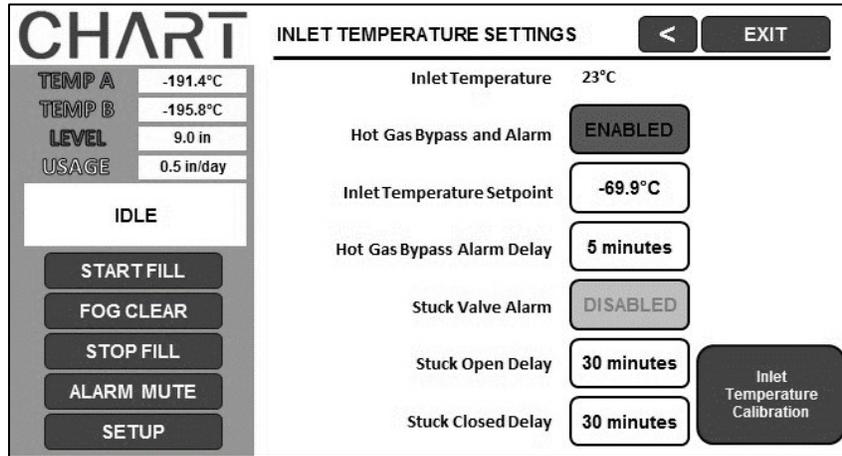
### 2. Press “Inlet Temperature Menu”



# MVE TS Quick Reference Guide

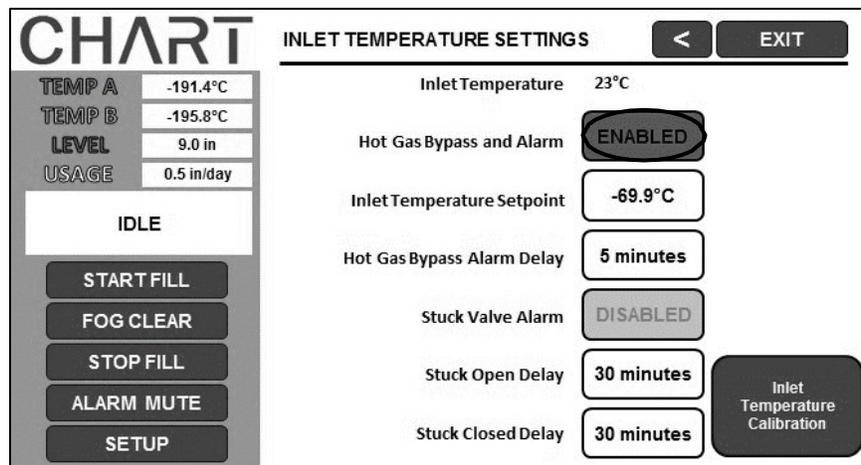
## 3. The current Hot Gas Bypass settings will be displayed

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”

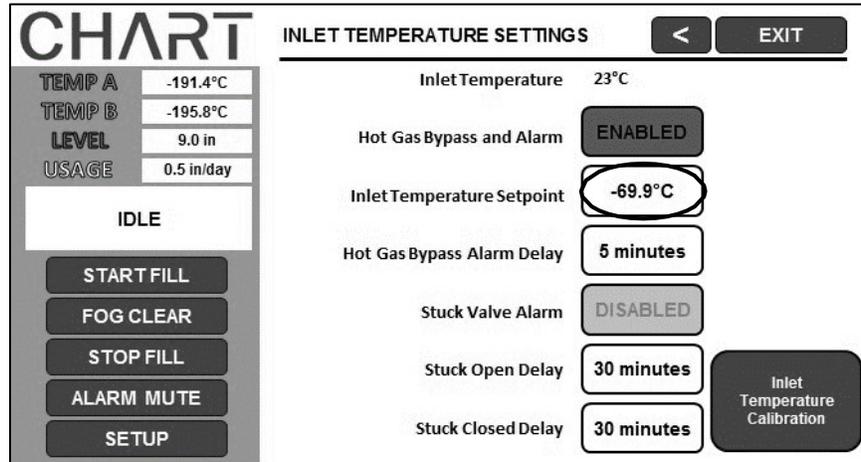
This will enable or disable the Hot Gas Bypass feature. Pressing “ENABLED” will change the hot gas bypass status to “DISABLED” and pressing “DISABLED” will change the hot gas bypass status to “ENABLED”.



# MVE TS Quick Reference Guide

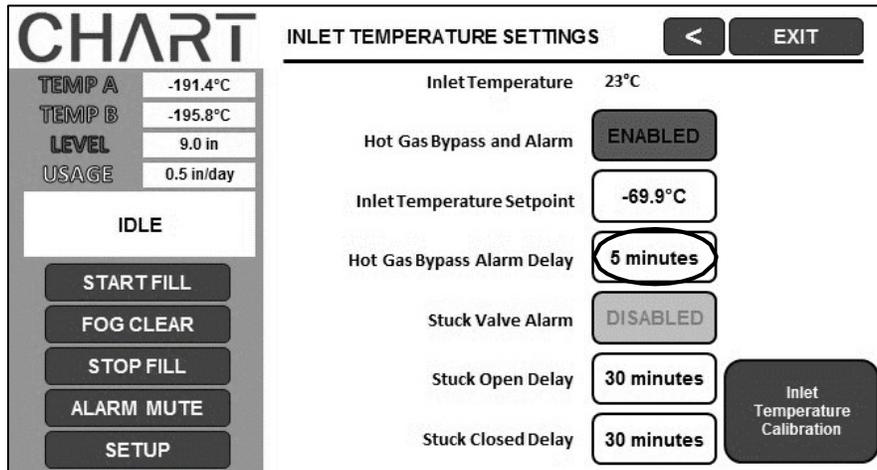
## 5. Press the value displayed next to “Inlet Temperature Setpoint”

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.



# MVE TS Quick Reference Guide

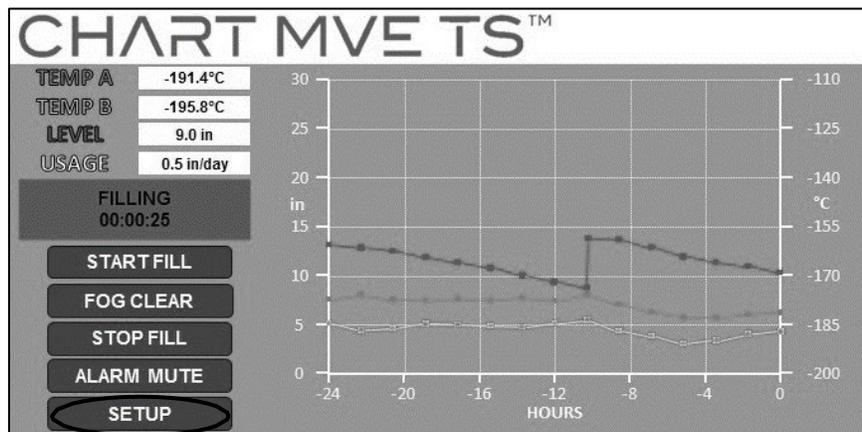
## Adjusting Liquid Level & Liquid Level Alarm Settings

The following section describes how to adjust liquid nitrogen level settings and the high/low level alarms. NOTE: Security Level 2 or higher is required to adjust the Level and Level Alarm settings (See “Password and Security Setup” section for details).

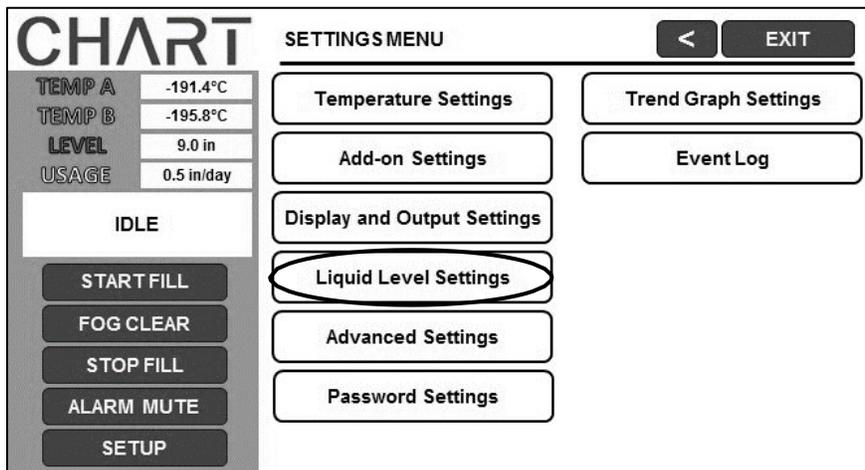
NOTE: To exit any menu screen and return to the previous menu press “<” key.

### 1. Press “Setup”

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



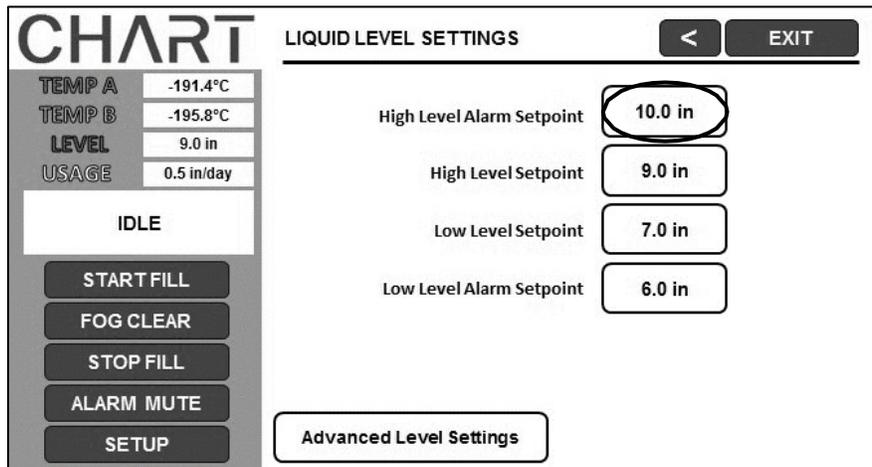
### 2. Press “Liquid Level Settings”



# MVE TS Quick Reference Guide

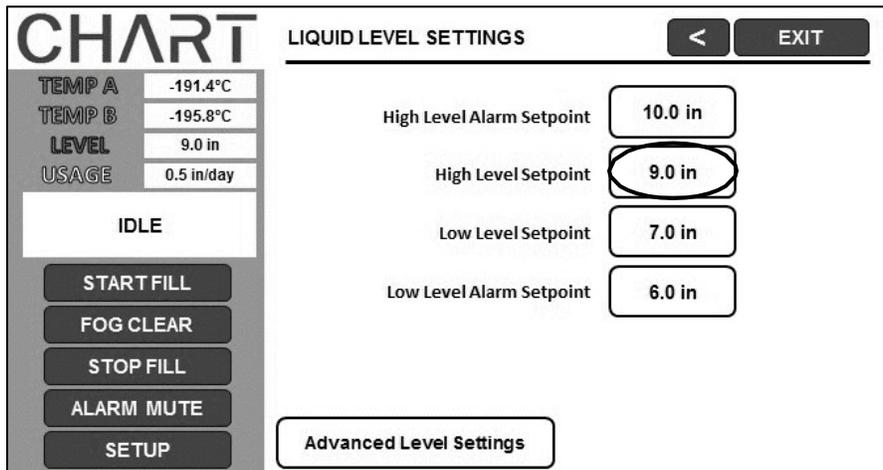
### 3. Press the value displayed next to “High Level Alarm Setpoint”

The number pad will be displayed once the value to be adjusted is selected. Type in a new value for the High Level Alarm Setpoint using the number pad that appears on screen and then press “Enter” to save the new value.



### 4. Press the value displayed next to “High Level Setpoint”

The number pad will be displayed once the value to be adjusted is selected. Type in a new value for the High Level Setpoint using the number pad that appears on screen and then press “Enter” to save the new value.



# MVE TS Quick Reference Guide

## 5. Press the value displayed next to “Low Level Setpoint”

The number pad will be displayed once the value to be adjusted is selected. Type in a new value for the Low Level Setpoint using the number pad that appears on screen and then press “Enter” to save the new value.

The screenshot shows the CHART LIQUID LEVEL SETTINGS screen. On the left, there is a sidebar with the following information: TEMP A: -191.4°C, TEMP B: -195.8°C, LEVEL: 9.0 in, USAGE: 0.5 in/day. Below this is an 'IDLE' status indicator and a vertical stack of buttons: START FILL, FOG CLEAR, STOP FILL, ALARM MUTE, and SETUP. The main area is titled 'LIQUID LEVEL SETTINGS' and contains four rows of settings, each with a value in a rounded rectangular box: High Level Alarm Setpoint (10.0 in), High Level Setpoint (9.0 in), Low Level Setpoint (7.0 in), and Low Level Alarm Setpoint (6.0 in). The '7.0 in' value for the Low Level Setpoint is circled in red. At the bottom right, there is an 'Advanced Level Settings' button. Navigation buttons for back and exit are at the top right.

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

The number pad will be displayed once the value to be adjusted is selected. Type in a new value for the Low Level Alarm Setpoint using the number pad that appears on screen and then press “Enter” to save the new value.

This screenshot is identical to the one above, showing the CHART LIQUID LEVEL SETTINGS screen. In this instance, the '6.0 in' value for the Low Level Alarm Setpoint is circled in red, indicating it is the selected item for adjustment.

# MVE TS Quick Reference Guide

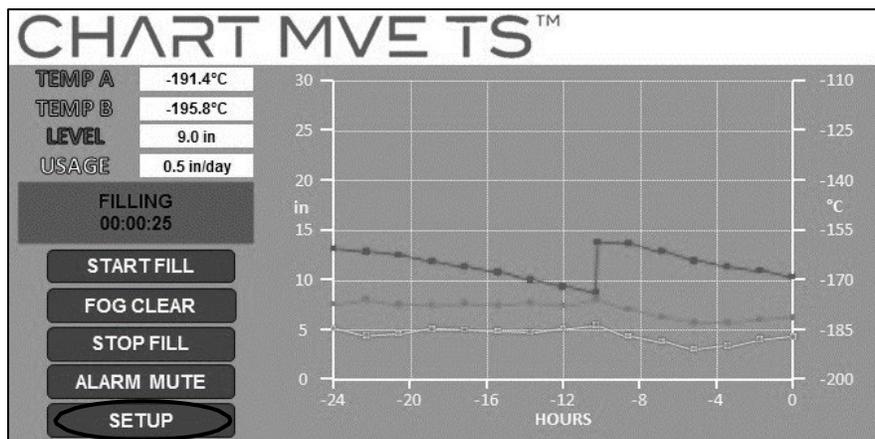
## Adjusting Display and Output Settings

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). The amount of liquid nitrogen in the freezer may be displayed in inches (in), millimeters (mm). In addition, the amount of liquid nitrogen consumed by the freezer (liquid usage) may be shown on the display.

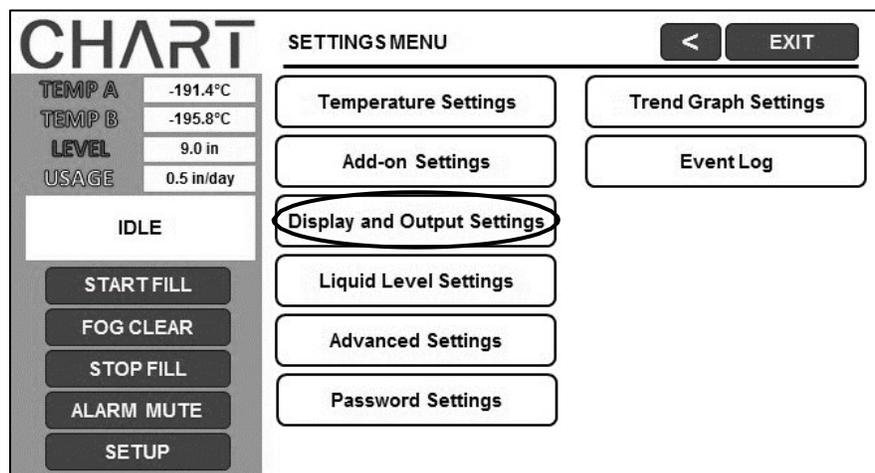
NOTE: Security Level 1 is required to adjust the display and output settings (See “Password and Security Setup” section for details).

### 1. Press “Setup”

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



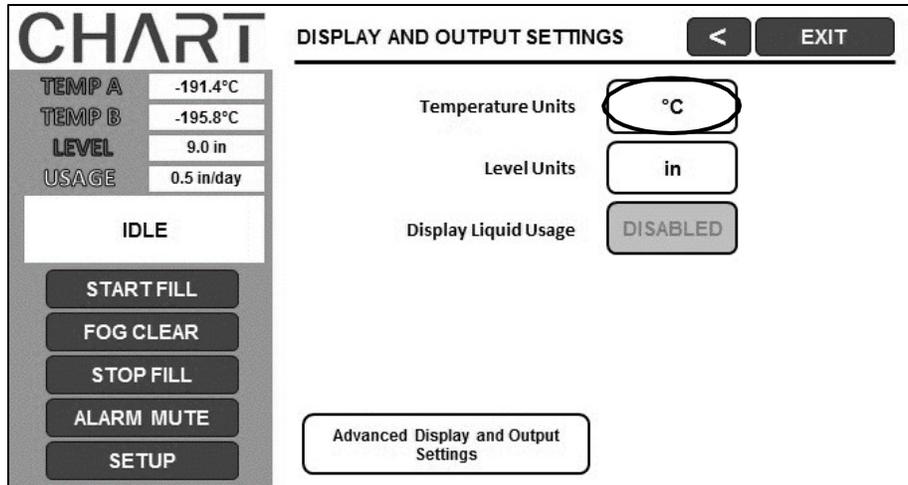
### 2. Press “Display and Output Settings”



# MVE TS Quick Reference Guide

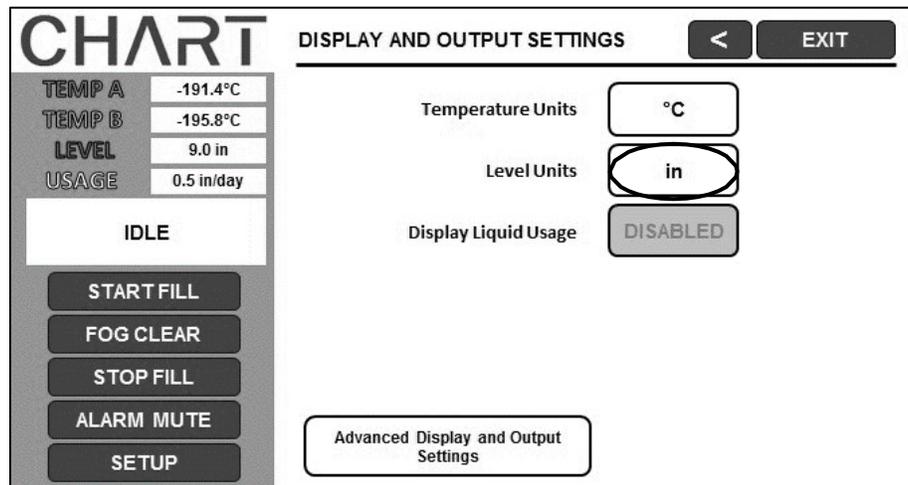
## 3. Press the units displayed next to “Temperature Units”

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



## 4. Press the units displayed next to “Level Units”

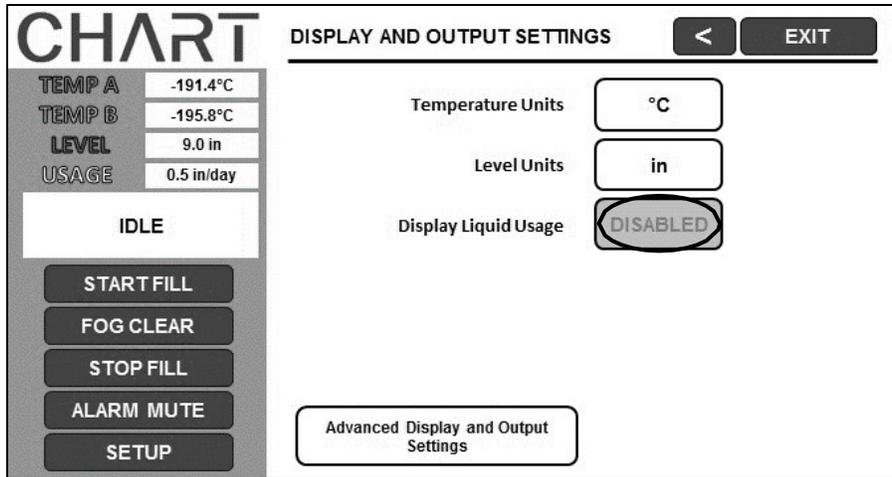
Press the “in” or “mm” option for “Level Units”.



# MVE TS Quick Reference Guide

## 5. Press “ENABLED” or “DISABLED” next to “Display Liquid Usage”

This will enable or disable the liquid usage feature. Pressing “ENABLED” will change the liquid usage status to “DISABLED” and pressing “DISABLED” will change the liquid usage status to “ENABLED”.



# MVE TS Quick Reference Guide

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## 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**

<b>FEATURE</b>	<b>LEVEL 1</b>	<b>LEVEL 2</b>	<b>LEVEL 3</b>	<b>LEVEL 4</b>
Fill Start	X	X	X	X
Fill Stop	X	X	X	X
Alarm Mute	X	X	X	X
Change Display Units	X	X	X	X
Temp Settings		X	X	X
Level 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
OFAF Setting			X	X
Communication Settings			X	X
Programming			X	X
Password Settings				X

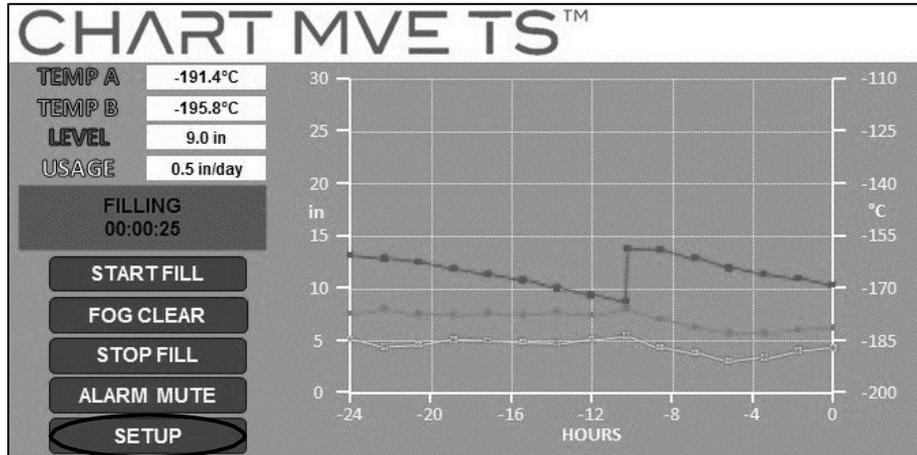
# MVE TS Quick Reference Guide

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

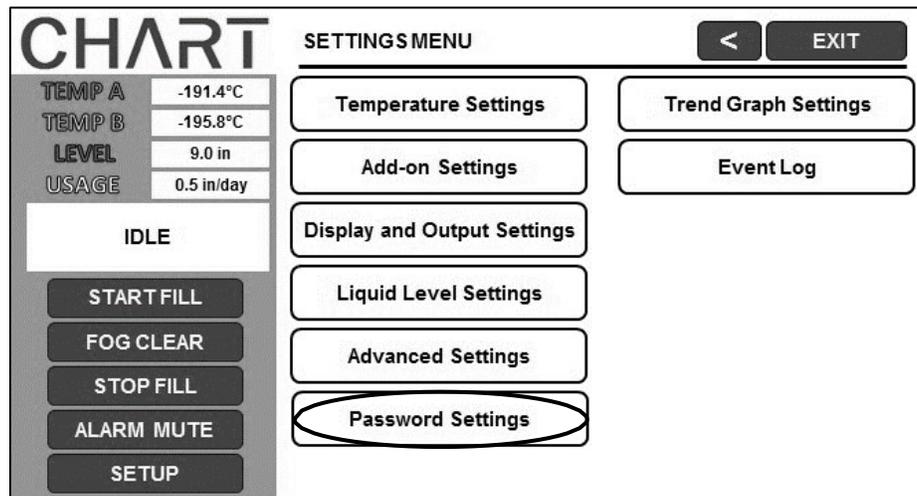
NOTE: Security Level 4 is required to setup or change passwords.

## 1. Press “Setup”

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



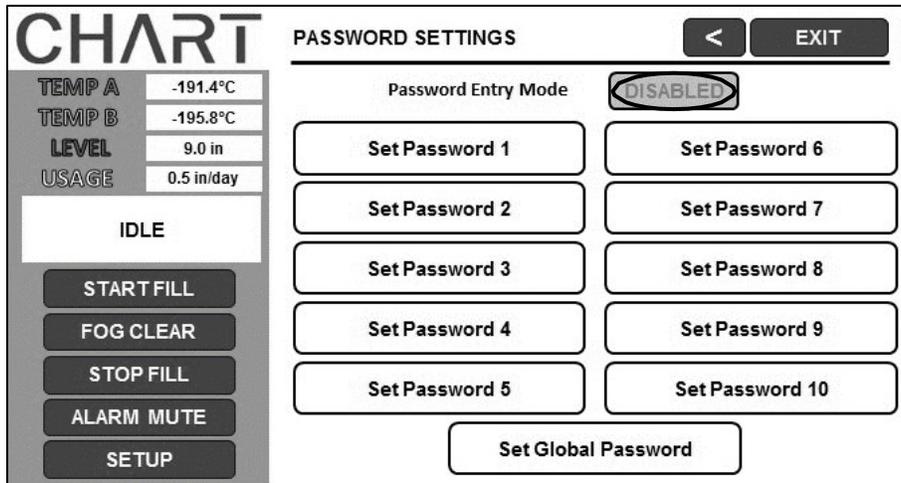
## 2. Press “Password Settings”



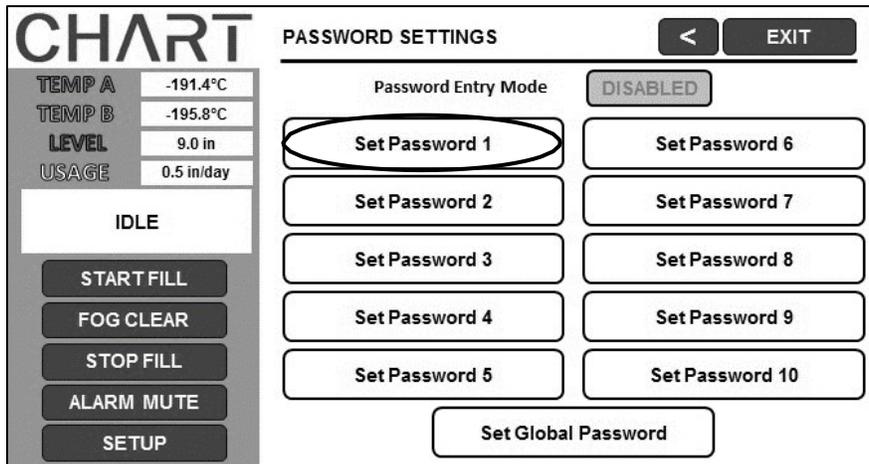
# MVE TS Quick Reference Guide

### 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.

# MVE TS Quick Reference Guide

## Alarms and Descriptions

**Table 4: Alarms and Descriptions**

<b>Alarm Display</b>	<b>Description</b>
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.
High Level	The depth of LN2 inside the freezer is above the user defined High level setting.
Low Level	The depth of LN2 inside the freezer is below the user defined Low level setting.
Usage Warning	The consumption of LN2 has doubled.
Usage Alarm	The consumption of LN2 has increased by a factor of 5.
Fill Time	The amount of time required to complete a fill cycle exceeds the user defined Fill 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 30 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

Europe: Phone: +44 (0) 7718 488236

Asia, Australia, Pacific Rim:

Asia: 1-844-683-2796

Australia: +61 (2) 974-94333

Fax: +61 (2) 974-94666

# NOTES

## 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.



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