Altanium Neo5

User Guide

HUSKY®

Keeping our customers in the lead

Original Instructions

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This product manual is intended to provide information for safe operation and/or maintenance. Husky reserves the right to make changes to products in an effort to continually improve the product features and/or performance. These changes may result in different and/or additional safety measures that are communicated to customers through bulletins as changes occur.

General Information

Telephone Support Numbers

North America	**Toll free**	1-800-465-HUSKY (4875)
Europe	**EC (most countries)**	008000 800 4300
	Direct and Non-EC	+ (352) 52115-4300
Asia	**Toll Free**	800-820-1667 or +800-4875-9477
	Direct:	+86-21-3849-4520
Latin America	**Brazil**	+55-11-4589-7200
	Mexico	+52-5550891160 option 5

For on-site service, contact the nearest Husky Regional Service and Sales office.

For non-emergency questions and issues, e-mail Husky at techsupport@husky.ca.

Husky Regional Service and Sales Offices

For the nearest location, please visit www.husky.co.

Product Upgrades

Upgrades are available that can improve output, reduce cycle times, and add functionality to Husky equipment.

To see what upgrades are available, visit www.husky.co or call the nearest Husky Regional Service and Sales Office.

Ordering Spare Parts

All spare parts for Husky equipment can be ordered through the nearest Husky Parts Distribution Center or online at www.husky.co.

Ordering Additional Manuals

Additional copies of this manual and other documentation can be purchased through the nearest Husky Regional Service and Sales office.

Table of Contents

Chapter 1 Introduction

This user guide includes general warnings and cautions to avoid injury to personnel and damage to the system. These warnings and cautions are not intended to be, nor are they all-inclusive to every condition or application that may occur during operation. Maintenance and safety procedures remain the sole responsibility of the individual and his or her company.

IMPORTANT!

Some manuals may contain addendums that detail new or updated information. Before reading a manual, make sure to review all available addendums located at the end of the manual.

1.1 General Safety

WARNING!

Electrical shock risk-de-energize controller prior to connecting, disconnecting, or servicing the controller, hot runner or mold.

WARNING!

Electrical hazard - risk of shock or personal injury. ALWAYS ensure that the screw on the back of the top portion of the controller, marked with the general warning symbol, is installed when the controller is energized. This is the grounding point for the top cover to the chassis. Removal of this screw could cause an unsafe condition unless proper precautions are taken such as, Lock Out Tag Out (LOTO).

WARNING!

Gas/vapor hazard – risk of respiratory injury. Certain processed materials could release harmful gas, vapors, or dust. Install an exhaust system according to local codes. Plastic degrades with prolonged exposure to the setpoint temperature. Do not leave machine and controller unattended.

- The system should only be installed by qualified personnel in accordance with local codes.
- When the controller is connected to an Injection Molding Machine (IMM), the safety of the system is the responsibility of the integrator.
- Only persons with a thorough knowledge of the system's operation and capabilities should operate the system.
- Read all of these instructions before connecting power and turning on the system.
- Follow all warnings and instructions marked on the system.
- Unless specifically explained in this manual or directed by Husky, do not attempt to repair the system. Doing so could result in damage to the system, or serious personal injury.
- Only use the specified input supply voltage that is indicated on the identification label attached to the power input cable and/or the cabinet

NOTE: If unsure of the appropriate supply voltage, call the nearest Husky Regional Service and Sales office.

CAUTION!

Mechanical hazard – risk of damage to the equipment. NEVER allow the fan inlets or outlets on the unit to become blocked. Insufficient cooling airflow through the fan inlets and outlets could damage the system.

CAUTION!

When switching OFF the system wait 30 seconds before switching the main disconnect back ON. If you do not wait the required 30 seconds, communication issues may occur.

1.1.1 Safety Signs

Safety signs clearly mark potentially hazardous areas in or around equipment. For the safety of personnel involved in equipment installation, operation, and maintenance, use the following guidelines:

The following safety symbol may appear on safety signs:

NOTE: Safety signs may include a detailed explanation of the potential hazard and associated consequences.

Safety Symbol	General Description of Symbol
	**General** This symbol indicates a potential personal injury hazard. It is usually accompanied by another pictogram or text to describe the hazard.
	**Hazardous Voltage** This symbol indicates a potential hazard that may cause death or serious injury and will appear on any panel that, if removed, will expose the user to more than 40 VAC.

1.2 Purpose of the Equipment

Husky controllers are designed to control the process temperature for injection molding applications only.

Contact your nearest Husky Regional Service and Sales office if you plan to use a Husky product for anything other than its intended use.

1.3 Restrictions of Use

Husky injection molding equipment must never be:

- used for any purpose other than that described in Section 1.2, unless otherwise approved by Husky
- operated or serviced by personnel unfamiliar with the inherent risks and necessary precautions related to controllers

1.4 Input Wiring (Conventional)

Table 1-1 summarizes the wiring conventions used.

Table 1-1 Electrical Wire Standards

Description	Wire Color	
Neutral	Blue	
Earth/Ground	Green/Yellow	Green
Line	Black	Black
Line	Brown	Red
Line	Gray	White

DANGER!

Electrocution and/or mechanical hazard - risk of death or serious injury and possible damage to the equipment.

Incorrectly wiring the controller could cause death or serious injury and/or damage to the controller or hot runner. Only qualified personnel should connect the electrical power supply. All work must conform to applicable local electrical codes.

1.5 Environmental Operating Specifications

The environmental operating specifications that follow for the Altanium Neo5 operator interface:

CAUTION!

Mechanical hazard – risk of equipment damage. Falling or spraying liquid, including oil or water, could damage the equipment. Do not spray wash.

- For Indoor use only.
- Operating Temperature: 5 to 40 °C (41 to 104 °F)
- Operating Humidity: 0% to 90% RH, Non-Condensing
- Altitude: up to 2000 m (6562 ft)
- Pollution Degree: PD2
- Overvoltage Category: OVII

1.6 Equipment Ratings

Ratings for the entire Neo5 can be found on the nameplate attached to the back of the controller.

The equipment ratings that follow are for the Neo5 operator interface only:

- Supply Voltage: 100 to 240 VAC +/- 10%, single phase
- Frequency: 47 to 63 Hz
- Power Rating: 130 W

1.7 Weights and Dimensions

The technical specifications (weights and dimensions) for the most common Altanium Neo5 configurations are shown in Table 1-2.

Table 1-2 Neo5 Configuration Weights and Dimensions

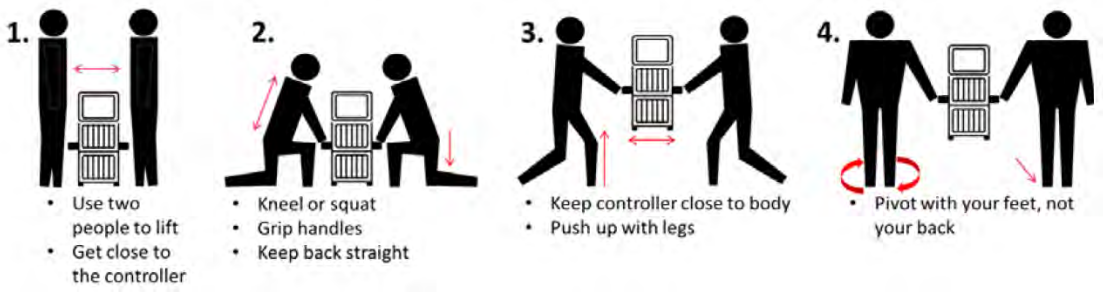
Configuration	Dimensions	Weight
Neo5 Operator Interface 	• Width: 278 mm (11 in) • Depth: 363 mm (14 in) • Height: 324 mm (13 in)	• Controller: 7.25 kg (16 lb) • With shipping container: 3 kg (27 lb)
Neo5 C6-1 (1 Bay) 	• Width: 305 mm (11.4 in) • Depth: 331 mm (13 in) • Height: 407 mm (16.0 in)	• Controller: 25.40 kg (56 lb) • With shipping container: 40.82 kg (90 lb)
Neo5 C6-2 (2 Bay) 	• Width: 305 mm (11.4 in) • Depth: 331 mm (13 in) • Height: 635 mm (25.0 in)	• Controller: 35.38 kg (78 lb) • With shipping container: 59.87 kg (132 lb)
Neo5 Single Stack 	• Width: 450 mm (17.7 in) • Depth: 560 mm (22 in) • Height: 1512 mm (59.5 in)	• Controller: 65.32 kg (144 lb) • With shipping container: 133.36 kg (294 lb)

1.8 Controller Lifting Instructions

The recommended lifting method varies depending on whether the Altanium Neo5 is a C6-1, C6-2, or single stack (freestanding) controller.

1.8.1 C6-1 and C6-2 Lifting Instructions

Use the steps that follow to correctly lift a Neo5 C6-1 or C6-2:



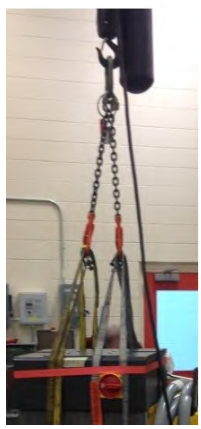
1.8.2 Single Stack Lifting Instructions:

Lifting devices (crane or forklift) and straps vary in lifting ability and lengths. See the table that follows for the correct lifting ability and lengths.

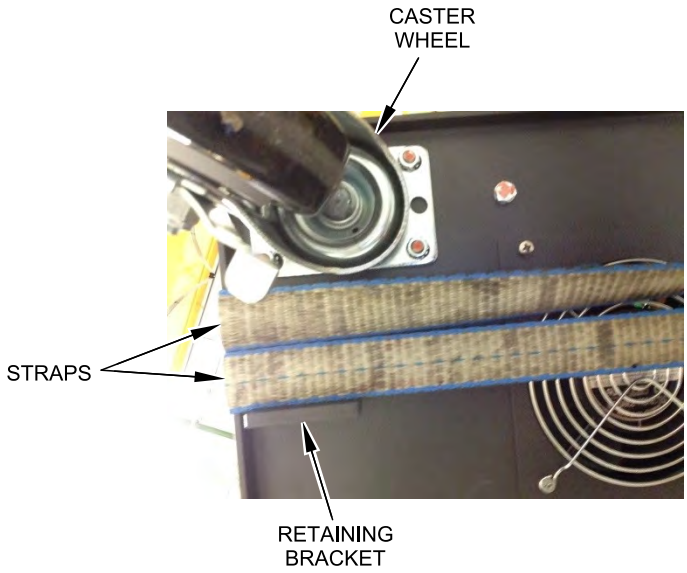
Altanium Controller	Webbed Straps Rated 2903 kg (6400 lb)	Ratchet Strap	Lifting Device (Lifting Ability)
Neo5 Single Stack	Two, 2.44 m x 25.4 mm (8 ft x 1 in.)	One, 1.52 m (5 ft)	227 kg (500 lb)

Do the steps that follow to lift the single stack Neo5:

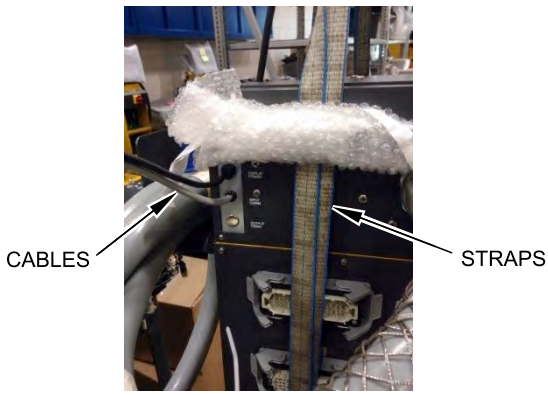
1. Place each of the webbed straps under the controller. See the table above for the correct strap lengths.
   a. For a single stack Neo5, the webbed straps go under the equipment from left to right.
2. Bring the straps up and above the Neo5 and attach them to the lifting device.



a. Make sure the straps are positioned between the caster wheels and the retaining brackets under the base of the controller.



b. Make sure the straps are not pinching or crushing any cables attached to the Neo5.

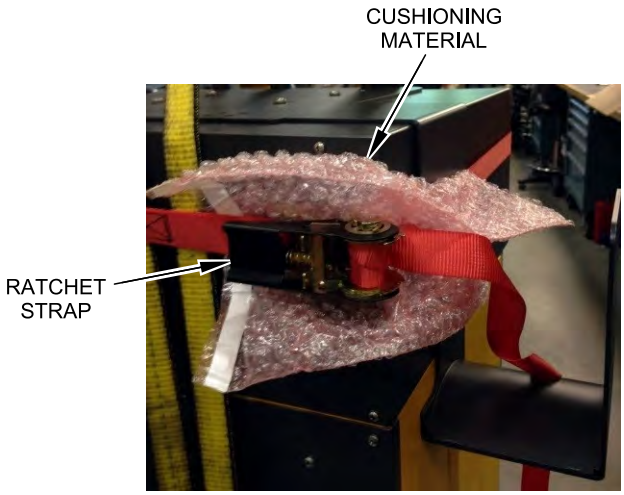


3. Use the lifting device to apply enough upward force on the straps to remove the slack, but do not lift the Neo5 at this time.

4. Place the ratchet strap around the top of the Neo5, holding the four ends of the webbed straps. Do not tighten the ratchet strap at this time.

NOTE: The ratchet strap keeps the controller from tipping when the Neo5 is lifted.

5. Place cloth or other cushioning material between the ratchet strap and the Neo5 to keep the finish free from rubs and scratches.



6. Tighten the ratchet strap.
7. Use the lifting device to slowly lift the Neo5 off the ground a few inches.
8. Check the webbed and ratchet straps to make sure that the Neo5 will not tip.
9. Move the Neo5 to the new location.
10. At the new location, slowly lower the Neo5 to the ground.
11. Remove the ratchet straps, cushioning material, and webbed straps.

Chapter 2 Hot Runner Temperature Control

This guide is designed to make sure that users receive the maximum possible benefit from the use of the Neo5.

The Neo5 was designed as a processor's tool for hot runner molding. The fundamental criteria required to operate a hot runner mold is controlling the process temperature so that it is consistent and repeatable with respect to the process setpoint. The closer to the setpoint the process temperature is maintained, the lower the setpoint temperature may be set. This equates to less cooling time required (energy in - energy out), and faster cycle times.

2.1 Types of Temperature Control

Controllers use two basic types of control:

- Open loop control with no thermocouple feedback.
- Closed loop control with thermocouple feedback. Closed loop can be sub-categorized as follows:
  - Internal Thermocouple - Located inside and as part of the heater assembly.
  - External Thermocouple - Located close, but not actually part of the single heater assembly. The external thermocouple may be allocated to a group of heaters to form a zone.

2.1.1 Open Loop Control

Without a thermocouple, it is not possible to control the temperature inside the mold, only the amount of power supplied to the heater. The Neo5 maintains this power output accurately with a resolution of 0.1%. This method of control is called manual regulation.

Open loop control is normally associated with tip heaters because the size of the tip heater is too small for an internal thermocouple.

2.2 Configuring Zones

In an effort to match the energy input requirements of differing types of loads, it is necessary for the output power delivered to the heaters to be adjusted over a range of 0 to 100%. The Neo5 can be set up to achieve this by using either Zero Cross Control or Phase Angle Control.

2.2.1 Configuring a Zone for Zero Cross Control

This method defines how the power to each heater is averaged over a period of time. This is achieved by switching between complete half cycles of the heater supply voltage using a snubberless TRIAC as a switching device.

2.2.2 Configuring a Zone for Phase Angle Control

This method defines how the power to each heater is adjusted, by varying the point in each half cycle at which the snubberless TRIAC (switching device) is turned on.

In either control method, the Neo5 recalculates the power output requirements for the entire system every 250 milliseconds to obtain the maximum control resolution. By combining either of the above control methods with the Active Reasoning Technology (ART) control algorithm, it is possible to achieve accurate temperature control of ± 1 digit under steady state conditions.

2.3 Determining the Heater Size

Hot runner molds can have a number of different types of heating elements:

- Integral, which is a part of the probe.
- Cartridge, which is slid into the probe or directly into the mold steel.

In the manifold, a series of cartridge heaters or bent tubular style heaters are normally used.

The wire inside an element is typically made of nickel-chrome, which is then surrounded by magnesium oxide. The size of this wire and number of turns determine its resistance, which in turn determines its wattage (the amount of energy). This determines its performance in the mold. Undersize heating elements (too little wattage) create a serious problem when the control asks for power, and none is available. In almost all cases it is better to be oversize than undersize in a hot runner mold.

The Neo5 will provide wattage, resistance, or amperage information for heaters, if equipped with intelligent control cards: X ICC^2 or H ICC^3. Alternatively, this information can be determined using Ohm's Law. The steps and formulas that follow demonstrate how:

WARNING!

Electrical hazard– risk of death or serious injury. Disconnect all electrical power from the mold and controller prior to performing this test.

1. Using a multimeter, set the selector to measure resistance.
2. Connect the (red) positive lead to the first wire from the heating element and connect the (black) negative lead to the second wire. The leads may be pins on a connector, or the zone output fuses in the system as long as they are connected to the heating element.

   The meter will show a resistance in ohms. Record this measurement on a piece of paper.

Ohm's Law says:

Amps = Watts / Volts

Amps = Volts / Resistance

Resistance = Volts / Amps

Watts = Volts x Amps

Example: If the resistance is 12.5 ohms, and the input voltage is 240 volts, divide 240 by 12.5 to calculate the maximum amperage draw on that heating element:

240 / 12.5 = 19.2 amps

19.2 Amps x 240 volts = 4,608 watts.

In hot runner molding, some portions of Ohm's Law are more useful than others. We have only presented here those laws that apply.

Input voltage	24 V	110 V	208 V	220 V	240 V
Resistance	20 Ω	20 Ω	20 Ω	20 Ω	20 Ω
Amperage	1.2 A	5.5 A	10.4 A	11.0 A	12.0A
Watts	28.8 W	605.0W	2163.2 W	2420 W	2880 W

2.4 Thermocouple Types and Color Codes

The Neo5 uses the ANSI color code for all thermocouples. The following table is provided as reference for hot runners and cables that follow other color code standards.

Code	Type	International Color Code (BS4937 Part 30:1993)		BRITISH (BS1843:1952)		U.S. ANSI		GERMAN DIN	
J	Iron/ Constantan/ (Copper-Nickel)	Overall Black		Overall Black		Overall Black		Overall Blue	
		+ ve	- ve	+ ve	- ve	+ ve	- ve	+ ve	- ve
		Black	White	Yellow	Blue	White	Red	Red	Blue
K	Nickel-Chromium/ Nickel-Aluminum	Overall Green		Overall Red		Overall Yellow		Overall Green	
		+ ve	- ve	+ ve	- ve	+ ve	- ve	+ ve	- ve
		Green	White	Brown	Blue	Yellow	Red	Red	Green

Chapter 3 Connecting the System to the Mold

This chapter describes the connection to a power source and the checks to make before you start the system.

3.1 Prior to Startup

DANGER!

Electrocution hazard – contact with hazardous voltages will cause death or serious injury. Make sure that the system is completely disconnected from the power source.

- Clean up any water, oil, dirt, cleaning fluids, etc. that may have spilled during a mold change or since the last production run.
- Make sure the display module is mounted to either the controller or remotely.
- Make sure that the cooling fan is free from obstruction.
- Check all of the cable connections between the system and the mold (if required). Make sure all of the cables are free from wear or damage.
- Check that the earth/ground connection is in good condition. Make sure that the system and the mold have the same ground reference.

3.2 Connecting to the Power Source

DANGER!

Electrocution hazard – contact with hazardous voltages will cause death or serious injury. Make sure that the system is completely disconnected from the power source.

1. Connect the thermocouple and power output cables (if required).
2. Using an ohmmeter, touch one test lead to the mold and the other to the mold ground terminal on the system. The resistance must be less than 1 Ω.
3. Make sure that the main input power disconnect is in the OFF position.
4. Connect the controller to the power source.

3.3 Startup Procedure Checklist

WARNING!

Trip hazard – risk of death or serious injury. Make sure that all the cables between the controller and all the external devices and/or equipment are marked clearly. Or route the cables so that no one will trip over the cables.

Item	Step	✓
1	Connect power/thermocouple cables between the mold and controller (if required).	
2	Connect the I/O box or option cables (if required).	
3	Connect the controller to the power source.	
4	Switch the controller ON.	
5	Login to the system (if required).	
6	Select the required mold setup.	
7	Make sure that the mold setup is correct. Check the name and setpoints in the preview window.	
8	Correct any faults found during diagnostics.	
9	Touch START to run the system.	
10	Make sure that the controller is operates correctly. Monitor the Neo View or the Text View screens.	

NOTE: There are no controller-to-mold interconnection details included in this user guide. If this information is required, please contact the nearest Husky Regional Service and Sales office.

IMPORTANT!

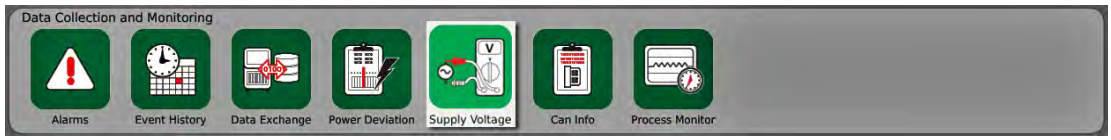
When turning off the system, wait 30 seconds before turning the main disconnect switch back on. Turning the system off and on incorrectly may result in system communication problems.

3.4 Supply Voltage Screen

The Supply Voltage screen shows a graphical view of the phase pairs from the Supply Configuration parameter selected in the System Setup screen (in the Voltage Settings area). The selections are:

- Delta 3PH
- Wye 3PH+N
- Single Phase
- Integrated TX

On the Neo5 Home screen, select the **Supply Voltage** button to see the Supply Voltage screen.



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The Supply Voltage screen shows a graphic image of the type of configuration that has been selected. The four supply configurations are shown in Figure 3-1, Figure 3-2, Figure 3-3, and Figure 3-4.

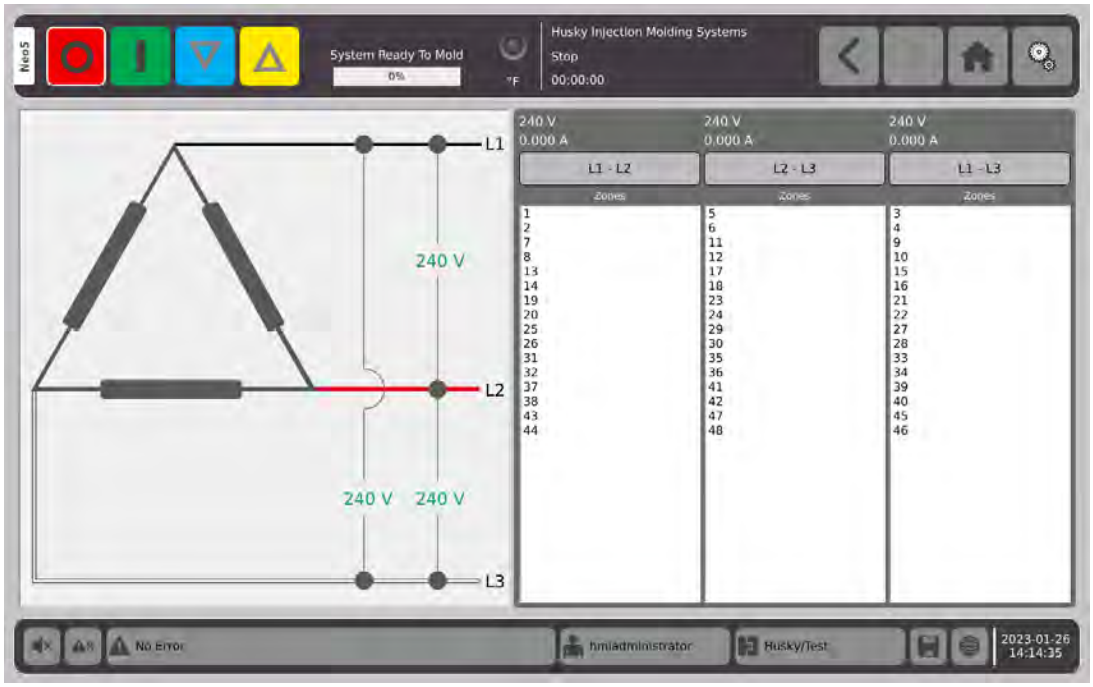


Figure 3-1 Delta 3PH Supply Voltage Screen

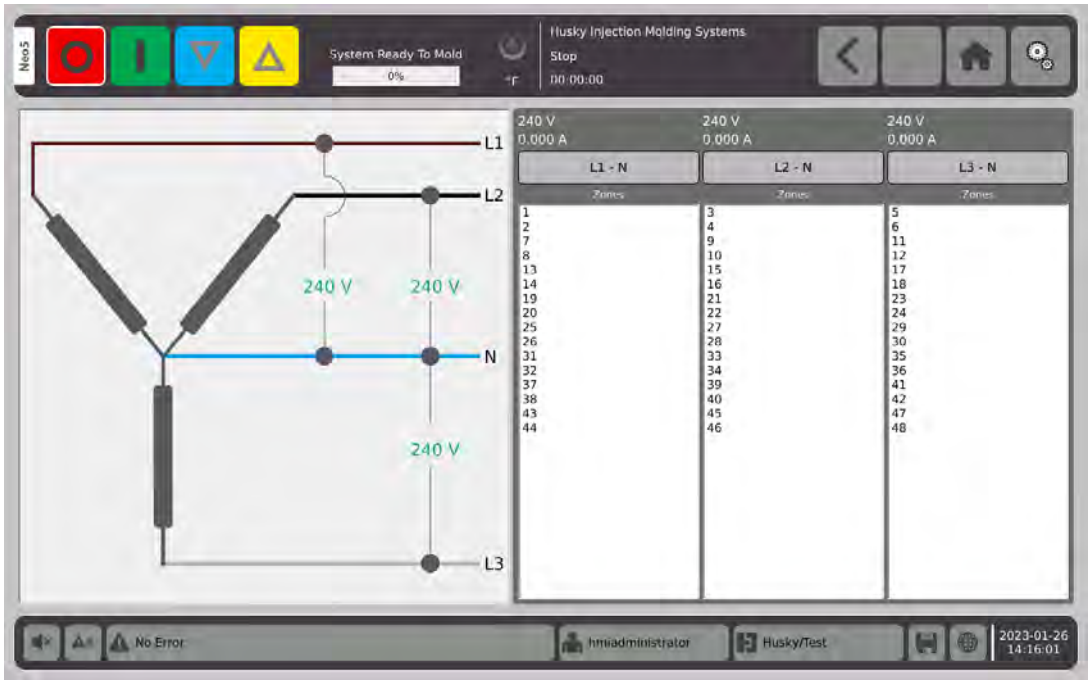


Figure 3-2 Wye 3PH+N Supply Voltage Screen

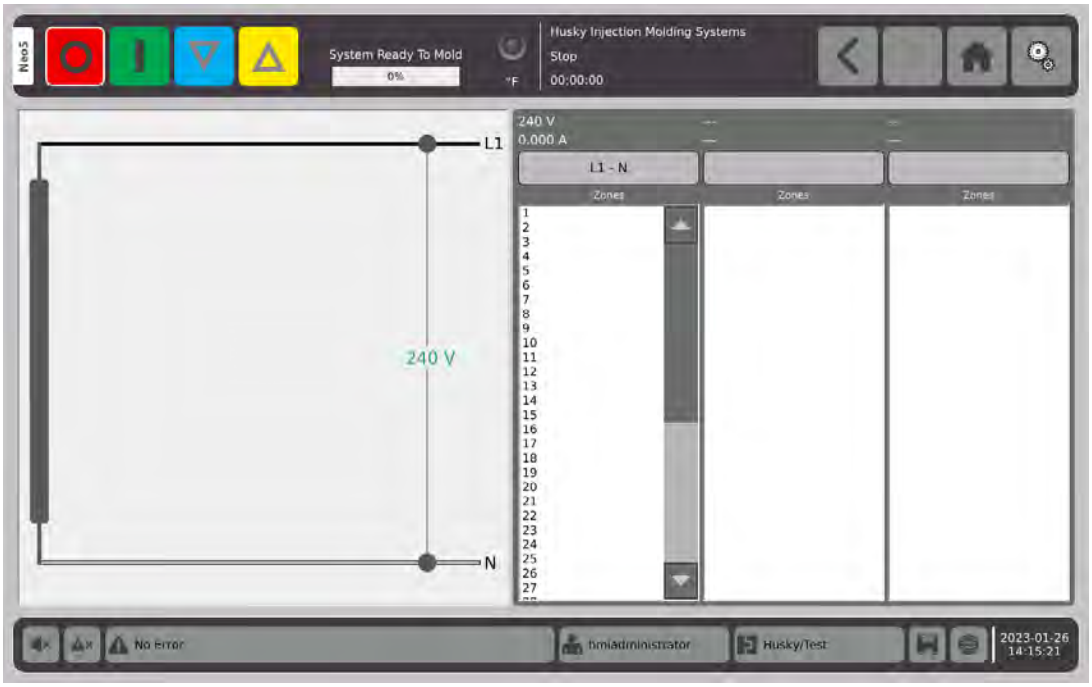


Figure 3-3 Single Phase Supply Voltage Screen

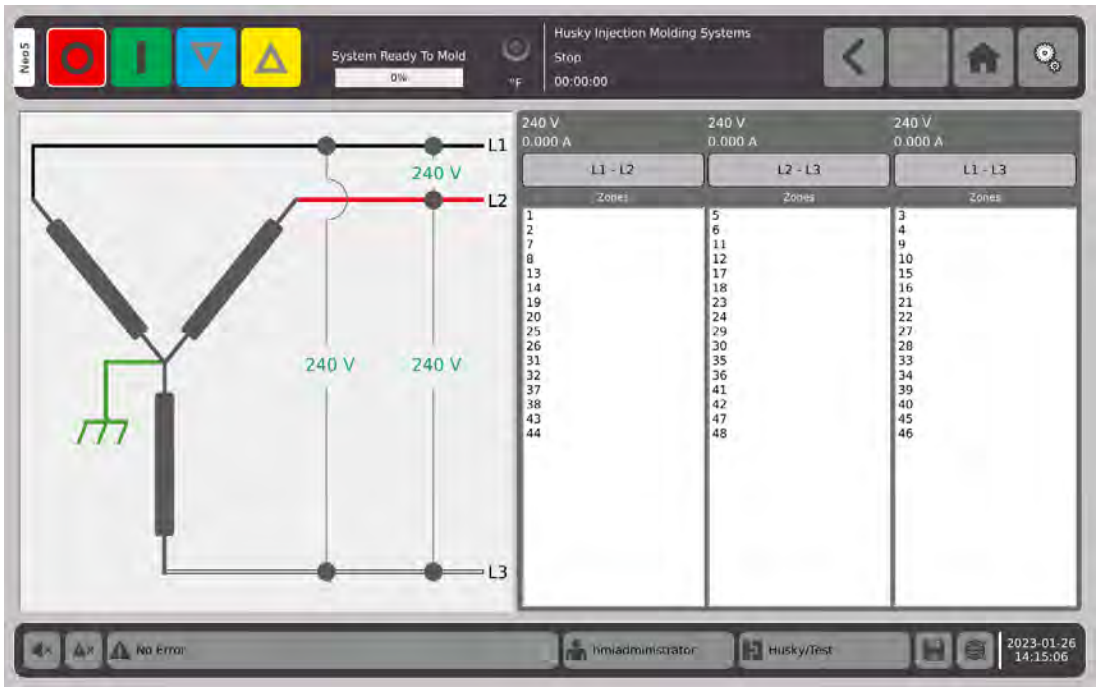


Figure 3-4 Integrated TX Supply Voltage Screen

Table 3-1 shows how the zones are connected to the input power.

Table 3-1 Input Power Information

Item	Description
Schematic	The image is a visual representation of the supply configuration.
Zone #	Shows what phase pair the zone is connected to.
Phase Pair	Phase pair label associated with the supply configuration schematic.
Volts	The voltage value for all the zones associated with a phase.
Amps	The amperage value for all the zones associated with a phase.

NOTE: The amperage value displayed shows one decimal place for systems with ICC^2 cards installed and two decimal places for systems with ICC^3 cards installed. Both voltage and amperage values display "---" if the voltage and amperage is not calibrated for all the zones associated with a particular phase. The amperage value also displays "---" if all of the zones associated with a particular phase are XL or HL cards.

The supply configuration is selected on the System Setup screen. The supply voltage can be wired in four different configurations.

Chapter 4 Altanium Operator Interface

This chapter gives a brief overview of the functionality of the Neo5 operator interface.

4.1 General

The operator interface consists of a touch-sensitive display screen.

The Neo5 operator interface is a high-resolution color LCD covered by a transparent touch screen. This display offers the advantages of high definition and a wide viewing angle, even in poor lighting conditions.

WARNING!

Pinch Point Hazard – keep hands and fingers clear of the Neo5 touch monitor hinge mechanism.

CAUTION!

Mechanical hazard – risk of equipment damage. Only use your finger to operate the touch screen. Do not use a screwdriver, pen, or any other tool to touch the screen because they may damage the touch screen.

Use the touch display to move from screen to screen, enter data, and operate the hot runner system.

4.2 Operator Interface — Screens and Buttons

4.2.1 Dialog Box — Accept/Cancel Buttons

At the bottom of each screen, where you have entered new data, touch  to save new or changed data.

If you want to close the dialog box (no changes) touch  .

4.2.2 Home Screen

The Neo5 Home screen is the screen you use to navigate to all the other screens in the system. The system screen selections on the Home screen are organized into four groups: Zone Views, Temperature Management, Data Collection and Monitoring, and System Configuration.

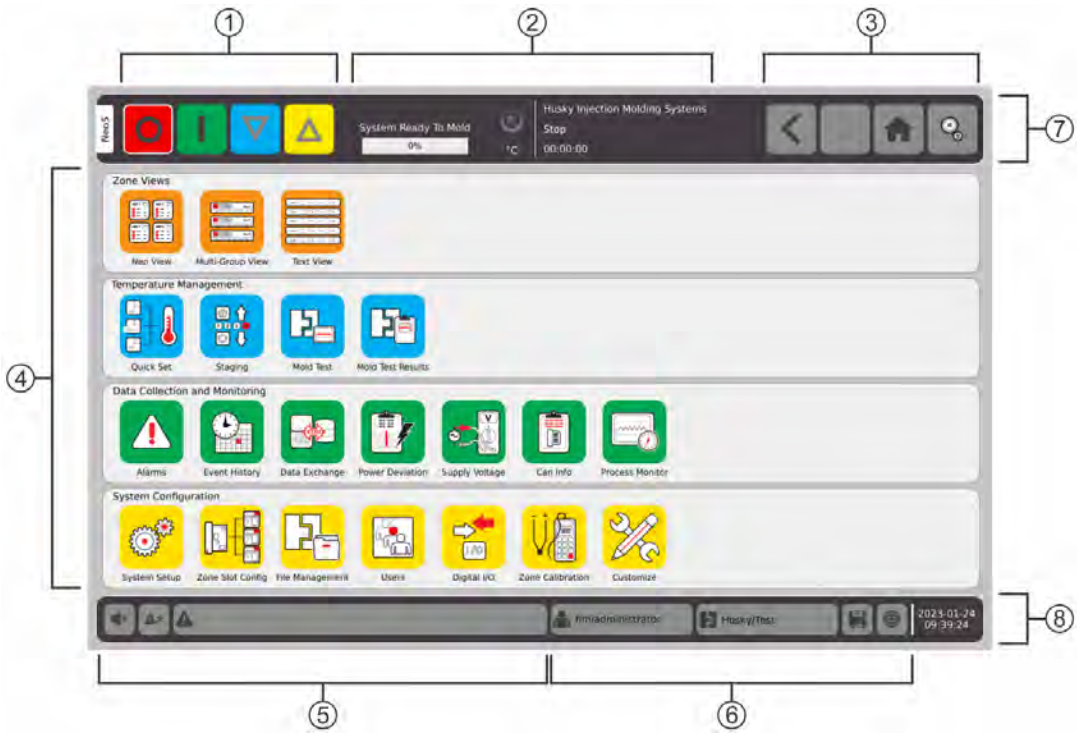


Figure 4-1 Altanium Neo5 Controller Home Screen

1. Controller Function Buttons **2.** System Status Field **3.** Navigation Buttons **4.** System Screen Selections **5.** Alarm Buttons **6.** System and User Management Buttons **7.** Screen Header **8.** Screen Footer

4.2.2.1 Basic/Advanced Mode

The Altanium Neo5 has Basic and Advanced Operating mode functionality. The controller is normally delivered in Basic Operating mode. Basic Operating mode hides many familiar buttons and functionality on the controller screens when compared to the previous Neo model. As a result, the controller's screens will look different after power on. Figure 4-2 shows the Neo5 Home screen while in Basic Operating mode.

Figure 4-2 Neo5 Home Screen in Basic Operating Mode

To change to Advanced Operating mode, do the steps that follow:

1. Touch the **System Setup** button in the System Configuration group or in the top right corner of the screen (shown in Figure 4-2).

   The System Setup screen shows (refer to Figure 4-3).

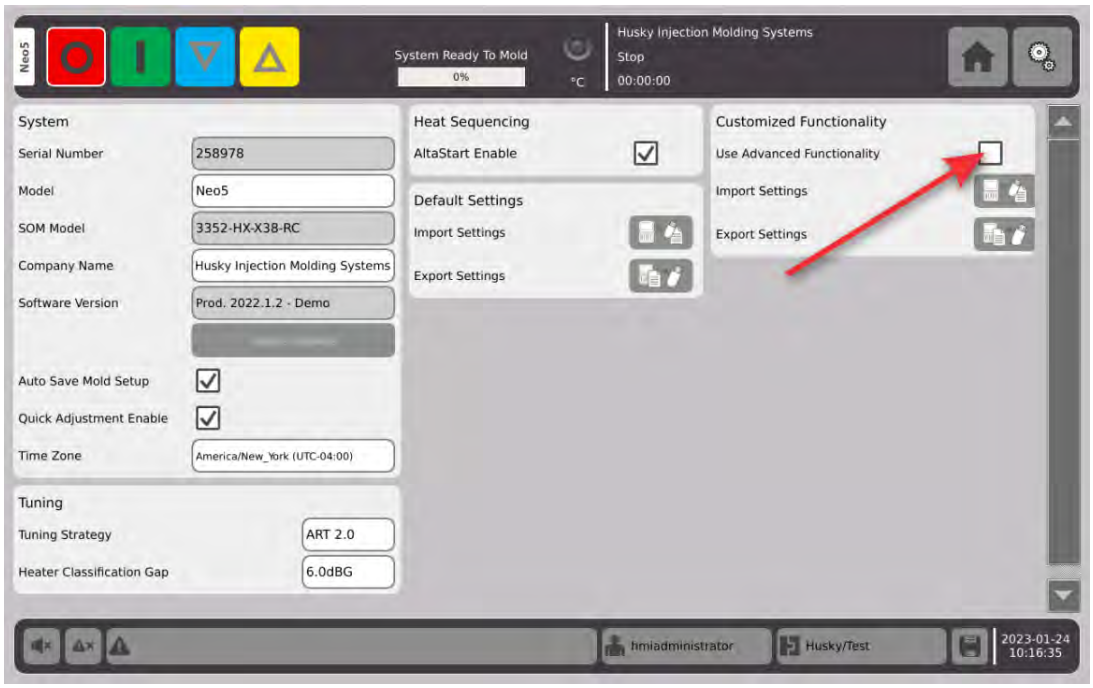


Figure 4-3 System Setup Screen in Basic Operating Mode

2. Touch the **Use Advanced Functionality** checkbox (shown in Figure 4-3), so the check mark shows.

   The hidden buttons and functionality will now show on the System Setup screen.

3. Touch the **Home** button at the top right corner of the screen.

   The Neo5 Home screen now shows the buttons that were previously hidden (refer to Figure 4-1).

4.2.3 Header and Footer

The home screen has a header

and a footer.

.

The same header and footer appear on all screens.

4.2.3.1 Header — Controller Function Buttons

Table 4-1 describes the controller function buttons.

Table 4-1 Controller Function Buttons

Button	Description
	**Stop** Removes the power from all the zones, regardless of system condition.
	**Start** Applies power to the zones that have a setpoint.
	**Standby** Places the system in standby. If a timer is active, the time remaining is displayed in the system header. **NOTE:** You cannot put the system in standby during the ART process.
	**Boost** Places the system in boost mode. If a timer is active, the time remaining is displayed in the system header. **NOTE:** You cannot put the system in boost mode during the ART process.

4.2.3.2 Header — System Status Indicators

Table 4-2 describes the system status indicators.

Table 4-2 System Status Indicators

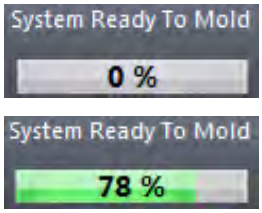
Indicator	Description
	**System Ready To Mold** When the system starts, this status bar shows the progress as the mold zones heat to the At Temperature setpoint. The status bar and label do not show after the zones get to the At Temperature setpoint.
	**At Temperature**: • Flashes when the zones are heating up to the setpoint temperature. • Solid when all automatic zones are 'At temperature'. • Off when the controller is stopped. • Shows that the temperature values are given as °C or °F.

Table 4-2 System Status Indicators (Continued)

Indicator	Description
	**Company Name** Your company name is displayed.
	**System Mode** This field shows the Neo5's current system mode. For a description of each system mode, refer to Section 4.3.
	**System Timer** If applicable, this shows the time remaining on the timer.

4.2.3.3 Header — Navigation Buttons

Table 4-3 describes the navigation buttons.

Table 4-3 Navigation Buttons

Button	Description
	**Back** Shows the previous screen (maximum of 10 screens back).
	**Forward** Moves to the last screen that was displayed (maximum of 10 screens forward).
	**Home** Shows to the Home screen.
	**System Setup** Shows to the System Setup screen.

4.2.3.4 Footer — Alarm Buttons

Table 4-4 describes the alarm buttons.

Table 4-4 Alarm Buttons

	**Silence Horn** Stops the audible alarm.
	**Alarm Reset** Changes an alarm from active to inactive.
	**Alarm Status** The time and a description of the highest priority active alarm is displayed. If an alarm is active, the triangle icon will change to red.

4.2.3.5 Footer — System and User Management Buttons

Table 4-5 describes the system and user management buttons.

Table 4-5 System and User Management Buttons

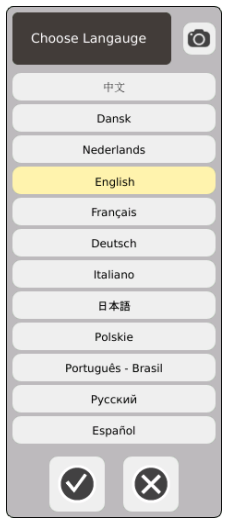
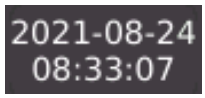
	**Log off/Log on** Shows the name of the current user who is logged in. Touch the button to login or logout.
	**Language Selection** Shows the language screen.  Choose a language and then touch the  button.

Table 4-5 System and User Management Buttons (Continued)

	**Save Now** Opens a dialog window that lets you save a screen shot, report, or process data on the internal hard drive. The saved file can be transferred to a USB drive or network with the use of the Mold Setup Info screen. Refer to Section 4.5.
	**Mold Setup Info** Shows the File Management screen to display the currently loaded mold and related mold folder. The first word is the name of the mold folder. The second word is the name of the mold setup file.
	Shows the date and time. Touch this field to show the Set Date and Time dialog boxes.

4.2.4 System Screen Selections — Zone Views

Table 4-6 describes the Zone Views buttons.

Table 4-6 Zone Views Buttons

Button	Description
	**Neo View** The Neo View screen shows an icon for each temperature zone in the mold. The icons give the zone temperature, temperature setpoint, power output percentage, voltage, and other information.
	**Multi-Group View** The Multi Group View screen has the zones organized into groups and allows individual control of each group.
	**Text View** The Text View screen shows textual information of zone data.

4.2.5 System Screen Selections — Temperature Management

Table 4-7 describes the Temperature Management buttons.

Table 4-7 Temperature Management Buttons

Button	Description
	**Quick Set** The Quick Set screen is used to create and name groups of zones, set temperatures and limits by zone, and many other configurations.
	**Staging** You can heat or cool zones in a selected order with the use of stages. Use the Staging screen to assign zones to stages, set stage setpoints, and enter soak timers for each stage.
	**Mold Test** Use the Mold Test screen to troubleshoot problems with a mold. You can test the wiring integrity of a mold after maintenance has been done and analyze the thermal isolation between all the cavities in the mold.
	**Mold Test Results** Use the Mold Test Results screen to examine the results of the diagnostic tests.

4.2.6 System Screen Selections — Data Collection and Monitoring

Table 4-8 describes the Data Collection and Monitoring buttons.

Table 4-8 Data Collection and Monitoring Buttons

Button	Description
	**Alarms** Use the Alarms screen to see all errors that occur.
	**Event History** Use the Event History screen to see past alarms, warnings, setpoint changes, setup changes, HMI startup, and operational events that do not agree with specified conditions.
	**Data Exchange** Use the Data Exchange screen to select and save different report types to the local drive, USB drive, or a network. You can save process data to those same locations and enter the frequency in which the data is saved.
	**Power Deviation** Use the Power Deviation screen to see the zones with their heater types, status, tolerance, and deviation. You can also select to see troubleshooting data.
	**Supply Voltage** The Supply Voltage screen shows a graphical view of the phase pairs from the Supply Configuration parameter selected in the System Setup screen: • Delta 3PH • Wye 3PH+N • Single Phase • Integrated TX Zone numbers are listed with their phase pairs, voltages, and amperage.
	**Can Info** The Controller Area Network (CAN) Info screen is used for troubleshooting communication issues on the CAN bus.
	**Process Monitor** Use the Process Monitoring screen to see zone graphical plots for: • Setpoint • Temperature • Power • Amps • Leakage • Volts

4.2.7 System Screen Selections — System Configuration

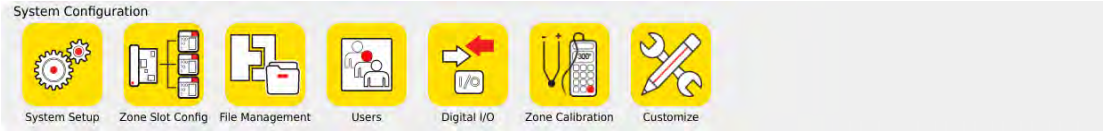
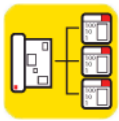


Table 4-9 describes the System Configuration buttons.

Table 4-9 System Configuration Buttons

Button	Description
	**System Setup** Use the System Setup screen to set some of the most commonly used system wide preferences.
	**Zone Slot Config** Use the Zone Slot Config screen to identify the controller cards that operate the zones. You can also set the amperage limits, thermocouple type, select a card image, and enable the cards.
	**File Management** Use the File Management screen to store and work with files, such as mold setups, images, documents, and reports.
	**Users** Human Machine Interface (HMI) administrators can use the Users screen to create new users, change a user password, or delete a user.
	**Digital I/O** Use the Digital I/O screen to set the Neo5 inputs and outputs.
	**Zone Calibration** Use the Zone Calibration screen to calibrate the zones.
	**Customize** Use the Customize screen to configure what system functions and settings are shown when in the Advanced and Basic Modes.

4.3 System Modes

Table 4-10 gives the complete list and descriptions of the system modes that are shown in the System Mode field of the screen header.

Table 4-10 System Modes

System Mode	Description
Stop	The system is stopped, and no power is being applied to the heaters.
Running	The system is heating up to or maintaining the normal setpoint.
Manual Standby	The user pressed the Standby button  and the system is heating to the manual standby setpoint.
Remote Standby	An external signal has activated the remote standby mode and the system is heating up to the remote standby setpoint.
Delay Standby	The system is delaying for a set period of time before entering the remote standby mode.
Manual Boost	The user pressed the Boost button  and the system is heating to the boost setpoint.
Remote Boost	An external signal has activated the remote boost mode and the system is heating up to the remote boost setpoint.
Delay Boost	The system is delaying for a set period of time before entering Remote Boost mode.
Remote Stop	With the remote stop input active, it prevents the user from starting the system.
ART	The Active Reasoning Technology (ART) tuning process is active.
Calibration	The system allows the user to calibrate the thermocouple inputs for each zone.
Diagnostics	The mold diagnostics process is active.
Firmware Update	A firmware update is in process on the selected control cards.
Bake Out Cycle 1	The system is baking out moisture in the mold. This is the first attempt.
Bake Out Cycle 2	The system is baking out moisture in the mold. This is the second attempt.
Bake Out Cycle 3	The system is baking out moisture in the mold. This is the third attempt.
Bake Out Cycle 4	The system is baking out moisture in the mold. This is the fourth attempt.
Bake Out Cycle 5	The system is baking out moisture in the mold. This is the fifth attempt.
Soft Start	The system is heating all zones up to setpoint in a gradual and even manner.
Stage x Active (Heating)	All zones assigned to stage x (1-4) are heating to the stage setpoint.

Table 4-10 System Modes (Continued)

System Mode	Description
Stage x Active (ART)	The ART process is running on only the zones assigned to stage x.
Stage x Soaking (Heating)	After heating up, the system will maintain the stage x setpoint until the soak timer expires.
Stage x Active (Cooling)	All zones assigned to stage x are cooling to the stage setpoint.
Stage x Soaking (Cooling)	After cooling down, the system will maintain the stage x setpoint until the soak timer expires.
Stage 4 Running Indefinitely (Heating)	The system will remain in stage 4 until the user presses the Start button to heat the zones to the normal setpoint.
Circuit Test	The system makes sure that there are no heater circuit faults (open circuit, short circuit, leakage, or wrong heater) on any zones.

4.4 Screen Keyboards, Keypads, and Selection Menus

The Neo5 controller uses screen keyboards, keypads, and selection menus. Keyboards are used to enter text, such as names for users, zones, and groups. Keypads are used to enter numeric values for operation settings, such as temperatures, power, time, and percentages. Selection menus are used to easily select an item in a drop-down list. Figure 4-4 shows a typical keyboard, keypad, and selection menu. Their functions are identified in the title bars.

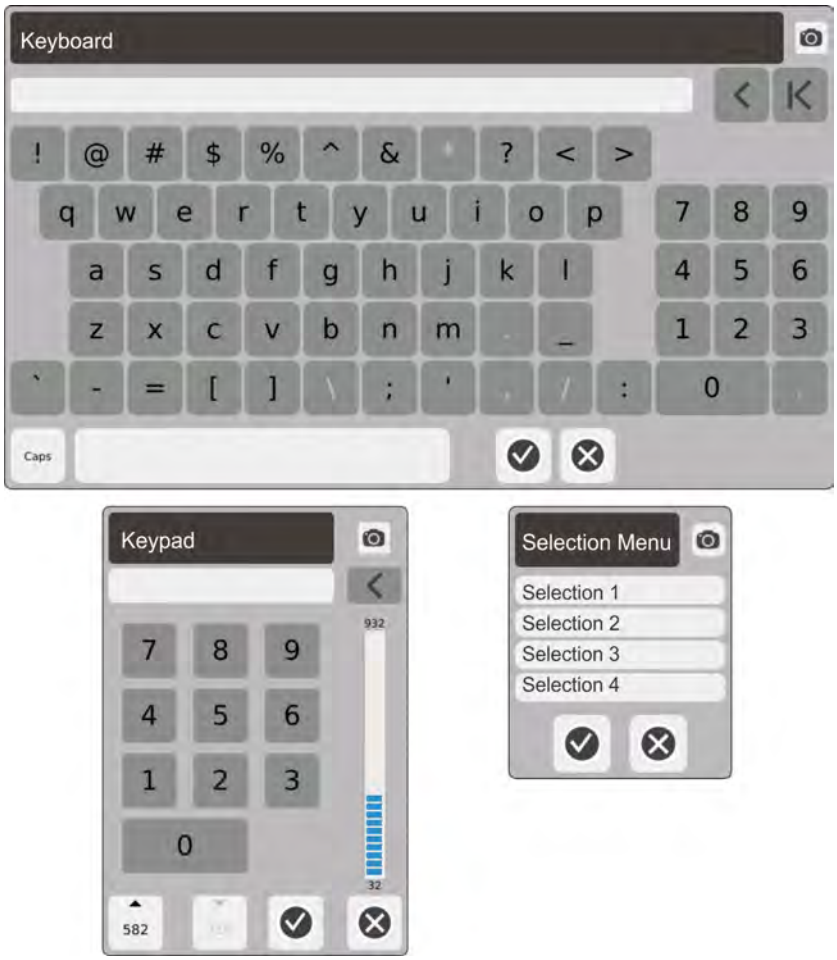


Figure 4-4 Typical Keyboard, Keypad, and Selection Menu

4.4.1 Keypad Use

The screen keyboards and selection menus are easy to use. You type in text, or make a selection, and then select the button to accept the entry.

The screen keypads are also easy to use, but specific features must be identified. Figure 4-5 shows an example of the keypad for the Temperature Setpoint. The keypad buttons and indications are identified.

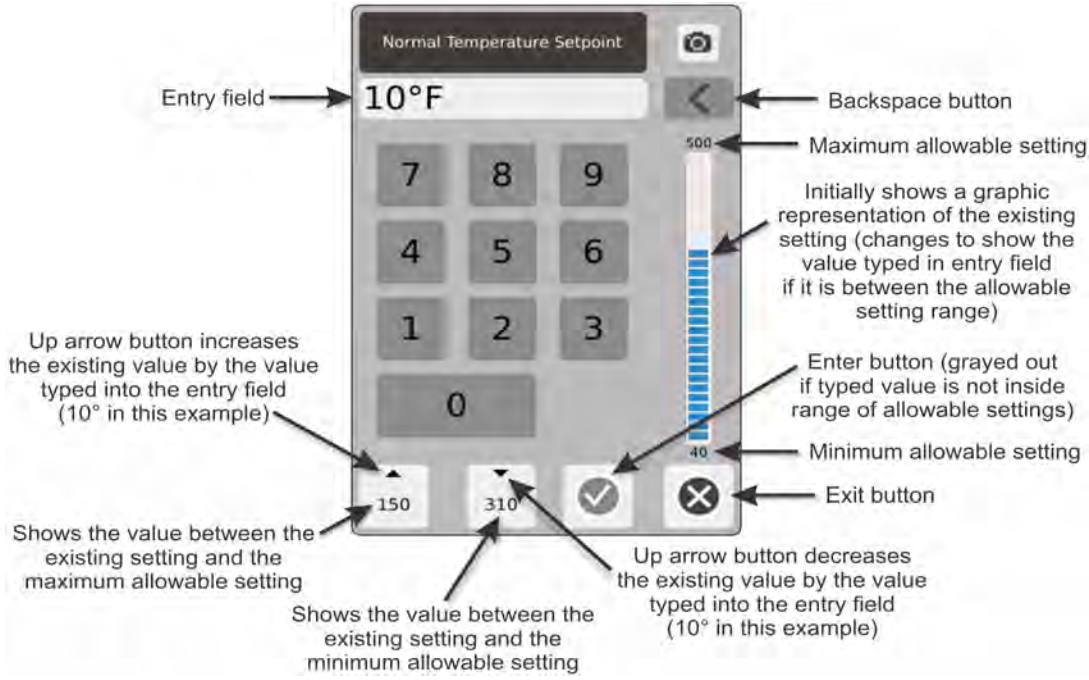


Figure 4-5 Temperature Setpoint Keypad Example

4.4.1.1 Enter a Specified Setpoint Value

You can enter a specific value for a setpoint. To do this, type the numbered value on the screen keypad, and then select the ✓ button to accept the change.

4.4.1.2 Increase or Decrease a Setpoint by a Specified Value

You can raise or lower an existing setpoint by a specified amount with the use of the arrow buttons at the bottom of the screen keypad.

The up-arrow button increases the existing setpoint by the value typed in the entry field. In the Figure 4-5 example, the existing setpoint will increase by 10° when the up arrow is selected.

The number below the arrow is the maximum numerical value that can be input in the dialog window without exceeding the maximum limit of the setpoint.

NOTE: A maximum setpoint limit must be entered (refer to Section 8.7.4) before this button becomes active.

The down arrow button decreases the exiting setpoint by the value typed in the entry field. In the Figure 4-5 example, the existing setpoint will decrease by 10° when the up arrow is selected.

The number below the arrow is the maximum numerical value that can be input in the dialog window without going below the minimum limit of the setpoint.

NOTE: A minimum setpoint limit must be entered (refer to Section 8.7.4) before this button becomes active.

Example

To add or subtract a specified value from the existing zone temperature setpoint, do the steps that follow:

1. Touch the box to the right of the Temperature Setpoint field. The Normal Temperature Setpoint keypad shows.

   NOTE: The two arrow buttons are at first grayed out.

2. Use the numbered keypad to type in the amount that you want to add or subtract from the current setpoint.

   NOTE: In the example shown in Figure 4-5, 10° has been typed in the entry field.

   After you type the amount, the arrow buttons will become active (not grayed out).

3. Do one of the steps that follow:

   a. To increase the existing setpoint, touch the up-arrow button and 10° will be added to the setpoint.

      You are returned to the Quick Set screen, and the setpoint shown in the selected zone will increase by 10°.

   b. To decrease the existing setpoint, touch the down arrow button and 10° will be subtracted from the setpoint.

      You are returned to the Quick Set screen, and the setpoint shown in the selected zone will decrease by 10°.

4.5 Save Now

With the use of the Save Now button, you can save the files that follow to the system's internal hard drive:

- Screen shot
- Report list
- Process data

These files can then be transferred from the internal drive to a USB drive (plugged in to the USB port) or to a network directory. The Save Now button is shown on all screens.

To use the Save Now feature, do the steps that follow:

1. Select the **Save Now** button near the bottom right corner of the screen.

   The Save Now dialog shows (refer to Figure 4-6).

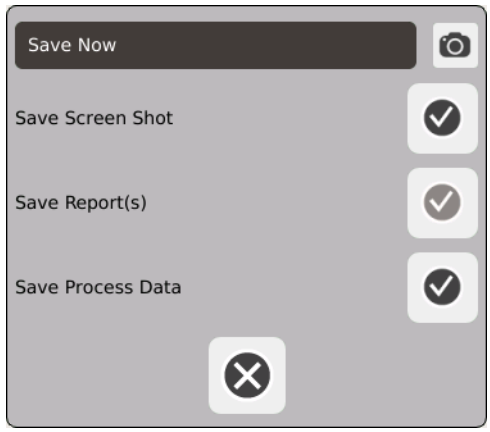


Figure 4-6 Save Now Dialog

2. Touch the button next to the file(s) that you want saved.

   The Save Files Result dialog shows.

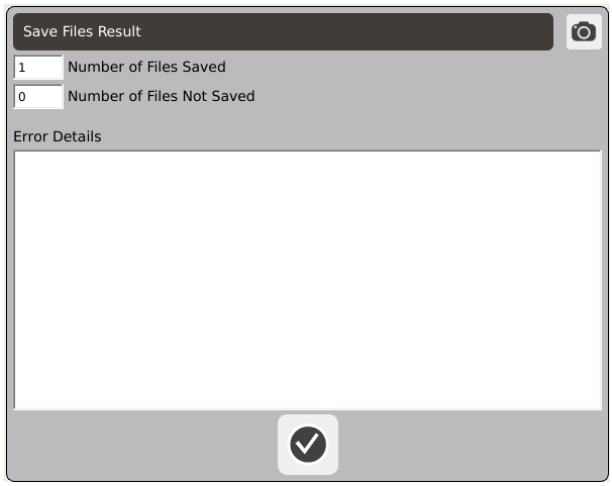


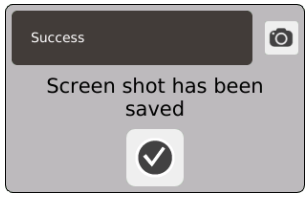
Figure 4-7 Save Files Result Dialog

3. Touch the button to close the result dialog.

4.6 Save a Dialog Window

You may find it necessary to save a screen shot of a dialog window. To do this, select the camera button that is at the top right corner of all dialog windows.

A dialog shows to let you know that the file was saved successfully.



Touch the  button to close the dialog.

Chapter 5 Security and Administration

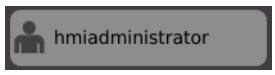
This chapter describes the user management functions.

5.1 Log In/Log Out

Users of the Neo5 controller must log into the system. Each user must have their own user name and password. Do the steps that follow to log into the system:

To log in:

1. In the footer, touch the **Log In/Log Out** button.



2. Use the keyboard to type in your user name, then touch the button to continue (refer to Figure 5-1).

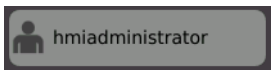
Figure 5-1 User Name Dialog Screen

3. Type in your password, then touch the button to complete the login (refer to Figure 5-2).

Figure 5-2 Password Dialog Screen

To log out:

1. In the footer, touch the **Log In/Log Out** button.



The Logout dialog shows (refer to Figure 5-3).

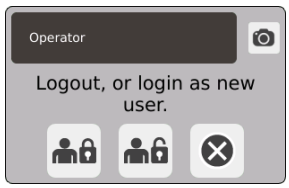


Figure 5-3 Logout Dialog Screen

2. On the log out dialog window, touch the **Log Out** button to log out of the system. You can touch the **New Log In** button to log in a new user.

5.2 User Management and Security Screens

A user type is given to each person who operates the Neo5 (refer to Table 5-1). The user types control what level of operations and changes are permitted, and what screens can be viewed by the user in the Neo5 system.

Table 5-1 User Types

Role	Definition
Guest (Default User)	Can only look at screens and is not permitted to change setpoints.
Operator	Can change screen data as permitted by Administrator.
Supervisor	Can change screen data, with added user access to specified screens as permitted by Administrator.
Administrator	The same change control and access permitted to the Supervisor, with the added control to create, delete, rename, and give all user types.

From the Users screen, the administrator can add or delete a user or change a user's password. The administrator also controls security settings. The security settings allow or deny access to the different features of the Neo5.

5.2.1 Manage Users

To create/delete a user or change a user's password, do the steps that follow:

1. On the Neo5 Home screen, in the System Configuration group, select the **Users** button.

2. On the top of the Users screen, if necessary, select the User Management checkbox.

The Users screen shows (refer to Figure 5-4).

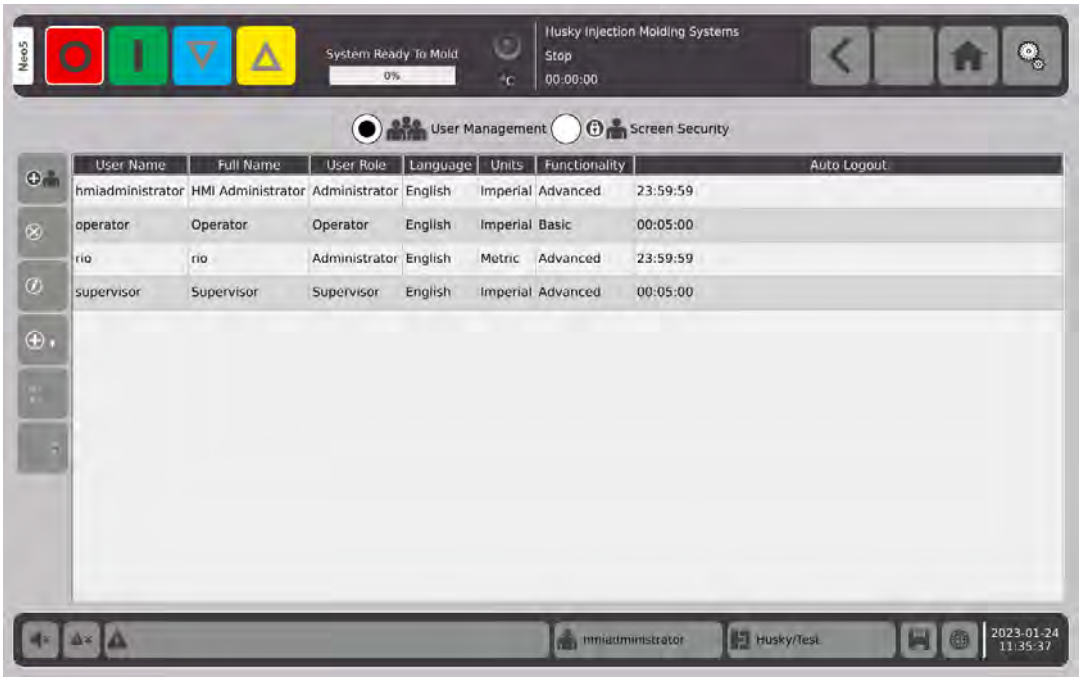


Figure 5-4 Users Screen

5.2.1.1 Add a User

To add a new user, do the steps that follow:

1. Select the **Add New User** button at the left side of the screen.

2. Use the keyboard or drop-down selection dialogs to enter in the data that follows:

   NOTE: The keyboard, keypad, and selection screens will automatically change to next data screen after you select the ✓ button. Select the X button to cancel the addition of the new user.

   a. Type the user name and then select the ✓ button (refer to Figure 5-5).

      NOTE: This is the user name that the user will enter to log in.

Figure 5-5 User Name Keyboard

b. Type the user's full name and then select the button (refer to Figure 5-5).

Figure 5-6 User's Full Name Keyboard

c. Select the user role and then select the button (refer to Figure 5-7).

Figure 5-7 User Role Selection

d. Type the password that the user must use and then select the button (refer to Figure 5-8).

Figure 5-8 Password Keyboard

e. Type the password again to confirm it was entered correctly and then select the button (refer to Figure 5-9)

Figure 5-9 Confirm Password Keyboard

f. Select a language for the user and then select the button (refer to Figure 5-10).

Figure 5-10 Language Selection

g. Select the units (Imperial or Metric) for the user and then select the button (refer to Figure 5-11).

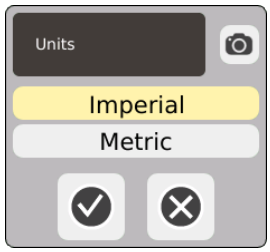


Figure 5-11 Units Selection

h. Select the functionality (Advanced or Basic) for the user and then select the button (refer to Figure 5-12). For more information about Advanced and Basic functionality, refer to Chapter 6.

NOTE: Advanced gives the user access to more advanced settings.

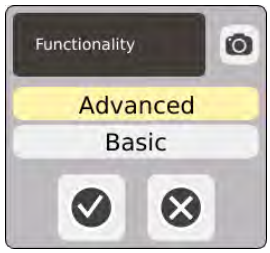


Figure 5-12 Functionality Selection

i. Type the auto log out time and then select the button (refer to Figure 5-13).

When there is no activity for the time entered in the Auto Logout keypad, the Neo5 will automatically log out the user. The default time is 5 minutes. The minimum is 10 seconds.

Figure 5-13 Auto Log Out Time Keypad

After you have entered the auto log out time, the User Management screen will show and the new user will be included with the list of other users.

5.2.1.2 Delete a User

To delete a user, do the steps that follow:

1. Select the user in the **User Name** column as shown in Figure 5-14.

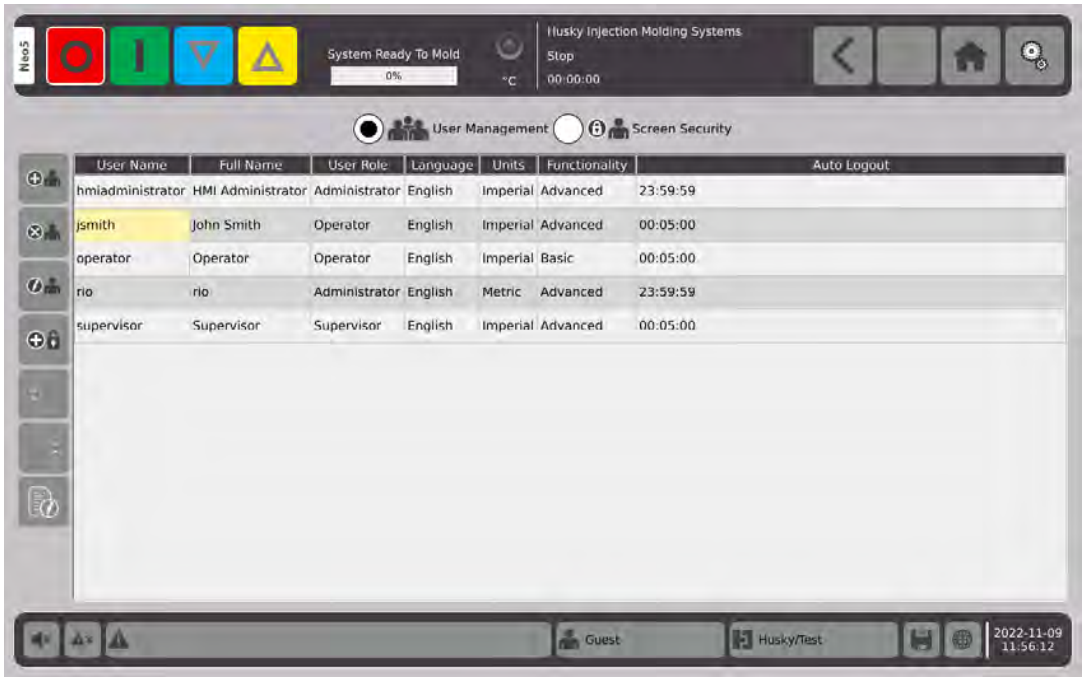


Figure 5-14 Select User to be Delete

2. Select the **Delete User** button at the left side of the screen.

The confirmation dialog shows (refer to Figure 5-15).

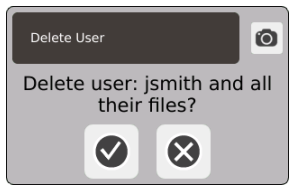


Figure 5-15 Delete User Confirmation

3. Select the  button to complete the deletion.
   The user is deleted.

5.2.1.3 Change a User Password

To change a user password, do the steps that follow:

1. Select the user in the **User Name** column (refer to Figure 5-16).

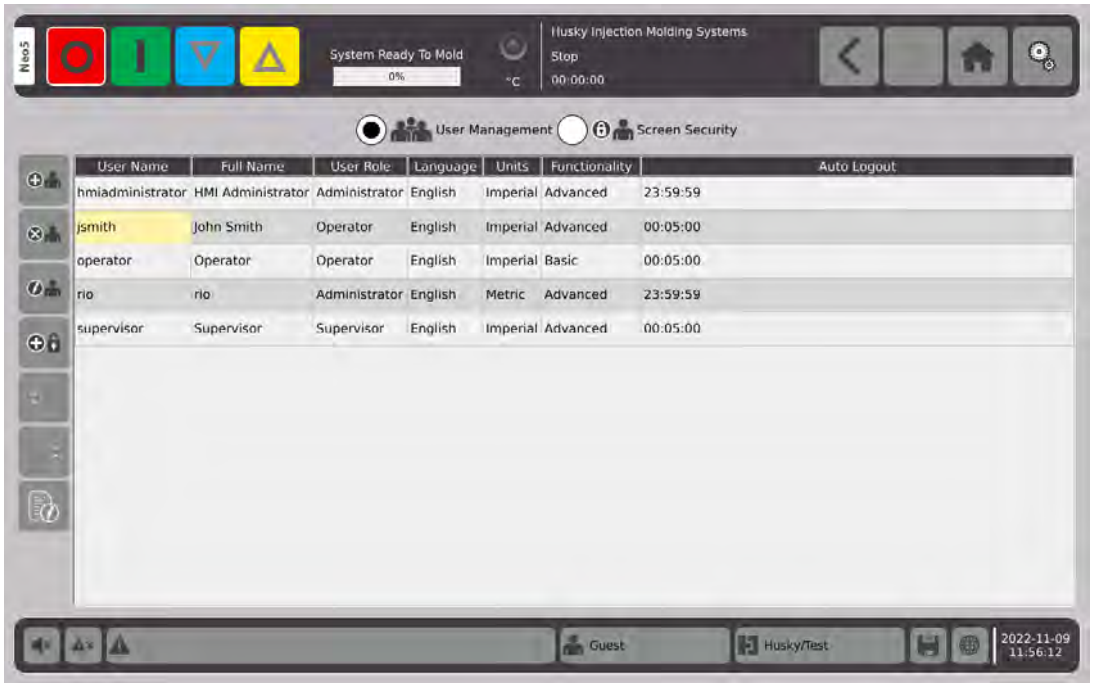


Figure 5-16 Select the User for a Password Change

2. Select the **Change Password** button at the left side of the screen.

3. Type the user's new password and then select the ✓ button (refer to Figure 5-17).

Figure 5-17 Password Keyboard

4. Type the password again to confirm it was entered correctly and then select the ✓ button (refer to Figure 5-18)

Figure 5-18 Confirm Password Keyboard

The password has changed.

5.2.2 Set the Security Settings

Security parameters can be set for each screen that has restrictions. When you touch a screen name, it expands to show the list of parameters for that screen. Individual security levels are available for the following:

- Adjustable parameters
- User commands, such as Standby and Boost
- Screen availability

To set security parameters for the Neo5 screens, do the steps that follow:

1. On the Neo5 Home screen, in the System Configuration group, select the **Users** button.

2. On the top of the Users screen, if necessary, select the User Management checkbox.

The Screen Security screen shows (refer to Figure 5-19).

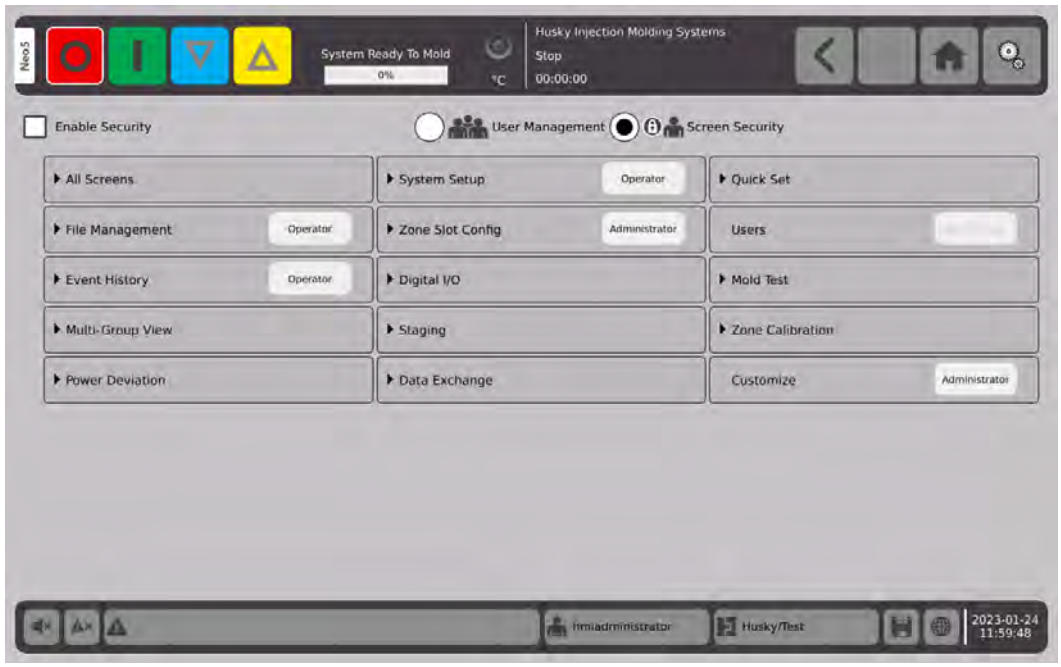


Figure 5-19 Screen Security Screen

3. On the Screen Security screen, assign a role (Operator, Supervisor or Administrator) to each function.

- When Operator is selected, the supervisor and administrator roles also have access to the function/screen.
- When Supervisor is selected, the operator cannot access that function/screen.
- When Administrator is selected, the supervisor and operator cannot access that function/screen.

a. Touch a name tab that is next to an arrow to open the drop-down menu.

As an example, Figure 5-20 shows the drop-down list for File Management.

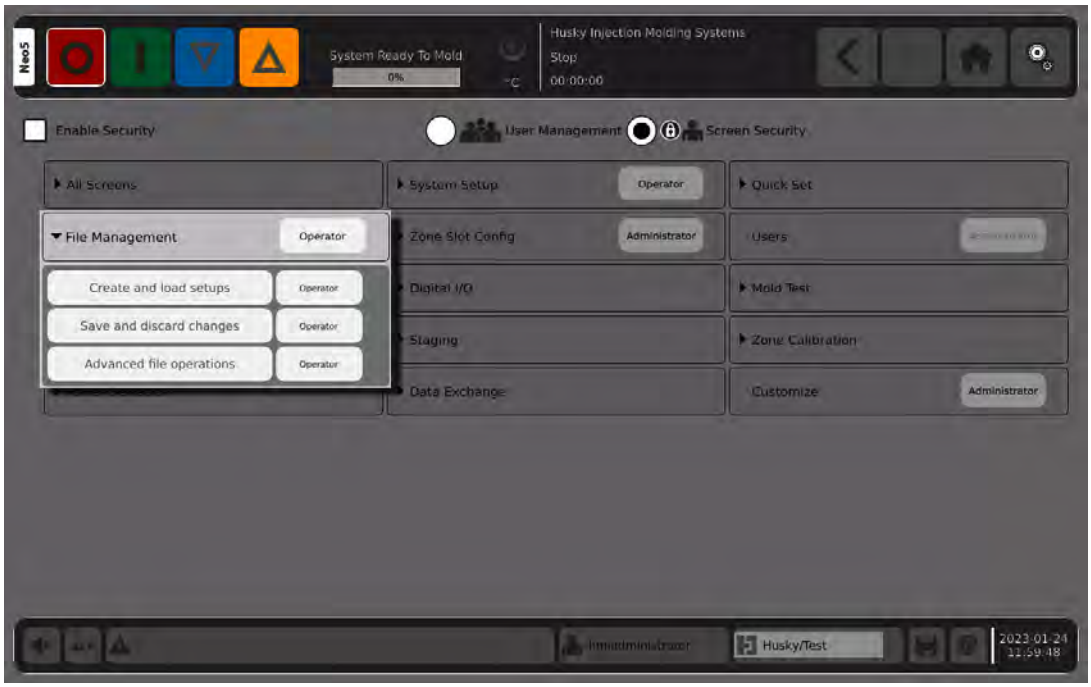


Figure 5-20 Screen Security Drop-Down Selections

b. Touch the box to the right of a function/screen name in the list to show the Operator Level selection dialog (Figure 5-21).

Figure 5-21 Operator Level Selection Dialog

c. Select the role for the function/screen and then select the ✓ button.

d. Continue to assign a user role for each function/screen for all of the tabs that remain on the Screen Security screen.

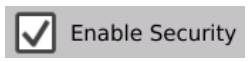
NOTE: The Users tab is greyed out because only the administrator can manage users. Refer to Section 5.2.1.

5.2.3 Security Assignments Override

You can set an override for some of the functions/screens that already have their user roles assigned. Touch the white box in a name tab and select the Operator Level that will override the parameters under that tab.

5.2.4 Enable Security

You must put a check mark in the **Enable Security** box to apply all the security settings. The default is Enable Security. You can touch the box and remove the check mark. This will disable all the security settings and all users will have access to all functions/screens.



5.2.5 Security Settings List

Each screen on the Neo5 system is represented by a tab on the Screen Security screen. Touch the tabs to see the available security restrictions for each system screen. The list that follows shows the security settings found under each tab.

- **All Screens**
  - Date and Time
  - Start, Boost, Standby
  - Silence Horn and Reset Alarms
- **File Management** (Override Capable)
  - Create and load setups
  - Save and discard changes
  - Advanced file operations
- **Event History** (Override Capable)
  - Change filter settings
- **Multi-Group View**
  - Configure Group Order
  - Modify Group Control
  - Modify Group Color
- **Power Deviation**
  - Configure Feature
  - Relearn Baseline
  - Access Troubleshooting Screen

- **System Setup** (Override Capable)
  - Monitor Zone Settings
  - Wattage Voltage
  - Global Output Power Limit
  - Alarm Control Settings
  - Show Thermocouple Readings
  - Temperature Units
  - At-Temperature Controls
  - System Settings
  - Force Phase Angle Control
  - Earth Leakage Enable
  - Earth Leakage Setup
  - Bake Out Enable
  - Bake Out Setup
  - Supply Configuration
  - Diagnostics Export
  - Circuit Test Setup
  - Heat Uniformity
  - Auto Following Settings
  - Soft Start to ART Setpoint Enable
  - Customized Functionality
  - Default Settings
  - Same Sensor Input Max Limit
  - Heat Sequencing
  - Tuning
  - Voltage Regulation
- **Zone Slot Config** (Override Capable)
  - Zone/Slot Configuration
- **Digital I/O**
  - Configure Digital I/O
- **Staging**
  - Configuration
- **Data Exchange**
  - Select Report Type
  - Save to Local or USB Location
  - Save to Network Location
  - Save Process Data Setup
  - Save Process Data As
  - Setup Network Interface
  - Setup Network Share
  - Setup Time Synchronization
  - OPC UA Interface Settings
  - OPC UA Certificate Management

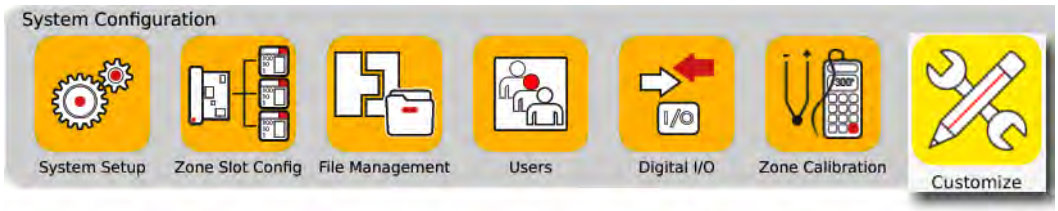
- **Quick Set**
  - Frequently Used
  - Zone Edit
  - Setpoint Limits
  - Advanced Settings
  - Control Settings
  - Standby and Boost
  - ART Settings
  - No Heater Detected Enable
  - Heater Types
  - Groups
- **Users** (One Selection)
- **Mold Test**
  - Configure and Run
- **Zone Calibration**
  - Calibrate Zones
  - Load Default Calibration
- **Customize** (One Selection)

Chapter 6 Customize

The Customize screen is used to configure what system functions and settings are shown when in the Advanced and Basic Modes. This screen is also where you can setup which screen the controller shows when powered ON.

To see the Customize screen, select the **Customize** button in the System Configuration group of the Neo5 Home screen.

NOTE: If the Customize button does not show on the Neo5 Home screen, refer to Section 4.2.2.1.



The Customize screen shows (refer to Figure 6-1).

Figure 6-1 Customize Screen

6.1 Customize Screen Buttons

Table 6-1 describes the buttons found on the Customize screen.

Table 6-1 Customize Screen Buttons

Button	Description
Advanced	Touch the Advanced radio button to display all settings and functionality that can be assigned to Advanced Mode.
Basic	Touch the Basic radio button to display all settings and functionality that can be assigned to Basic Mode.
System	Touch the System radio button to display the menu for selecting which screen the system will show after booting up.
Reset to Default Values	Touch the Reset to Default Values button to return all settings in the Customize screen (Advanced, Basic and System) to factory defaults.
Function Settings	Touch the Function Settings buttons to do what follows: • If an arrow is shown, touch the button to expand a menu of setting buttons related with that group. Touch the YES/NO field to the right of the button label to show a dialog to hide (NO) or display (YES) that button or function when the system is in the assigned mode. Changes are applied to the mode (Advanced or Basic) that is selected at the top of the Customize screen. • If an arrow is not shown, touch the YES/NO field to the right of the button label to show a dialog to hide (NO) or show (YES) that screen when the system is in the assigned mode (Advanced or Basic). Changes are applied to the mode (Advanced or Basic) that is selected at the top of the Customize screen.

6.1.1 Advanced Setup Screen

The Advanced setup screen is used to configure what settings and functionality will be available when a user is in Advanced mode. All changes made in this screen are automatically saved and are applied whenever a user logs in with a user profile configured for Advanced mode or the Use Advanced Functionality box is selected in the System Setup screen.

Table 6-2 describes the Advanced Setup screen default settings. When an item setting is Yes, the item is shown on the screen. If set to No, the item is not shown.

Table 6-2 Advanced Setup Default Settings

Item	Available Settings	Default Value	Description
General	Screen History	Yes	Shows the Back and Forward buttons in the System Header that are used to navigate through the previous 10 screens viewed.
	File Management Navigation	Yes	Shows the File Management button on the Home screen and disables the Mold Setup Info button in the system footer.
	Language Selection	Yes	Shows the Language Selection button in the system footer.
Neo View	Neo View	Yes	Shows the Neo View button on the Home screen.
Multi-Group View	Multi-Group View	Yes	Shows the Muti-Group View button on the Home screen.
Text View	Text View	Yes	Shows the Text View button on the Home screen.
Quick Set	Quick Set	Yes	Shows the Quick Set button on the Home screen.
QS - Frequently Used	QS - Frequently Used	Yes	Shows the entire Frequently Used menu in the Quick Set screen.
	Temperature Setpoint	Yes	Shows the Temperature Setpoint setting in the Frequently Used menu in the Quick Set screen.
	Power Setpoint	Yes	Shows the Power Setpoint setting in the Frequently Used menu in the Quick Set screen.
	Zone On/Off	Yes	Shows the Zone On/Off setting in the Frequently Used menu in the Quick Set screen.
	Regulation Mode	Yes	Shows the Regulation Mode setting in the Frequently Used menu in the Quick Set screen.
	Alarm Window	Yes	Shows the Alarm Window setting in the Frequently Used menu in the Quick Set screen.
	Abort Window	Yes	Shows the Abort Window setting in the Frequently Used menu in the Quick Set screen.

Table 6-2 Advanced Setup Default Settings (Continued)

Item	Available Settings	Default Value	Description
QS - Zone Edit	QS - Zone Edit	Yes	Shows the entire Zone Edit menu in the Quick Set screen.
	Zone Name	Yes	Shows the Zone Name setting in the Zone Edit menu in the Quick Set screen.
	Locked/Unlocked	Yes	Shows the Locked/Unlocked setting in the Zone Edit menu in the Quick Set screen.
	Display/Hide	Yes	Shows the Display/Hide setting in the Zone Edit menu in the Quick Set screen.
QS - Groups	QS - Groups	Yes	Shows the entire Groups menu in the Quick Set screen.
	Group	Yes	Shows the Group assignment setting in the Groups menu in the Quick Set screen.
	Group 1 - 10 Name	Yes	Shows the Group 1 - 10 Name setting in the Groups menu in the Quick Set screen
QS - Setpoint Limits	QS - Setpoint Limits	Yes	Shows the entire Setpoint Limits menu in the Quick Set screen.
	Temperature Minimum	Yes	Shows the Temperature Minimum setting in the Setpoint Limits menu in the Quick Set screen.
	Temperature Maximum	Yes	Shows the Temperature Maximum setting in the Setpoint Limits menu in the Quick Set screen.
	Power Minimum	Yes	Shows the Power Minimum setting in the Setpoint Limits menu in the Quick Set screen.
	Power Maximum	Yes	Shows the Power Maximum setting in the Setpoint Limits menu in the Quick Set screen.

Table 6-2 Advanced Setup Default Settings (Continued)

Item	Available Settings	Default Value	Description
QS - Manual Standby	QS - Manual Standby	Yes	Shows the entire Manual Standby menu in the Quick Set screen.
	Temperature Setpoint	Yes	Shows the Temperature Setpoint setting in the Manual Standby menu in the Quick Set screen.
	Temperature Minimum	Yes	Shows the Temperature Minimum setting in the Manual Standby menu in the Quick Set screen.
	Temperature Maximum	Yes	Shows the Temperature Maximum setting in the Manual Standby menu in the Quick Set screen.
	Power Setpoint	Yes	Shows the Power Setpoint setting in the Manual Standby menu in the Quick Set screen.
	Power Minimum	Yes	Shows the Power Minimum setting in the Manual Standby menu in the Quick Set screen.
	Power Maximum	Yes	Shows the Power Maximum setting in the Manual Standby menu in the Quick Set screen.
	Duration Timer	Yes	Shows the Duration Timer setting in the Manual Standby menu in the Quick Set screen.
QS - Manual Boost	QS - Manual Boost	Yes	Shows the entire Manual Boost menu in the Quick Set screen.
	Temperature Setpoint	Yes	Shows the Temperature Setpoint setting in the Manual Boost menu in the Quick Set screen.
	Temperature Minimum	Yes	Shows the Temperature Minimum setting in the Manual Boost menu in the Quick Set screen.
	Temperature Maximum	Yes	Shows the Temperature Maximum setting in the Manual Boost menu in the Quick Set screen.
	Power Setpoint	Yes	Shows the Power Setpoint setting in the Manual Boost menu in the Quick Set screen.
	Power Minimum	Yes	Shows the Power Minimum setting in the Manual Boost menu in the Quick Set screen.
	Power Maximum	Yes	Shows the Power Maximum setting in the Manual Boost menu in the Quick Set screen.
	Duration Timer	Yes	Shows the Duration Timer setting in the Manual Boost menu in the Quick Set screen

Table 6-2 Advanced Setup Default Settings (Continued)

Item	Available Settings	Default Value	Description
QS - Remote Standby	QS - Remote Standby	Yes	Shows the entire Remote Standby menu in the Quick Set screen.
	Temperature Setpoint	Yes	Shows the Temperature Setpoint setting in the Remote Standby menu in the Quick Set screen.
	Temperature Minimum	Yes	Shows the Temperature Minimum setting in the Remote Standby menu in the Quick Set screen.
	Temperature Maximum	Yes	Shows the Temperature Maximum setting in the Remote Standby menu in the Quick Set screen.
	Power Setpoint	Yes	Shows the Power Setpoint setting in the Remote Standby menu in the Quick Set screen.
	Power Minimum	Yes	Shows the Power Minimum setting in the Remote Standby menu in the Quick Set screen.
	Power Maximum	Yes	Shows the Power Maximum setting in the Remote Standby menu in the Quick Set screen.
	Duration	Yes	Shows the Duration setting in the Remote Standby menu in the Quick Set screen.
	Delay	Yes	Shows the Delay setting in the Remote Standby menu in the Quick Set screen.
	Input Mode	Yes	Shows the Input Mode n setting in the Remote Standby menu in the Quick Set screen.
	Reset Delay Timer in Direct Mode	Yes	Shows the Reset Delay Timer in Direct Mode setting in the Remote Standby menu in the Quick Set screen.

Table 6-2 Advanced Setup Default Settings (Continued)

Item	Available Settings	Default Value	Description
QS - Remote Boost	QS - Remote Boost	Yes	Shows the entire Remote Boost menu in the Quick Set screen.
	Temperature Setpoint	Yes	Shows the Temperature Setpoint setting in the Remote Boost menu in the Quick Set screen.
	Temperature Minimum	Yes	Shows the Temperature Minimum setting in the Remote Boost menu in the Quick Set screen.
	Temperature Maximum	Yes	Shows the Temperature Maximum setting in the Remote Boost menu in the Quick Set screen.
	Power Setpoint	Yes	Shows the Power Setpoint setting in the Remote Boost menu in the Quick Set screen.
	Power Minimum	Yes	Shows the Power Minimum setting in the Remote Boost menu in the Quick Set screen.
	Power Maximum	Yes	Shows the Power Maximum setting in the Remote Boost menu in the Quick Set screen.
	Duration	Yes	Shows the Duration setting in the Remote Boost menu in the Quick Set screen.
	Delay	Yes	Shows the Delay setting in the Remote Boost menu in the Quick Set screen.
	Input Mode	Yes	Shows the Input Mode n setting in the Remote Boost menu in the Quick Set screen.
QS - Heater Types	QS - Heater Types	Yes	Shows the entire Heater Types menu in the Quick Set screen.
	Heater Type	Yes	Shows the Heater Type assignment setting in the Heater Types menu in the Quick Set screen.
	Custom Type 1 - 8	Yes	Shows the Custom Type 1 - 8 settings in the Heater Types menu in the Quick Set screen.

Table 6-2 Advanced Setup Default Settings (Continued)

Item	Available Settings	Default Value	Description
QS - Advanced Settings	QS - Advanced Settings	Yes	Shows the entire Advanced Settings menu in the Quick Set screen.
	Output Power Limit	Yes	Shows the Output Power Limit setting in the Advanced Settings menu in the Quick Set screen.
	Assigned Leader Zone	Yes	Shows the Assigned Leader Zone setting in the Advanced Settings menu in the Quick Set screen.
	Sensor Input	Yes	Shows the Sensor Input setting in the Advanced Settings menu in the Quick Set screen.
	Output Mode	Yes	Shows the Output Mode setting in the Advanced Settings menu in the Quick Set screen.
	PCM - Priority Control Mode	Yes	Shows the PCM setting in the Advanced Settings menu in the Quick Set screen.
	AMC	Yes	Shows the AMC setting in the Advanced Settings menu in the Quick Set screen.
	Earth Leakage Check	Yes	Shows the Earth Leakage Check setting in the Advanced Settings menu in the Quick Set screen.
	Earth Leakage Limit	Yes	Shows the Earth Leakage Limit setting in the Advanced Settings menu in the Quick Set screen.
	No Response Limit	Yes	Shows the No Response Limit setting in the Advanced Settings menu in the Quick Set screen.
	No Heater Detected Enabled	Yes	Shows the No Heater Detected Enabled setting in the Advanced Settings menu in the Quick Set screen.
	No Heater Limit	Yes	Shows the No Heater Limit setting in the Advanced Settings menu in the Quick Set screen.

Table 6-2 Advanced Setup Default Settings (Continued)

Item	Available Settings	Default Value	Description
QS - Control Settings	QS - Control Settings	Yes	Shows the entire Control Settings menu in the Quick Set screen.
	Control Mode	Yes	Shows the Control Mode setting in the Control Settings menu in the Quick Set screen.
	P - Proportional	Yes	Shows the Proportional setting in the Control Settings menu in the Quick Set screen.
	I - Integral	Yes	Shows the Integral setting in the Control Settings menu in the Quick Set screen.
	D - Derivative	Yes	Shows the Derivative setting in the Control Settings menu in the Quick Set screen.
	P - ART	Yes	Shows the Proportional - ART setting in the Control Settings menu in the Quick Set screen.
	I - ART	Yes	Shows the Integral - ART setting in the Control Settings menu in the Quick Set screen.
	D - ART	Yes	Shows the Derivative - ART setting in the Control Settings menu in the Quick Set screen.
QS - ART Settings	QS - ART Settings	Yes	Shows the entire ART Settings menu in the Quick Set screen.
	ART	Yes	Shows the ART setting in the ART Settings menu in the Quick Set screen..
	ART Values	Yes	Shows the ART Values setting in the ART Settings menu in the Quick Set screen.
	Output Gain	Yes	Shows the Output Gain setting in the ART Settings menu in the Quick Set screen.
	Minimum P	Yes	Shows the Minimum P setting in the ART Settings menu in the Quick Set screen.
	Minimum I	Yes	Shows the Minimum I setting in the ART Settings menu in the Quick Set screen.
	Minimum D	Yes	Shows the Minimum D setting in the ART Settings menu in the Quick Set screen.
	Default P	Yes	Shows the Default P setting in the ART Settings menu in the Quick Set screen.
	Default I	Yes	Shows the Default I setting in the ART Settings menu in the Quick Set screen.
	Default D	Yes	Shows the Default D setting in the ART Settings menu in the Quick Set screen.
	ART Offset	Yes	Shows the ART Offset setting in the ART Settings menu in the Quick Set screen.

Table 6-2 Advanced Setup Default Settings (Continued)

Item	Available Settings	Default Value	Description
Staging	Staging	Yes	Shows the Staging button on the Home screen.
Mold Test	Mold Test	Yes	Shows the Mold Test button on the Home screen.
Mold Test Results	Mold Test Results	Yes	Shows the Mold Test Results button on the Home screen and the Mold Test screen.
	Test Comparison	Yes	Shows the Compare check box, the Save Test button and Delete Test button in the Mold Test Results screen.
	Change Tolerances	Yes	Shows the Change Tolerances button in the Mold Test Results screen.
Event History	Event History	Yes	Shows the Event History button on the Home screen.
	Events Filter	Yes	Shows the Events Filter button in the Event History screen.
Data Exchange	Data Exchange	Yes	Shows the Data Exchange button on the Home screen.
Power Deviation	Power Deviation	Yes	Shows the Power Deviation button on the Home screen.
Supply Voltage	Supply Voltage	Yes	Shows the Supply Voltage button on the Home screen.
Can Info	Can Info	Yes	Shows the Can Info button on the Home screen.
Process Monitor	Process Monitor	Yes	Shows the Process Monitor button on the Home screen.

Table 6-2 Advanced Setup Default Settings (Continued)

Item	Available Settings	Default Value	Description
System Setup	Auto Save Mold Setup	No	Selects the Auto Save Mold Setup feature for use.
	Monitor Zone Settings	Yes	Shows the Monitor Zone Settings panel.
	Mold Settings	Yes	Shows the Mold Settings panel.
	Voltage Settings	Yes	Shows the Voltage Settings panel.
	Diagnostics Export	Yes	Shows the Diagnostics Export panel.
	Open Source Software	Yes	Shows the Open Source Software panel.
	Zone Alarm Control	Yes	Shows the Zone Alarm Control panel.
	Heat Uniformity	Yes	Shows the Heat Uniformity panel.
	At Temperature	Yes	Shows the At Temperature panel.
	Auto Following	Yes	Shows the Auto Following panel.
	Options and Licensing	Yes	Shows the Options and Licensing panel.
	Earth Leakage	Yes	Shows the Earth Leakage panel.
	Circuit Test	Yes	Shows the Circuit Test panel.
	Bake Out	Yes	Shows the Bake Out panel.
Zone Slot Config	Zone Slot Config	Yes	Shows the Zone Slot Config button on the Home screen.

Table 6-2 Advanced Setup Default Settings (Continued)

Item	Available Settings	Default Value	Description
File Management	File Management	Yes	Shows the File Management button on the Home screen and disables the File Management navigation button in the system footer.
	File Type Filter	Yes	Shows the radio buttons in the File Type Filter group.
	Setup Changes	Yes	Shows the buttons in the Setup Changes group.
	File Directory	Yes	Shows the buttons in the File Directory group.
	Remote Location	Yes	Shows the Remote Location radio buttons.
	New Mold Operation	Yes	Shows the New Mold button.
	New Setup Operation	Yes	Shows the New Setup button.
	Load Operation	Yes	Shows the Load button.
	Save As Operation	Yes	Shows the Save As button.
	Copy Operation	Yes	Shows the Copy button.
	Delete Operation	Yes	Shows the Delete button.
	Rename Operation	Yes	Shows the Rename button.
	Preview Operation	Yes	Shows the Preview button.
Users	Users	Yes	Shows the Users button on the Home screen.
	User Management	Yes	Shows the User Management radio button.
	Screen Security	Yes	Shows the Screen Security radio button.
Digital I/O	Digital I/O	Yes	Shows the Digital I/O button on the Home screen.
Zone Calibration	Zone Calibration	Yes	Shows the Zone Calibration button on the Home screen.
Customize	Customize	Yes	Shows the Customize button on the Home screen.

6.2 Basic Setup Screen

The Basic setup screen is used to configure what settings and functionality will be available when a user is in Basic mode. All changes made in this screen are automatically saved and are applied whenever a user logs in with a user profile configured for Basic mode or the Use Advanced Functionality box is deselected in the System Setup screen.

Table 6-3 describes the Basic Setup screen default settings. When an item setting is Yes, the item is shown on the screen. If set to No, the item is not shown.

Table 6-3 Basic Setup Default Settings

Item	Available Settings	Default Value	Description
General	Screen History	No	Shows the Back and Forward buttons in the System Header that are used to navigate through the previous screen 10 screens viewed.
	File Management Navigation	Yes	Shows the File Management button on the Home screen and disables the Mold Setup Info button in the system footer.
	Language Selection	No	Shows the Language Selection button in the system footer.
Neo View	Neo View	Yes	Shows the Neo View button on the Home screen.
Multi-Group View	Multi-Group View	No	Shows the Muti-Group View button on the Home screen.
Text View	Text View	No	Shows the Text View button on the Home screen.
Quick Set	Quick Set	No	Shows the Quick Set button on the Home screen.
QS - Frequently Used	QS - Frequently Used	Yes	Shows the entire Frequently Used menu in the Quick Set screen.
	Temperature Setpoint	Yes	Shows the Temperature Setpoint setting in the Frequently Used menu in the Quick Set screen.
	Power Setpoint	Yes	Shows the Power Setpoint setting in the Frequently Used menu in the Quick Set screen.
	Zone On/Off	Yes	Shows the Zone On/Off setting in the Frequently Used menu in the Quick Set screen.
	Regulation Mode	Yes	Shows the Regulation Mode setting in the Frequently Used menu in the Quick Set screen.
	Alarm Window	Yes	Shows the Alarm Window setting in the Frequently Used menu in the Quick Set screen.
	Abort Window	Yes	Shows the Abort Window setting in the Frequently Used menu in the Quick Set screen.

Table 6-3 Basic Setup Default Settings (Continued)

Item	Available Settings	Default Value	Description
QS - Zone Edit	QS - Zone Edit	No	Shows the entire Zone Edit menu in the Quick Set screen.
	Zone Name	No	Shows the Zone Name setting in the Zone Edit menu in the Quick Set screen.
	Locked/Unlocked	No	Shows the Locked/Unlocked setting in the Zone Edit menu in the Quick Set screen.
	Display/Hide	No	Shows the Display/Hide setting in the Zone Edit menu in the Quick Set screen.
QS - Groups	QS - Groups	No	Shows the entire Groups menu in the Quick Set screen.
	Group	No	Shows the Group assignment setting in the Groups menu in the Quick Set screen.
	Group 1 - 10 Name	No	Shows the Group 1 - 10 Name setting in the Groups menu in the Quick Set screen
QS - Setpoint Limits	QS - Setpoint Limits	No	Shows the entire Setpoint Limits menu in the Quick Set screen.
	Temperature Minimum	No	Shows the Temperature Minimum setting in the Setpoint Limits menu in the Quick Set screen.
	Temperature Maximum	No	Shows the Temperature Maximum setting in the Setpoint Limits menu in the Quick Set screen.
	Power Minimum	No	Shows the Power Minimum setting in the Setpoint Limits menu in the Quick Set screen.
	Power Maximum	No	Shows the Power Maximum setting in the Setpoint Limits menu in the Quick Set screen.

Table 6-3 Basic Setup Default Settings (Continued)

Item	Available Settings	Default Value	Description
QS - Manual Standby	QS - Manual Standby	No	Shows the entire Manual Standby menu in the Quick Set screen.
	Temperature Setpoint	No	Shows the Temperature Setpoint setting in the Manual Standby menu in the Quick Set screen.
	Temperature Minimum	No	Shows the Temperature Minimum setting in the Manual Standby menu in the Quick Set screen.
	Temperature Maximum	No	Shows the Temperature Maximum setting in the Manual Standby menu in the Quick Set screen.
	Power Setpoint	No	Shows the Power Setpoint setting in the Manual Standby menu in the Quick Set screen.
	Power Minimum	No	Shows the Power Minimum setting in the Manual Standby menu in the Quick Set screen.
	Power Maximum	No	Shows the Power Maximum setting in the Manual Standby menu in the Quick Set screen.
	Duration Timer	No	Shows the Duration Timer setting in the Manual Standby menu in the Quick Set screen.
QS - Manual Boost	QS - Manual Boost	No	Shows the entire Manual Boost menu in the Quick Set screen.
	Temperature Setpoint	No	Shows the Temperature Setpoint setting in the Manual Boost menu in the Quick Set screen.
	Temperature Minimum	No	Shows the Temperature Minimum setting in the Manual Boost menu in the Quick Set screen.
	Temperature Maximum	No	Shows the Temperature Maximum setting in the Manual Boost menu in the Quick Set screen.
	Power Setpoint	No	Shows the Power Setpoint setting in the Manual Boost menu in the Quick Set screen.
	Power Minimum	No	Shows the Power Minimum setting in the Manual Boost menu in the Quick Set screen.
	Power Maximum	No	Shows the Power Maximum setting in the Manual Boost menu in the Quick Set screen.
	Duration Timer	No	Shows the Duration Timer setting in the Manual Boost menu in the Quick Set screen

Table 6-3 Basic Setup Default Settings (Continued)

Item	Available Settings	Default Value	Description
QS - Remote Standby	QS - Remote Standby	No	Shows the entire Remote Standby menu in the Quick Set screen.
	Temperature Setpoint	No	Shows the Temperature Setpoint setting in the Remote Standby menu in the Quick Set screen.
	Temperature Minimum	No	Shows the Temperature Minimum setting in the Remote Standby menu in the Quick Set screen.
	Temperature Maximum	No	Shows the Temperature Maximum setting in the Remote Standby menu in the Quick Set screen.
	Power Setpoint	No	Shows the Power Setpoint setting in the Remote Standby menu in the Quick Set screen.
	Power Minimum	No	Shows the Power Minimum setting in the Remote Standby menu in the Quick Set screen.
	Power Maximum	No	Shows the Power Maximum setting in the Remote Standby menu in the Quick Set screen.
	Duration	No	Shows the Duration setting in the Remote Standby menu in the Quick Set screen.
	Delay	No	Shows the Delay setting in the Remote Standby menu in the Quick Set screen.
	Input Mode	No	Shows the Input Mode n setting in the Remote Standby menu in the Quick Set screen.
	Reset Delay Timer in Direct Mode	No	Shows the Reset Delay Timer in Direct Mode setting in the Remote Standby menu in the Quick Set screen.

Table 6-3 Basic Setup Default Settings (Continued)

Item	Available Settings	Default Value	Description
QS - Remote Boost	QS - Remote Boost	No	Shows the entire Remote Boost menu in the Quick Set screen.
	Temperature Setpoint	No	Shows the Temperature Setpoint setting in the Remote Boost menu in the Quick Set screen.
	Temperature Minimum	No	Shows the Temperature Minimum setting in the Remote Boost menu in the Quick Set screen.
	Temperature Maximum	No	Shows the Temperature Maximum setting in the Remote Boost menu in the Quick Set screen.
	Power Setpoint	No	Shows the Power Setpoint setting in the Remote Boost menu in the Quick Set screen.
	Power Minimum	No	Shows the Power Minimum setting in the Remote Boost menu in the Quick Set screen.
	Power Maximum	No	Shows the Power Maximum setting in the Remote Boost menu in the Quick Set screen.
	Duration	No	Shows the Duration setting in the Remote Boost menu in the Quick Set screen.
	Delay	No	Shows the Delay setting in the Remote Boost menu in the Quick Set screen.
	Input Mode	No	Shows the Input Mode n setting in the Remote Boost menu in the Quick Set screen.
QS - Heater Types	QS - Heater Types	No	Shows the entire Heater Types menu in the Quick Set screen.
	Heater Type	No	Shows the Heater Type assignment setting in the Heater Types menu in the Quick Set screen.
	Custom Type 1 - 8	No	Shows the Custom Type 1 - 8 settings in the Heater Types menu in the Quick Set screen.

Table 6-3 Basic Setup Default Settings (Continued)

Item	Available Settings	Default Value	Description
QS - Advanced Settings	QS - Advanced Settings	No	Shows the entire Advanced Settings menu in the Quick Set screen.
	Output Power Limit	No	Shows the Output Power Limit setting in the Advanced Settings menu in the Quick Set screen.
	Assigned Leader Zone	No	Shows the Assigned Leader Zone setting in the Advanced Settings menu in the Quick Set screen.
	Sensor Input	No	Shows the Sensor Input setting in the Advanced Settings menu in the Quick Set screen.
	Output Mode	No	Shows the Output Mode setting in the Advanced Settings menu in the Quick Set screen.
	PCM - Priority Control Mode	No	Shows the PCM setting in the Advanced Settings menu in the Quick Set screen.
	AMC	No	Shows the AMC setting in the Advanced Settings menu in the Quick Set screen.
	Earth Leakage Check	No	Shows the Earth Leakage Check setting in the Advanced Settings menu in the Quick Set screen.
	Earth Leakage Limit	No	Shows the Earth Leakage Limit setting in the Advanced Settings menu in the Quick Set screen.
	No Response Limit	No	Shows the No Response Limit setting in the Advanced Settings menu in the Quick Set screen.
	No Heater Detected Enabled	No	Shows the No Heater Detected Enabled setting in the Advanced Settings menu in the Quick Set screen.
	No Heater Limit	No	Shows the No Heater Limit setting in the Advanced Settings menu in the Quick Set screen.

Table 6-3 Basic Setup Default Settings (Continued)

Item	Available Settings	Default Value	Description
QS - Control Settings	QS - Control Settings	No	Shows the entire Control Settings menu in the Quick Set screen.
	Control Mode	No	Shows the Control Mode setting in the Control Settings menu in the Quick Set screen.
	P - Proportional	No	Shows the Proportional setting in the Control Settings menu in the Quick Set screen.
	I - Integral	No	Shows the Integral setting in the Control Settings menu in the Quick Set screen.
	D - Derivative	No	Shows the Derivative setting in the Control Settings menu in the Quick Set screen.
	P - ART	No	Shows the Proportional - ART setting in the Control Settings menu in the Quick Set screen.
	I - ART	No	Shows the Integral - ART setting in the Control Settings menu in the Quick Set screen.
	D - ART	No	Shows the Derivative - ART setting in the Control Settings menu in the Quick Set screen.
QS - ART Settings	QS - ART Settings	No	Shows the entire ART Settings menu in the Quick Set screen.
	ART	No	Shows the ART setting in the ART Settings menu in the Quick Set screen.
	ART Values	No	Shows the ART Values setting in the ART Settings menu in the Quick Set screen.
	Output Gain	No	Shows the Output Gain setting in the ART Settings menu in the Quick Set screen.
	Minimum P	No	Shows the Minimum P setting in the ART Settings menu in the Quick Set screen.
	Minimum I	No	Shows the Minimum I setting in the ART Settings menu in the Quick Set screen.
	Minimum D	No	Shows the Minimum D setting in the ART Settings menu in the Quick Set screen.
	Default P	No	Shows the Default P setting in the ART Settings menu in the Quick Set screen.
	Default I	No	Shows the Default I setting in the ART Settings menu in the Quick Set screen.
	Default D	No	Shows the Default D setting in the ART Settings menu in the Quick Set screen.
	ART Offset	No	Shows the ART Offset setting in the ART Settings menu in the Quick Set screen.

Table 6-3 Basic Setup Default Settings (Continued)

Item	Available Settings	Default Value	Description
Staging	Staging	No	Shows the Staging button on the Home screen.
Mold Test	Mold Test	No	Shows the Mold Test button on the Home screen.
Mold Test Results	Mold Test Results	No	Shows the Mold Test Results button on the Home screen and the Mold Test screen.
	Test Comparison	No	Shows the Compare check box, the Save Test button and Delete Test button in the Mold Test Results screen.
	Change Tolerances	No	Shows the Change Tolerances button in the Mold Test Results screen.
Event History	Event History	No	Shows the Event History button on the Home screen.
	Events Filter	No	Shows the Events Filter button in the Event History screen.
Data Exchange	Data Exchange	No	Shows the Data Exchange button on the Home screen.
Power Deviation	Power Deviation	No	Shows the Power Deviation button on the Home screen.
Supply Voltage	Supply Voltage	No	Shows the Supply Voltage button on the Home screen.
Can Info	Can Info	No	Shows the Can Info button on the Home screen.
Process Monitor	Process Monitor	No	Shows the Process Monitor button on the Home screen.

Table 6-3 Basic Setup Default Settings (Continued)

Item	Available Settings	Default Value	Description
System Setup	Auto Save Mold Setup	Yes	Selects the Auto Save Mold Setup feature for use.
	Monitor Zone Settings	No	Shows the Monitor Zone Settings panel.
	Mold Settings	No	Shows the Mold Settings panel.
	Voltage Settings	No	Shows the Voltage Settings panel.
	Diagnostics Export	No	Shows the Diagnostics Export panel.
	Open Source Software	No	Shows the Open Source Software panel.
	Zone Alarm Control	No	Shows the Zone Alarm Control panel.
	Heat Uniformity	No	Shows the Heat Uniformity panel.
	At Temperature	No	Shows the At Temperature panel.
	Auto Following	No	Shows the Auto Following panel.
	Options and Licensing	No	Shows the Options and Licensing panel.
	Earth Leakage	No	Shows the Earth Leakage panel.
	Circuit Test	No	Shows the Circuit Test panel.
	Bake Out	No	Shows the Bake Out panel.
Zone Slot Config	Zone Slot Config	No	Shows the Zone Slot Config button on the Home screen.

Table 6-3 Basic Setup Default Settings (Continued)

Item	Available Settings	Default Value	Description
File Management	File Management	No	Shows the File Management button on the Home screen and disables the File Management navigation button in the system footer.
	File Type Filter	No	Shows the radio buttons in the File Type Filter group.
	Setup Changes	No	Shows the buttons in the Setup Changes group.
	File Directory	No	Shows the buttons in the File Directory group.
	Remote Location	No	Shows the Remote Location radio buttons.
	New Mold Operation	No	Shows the New Mold button.
	New Setup Operation	No	Shows the New Setup button.
	Load Operation	No	Shows the Load button.
	Save As Operation	No	Shows the Save As button.
	Copy Operation	No	Shows the Copy button.
	Delete Operation	No	Shows the Delete button.
	Rename Operation	No	Shows the Rename button.
	Preview Operation	No	Shows the Preview button.
Users	Users	No	Shows the Users button on the Home screen.
	User Management	No	Shows the User Management radio button.
	Screen Security	No	Shows the Screen Security radio button.
Digital I/O	Digital I/O	No	Shows the Digital I/O button on the Home screen.
Zone Calibration	Zone Calibration	No	Shows the Zone Calibration button on the Home screen.
Customize	Customize	No	Shows the Customize button on the Home screen.

6.2.1 System Setup Screen

The System setup screen is used to configure what screen will be displayed after the controller is powered ON. All changes made in this screen are automatically saved. The choices are the Home, Neo View, Multi-Group View, or Text View screens.

Table 6-4 describes the System Setup screen default settings.

Table 6-4 System Setup Default Settings

Item	Available Settings	Default Value	Description
Boot Up to Specific Screen	Home	No	Forces the system to boot up to the Home screen.
	Neo View	Yes	Forces the system to boot up to the Neo View screen.
	Multi-Group View	No	Forces the system to boot up to the Multi-Group View screen.
	Text View	No	Forces the system to boot up to the Text View screen.

6.2.2 Import/Export Customize Screen Settings

The Neo5 has an Export and Import Settings function for transferring a file that contains the Advanced mode, Basic mode, and System settings, configured in the Customize screen, to a USB flash drive. This file can be imported to another Neo5 controller to simplify the Customize screen setup.

The filename format is: Customize_[date]_[time].settings

Example: Customize_2021-01-01_09-30-00_settings

The sections that follow give instructions about the import and export of Customize screen settings.

6.2.2.1 Export Customize Screen Settings

After you have set your Customize screen settings, do the steps the follow:

1. Insert a USB flash drive into the USB port on the Neo5 controller.
2. Select the **System Setup** button on the Neo5 Home screen or in the screen header.

3. In the Customized Functionality area of the System Setup screen, select the **Export Settings** button (refer to Figure 6-2).

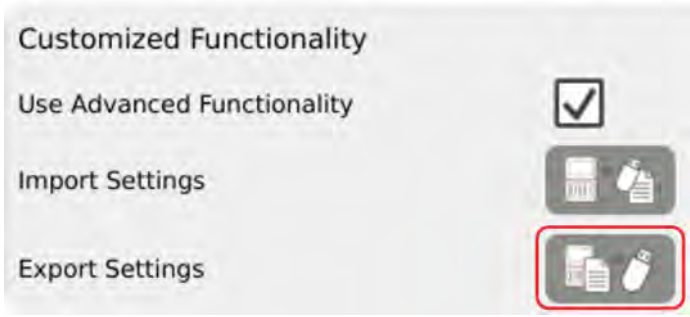


Figure 6-2 Export Customize Screen Settings

A dialog window will show to say that the file was exported successfully.

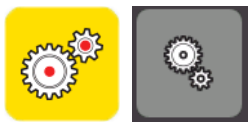
4. Select the button to close the dialog.

5. Remove the USB drive from the USB port.

6.2.2.2 Import Customize Screen Settings

To import Customize screen settings, do the steps the follow:

1. Insert the USB flash drive with the Customize screen settings file into the USB port on the Neo5 controller.
2. Select the **System Setup** button on the Neo5 Home screen or in the screen header.



3. In the Customized Functionality area of the System Setup screen, select the **Import Settings** button (refer to Figure 6-3).

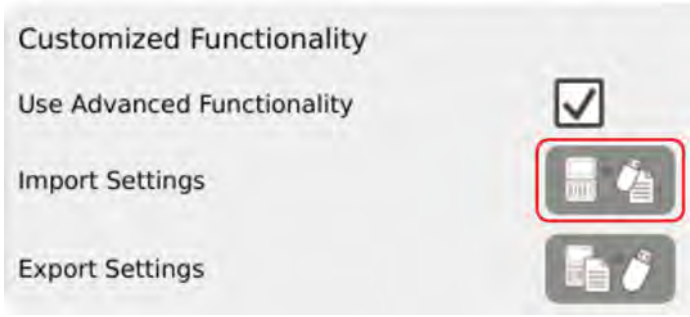


Figure 6-3 Import Customize Screen Settings

A dialog window will show that lists the saved Customize screen settings files on the USB drive (refer to Figure 6-4).

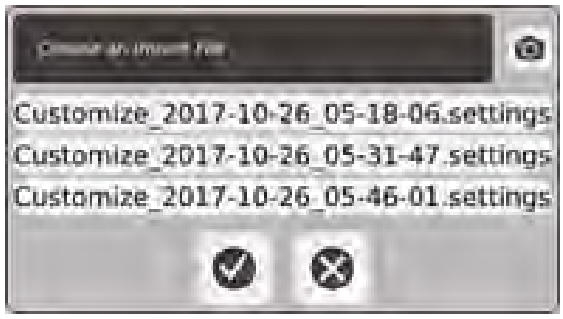


Figure 6-4 Select an Import File

4. Select the file that you want to import and then select the button to close the dialog.

   A dialog window will show to say that the settings were imported successfully.

5. Select the button to close the dialog.

6. Remove the USB drive from the USB port.

6.2.3 Assign Advanced or Basic Mode to a User Profile

The Advanced or Basic mode can be assigned to an individual user profile. This is done in the User Management section of the Users screen. After a mode has been assigned to a user profile, the controller will automatically switch to the assigned mode when the user logs onto the system.

NOTE: You must have the appropriate user role to do this action.

6.2.3.1 Assign a Mode to a User Profile

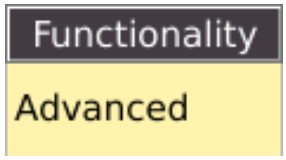
To assign a mode to a user profile, do the steps that follow:

NOTE: If this is for a new user, do the steps in Section 5.2.1.1 to add the new user.

1. From the Neo5 Home screen, select the Users button.

2. On the Users screen, select the **User Management** radio button.

3. In the user's row on the User Management screen, select the cell in the Functionality column for that user, so the cell is highlighted.



4. Touch the **Edit** button in the left side of the User Management screen.

5. Select **Advanced** or **Basic** from the Functionality dialog window, and then select the button to accept the selection.

6.3 Default Screen Settings

The Default Settings screen is used to modify the factory default settings that are assigned to a new mold setup file.

To see the Default Setup screen, do the steps that follow:

1. Select the **File Management** button on the Neo5 Home screen or in the screen footer.

2. In the Setup Changes area of the File Management screen (top middle of the screen), select the **Default Setup** button.

The Default Settings screen shows (refer to Figure 6-5).

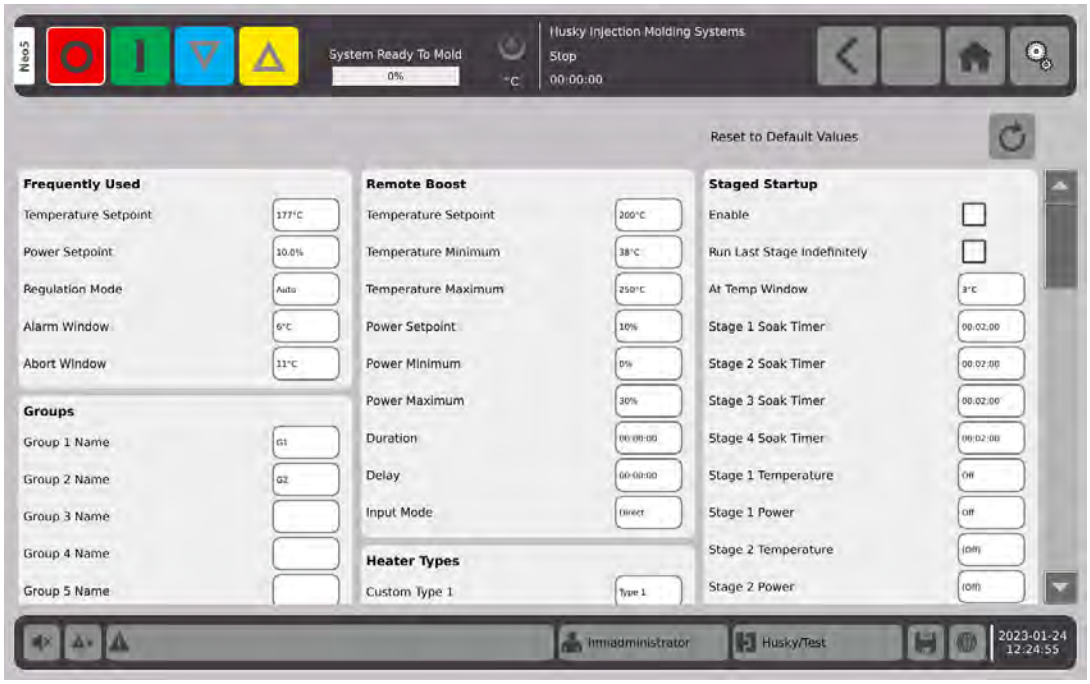


Figure 6-5 Default Settings Screen

6.3.1 Default Setup Screen Overview

The panels in the Default Settings screen include all the parameters choices that are saved to a mold setup file on the following screens/locations:

- Drop-down menus in the Quick Set screen
- Staging Screen (Staged Startup 1-4)
- Staging Screen (Staged Shutdown 1-4)
- Mold Test Setup screen

After a parameter has been changed, it is automatically saved and will be applied to the next new mold setup that is created. To change a parameter, do the steps that follow:

1. Select the white field that contains the parameter value to the right of the parameter label.
2. Enter the new value or select the setting in the dialog box.

   NOTE: Depending on the type of value, this could be a numeric keypad or a list dialog box.

3. Touch the ✔ button to accept the change.

If you find it necessary to return all settings in the Default Settings screen to the factory defaults, select the **Reset to Default Values** button.

6.3.2 Default Settings Screen Default Parameters

Table 6-5 describes the default parameters on the Default Settings screen.

Table 6-5 Default Parameters

Panel	Available Parameters	Default Value (Imperial/Metric)
Frequently Used	Temperature Setpoint	350 °F / 177 °C
	Power Setpoint	10%
	Regulation Mode	Auto
	Alarm Window	10 °F / 6 °C
	Abort Window	20 °F / 11 °C
Groups	Group 1-10 Name	Blank - User Definable
Setpoint Limits	Temperature Minimum	32 °F / 0 °C
	Temperature Maximum	932 °F / 500 °C
	Power Minimum	0%
	Power Maximum	30%
Manual Standby	Temperature Setpoint	250 °F / 121 °C
	Temperature Minimum	100 °F / 38 °C
	Temperature Maximum	250 °F / 121 °C
	Power Setpoint	10%
	Power Minimum	0%
	Power Maximum	30%
	Duration Timer	00:00:00
Manual Boost	Temperature Setpoint	No Change
	Temperature Minimum	100 °F / 38 °C
	Temperature Maximum	700 °F / 371 °C
	Power Setpoint	10%
	Power Minimum	0%
	Power Maximum	30%
	Duration Timer	00:00:00

Table 6-5 Default Parameters (Continued)

Panel	Available Parameters	Default Value (Imperial/Metric)
Remote Standby	Temperature Setpoint	250 °F / 121 °C
	Temperature Minimum	100 °F / 38 °C
	Temperature Maximum	700 °F / 371 °C
	Power Setpoint	10%
	Power Minimum	0%
	Power Maximum	30%
	Duration Timer	00:00:00
	Delay	00:00:00
	Input Mode	Direct
	Reset Delay Timer in Direct Mode	Not Selected
Remote Boost	Temperature Setpoint	No Change
	Temperature Minimum	100 °F / 38 °C
	Temperature Maximum	700 °F / 371 °C
	Power Setpoint	10%
	Power Minimum	0%
	Power Maximum	30%
	Duration Timer	00:00:00
	Delay	00:00:00
	Input Mode	Direct
Heater Types	Custom Type 1-8	Type 1-8
Advanced Settings	Output Power Limit	100%
	Output Mode	Zero Cross
	PCM - Priority Control	System
	AMC	On
	Earth Leakage Check	On
	Earth Leakage Limit	0.500A
	No Response Limit	4Min
	No Heater Limit	0.200A

Table 6-5 Default Parameters (Continued)

Panel	Available Parameters	Default Value (Imperial/Metric)
Control Settings	Control Made	ART
	P - Proportional	15
	I - Integral	2
	D - Derivative	2
	P - ART	15
	I - ART	2
	D - ART	2
	Tuning Strategy	ART 2.0
ART Settings	ART	No ART
	Minimum P	6
	Minimum I	3
	Minimum D	0
	Default P	50
	Default I	1
	Default D	0
	ART Offset	50 °F / 10 °C
Staged Startup	Enable	Not Selected
	Run Last Stage Indefinitely	Not Selected
	At Temp Window	5 °F / 3 °C
	Stage 1-4 Soak Timer	00:00:00
	Stage 1 Temperature	Off
	Stage 1 Power	Off
	Stage 2 Temperature	(Off)
	Stage 2 Power	(Off)
	Stage 3 Temperature	(Off)
	Stage 3 Power	(Off)
	Stage 4 Temperature	(Off)
	Stage 4 Power	(Off)

Table 6-5 Default Parameters (Continued)

Panel	Available Parameters	Default Value (Imperial/Metric)
Staged Shutdown	Enable	Not Selected
	Override Limit	00:15:00
	At Temp Window	5 °F / 3 °C
	Stage 1-4 Soak Timer	00:00:00
	Stage 1 Temperature	(350 °F) / (177 °C)
	Stage 1 Power	(50%)
	Stage 2 Temperature	(350 °F) / (177 °C)
	Stage 2 Power	(50%)
	Stage 3 Temperature	(350 °F) / (177 °C)
	Stage 3 Power	(50%)
	Stage 4 Temperature	(350 °F) / (177 °C)
	Stage 4 Power	(50%)
Mold Test and Results	Validate Zone After	20 °F / 11 °C
	Fixed Start Setpoint	300 °F / 149 °C
	Use Fixed Setpoint	Not Selected
	Zone Cooling Time	00:00:10
	Maximum Test Time	00:02:00
	Amps Tolerance	5%
	VAC Tolerance	5%
	Ohms Tolerance	5%
	Watts Tolerance	5%

6.3.3 Import/Export Default Settings

The Neo5 has an Export and Import Settings function for transferring a file that contains the Default settings, configured in the Default Settings screen, to a USB flash drive. This file can be imported to another Neo5 controller to simplify the Default Settings setup.

The filename format is: Default_[date]_[time].settings

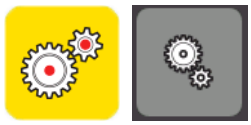
Example: Default_2021-01-01_09-30-00_settings

The sections that follow give instructions about the import and export of Default screen settings.

6.3.3.1 Export Default Screen Settings

After you have set your Default screen settings, do the steps the follow:

1. Insert a USB flash drive into the USB port on the Neo5 controller.
2. Select the **System Setup** button on the Neo5 Home screen or in the screen header.



3. In the Default Settings area of the System Setup screen, select the **Export Settings** button (refer to Figure 6-6).

Figure 6-6 Export Default Screen Settings

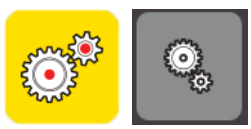
A dialog window will show to say that the file was exported successfully.

4. Select the  button to close the dialog.
5. Remove the USB drive from the USB port.

6.3.3.2 Import Default Screen Settings

To import Default screen settings, do the steps the follow:

1. Insert the USB flash drive with the Default screen settings file into the USB port on the Neo5 controller.
2. Select the **System Setup** button on the Neo5 Home screen or in the screen header.



3. In the Default Settings area of the System Setup screen, select the **Import Settings** button (refer to Figure 6-7).

Figure 6-7 Import Default Screen Settings

A dialog window will show that lists the saved Default screen settings files on the USB drive (refer to Figure 6-8).

Figure 6-8 Select an Import File

4. Select the file that you want to import and then select the ✓ button to close the dialog.

   A dialog window will show to say that the settings were imported successfully.

5. Select the ✓ button to close the dialog.

6. Remove the USB drive from the USB port.

Chapter 7 Mold Setups

The mold setup has the process parameters necessary to operate the hot runner system.

7.1 File Management Screen

The File Management screen stores and manages files such as mold setups, images, documents and reports. Files are stored in mold, system, and user folders. Each mold folder allows the storage of mold setups, images and documents associated with that specific mold. The screen is divided into two panes. The left side shows all directories that are on the Neo5 hard drive and the right side shows all available directories and files from an external source, such as a USB or a network file share.

To access the File Management screen, select the **File Management** button on the Neo5 Home screen in the System Configuration group. You can also select the **File Management** button in the footer of any screen.

The File Management screen shows (refer to Figure 7-1).

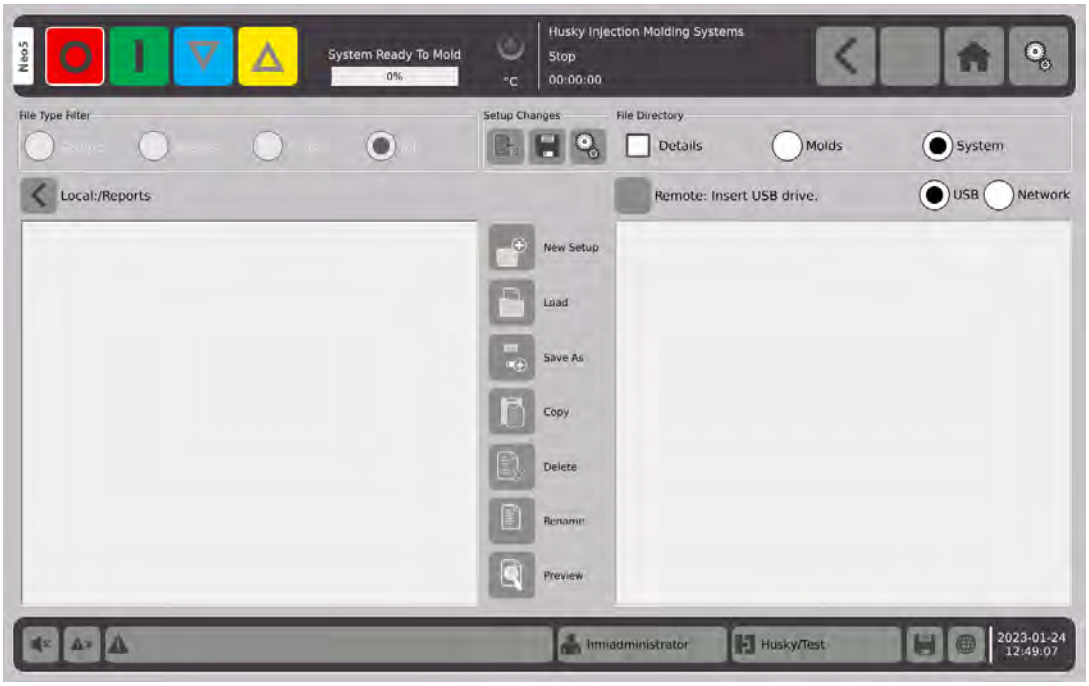


Figure 7-1 File Management Screen

You can use the File Directory checkboxes at the top right of the screen, to see just the mold files or the other system files. If Molds is selected, all the mold folders will be shown in the left-hand pane. If System is selected, the Reports folder, containing all system files will be shown.

The Details checkbox displays the files in a tabular layout that lets you see additional information about the files:

- File name
- File size
- Date and time that the file was modified

You can use the File Type Filter checkboxes at the top left of the screen to filter the files you want to see in the left pane.

The File Type Filter selections are:

- Setups - shows the mold setup files stored in the Molds folders if Molds is selected in the File Directory.
- Images - shows image files stored in the Molds folders if Molds is selected in the File Directory.

- CSVs - shows all Comma Separated Value (CSV) files stored in the Molds folders if Molds is selected in the File Directory.
- All - shows all available file types stored in the Molds folders if Molds is selected in the File Directory.

Select the USB checkbox to display the contents of a connected USB device. Select the Network checkbox to display the contents of a network folder if the system is configured for a network.

Table 7-1 describes the File Management screen buttons.

Table 7-1 File Management Screen Buttons

Button	Description
	Touch the **New Mold Setup** or **Mold Folder** button to create a new mold setup file or mold folder. This button is not enabled if system is selected.
	Touch the **Load Mold Setup** button to load a mold setup file. This button is not enabled unless a mold setup file is selected. The default setup file cannot be loaded directly.
	Touch the **Save As** button to save the currently loaded mold setup file with a new name. This action only applies to the loaded mold setup file regardless of what is selected on the screen.
	Touch the **Copy** button to copy mold setups, images, or CSV files from one folder or device to another.
	Touch the **Delete** button to delete a mold folder, mold setup, image or CSV file. A confirmation message is shown. This button is not available unless a folder or file is selected.
	Touch the **Rename** button to display a keyboard to rename a mold folder, mold setup, image, or CSV file. This button is not enabled unless a file or folder is selected.
	Touch the **Preview** button to display mold setup files, images, and CSV files.

7.1.1 Save Changes to a Mold Setup File

After a mold setup file has been loaded, you can permanently save changes made to it.

1. On the Mold Setup screen, touch the **Save Changes** button. This will show the Mold Setup - Save dialog box to confirm the mold and name of the file that the changes are to be saved to.
2. Touch ✓. Changes are saved.

7.1.2 Save the Current Mold Setup File as a New File

Once a Mold Setup file has been loaded, it can be saved as a new file.

To save the currently loaded Mold Setup file as a new file, do the steps that follow:

1. On the File Management screen, touch the **Save As** button. This will show the keyboard (refer to Figure 7-2).

Figure 7-2 Mold Save As Screen

2. Enter the new mold name, then touch ✓ to accept the name.

7.1.3 Load an Existing Mold Setup File

After a Mold Setup file has been created it is automatically loaded as the current Mold Setup in the system.

To load a different Mold Setup, do the following:

1. On the File Management screen, select the Mold Setup folder that contains the Mold Setup file to be loaded.
2. Touch the name of the mold setup file to be loaded.
3. Touch the **Load Mold Setup** button to load the selected mold setup.

   Once a mold setup is loaded, its name will be displayed at all times on the Mold Setup Info button in the System Footer.

7.1.4 Delete Files

When a file or folder is no longer required on the internal hard drive, you can delete it.

1. On the File Management screen, touch the file or folder to be deleted.
2. Touch the **Delete** button.
3. A message appears asking to confirm the deletion. To continue, touch . To cancel the deletion, touch .

7.1.5 Copy Files

You can copy mold setups, images, or CSV files from one folder or device to another.

To copy and paste a file, do the following:

1. On the File Management screen, touch the file to be copied.
2. Touch the **Copy** button  .
3. Navigate to the destination folder or pane, and touch anywhere in the pane or folder.

7.1.6 Transfer Data

7.1.6.1 Transfer Data to the Network

Use the File Management screen to transfer data to the network. When connected to the network, the network folder structure appears by default in the right pane of the File Management screen.

7.1.6.2 Transfer Data Using a USB Storage Device

You can transfer data using USB disks or USB CD-ROM drives. Select the **USB** button on the File Management screen. When a USB device is plugged into the USB port, the folder structure of the USB device appears in the right pane of the File Management screen. The folder structure disappears when the device is unplugged. Follow the copy and paste steps to move files from the USB device to the local hard drive, or from the local hard drive to the USB device.

Chapter 8 Process Adjustments

You can adjust the process settings for a mold setup before starting the mold, or while the mold is running. This chapter explains how to use, monitor, and modify the system.

Neo5 allows zone data to be shown in different graphical and textual formats. These include tabular views, images, and views that are divided into groups of zones.

8.1 Zone Selection

Multiple zones can be selected from the screens that follow:

- Multi-Group View
- Text View
- Quick Set
- Neo2 View
- Staging
- Mold Test
- Mold Test Results
- Zone Calibration
- Zone Slot Configuration
- CAN Info

You can select zones four ways:

NOTE: When a zone is selected, its color will change to yellow.

- Touch a zone. The zone is selected.
- Touch  . This selects all the available zones.
- Use the Block function. Touch and hold a zone element for more than a second. This will highlight the zone green. Then touch another zone. All the zones between the start and end zone are highlighted (selected).
- Touch a zone and drag your finger. All the zones that your finger passes over are selected. This is a zone selection option on all the screens except the Neo5 View.

Touch  to deselect all of the selected zones.

8.2 Zone Groups

You can make groups of zones with the use of the Quick Set screen. The groups let you easily identify selections of zones are used in the mold. When a group of zones is select, process adjustments can be made to all zones in the group at one time. Adjustments to zones would not have to be made individually.

To use zone groups, make the groups by giving them identifiable names and then add selected zones to the groups. The sections the follow describe how to make groups, add zones, remove zones, and delete a group.

NOTE: For more information on the use of the Quick Set screen, refer to Section 8.7.

8.2.1 Make Zone Groups

Do the steps that follow to create groups:

NOTE: You can make a maximum of 10 groups.

1. On the Neo5 Home screen, select the **Quick Set** button in the Temperature Management group (refer to Figure 8-1).

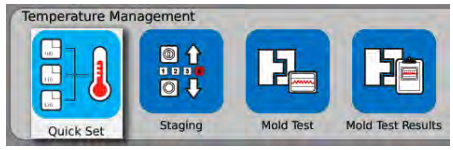


Figure 8-1 Quick Set Button

2. On the Quick Set screen, select the **Groups** button to open the drop-down menu (refer to Figure 8-2).

Figure 8-2 Groups Drop-Down Menu on the Quick Set Screen

3. Do the steps that follow to assign names to one or more of the groups (1 through 10, as necessary):

   a. Touch the field to the right of the Group 1 Name.

   b. Use the keyboard to enter in the name you want for the group, then select the button to accept the name (refer to Figure 8-3).

   NOTE: Above the keys on the keyboard, there is a selection of buttons with common names used for groups. If you want, touch a button to select one of these names, and the name will be entered in the name field.

   c. As necessary, do step a and step b again to enter more group names (Group 2 through Group 10 Names).

Figure 8-3 Group Name Keyboard Dialog

The group names will be at the bottom of the Quick Set screen (refer to Figure 8-4). When you touch the group name button, the zones in the group are highlighted. With the group button selected, you can set or change the parameters for all the zones in that group at one time.

Figure 8-4 Group Buttons at the Bottom of the Quick Set Screen

8.2.2 Add Zones to Groups

Do the steps that follow to assign zones to a group:

1. Select the zones that you want to be in a group.
2. Touch the field to the right of the **Group** button at the top of the Groups drop-down menu.
3. Select a group name from the list of groups in the Group selection dialog that shows (refer to Figure 8-5).

Figure 8-5 Group Selection Dialog

4. Select the ✓ button to accept the group assignment.
5. As necessary, do step 1 through step 4 again to assign zones to the groups that remain.

With the zones added to the groups, you can select a group button at the bottom of the screen and the zones in that group will be highlighted (refer to Figure 8-6).

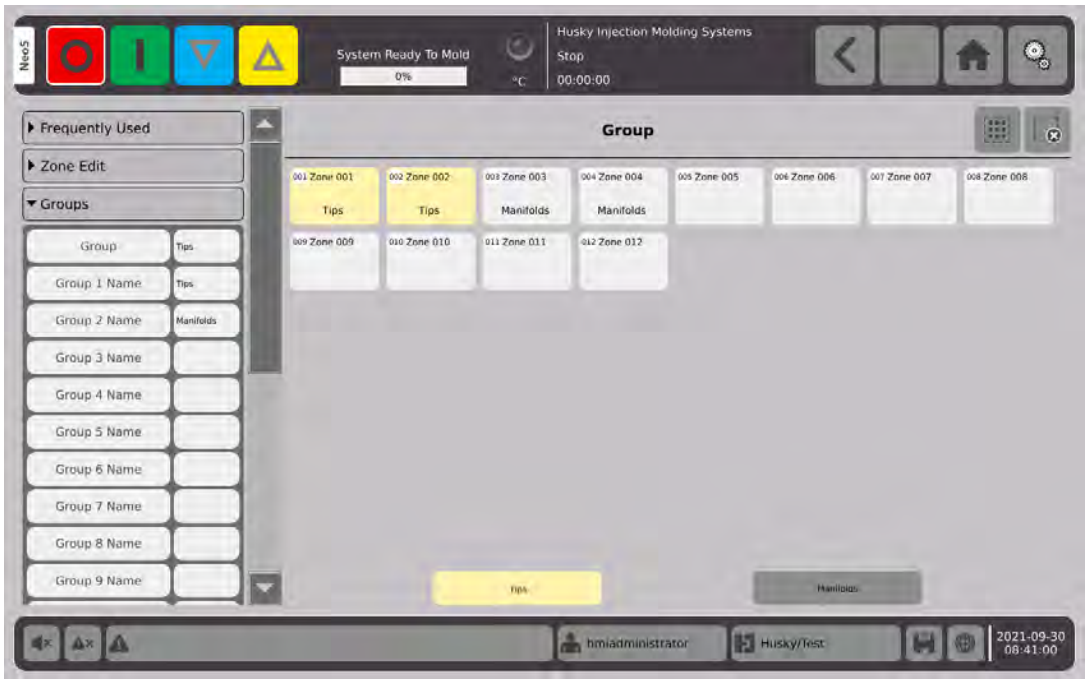


Figure 8-6 Group Selected

8.2.3 Remove a Zone from a Group

Do the steps that follow to remove a zone from a group:

1. Select the zone that you want to remove from the group.
2. Touch the field to the right of the **Group** button at the top of the Groups drop-down menu.
3. Select **None** at the top of groups in the Group selection dialog that shows (refer to Figure 8-5).
4. Select the ✓ button to accept the zone removal.

8.2.4 Delete a Group

Do the steps that follow to delete a group:

1. Touch the box to the right of the Group X Name.
2. On the group name keyboard dialog, select keyboard erase button ⌫ (at the right of the name field) to delete the name, then select the ✓ button.

8.3 Multi-Group View Screen Overview

Use the Multi Group View screen to see all user-configured zone groups. Refer to Figure 7-3.

Each group has its own controls to synchronously energize or de-energize all zones in the group and put them into standby or boost mode.

For information about how to make zone groups, refer to Section 8.2.

On the Neo5 Home screen, in the Zone Views group, select the **Multi-Group View** button.

The Multi-Group View screen will show (refer to Figure 8-7).

All the groups that were set up in the Quick Set groups screen will be shown.

Touch the column heading to sort the information in that column. A red line at the top of the column header tells you that the information is in ascending order.

Select a one zone or a block of zones to automatically open the Quick Set screen with that zone or block of zones selected.

Figure 8-7 Multi-Group View Screen

You can change the screen to Full Screen view to see more information for the zones. Touch the Plus/Minus button to see the Full Screen view. Touch the button again to change back to Half Screen view.

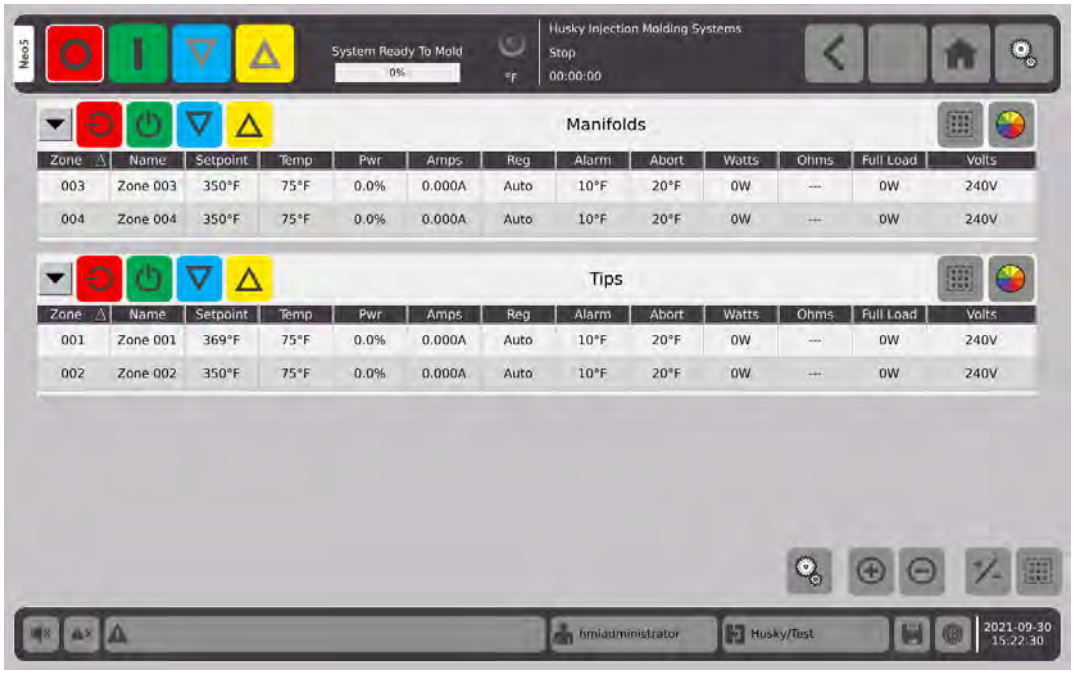


Figure 8-8 Multi-Group View Screen - Full Screen View

The buttons on the Multi Group View screen are described in Table 8-1.

Table 8-1 Multi Group View Screen Buttons

Button	Description
	Expands all group information lists.
	Collapses all group information lists.
	Lets you define the group layout order. You can select the order that you would like to see the groups shown from the top to the bottom of the screen. The default is the groups are shown in alphabetical order.
	Collapses the related group information list.
	De-energizes the zones in that group if they are energized.
	Energizes the zones in that group if they are not energized.
	Sets the zones in this group to manual standby. More than one group can be put in standby at the same time. This button will not operate if one or more groups are in boost mode.
	Sets the zones in this group to manual boost. More than one group can be put in boost mode at the same time. This button will not operate if one or more groups are in standby mode.

Table 8-1 Multi Group View Screen Buttons (Continued)

Button	Description
	Opens the Quick Set screen with all of the zones automatically selected. **NOTE:** In the header of a group, this button opens the Quick Set screen with all zones selected in the group. At the lower left corner of the screen, this button opens the Quick Set screen with all zones selected.
	Lets you change the group header colors.

8.3.1 Group Controller Function Buttons

The group controller function buttons let you control the zones in a group (refer to Figure 8-9). You can energize or de-energize a group's zones, and also set the zones in standby and boost mode.

Figure 8-9 Group Controller Function Buttons

NOTE: The Stop, Start, Standby, and Boost buttons at the top left corner of the screen operate all zones and override the group zone settings.

8.3.2 Define Group Layout Order

You can select the order in which the groups are shown on the Multi-Group View screen. The default setting is to show the groups in alphabetical order from the top to the bottom of the screen. Touch the Define Group Layout Order button to select the order you want.

Do the steps that follow to set the group order:

1. If necessary, touch the **Clear Previous** button or clear all button to clear the numbers.
2. Touch the box for the group that you want to be at the top (1st position) on the Multi-Group View screen (refer to Figure 8-10).

   The number 1 will show in the box.

3. Continue to touch the boxes to put the groups in the order that you want to see them.

   Numbers will be shown in order with each group box that you select.

4. Touch the ✓ button to accept the changes.

The groups will be arranged with the number 1group on top (in the full view screen). In the half screen view, the groups are arranged top to bottom and left to right.

Figure 8-10 Define Group Layout Order Dialog

Figure 8-11 shows the groups are in the order selected in Figure 8-10.

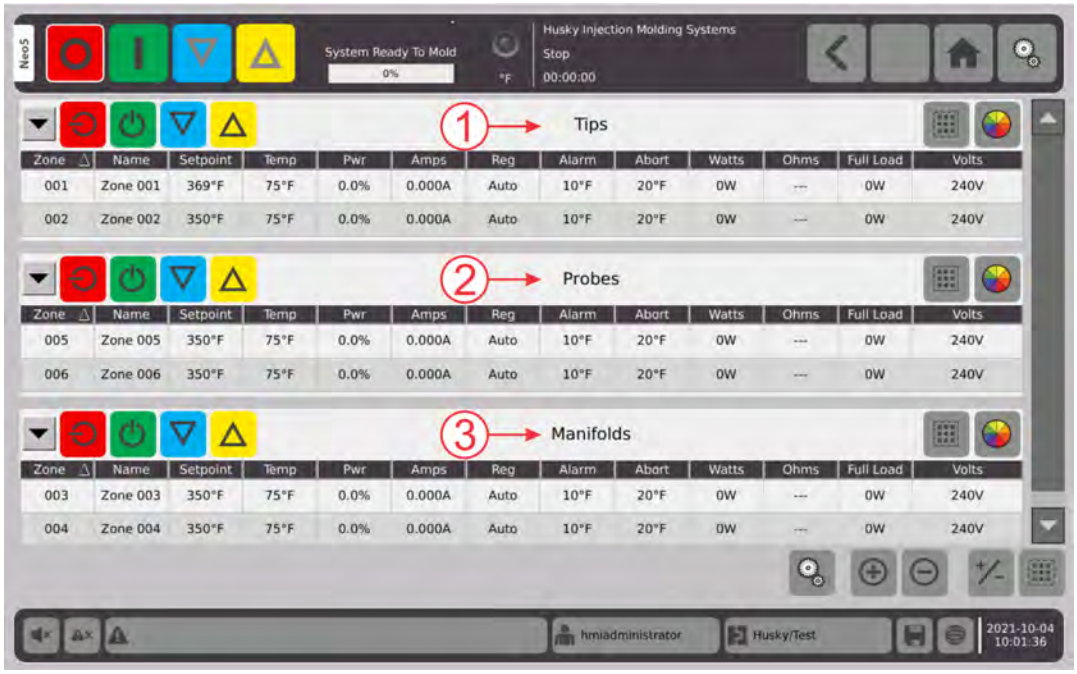


Figure 8-11 Groups in Order Selected

8.3.3 Change Header Colors

To help identify a group, you can select a header color for that group that is shown on the Multi Group View screen. To change the header color, do the steps that follow:

1. On the group header bar, select **Change Color** button.

The Select a Color dialog shows (refer to Figure 8-12).

Figure 8-12 Select a Color Dialog

2. Select the color and then touch the ✓ button.
   The header for the group changes to the color you select, as shown in Figure 8-13.

Figure 8-13 Group Header Color Example

8.3.4 Collapse and Expand Zones Shown in a Group

You can collapse the zones in a group, so they are not shown. Only the group header is shown. This makes it easy to see only the group zones you want shown on the screen. To collapse the zones in a group, select the down arrow at the left of the group header.

Figure 8-14 shows the zones collapsed in the Probes and Manifolds groups.

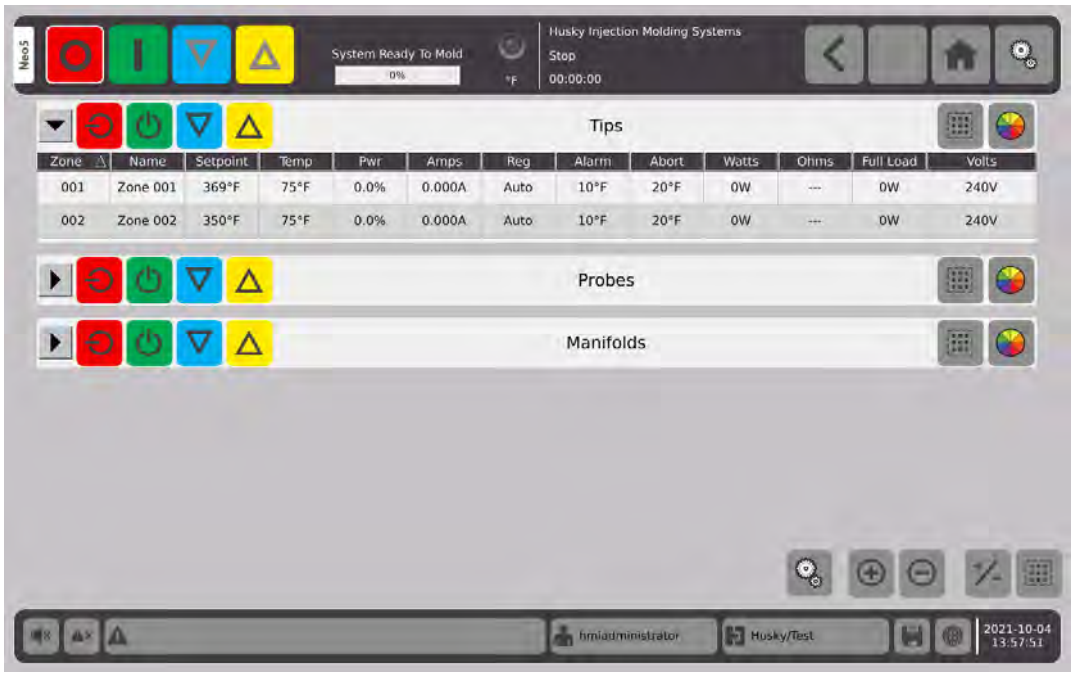


Figure 8-14 Zones Collapsed in Groups

To expand the zones in a group, select the right arrow at the left of the group header.

8.4 Neo View Screen Overview

The Neo View shows the zones in a graphical format. It is designed to provide an easy way to view the overall status of the mold without having to sort through detailed data.

On the Neo5 Home screen, in the Zone Views group, select the **Neo View** button.

The Neo View screen will show (refer to Figure 8-15).

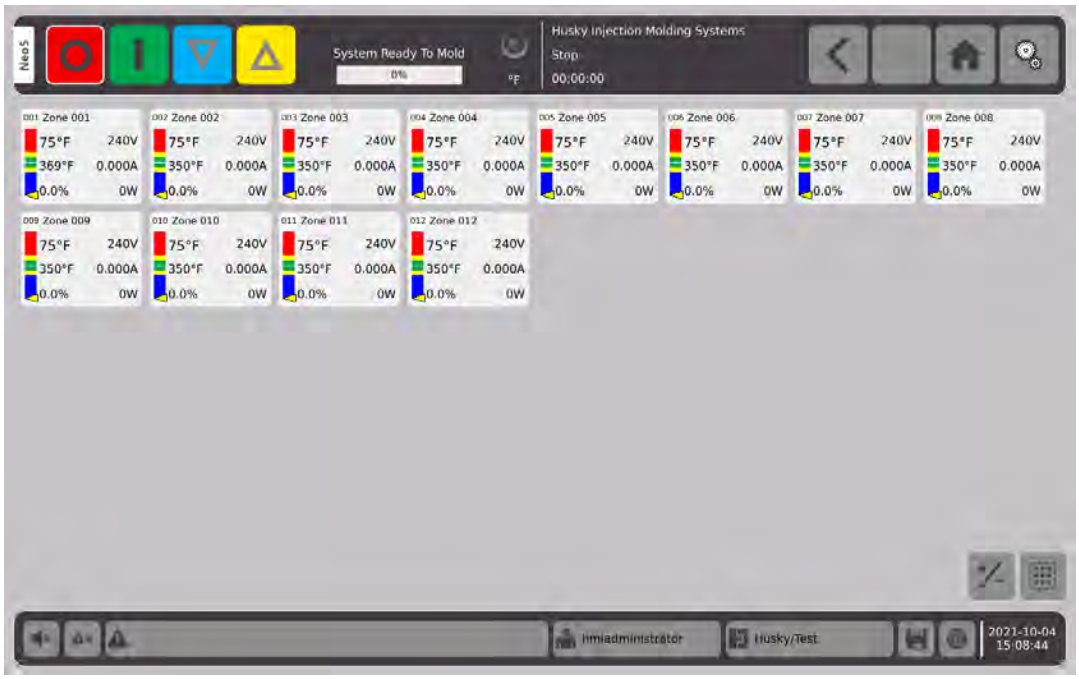
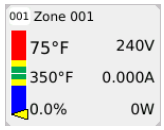
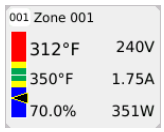
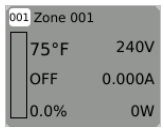
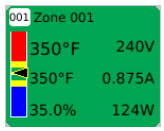


Figure 8-15 Neo View Screen

Table 8-2 describes the details of the temperature bars that

Table 8-2 Temperature Bar

Temperature Bar	Description

	The bar in each zone shows the temperature of the zone.
	Segments of the bar are color coded.
	• The green area represents the molding window.
	• The white hairline represents the setpoint.
	• An arrow represents the actual temperature.
	  • If the arrow is yellow, the temperature is not within the graph range.
	 
	  • The arrow turns black when the temperature is in the range of the graph and moves up until it gets to the set point.
	 
	• The yellow area in the zone bar represents the alarm window
	• The red and blue areas in the zone bar represent the high (red) and low (blue) abort windows.
	• A blank gray bar indicates that the zone is off.
	 
	• When the arrow points to the white hairline, the zone is At Temperature.
	 

As an example, Figure 8-16 shows that zones 003 through 012 are At Temperature, while zones 001 and 002 are off.

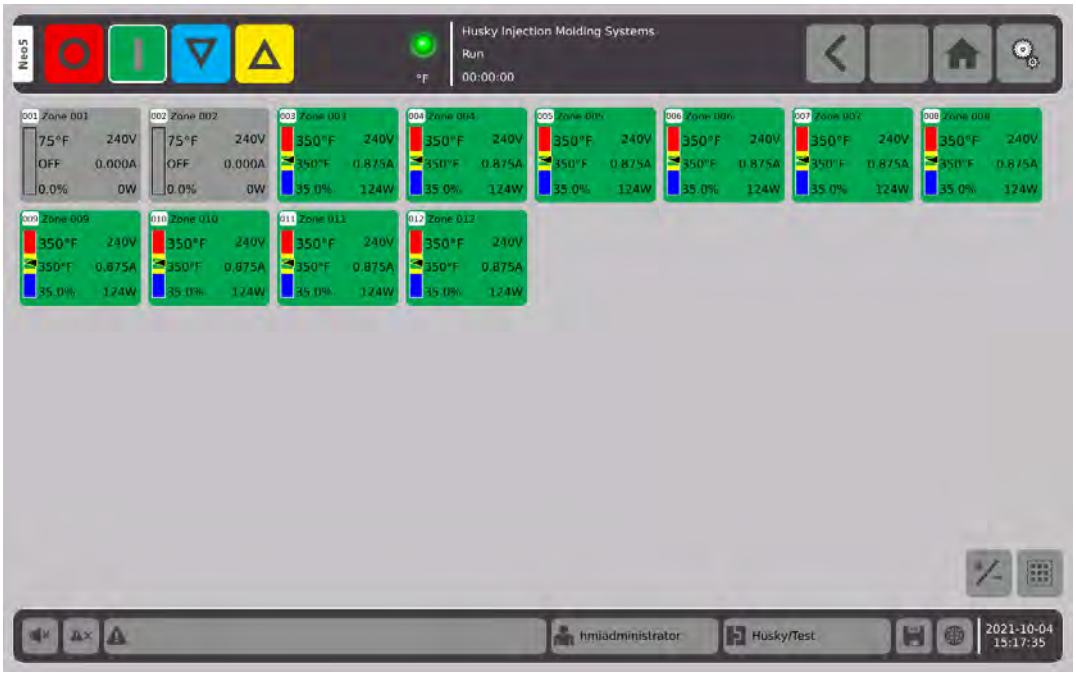


Figure 8-16 Neo View Operation Example

Touch the Plus/Minus button and the screen will only show the temperatures of the zones (refer to Figure 8-17). Touch the button again to toggle back to the graphical view.

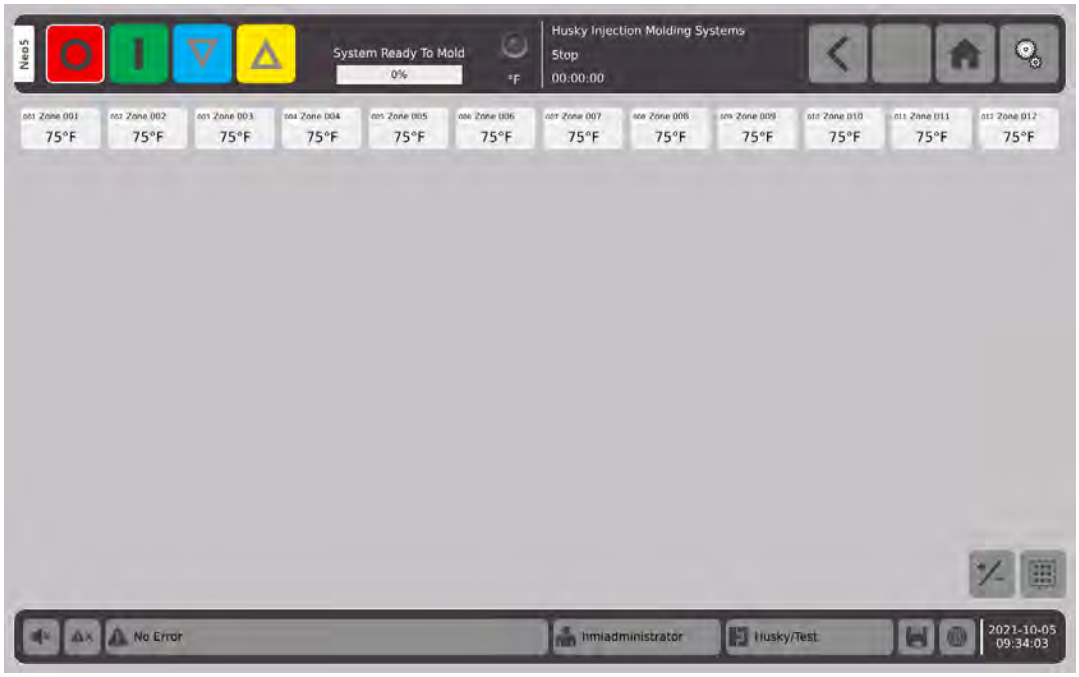
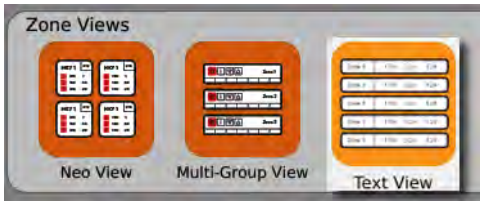


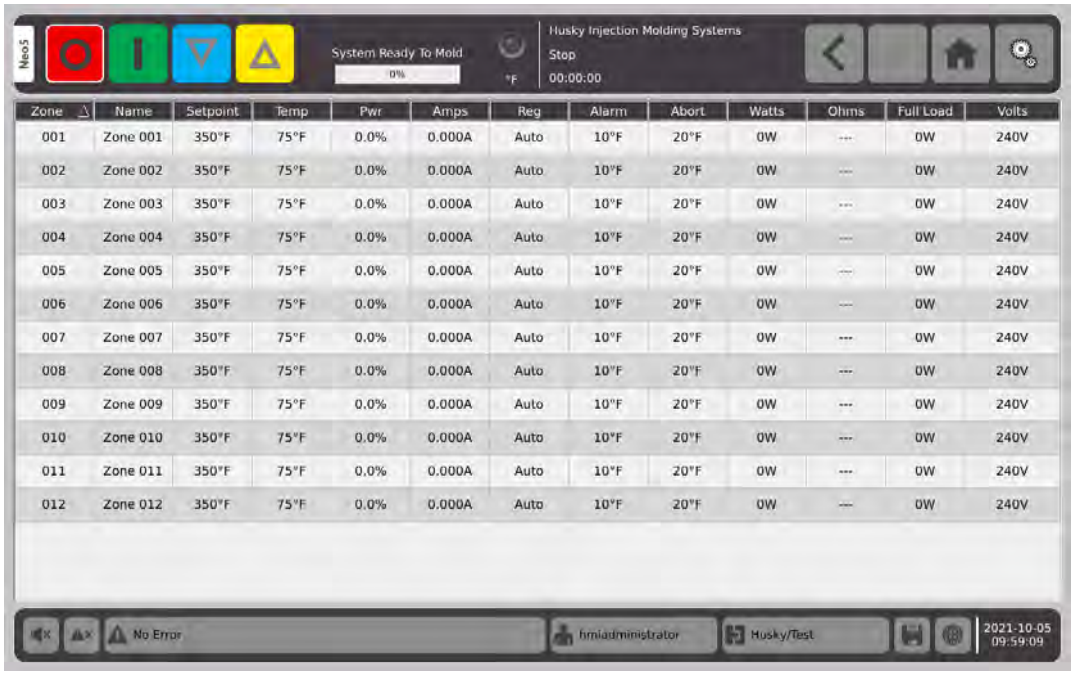
Figure 8-17 Neo View With Only Temperatures Shown

8.5 Text View Screen Overview

The Text View screen gives zone information in a tabular format (refer to Figure 8-18). The screen is used to access detailed data for each zone and gives the most comprehensive view of the process.

On the Neo5 Home screen, in the Zone Views group, select the **Text View** button.





Zone	Name	Setpoint	Temp	Pwr	Amps	Reg	Alarm	Abort	Watts	Ohms	Full Load	Volts
001	Zone 001	350°F	75°F	0.0%	0.000A	Auto	10°F	20°F	0W	---	0W	240V
002	Zone 002	350°F	75°F	0.0%	0.000A	Auto	10°F	20°F	0W	---	0W	240V
003	Zone 003	350°F	75°F	0.0%	0.000A	Auto	10°F	20°F	0W	---	0W	240V
004	Zone 004	350°F	75°F	0.0%	0.000A	Auto	10°F	20°F	0W	---	0W	240V
005	Zone 005	350°F	75°F	0.0%	0.000A	Auto	10°F	20°F	0W	---	0W	240V
006	Zone 006	350°F	75°F	0.0%	0.000A	Auto	10°F	20°F	0W	---	0W	240V
007	Zone 007	350°F	75°F	0.0%	0.000A	Auto	10°F	20°F	0W	---	0W	240V
008	Zone 008	350°F	75°F	0.0%	0.000A	Auto	10°F	20°F	0W	---	0W	240V
009	Zone 009	350°F	75°F	0.0%	0.000A	Auto	10°F	20°F	0W	---	0W	240V
010	Zone 010	350°F	75°F	0.0%	0.000A	Auto	10°F	20°F	0W	---	0W	240V
011	Zone 011	350°F	75°F	0.0%	0.000A	Auto	10°F	20°F	0W	---	0W	240V
012	Zone 012	350°F	75°F	0.0%	0.000A	Auto	10°F	20°F	0W	---	0W	240V

Figure 8-18 Text View Screen

Table 8-3 describes the items on the Text View screen.

Table 8-3 Text View Screen Descriptions

Item	Description
Zone Row	Each row in the Text view represents a heating zone in the system. Touching anywhere within the row will navigate to the Quick Set screen. Refer to 8.7.
Column Headers	Each header in the Text view indicates what information is being displayed in each column. • Zone = Zone number • Name = Zone name • Setpoint = Zone setpoint • Temp = Actual temperature of zone • PWR = Power output to the heater • Amps = Current draw of heater (values in this column are suppressed for XL and HL cards) • Leakage = Earth leakage. This column is only displayed if the Display Earth Leakage Reading is selected in the Earth Leakage section of the system setup screen • Reg = Control mode (Auto = T/C control, Manual = Fixed % output, Monitor = Temperature only - No power output) • Alarm = Alarm window (degrees above and below setpoint before an alarm condition is declared) • Abort = Abort window (degrees above and below setpoint before an abort condition is declared) • Watts = Calculated wattage of each heater (values in this column are suppressed for XL and HL cards) • Ohms = Calculated full load ohms of the heater, based on the circuit test results (values in this column are suppressed for XL and HL cards) • Full Load = Calculated full load wattage of the heater, based on the circuit test results (values in this column are suppressed for XL and HL cards) • Volts = Measured line voltage that supplies power to each heater
Scroll Bar	Use the scroll bar to scroll between pages within a screen. If all of the available data fits in a single page, then the scroll bar will not be displayed

8.5.1 Zone Selection on the Text View Screen

You can select one or multiple zones on the Text View screen that you want to work with on the Quick Set screen. To select one zone, touch anywhere on the zone row and the Quick Set screen will show with that zone highlighted.

To select multiple zones, touch a zone row and drag your finger up or down to the last zone you want to select. The zone rows are highlighted as you drag your finger along the rows. When you release your finger from the screen, the Quick Set screen will show with the selected zones highlighted.

8.5.2 Sorting

You can sort column data on the Text View screen and all other screens that have column headers. Touch the column header field. The ascending or descending arrows (▲▼) are shown next to the column header name. Touch the column header to reverse the order.

Information can be sorted according to the dynamic columns (for example, current (Amps), voltage (Volts), etc.). This can help you see which zone draws the most current at a particular moment.

8.6 Quick Adjustment Panel

When you select a zone, a block of zones, or touch the 'Select All Zones' button on the Neo View or Text View screens, the Quick Adjustment panel will show on the right side of the screen (refer to Figure 8-19). This panel makes it easy for you to change frequently used parameter settings without opening the Quick Set screen.

Figure 8-19 Quick Adjustment Panel

The Quick Adjustment panel lets you change the current setpoint, zone on/off, and regulation (Auto or Manual) with the use of the buttons in the panel. You will see the zone information change immediately after a panel function is selected.

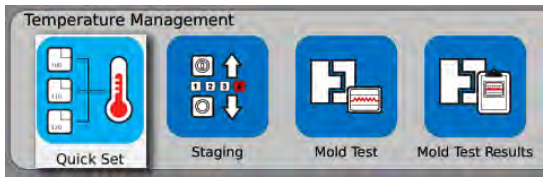
Use the buttons in the Current Setpoint area of the panel to increase or decrease the zone temperatures by 1°, 5°, or 10°. Use the buttons in the Zone On/Off area of the panel to enable or disable one or more zones. Use the buttons in the Regulation area of the panel to change one or more zones to Auto or Manual mode.

The Quick Set button, at the bottom right of the panel, will automatically open the Quick Set screen. Zones selected in the Neo View or Text View screens will also be selected in the Quick Set screen.

The Cancel button will close the Quick Adjustment panel and de-select any zones previously selected.

8.7 Quick Set Screen

Use the Quick Set screen to change the available zone settings and to put zones into groups. On the Neo5 Home screen, in the Temperature Management group, select the **Quick Set** button to see the Quick Set screen (refer to Figure 8-20).



NOTE: For information about zone groups, refer to Section 8.2.

NOTE: When you select a zone in the Neo View, Multi-Group View, or Text View screens the Quick Set screen will automatically show.

On the left side of the Quick Set screen, the zone setpoint fields are organized into drop-down tabs. Touch a tab to see the fields it contains.

Touch the box to the right of a field to show a keypad, keyboard, or selection menu. Refer to Figure 4-4 for more information about these entry dialogs.

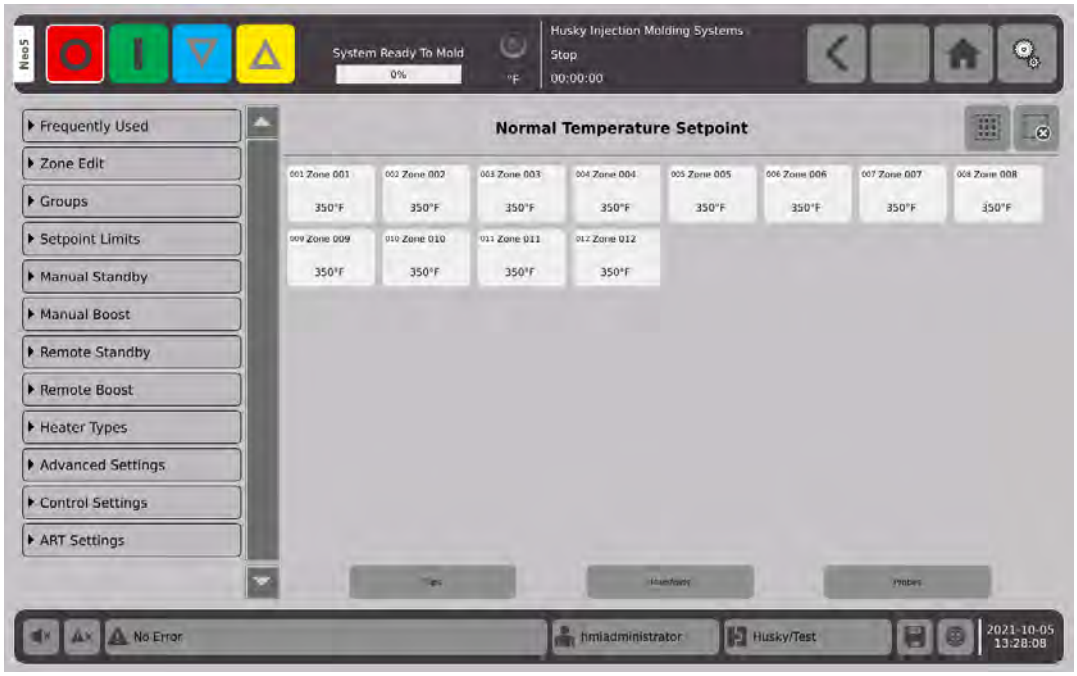


Figure 8-20 Quick Set Screen

8.7.1 Frequently Used Fields

The Frequently Used fields are the settings you may go to most often (refer to Figure 8-21).

Figure 8-21 Frequently Used Fields

The Frequently Used fields are described in Table 8-4.

Table 8-4 Frequently Used Fields

Item	Description
Temperature Setpoint	Touch this field to set the temperature for one or more zones.
Power Setpoint	Touch this field to set the percentage of power output for one or more zones that are in Manual regulation.
Zone On/Off	Touch this field to set the selected zone(s) ON or OFF. A dialog window shows that lets you select the status. The default is ON.
Regulation Mode	Use this field to set the regulation mode for the selected zone(s): • AUTO or Automatic (closed loop) - the system uses a thermocouple feedback to control the temperature. • MAN or Manual (open loop) - the system will only apply user-selected power (0 to 100%) to the heater and not use the thermocouple feedback. • MON or Monitor - the system will only monitor the temperature of a thermocouple (no power output).
Alarm Window	Touch this field to set the upper and lower alarm limits.
Abort Window	Touch this field to set the upper and lower abort limits.

8.7.2 Zone Edit

The Zone Edit drop-down tab is shown in Figure 8-22.

Figure 8-22 Zone Edit Fields

The Zone Edit fields are described in Table 8-5.

Table 8-5 Zone Edit Fields

Item	Description
Zone Name	Touch this field to give a custom name to a zone or group of zones.
Group Name	Touch this field to give a name to a group of selected zones. When a group of zones is given a name, that name shows as a button at the bottom of the Quick Set screen. Touch a group button and the zones in the group are highlighted. All zones given a group name are used to create group views in the Multi Group View screen.
Zone Locked/Unlocked	Touch this field to lock or unlock the selected zone(s). If a zone is locked, it will prevent any changes from being made to it from the Quick Set screen.
Display/Hide Zone	Touch this field to Display or Hide the selected zone(s). If Hide is selected, the zone(s) will be removed from all the zone data view screens.

8.7.2.1 Zone Name

With one or more zones selected, touch the box to the right of the **Zone Name** button.

Use the keyboard to name the zone(s) or groups (refer to Figure 8-23). Eight common zone name tabs are above the keyboard. Touch the common name tab to assign that name to the zone(s).

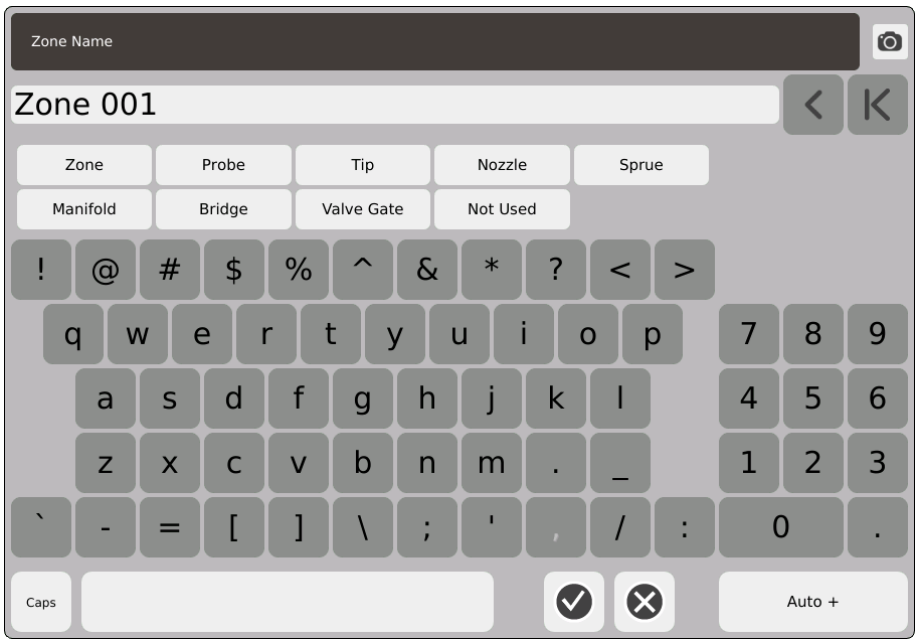


Figure 8-23 Zone Name Keyboard

After you name all the zones, you can auto assign numbers to the zones. Touch the **Auto+** button. The Auto+ assigns a number, in sequential order, to all the zones.

8.7.2.2 Locked/Unlocked

You can lock one or more zones, so they cannot be changed on the Quick Set screen.

Select the zones you want to lock and then touch the box to the right of the **Locked/Unlocked** button. The Locked/Unlocked dialog shows (refer to Figure 8-24).

Select **Locked** or **Unlocked** and then select ✓ to accept the change.

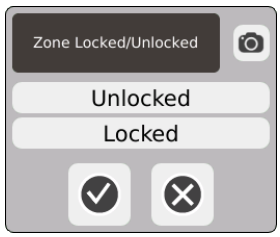


Figure 8-24 Zone Locked/Unlocked Selection Dialog

8.7.2.3 Display/Hide

You can hide unused zones from the Neo View, Multi-Group View, and Text View screens. The zones will not show on those three screens.

To hide one or more zones, you must change the status of the zone(s) to OFF. If a selected zone is ON, then the function to hide the zone is disabled. With a zone status changed to OFF the hide function is enabled, as shown in Figure 8-25.

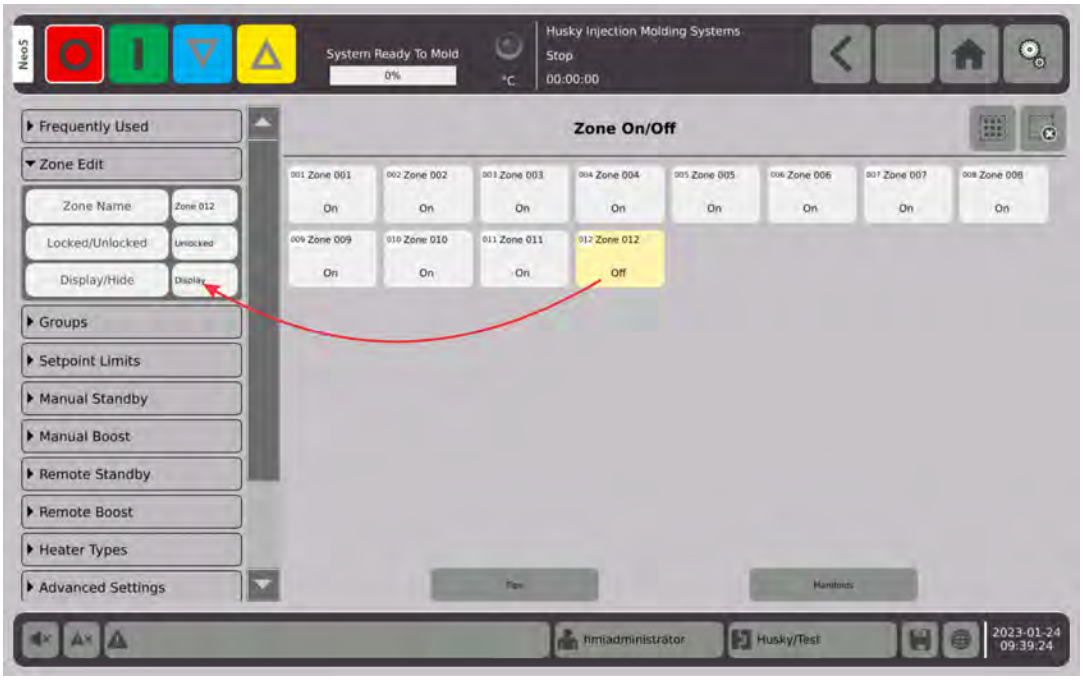


Figure 8-25 Hide Function Enabled

Select the zones that are OFF and then touch the box to the right of the **Display/Hide** button. The Zone Displayed/Hidden dialog shows (refer to Figure 8-26).

Select **Hide** and then select the button to accept the change.

For zones you want to be seen again, select **Display** and then select the button to accept the change.

Figure 8-26 Zone Hide Dialog

8.7.3 Groups

Refer to Section 8.2.

8.7.4 Setpoint Limits

The Setpoint Limits drop-down tab is shown in Figure 8-27.

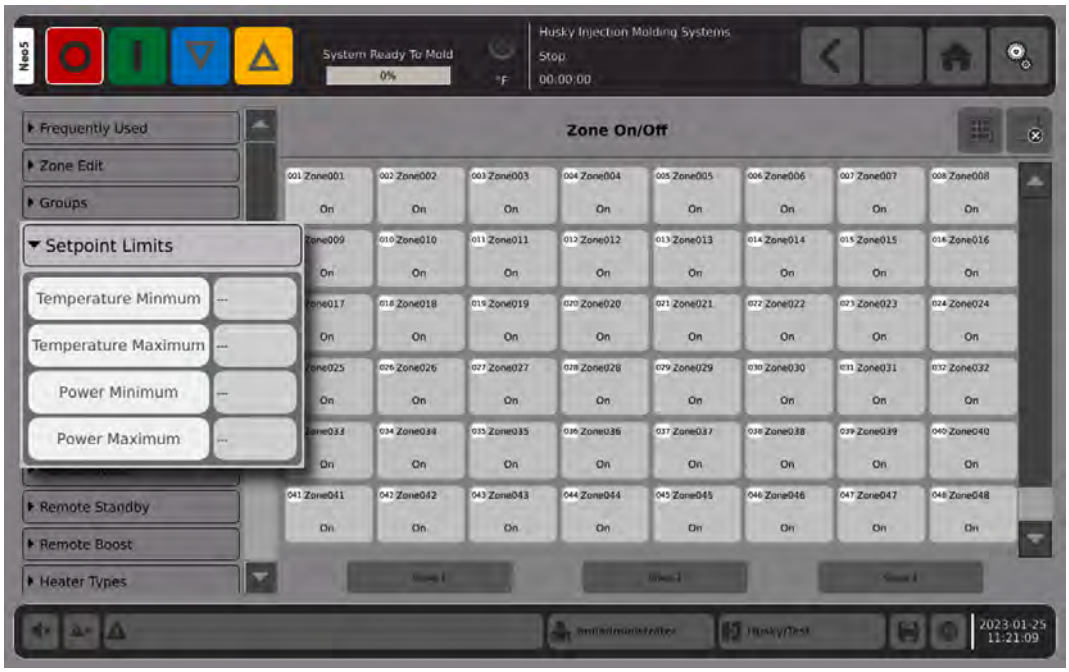


Figure 8-27 Setpoint Limits Fields

The Setpoint Limits fields are described in Table 8-6.

Table 8-6 Setpoint Limits Fields

Item	Description
Temperature Minimum	These values specify the range limits in which the Temperature Setpoint field can be set. Example: If the Minimum is set to 100°F and the Maximum to 600°F, you will not be able to enter a setpoint that is less than 100°F or more than 600°F.
Temperature Maximum	
Power Minimum	These values specify the percentage range limits in which the Power Setpoint field can be set.
Power Maximum	

8.7.5 Manual Standby

The Manual Standby drop-down tab is shown in Figure 8-28.

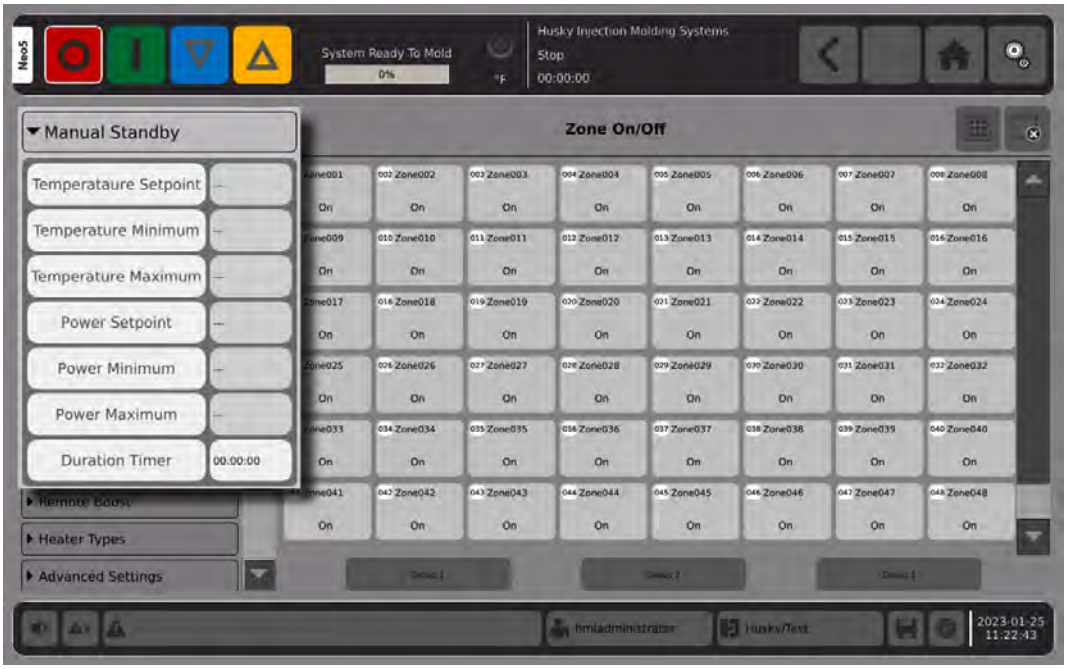


Figure 8-28 Manual Standby Fields

The Manual Standby fields are described in Table 8-7.

Table 8-7 Manual Standby Fields

Item	Description
Temperature Setpoint	The temperature to which all zones are set when the Standby button is touched. This setting can be used to lower all zone temperatures to their Manual Standby temperature setpoint until the timer completes or the user touches the Standby button again. Possible values are 0 to 500 °C or 32 to 932 °F. The default value is 121 °C or 250 °F.
Temperature Minimum	These values specify the range limits in which the Standby temperature can be set.
Temperature Maximum	
Power Setpoint	The power output to which all zones are set when the Standby button is touched. This setting can be used to lower all zone power setpoints to their manual standby power setpoint until the timer completes or the user touches the Standby button again. Possible values are 0% – 100%. The default value is 10%.
Power Minimum	These values specify the percentage range limits in which the Standby power can be set.
Power Maximum	
Duration Timer	This sets the time that the zones will stay in the manual standby mode. To cancel the manual standby duration timer at any time, touch the Start or Stop buttons. **NOTE:** This setting applies to all zones.

Table 8 -8 Manual Standby Operational Description

Manual Time	Delay Time	Remote Time	Input Mode	Operation - STANDBY Button Select
0:00:00	----	----	----	System enters Standby indefinitely.
X:XX:XX	----	----	----	System remains in Standby until the timer expires.

To cancel the Manual Standby duration timer, touch the Start or Stop buttons.

8.7.6 Manual Boost

The Manual Boost drop-down tab is shown in Figure 8-29.

Figure 8-29 Manual Boost Fields

The Manual Boost fields are described in Table 8-9.

Table 8-9 Manual Boost Fields

Item	Description
Temperature Setpoint	The temperature to which all zones are set when the Boost button is touched. This setting raises all zones to their manual boost setpoint until the timer completes or the user touches the Boost button again. Possible values are 0 to 500 °C or 32 to 932 °F. The default value is No Change.
Temperature Minimum	These values specify the range limits in which the Boost Temperature can be set.
Temperature Maximum	
Power Setpoint	The power values to which all zones are set when the Boost button is touched. This setting raises all zones to their manual boost setpoint until the timer completes or the user touches the Boost button again. Possible values are 0% – 100%. The default value is 90%.
Power Minimum	These values specify the percentage range limits in which the Boost power can be set.
Power Maximum	
Duration Timer	This sets the time that the zones will stay in the manual boost mode. To cancel the manual boost duration timer at any time, touch the Start or Stop buttons.

Table 8 -10 Manual Boost Operational Description

Manual Time	Delay Time	Remote Time	Input Mode	Operation - BOOST Button Select
0:00:00	----	----	----	System enters Boost indefinitely.
X:XX:XX	----	----	----	System remains in Boost until the timer expires.

8.7.7 Remote Standby

The Remote Standby drop-down tab is shown in Figure 8-30.

Figure 8-30 Remote Standby Fields

The Remote Standby fields are described in Table 8-11.

Table 8-11 Remote Standby Fields

Item	Description
Temperature Setpoint	Remote standby is started by a digital input signal from the IMM. This setting lowers all zones to their remote standby temperature setpoint until the timer completes or the input signal is off. Possible values are 0 to 500 °C or 32 to 932 °F. The default value is 121 °C or 250 °F.
Temperature Minimum	These values specify the range limits in which the Remote Standby Temperature can be set.
Temperature Maximum	

Table 8-11 Remote Standby Fields (Continued)

Item	Description
Power Setpoint	Remote standby is started by a digital input signal from the IMM. This setting lowers all zones to their remote standby power setpoint until the timer completes or the input signal is off. Possible values are 0% – 100%. The default value is 10%.
Power Minimum	These values specify the percentage range limits in which the Remote Standby Power can be set.
Power Maximum	
Duration	Enter the time that the zones will stay in the remote standby mode. This setting that applies to all the zones. To cancel the remote standby duration timer at any time, touch the Start or Stop buttons (only when in the Trigger or ON/OFF modes).
Delay	Enter the time that you want the system to wait from the time it receives the remote standby signal to when it enters the standby mode. This setting that applies to all the zones.
Input Mode	Set to one of the three modes. • Direct • On/Off • Trigger Refer to Table 8 -12.
Reset Delay Timer in Direct Mode	When enabled, this allows you to reset the delay timer by touching the Standby button in the system header. The Reset Delay Timer is only used when in Direct Mode and while the delay timer is in operation.

Table 8 -12 Remote Standby Operational Description

Manual Time	Delay Time	Remote Time	Input Mode	Operation - STANDBY Button Select
----	0:00:00	0:00:00	Trigger	System will not enter Standby since no timers are set.
----	0:00:00	X:XX:XX	Trigger	System immediately enters and remains in Standby until the timer expires.
----	X:XX:XX	X:XX:XX	Trigger	System delays for specified time and then enters Standby until the timer expires.
----	X:XX:XX	0:00:00	Trigger	System delays for specified time and then enters Standby indefinitely.
----	X:XX:XX	X:XX:XX	Trigger	System delays for specified time and then enters Standby until the timer expires. If the input signal changes state while delay timer is active, the delay timer is reset to the specified value.

Table 8 -12 Remote Standby Operational Description (Continued)

Manual Time	Delay Time	Remote Time	Input Mode	Operation - STANDBY Button Select
----	X:XX:XX	0:00:00	Trigger	System delays for specified time and then enters Standby indefinitely. If the input signal changes state while the delay timer is active, the delay timer is reset to the specified value.
----	0:00:00	0:00:00	ON/OFF	System enters Standby until the input signal is not active.
----	0:00:00	X:XX:XX	ON/OFF	System enters Standby until the input signal is not active or the timer expires.
----	X:XX:XX	X:XX:XX	ON/OFF	System delays for specified time and then enters Standby until the signal is not active or the timer expires.
----	X:XX:XX	0:00:00	ON/OFF	System delays for specified time and then enters Standby until the input signal is not active.
----	----	----	Direct	System enters Standby until the input signal is not active. If the input signal is active when the system is started, it will immediately go into Standby mode.

8.7.8 Remote Boost

The Remote Boost drop-down tab is shown in Figure 8-31.

Figure 8-31 Remote Boost Fields

The Remote Boost fields are described in Table 8-13.

Table 8-13 Remote Boost Fields

Item	Description
Temperature Setpoint	The temperature all zones are set to when a remote boost signal is received. Remote boost is started by a digital input signal from the IMM. This setting raises all zones to their remote boost setpoint until the timer completes or the input signal is off. Possible values are 0 to 500 °C or 32 to 932 °F. The default value is No Change.
Temperature Minimum Temperature Maximum	These values specify the range limits in which the Remote Boost Temperature can be set.
Power Setpoint	The power level that all zones are set to when a remote boost signal is received. Remote boost is started by a digital input signal from the IMM. This setting raises all zones to their remote boost setpoint until the timer completes or the input signal is off. Possible values are 0% – 100%. The default value is 90%.
Power Minimum Power Maximum	These values specify the percentage range limits in which the Remote Boost Power can be set.

Table 8-13 Remote Boost Fields (Continued)

Item	Description
Duration	The time that the zones will stay in the remote boost mode. **NOTE:** This setting applies to all zones.
Delay	The time that you want the system to wait from the time it receives the remote boost signal to when it enters the boost mode.
Input Mode	Set to one of the three input modes: • Direct • On/Off • Trigger

Table 8 -14 Remote Boost Operational Description

Manual Time	Delay Time	Remote Time	Input Mode	Operation - Boost Button Select
----	0:00:00	0:00:00	Trigger	System will not enter Boost since no timers are set.
----	0:00:00	X:XX:XX	Trigger	System immediately enters and remains in Boost until the timer expires.
----	X:XX:XX	X:XX:XX	Trigger	System delays for specified time and then enters Boost until the timer expires.
----	X:XX:XX	0:00:00	Trigger	System delays for specified time and then enters Boost indefinitely.
----	0:00:00	0:00:00	ON/OFF	System enters Boost until the input signal is not active.
----	0:00:00	X:XX:XX	ON/OFF	System enters Boost until the input signal is not active or the timer expires.
----	X:XX:XX	X:XX:XX	ON/OFF	System delays for specified time and then enters Boost until the input signal is not active or the timer expires.
----	X:XX:XX	0:00:00	ON/OFF	System delays for specified time and then enters Boost until the signal is not active.
----	----	----	Direct	System enters Standby until the input signal is not active. If the input signal is active when the system is started, it will immediately go into Standby mode.

To cancel the Remote Boost, touch the Start or Stop buttons (only when in the Trigger or ON/OFF modes).

8.7.9 Heater Types

The Heater Types drop-down tab is shown in Figure 8-32.

Figure 8-32 Heater Types

Use this screen to assign a heater type to one or more zones.

To assign a heater type, do the steps that follow:

1. Assign a name to one or more of the Custom Heater Types (1 thru 8) shown in the drop-down list.
   a. Touch the field to the right of the **Custom Type 1**. The Custom Heater Type Name keyboard is shown (Figure 8-33).

Figure 8-33 Custom Heater Type Name Keyboard

b. Use the keyboard to enter in the heater type name or select one of the nine heater type names and then select the button.

c. As necessary, do step a and step b again to enter the Custom Type 2 through Custom Type 8 names.

2. Select the zones that you want assigned to a specific heater type.

3. Touch the field to the right of **Heater Type**.

4. In the Heater Type dialog box that shows (Figure 8-34), touch the heater type that you want to assign to the selected zones and then select the button.

Figure 8-34 Heater Type Dialog

5. As necessary, do step 2 through step 4 again to assign heater types to other zones or groups.

8.7.10 Advanced Settings

The Advanced Settings drop-down tab is shown in Figure 8-35.

Figure 8-35 Advanced Settings

The Advanced Settings fields are described in Table 8-15.

Table 8-15 Advanced Settings Fields

Item	Description
Output Power Limit	Set the maximum percentage of power output that the system can supply to the heat zone(s).
Assign Leader Zone	Enter the number of a leader zone that a selected zone will follow. If the selected follower zone's thermocouple fails, Neo5 will use the power output of the leader zone for the follower zone. This will let the selected follower zone continue to operate without the defective thermocouple. Refer to Section 8.7.13.
Sensor Input	Enter the number of the thermocouple that is connected to the zones. The match zone button will select the thermocouple with the same number as the zone.
Output Mode	Select the type of output mode that will be used to control the zones. Choose Zero Cross or Phase Angle.
PCM - Priority Control	For the Priority Control Mode (PCM), select Zone or System. In an abort condition, the Neo5 will remove power from the zone if the malfunctioning zone is set to Zone, or go into stop mode if the malfunctioning zone is set to System.

Table 8-15 Advanced Settings Fields (Continued)

Item	Description
AMC	Automatic Manual Control (AMC) lets the Altanium automatically apply a manual power output percentage to a heater based on a historical average if a thermocouple fails.
Earth Leakage Check	This lets you set the earth leakage check feature for each zone to ON or OFF. The default setting is ON.
Earth Leakage Limit	This limit is the threshold where Neo5 will give an Earth Leakage Alarm. Enter the limit in Amps.
No Response Limit	This is a global setting that determines how long the system should apply 96% power or more without a 5 degree rise in the temperature before it is declared an alarm condition. The default value is 4 minutes, and the valid range is 2 to 15 minutes.
No Heater Detected Enable	The No Heater Detected Alarm supplies immediate feedback that a heater has failed or is no longer connected to the circuit. Touch the No Heater Detected Enable box to enable the No Heater Detected feature.
No Heater Limit	This limit is used by the system to determine if a heater is still connected to the zone. If the current measurement of the zone is below the limit for more than 10 seconds, the No Heater Alarm will be activated.

8.7.11 Control Settings

The Control Settings drop-down tab is shown in Figure 8-36.

Figure 8-36 Control Settings

The Control Settings fields are described in Table 8-16.

Table 8-16 Control Settings Fields

Item	Description
Control Mode	Set the Control Mode to Active Reasoning Technology (ART) or Proportional Integral Derivative (PID). ART automatically adjusts the control algorithm applicable to different heater requirements. If a zone does not control correctly, the system you switch from the automatically adjusted ART algorithm to an algorithm that can be manually adjusted (PID). Refer to Section 8.10 for information on ART and PID.
P - Proportional	This is the proportional term value used by the control algorithm. Possible values are: 0 – 250. Refer to Section 8.10.
I - Integral	This is the integral term value used by the control algorithm. Possible values are: 0 – 250. Refer to Section 8.10.
D - Derivative	This is the derivative term value used by the control algorithm. Possible values are: 0 – 250. Refer to Section 8.10.
P- ART	Select this parameter to edit the P value for the selected zone in the grid. **NOTE:** This setting is available only when the Control Mode value is set to ART.
I - ART	Select this parameter to edit the I value for the selected zone in the grid. **NOTE:** This setting is available only when the Control Mode value is set to ART.
D - ART	Select this parameter to edit the D value for the selected zone in the grid. **NOTE:** This setting is available only when the Control Mode value is set to ART.

The P, I, and D ART parameters are used to edit the ART PID values. You can manually change the proportional (P), integral (I) and derivative (D) values that the ART process selected. This is used when the values the ART routine selected may not be optimal on some zones and the user knows which values would work best without having to wait for the system to retune those zones.

8.7.12 ART Settings

The ART Settings drop-down tab is shown in Figure 8-37.

For information about Active Reasoning Technology (ART), refer to Section 8.10.

Figure 8-37 ART Settings

The ART settings are described in Table 8-17.

Table 8-17 ART Settings

Item	Description
ART	The selections are: • Reset - This resets the ART parameters for the zones. At the next start operation, the zones will go through the ART process. **NOTE:** Reset can be selected regardless of the system mode. • Set Flag - This tells the system that the selected zone has already gone through the ART process and would not have to go through the process the next time the controller is started. **NOTE:** This is typically used in the Husky factory to set all zones as having completed the ART process before your controller ships.
ART Values	Lets you view the PID values calculated by the ART process. **NOTE:** The PID values for each zone are shown in this field in the format: <P>-<I>-<D>
Output Gain	Shows the output gain value returned by the control card for each zone, after tuning is complete. Dashes are shown if the card does not return a valid value.

Table 8-17 ART Settings (Continued)

Item	Description
Minimum P	Enter the minimum Proportional (P) value
Minimum I	Enter the minimum Integral (I) value.
Minimum D	Enter the minimum Derivative (D) value.
Default P	Enter the default P value.
Default I	Enter the default I value.
Default D	Enter the default D value.
ART Offset	The ART Offset is the number of degrees that the actual temperature has to be below the normal setpoint for all the zones before the system starts the ART process.

8.7.13 Zone Follower

Some of the most vulnerable components in the mold are the thermocouples. If a thermocouple fails, an alarm will sound, and an error is logged on the Alarm screen. When this occurs, you can do 1 of the 3 steps that follow:

1. Stop molding, remove the mold, and repair the fault. This may not be desirable or even possible.
2. Switch the zone to Manual control mode and continue processing. This has limitations as Manual mode is not able to compensate for changes in the process that affect the heater's power requirements, for example, shear heat.
3. Set the faulty zone as a follower of another zone (leader). Due to the symmetry in the design of hot runner molds, frequently there are other zones that have very similar thermal characteristics as the faulty zone. Neo5 can apply the power output from a fully functioning zone to the zone with the defective thermocouple. This means that any processing changes that affect the power requirements of the heaters are automatically applied to the defective zone. It is similar to repairing the defective thermocouple without ever opening the mold.

8.7.13.1 Using the Automatic Follower Function

If a thermocouple malfunctions during molding operation, the Auto-Follower function will take over. Heaters are continuously monitored, and comparative data is stored. This data is used to select an almost identical Leader/Follower relationship for every zone in the mold.

Based on the stored comparative data, the system knows which zone the faulty zone must follow, so that it continues to operate in a closed loop control mode.

The only requirement is to see the error, then clear and reset the alarm. On the Neo2 View, Multi-Group View, and Text View screens, the zone number switches between the original zone number and the zone to which it will follow.

Once the error is cleared and reset, the follower value is stored to the database. The Quick Set screen for that zone shows the zone it now follows. The Automatic Follow function can be disabled in the System Setup screen.

If the automatic follow function is unable to find a suitable partner, the Automatic Manual Control (AMC) function is activated. If AMC is set to On, the system automatically switches the bad zone into Manual mode applying a calculated average power output to the heater. If AMC is Off, Priority Control Mode (PCM) is activated and shuts down either the zone or the system based on the PCM setting.

8.7.13.2 Manually Setting One Zone as a Follower to Another Zone

If a thermocouple is about to fail, it can be set as a follower to another zone (leader) before it fails completely.

To manually set one zone as a follower to another zone, do the steps the follow:

IMPORTANT!

Choose a leader zone with similar heater characteristics. For example, a user may not want to set a manifold zone as a follower to a tip zone. A zone cannot be a follower to itself.

1. On the **Quick Set** screen, select the zones that need to be set as followers.
2. Open the **Advanced Settings** drop down menu.
3. Touch the box to the right of the **Assign Leader Zone** button. Enter the leader zone number to which the selected zone(s) will follow, and then select the  button.

On the Neo2 View, Multi-Group View, and Text View screens, the color of the manual-follower zone changes from white to dark blue and the zone and name switches between the original zone's number and the zone number which it follows (leader zone).

8.8 Alarm Window

The Alarm Window lets you specify a range of how many degrees great than or less than the Temperature Setpoint will cause an alarm. The default Alarm Window setpoint is 6 °C (10 °F).

Alarm Example: Temperature Setpoint = 300 °F, Alarm Window = 10 °F

Temperatures greater than 310 °F or less than 290 °F will cause an alarm. If the Temperature Setpoint is changed to 350 °F, then temperatures greater than 360 °F or less than 340 °F will cause an alarm. The Alarm Window setpoint is the same number of degrees greater than and less than the Temperature Setpoint.

To change the Alarm Window for a zone, do the steps that follow:

1. Touch the zone to be changed.
2. Touch the **Frequently Used** drop-down tab.
3. Touch the **Alarm Window** field and enter a new value.
4. Touch the **Accept** button.

8.9 Zone Calibration

To run a satisfactory injection process, temperature accuracy of the zones is important. The Neo5 lets you make sure that your temperature readings are correct with the use of zone calibration.

To calibrate one or more zones, do the steps that follow:

1. Make sure that all cards in the system are in place and properly secured.
2. Make sure that all card slots and access panels are covered and closed.
3. Energize the controller and let the internal temperature stabilize for at least 45 minutes. If the controller has already been running for this amount of time you can skip this step.
4. Log into the system as administrator.
5. Make sure that the controller is in Stop mode.

6. Select the Zone Calibration button in the System Configuration group of the Neo5 Home screen

The Zone Calibration screen shows (refer to Figure 8-38).

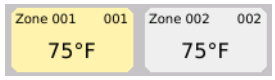
Figure 8-38 Zone Calibration Screen

When you open the Zone Calibration screen, the following actions occur:

- The mode changes to 'Calibration'.
- The Start, Standby, and Boost buttons in the header become disabled.
- All zone errors become disabled until you open a different the screen.

NOTE: If you open the Zone Calibration screen in any mode other than Stop, the buttons in the left panel will be disabled. When you stop the controller, the mode will change to Calibration and the buttons in the left panel will be enabled again.

7. Select the zone that you want to calibrate.



8. Connect the wire harness connector to the thermocouple simulator.

The thermocouple calibrator provides a standard signal level for known temperatures (a low temperature and high temperature).

NOTE: Refer to the thermocouple calibrator manual for installation instructions.

9. Connect the wire harness pins to the selected thermocouple connector inputs located on the back of the controller.

Use Table 8-18 and Table 8-19 for reference.

Table 8-18 Thermocouple Color Codes

ANSI Code	International IEC 584-3	International IEC 584-3 Intrinsically Safe	American Canadian	Czech British	Netherlands German	Japanese	French
J							

Table 8-19 Alloy Combination

+Lead	-Lead
‡Iron Fe (magnetic)	Constantan Copper - NICKEL Cu-Ni

10. Set the thermocouple simulator to 300 °F (150 °C if the temperature units in the controller are set to Celsius).

11. Wait about 5 seconds for the reading to be stable and then touch the **Read Low** button on the left side of the Zone Calibration screen.

12. Set the thermocouple simulator to 750 °F (400 °C if the temperature units in the controller are set to Celsius).
13. Wait about 5 seconds for the reading to be stable and then touch the **Read High** button on the left side of the Zone Calibration screen.

14. Touch the **Calibrate** button on the left side of the Zone Calibration screen to calculate the simulated values and save the data for that zone to the system.

The tile button of the selected zone on the Zone Calibration screen should now show 750 °F (400 °C).

15. To do an accuracy check of the calibration, set the simulator to 500 °F (260 °C).

The tile button of the selected zone on the Zone Calibration screen should read 500 ±1 °F (260 ±1 °C) degree for the zone you have just calibrated.

16. To calibrate another zone, do the steps that follow.
    a. Touch the zone tile button of the zone that you want to calibrate.
    b. Connect the wire harness pins to the selected thermocouple connector inputs located on the back of the controller.
    c. Do step 10 through step 15 again.
17. When you have completed the thermocouple calibration(s), disconnect the wire harness from the back of the controller and from the thermocouple simulator.

If necessary, you can use the Load Defaults button in the left panel to load factory default calibration settings.

8.10 Active Reasoning Technology (ART)

Active Reasoning Technology (ART) is the science of applying microprocessor-based control systems to automatic decision making. It is a control method directed at an active or continuous learning process, which is tolerant to faulty functions and incorrect operation by intentionally circumventing the incorrect operation or failure.

Active Reasoning software combined with integrated hardware disseminates information and makes better process decisions than any modular single input, single output controller. The ability of all zones to interact with one another and understand the effects of that interaction is paramount. Totally automatic control is one advantage. During startup, the control looks at all zones individually, then looks at comparisons of all zones and determines any interaction between them. It tests for any earth leakages individually and as a whole. It then creates the necessary bake out and soft start routines to heat the mold successfully and evenly.

8.10.0.1 ART Fault Handling

If an error occurs during the ART process, the Alarms screen is shown automatically, and the error is recorded in the events log. An error stops the ART process immediately.

8.10.0.2 Altanium Card ART Process Time Limit

The control card is responsible for stopping the ART process if it has not completed within 15 minutes. The default PID values are used for zones that cannot complete the ART process, and the ART complete flag is set.

If the ICC3 firmware does not include the time out feature, a timer will be used in the HMI. If ART is not completed within 20 minutes, the default PID values are used for zones that did not complete the process, and the ART complete flag is set.

8.10.0.3 ART Parameters Save and Recall

The ART parameters and completion status are included in the mold setup file. After ART is run on a zone, the new ART parameters are automatically saved to the current mold setup file regardless if the Auto Save Mold Setup option is enabled in the System Configuration screen.

8.10.1 Changing the Zone Control from ART to PID

The control algorithm is automatically adjusted to suit different heater requirements. This control method is referred to as Active Reasoning Technology (ART). In some cases, it may be necessary to switch from the automatically adjusted ART algorithm to an algorithm that can be manually adjusted. This control method is referred to as PID. When switching a zone from ART control to PID control, you can manually enter values for the Proportional, Integral and Derivative parameters.

8.10.2 Typical PID Values

The following is a list of some typical PID values.

Table 8 -20 PID Values

Proportional	Integral	Derivative	Type	Example
015	010	002	Fast	Probes or heaters with internally located thermocouples
050	020	000	Fast	
020	010	000	Fast	
015	015	000	Fast	
020	007	100	Medium	Probes or heaters with internally located thermocouples (larger mass)
020	005	200	Medium	

Table 8 -20 PID Values (Continued)

Proportional	Integral	Derivative	Type	Example
100	003	000	Slow	Manifolds or heaters with externally located thermocouples
075	003	150	Slow	

8.10.2.1 Possible Causes of Oscillation

It is possible to set the control terms incorrectly, which causes an oscillation. The most common causes of oscillation are:

Table 8 -21 Possible Causes of Oscillation

Cause	Description
"P" too large	Power change too great per °C of temperature change.
"I" too large	Power changing too quickly for the process to follow it.
"D" too large	Stepped power change too large for the rate of change of temperature.
Shear	An important issue often overlooked is the effect of shear in the material as it passes through the gating area. This can cause rises in temperature in excess of 33 °C (60 °F) under severe conditions. Therefore, if large temperature variations occur during molding, it is worth plotting this variation against the molding cycle time. As the controller cannot initiate additional cooling, it is only possible to minimize this effect with properly selected PID terms.

8.11 ART 2.0

The use of the ART 2.0 tuning strategy gives added performance in comparison to ART classic. With ART 2.0, the system is ready to mold much faster than before, with the advantages that follow:

- Faster mold-tuning
- Reduced risk of tune-failure
- Reduced risk of mold-setup error
- Improved heating strategies
- Reduced dependence on local tuning skill
- Automatic zone classification

With ART 2.0, there is a shorter time to restart through improved heat-up strategies with the potential to reduce resin degradation, which could save some material, time, and energy.

The system is able to automatically classify the type of heater that each zone controls with the use of the ART 2.0 algorithms. In the System Setup screen, you can enter a Heater Classification Gap that determines which zones are tips and which ones are manifolds.

A heat capacity value, measured as zone gain in decibels (dBG), are returned by the control card that can be used for determining the heater type. Values for all the zones are sorted in ascending order and then the widest gap found between zones is determined. If the widest gap exceeds the Heater Classification Gap, then the zones on the lower side of the gap are tips and the other zones are manifolds. If no gap is wide enough, then no action can be taken because the system cannot determine a tip from a manifold.

For typical hot runners a value of 5 dBG or 6 dBG is ideal, but there could be specialized molding applications where these defaults are not applicable.

Figure 8-39 shows examples of how the classifications (tip/manifolds) are determined. The gains of five zones are measured. The gains are sorted from smallest to the largest with gaps shown between the gains. With the use of the Heater Classification Gap value that you enter in the Tuning panel of the System Setup page, ART 2.0 counts the gaps between the measured gains and assigns each zone a tips or manifold classification. With a Gap setting of 5, zones with lower gain measurements (and separated by 4 gaps or less) are tips, while zones with higher gain measurements (and separated by 5 gaps or more) are Manifolds. With a Gap setting of 6, zones with lower gain measurements (and separated by 5 gaps or less) are tips, while zones with higher gain measurements (and separated by 6 gaps or more) are Manifolds.

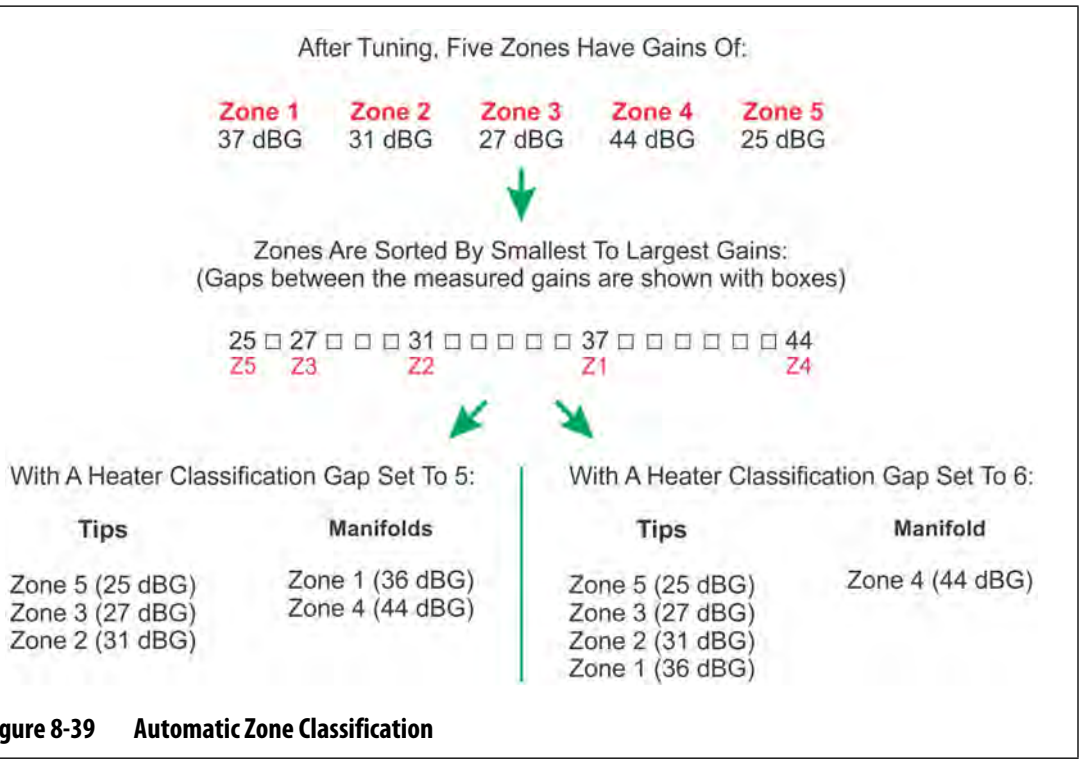


Figure 8-39 Automatic Zone Classification

A dialog window is shown after the tuning is complete for a new mold setup or if one or more zones have been re-tuned on a different mold. This is only if the heater types have changed.

NOTE: This dialog will not show if the system cannot find a gap between zones wider than the Heater Classification Gap setting in System Setup. The system is unable to determine a tip from a manifold during the tuning process.

In the dialog window, the zones are shown with their determined classifications. All zones are selected by default. If you touch the Accept button, the system will store the tips and manifold zones that it determined. The classifications are stored in the Mold Setup for later reference. You can also deselect or reselect zones to customize which ones are automatically classified. If you touch the Exit button, then no automatic classification will occur.

Chapter 9 Mold Diagnostics

Diagnostics is a useful tool for troubleshooting problems with a mold or for verifying the wiring integrity of a mold after maintenance has been performed. You can also use diagnostics to analyze the thermal isolation between all the cavities in the mold.

9.1 Test Settings

NOTE: The settings are set to their default values at the factory. The settings can be changed if necessary. The steps that follow are not mandatory and only need to be done once unless additional changes are necessary in the future.

Before you run a test you must enter in the test parameters in the Mold Test Settings screen. To enter the settings, do the steps that follow:

1. On the Neo5 Home screen, select the Mold Test button (refer to Figure 9-1).

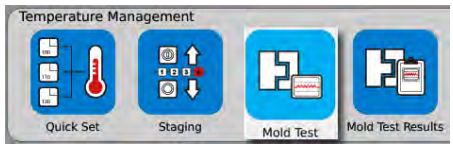


Figure 9-1 Quick Set Button

The Mold Test screen shows (refer to Figure 9-2).

Figure 9-2 Mold Test Screen

2. On the Mold Test screen, select Settings button at the bottom, middle of the screen (refer to Figure 9-3).

Figure 9-3 Mold Test Screen - Settings Button

The Mold Test Setup Screen shows (refer to Figure 9-4).

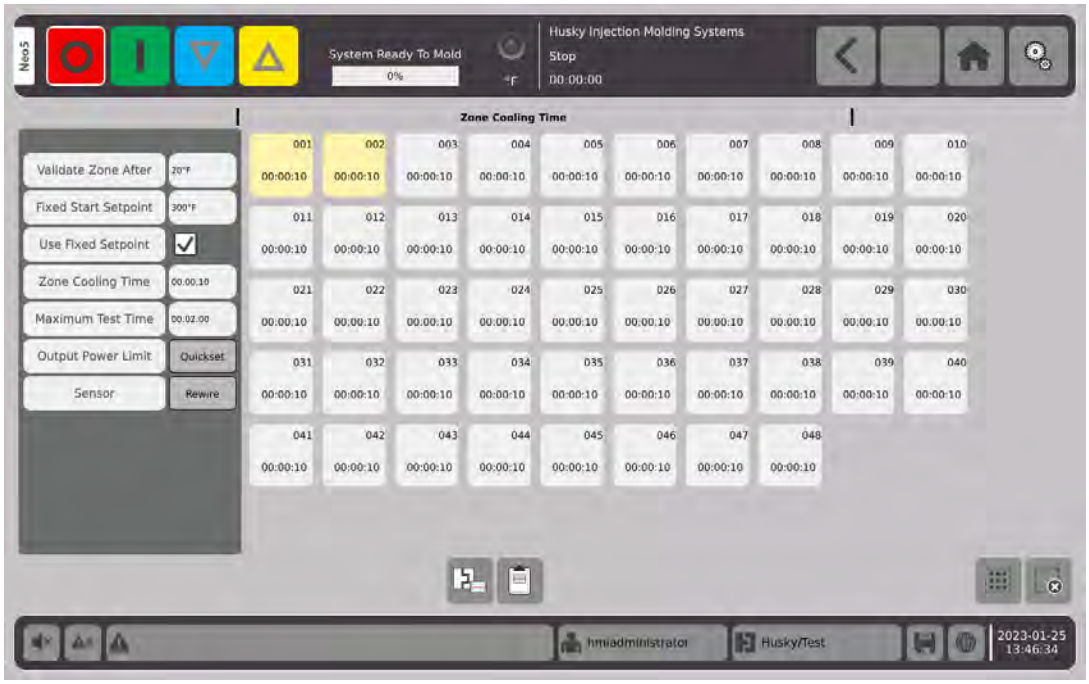


Figure 9-4 Mold Test Setup Screen

3. Touch the box to the right of the **Validate Zone After** button, enter the temperature in the keypad, and then select the button.

   This is the temperature rise in degrees that a zone must reach before it is considered an operational zone.

4. Touch the box to the right of the **Fixed Start Setpoint** button., enter the temperature in the keypad, and then select the button.

   If the fixed setpoint is enabled, then the entered value is used as the minimum setpoint. If not enabled, the lowest normal setpoint for the zones that are selected for testing is used as the minimum setpoint.

   All the temperatures for the input sensors that are being tested must be below this limit before the next zone is tested during the wiring test.

5. To use the fixed setpoint, touch the checkbox to the right of the **Use Fixed Setpoint** button, so a check mark shows.

6. Touch the box to the right of the **Zone Cooling Time** button, enter a wait time in the keypad, and then select the ✔ button. Refer to Section 9.2.1 for more information.
7. Touch the box to the right of the **Maximum Test Time** button, enter the maximum time in the keypad, and then select the ✔ button. Refer to Section 9.2.2 for more information.
8. Touch the **Mold Test** button at the bottom of the screen to return to the Mold Test screen.

Output Power Limit button - This is a link to the Quick Set screen that lets you set an Output Power Limit, if necessary.

Sensor button - If the zones and thermocouples are not correctly connected (zone 1 to thermocouple 1), the box to the right of the Sensor button will become active (not greyed out). Touch the Rewire box to correctly connect the zone to its thermocouple.

9.2 Mold Diagnostics Test

For a mold diagnostic test, do the steps that follow:

1. Before connecting any power to the controller or the mold, clean the mold and its surroundings.

CAUTION!

Risk of damage to the equipment — Do not rely on the possibility of a ground in the mold cables. Using a length of suitable wire, attach the mold to the mold ground connector on the mainframe.

2. For safety, make sure that the controller and mold share the same ground.
3. Do a check of the mold wiring to make sure that there are no bare wires, frayed ends, or cut insulation.
4. If the thermocouple(s) and power cables are present, connect them from the controller to the mold.
5. Connect the Neo5 to the main input power and set the power to ON at the main disconnect.
6. Log in and load a mold setup.
7. On the Neo5 Home screen, select **Mold Test** button.

8. Select the desired zone(s) on the Mold Test screen.

   NOTE: Only the zones selected will be tested.

9. Make sure that Neo5 is stopped.

10. If not already selected, touch the checkbox next to the test (Figure 9-5) that you want to run on the selected zones. Refer to Section 9.2.3 for information about the tests.

    Your selections are:

    - Test Heaters
    - Test Sensors
    - Test Wiring

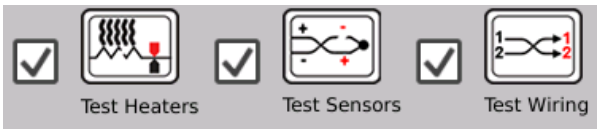


Figure 9-5 Mold Test Selection Checkboxes

Check marks must show in the checkboxes for the test to run.

11. Touch the **Start Test** button to run the test(s) on the selected zone(s).

12. If necessary, touch the **Stop Test** button to stop the test(s).

9.2.1 Zone Cooling Time

On some molds, it may be necessary to wait before moving on to test the next zone. This wait time is needed in cases where, after the power has been removed, the thermocouple continues to heat longer than expected. This is common with large manifolds. If Neo5 started testing the next zone before the previous zone's temperature stopped increasing, this could affect the test results. The default setting is 10 seconds. Each mold setup can have its own set of cooling times.

9.2.2 Maximum Test Time

On some molds, if there is a thermocouple wiring problem, a heater could be damaged during the test. Specifically, some heaters in some configurations may not support the peak temperatures reached when full power is applied for the default test time. An extreme example is testing a hot runner without the cavity plate in position. If the heater is large, a short test time may not be long enough to heat up and result in a failed test. Operators can set the maximum test time for each zone to accommodate different types of heaters. The default setting is 2 minutes. Each mold setup can have its own set of maximum test times.

9.2.3 Test Definitions

Test Heaters — During heating, the maximum current and voltage are recorded, and the resistance is calculated. Also checks for blown fuses.

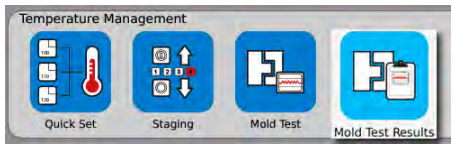
Test Sensor — Tests the correct functioning of the thermocouple. For example, if a thermocouple is lost or reversed.

Test Wiring — Makes sure that the thermocouple and heaters are paired correctly (1 to 1, 2 to 2, and so on). During heating the maximum current and voltage are recorded and the resistance is calculated. Before the cross-talk test is done, the test waits for the zone temperature to be less than the threshold.

9.3 Mold Test Results

After a mold test has completed, you can see the results on the Mold Test Results screen.

From the Neo5 Home screen, select the **Mold Test Results** button.



The Mold Test Results screen shows (refer to Figure 9-6).

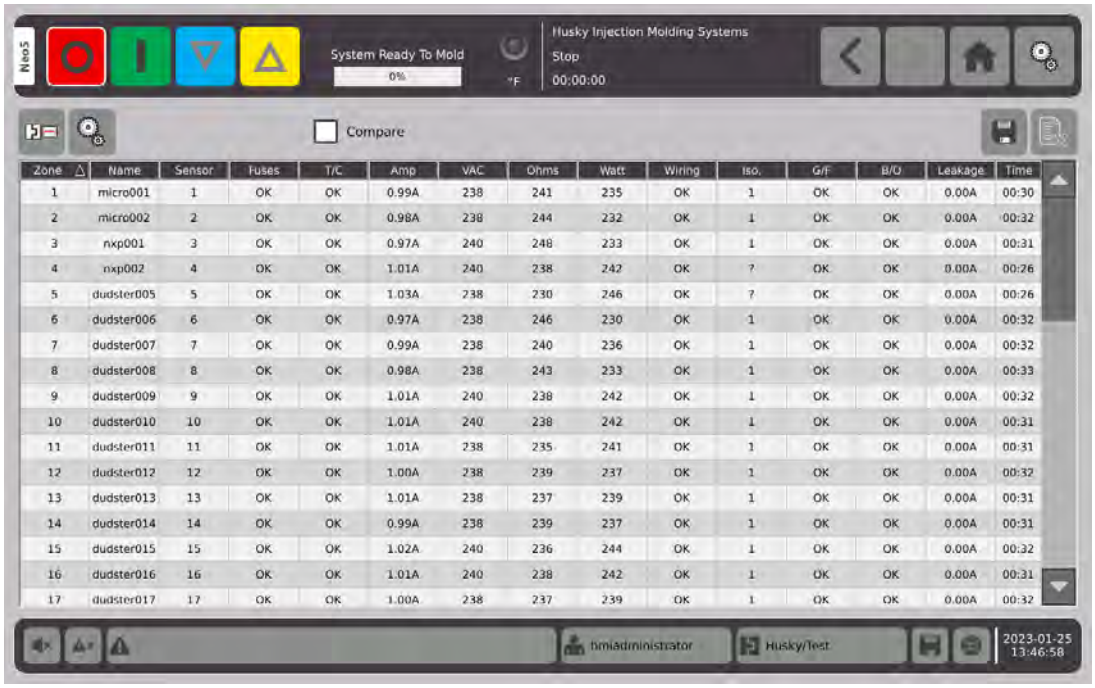


Figure 9-6 Mold Test Results Screen

Table 9-1 describes the fields and buttons on the Mold Test Results screen.

Table 9-1 Mold Test Results Screen Descriptions

Item	Description
Zone	Zone number
Name	Zone name
Senor	Indicates the number of the sensor being used for that zone.
Fuses	The fuses test will determine whether the fuse for that zone is operating correctly. Fuse values are displayed as follows: • Question Mark = Indicates the test did not complete. • OK = Indicates the fuse for the zone passed the test. • BLOWN = Zone failed the test and the fuse is blown.
T/C	The thermocouple test will determine whether the thermocouple for that zone is operating correctly. Thermocouple values are displayed as follows: • ? = Indicates the thermocouple for the zone was not tested or did not complete the test. • OK = Indicates the thermocouple for the zone test passed. • REV = Reversed. • N/C = Not Connected. • N/A = Not Assigned. • CAL = Not Calibrated. • OL = Overload Positive. • -OL = Overload Negative. • ART = Zone is going through the ART process.
AMP	Current drawn by the heater during the test for each zone. • ? = Test did not complete. • - - - = No current sensor for this zone. • xx.xxA = Measured full load current of zone. • No Heater = Measured value is less than No Heater Limit.
VAC	Line voltage reading taken during the test for each zone. • ? = Test did not complete. • xxxV = Measured voltage being supplied to the zone.
OHMs	Resistance calculated for each zone based on the line voltage and current readings measured during the test. • ? = Test did not complete. • - - - = No current sensor for this zone. • xx.xΩ = Calculated ohm value for this zone.
Watt	Power calculated for each zone based on the line voltage and current readings measured during the test. • ? = Test did not complete. • - - - = No current sensor for this zone. • xxxx.xxW = Calculated full load wattage for this zone.

Table 9-1 Mold Test Results Screen Descriptions (Continued)

Item	Description
Wiring	The wiring test tests for correct zone sensor assignment. This test determines whether sensor assignments match. If a sensor assignment does not match, the cross-talk findings test will fail. Wiring values are displayed as follows: • ? = Not tested or did not complete the test. • OK = Passed. • Fail -n = Failed where n is the zone with the maximum response.
Iso.	This test calculates cross-talk data that is used to describe how well a zone is isolated from adjacent zones. When heating one zone, adjacent zone temperatures should not increase. The Iso. number shown in this column identifies a cross-talk percentage range (refer to Table 9-2). • If an isolation value cannot be calculated, because of no heating profile, a question mark (?) is shown for the result.
G/F	The ground fault test tests for an earth leakage in each zone. Earth leakage values are displayed as follows: • ? = Test did not complete. • - - - = No current sensor for this zone. • OK = Passed. • Fail = Failed (measured a leakage value that exceeded the Earth Leakage Limit setting in Quick Set).
B/O	The bake out test tests for moisture in each heater. Bake out values are displayed as follows: • ? = Test did not complete. • - - - = No current sensor for this zone. • OK = Passed. • Fail = Failed (measured a leakage value that exceeded the Bake Out Limit setting in the System Setup screen).
Leakage	The measured earth leakage in amps. • ? = Test did not complete.
Time	The time it takes to test each zone. • ? = Test did not complete.

NOTE: "Not tested", could be because the zone was not selected, or because one or two test types (heaters, sensors, or wiring) were not checked. "Test did not complete", means the test timed out or the user stopped the test.

Table 9-2 shows the cross-talk percentage ranges that are identified by number in the Iso column of the Mold Test Results screen.

Table 9-2 Cross-Talk Percentage Ranges and Isolation Rating

Iso. Number	Cross-Talk Range	Isolation Rating
1	81% - 100%	Excellent
2	61% - 80%	Good
3	41% - 60%	Moderate
4	21% - 40%	Fair
5	0% - 20%	Poor

9.3.1 Automatic Thermocouple Wiring

Thermocouples can be inadvertently cross wired in the mold, where the thermocouple for one heater becomes connected with another heater, and vice versa.

The Neo5 wiring test checks the thermocouple/heater wiring and determines whether the wiring is correct. When the test is complete and if an error was found, the zone with the error will show Failed, followed by the zone number with the maximum response in the wiring column. Also, the Rewire button (next to Sensor) in the Mold Test Setup screen will be enabled.

To automatically rewire thermocouples:

1. If necessary, on the bottom of the Mold Test screen, touch the Settings button.

2. On the Settings screen, touch the **Rewire** button to automatically reassign the mold thermocouples to their correct zones.

NOTE: This information is saved with the current mold setup.

9.3.2 Compare Mold Test Results

You can compare a recent mold test results to a baseline mold test.

To enable this function, touch the compare checkbox on the Mold Test Results screen, so a check mark shows.

When the Compare function is enabled, the Mold Test Results screen will show two tables, one above the other. The top table shows the baseline results, and the bottom table shows the compare results. Buttons at the top of the screen lets you choose the baseline results and compare results from a list of the tables in the database.

To see a comparison, do the steps that follow:

1. From the Mold Test screen, run a mold test (Section 9.2).

   The results are stored in a diagnostics table.

2. Go to the Mold Test Results screen (Section 9.3).

3. To save the test results with a title, select the **Save** button in the upper right corner of the Mold Test Results screen.

   The Test Results Title keyboard will show (refer to Figure 9-7).

Figure 9-7 Test Results Title Keyboard

4. Type the Title you want to assign to the test results and select the ✓ button.

5. Touch the compare checkbox on the Mold Test Results screen, so a check mark shows.

6. Touch the **Select Baseline** button.

   The Select Baseline dialog shows (refer to Figure 9-8).

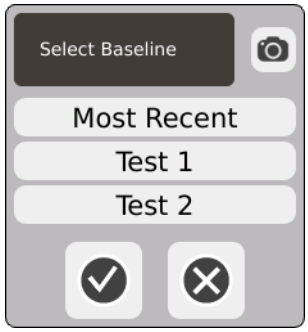


Figure 9-8 Select Baseline Dialog

7. Select the test that you want to use as the baseline and then select the button.
8. Touch the **Select Compare** button.

The Select Compare dialog shows (refer to Figure 9-9).

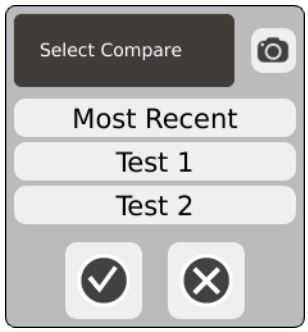


Figure 9-9 Select Compare Dialog

9. Select the test that you want to compare to the baseline and then select the button.

   The baseline and comparison test results are shown on the Mold Test Results screen. The top table is the baseline test results and the bottom table is the compared test results.

   The differences in amps, watts, voltage, and ohms are highlighted in red in the lower table.

You can delete test results with the use of the **Delete Result** button.

The Delete Result dialog will show (refer to Figure 9-10).

Figure 9-10 Delete Result Dialog

Select the test result you want to delete and then select the button.

NOTE: When there are 20 test results tables in the database, the Save button will be disabled. You must delete one or more test results from the database to enable the Save button.

Chapter 10 Heat the Mold

This chapter describes how to start the Neo5 system and check for errors, and alarm conditions, if they occur.

10.1 Neo5 Startup

To apply power to the zones, touch the Start button.

10.1.1 Heat Circuit Test

When you first apply power to the zones, a heater circuit test is done on all the zones before full power is applied. The duration of this test is 15 seconds and is done before the soft start routine (Section 10.6) is activated.

This test will detect the heater circuit faults described in Table 10-1.

Table 10-1 Heater Circuit Faults

Faults	Description
Open Circuit	Occurs when a conductor is broken or comes loose and no current flows through the circuit.
Short Circuit	Occurs when current travels along an unintended path as the result of a wiring error across the heater outputs, a pair of frayed conductors, or a pinched wire.
Leakage	A low current short to ground that typically occurs when moisture is absorbed by a heater's insulation material.
Wrong Heater	This is a case when the heater exceeds the capacity of the zone it is connected to in the controller.

10.2 Earth Leakage/Wet Heater Bake Out System

Neo5 is equipped with an advanced Earth Leakage/Wet Heater Bake Out system. When the Neo5 is started, a check for earth leakage conditions on every heater is done simultaneously and continuously. When necessary, it will start a low voltage bake out on the faulty zone(s). This will bake the moisture out of the zones.

10.2.1 Earth Leakage Limit

For H Cards (ICC^3):

The cards include a sensor specifically for monitoring leakage current in the heater circuit on a continuous basis. The system will give an earth leakage error based on a user settable Earth Leakage Limit with a default value of 500 milliamps and an adjustable range from 1 to 999 milliamps.

To set the Earth Leakage Limit, go to the advanced settings field in the **Quick Set** screen. Refer to Section 8.7.10.

10.2.2 Configure the Length and Number of Bake Out Cycles

You can run up to 5 low-voltage bake outs, if necessary. The duration of each cycle can be set from one to 30 minutes. The system mode and system timer indicate the progress of each bake out cycle.

When a bake out cycle has completed, the system determines if another bake out cycle is necessary. If the bake out alert enable parameter is active (refer to the System Setup screen, Chapter 11), and, after the set number of bake out cycles are completed, if there is still enough moisture in the system to warrant another bake out cycle, the system will automatically shut down and trigger a bake out alarm. If there is no more moisture in the system after the set number of bake out cycles have completed, the soft start process will begin.

The system will declare a bake out error based on a user settable Bake Out Limit with a default value of 200 milliamps and an adjustable range from 1 to 999 milliamps. Any value of 200 milliamps or higher, but lower than the earth leakage limit, will trigger a bake out error.

Refer to the System Setup screen, Chapter 11, to set the Bake Out parameters.

10.3 AltaStart

The AltaStart function is used for heat sequencing. This system analyzes the likely heat-up time of tip zones and scheduling each one to make sure that they get to their respective temperature setpoints within 3 minutes of the manifolds. When AltaStart is used:

- Zones that are turned OFF will not be included in the AltaStart process.
- Zones in manual regulation will use a scaled power value during the AltaStart process, similar to soft start.
- The Heater Type setting must be set to Tip or Tips before the AltaStart process will work.
- The tips zone must wait at least 180 seconds (3 minutes) before determining when to start heating. This is done in case the manifold zones become power saturated and it takes longer for them to heat up.

10.4 UniStart

The UniStart function provides the shortest start-up time while ensuring that all temperatures track to their setpoint.

NOTE: If AltaStart is enabled, only non-tip zones will be included in the UniStart process. If AltaStart is not enabled, then all zones will be included in the UniStart process.

When the Neo5 Start button is select, the system operates as follows:

1. Fast heating is applied if enabled. Refer to Section 10.5.
2. The lowest common Integral value (of PID) between all the zones is determined and is shared with the other zones.
3. The global ramp limit is shared with all of the zones.
4. The zones in the UniStart process will no longer use the Ramp Limit or common Integral when they enter the At Temperature window (refer to Section 8.8). The previous Integral value will be restored.

The system also does a check for power saturation during the heat process:

- If some zones have power that is within 4% of the present power limit (the same threshold as No-Response), it will be considered saturated. The zone with the smallest delta from the limit will be the lead zone.
- The present ramp of the UniStart group's lead zone should be shared among all of the zones in the group. This sharing is similar to that of sharing the Integral except that the value is likely to change while heating. This value will persist for as long as the zone is under UniStart control. As zones enter At-Temperature, all limits are lifted.

10.5 Fast Heating

The UniStart process heats the zones slowly, but evenly. When Fast Heating feature is enabled, the system pushes some zones to heat faster, as follows:

- The system looks at all the zones to see if the Integral value (of PID) is less than 2. If it is, then the value is changed to the lesser of either:
  - Twice its normal value, or a maximum value of 2.
  - The Proportional (of PID) is then multiplied by a fraction. The fraction is the old Integral value divided by the new Integral value.

    Example 1: A zone's ART PID values are 15.0, 1.2, and 1.4. The system will change the integral value to 2 and multiply the proportional value by 1.2 / 2 or 0.6.

    Then 15 x 0.6 = 9. The new PID values then become 9.0, 2.0, and 1.4.

    Example 2: A zone's ART PID values are 15.0, 0.6, and 1.4. The system will change the integral value to 1.2 and multiply the proportional value by 0.6 / 1.2 or 0.5.

    Then 15 x 0.5 = 7.5. The new PID values then become 7.5, 1.2, and 1.4.
- The new values (P and I) will be used until the zone's temperature reaches the At Temperature window. The P and I values will then be restored to their original values.
- This feature only applies to zones that are using ART PIDs.
- The Fast Heating Enable setting is saved to the mold setup. The default value is selected.

10.6 Soft Start Routine

During the soft start routine, all the zones warm up simultaneously, and at the same rate. The soft start routine results in even thermal expansion and identical residence time on the material.

NOTE: Soft start is not active during staged startup.

The soft start sequence shown in the steps that follow:

1. If necessary, the bake out starts.

   NOTE: If the ART process has not been completed, the ART Process screen will show when starting soft start.
2. The ART process begins if it has not already run.
3. "Soft Start" is shown in the status bar. The power applied to the heaters varies from the probes to the manifold zones, the probes receiving less power and the manifolds receiving more. All of the zones increase in temperature at the same rate to ensure a smooth even thermal transfer within the mold. This helps to eliminate mold leakage.
4. When all temperatures are near their setpoint, "Running" is shown in the system mode.

NOTE: You enable Soft Start on the System Setup screen (refer to Chapter 11).

10.6.1 Adjusting the Soft Start Minimum Limit

The soft start limit is used to calculate the window between the lowest temperature zone and the highest temperature zone in the system. This window is maintained throughout the soft start process and determines the gap between the coldest and hottest zones. Generally, lowering the soft start limit value decreases this gap, contributing to greater thermal uniformity of the hot runner system from a cold startup.

To set the soft start minimum limit, refer to the System Setup screen (refer to Chapter 11).

10.7 Alarm Screen

The Alarm screen shows the errors that occur (refer to Figure 10-1). When an alarm is active, an icon on the Alarm button in the system footer changes to yellow and flashes red.

NOTE: For a description of the alarm conditions displayed on the Event History screen and Alarm screen, refer to Section 10.9. For a description of the abort conditions displayed on the Event History screen and Alarm screen, refer to Section 10.10.

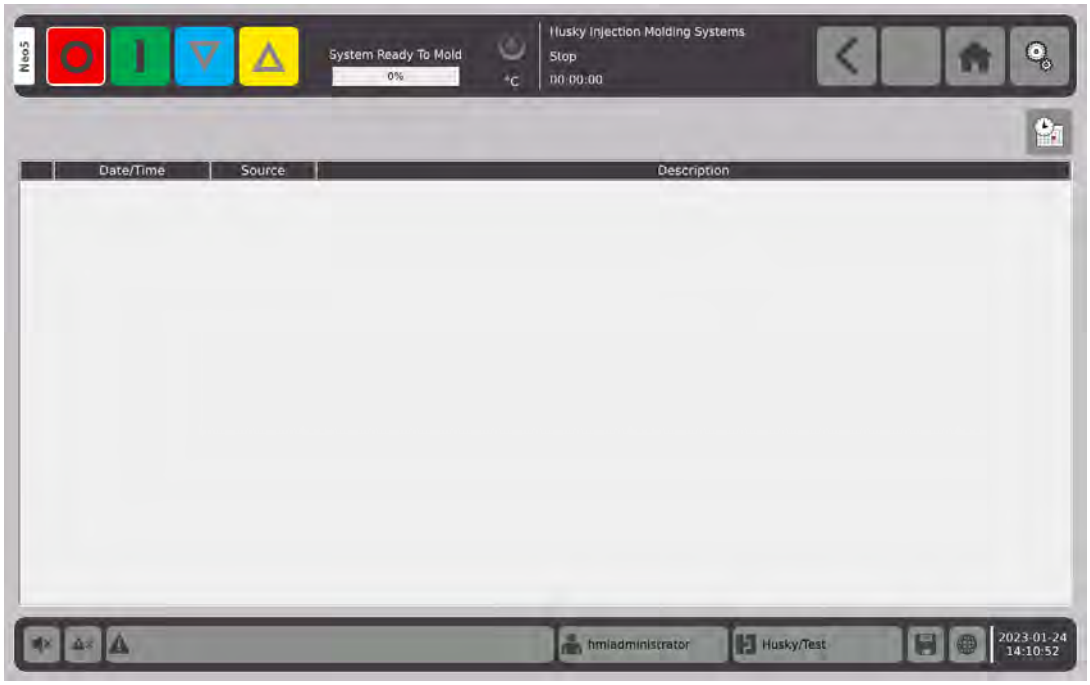


Figure 10-1 Alarm Screen

Table 10-2 describes the items on the Alarm screen.

Table 10-2 Alarm Screen Descriptions

Item	Description
Date/Time	Date and time that the alarm was triggered.
Source	Cause of the alarm.
Description	Description of the problem that triggered the alarm.

Near the top right corner of the screen, there is a quick link button to the Event History screen.

The Event History screen stores all the alarms after they have been cleared from the Alarm screen.

10.7.1 Opening the Alarm Screen

There are two buttons you can use to show the Alarm screen:

- Alarms button in the Data Collection and Monitoring group of the Neo5 Home screen (refer to Figure 10-2).

Figure 10-2 Alarms Button

- Alarm Status button in the system footer on all screens (refer to Figure 10-3).

Figure 10-3 Alarm Status Button

10.7.2 Clearing Alarms

If an error occurs, Neo5 will turn on audible and visual alarms and show the alarm condition on the Alarm screen.

To clear an alarm, do the following:

To silence an audible alarm, touch the **Silence Horn** button.

To reset the alarm light and acknowledge the alarm, touch the **Alarm Reset** button.

NOTE: Before you reset an alarm, correct the source of the alarm.

Touch Alarm Reset button once and the alarm is assigned the inactive/not acknowledge state.

Touch Alarm Reset button twice and the alarm is assigned the inactive acknowledge state. This clears the alarm from the screen. You can see the alarm in the Event History screen after the alarm is cleared.

10.8 Event History Screen

The Event History screen lists the zone alarms, alarms, warnings, setpoint changes, setup changes, HMI startup, and out of specification events that have occurred previously (refer to Figure 10-4).

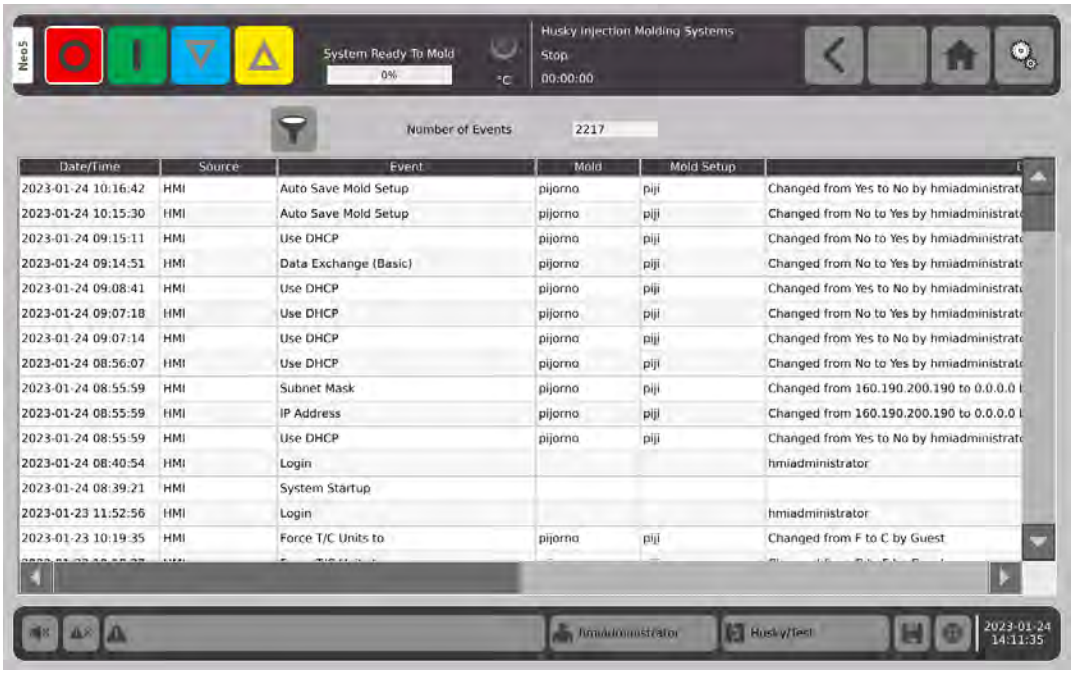


Figure 10-4 Event History Screen

On the Neo5 Home screen, touch **Event History** button to see the Event History screen (refer to Figure 10-5).

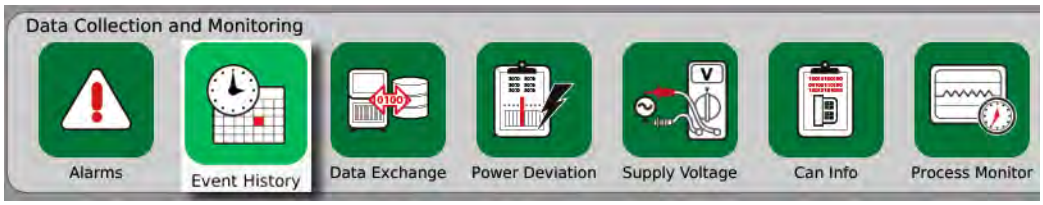


Figure 10-5 Event History Button

NOTE: For a description of the alarm conditions displayed on the Event History screen and Alarm screen, refer to Section 10.9. For a description of the abort conditions displayed on the Event History screen and Alarm screen, refer to Section 10.10.

Table 10-3 describes the items on the Event History screen.

Table 10-3 Event History Screen Descriptions

Item	Description
Date/Time	Date and time that the event was triggered.
Source	Where the event occurred.
Event	Name of the event.
Mold	Indicates the mold that is associated with the mold setup that was loaded when the event occurred.

Table 10-3 Event History Screen Descriptions (Continued)

Item	Description
Mold Setup	Indicates the mold setup that was loaded when the event occurred.
Details	Describes the event.

10.8.1 Filtering Events

On the Event History screen, you can filter the events you want to see. One or more event types can be selected, and you can filter by dates. Do the steps that follow to select the events that will show:

1. On the Event History screen, touch the **Filter** button.

2. In the Filter Events dialog the shows (Figure 10-6), select the event types that you want to see.
3. Touch the button.

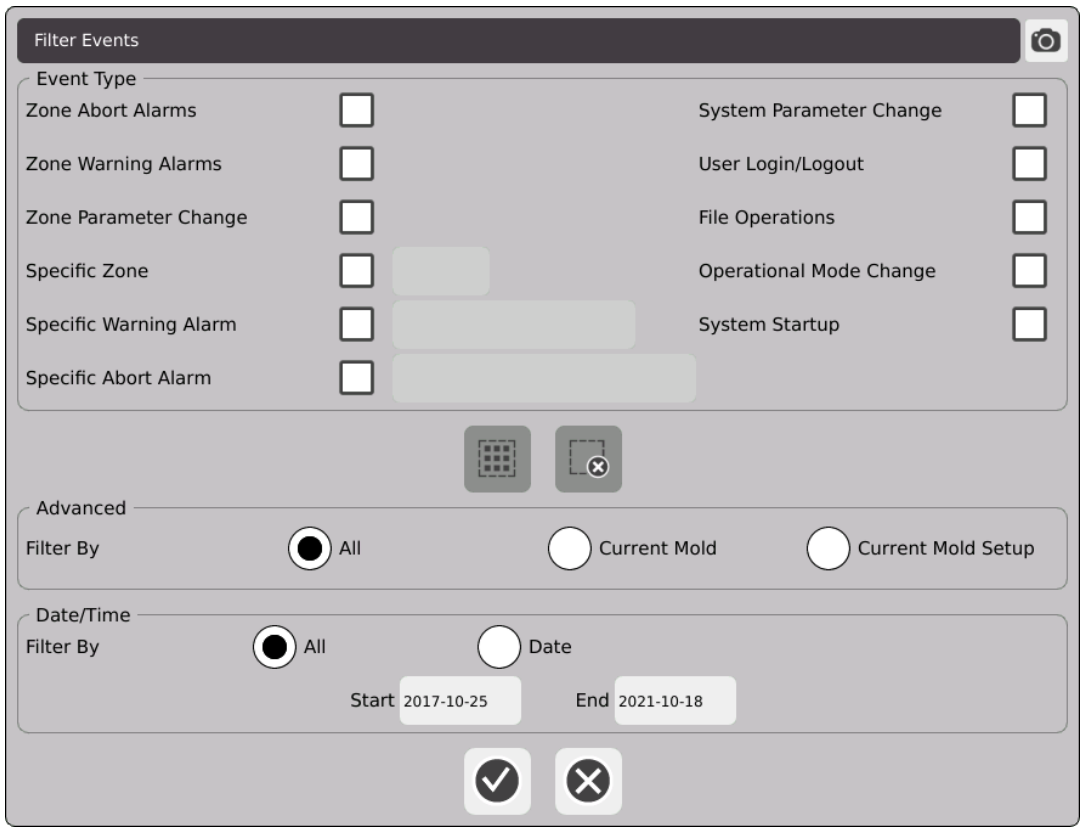


Figure 10-6 Filter Events Screen

10.9 Alarm Conditions — Warning Errors

Alarm conditions are displayed on the Alarm screen and the Event History screen. The conditions shown in Table 10 -4 cause the audible and visual alarms to initiate. Because they are warnings, they will not shut any part of the system down.

Table 10 -4 Warning Errors

Warning	Description
Alarm Over Temp	A zone's actual temperature has exceeded its setpoint by the amount set for the alarm limit.
Alarm Under Temp	A zone's actual temperature has dropped below its setpoint by the amount set for the alarm limit.
Auto Following Enabled	A zone has had its thermocouple become defective while running in automatic control mode. The system sets this zone to follow another zone using data it collected before the thermocouple became faulty. The faulty zone is now being controlled by the power output from another similar zone. The leader zone number will be shown in the Assign Leader Zone box of the faulty zone in the Quick Set screen.
AMC Active	A zone has had its thermocouple become defective while running in automatic control mode. There was no match found for this zone in the mold by the Auto-Follow feature or the Auto-Follow feature is turned off. The zone has been setup to go into Automatic Manual Control (AMC) in this event. The zone is now being controlled in manual mode at a power percentage selected by the controller using data it collected before the thermocouple became faulty.
Power Deviation	The zone’s power output value has deviated by an amount calculated by the power deviation algorithm. The power deviation algorithm is based on several factors, including a historical power average, heater type, changes to the power supplied to the unit, etc.
No Heater	Instantaneous feedback that a heater has failed or is no longer connected to the circuit. The zones current draw was below the, no heater detection limit, for more than 10 seconds.

10.10 Abort Conditions — Shutdown Errors

Abort conditions are displayed on the Alarm screen and the Event History screen. The conditions in Table 10 -5 initiate the audible and visual alarms. Since they are shut down errors, they will cause a zone or system shut down situation based on the PCM setting.

Table 10 -5 Shutdown Errors

Shut Down Error	Description
Abort Over Temp	A zone's actual temperature has exceeded its setpoint by the amount set for the abort limit.
Abort Under Temp	A zone's actual temperature has dropped below its setpoint by the amount set for the abort limit.
Circuit Overload	The over current hardware signal is triggered by the current sensor. This error occurs immediately: usually in a dead short situation.
Control Card Over Temperature	A control card temperature has exceeded 76 °C (170 °F).
Earth Leakage	ICC^2: If the calculated limit or default value is exceeded, the earth leakage error is triggered.
	ICC^3: If the measured leakage level exceeds the Earth Leakage Fault Limit value, the earth leakage error is triggered.
Fuse 1 Blown	Fuse 1 on this Intelligent Control Card (ICC^2 or ICC^3) has blown and needs replacing.
Fuse 2 Blown	Fuse 2 on this ICC^2 or ICC^3 has blown and needs replacing.
Line Impedance	No line voltage was determined by the control card. • During Circuit Test the controller is monitoring large sifts in voltage. • An alarm is triggered if there is a shift greater than 6 volts at 3% duty cycle. • This alarm can only be raised during Circuit Test.
Lost Thermocouple	This zone has a defective or open thermocouple.
Maximum Temp Limit	The temperature on this zone has risen above the maximum value allowed. This usually means the switching device has failed in the closed position and the zone ran away. The factory setting is 95 °C (200 °F) over the normal setpoint.
No Response	The system has been applying 96% to 100% power to this heater for a set amount of time, and the thermocouple connected to this zone is not responding. The thermocouple may be pinched, or the heater power wires may be broken.
Over Current Limit	The current on this zone has risen above the maximum value allowed.

Table 10 -5 Shutdown Errors (Continued)

Shut Down Error	Description
Over Voltage	The A/C voltage read by the control card is greater than 280 VAC. • 280 volts is the highest level of voltage the control cards can withstand before permanent damage occurs. • This alarm can be triggered at anytime the controller is in Start mode.
Receive Data Comm	This zone has stopped receiving data.
Rev. Thermocouple	The positive and negative leads from the thermocouple have been switched or the connections are reversed. As power is applied, the temperature goes down instead of up. Correct this situation at the point where the wires are reversed.
Read Time Out	This zone has stopped transmitting data.
Under Voltage	The A/C voltage read by the control card is lower than 170 VAC. • 170 volts is the lowest level of voltage the control cards can receive and still function properly. • This alarm can be triggered at anytime the controller is in Start mode.

Chapter 11 System Setup Screen

This chapter describes the functionality available in the System Setup screen, and provides instructions on setting some of the most commonly used system wide preferences.

11.1 System Setup Screen

Use the System Setup screen to configure the Neo5 system.

To see the System Setup screen, touch **System Setup** button on the Neo5 Home screen (refer to Figure 11-1). The System Setup screen shows (refer to Figure 11-2).

Figure 11-1 System Setup Button

You can also use the **System Setup** button in the header of all other screens.

Items in this screen depend on the access rights of the user and the current state of the system.

Table 11 -1 describes the setting items on the System Setup screen.

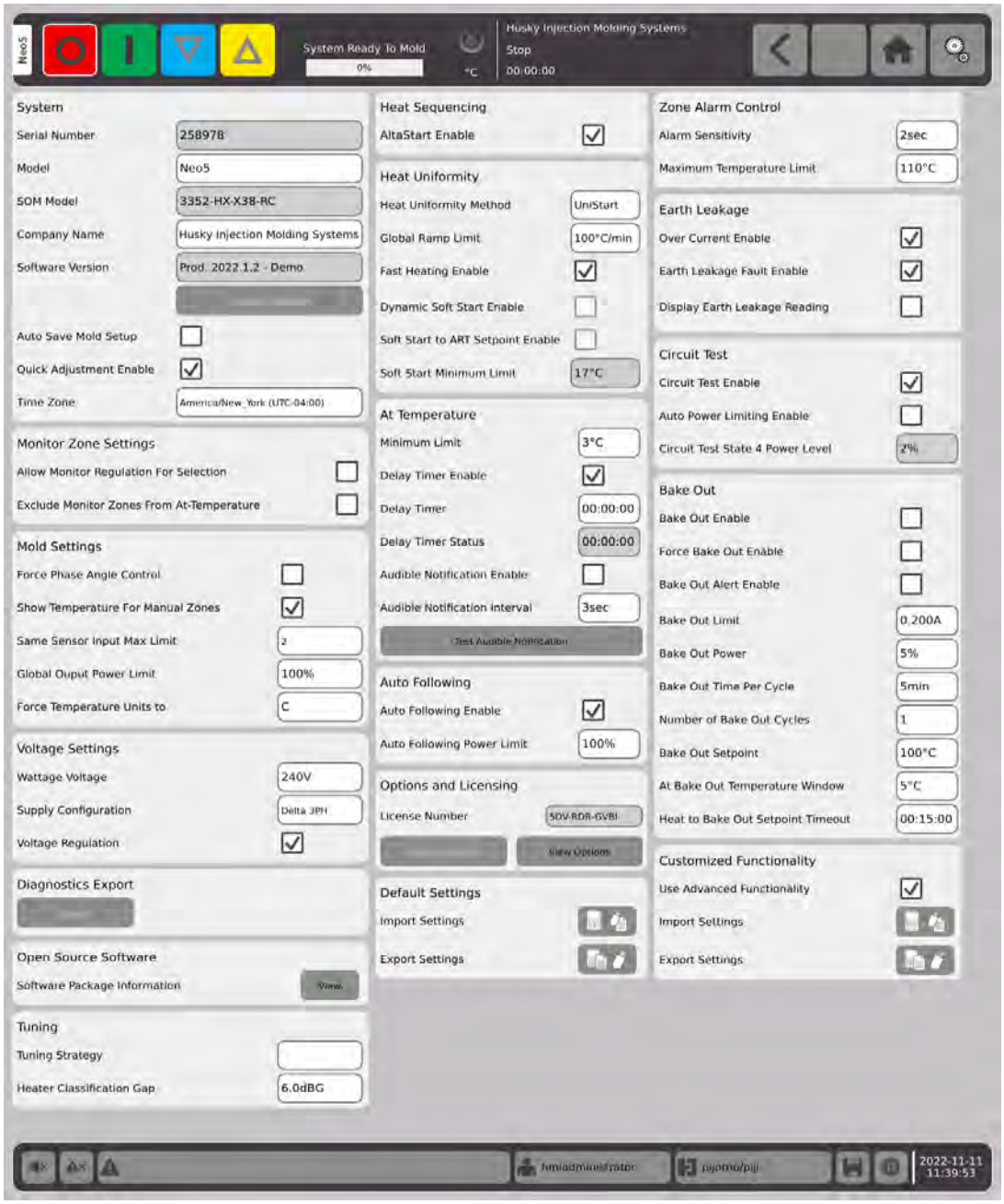


Figure 11-2 System Setup Screen (Composite)

Table 11 -1 System Setup Screen Item Descriptions

Item	Description
Serial Number	The Serial Number is for informational purposes only. It is a number assigned to the system when it is manufactured. Husky support may ask for this number when troubleshooting or upgrading.
Model	Controller model name.

Table 11 -1 System Setup Screen Item Descriptions (Continued)

Item	Description
SOM Model	This field displays the model of the System On Module (SOM) installed in the controller.
Company Name	User definable company name displayed in the system header.
Software Version	The Current Software Version is for informational purposes only. Husky support may ask for this number when troubleshooting or upgrading.
Auto Save Mold Setup	If checked, all changes to the current mold setup will be saved as they occur and cannot be discarded.
Quick Adjustment Enable	Enables the Quick Adjustment panel (refer to Section 8.6).
Time Zone	Used to set your time zone.
Allow Monitor Regulation for Selection	Enables the parameter that allows the change of the regulation mode to “Monitor” for zones in the Quick Set screen.
Exclude Monitor Zones from At-Temperature	Enables the parameter that allows the exclusion of the zones set to “Monitor” regulation from the at-temperature determination by the system.
Force Phase Angle Control	There are two methods for controlling the power applied to the heaters, refer to Section 2.2. If checked, only the phase angle control will be used.
Show Temperature For Manual Zones	A global setting that controls whether the controller view screens display the thermocouple readings for zones in manual mode.
Same Sensor Input Max Limit	Used to set the maximum limit for a sensor input. If you try to assign the same value to the "Sensor Input" setting in the Quick Set screen, and it is more than the "Same Sensor Input Max Limit", a dialog will show that alerts you that the change cannot be made with an explanation why. The range is 1 to the number of configured zones in the system. The default value is 2.
Global Output Power Limit	Controls the maximum output power delivered to each zone. Overrides the individual zone setting in the Quick Set screen.
Force Temperature Units to	Forces the temperature units to specified settings.
Wattage Voltage	Insert the designed voltage rating of the heaters so the system can accurately calculate Watt Voltage.
Supply Configuration	Used to select the supply configuration parameter: Delta 3PH, Wye 3PH+N, Single Phase, or Integrated Tx.
Voltage Regulation	Enables voltage regulation.

Table 11 -1 System Setup Screen Item Descriptions (Continued)

Item	Description
Diagnostics Export	Used to generate and export a zip file with files that help troubleshoot problems that occur with the system or the mold. The files contained in the zip file are: • Detailed Zone Information • Event History Log • Power Deviation Data • Process Monitoring Data • Current Mold Setup • Additional directory that contains diagnostic data for Husky software engineers
Software Package Information	Used to see the software packages installed on your system.
Tuning Strategy	Used to select the ART Classic or ART 2.0 tuning strategy. ART 2.0 is selected by default. Refer to Section 8.10 and Section 8.11 for more information.
Heater Classification Gap	Used to specify the gap that is used to determine where tip zones end and where manifold zones begin. The range is 1 to 9.9 dBG and the default value is 6 dBG. Refer to Section 8.11 for information on this setting.
AltaStart Enable	Used to enable AltaStart function for heat sequencing. Refer to Section 10.3. **NOTE:** At least one zone's heater type must be set to 'Tips' or the system will not allow you to enable the function.
Heat Uniformity Method	Lets you select the heat uniformity method you want to use:. • UniStart - When selected, this provides the shortest start-up time while ensuring that all temperatures track to their setpoint. Refer to Section 9.4. • Soft Start - When selected, the soft start process is applied upon startup. Refer to Section 9.6. • None The default value is UniStart. Only the settings that are specific to the method selected will be enabled. For example, if UniStart is selected then all the Soft Start settings will be disabled. This setting is saved to the mold setup.
Global Ramp Limit	This setting is applied to all zones in the UniStart process. It is the rate at which temperature will increase per minute as it heats to the setpoint. The valid range is 9 °F to 180 °F (5 °C to 100 °C). The default value will be 180 °F (100 °C). This setting is saved to the mold setup.
Fast Heating Enable	Enables the Fast Heating function (refer to Section 9.5).
Dynamic Soft Start Enable	If checked, the dynamic soft start is enabled.

Table 11 -1 System Setup Screen Item Descriptions (Continued)

Item	Description
Soft Start to ART Setpoint Enable	When enabled, the soft start routine is used when heating zones to the tuning setpoint during the ART process.
Soft Start Minimum Limit	Once the soft start process is initiated, the system calculates the difference between the zone with the highest and lowest temperatures. If this difference is less than this parameter value, then this parameter value is applied to the soft start process.
Minimum Limit	Defines the minimum threshold for activating the AT-Temperature signal. The AT-Temperature signal goes active when all active zone temperatures are within the lower alarm limit. If the alarm band setting is smaller than the AT-Temperature Minimum Limit, then the AT-Temperature Minimum Limit is used to activate the AT-Temperature signal.
Delay Timer Enable	The delay timer will start, if checked.
Delay Timer	Sets the amount of time the system will wait before the AT-Temperature output signal is activated.
Delay Timer Status	Time remaining on the delay timer.
Audible Notification Enable	Will give an audible notification that the zones are at temperature.
Audible Notification Interval	The time between the audible beeps.
Auto Following Enable	Toggle this parameter on or off.
Auto Following Power Limit	This value is the limit used by the Auto Following routine to determine if the average power output of a candidate zone is within the acceptable deviation of the following zone.
License Number	Shows the license number of the Neo5 software installed on your system.
Import Settings	Used to import default setting screen values. The button is enabled if a USB drive is plugged into the USB port and the current user has the proper permission level.
Export Settings	Used to export default setting screen values. The button is enabled if a USB drive is plugged into the USB port and the current user has the proper permission level.
Alarm Sensitivity	The duration of time the system has to stay in an error condition before it is declared an alarm.
Maximum Temperature Limit	The number of degrees over the setpoint the Maximum Temperature Alarm is activated.
Over Current Enable	If checked, the Over Current alarm is enabled.
Earth Leakage Fault Enable	Toggle this parameter to turn earth leakage checking on or off.
Display Earth Leakage Reading	Enables the Leakage column in the Text View screen.
Circuit Test Enable	Enables the circuit test for ICC^3 cards.

Table 11 -1 System Setup Screen Item Descriptions (Continued)

Item	Description
Auto Power Limiting Enable	If checked, the Auto Power Limiting feature is enabled.
Circuit Test State 4 Power Level	Determines the power percentage applied during circuit test state 4.
Bake Out Enable	If this parameter is enabled, the system will run the bake out test and apply a low voltage to remove the moisture in a heater if required. Toggle this parameter on or off.
Force Bake Out Enable	Toggle this parameter on or off. If this parameter is on, each zone in the system is baked out upon startup.
Bake Out Alert Enable	If this parameter is enabled, the system stops and generates an alarm for each zone with a bake-out condition that has not been cleared during the bake out cycle. If this parameter is disabled, the system exits the existing bake-out cycle and continues the startup sequence.
Bake Out Limit	The system uses this value to assess whether a bake-out condition exists. Upon system startup, if any zone exceeds this limit, the system will enter bake-out mode. For ICC^2 cards, the parameter range is 0 to 5 amps. The default value is 0.2 amps. For ICC^3 cards, the parameter range is 1 to 999 milliamps. The default value is 200 milliamps.
Bake Out Power	The system uses this value during the bake out process. The parameter range is 1 to 25%. The default value is 5%.
Bake Out Time Per Cycle	Length of the bake out cycle. The parameter range is 1 to 30 minutes. The default value is 5 minutes.
Number of Bake Out Cycles	The number of attempts to bake out the moisture in a heater. The parameter range is 1 to 10. The default value is 1.
Bake Out Setpoint	Specifies the bake out setpoint the zones must achieve during the bake out process. The default value is 100°C (212°F). Displays only if ICC^3 cards are installed.
At Bake Out Temperature Window	During the bake out process, this parameter specifies the threshold that all zones must achieve before the bake out cycle value starts counting down. The default value is 5°C (9°F). Displays only if ICC^3 cards are installed.
Heat to Bake Out Setpoint Timeout	Specifies the amount of time the zones are given to achieve the bake out setpoint. If the time period expires, a warning message displays the problem and what happens when the warning message is acknowledged. Displays only if ICC^3 cards are installed.
Use Advanced Functionality	When enabled, this toggles the system from Basic to Advanced functionality.

Table 11 -1 System Setup Screen Item Descriptions (Continued)

Item	Description
Import Settings	Used to import Customize screen setting values. The button is enabled if a USB drive is plugged into the USB port and the current user has the proper permission level.
Export Settings	Used to export Customize screen setting values. The button is enabled if a USB drive is plugged into the USB port and the current user has the proper permission level.

11.2 Changing the Number of Zones in the System

You may need to add or remove zones to an existing mold setup. If the mold running has fewer control zones than listed on the screen, you can remove the unused zones to make sure they are not displayed.

To change the number of zones in the system, do the following:

1. On the Neo5 Home screen, select the **Zone Slot Config** button (refer to Figure 11-3).

Figure 11-3 Zone Slot Configuration Button

2. On the Zone Slot Configuration screen (Figure 11-4), select the number of zones and/or slots to be enabled or disabled.

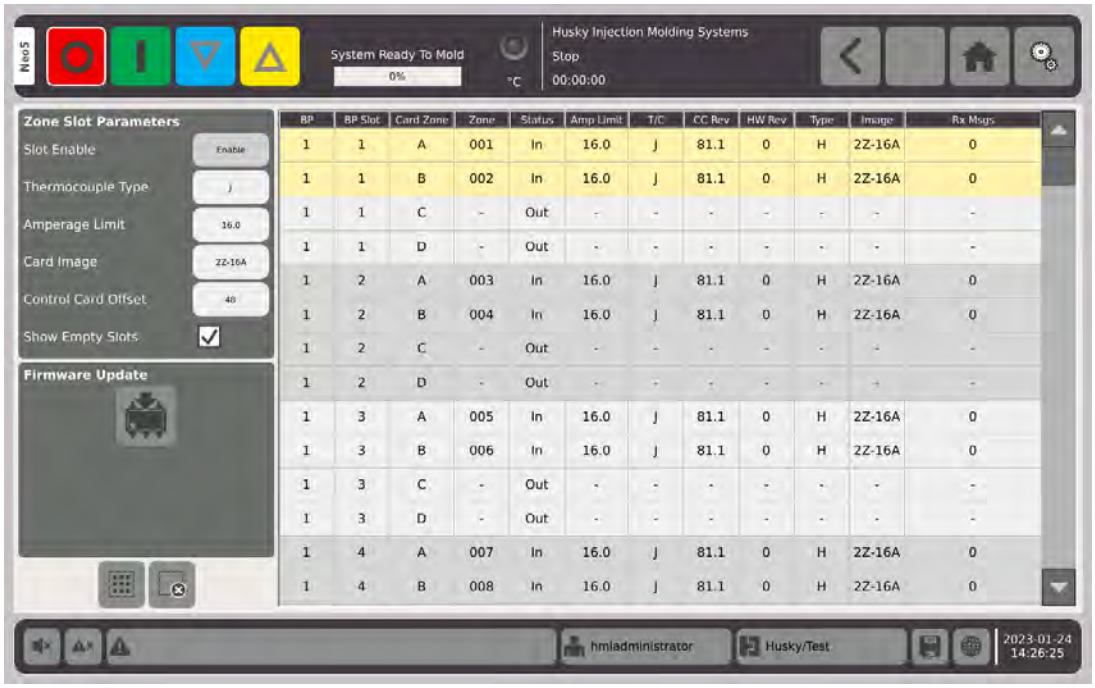


Figure 11-4 Zone Slot Configuration Screen

3. Touch the **Slot Enable** button.
4. Touch the **Enable** or **Disable** button in the Slot Enable selection dialog.
5. Touch the ✔ button.
6. Restart the controller.

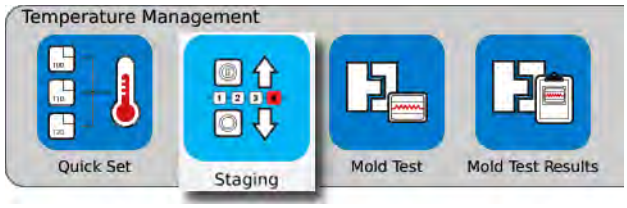
Chapter 12 Staged Startup and Shutdown

This feature allows the Neo5 to heat or cool zones in a predetermined order by using stages. Zones can be assigned to any of the four stages and can be configured with a separate set point for each stage. A timer can also be configured for each stage which will allow all the zones to "soak" for a defined amount of time. The hot runner system must be heated (Staged Startup) and cooled (Staged Shutdown) in a specific order to prevent problems such as misalignment and leaking.

12.1 Enabling or Disabling Staged Startup

To enable or disable selected for staged startup, do the steps that follow:

1. On the Neo5 Home screen, in the Temperature Management group, select the **Staging** button.



The Staging screen shows (refer to Figure 12-1).

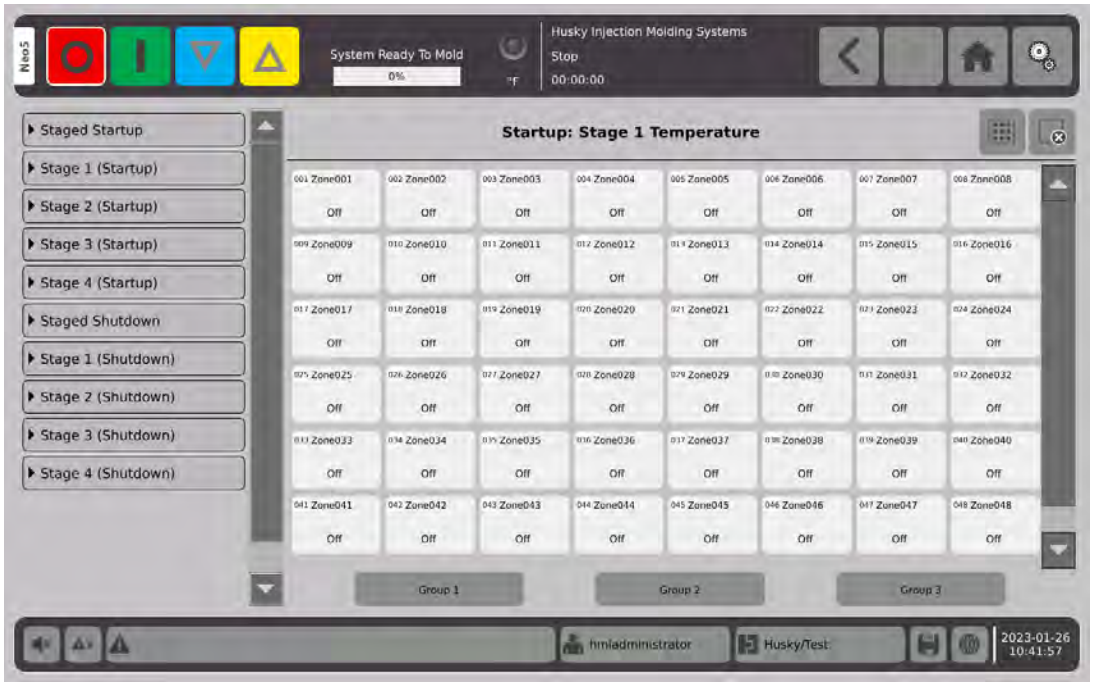


Figure 12-1 Staging Screen

2. On the Staging screen, select the zones or groups that will be included in Stage x Startup.

   NOTE: x = 1, 2, 3, or 4.

3. Touch the **Staged Startup** button to show the drop-down menu.

   The Staged Startup drop-down menu shows (refer to Figure 12-2).

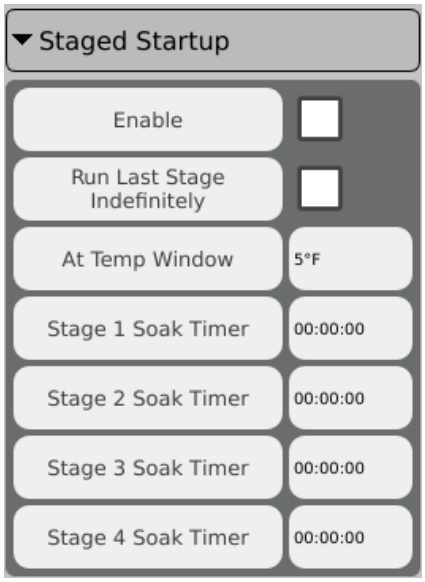


Figure 12-2 Staged Startup Drop-Down Menu

4. Touch the checkbox next to the **Enable** button, so a check mark shows.

   The staged startup is enabled.

5. To disable staged startup, touch the check box again, so the check mark does not show.

   The staged startup is disabled.

Table 12-1 describes the settings in the Staged Startup drop-down list.

Table 12-1 Staged Startup Drop-Down List Descriptions

Item	Description
Run Last Stage Indefinitely	If this setting is enabled, all zones in the last assigned stage will not change to their normal setpoint once all zones have achieved the stage setpoint and the soak timer has expired.
Stage x Soak Timer	The time the zones stay “soak” at the stage setpoint before the next stage begins.
At Temp Window	The stage will be At Temperature when the setpoint is within the At Temperature window.

12.2 Setting Soak Timers

At the end of each stage during staged startup or shutdown, when all the zones are at the stage setpoint, they can be left to "soak" for a specified time before the next stage begins. Use the Staging screen to change the soak time lengths.

NOTE: It is not necessary to assign a soak time to each stage. To avoid a delay between when a stage has reached setpoint and before the following stage is activated, set the timer to 00:00:00.

NOTE: It is not necessary to select zones to set the soak timer.

1. On the Staging screen, touch the **Staged Startup** button to show the drop-down menu.
2. Touch the button to the right of the **Stage 1 Soak Timer** bar (refer to Figure 12-2).
3. Use the dialog box to enter the soak time in the dialog (Figure 12-3), and then select the button.

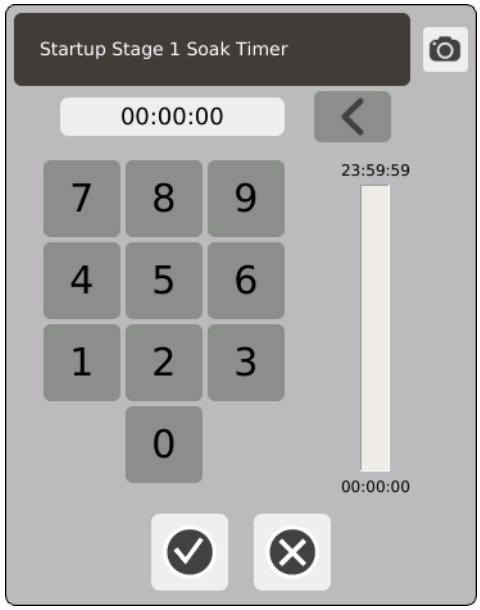


Figure 12-3 Startup Stage 1 Soak Timer

12.3 Set the Stage Temperature and Power

1. On the Staging screen, select the **Stage** x **(Startup)** button to show the drop-down menu (refer to Figure 12-4).

   NOTE: x = 1, 2, 3, or 4.

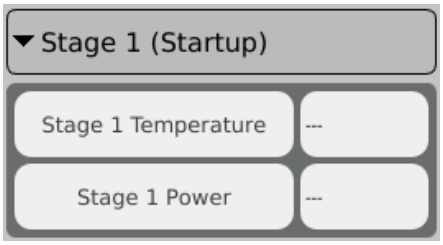


Figure 12-4 Stage 1 (Startup) Drop-Down Menu

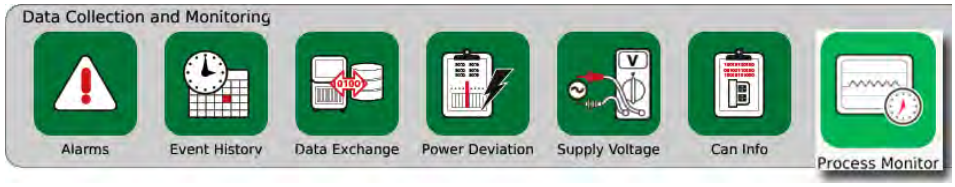
2. Touch the button to the right of the **Stage** x **Temperature** bar.
3. In the dialog box, enter the temperature for Stage x, and then select the ✔ button.
4. Touch the button to the right of the **Stage** x **Power** bar.
5. In the dialog box, enter the percentage of power for Stage x, and then select the ✔ button.

Chapter 13 Data Recording

Data Recording is a useful tool to track the operation of a mold. This tool helps analyze the system to optimize the molding process, track errors, find the source of a recent error or predict where future errors may occur. The Error Log contains a record of errors that have occurred since the errors were last cleared. Use the Process Monitoring screen to view the operation of a mold and view recorded data. If an error has occurred while the system was recording, review the behavior of the system at the time of the error to search for potential causes.

13.1 Process Monitor Screen

To see the Process Monitor screen, select the **Process Monitor** button in the Data Collection and Monitoring group of the Neo5 Home screen.



The Process Monitor screen shows two graphs. You can plot 1, 2, or 3 parameters on each graph for the selected zone. The parameter plots are color coded. The x-axis is the parameter and the y-axis is the time. There is also a checkbox that lets you share the scale between the two graphs.

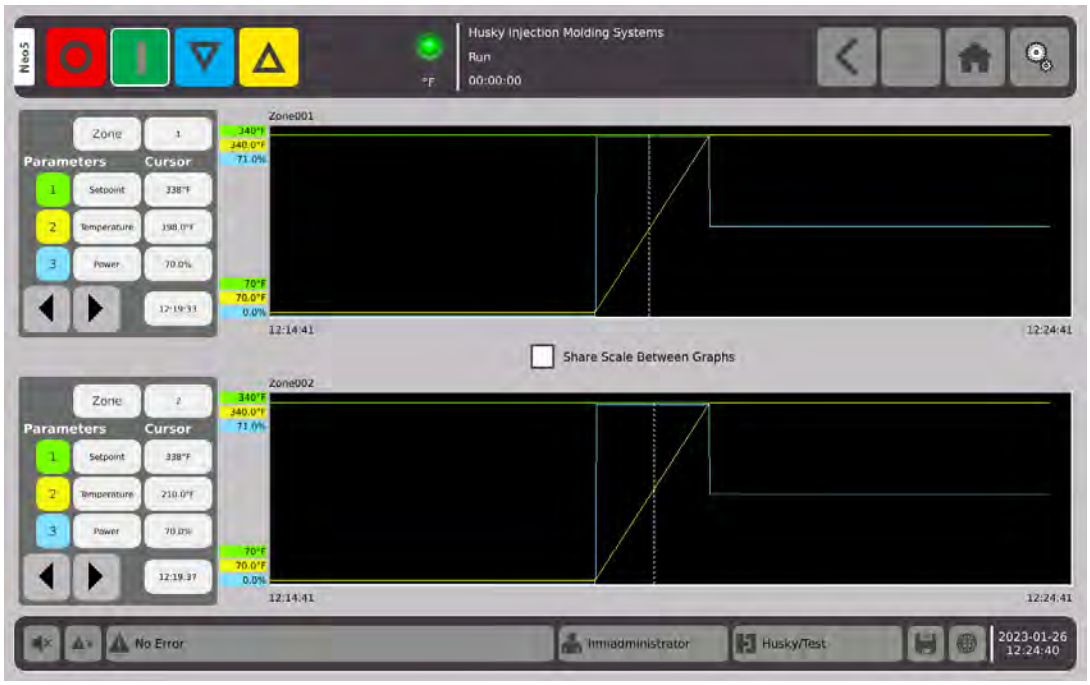


Figure 13-1 Process Monitor Screen

13.1.1 Change the Zones

You can change the zones shown in the graphic charts with the steps that follow:

1. Touch the box to the right of the Zone bar.
2. Use the keypad and enter the new zone number and then touch the ✓ button.

13.1.2 Change the Graphic Process Traces

You can change the trace parameters that are shown in the graphic charts on the Process Monitor screen. The parameter selections are:

- Setpoint
- Temperature
- Power
- Amps
- Leakage
- Volts
- None

To change a parameter, do the steps that follow:

1. Touch the number **1** (green) parameter box.

   A select plot parameter dialog shows (refer to Figure 13-2).

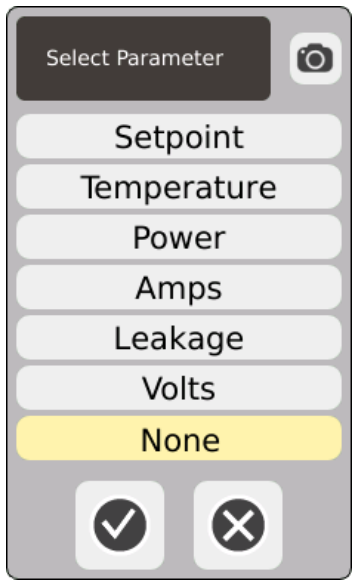


Figure 13-2 Select Parameter Dialog

2. In the dialog box, select the parameter that you want to see plotted on the chart and then touch the ✓ button.
3. Do step 1and step 2 again for the number **2** (yellow) and number **3** (blue) parameters.

13.1.3 View a Specific Point on the Plot

When you start the Neo5, the parameters for the selected zone will start to plot on the graph. You can select a point on the chart to see the data values recorded for a specific time on the plot. Do the steps that follow to select a point in time:

1. Touch an area in the chart that's close to the point in time that you want to see.

   The chart cursor (dashed vertical line) moves to that spot.

2. Use the left arrow and right arrow buttons to move the cursor to the data point on the chart that you want to see. The value of the parameter(s) at that point will show in the box next to the parameter name(s), and the time will show in the box to the right of the arrow buttons.

13.2 Power Deviation

When enabled, the Neo5 can let you know when the power output percentage on a zone deviates a specified amount while it is running under normal conditions. This could be useful to detect plastic leaks in the gate area or manifold pocket.

NOTE: Leaks may not be detected if large amounts of plastic are injected into a mold.

With the use of the configured settings, the system uses an algorithm to learn a power baseline. The power deviation algorithm will generate an alarm for classified zones if the power has deviated from the baseline.

Power deviation should only be used with the conditions that follow:

- The mold is installed in the machine with cooling ON.
- The ART process has completed successfully, and you have made sure you have a stable process.

Select the **Power Deviation** button to see the screen (refer to Figure 13-3).

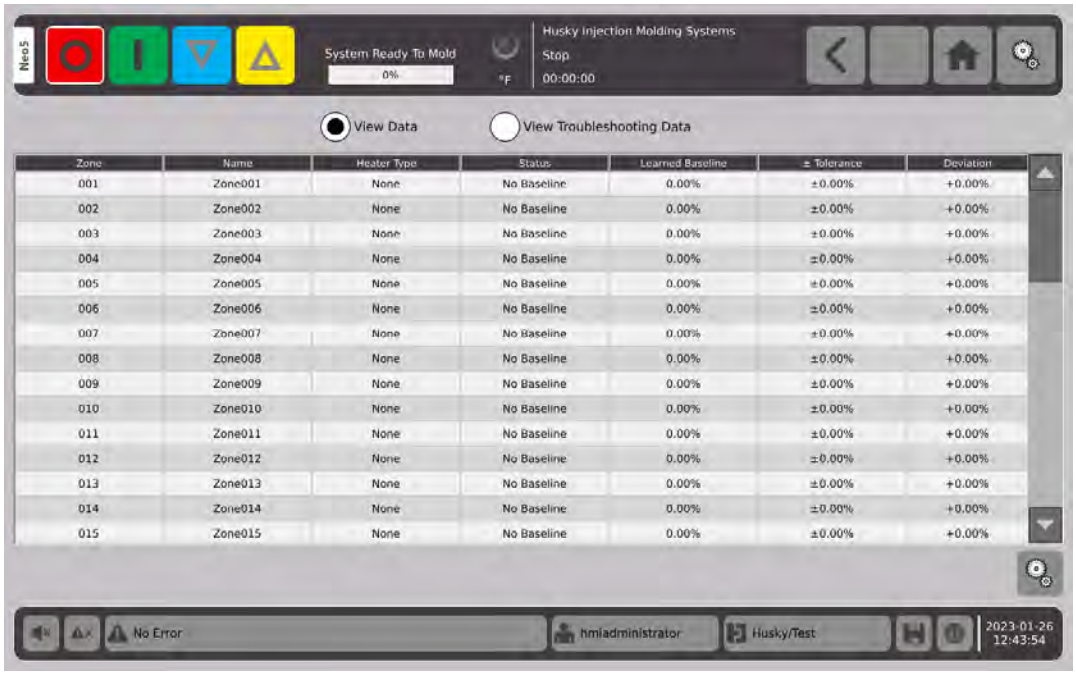


Figure 13-3 Power Deviation Screen

Table 13-1 describes the information shown on the Power Deviation screen.

Table 13-1 Power Deviation Screen Information

Item	Description
Zone	Shows the zone number.
Name	Shows the assigned zone name.
Heater Type	Shows the type of heater used.
Status	Shows the current status of the algorithm: • No Baseline – A baseline has not been established by the algorithm • Active – A baseline has been established by the algorithm • Not Active – The zone is not participating in the algorithm. This means that the zone is OFF.
Learned Baseline	Shows the learned baseline power percentage.
± Tolerance	Shows the calculated tolerance limit that the algorithm uses to determine when an error is generated.
Deviation	Shows how much the current power average has deviated from the baseline.

13.2.1 Configure the Power Deviation

To use the process deviation application, do the steps that follow:

1. Select the **Quick Set** button on the Neo5 Home screen.

2. Select Heater Types on the Quick Set screen (refer to Figure 13-4).

Figure 13-4 Heater Types

3. Assign a custom label for up to 8 heater types (refer to Section 8.7.9).

   NOTE: The controller must be in Stop mode for these fields to be active.

4. Assign all tip zones to a group (refer to Section 8.7.9).

   NOTE: If all of the tip zones use the same heater (based on the number of heaters per zone, design Voltage, and wattage) then they should be assigned to the same Heater Type group. There should be as many Heater Type groups assigned as there are different tip heaters in the mold (based on the number of heaters per zone, design Voltage and wattage).

5. Select the **Power Deviation** button on the Neo5 Home screen.

6. Select the **Setup** button at the bottom left corner of the screen.

The Power Deviation Setup dialog shows (refer to Figure 13-5).

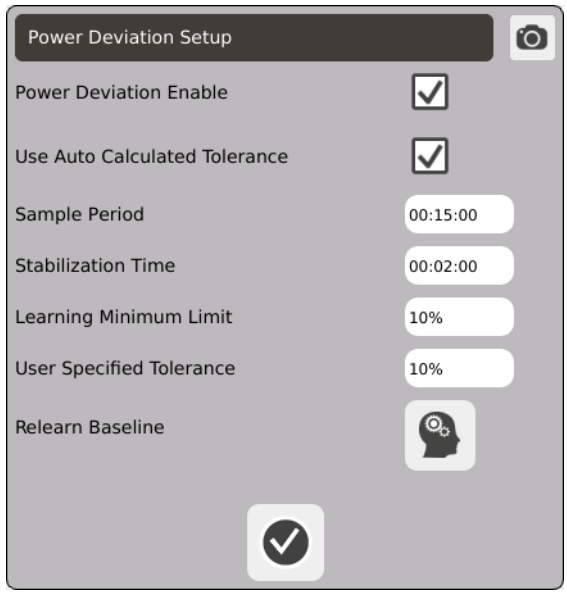


Figure 13-5 Power Deviation Setup Dialog

Table 13-2 describes the settings on the Power Deviation Setup dialog.

Table 13-2 Power Deviation Setup Dialog Settings

Item	Description
Power Deviation Enable	Used to enable the Power Deviation feature.
Use Auto Calculated Tolerance	This setting lets you determine if the tolerance value calculated by the algorithm should be used or if the user specified tolerance should be used.
Sample Period	This is the period of time that the algorithm uses to gather power samples for learning the baseline and for monitoring the current power values. This field is adjustable from 30 seconds to 1 hour and the default value is 15 minutes.
Stabilization Time	This is the period of time the algorithm waits after all zones are within 5°F of setpoint before starting to learn the baseline or for monitoring the current power values. This field is adjustable from 30 seconds to 1 hour and the default value is 2 minutes.
Learning Minimum Limit	A lower limit used when calculating the relative tolerance. The calculated value cannot be lower than this limit. It is adjustable from 2 to 75% and the default value is 10%.

Table 13-2 Power Deviation Setup Dialog Settings **(Continued)**

Item	Description
User Specified Tolerance	If you do not want to use the calculated value determined by the algorithm, then this value can be used instead. You must also un-check the 'Use Auto Calculated Tolerance' setting and then specify the value that you want. This setting is adjustable from 2 to 75% and the default value is 10%.
Relearn Button	This button is used to force the power deviation algorithm to learn the baseline for all classified zones again. When the button is pressed, the power deviation status field should change to 'Learning' and all previous baseline information should be cleared.

7. Touch the Power Deviation Enable check box to enable the power deviation feature.
8. Touch the Use Auto Calculated Tolerance check box to enable this feature.
9. Set the Sample Period to 15 minutes.
10. Set the Stabilization Time to 2 minutes.
11. Set the Learning Minimum Limit to 10%.
12. Do not change the User Specified Tolerance.

    NOTE: With the Use Auto Calculated Tolerance enabled, the system will calculate this value.

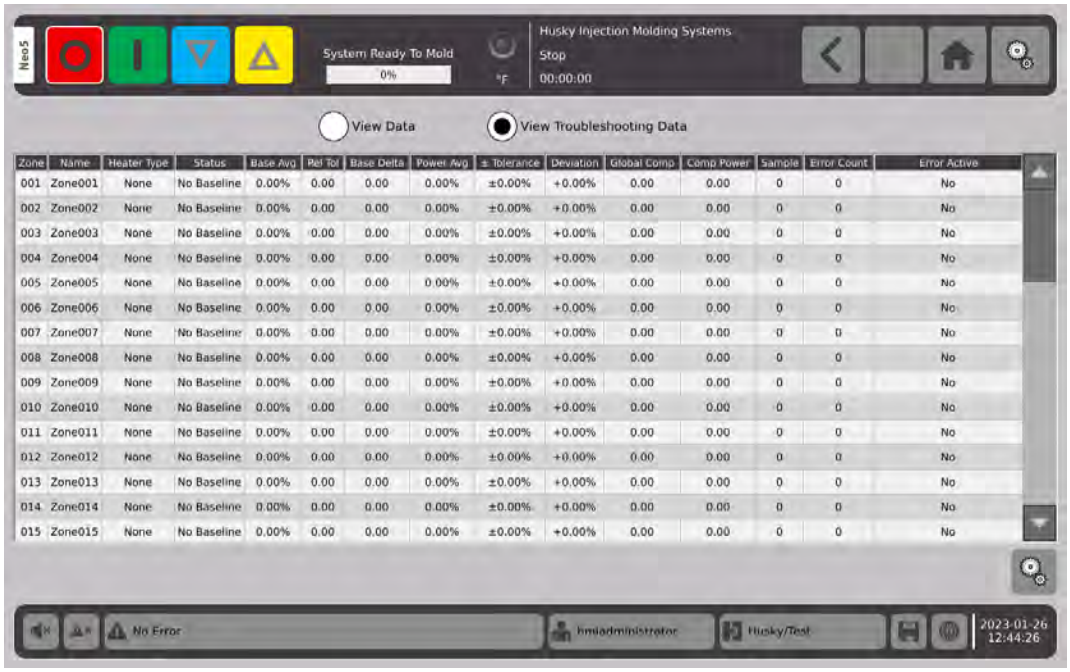
13. Touch the  button to exit the Power Deviation Setup dialog.

Use settings that work best for your process. If you do not want to use the auto calculated tolerance, you can disable that feature, enter the settings that you want, and then select the Relearn Baseline button.

13.2.2 Troubleshooting

When a power deviation is reported, you can troubleshoot the issue from the Power Deviation screen. Touch the View Troubleshooting Data circle at the top of the screen (refer to). Additional information for the zones is given to help diagnose problems with the algorithm.

NOTE: This screen is only accessible by Neo5 system Administrators.



Zone	Name	Heater Type	Status	Base Avg	Rel Tol	Base Delta	Power Avg	± Tolerance	Deviation	Global Comp	Comp Power	Sample	Error Count	Error Active
001	Zone001	None	No Baseline	0.00%	0.00	0.00	0.00%	±0.00%	+0.00%	0.00	0.00	0	0	No
002	Zone002	None	No Baseline	0.00%	0.00	0.00	0.00%	±0.00%	+0.00%	0.00	0.00	0	0	No
003	Zone003	None	No Baseline	0.00%	0.00	0.00	0.00%	±0.00%	+0.00%	0.00	0.00	0	0	No
004	Zone004	None	No Baseline	0.00%	0.00	0.00	0.00%	±0.00%	+0.00%	0.00	0.00	0	0	No
005	Zone005	None	No Baseline	0.00%	0.00	0.00	0.00%	±0.00%	+0.00%	0.00	0.00	0	0	No
006	Zone006	None	No Baseline	0.00%	0.00	0.00	0.00%	±0.00%	+0.00%	0.00	0.00	0	0	No
007	Zone007	None	No Baseline	0.00%	0.00	0.00	0.00%	±0.00%	+0.00%	0.00	0.00	0	0	No
008	Zone008	None	No Baseline	0.00%	0.00	0.00	0.00%	±0.00%	+0.00%	0.00	0.00	0	0	No
009	Zone009	None	No Baseline	0.00%	0.00	0.00	0.00%	±0.00%	+0.00%	0.00	0.00	0	0	No
010	Zone010	None	No Baseline	0.00%	0.00	0.00	0.00%	±0.00%	+0.00%	0.00	0.00	0	0	No
011	Zone011	None	No Baseline	0.00%	0.00	0.00	0.00%	±0.00%	+0.00%	0.00	0.00	0	0	No
012	Zone012	None	No Baseline	0.00%	0.00	0.00	0.00%	±0.00%	+0.00%	0.00	0.00	0	0	No
013	Zone013	None	No Baseline	0.00%	0.00	0.00	0.00%	±0.00%	+0.00%	0.00	0.00	0	0	No
014	Zone014	None	No Baseline	0.00%	0.00	0.00	0.00%	±0.00%	+0.00%	0.00	0.00	0	0	No
015	Zone015	None	No Baseline	0.00%	0.00	0.00	0.00%	±0.00%	+0.00%	0.00	0.00	0	0	No

Figure 13-6 Troubleshooting Data Screen

13.3 CAN Information

The CAN Info screen is used for troubleshooting communication issues on the Controller Area Network (CAN) bus. The CAN field bus used to communicate between the control cards and the HMI. Husky Support will instruct you on the use of the screen, should communication issues arise.

Table 13-3 describes the values on the CAN Information screen.

Table 13-3 CAN Information Screen Descriptions

Item	Description
Zone	Shows the zone number.
Setpoint	Shows the temperature setpoint.
SPwr	Shows the setpoint power percentage. This is the setpoint assigned to each zone when they are set to manual regulation.
Temp	Shows the zone temperature.
Pwr	Shows the percentage of power used to heat the zone.
Amps	Shows the amps used to heat the zone.

Table 13-3 CAN Information Screen Descriptions **(Continued)**

Item	Description
Avg	Shows the average power output percentage. This is used by Auto Following.
Sen	This is the sensor number assigned to the zone. The sensor is assigned in the Quick Set screen.
Status	Shows the error status for the zone. A number value is given that identifies the zone error.
Reg	Shows the regulation mode (Auto, Manual, or Monitor).
Mode	Shows the operation mode (Run, Off, Stop, Standby, Boost, and so on).
Follower	Shows which zone a faulty zone will follow. If a thermocouple is about to fail, it can be set as a follower to another zone (leader) before it fails completely.
Volts	Shows the volts set for the zone.
BdTemp	Shows the board temperature. This is the temperature of the Intelligent Control Card (ICC). The temperature sensor is built into the card.
Rst	This counts the number of CAN controller resets.
CAN	Counts the number of CAN messages per second.
Osc	Shows the number of faults on the CAN oscillator chip on the control card.
CAN Id	Shows the CAN Identification assigned to each zone (slot) on the control card.

Chapter 14 Data Exchange

You can store reports and images to the Neo5 hard drive. From the file management screen, you can move the reports and images to a network or USB device for sharing, storing, or printing. Or you can save directly to the USB device or network.

14.1 Select Reports, Process Data, and Settings

To see the Data Exchange screen, select the **Data Exchange** button in the Data Collection and Monitoring area of the Neo5 Home screen.

The Data Exchange screen shows (refer to Figure 14-1).

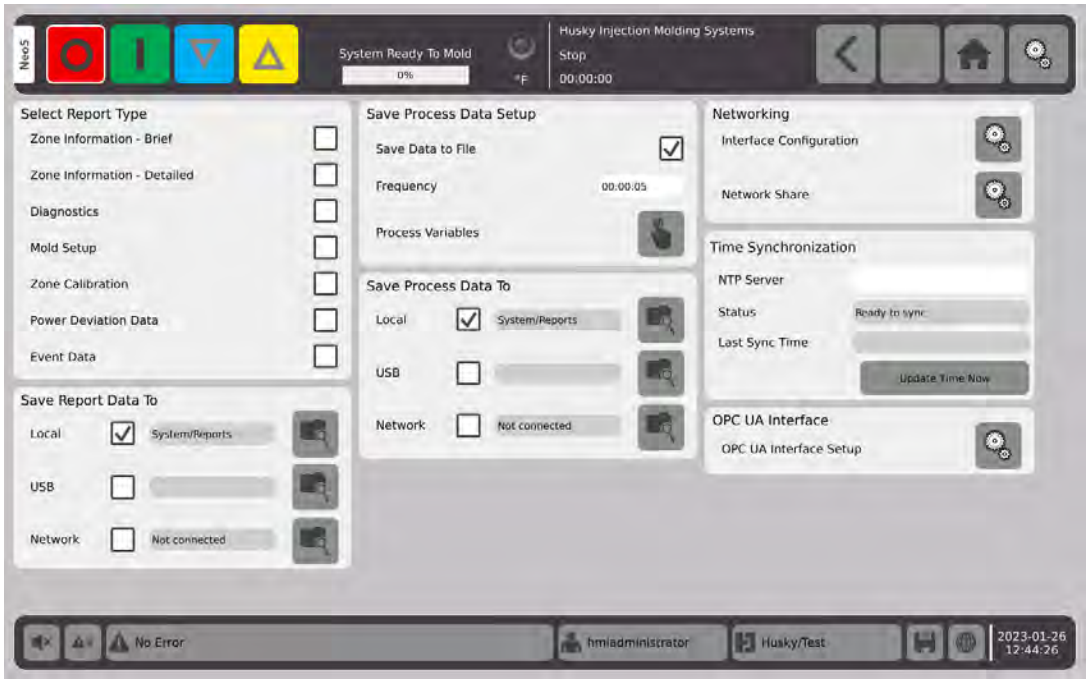


Figure 14-1 Data Exchange Screen

On the Data Exchange screen, select the reports that you want to save (refer to Table 14-1).

Table 14-1 Report Selections

Item	Description
Select Report Type	Put a check mark in the checkbox next to the report that you want to save. Refer to Table 14-2 for descriptions of the reports.
Save Report Data To	Put a check in the box next to where you want to save the report. A USB Device must be installed in the USB port or the Neo5 must be connected to a network. Use the Folder Search button to select a folder in which the file is stored. 
Save Process Data Setup	Check the save data to File box to save the process data to the Neo5 hard drive. Touch the Frequency button and enter in the time intervals that you want Neo5 to save the current process data. Touch the Select Process Variables button and put a check mark next to the process variables that you want to save.  The data log records as follows: • Data is collected every 1 second and stored in a circular buffer. • The circular buffer is overwritten every 10 minutes. • The data is pulled from the buffer and stored to a file every 5 seconds, or to whatever time the Frequency is set.
Save Process Data To	Put a check in the box next to where you want to save the process data. A USB device must be installed in the USB port, or the Neo5 must be connected to a network. Use the Folder Search button to select a folder in which the file is stored. 

Table 14-1 Report Selections (Continued)

Item	Description
Networking	With the Interface Configuration settings, you select Static or dynamic (DHCP) property values: • Static settings: - IP Address - Subnet Mask - Default Gateway • DHCP setting: - IP Address Use the gear button next to Interface Configuration to access the settings. 
	With the Network Share settings, you can enter the network path for the shared network folder. You can upload files from or download files to the network. The format is \\server\shared folder. Use the gear button next to Network Share to access the settings. 
Time Synchronization	Used to synchronize the Neo5 system time with a Network Time Protocol (NTP) server.
OPC UA Interface	Used to set an Open Platform Communication Unified Architecture (OPC UA) interface configurations.

14.2 Report Descriptions

Table 14-2 gives a description of each print report.

Reports can be saved to the locations that follow:

- System/Reports folder in the Neo5 hard drive
- USB device, if configured
- Shared folder on a network, if configured.

Table 14-2 Report Descriptions

Report Type	Description
Zone Information — Brief	From the Text View screen, the following will be saved to a file: • Zone Number • Setpoint and Units • Actual Temperature and Units
Zone Information — Detailed	From the Text View screen, the following will be saved to a file: • Zone Number • Zone Name • Setpoint • Temperature • Power • Amperage • Leakage • Regulation Mode • Alarm Limit • Abort Limit • Watts • Resistance • Full Load Watts • Voltage
Diagnostics	From the Test Results screen, print the following to file: • Zone Number • Zone Name • Sensor • Fuses • T/C • Amperage • Volts AC • Watts • Wiring • Isolation • Earth Leakage • Bake Out • Time • Resistance

Table 14-2 Report Descriptions (Continued)

Report Type	Description
Mold Setup	• Zone Number • Zone Name • Setpoint • Minimum Setpoint Limit • Maximum Setpoint Limit • Power Limit • Alarm • Abort • AMC • PCM • Regulation • Manual Standby Setpoint • Remote Standby Setpoint • Manual Boost Setpoint • Remote Boost Setpoint • Sensor Input • Assigned Leader • Output (Zero Cross or Phase Angle) • Earth Leakage Enable • Control (PID or ART) • P (Proportional) • I (Integral) • D (Derivative) • No Response
Zone Calibration	• Date and Time • Mold Folder and Mold Setup • System Status • Low Test Value • High Test Value • Zone Number: — Low Value Before Calibration — High Value Before Calibration • Zone Number: — Value After Calibration

Table 14-2 Report Descriptions (Continued)

Report Type	Description
Power Deviation Data	• Date and Time • Mold Folder and Mold Setup • System Status • Power Deviation Enable • Use Calculated Limit • Sample Period • Stabilization Time • Minimum Deviation Limit • User Specified Deviation Limit • Zone Number • Zone Name • Heater Type • Zone Status • Base Average • Relative Tolerance • Base Delta • Power Average • ± Tolerance • Deviation • Global Compensation • Compensation Power • Sample • Error Count • Error Active
Event Data	• Date and Time • Mold Folder and Mold Setup • System Status • Number of Events: — Date/Time — Source — Event Type — Mold Folder Name — Mold Setup Name — Event Details

Chapter 15 Digital I/O

The Neo5 has four inputs and four outputs available as a paid option.

The four Inputs are:

- Remote Standby
- Remote Boost
- Remote Start
- Remote Stop

The four Outputs are:

- Alarm
- Abort (PCM)
- At Temperature
- Run Light

The input and output connectors are located on the back of the Neo5 (see Section 16.2). If you need help to connect the Neo5 inputs and outputs, contact your Husky Regional Service and Sales Office.

Select the **Digital I/O** button in the System Configuration group of the Neo5 Home screen.

The Digital I/O screen shows (refer to Figure 15-1).

Figure 15-1 Digital I/O Screen

Table 15-1 describes the column headers on the Digital I/O screen.

Table 15-1 Digital I/O Screen Column Headers

Identifiers	Description
Active	Indicates the logical state of the I/O signal. This displays the final state of the signal after the optional invert is applied.
Level	Indicates the physical (electrical) state of the I/O at the pin. This state equals the logical state after it is optionally inverted, by a normally close signal.
Name	The name of the input/output.
Invert	When enabled, the input/output signal is true when the signal goes high to low (versus normal low to high).
In Use	Select the checkbox to enable the input/output.
Pins	The connector pins used for the input/output.

After you have made the applicable connection, for each input and output being used, select invert if necessary. Select "In Use" to enable the input/output.

15.1 Digital I/O Connector Pin-Out Description

The sections that follow include the connection descriptions for all of the optional Inputs and Outputs available for the Neo5.

15.1.1 Digital Inputs

Table 15-2 describes the Neo5 digital inputs.

Table 15-2 Digital Inputs

Optional Name	Description
Remote Standby	Places all zones that have a Remote Standby setpoint into Standby mode (Lower setpoint) whenever this input signal is activated.
Remote Boost	Places all zones that have a Remote Boost setpoint into the Boost mode (Higher setpoint) whenever this input signal is activated.
Remote Start	Places the system in start mode whenever this signal is remotely activated. This state will remain until the STOP key is selected or Remote Stop is activated.
Remote Stop	Places the system in stop mode whenever this signal is remotely activated. This state will remain until the START key is selected or Remote Start is activated. **NOTE:** You cannot start the system when this input is active.

15.1.2 Digital Outputs

Table 15-3 describes the Neo5 digital outputs.

Table 15-3 Digital Outputs

Optional Name	Description
Alarm	Activated when any Alarm or Abort condition occurs. This state will remain until the alarm condition is CLEARED or RESET.
Abort (PCM)	Activated when an Abort condition occurs and the PCM setting in the Quick Set screen is set to System for the problem zone. This state will remain until the alarm condition is CLEARED or RESET.
At Temperature	Activated ONLY when all zones are above the Under Temperature alarm limit. This state will remain until any zone drops below the Under Temperature alarm limit.
Run Light	Activated whenever the START button is pressed. This state will remain until the system is placed in STOP mode.

15.1.3 Input Connector Pin-Out

Table 15-4 shows the connection details for all the inputs wired for dry contacts (No voltage).

CAUTION!

Electrical hazard - risk of damage to the equipment. DO NOT apply a voltage to any of the Inputs. Doing so could damage the Neo5.

Table 15-4 Digital Input Pin-Outs (Wiring for Dry or No Voltage Contacts)

Connector/Pin	Field Cable Wire Color	Signal Function
Input / 1	Black	Remote Standby
Input / 2	Red	
Input / 3	White	Remote Boost
Input / 4	Green	
Input / 5	Orange	Remote Start
Input / 6	Blue	
Input / 7	Brown	Remote Stop
Input / 8	Yellow	
Input / 9	Violet	Not Used

Table 15-5 shows the connection detail for all the inputs wired to accept voltage from an external source.

CAUTION!

Electrical hazard - risk of damage to the equipment. DO NOT apply a voltage greater than 30 VDC to any of the inputs. Doing so could damage the Neo5.

Table 15-5 Digital Input Pin-Outs (Wiring to Accept Voltage from External Source)

Connector/Pin	Field Cable Wire Color	External Voltage Source	Signal Function
Input / 1	Black	Not Used	Remote Standby
Input / 2	Red	+5-30 VDC	
Input / 3	White	Not Used	Remote Boost
Input / 4	Green	+5-30 VDC	
Input / 5	Orange	Not Used	Remote Start
Input / 6	Blue	+5-30 VDC	
Input / 7	Brown	Not Used	Remote Stop
Input / 8	Yellow	+5-30 VDC	
Input / 9	Violet	-VDC	Reference

15.1.4 Output Connector Pin-Out

Table 15-6 shows the connection details for all of the outputs.

CAUTION!

Electrical hazard - risk of damage to the equipment. DO NOT apply a voltage greater than 30 VDC at 2 amps to any of the Outputs. Doing so could damage the Neo5.

Table 15-6 Digital Output Pin-Outs

Connector/Pin	Field Cable Wire Color	Signal Function
Input / 1	Black	Alarm
Input / 2	Red	
Input / 3	White	Abort (PCM)
Input / 4	Green	
Input / 5	Orange	At Temperature
Input / 6	Blue	
Input / 7	Brown	Run Light
Input / 8	Yellow	

Chapter 16 Maintenance

This chapter describes the maintenance tasks required to maintain the Neo5. Do the maintenance tasks only when necessary.

Periodically, and before starting the equipment, check that all cables and cable connections are free from wear or damage. Do not operate equipment if the cables are damaged. Replace all the cables that appear damaged.

Procedure	Reference
Replacing an Intelligent Control Card	Section 16.3.1
Replacing a Blown Fuse on an Intelligent Control Card	Section 16.3.2
Removing and Replacing the Touch Monitor — Integrated Configuration	Section 16.4.1
Removing and Replacing the MCU — Integrated Configuration	Section 16.4.2
Removing and Replacing the Touch Monitor — Freestanding Configuration	Section 16.4.3
Removing and Replacing the MCU — Freestanding Configuration	Section 16.4.4
Removing and Replacing the Operator Interface — Freestanding Configuration	Section 16.4.5
Cleaning the System	Section 16.6
Basic Troubleshooting	Section 16.7

16.1 Servicing the System

The Neo5 systems are based on two user serviceable components:

- X-Series or H-Series Intelligent Control Cards
- Neo5 Operator Interface

Figure 16-1 shows a Neo5 integrated configuration. Figure 16-2 shows a Neo5 freestanding configuration.

Figure 16-1 Neo5 Integrated Configuration (C6-2 Configuration shown)

Figure 16-2 Neo5 Freestanding System Configuration (Single Stack)

Figure 16-3 and Figure 16-4 show the main power switch locations.

WARNING!

Hazardous voltages - risk of death or serious injury. Before servicing the Altanium Neo5 lock out and tag the Main Power switch in accordance with local codes.

Figure 16-3 Neo5 Main Power Switch - Integrated Configuration (C6-1 Configuration Shown)

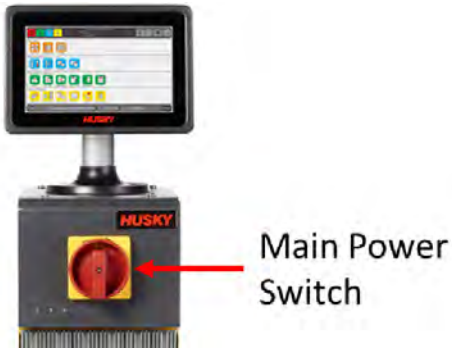


Figure 16-4 Neo5 Main Power Switch - Freestanding Configuration (Single Stack)

16.2 Cable Connections

Depending on the Neo5 configuration, there will be cable connections at the back and front of the controller.

The insulation level of control cables and devices connected to the Neo5 connectors are:

- 500 V when the devices are powered by a 380 VAC or 415 VAC system
- 300 V when the devices are powered by a system up to 240 VAC.

16.2.1 Cable Connections — Integrated Configuration

Figure 16-5 and Figure 16-6 show the connections for an integrated configuration. Table 16-1 gives the connection descriptions.

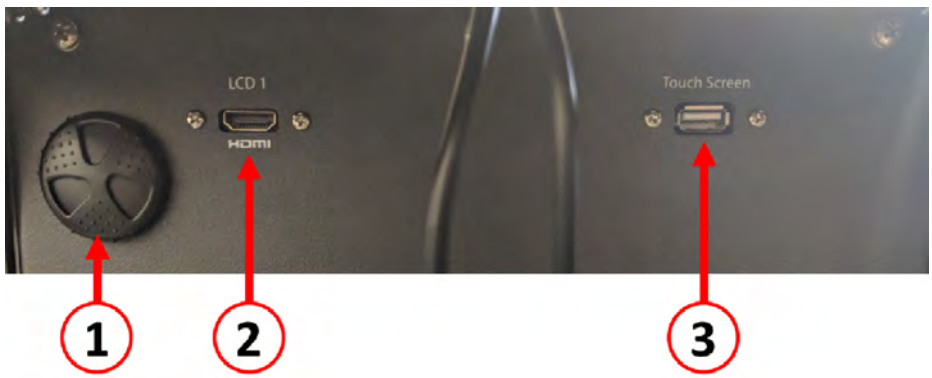


Figure 16-5 Cable Connections - Front of Neo5

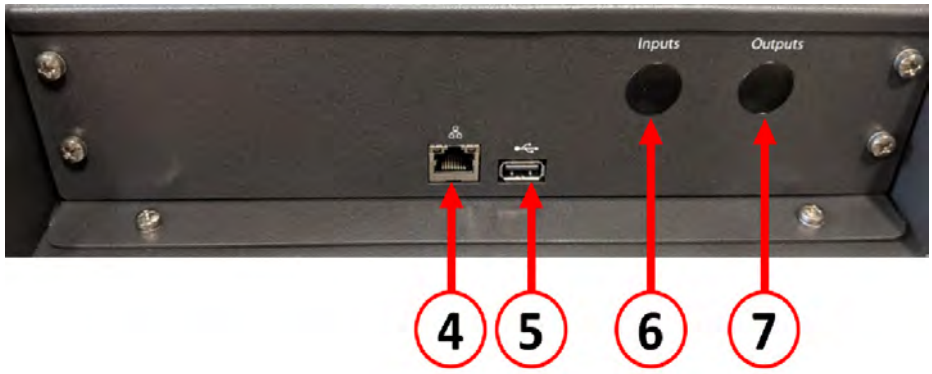


Figure 16-6 Cable Connections - Rear of Neo5

Table 16-1 Cable Connections (Integrated Configuration)

Item	Cable Connection	Description
1	Horn	Audible alarm.
2	LCD1 (HDMI)	Video signal to touch monitor.
3	Touch Screen	Touch screen signal to the touch monitor.
4	Ethernet	User interface to customer networks.
5	USB	USB port for importing and exporting files.
6	Input	Digital inputs (Optional).
7	Output	Digital outputs (Optional).

16.2.2 Cable Connections — Freestanding Configuration

Figure 16-7 shows the connections for an integrated configuration. Table 16-2 gives the connection descriptions.

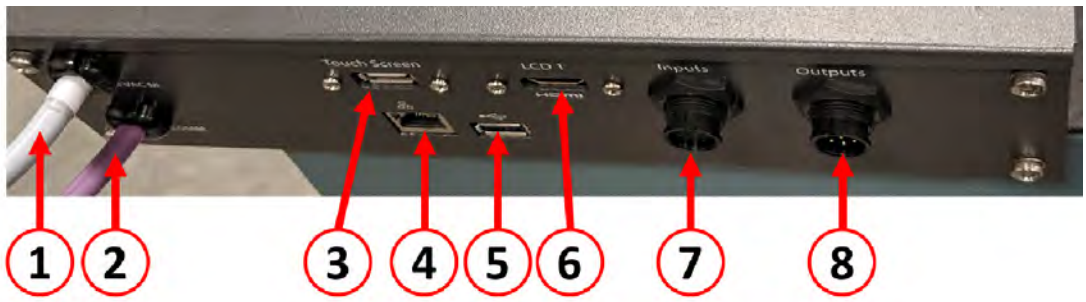


Figure 16-7 Cable Connections (Freestanding Configuration)

Table 16-2 Cable Connections (Freestanding Configuration)

Item	Cable Connection	Description
1	100-240 VAC In	Main AC power from the Altanium mainframe.
2	Output COMM	CAN bus communication to the Altanium mainframe.
3	Touch Screen	Touch screen signal to the touch monitor.
4	Ethernet	User interface to customer networks.
5	USB	USB port for importing and exporting files. **NOTE: Use the USB port at the front of unit for easier access.**
6	LCD1 (HDMI)	Video signal to touch monitor.
7	Input	Digital inputs (Optional).
8	Output	Digital outputs (Optional).

16.3 Intelligent Control Cards

There are two series of Intelligent Control Cards (ICC) that you can install:

- X-Series (ICC^2)
- H-Series (ICC^3)

The X-Series card is identifiable by the large square blue or brown transformer mounted near the heatsink and is the older generation of Altanium cards (refer to Figure 16-8). The H-Series card is identifiable by the yellow numbered label that indicates how many zones it supports (refer to Figure 16-9). H-Series cards are the newest generation of Altanium cards.

Although they look similar, the X-Series and H-Series cards are not compatible with one another and must only be used in systems of like card types.

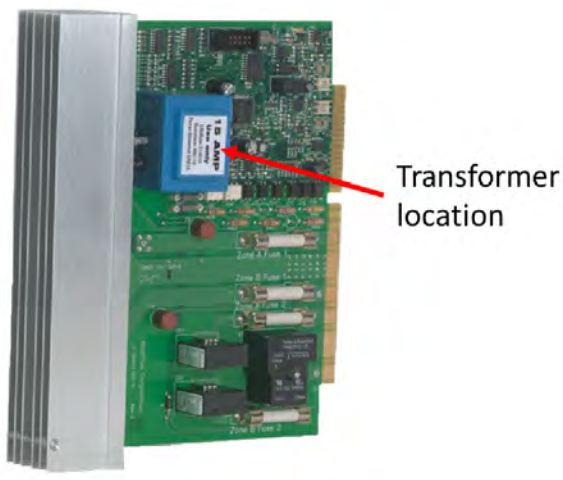


Figure 16-8 X-Series Intelligent Control Card

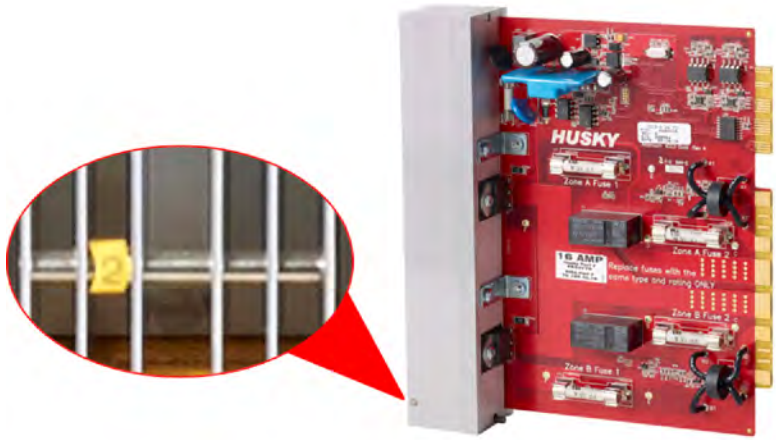


Figure 16-9 H-Series Intelligent Control Card

Both series of cards plug into backplanes that are installed into the bays of the Neo5 mainframe (refer to Figure 16-10). The cards manage the power being delivered to the heaters, the thermocouple feedback and control and circuit protection.

Figure 16-10 Mainframe Bay with Backplane Exposed

IMPORTANT!

Although they look similar, X-Series and H-Series cards use different backplanes and are not compatible with each other.

IMPORTANT!

You must have an Intelligent Control Card present in the position labeled 1 in all backplanes for the system to function properly.

16.3.1 Replacing an Intelligent Control Card

To replace an intelligent control card, do the steps that follow:

WARNING!

Electrical and mechanical hazard - risk of death, serious injury and/or damage to the equipment. Turn off all power to the system and disconnect it completely from the main input power. Follow the local Lock Out Tag Out procedures.

The ICC^2 and ICC^3 cards are electrostatic discharge sensitive. Use a ground strap when handling the cards.

1. Locate the card cage that contains the faulty ICC (refer to Figure 16-11).

Figure 16-11 Card Cage Location

CAUTION!

Mechanical failure mode - attempting to remove a card when the top and bottom heatsink mounting fasteners are not fully disengaged from the female threads on the cabinet can result in catastrophic damage to the card.

2. Loosen the top and bottom slotted fasteners on the heat sink (refer to Figure 16-12).

   NOTE: These two fasteners are captive so they will not fall into the system or get lost on the floor.

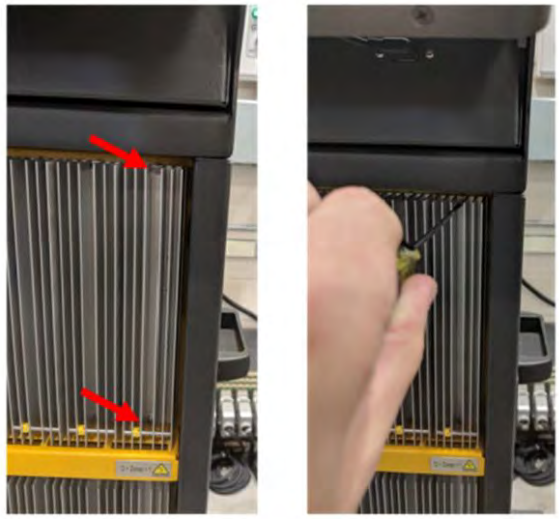


Figure 16-12 Slotted Fasteners

3. Slide a screwdriver between the silver post and the ledge on the cabinet and gently pry the card out (refer to Figure 16-13).

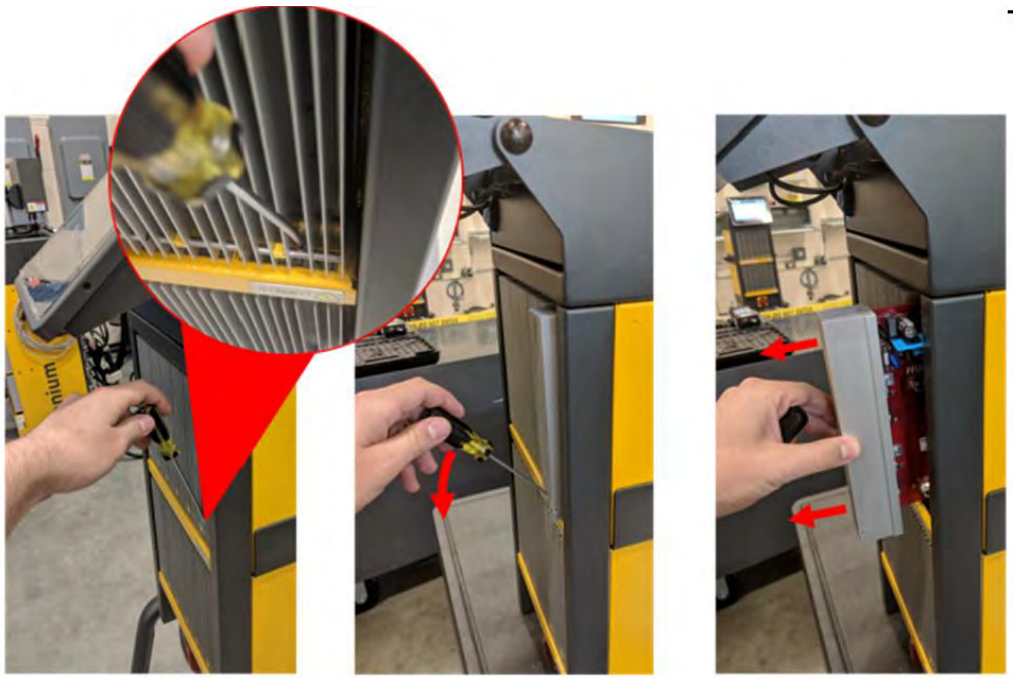


Figure 16-13 ICC Removal

CAUTION!

Static electricity hazard - risk of damage to the equipment. The Intelligent Control Cards are electrostatic discharge sensitive. Do not, under any circumstances, place any Intelligent Control Card on carpets, rugs, or other material that is likely to create a static charge.

4. Carefully put the card on an earthed/grounded surface.
5. Slide the new card into to the slot and push the card slowly and firmly back into place.

   NOTE: An incorrectly oriented card will not seat correctly.
6. Tighten the top and bottom slotted fasteners on the heat sink.

16.3.2 Replacing a Blown Fuse on an Intelligent Control Card

To replace a fuse on an ICC, do the steps that follow:

WARNING!

Electrical and mechanical hazard - risk of death, serious injury and/or damage to the equipment. Turn off all power to the system and disconnect it completely from the main input power. Follow the local Lock Out Tag Out procedures.

The ICC^2 and ICC^3 cards are electrostatic discharge sensitive. Use a ground strap when handling the cards.

1. Locate the card cage that contains the ICC that has a blown fuse (refer to Figure 16-11).
2. Loosen the top and bottom slotted fasteners on the heat sink (refer to Figure 16-12).

   NOTE: These two fasteners are captive so they will not fall into the system or get lost on the floor.
3. Slide a screwdriver between the silver post and the ledge on the cabinet and gently pry the card out (refer to Figure 16-13).

CAUTION!

Static electricity hazard - risk of damage to the equipment. A static charge could damage the Intelligent Control Card. Do not place the Intelligent Control Card on carpets, rugs, or other material that is likely to create a static charge.

4. Carefully put the card on an earthed/grounded surface.

5. Remove the faulty fuse (refer to Figure 16-14 for fuse location examples).

   NOTE: 20- and 30-Amp cards will only have two fuses. 5-Amp cards will have 8 fuses.

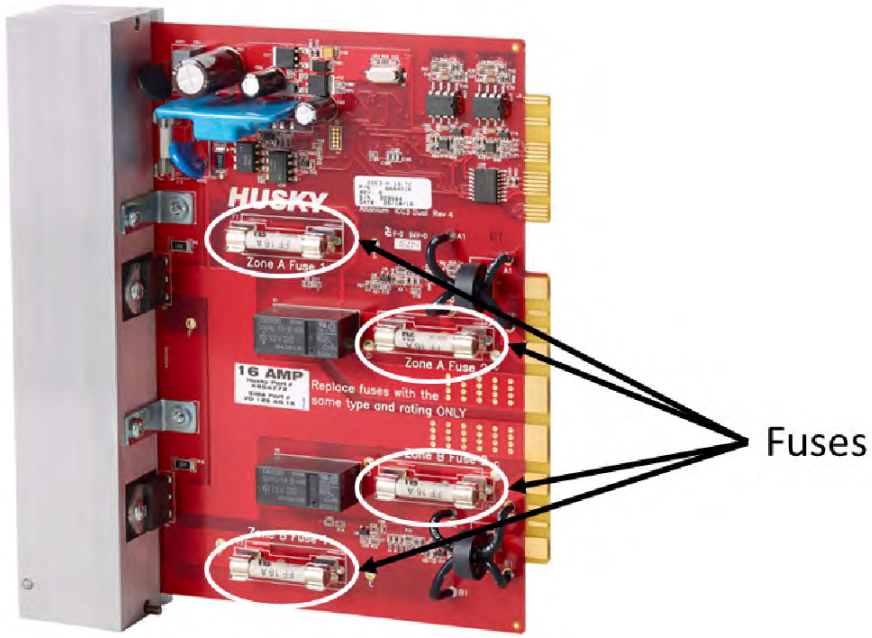


Figure 16-14 ICC Fuse Locations

6. Install a fuse with one that is of identical type and rating as the fuse that was removed.

   NOTE: Husky recommends SIBA 712540 Series or equivalent fuses.

7. Make sure the fuse is fully seated.

   NOTE: Poor seating will cause a hot spot, which can cause problems for the system

8. Slide the new card into to the slot and push the card slowly and firmly back into place.

   NOTE: An incorrectly oriented card will not seat correctly.

9. Tighten the top and bottom slotted fasteners on the heat sink.

16.4 Neo5 Operator Interface

The Neo5 operator interface is used to enter and display molding parameters. It consists of two main components: the touch monitor and the Master Control Unit (MCU). It is also available in two different configurations: integrated and standalone.

The operator interface does not contain user-serviceable parts and should only be serviced by replacing the touch monitor or master control unit as complete subassemblies.

Figure 16-15 shows the touch monitor and MCU for an integrated configuration.

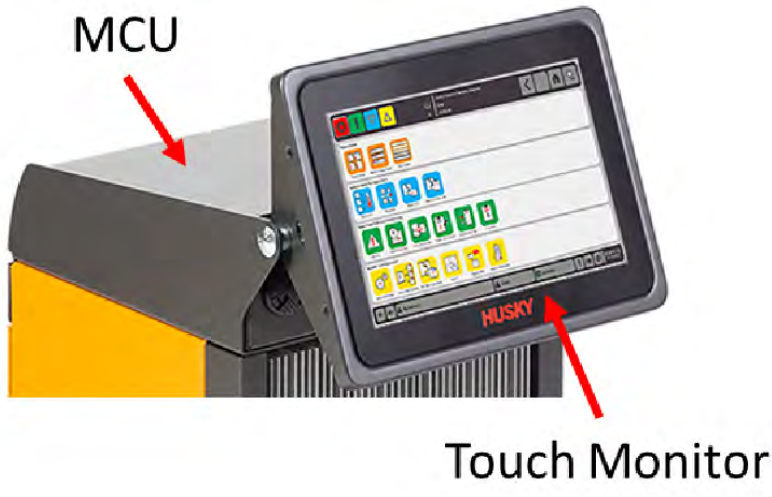


Figure 16-15 Neo5 Integrated Operator Interface

Figure 16-16 shows the touch monitor and MCU for a freestanding configuration.

Figure 16-16 Neo5 Freestanding Operator Interface

16.4.1 Replacing the Touch Monitor — Integrated Configuration

To replace the touch monitor on an integrated configuration system, do the steps that follow:

WARNING!

Electrical and mechanical hazard - risk of damage to the equipment. Turn off all power to the system and disconnect it completely from the main input power. Follow the local Lock Out Tag Out procedures.

WARNING!

Pinch Point Hazard - keep hands and fingers clear of the Neo5 touch monitor hinge mechanism.

1. Rotate the touch monitor to the full forward position, as shown in Figure 16-17.

Figure 16-17 Rotate Monitor

This will expose the mini-USB connector, HDMI connector and top set of fasteners holding the touch monitor to the mounting bracket (refer to Figure 16-18).

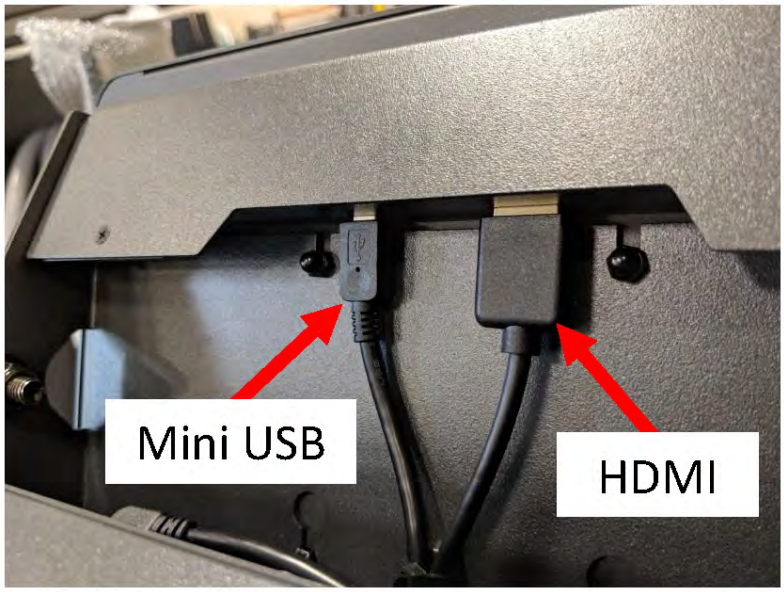


Figure 16-18 Mini-USB and HDMI Connectors

2. Disconnect the mini-USB and HDMI connectors at the back of the touch monitor, as shown in Figure 16-19.

Figure 16-19 Disconnect the Mini-USB and HDMI Connectors

3. Loosen the two top fasteners using a 4mm socket wrench or nut driver (refer to Figure 16-20).

IMPORTANT!

Only loosen the fasteners. The mounting holes in the bracket holding the touch monitor are slotted key holes that allow the monitor to be removed without removing the fasteners completely!

Figure 16-20 Loosen the Top Fasteners

4. Rotate the touch monitor to the full back position and loosen the two bottom fasteners (refer to Figure 16-21).

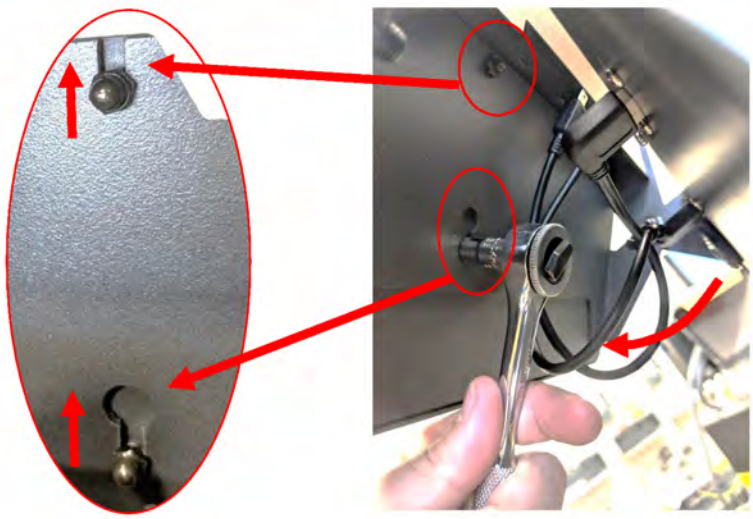


Figure 16-21 Loosen the Bottom Fasteners

5. Securely grip the touch monitor and slide it upwards until the fasteners have cleared the top mounting slots and bottom key holes. Pull forward to remove the touch monitor from the mounting bracket. Refer to Figure 16-22.

Figure 16-22 Slide Monitor Off of Fasteners

6. Remove the two top and bottom fasteners from the touch monitor and install them on the threaded studs on the back of the new touch monitor (refer to Figure 16-23).

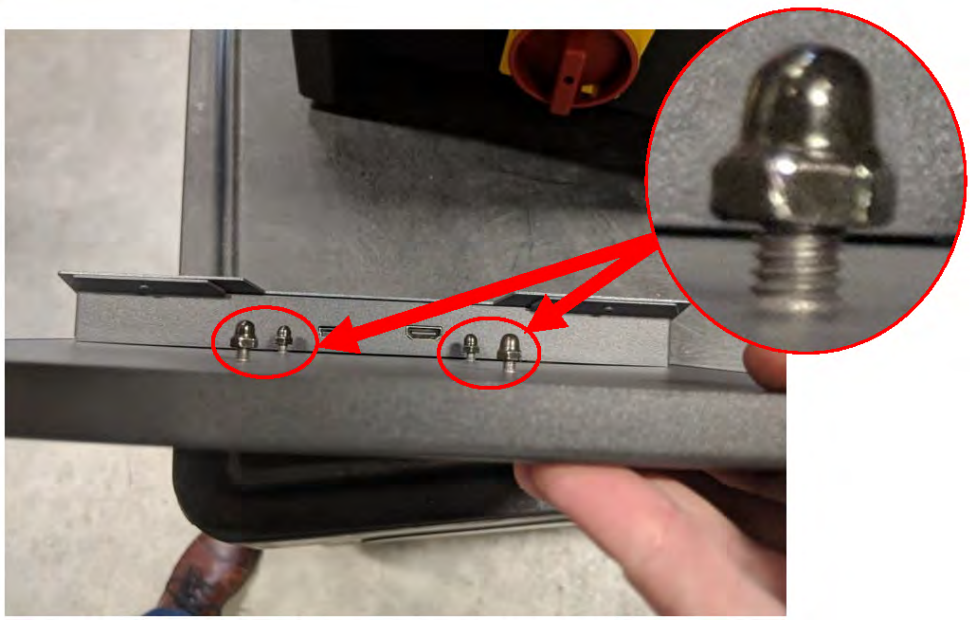


Figure 16-23 Slide Monitor Off of Fasteners

7. Do step 1 through step 6 in reverse order to install the new touch monitor.

16.4.2 Replacing the MCU — Integrated Configuration

To replace the MCU on an integrated configuration system, do the steps that follow:

WARNING!

Electrical and mechanical hazard - risk of death, serious injury and/or damage to the equipment. Turn off all power to the system and disconnect it completely from the main input power. Follow the local Lock Out Tag Out procedures.

WARNING!

Pinch Point Hazard - keep hands and fingers clear of the Neo5 touch monitor hinge mechanism.

1. Rotate the touch monitor to the full back position to expose the touch screen and LCD1 connectors (refer to Figure 16-24).

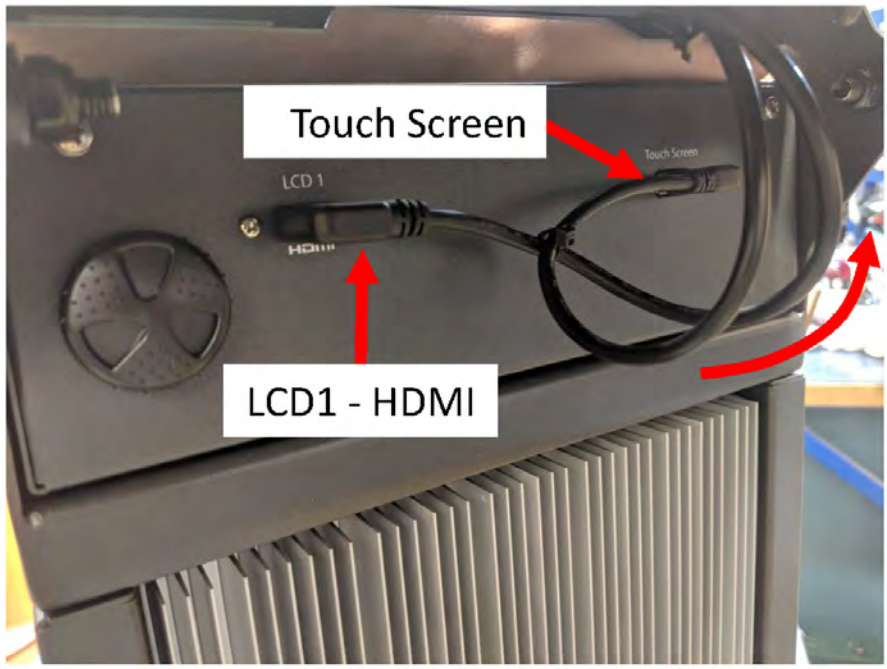


Figure 16-24 Touch Screen and LCD1 Connector Locations

2. Unplug the touch screen and LCD1 connectors at the front of the MCU (refer to Figure 16-25).

Figure 16-25 Remove Touch Screen and LCD1 Connectors

3. Locate and remove two mounting fasteners holding the MCU in place at the back of the unit (refer to Figure 16-26).

Figure 16-26 MCU Mounting Fasteners

4. Put your hand on the front of the MCU and push it backwards to disengage the hidden hooks that hold it in place on top of the mainframe (refer to Figure 16-27).

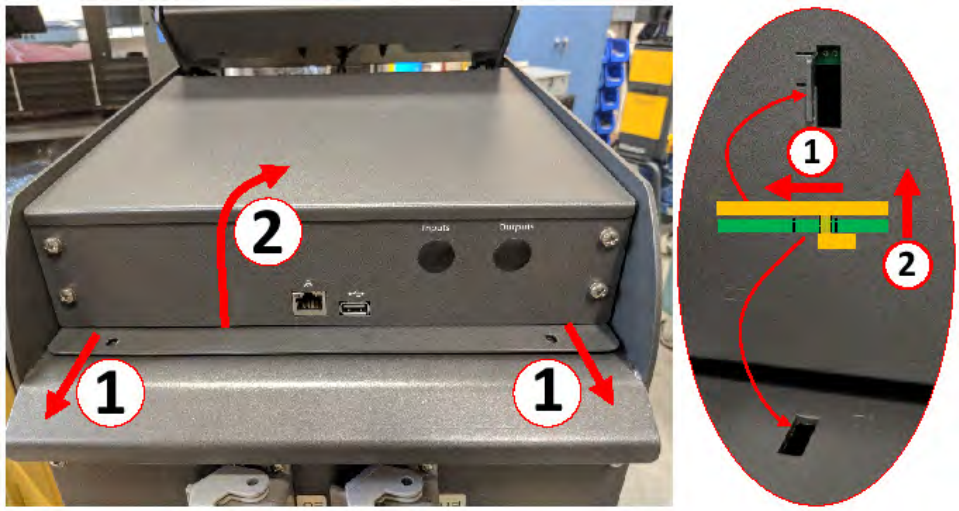


Figure 16-27 Disengage Hooks

IMPORTANT!

Do not pull up on the MCU because it is held into position by hooks that fit into slots in the top of the mainframe and are hidden from sight! Push back on the MCU from the front to disengage the hooks and then lift up.

5. Once the hooks have disengaged carefully rotate the MCU upwards towards the front of the unit to expose the power and communication cables (refer to Figure 16-28).

Figure 16-28 Power and Communication Cables

6. Carefully remove the power and communication connectors from the pocket at the bottom of the MCU and continue to rotate the unit upwards until it is resting on its front face (refer to Figure 16-29).

Figure 16-29 Rotate the MCU Upwards

7. Using your fingers, gently rotate the power and communication couplings to disconnect the cables from the top of the mainframe (refer to Figure 16-30).

Figure 16-30 Disconnect Power and Communication Connectors

8. After the power and communication cables are disconnected, carefully lift the MCU from the mainframe (refer to Figure 16-31).

Figure 16-31 Remove the MCU from the Mainframe

9. Do step 1 through step 8 in reverse order to install the new MCU.

16.4.3 Replacing the Touch Monitor — Freestanding Configuration

To replace the touch monitor on a freestanding configuration system, do the steps that follow:

WARNING!

Electrical and mechanical hazard - risk of damage to the equipment. Turn off all power to the system and disconnect it completely from the main input power. Follow the local Lock Out Tag Out procedures.

WARNING!

Pinch Point Hazard - keep hands and fingers clear of the Neo5 touch monitor hinge mechanism.

1. Rotate the touch monitor to the full forward position to expose the mini-USB connector, HDMI connector and top set of fasteners that hold the touch monitor to the mounting bracket (refer to Figure 16-32).

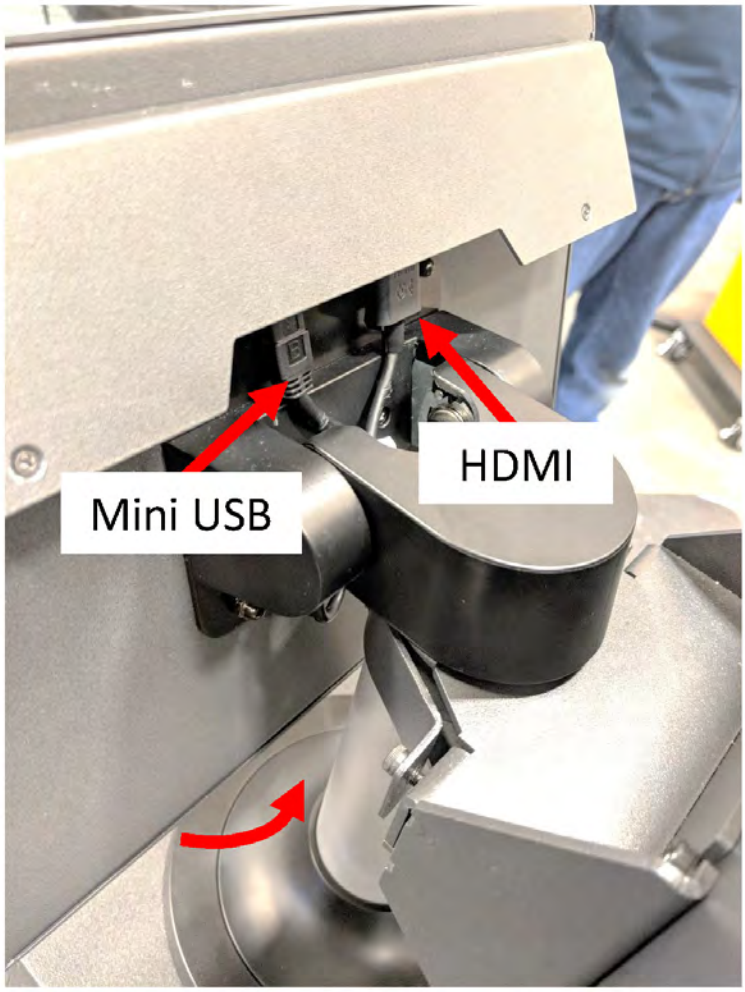


Figure 16-32 Rotate the Monitor on a Freestanding Configurated System

2. Unplug the mini-USB and HDMI connectors at the back of the touch monitor and loosen the two top fasteners using a 4mm socket wrench or nut driver (refer to Figure 16-33).

IMPORTANT!

Only loosen the top fasteners. The top mounting holes in the bracket holding the touch monitor are slotted and allow the monitor to be removed without removing the top fasteners completely!

Figure 16-33 Loosen the Top Fasteners

3. Rotate the touch monitor to the full back position and completely remove the two bottom fasteners (refer to Figure 16-34).

   NOTE: These mounting holes are not slotted, so the nut has to be removed completely to allow the touch monitor to be removed.

Figure 16-34 Remove the Bottom Fasteners

4. Securely grip the touch monitor and slide it upwards until the fasteners have cleared the top mounting slots and pull forward to remove the touch monitor from the mounting bracket (refer to Figure 16-35).

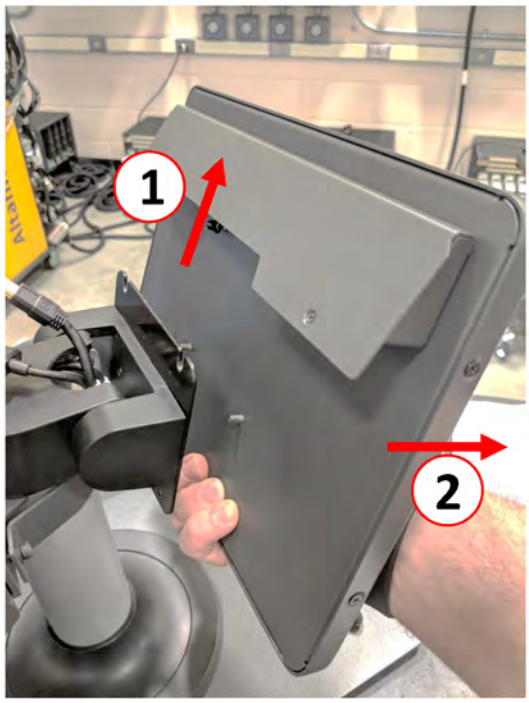


Figure 16-35 Remove Monitor

5. Ensure the fasteners are pre-installed on the top threaded studs and the fasteners are left off the bottom studs on the back of the touch monitor (refer to Figure 16-36).

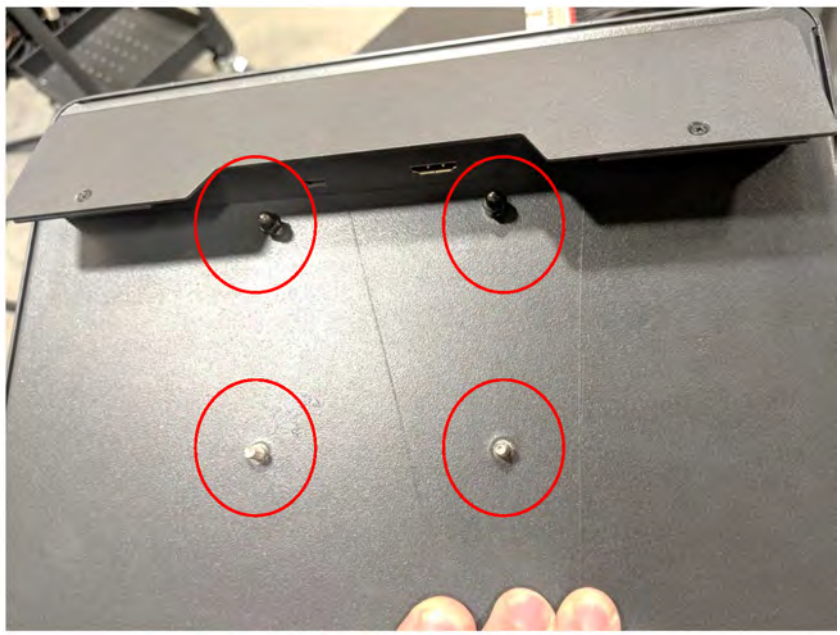


Figure 16-36 Fastener Check

6. Do step 1 through step 5 in reverse order to install the new touch monitor.

16.4.4 Replacing the MCU — Freestanding Configuration

To replace the MCU on a freestanding configuration system, do the steps that follow:

WARNING!

Electrical and mechanical hazard - risk of death, serious injury and/or damage to the equipment. Turn off all power to the system and disconnect it completely from the main input power. Follow the local Lock Out Tag Out procedures.

1. Locate the Touch Screen and LCD1 connectors at the bottom of the MCU enclosure (refer to Figure 16-37).

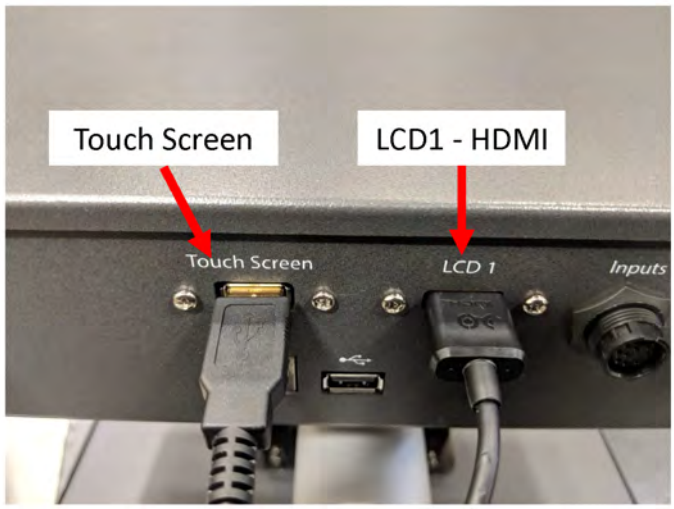


Figure 16-37 Touch Screen and LCD1 Connector Locations

2. Disconnect the touch screen and LCD1 connectors at the bottom of the MCU and then disconnect the power and communication connectors (refer to Figure 16-38).

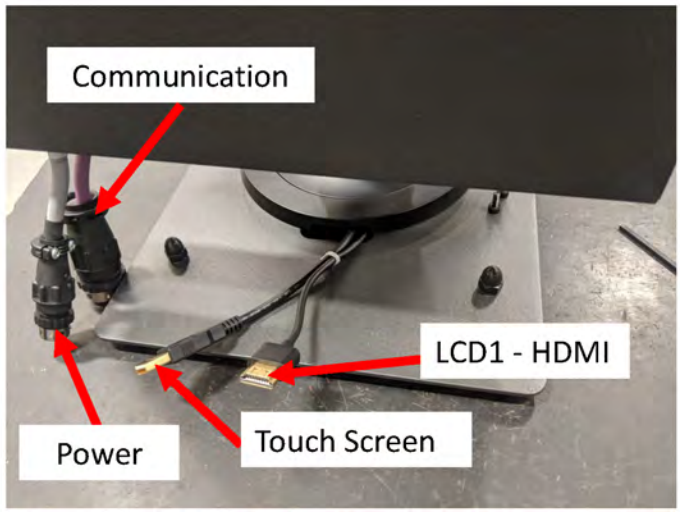


Figure 16-38 Disconnect the Connectors

3. Locate the four fasteners holding the MCU to the mounting bracket (refer to Figure 16-39).

   NOTE: The bracket is located between the Touch Monitor and the MCU enclosure.

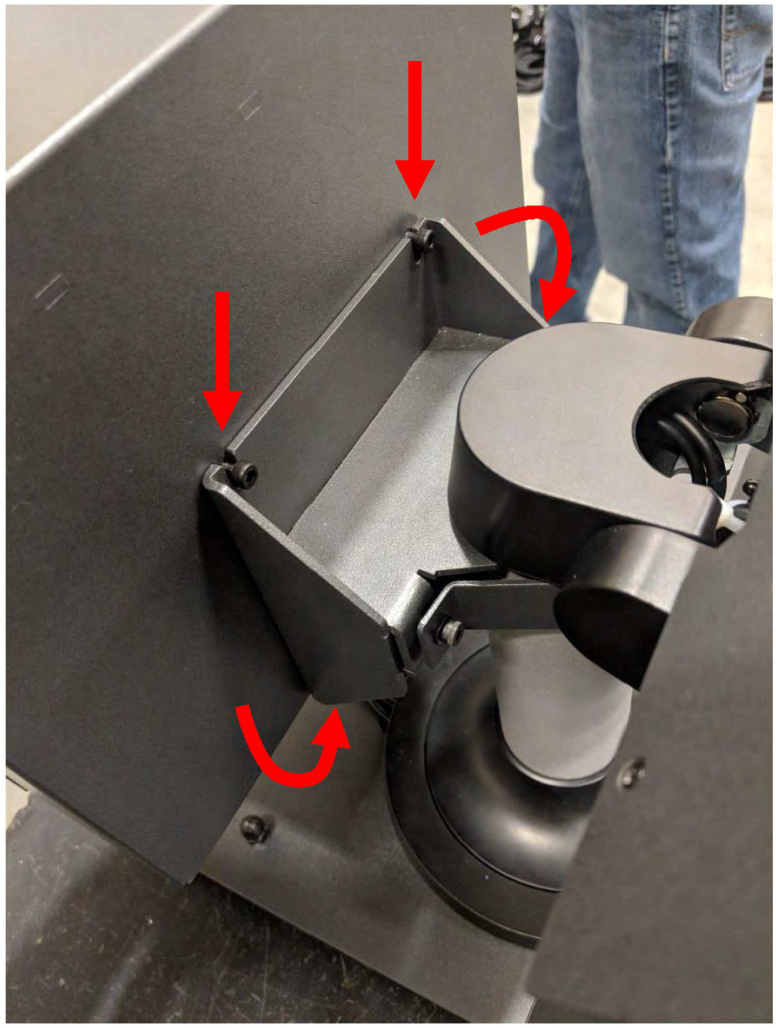


Figure 16-39 Fastener Locations

4. Loosen the two top fasteners holding the MCU to the mounting bracket using a 4mm Allen key or hex wrench (refer to Figure 16-40).

IMPORTANT!

Only loosen the top fasteners. The top mounting holes in the bracket holding the MCU are slotted and allow the unit to be removed without removing the top fasteners completely!

Figure 16-40 Loosen the MCU Top Fasteners

5. Locate and completely remove the two bottom fasteners (refer to Figure 16-41).

   NOTE: These mounting holes are not slotted, so the screws must be removed completely to allow the MCU to be removed.

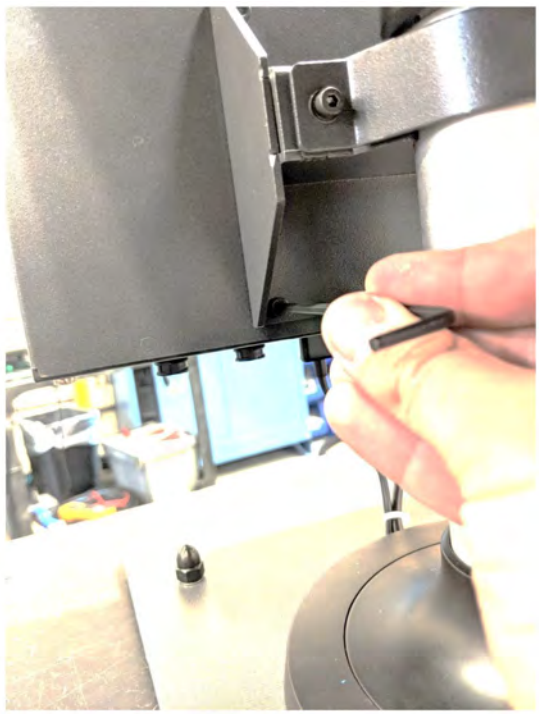


Figure 16-41 Remove the Bottom MCU Fasteners

6. Securely grip the MCU and slide it upwards until the fasteners have cleared the top mounting slots and pull forward to remove the MCU from the mounting bracket.
7. Do step 1 through step 6 in reverse order to install the new MCU.

   NOTE: Before you start the new MCU install, make sure that the fasteners are pre-installed on the top threaded holes and the fasteners are not installed on the bottom holes on the back of the MCU (refer to Figure 16-42).

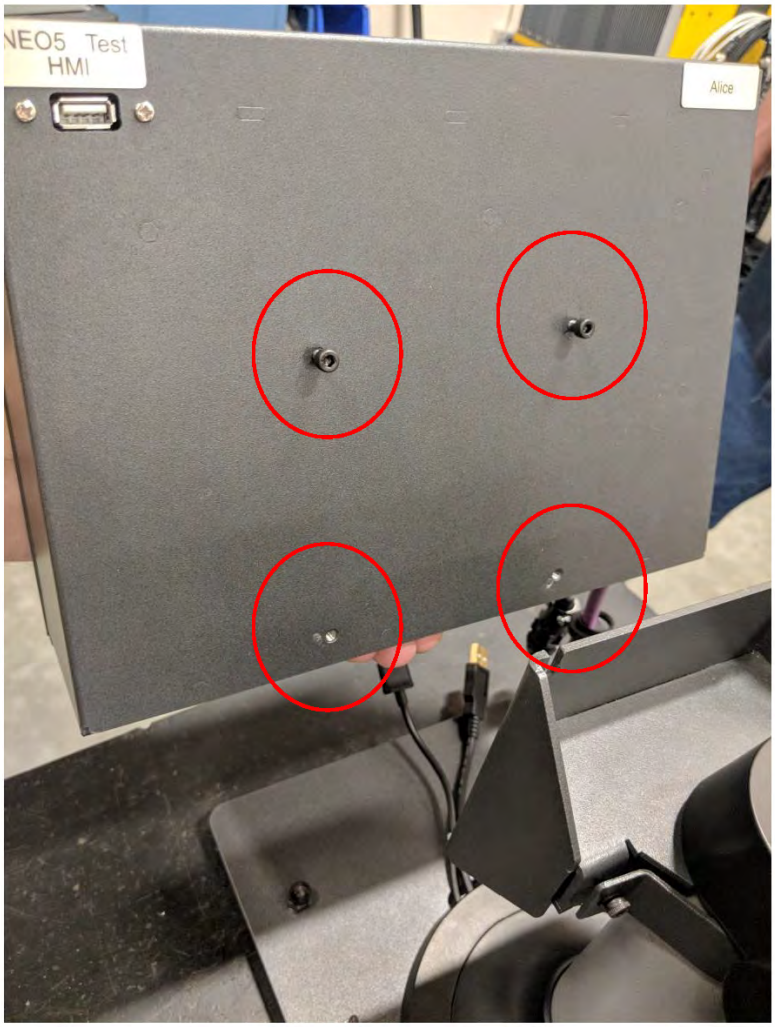


Figure 16-42 MCU Pre-Install Fastener Setup

16.4.5 Replacing the Operator Interface — Freestanding Configuration

To replace the operator interface for a Neo5 freestanding configuration system, so the steps that follow:

WARNING!

Electrical and mechanical hazard - risk of death, serious injury and/or damage to the equipment. Turn off all power to the system and disconnect it completely from the main input power. Follow the local Lock Out Tag Out procedures.

1. Locate the four fasteners holding the operator interface to the top of the mainframe and the power and communication connectors (refer to Figure 16-43).

Figure 16-43 Operator Interface Fastener and Cable Locations

2. Disconnect the power and communication connectors, as shown in Figure 16-44.

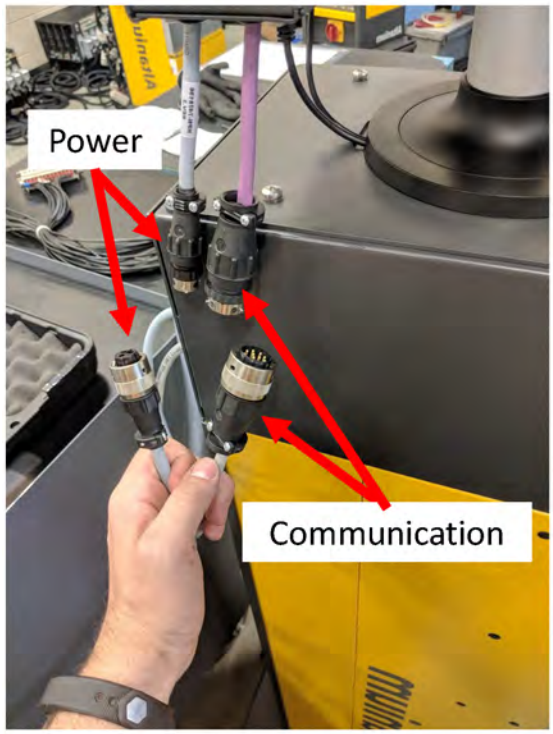


Figure 16-44 Disconnect Operator Interface Power and Communication Connectors

3. Remove the two fasteners holding the operator interface at the front of mainframe (refer to Figure 16-45).

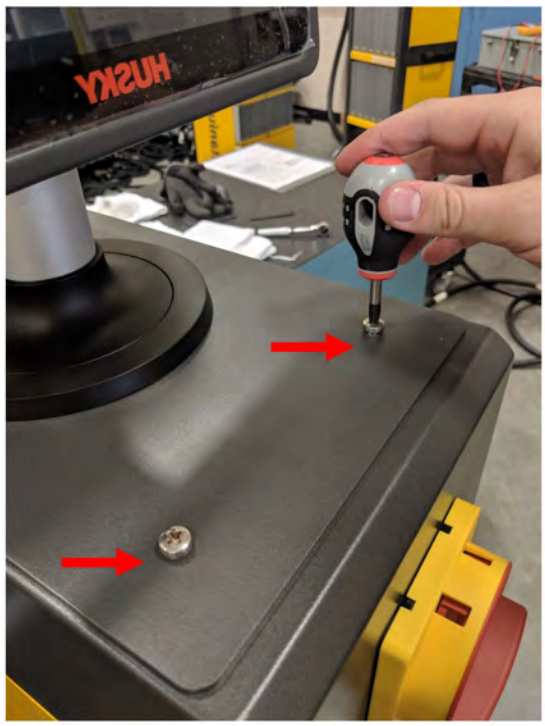


Figure 16-45 Remover the Front Fasteners

4. Remove the two fasteners holding the operator interface at the back of mainframe (refer to Figure 16-46).

   NOTE: This step requires a screwdriver short enough to clear the MCU located above the fasteners.

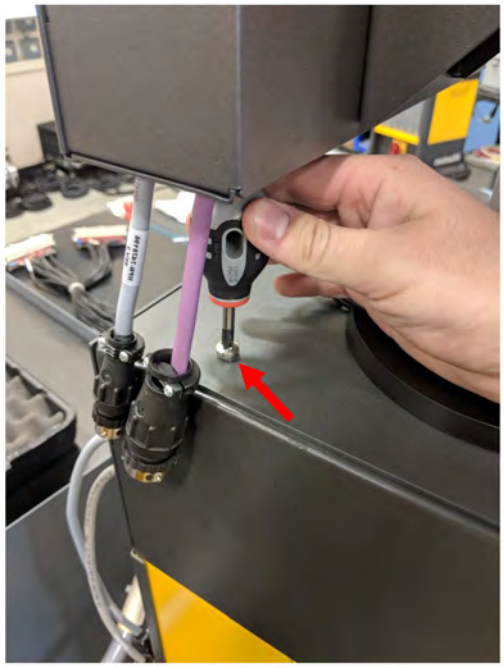


Figure 16-46 Remover the Rear Fasteners

5. Securely grip the operator interface from the silver mounting pole and carefully lift the unit from the top of the mainframe.
6. Put the operator interface on a stable surface (refer to Figure 16-47).

Figure 16-47 Put the Operator Interface on a Stable Surface

7. Do step 1 through step 5 in reverse order to install the new operator interface.

16.5 Neo5 Mobile Stand

The Neo5 integrated configuration is available with a mobile stand as a paid option. The mobile stand allows the touch monitor of the Neo5 integrated configuration to be raised to an optimal viewing height (1320 mm – 52 in.) and easier to move from place to place. There are two variants of the mobile stand (refer to Figure 16-48):

- C6-1 Mobile Stand (Tall stand assembly)
- C6-2 Mobile Stand (Short stand assembly)

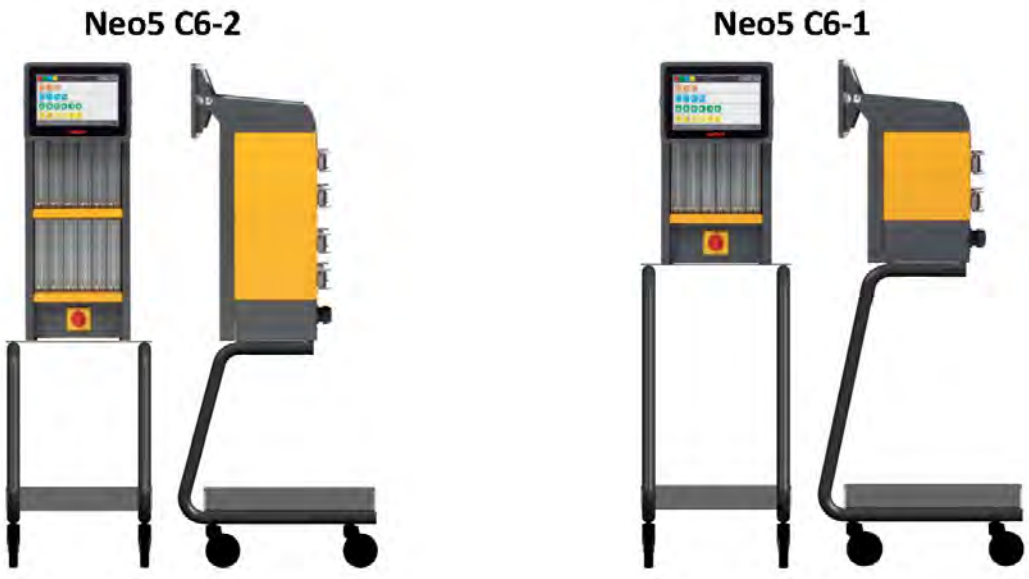


Figure 16-48 Neo5 Mobile Stand Configurations

16.5.1 Installing Neo5 on the Mobile Stand

The Neo5 mobile stand and controller come as separate pieces and must be assembled.

To install the Neo5 on the mobile stand, do the steps that follow:

WARNING!

Electrical and mechanical hazard - risk of serious injury and/or damage to the equipment. Turn off all power to the system and disconnect it completely from the main input power. Follow the local Lock Out Tag Out procedures.

1. Carefully place the Neo5 controller on its side to locate and remove the 4x leveling pads (refer to Figure 16-49).

   NOTE: These pads are hand tight and do not require any tools for removal.

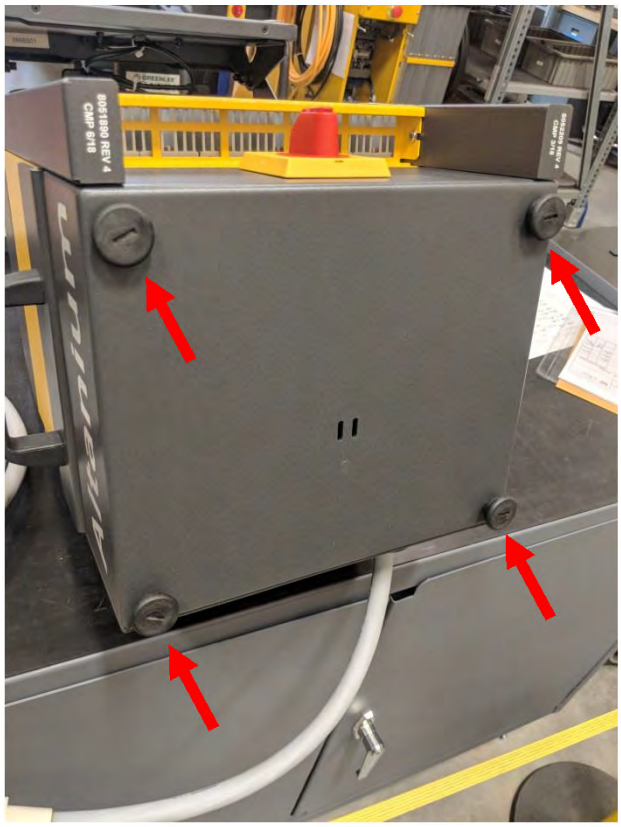


Figure 16-49 Remove Leveling Pads

2. Place the mobile stand in an open flat area of the floor and set the brakes, located on the front wheels (refer to Figure 16-50).

IMPORTANT!

Ensure that the correct stand and controller combination is used. This will prevent the assembly from becoming top heavy and tipping over. The C6-1 configuration fits to the taller mobile stand and the C6-2 fits to the shorter mobile stand.

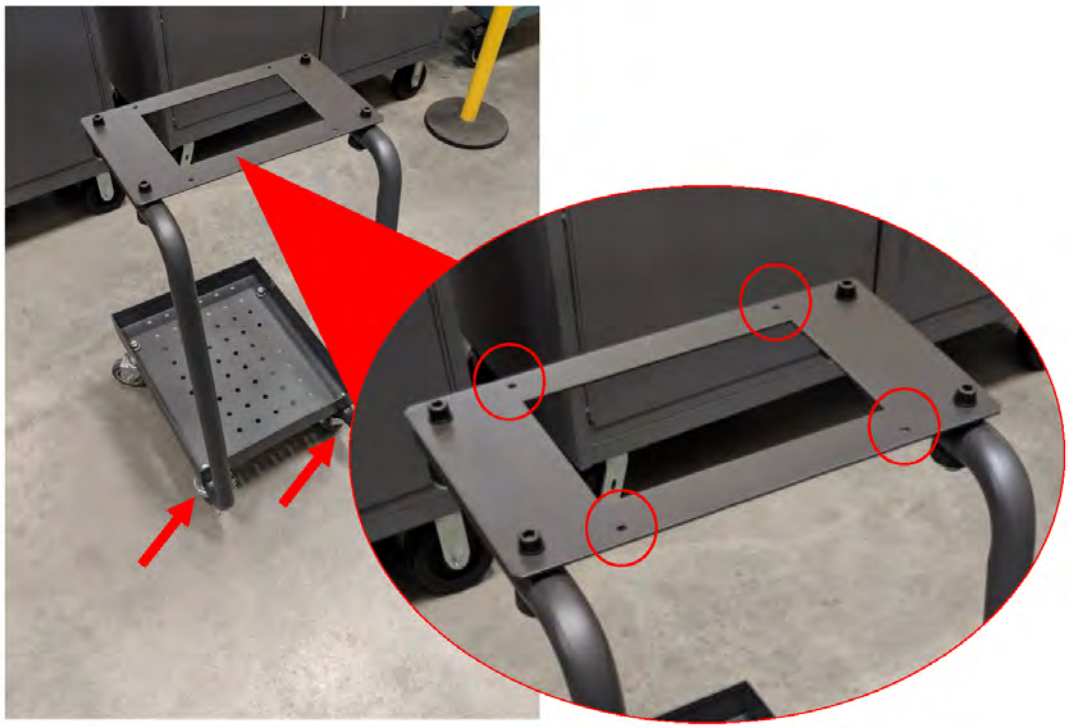


Figure 16-50 Mobile Stand Brakes and Mounting Holes

3. Locate the 4x mounting holes on the top plate of the mobile stand (refer to Figure 16-50).

WARNING!

Heavy object - two person lift requirement. To avoid injury ask for assistance and use proper lifting technique when lifting the Neo5. Refer to Section 1.8.1.

4. With two people and a proper lifting technique, refer to Section 1.8.1, put the Neo5 on the mobile stand top plate.

5. Put the Neo5 in the center of the top plate (Figure 16-51), so that the mounting holes in the top plate align with the threaded holes at the bottom of the Neo5.

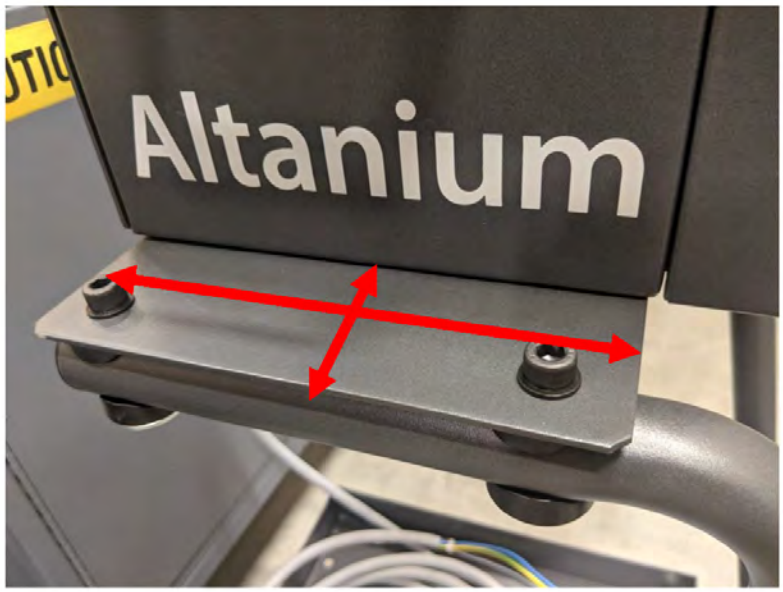


Figure 16-51 Mobile Stand Brakes and Mounting Holes

6. With the Neo5 controller in the center of the mobile stand, put the four leveling pads through the holes and firmly tighten by hand (refer to Figure 16-52).

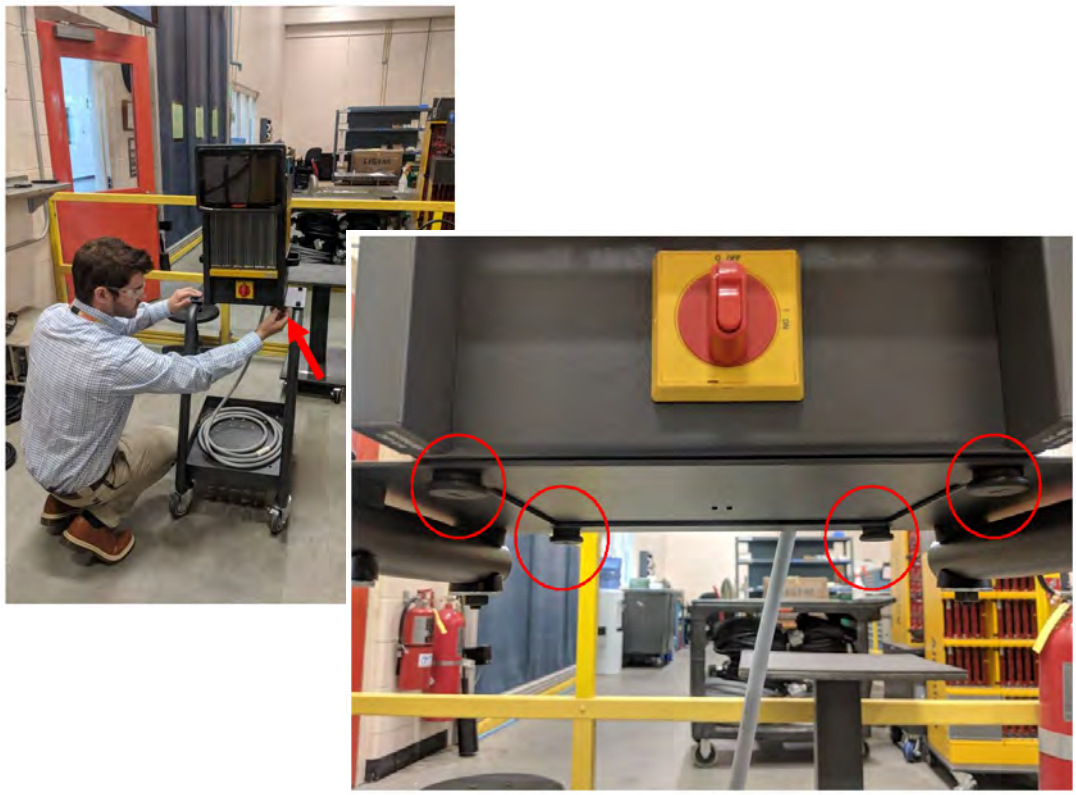


Figure 16-52 Install the Leveling Pads

7. Use the tray at the bottom of the stand to store cables related to the controller (refer to Figure 16-53).

Figure 16-53 Mobile Stand Bottom Tray

16.6 Cleaning the System

WARNING!

Electrical and mechanical hazard - risk of death, serious injury and/or damage to the equipment. Turn off all power to the system and disconnect it completely from the main input power.

Hazardous voltages - risk of death or serious injury. Before servicing the Altanium unit lock-out and tag the Altanium Main Power switch in accordance with local codes.

Use a ground strap when handling the components.

16.6.1 Mainframe (Cabinet)

- Use a damp sponge or cloth. No abrasives should ever be used on the surface. The labels should also be wiped and no cleaners or solvents should be used.
- If a cleaner of any type must be used, a non-ammonia, non-alcohol based glass cleaner sprayed onto a cloth, not directly onto the cabinet, is recommended.

16.6.2 Touch Monitor

To clean the touch monitor, do the steps that follow:

1. Make sure the monitor is turned off.
2. Wipe the screen with a clean, soft, lint-free cloth. This removes dust and other particles.
3. If necessary, apply a small amount of non-ammonia, non-alcohol based glass cleaner onto a clean, soft, lint-free cloth, and wipe the screen.

CAUTION!

Mechanical hazard - risk of equipment damage. Do not spray or pour any liquid directly onto the screen or case. Spray cleaner onto a lint-free cloth. If the liquid droplets dry on the monitor, the liquid may permanently stain or discolor the monitor.

CAUTION!

Mechanical hazard - risk of equipment damage. The display area is highly prone to scratching. Do not use ketone type material (for example, acetone), ethyl alcohol, toluene, ethyl acid or methyl chloride to clean the panel. These products may permanently damage the panel and void the warranty.

16.7 Basic Troubleshooting

Table 16-3 give the possible solutions for issues that could occur.

WARNING!

Electrical and mechanical hazard - risk of death, serious injury and/or damage to the equipment. Turn off all power to the system and disconnect it completely from the main input power.

Hazardous voltages - risk of death or serious injury. Before servicing the Altanium unit lock-out and tag the Altanium Main Power switch in accordance with local codes.

Use a ground strap when handling the components.

Table 16-3 Troubleshooting Procedures

Problem	Potential Cause	Solution
Read Time Out	The card cannot communicate (bad, not installed or not powered). The card is not at the address expected. The CAN bus (cables & backplanes) cannot convey data. The operator interface cannot communicate with the CAN bus.	If the fault is on a zone, remove and re-seat the card or replace the card. If the fault is on many zones, check the supply to the controller to make sure there is not a missing phase. If the fault is on all zones, check the power and communication cable to the operator interface to make sure they are connected correctly or change the operator interface computer.
Fuse Blown	Short circuit in mold or cabling. Output incompatible with the heater. Excessive voltage applied to controller.	Consult the mold electrical prints and use an ohmmeter or insulation resistance meter to inspect the cables and mold. This is unlikely to be a controller issue but the connectors on the back of the controller should be inspected as well.
Over/Under Temperature	This may be setup, sensor, output or control related.	Confirm that the Alarm window is set to an appropriate range and not too small. Recommended: +/-10°F (6°C). Re-ART (Tune) the zone under typical molding conditions ensuring that the mold is in the injection machine with mold cooling on and resin in the mold.

Table 16-3 Troubleshooting Procedures (Continued)

Problem	Potential Cause	Solution
Ground Fault	Bad heater. Short in wiring. Bad Card. Mis-wired mold, cable or controller. Moisture in the heater.	Consult the mold electrical prints and use an ohmmeter or insulation resistance meter to inspect the cables and mold. This is unlikely to be a controller issue but the connectors on the back of the controller should be inspected as well. Swap the card with a known good unit and confirm if the error returns. If not, replace the card. If moisture is suspected, place the zone setpoint at a 200°F (93°C) and apply heat until the moisture has been baked out of the heater.
No Response	Heater is not heating sufficiently (Undersized or low input voltage). Temperature of the heater cannot be sensed (Pinched or displaced thermocouple).	Insufficient heat can be low supply voltage. Check the supply voltage and confirm that this mold has run successfully at the present voltage. If not, connect the controller to a supply with sufficient voltage. In some cases, the current reading may be used to determine if current is flowing through the heater. If no current is flowing, a wiring fault or bad heater is likely. Shorted, detached, mis-positioned or pinched thermocouples are possibilities. Check the cables and wiring in the mold to ensure thermocouples are properly routed and terminated.

Table 16-3 Troubleshooting Procedures (Continued)

Problem	Potential Cause	Solution
Reverse T/C	Thermocouple has been connected with reversed polarity. Card is not calibrated. Card is nonfunctional. Mold is much colder than ambient.	Insufficient heat can be low supply voltage. Check the supply voltage and confirm that this mold has run successfully at the present voltage. If not, connect the controller to a supply with sufficient voltage. In some cases the current reading may be used to determine if current is flowing through the heater. If no current is flowing, a wiring fault or bad heater is likely. Shorted, detached, mis-positioned or pinched thermocouples are possibilities. Check the cables and wiring in the mold to ensure thermocouples are properly routed and terminated.
No Connection, T/C	Thermocouple circuit is broken. Bad thermocouple. Card is not seated. Card is not calibrated. Card is nonfunctional. Zone far beyond 1100 °F or 600 °C.	Shorting the thermocouple input should display an ambient temperature on the operator interface. If it does, the problem is most likely a wiring issue. Inspect the cables and mold for a bad connection or broken thermocouple. If shorting the thermocouple input does not display an ambient temperature, the problem is most likely a loss of calibration or a nonfunctional card. Try recalibrating the zone and if this does not work, replace the card.
Temperature is showing 32°F or 0°C	No communication with the card.	Refer to Read Time Out Error solution.
No Screen	Bad touch monitor or computer. Missing phase.	Check the supply to the controller to ensure there is not a missing phase. Replace the touch monitor with a known good unit to confirm if the image is restored. If so, replace the touch monitor. Replace the computer with a known good unit to confirm if the image is restored. If so, replace the computer.

Appendix A Glossary of Terms

Table A-1 gives the definitions for terms and symbols used in this user guide.

Table A-1 Glossary of Terms and Symbols

AMC	Automatic Manual Control
Amp or Amps	Ampere or Amperes
ANSI	American National Standards Institute
ART	Active Reasoning Technology
°C	Celsius temperature scale
CSV	Comma Separated Values (file)
dBG	Zone gain in decibels
DELTA 3PH (Input Power)	The Delta configuration has the three phases connected in a triangle shape. They do not normally have a neutral cable.
DIN	Deutsches Institut für Normung (German Institute for Standardization)
°F	Fahrenheit temperature scale
ft	Foot or Feet
HMI	Human Machine Interface
Hz	Hertz
I/O	Input/Output
ICC	Intelligent Control Card
in	Inch or Inches
Imperial	Imperial Units or British Imperial Units (measurement)
IMM	Injection Molding Machine
Integrated TX (Input Power)	WYE 3PH Transformer Secondary supply power is used.
kg	Kilograms
lb	Pound(s)
LCD	Liquid-Crystal Display
LOTO	Lockout Tagout
m	Meter(s)

Table A-1 Glossary of Terms and Symbols (Continued)

MCU	Master Control Unit
mm	Millimeter(s)
NTP	Network Time Protocol
Ω	Ohm or ohms
OPC UA	Open Platform Communication Unified Architecture
PCM	Priority Control Mode
PID	Proportional, Integral, and Derivative
RH	Relative Humidity
Single Phase (Input Power)	A two-wire (supply and neutral) power input is used.
T/C	Thermocouple
VAC	Volts Alternating Current
VDC	Volts Direct Current
Wye 3PH+N (Input Power)	A Wye three phase supply plus neutral configuration is when all the loads in an AC system are connected at one point. The configuration has looks like a Y shape.

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