Altanium Neo2

User Guide

HUSKY®

Keeping our customers in the lead

Original Instructions

Issue: v 1.4 — September 2015

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

Husky Technical Support

Husky Technical Support is a service provided to all of our customers. Our goal is to provide quick and accurate responses to all customers entitled to our service. When you contact Support, your case will be immediately logged. Your support issue will be tracked from the time it is opened until a resolution is provided.

If you require assistance in the North America, please contact the toll free number. Elsewhere, contact your nearest Husky Regional Service and Sales Office. When you email one of our Support staff, please put the Case ID number as the subject line if this an existing case; otherwise use “New Case” as the email subject.

To improve the response time, please have the following information available:

- The release number and build number of the Neo2 software that you are using.
- The serial number of your Altanium/Neo2 system.
- If possible, detailed steps to reproduce your issue.

Telephone Support Numbers

North America	**Toll free**	1-800-465-HUSKY (4875)
	Direct	(905) 951-4875

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

Husky Regional Service and Sales Offices

For the location closest to you, please visit www.husky.co.

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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 the screw on the back of the top portion of the controller, marked with the general warning symbol, is installed when 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.
- The safety of any system incorporating this equipment is the responsibility of the assembler of the system.
- 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. This is where the system's cooling airflow enters and exits. If this area of the mainframe becomes cluttered and insufficient airflow results, damage may occur to the system.

CAUTION!

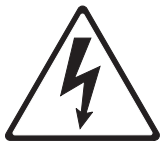
When switching OFF the system wait 30 seconds before switching the main disconnect back ON. Failure to wait 30 seconds may result in communication issues.

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 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 the screw on the back of the top portion of the controller, marked with the general warning symbol, is installed when 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.
- The safety of any system incorporating this equipment is the responsibility of the assembler of the system.
- 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. This is where the system's cooling airflow enters and exits. If this area of the mainframe becomes cluttered and insufficient airflow results, damage may occur to the system.

CAUTION!

When switching OFF the system wait 30 seconds before switching the main disconnect back ON. Failure to wait 30 seconds may result in communication issues.

1.5 Input Wiring (Conventional)

The following table summarizes the wiring conventions used.

Description	Wire Color	
Neutral	Blue	
Earth/Ground	Green	Green/Yellow
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.

1.6 Environmental Specification

Operating Temperature: 0-40 °C (32-104 °F)

Operating Humidity: 0%-95% RH, Non-Condensing

1.7 Controller Lifting Instructions

Use the follow steps when lifting the Altanium controller. The lifting device (crane or forklift) and straps that are used vary in lifting ability and lengths, depending on whether the Altanium is a single, double, or triple stack controller. 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)
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)
Double Stack	Two, 3.66 m x 25.4 mm (12 ft x 1 in.)	One, 1.83 m (6 ft)	454 kg (1000 lb)
Triple Stack	Two, 3.66 m x 25.4 mm (12 ft x 1 in.)	One, 2.44 m (8 ft)	907 kg (2000 lb)

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

Figure 1-1 Attaching Straps to Lifting Device

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

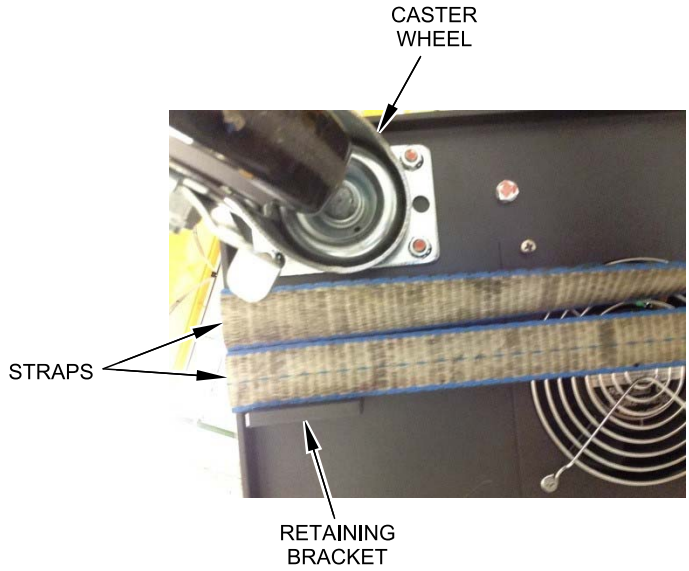


Figure 1-2 Positioning Straps

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

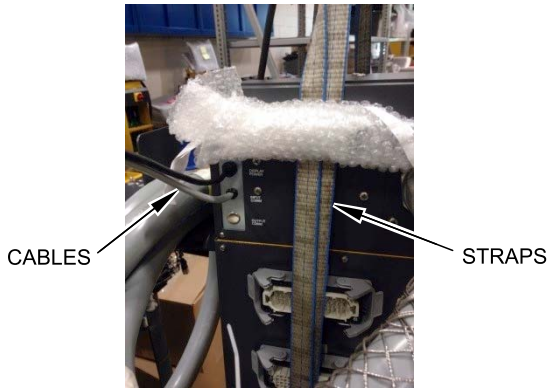


Figure 1-3 Checking Cables

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

4. Place the ratchet strap around top of the controller, 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 controller is lifted.

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

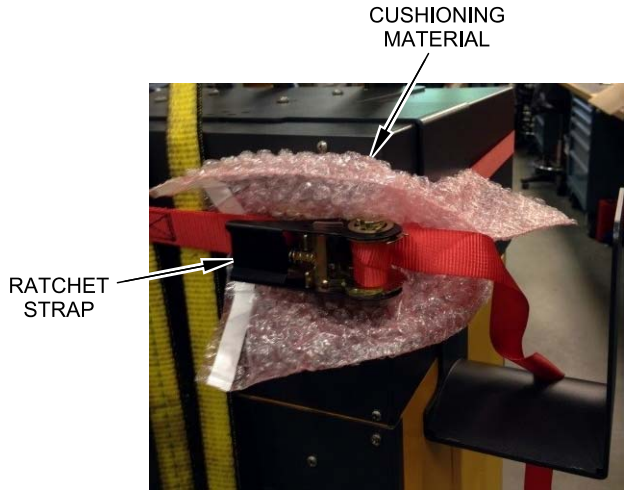


Figure 1-4 Protecting the Controller Finish

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

Chapter 2 Hot Runner Temperature Control

This guide is designed to make sure that you receive the maximum possible benefit from the use of the Altanium Hot Runner Control Systems.

The Altanium controllers were 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 as consistent and repeatable as possible with respect to the process setpoint. The closer to the setpoint the process temperature is maintained at, 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

The Altanium controller uses 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 to but not actually part of a single heater assembly, and may even 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 that is supplied to the heater. The Altanium controller is able to maintain this power output accurately with a resolution of 1%. This method of control is called Manual Regulation.

Open loop control is normally associated with tip heaters where the physical size of the tip precludes the use of an internal thermocouple.

2.1.2 Closed Loop Control

With the aid of a thermocouple, it is possible to control the actual temperature inside the mold. The Altanium controller can only control the temperature at the point at which the temperature sensor is positioned. The position of the thermocouple, combined with the capacity (wattage) of the heaters, in relation to the application, will be the over-riding factors in the response of the system. The control parameters have been matched to this response for optimum control. This method of control is referred to as Automatic Regulation.

- Internal thermocouples are normally associated with larger part weight tips, bodies, and runners. These tend to have relatively fast responses due to the fact that the thermocouple is in close proximity to the heater.
- External thermocouples are normally associated with manifolds. These tend to have relatively slow responses due to the fact that the thermocouple is separated from the heater by a mass of metal.

2.1.2.1 Temperature Measurement (thermocouples)

To control the temperature within a closed loop system, the Altanium controller must be able to measure the process temperature. This is achieved using a thermocouple.

There are various types of thermocouples, but in the plastics industry they are predominantly of the Iron/Constantan type, generally known as Fe/Cu-Ni, Iron/Con or type “J” thermocouple. The other type used to a lesser extent is Nickel-Chromium/Nickel-Aluminum, Ni-Cr/Ni-Al, or type “K”.

These thermocouple types are physically recognizable by a combination of their individual core and sheath colors; however, these vary from standard to standard.

2.2 Power Control Methods

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 Altanium controller can be set up to achieve this by using either Zero Cross Control or Phase Angle Control.

2.2.1 Zero Cross Control

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

2.2.2 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 Alternistor Triac (switching device) is turned on.

In either control method, the Altanium controller recalculates the power output requirements for the entire system every 8 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 with the expectation of control accuracy of ± 1 digit under steady state conditions.

2.3 Heating Elements

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.

If your heating element supplier has not provided you with wattage, resistance or amperage information for your heaters, the Altanium controller will provide this for you. Alternatively, you can determine this information using OHMS Law. The diagram and formulas below show you how.

WARNING!

Electrical hazard – risk of death or serious injury. Lock out and tag the Altanium main controller switch, and then disconnect all electrical power from the mold and controller prior to performing this test. Failure to lock and tag and disconnect the power could result in serious injury or death.

1. Disconnect all electrical power from the mold and the controller.
2. Using your multimeter, set the selector to measure resistance.
3. Place the (red) positive lead onto the first wire from the heating element and place the (black) negative lead from the meter onto the second wire (these may be pins on a connector, or the zone output fuses in the system as long as you are sure they are connected to the heating element).

   The meter will now display a resistance in ohms. Note 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, you would 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

Code	**Type**	**International Color Code (BS4937 Part 30:1993)**		**BRITISH (BS1843:1952)**		**AMERICAN 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 outlines various checks to make prior to starting up the system.

3.1 Prior to Start Up

- Check 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.
- 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. Verify the system and the mold have the same ground reference.

3.2 Verifying the Connection

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. Resistance must be less than 1 Ω.
3. Check the main input power disconnect and make sure it is in the OFF position prior to connection of the controller to the power source.

3.3 Start Up Procedure Checklist

Item	Step	✓
1	Connect power/thermocouple cables between the mold and controller (if required).	
2	Connect option cables (if required).	
3	Connect the controller to the power source.	
4	Switch the controller ON.	
5	Load a mold setup.	
6	Touch START to run the system.	
7	Check that the controller is functioning correctly.	

NOTE: There are no Controller to Mold Interconnection details included in this User Guide. Please see the Mechanical / Electrical Engineering Documents provided with the controller.

IMPORTANT!

When switching Off the system you MUST wait 30 seconds before switching the main disconnect back On. You may experience communication issues if you do not wait the required 30 seconds.

Chapter 4 Neo2 Operator Interface

This section describes the fundamental operating procedures of the Altanium/Neo2 hot runner process controller.

The interface between the user and the Altanium/Neo2 is a color LCD Display with a Touch Screen. This display is referred to as Neo2 for the remainder of this guide. All software functions of the system are accessed by touching buttons on the screen.

CAUTION!

Mechanical hazard - risk of damage to the equipment. Use a finger to operate the touch screen. Do not use a screwdriver, pen, or any other tool to touch the screen as this could cause damage to the touch screen on Neo2.

4.1 Overview

Neo2 comes standard with a high-resolution color display. This offers the advantages of high definition and a wide viewing angle, even in adverse lighting conditions.

During general operation the controller will display up to 48 zones of information on this screen.

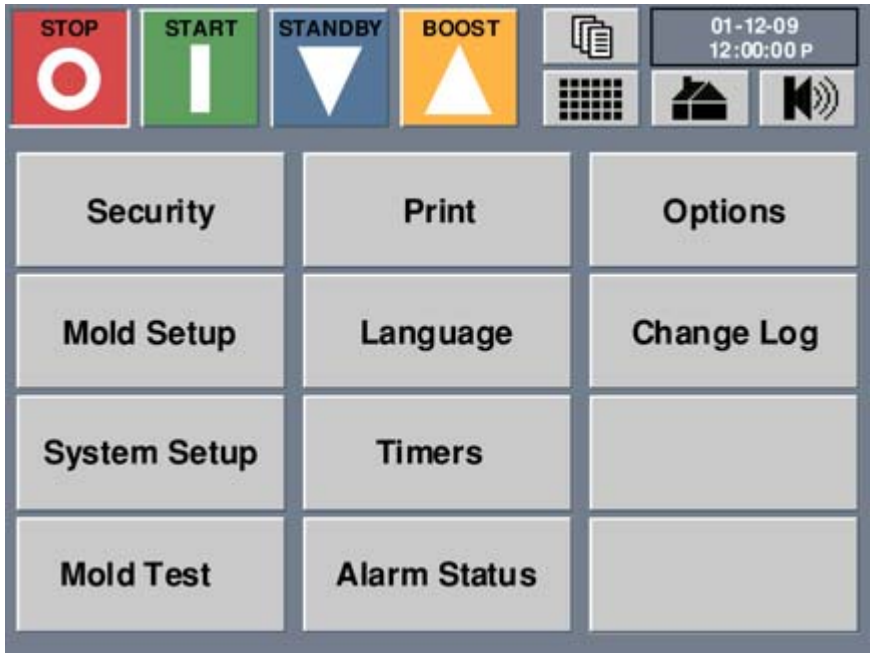
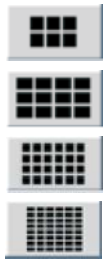
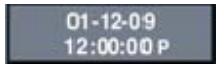


Figure 4-1 Home Screen

The STOP, START, STANDBY and BOOST function buttons are located in the upper left hand portion of the LCD display.

Button	Description
	STOP button - Turns power OFF to all zones, regardless of system condition.The button will appear darker when in the STOP mode.
	START button - Turns power ON to the zones that have a set point displayed.The button will appear darker when in the START mode.
	STANDBY button - Places the system in STANDBY mode.The button will appear darker when in the STANDBY mode (along with the START button).
	BOOST button - Places the system in BOOST mode.The button will appear darker when in the BOOST mode (along with the START button).
	Next Page button - Used to view the next page of data. This button is not applicable to all screens.

Button	Description
	Zone Data Layout - Used to toggle between 6, 12, 24 and 48 zone screen layouts.
	Home - Used to return to the Home screen
	SPEAKER - used to clear and reset Alarm and Abort errors.
	Date/Time - Displays current date and time on the system. To change the date and time refer to Section 9.1.6.

4.2 Operator Interface Modes

Neo2 has two different operator interface modes, Basic and Advanced.

Basic mode allows the operator to adjust the following parameters; Setpoint, Zone On/Off, Regulation, Standby Setpoint, and Boost Setpoint.

Advanced mode allows the operator to adjust the Basic parameters plus; Alarm, Abort, Slave, Sensor, Output Control, AMC, PCM, PID/ART, Earth Leakage, Name, and Power Limit.

All Neo2 systems are shipped from the factory in Basic mode.

4.2.1 Changing Modes

To change modes:

1. On the Home screen, touch **SYSTEM SETUP** and the System Setup screen will appear.

   On the **BASIC ADV** button, the box beside the mode highlights the system's current mode.

2. Touch **BASIC ADV**.

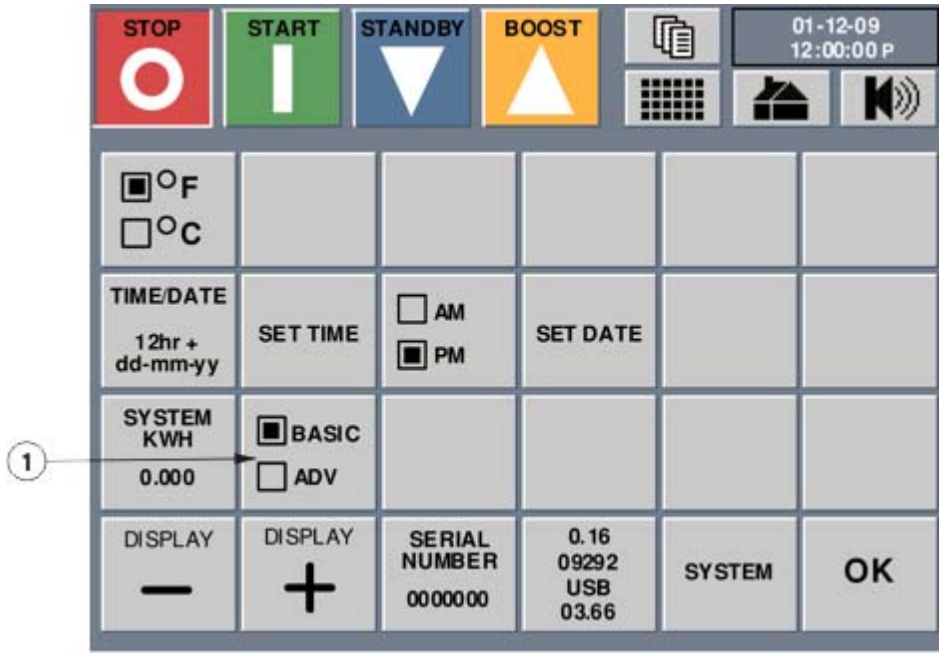


Figure 4-2 System Setup Screen - Basic Mode

1. BASIC ADV button

3. To go back to Basic mode, touch **BASIC ADV**.

4.3 USB Port

The USB port on the Neo2 is intended to be used to copy mold setup files to and from the system and to print information to a file. The screen for importing or exporting mold setups is displayed only if a user inserts a USB disk into the USB port while in the Mold Setup Screen.

These mold setup files can be copied to other Altanium controllers that support the same file type. The Print screen is an area where a user can print important reports directly to a USB disk in a text file format. Refer to Section 4.4 for information on reports.

CAUTION!

Mechanical hazard - risk of damage to the unit and data integrity.

- **Never power on with a device in the USB port.**
- **Never connect more than one memory device at a time.**
- **Never connect a powered hub or other device to the USB port.**
- **Removing the USB disk from the system during a read or write operation could cause data corruption to the USB disk contents that could result in bad files or the entire drive from being usable.**

The following warnings and restrictions should be observed when using the USB port:

- Only supports USB disks that use a File Allocation Table (FAT or FAT32) format.
- Only supports USB versions 2.0 and 1.1.
- Use an empty USB disk or one that contain as few files as possible.

4.4 Printing Reports to File

Neo2 has five reports available for printing. The data is printed directly to the USB drive in a TEXT file format. A USB drive must be installed to enable the report buttons.

- Zone Data Short — report for the currently loaded mold set up includes Zone Number, Setpoint, Actual Temperature.
- Zone Data Long — report for the currently loaded mold set up includes Zone Number, Zone Name, Setpoint, Actual Temperature, Power, Amps, Alarm setting, Abort setting, Regulation, Watts, VAC, and Ohms.
- Mold Test Data — report for the currently loaded mold set up includes the mold test results. This is only available if a mold test has been run previously.
- Mold Setup Data — report for the currently loaded mold set up includes the mold setup data.
- Error Log — report for the 100 most current alarms.

To print a report to file:

1. Insert a USB drive.
2. On the Home screen, touch **Print**.

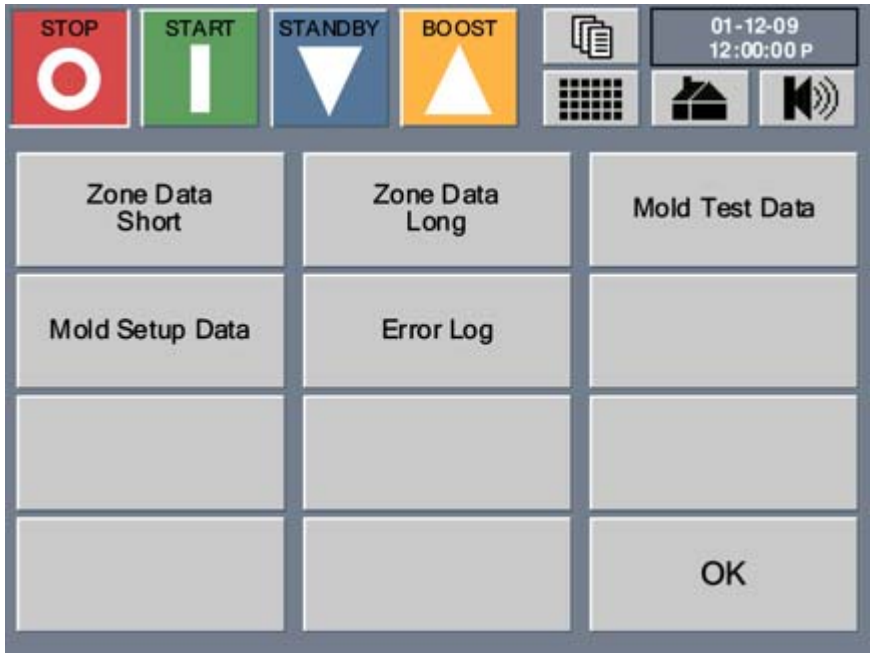


Figure 4-3 Print Screen

3. Touch the report to print. The selected report prints to file on the USB drive.

4.5 Changing the Language Display

Neo2 allows the operator to select the language displayed on screen.

To change the language:

1. On the Home screen, touch **Language**. The Language screen appears and displays available options.

Figure 4-4 Language Screen

2. Touch the language to display.
3. Touch **OK**. The screen is now updated to the language selected.

4.6 Supply Voltage Screen

The **Supply Voltage** screen displays a graphical view of the phase pairs based on the Supply Configuration parameter selected in the **System Setup** screen:

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

4.6.1 Viewing the Supply Voltage

To view the **Supply Voltage** screen, do the following:

On the **Home** screen, touch the **Supply Voltage** button. The **Supply Voltage** screen displays for the type of configuration selected.

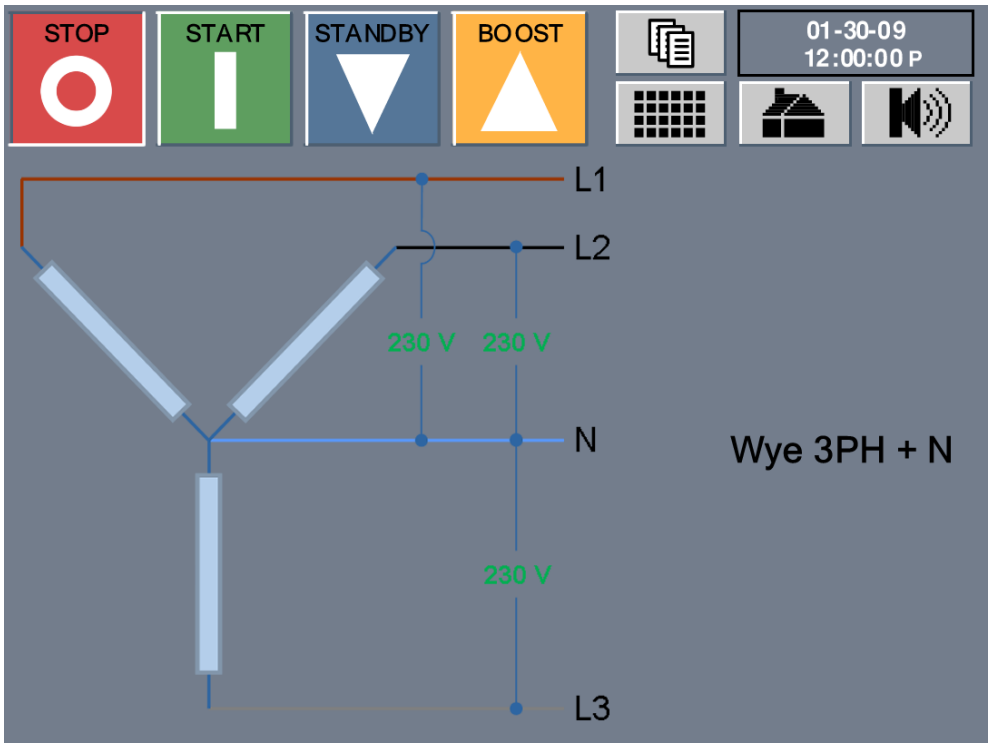


Figure 4-5 Wye 3PH+N Supply Voltage Screen

The image on the left of the Wye 3 PH+N **Supply Voltage** screen is a visual representation of the supply configuration. The numerical values shown for each of the phases is the average voltage value for all the zones associated with a phase.

NOTE: The voltage values display "---" if the voltage is not calibrated for all the zones associated with a particular phase or all the zones are XL cards.

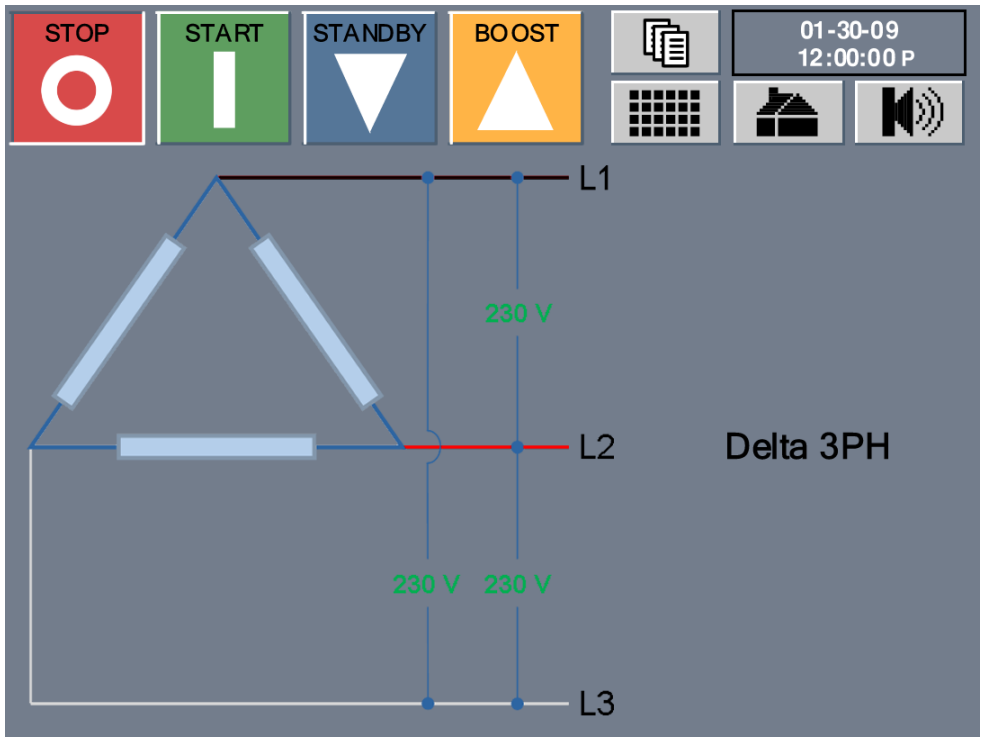


Figure 4-6 Delta 3PH Supply Voltage Screen

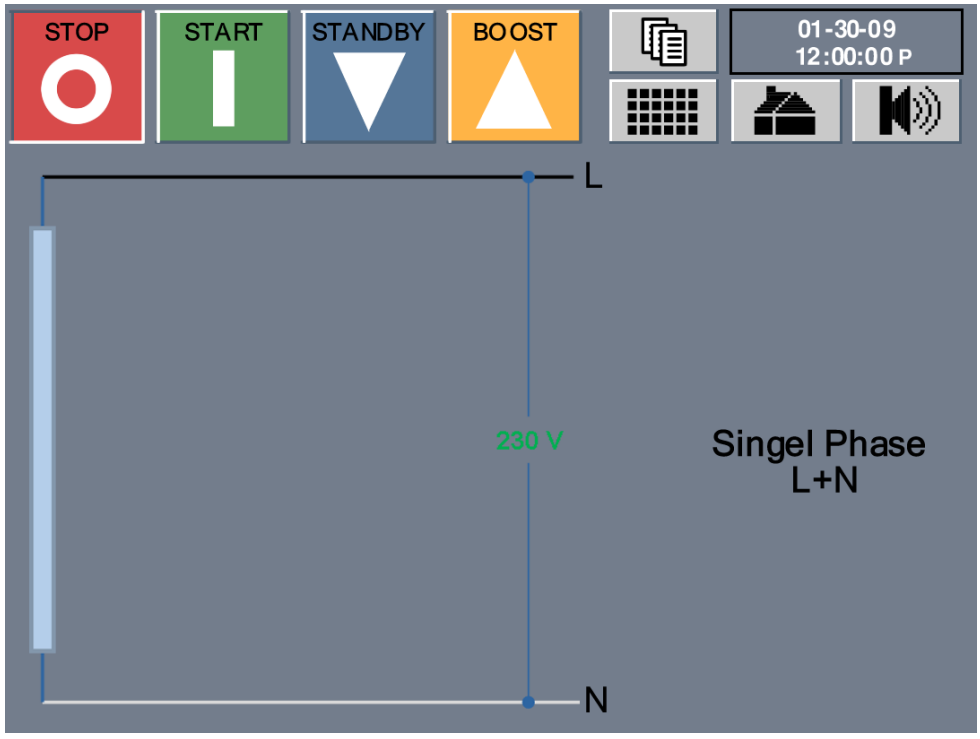


Figure 4-7 Single Phase Supply Voltage Screen

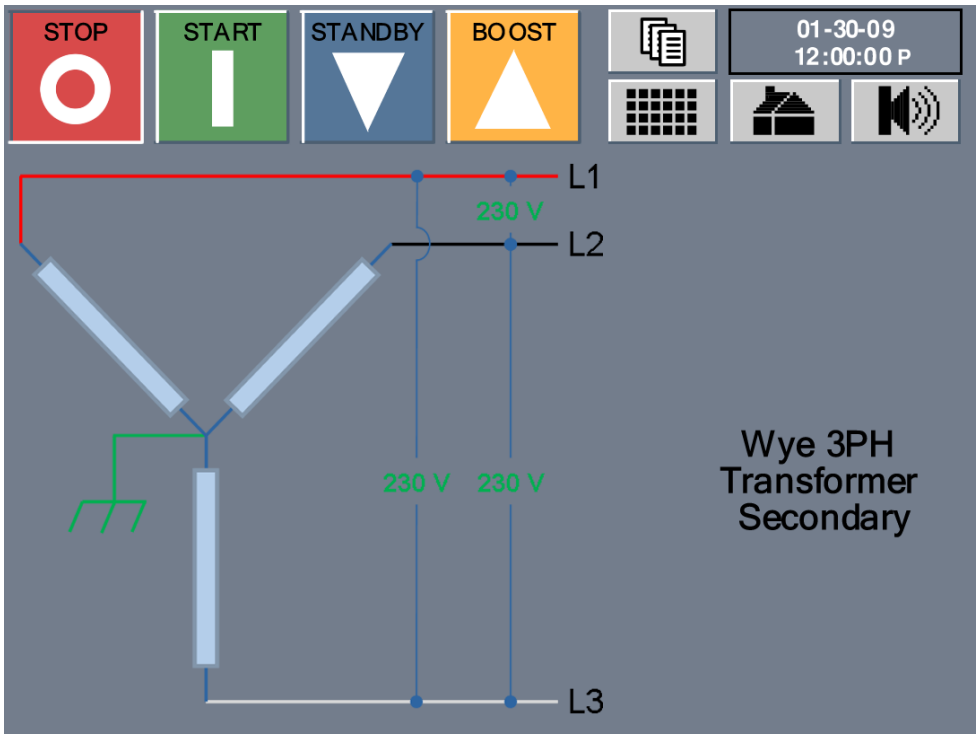


Figure 4-8 Integrated TX Supply Voltage Screen

Chapter 5 Security

The System can be configured to display the Security screen when the system is powered up (Refer to Section 9.2.7) or bypassed. If this screen is not configured to be displayed on power up, then it can be accessed from the Home Screen.

From the Security screen, the appropriate security code must be entered to gain access to operate the system.

All system functions are listed on this screen along with the required security code needed to adjust them.

Figure 5-1 Security Screen

Button	Description
ENTER PSWD	Touch this button to enter a password.
CHANGE LVL1	Touch to change the password for level 1. You must know the present level 2 password to do this.
CHANGE LVL2	Touch this button to change the password for level 2. You must know the present level 2 password to do this.
OK	Touch this button to exit out of the Security screen.
0	Touch this button to change the selected function to security level 0.

Button	Description
1	Touch this button to change the selected function to security level 1.
2	Touch this button to change the selected function to security level 2.

5.1 Entering a Password

Factory set passwords; (Level 1 and 2) are shipped in a sealed envelope along with the controller. These passwords should be kept in a secure place.

To enter your password:

1. Touch **ENTER PSWD**.

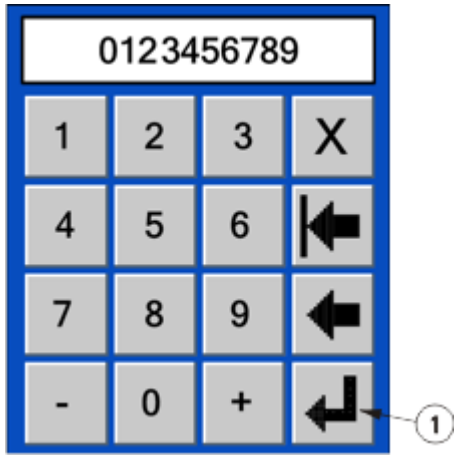


Figure 5-2 Numerical Key Window

1. Enter Button

2. On the numerical key window, touch the numbers on the keypad, and then touch **Enter**.

The present level will change based on the code you entered. The system will power up with the Default security level selected in the Security window. Look at the Current Level on the Security screen and your entered level should be displayed.

5.2 Changing a Password

To change the password for Level 1 or 2:

1. Enter the level 2 password.
2. Touch the **CHANGE LVL 1** to change the level 1 password or the **CHANGE LVL 2** to change the level 2 password.

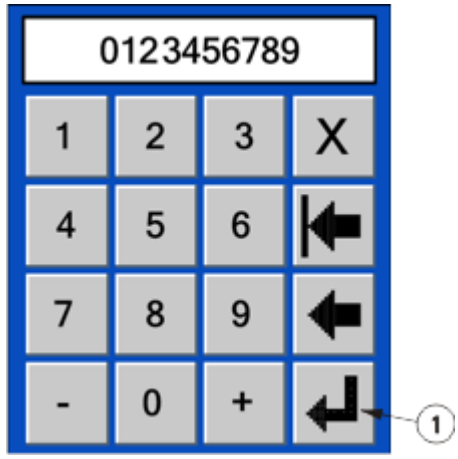


Figure 5-3 Numerical Key Window

1. Enter Button

3. In the numerical key window, enter the new password and then touch **Enter**.

Passwords are limited to 10 digits. The new password will now be displayed.

5.3 Setting Security Levels for Specific Functions

The Neo2 security system provides different levels of security to restrict the access of users and maintains the controls and settings for the system.

To change a Security Level for a function the level 2 password must be entered first. Look at the Current Level in the Security screen and level 2 should be displayed.

To change the Security Level for a specific function:

1. On the Security screen, touch the Function number.

2. Touch the **0**, **1**, or **2** buttons to set the desired level.

3. Touch **OK**.

For a description of the items on the security screen refer to Section 5.3.1.

5.3.1 Security Item Descriptions

Following is a brief description of the different features that require a Security Level.

Feature	Description
Zone Setpoint	Enables the operator to adjust the zone setpoints.
Zone Abort Window	Enables the operator to adjust the value for the ABORT shutdown condition.

Feature	Description
Zone Alarm Window	Enables the operator to adjust the value for the ALARM condition.
Zone Sensor Input	Enables the operator to reassign Thermocouple Inputs.
Zone Name	Enables the operator to change the name of the zone.
Zone ON / OFF	Enables the operator to turn a zone ON or OFF.
Zone Setpoint Limits	Enables the operator to make changes to the minimum and maximum setpoint limits. These limits are used to prevent a setpoint from being set too high or too low depending on the requirement of the process.
Standby Setpoints	Enables the operator to adjust the Standby setpoints in the System screen.
Boost Setpoints	Enables the operator to adjust the Boost setpoints in the System screen.
Zone Regulation	Enables the operator to adjust the zone regulation mode between AUTO and MANUAL modes.
Zone Slave	Enables the operator to manually select a zone to follow the power output control of a different zone should the thermocouple fail.
Zone Output	Enables the operator to specify which power output control method to use: Zero-Cross (Z/C) or Phase Angle (P/A).
Priority Control Mode	Enables the operator to select the zone shutdown sequence between ZONE and SYSTEM in an abort condition. If ZONE is selected ONLY the zone will turn OFF, but if SYSTEM is selected ALL zones will turn OFF.
Automatic Manual Control	Enables the operator to enable the zone to continue running when the thermocouple fails. The zone is supplied with an averaged power output percentage in Manual Control Mode, based on the history of that same zone.
Zone Earth Leakage	Enables the operator to turn the earth leakage check On or Off.
Zone Power Limit	Enables the operator to assign a power limit value to an individual zone per mold setup. Power Limiting is defined in percentage (0%-100%) and is used to prevent the controller from delivering full power to a heater.
Zone Control	Enables the operator to change between ART or PID as the control method.
Zone PID	Enables the operator to adjust the P-I-D parameters in the ART/PID screen.
Mold Setup File Load	Enables the operator to load Mold Setups from the Molds screen.
Mold Setup File Copy	Enables the operator to copy a stored mold setup to a different location.
Mold Setup File Default	Enables the operator to delete the contents of a stored mold setup and return all values to Husky's default.
Mold Setup Import/Export	Enables an operator to import or export a mold setup using a USB disk.
Temperature Units	Enables the operator to toggle the displayed temperature units between °F and °C.

Feature	Description
Print Screen	Enables an operator to access the Print screen to print data to a file and store it to a USB disk.
Standby Timers	Enables the operator to adjust the Standby timers in the System screen.
Boost Timers	Enables the operator to adjust the Boost timers in the System screen.
Manual ART	Enables the operator to ART a zone or group of zones.
Global Power Limit	Enables the operator to assign a system wide power limit value to all zones. Power Limiting is defined in percentage (0%-100%) and is used to prevent the controller from delivering full power to a heater.
System Screen	Enables the operator to access the System screen. This screen is used to make changes to system wide parameters.
Run Mold Test	Enables the operator to run the mold test.
Options Screen	Enables an operator to access the Options screen. This screen is used to set the Standby and Boost timers.
Time / Date Change	Enables the operator to set the Time and Date from the System screen.
Language Screen	Enables the operator to access the Languages screen to change the language displayed on the interface.
Error log	Enables the operator to view the error log page. The error log displays the last 100 errors that have occurred in the system.

Chapter 6 Mold Setups

Depending on how the system is configured (Refer to Chapter 5–Security), touching the **OK** button in the Security screen will display the Mold Setup screen. In this screen allows the operator to choose from 24 individual mold setups to heat up your mold. If this screen is not configured to be displayed on power up, then it can be accessed from the Home Screen.

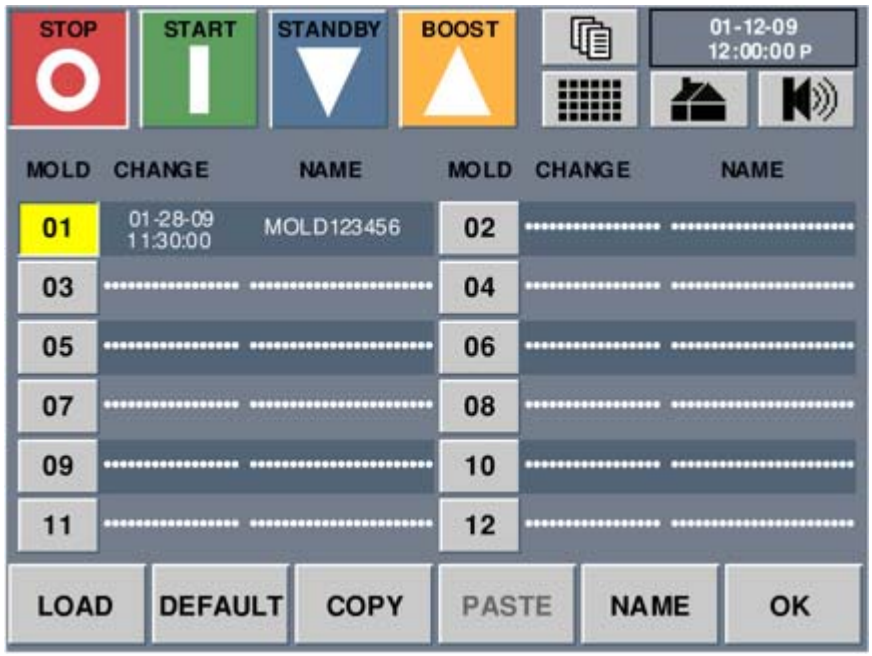


Figure 6-1 Mold Setup Screen

Function	Description
LOAD	Touch this button to load the highlighted mold setup into the system. You must have a mold setup loaded before you can heat up the mold.
DEFAULT	Touch this button and it will return all settings on the highlighted mold setup to the default values. For safety reasons the system will not allow the presently loaded mold setup to return to default values.
COPY	Touch this button to make a copy of an existing mold setup in a different location.
PASTE	Touch this button to copy the existing mold setup in a different location.
NAME	Touch this button to name or rename a mold setup. The maximum number of characters allowed is 10.
OK	Touch this button to exit out of the Mold Setup screen.

6.1 Loading a Mold Setup

A mold setup must be loaded before the controller can heat up the mold. Loading a mold setup tells Neo2 the values for the setpoints, alarm bands, abort bands, etc.

NOTE: Make sure the present security level is allowed to make this change.

To load a mold setup:

1. On the Mold Setup screen, touch the Mold Setup number for the mold setup file to load.
2. Touch **LOAD** and the selected mold setup is loaded and the Zone Data screen appears.

6.2 Resetting a Mold Setup to the Default Settings

NOTE: Make sure the present security level is allowed to make this change.

IMPORTANT!

For safety reasons the system will not allow you to default the mold setup that is presently loaded.

To reset a mold setup to the default settings:

1. On the Mold Setup screen, touch the Mold Setup number for the mold setup to reset to default.
2. Touch **DEFAULT**.
3. Acknowledge the confirmation dialog box, and the factory settings are restored. The Change and Name fields display dashed lines.

6.3 Copying a Mold Setup

The copy function is used to make a copy of a mold setup in a different mold setup number location on the Neo2.

NOTE: Make sure the present security level is allowed to make this change.

To copy a mold setup:

1. On the Mold Setup screen, touch the Mold Setup number to select the mold setup file you want to copy.
2. Touch **COPY**. The number button for that mold setup changes to magenta and the number changes to C.
3. Touch the Mold Setup number to select the destination mold setup file location.
4. Touch **PASTE**. The keyboard is displayed.

5. Enter the mold setup name and the touch **Enter**.

   You will notice the time and date will be copied to the new location but the mold name will not. This is done so you will have some way to distinguish between the original and the copied setup.

6.4 Entering a Mold Name

To help in identifying different mold setups the Neo2 allows mold setups to be assigned a name.

NOTE: Make sure the present security level is allowed to make this change.

To enter a mold name:

1. On the Mold Setup screen, touch the Mold Setup number to select the mold setup file you want to name. Mold setups names are allowed a maximum of 10 characters.
2. Touch **NAME** and the Keyboard window appears.

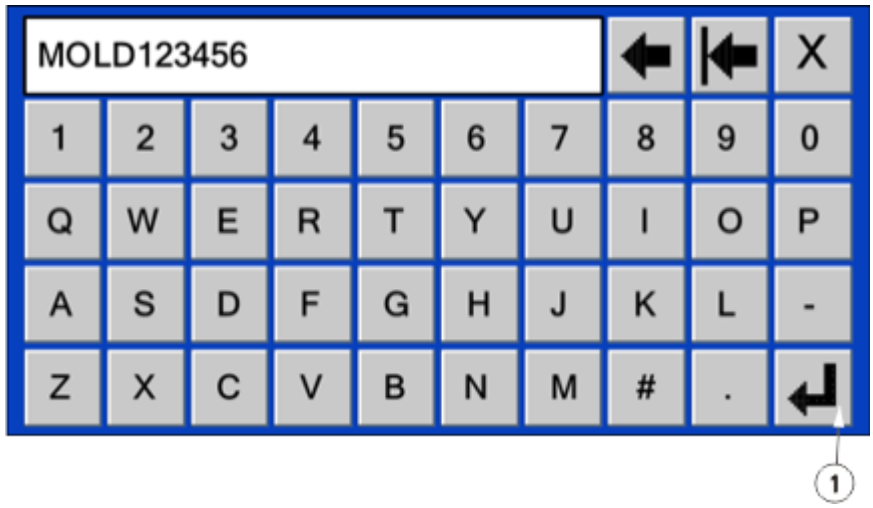


Figure 6-2 Keyboard Window

1. Enter Button

3. Enter the name for the mold. A maximum of 10 characters are allowed.
4. Touch **Enter**. The name will now be stored in the NAME column in the location you selected.

6.5 Importing and Exporting Mold Setups

The Mold Setup Import/Export screen is used to import and export mold setups to and from the system. This screen only appears if a USB disk is connected to the USB port.

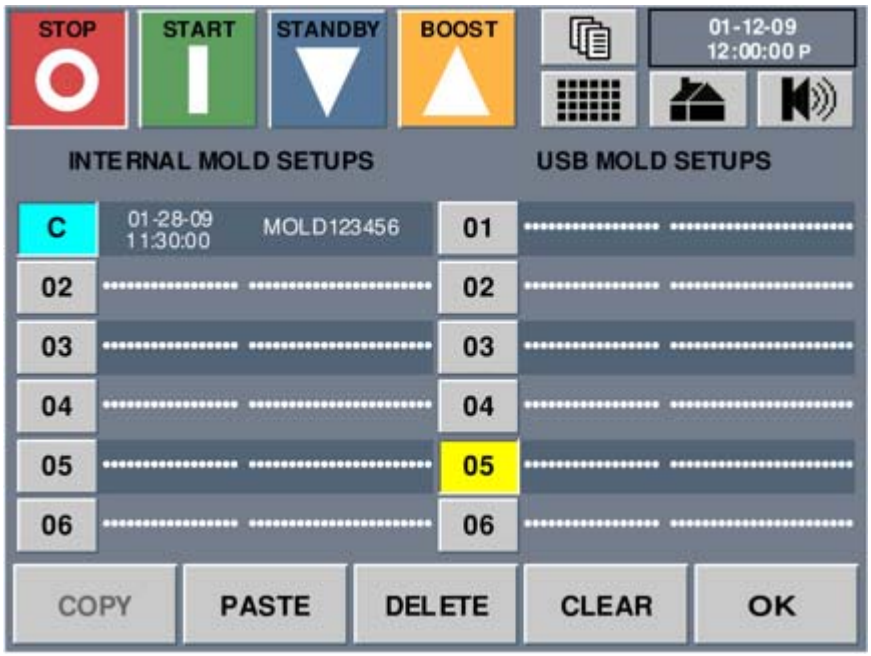


Figure 6-3 Mold Setup Import/Export Screen

6.5.1 Importing a Mold Setup

To import a mold setup:

1. Insert a USB disk to the USB port.
2. On the Mold Setup Import/Export screen, touch the Mold Setup number from the USB MOLD SETUPS list to select the mold setup file you want to import.
3. Touch **COPY**. Once selected the **COPY** button is greyed out and the number button for the selected setup turns magenta and a C replaces the number.
4. Touch the Mold Setup number in the INTERNAL MOLD SETUPS list to select the destination mold setup file location.
5. Touch **PASTE** and the file is copied to the new destination.

6.5.2 Exporting a Mold Setup

To export a mold setup:

1. Insert a USB disk to the USB port.
2. On the Mold Setup Import/Export screen, touch the Mold Setup number from the INTERNAL MOLD SETUPS list to select the mold setup file you want to export.
3. Touch **COPY**. Once selected the **COPY** button is greyed out and the number button for the selected setup turns magenta and a C replaces the number.
4. Touch the Mold Setup number in the USB MOLD SETUPS list to select the destination mold setup file location.
5. Touch **PASTE** and the file is copied to the new destination.

6.5.3 Exporting All Mold Setups

To export all mold setups:

1. Insert a USB disk to the USB port.
2. On the Mold Setup Import/Export screen, touch **COPY ALL**. Once selected the **COPY ALL** button is greyed out and the number buttons for the selected setups turns magenta and a C replaces the numbers.
3. Touch **PASTE ALL** and all the files are copied to the USB disk.

6.5.4 Deleting a Mold Setup from a USB Disk

To delete a mold setup from the USB disk:

1. Touch the Mold Setup number from the USB MOLD SETUPS list to select the mold setup file you want to delete.
2. Touch **DELETE**. The selected files are permanently deleted.

Chapter 7 Making Adjustments

This chapter explains how to use Neo2 to monitor and modify the system.

7.1 Zone Data

On the Zone Data screen up to 48 heater zones are displayed on one screen.

Depending on the number of zones and the zone layout selected each zone displays the Zone more or less information.

To select a zone for adjustment, touch the zone.

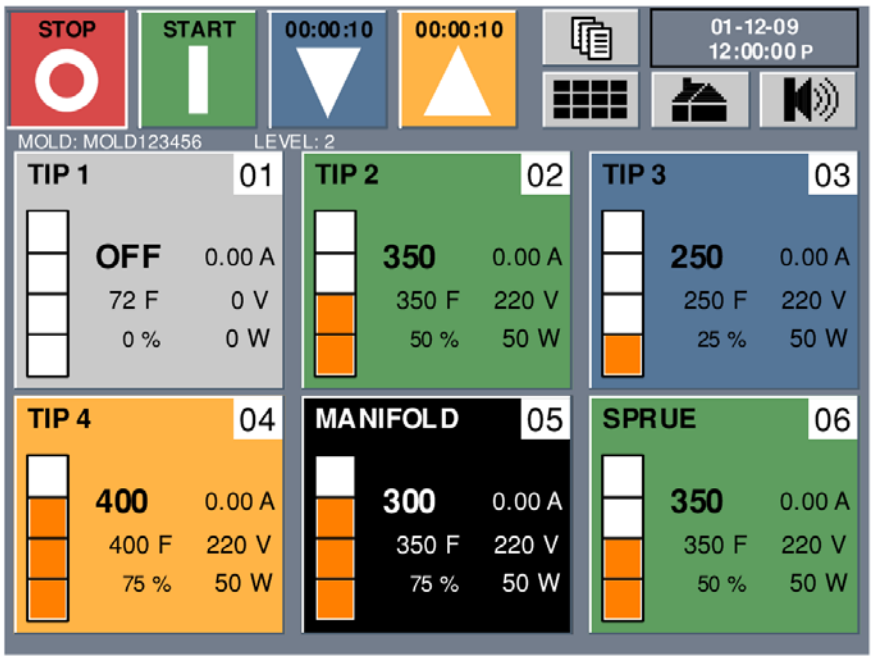


Figure 7-1 Zone Data Screen — 6 Zone Layout

7.1.1 Zone Status

Color coding is used to display the status of each zone.

- Grey indicates the zone is turned Off.
- Black indicates the zone temperature is outside of the specified limits.
- Green indicates the zone temperature is inside the specified limits.
- Blue indicates the zone is in Standby mode.
- Orange indicates the zone is in Boost mode.

7.1.2 Zone Information Fields

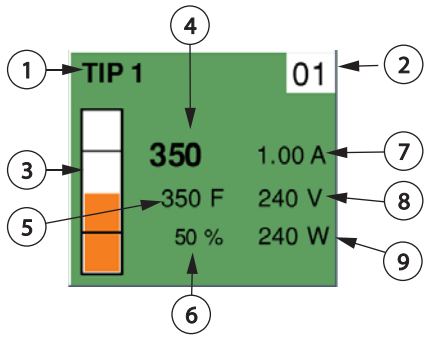


Figure 7-2 Single Zone (Zone from 6 Zone Layout)

1. Zone Name **2.** Zone Number **3.** Power Output Bar **4.** Actual Temperature **5.** Setpoint **6.** Power Output **7.** Amps **8.** Volts **9.** Watts

Field	Description
Zone Name	The user defined name of the zone.
Zone Number	The number of the zone. This is a static field.
Power Output Bar	This graphic displays the power output applied to the zone. Each line within the bar indicates a 25% increment.
Actual Temperature	The actual temperature being read by the thermocouple. If the zone is Off, OFF is displayed.
Setpoint	The zone setpoint for the current mode.
Power Output	The power output percentage applied to the zone.
Amps	The actual current being used by the heater. This is not displayed if the system is configured with XL-Series cards.
Volts	The actual voltage being delivered to the heater. This is directly related to the supply voltage feeding the Altanium mainframe. This is not displayed if the system is configured with XL-Series cards.
Watts	The actual wattage being used by the heater. This is not displayed if the system is configured with XL-Series cards.

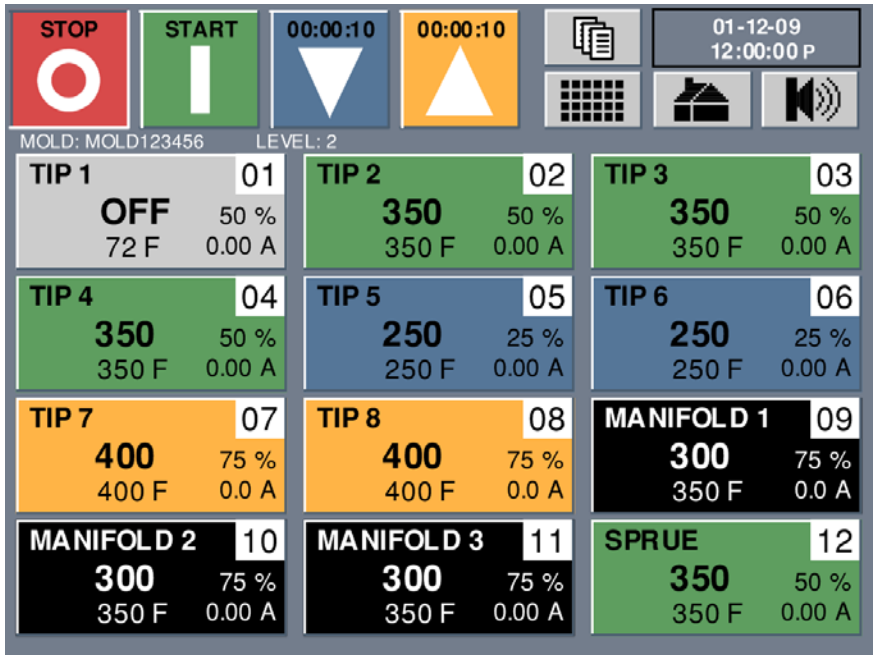


Figure 7-3 12 Zone Layout

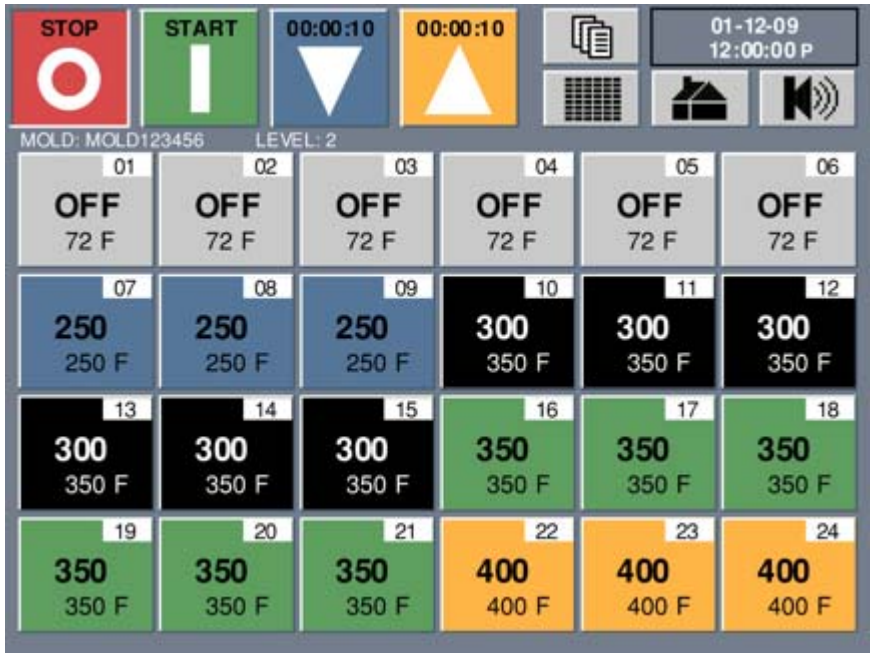


Figure 7-4 24 Zone Layout

Figure 7-5 48 Zone Layout

7.1.3 Changing the Zone Layout

Touch the Zone Layout button to cycle through the 6 zone, 12 zone, 24 zone and 48 zone layouts.

NOTE: The Zone Layout button can be used to navigate back to the Zone Data screen from any other screen in the system.

7.2 Adjusting Basic Parameters

This section describes how to adjust the basic parameters, turn zones on and off and to set the manual boost and standby settings.

7.2.1 Changing a Setpoint

Temperatures of the heaters must be specified. The default setting is 177 °C (350 °F).

To change a setpoint:

1. On the Quick Set screen, touch the zone to adjust.

   To select more than one zone, touch the additional zones and they will be selected.

2. Using the Parameter Scroll buttons, scroll to **SETPOINT**.

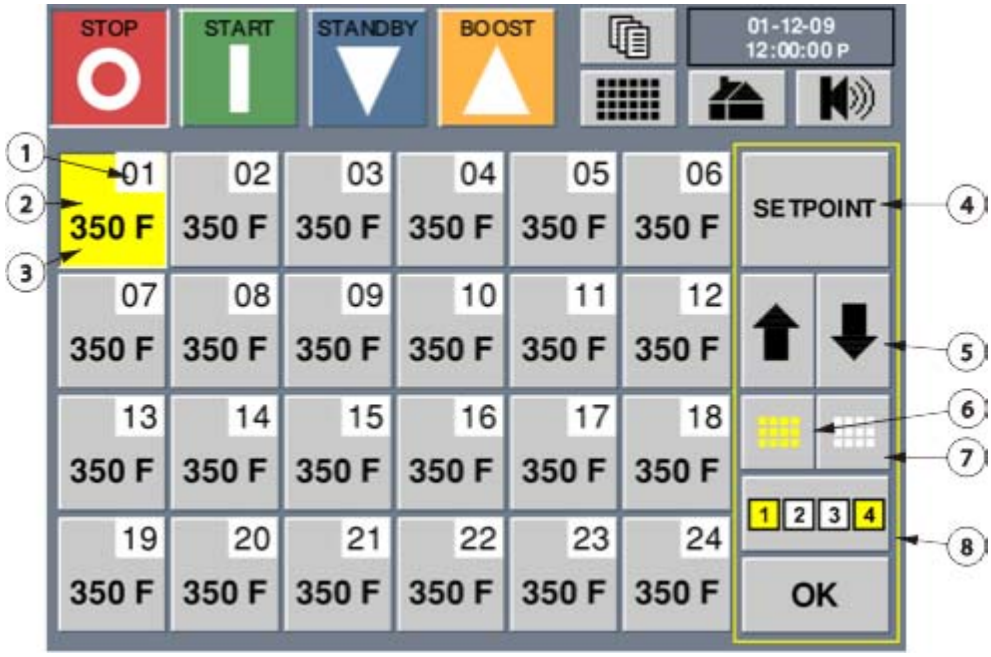


Figure 7-6 Quick Set Screen with Zone 1 Selected

1. Zone Number **2.** Selected Zone **3.** Current Parameter Value **4.** Parameter Type
5. Parameter Scroll Buttons **6.** Select All Button **7.** Clear All Button **8.** Block Button

3. Touch **SETPOINT** and the numerical key window appears.

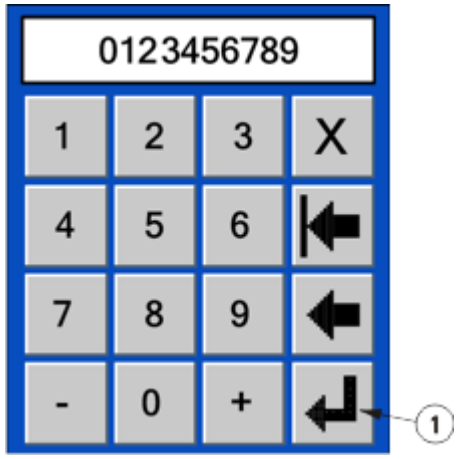


Figure 7-7 Numerical Key Window

1. Enter Button

4. Enter the new setpoint, and then touch **Enter**.

   The operator can also add or subtract from the current setpoint by entering the number and then touching the **+** or **-** button. For example, to add 4 degrees to the selected zones setpoint touch the **4** button followed by the + button.

5. Touch **OK**.

7.2.2 Turning a Zone On or Off

Neo2 allows the operator to set each zone to On or Off. Zones that are On apply power to the heater and zones that are Off do not.

It may be necessary to run a mold with one or more zones turned off.

To turn a zone off:

1. On the Quick Set screen, touch the zone to adjust.

   To select more than one zone, touch the additional zones and they will be selected.

2. Using the Parameter Scroll buttons, scroll to **ZONE**.
3. Touch **ON** or **OFF** to toggle the selected zones from **ON** to **OFF** or vice versa.
4. Touch **OK**.

7.2.3 Changing the Zone Regulation

Each zone in Neo2 has the ability to run in one of two control modes, Automatic (closed loop) or Manual (open loop). This is referred to as zone regulation.

A control mode must be specified for each zone. The default setting is AUTO (automatic).

To change the zone regulation:

1. On the Quick Set screen, touch the zone to adjust.

   To select more than one zone, touch the additional zones and they will be selected.
2. Using the Parameter Scroll buttons, scroll to **REGULATION**.
3. Touch **REGULATION** to toggle the selected zones from **AUTO** to **MANUAL** or vice versa.
4. Touch **OK**.

7.2.4 Changing the Standby Setpoint

It may be necessary to lower the temperatures in the mold for a period of time. Neo2 gives the operator the ability to do this by touching one button without having to change the normal setpoint. The standby temperature setpoint for the heaters must be specified, this value is used when the **STANDBY** button is touched. The default setting is 121 °C (250 °F).

IMPORTANT!

Entering a value of 0 will place the selected zones into a NO CHANGE (---) mode. When in this mode, these zones will not change their setpoint when the **STANDBY** button is touched.

To change the standby setpoint:

1. On the Quick Set screen, touch the zone to adjust.

   To select more than one zone, touch the additional zones and they will be selected.
2. Using the Parameter Scroll buttons, scroll to **STANDBY SETPOINT**.
3. Touch **STANDBY** and a numerical Key window appears.
4. Enter the new setpoint, and then touch **Enter**.

   The operator can also add or subtract from the current setpoint by entering the number and touching the **+** or **-** button. For example, to add 4 degrees to the selected zones setpoint, touch the **4** button followed by the **+** button.

   NOTE: Neo2 will remain in Standby until the **STANDBY** button is touched again or until the manual standby timer expires, if set.

7.2.5 Changing the Boost Setpoint

It may be necessary to raise the temperatures in the mold for a period of time. Neo2 gives the operator the ability to do this by touching one button without having to change the normal setpoint. The boost temperature setpoint for the heaters must be specified, this value is used when the **BOOST** button is touched. The default setting is NO CHANGE, which is displayed as dashed lines (---).

IMPORTANT!

Entering a value of 0 will place the selected zones into a NO CHANGE (---) mode. When in this mode, these zones will not change their setpoint when the **BOOST** button is touched.

To change a boost setpoint:

1. On the Quick Set screen, touch the zone to adjust.

   To select more than one zone, touch the additional zones and they will be selected.
2. Using the Parameter Scroll buttons, scroll to **BOOST SETPOINT**.
3. Using the numerical keypad, enter the new setpoint, and then touch **Enter**.

   The operator can also add or subtract from the current setpoint by entering the number you want and then touching the **+** or **-** button. For example, to add 4 degrees to the selected zones setpoint, touch the **4** button followed by the **+** button.

   NOTE: Neo2 will remain in Boost until the **BOOST** button is touched again or until the manual standby timer expires, if set.

7.3 Adjusting Advanced Parameters

This section describes how to set more advanced parameters such as alarm and abort bands, sensor assignment, slaving zones and PID.

7.3.1 Naming a Zone

To name a zone:

1. On the Quick Set screen, touch the zone to adjust.

   To select more than one zone, touch the additional zones and they will be selected.
2. Using the Parameter Scroll buttons, scroll to **NAME**.
3. Touch **NAME** and the Keyboard window appears.

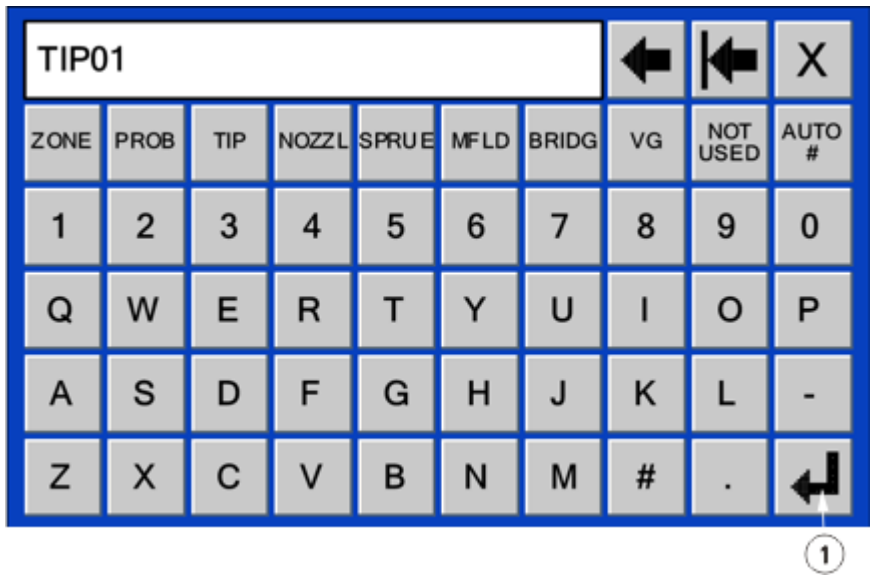


Figure 7-8 Keyboard Window

1. Enter Button

4. Enter the name or select one of the predefined names.

A maximum of 12 characters are available.

5. To automatically number, touch **AUTO #**. Using this button will save the name and automatically number the selected zones.

6. Touch **OK**.

7.3.2 Changing the Alarm Band

The number of degrees over or under setpoint must be specified for an alarm is initiated. The default setting is 17 °C (30 °F).

NOTE: Neo2 must be in Advanced mode to change this setting. Refer to Section 4.2.1.

To change the alarm band:

1. On the Quick Set screen, touch the zone to adjust.

To select more than one zone, touch the additional zones and they will be selected.

2. Using the Parameter Scroll buttons, scroll to **ALARM**.

3. Touch **ALARM** and a numerical key window appears.

4. Enter the new value, and then touch **Enter**.

The operator can also add or subtract from the current value by entering the number and then touching the **+** or **-** button. For example, to add **4** degrees to the selected zones Alarm Band, touch the **4** button followed by the **+** button.

Alarm Example: Setpoint = 350 °F, ALARM = 30 °F

At 381 °F or 319 °F the alarm will be initiated. If the normal setpoint is changed to 400 °F, the ALARM will be initiated at 431 °F or 369 °F. The setting is always represented as an amount above and below the present setpoint.

7.3.3 Changing the Abort Band

The number of degrees over or under setpoint must be specified to initial an alarm and the system to be stopped. The default setting is 28 °C (50 °F).

NOTE: Neo2 must be in Advanced mode to change this setting. Refer to Section 4.2.1.

To change the abort band:

1. On the Quick Set screen, touch the zone to adjust.

   To select more than one zone, touch the additional zones and they will be selected.
2. Using the Parameter Scroll buttons, scroll to **ABORT**.
3. Touch **ABORT** and a numerical key window appears.
4. Enter the new value, and then touch **Enter**.

   The operator can also add or subtract from the current value by entering the number and touching the **+** or **-** button. For example, to add **4** degrees to the selected zones Abort Band, touch the **4** button followed by the **+** button.

Abort Example: Setpoint = 350 °F, ABORT = 50 °F

At 401 °F or 299 °F degrees the alarm will be initiated and the system will be Stopped. If the normal setpoint is changed to 400 °F, the alarm will be initiated and the system will be Stopped at 451 °F or 349 °F degrees. The setting is always represented as an amount above and below the present setpoint.

7.3.4 Zone Slave

Some of the most vulnerable components in the mold are the thermocouples. If a thermocouple fails, Neo2 will initiate an alarm and display an error on the Alarm Status screen for the affected zone. At this point there are three choices:

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. Slave the faulty zone to another. 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. Neo2 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.

7.3.4.1 Automatic Slave Function

If a thermocouple malfunctions during operation of the mold, the Neo2 Auto-Slave function will take over. Neo2 constantly monitors the heaters in the mold and stores comparative data. This data is used to select an almost identical Master/Slave relationship for every zone in the mold. If a thermocouple fails, Neo2 will initiate an alarm and display the error on the Home screen for the offending zone.

Based on the comparative data stored, the system knows which zone to slave the faulty zone to so that it continues to operate in a closed loop control mode. On the Home screen the auto-slaved zones number will switch between the slaved zone number and the master zone number.

7.3.4.2 Using the Automatic Slave Function

The only requirement as the operator is to see the error, Clear and Reset the alarm. The moment this is done, the slave data will be permanently stored to that zone.

Once a zone is Slaved, the auto-slaved zone's name and number, on the Zone Data screen, will switch between the slaved zone number and the master zone number. The master zone's name and number will be displayed in Blue.

In the event the automatic slaving function was unable to find a suitable partner it would pass onto the Automatic Manual Control (AMC) function. AMC allows the system to automatically switch the bad zone into manual mode.

7.3.4.3 Manually Slaving One Zone To Another

If a thermocouple is about to fail you can manually slave it to another zone before it fails completely.

NOTE: Neo2 must be in Advanced mode to change this setting. Refer to Section 4.2.1.

To manually slave one zone to another:

1. On the Quick Set screen, touch the zone to change.

   To select more than one zone, touch the additional zones and they will be selected.
2. Using the Parameter Scroll buttons, scroll to **SLAVE**.
3. Touch **SLAVE** and a numerical Key window appears.
4. Enter the zone number to Slave the faulty zone to, and then touch **Enter**. Make sure to pick a zone with similar heater characteristics, do not slave a manifold zone to a tip zone. A zone cannot be slaved to itself, if it is attempted, Neo2 will ignore it.

   Once the Slave for a zone is not required, touch **SLAVE** and enter **0** in the numerical key window and the slave assignment will disappear (--).
5. Touch **OK**.

7.3.5 Changing the Sensor Assignment

The Sensor Assignment function allows the operator to assign any thermocouple to control any heater. This is important in the instance where thermocouples or heaters in the mold are mis-wired.

For example, Heater number 1 is connected to thermocouple 5 and heater number 5 is connected to thermocouple number 1. In this instance the operator can manually switch the thermocouple inputs by changing the Sensor Assignment. The default setting is Sensor 1 is matched to heater 1.

NOTE: Neo2 must be in Advanced mode to change this setting. Refer to Section 4.2.1.

To change zone sensor assignment:

1. On the Quick Set screen, touch the zone to change.

   To select more than one zone, touch the additional zones and they will be selected.
2. Using the Parameter Scroll buttons, scroll to **SENSOR**.
3. Touch **SENSOR** and a numerical Key window appears.
4. Enter the number of the sensor for this zone, and then touch **Enter**.
5. Touch **OK**.

7.3.6 Changing the Priority Control Mode (PCM) Setting

If there is a malfunction during normal operation, the software will make every attempt to circumvent the problem. If this is impossible, it will initiate a shutdown sequence. The operator must specify what to shut down if this happens.

In the case of an Abort condition, if PCM is set to ZONE, the control will turn OFF only the defective zone and continue to operate all other zones as normal. If PCM is set to SYSTEM, the controller will shutdown all power output to the mold (if the failure occurs on this zone). The PCM is zone selectable, so one zone may only shut itself OFF and another may shut down the controller. What the operator sets this to all depends on the zone and how critical it is to the mold. Usually the cavities are set to Zone and the manifolds are set to System. The default setting is SYSTEM on all zones.

NOTE: Make sure the present security level is allowed to make this change.

To change the PCM setting:

1. On the Quick Set screen, touch the zone to change.
2. Using the Parameter Scroll buttons, scroll to **PCM**.
3. Touch **PCM** to toggle the selected zones from **SYSTEM** to **ZONE** or vice versa.
4. Touch **OK**.

7.3.6.1 The Optional Priority Control Mode (PCM) Digital Output

If the PCM digital output option is turned on, it will be activated ONLY when a zone set to System experiences an abort condition. It will remain in this state until the PCM error is reset. Refer to Section 11.3.3 for the connector pin-out.

7.3.7 Changing the Automatic Manual Control (AMC) Setting

If a thermocouple malfunctions during normal operation, the software can automatically apply a manual power output percentage to the heater based on the information gathered before the thermocouple failed. This feature is called Automatic Manual Control (AMC).

If a thermocouple fails and AMC is turned ON (Yes), the control changes the failed zone into manual mode and sets a manual power output based on the previously recorded average power output to that heater. If AMC is turned OFF (No), the control skips to PCM (Priority Control Mode) and performs the designated task. The default setting is ON for all zones.

NOTE: Make sure the present security level is allowed to make this change.

To change the AMC setting:

1. On the Quick Set screen, touch the zone to change.
2. Using the Parameter Scroll buttons, scroll to **AMC**.
3. Touch **AMC** to toggle the selected zones from **YES** to **NO** or vice versa.
4. Touch **OK**.

7.3.8 Changing the Power Limit Setting

The Power Limit setting allows the operator to set the maximum amount of power that can be delivered to the heaters. The default power limit for all zones is 100%.

To change the Power Limit setting for a zone:

1. On the Quick Set screen, touch the zone to adjust.

   To select more than one zone, touch the additional zones and they will be selected.
2. Using the Parameter Scroll buttons, scroll to **POWER LIMIT**.
3. Touch **POWER LIMIT** and a numerical key window appears.
4. Enter the new value, and then touch **Enter**. The range is 0% to 100%.
5. Touch **OK**.

7.3.9 Changing the Earth Leakage Setting

In some cases there may not be a need to check for earth leakage errors on some zones. Neo2 has the ability shut the earth leakage check off on one or more zones in the system. The default setting is YES on all zones which means all zones are checking for earth leakages whenever the start button is touched.

NOTE: Make sure the present security level is allowed to make this change.

To change a Earth Leakage setting:

1. On the Quick Set screen, touch the zone to change.
2. Using the Parameter Scroll buttons, scroll to **EARTH LEAKAGE**.
3. Touch **EARTH LEAKAGE** to toggle the selected zones from **YES** to **NO** or vice versa.
4. Touch **OK**.

For more information on the Neo2's advanced earth leakage system see Section 10.2.

7.3.10 Changing the Power Output Control Method Setting

In hot runner process control systems there are two schools of thought in regards to how the power output should be switched to the heaters. The choices are Zero Cross Control or Phase Angle Control. Each method has its own set of pros and cons, but in all practicality they offer very similar results. Only you can decide which method is right for your application.

Neo2 has the flexibility to run each individual zone in either mode, Zero Cross Control or Phase Angle Control. The default setting is Z/C (zero cross) for all zones.

NOTE: Neo2 must be in Advanced mode to change this setting. Refer to Section 4.2.1.

To change a zone's output control:

1. On the Quick Set screen, touch the zone to change.

   To select more than one zone, touch the additional zones and they will be selected.
2. Using the Parameter Scroll buttons, scroll to **OUTPUT CONTROL**.
3. Touch **OUTPUT CONTROL** and the selected zones toggle from **Z/C** (Zero Cross) to **P/A** (Phase Angle).
4. Touch **OK**.

7.3.11 PID Control

Neo2 gives the operator the choice of using ART (automatic tuning), or a PID program (manual tuning). The default setting is ART on all zones.

7.3.11.1 Typical PID Values

The following is a list of some typical PID values.

Table 7-1 Typical List of PID Values

P	I	D	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	
100	003	000	Slow	Manifolds or heaters with externally located thermocouples
075	003	150	Slow	

7.3.11.2 Possible Causes of Oscillation

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

Table 7-2 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.

7.3.12 Changing PID Values

Sometimes it may be necessary to adjust the P, I or D values to better control the temperatures of the heaters in the mold. Refer to Table 7-1 for a list of typical PID values. The default settings are, “P” value of 20, “I” value of 4 and “D” value of 2. At least one zone must be set to PID to be able to access the parameters.

NOTE: Neo2 must be in Advanced mode to change this setting. Refer to Section 4.2.1.

To change a P, I or D value:

1. On the Quick Set screen, touch the zone to adjust.

   To select more than one zone, touch the additional zones and they will be selected.
2. Using the Parameter Scroll buttons, scroll to **P**, **I** or **D**.
3. Touch **P**, **I** or **D** and a numerical Key window appears.
4. Enter the number, and then touch **Enter**.
5. Touch **OK**.

7.4 ACTIVE REASONING Technology - The Definition

The science of applying microprocessor based control systems to automatic decision-making. 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.

7.4.1 Background

Active Reasoning is a term we coined to describe what Neo2 is doing during operation, which is, actively reasoning. In 1990, we set out to develop the first intelligent hot runner control system. In 1992 the first Active Reasoning Technology (ART) systems were shipped. Throughout the years, we have improved and fine tuned ART, and today it is still the premier heat control technology in the hot runner control industry.

7.4.2 What it does

Active Reasoning software combined with integrated hardware disseminates information and makes better process decisions than any modular single input, single output controller is capable of. 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 Neo2 start up, 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 successfully and evenly heat the mold.

7.4.3 Control Method

The use of Active Reasoning Technology for control eliminates the tasks of using self-tune or "automatic" tune PID, PIDD or PPID algorithms. ART performs all of these tasks without the need for manual intervention. ART is based on control algorithms which through the use of fuzzy logic, perform all functions as a normal PID control would. ART however is far better due to its ability to see the whole picture and automatically adapt to the individual characteristics of each heater.

7.4.4 Changing the Control From PID To ART

Neo2 can automatically adjust the control algorithm to suit different heater requirements. This control method is referred to as ART. ART is the default control method.

NOTE: Neo2 must be in Advanced mode to change this setting. Refer to Section 4.2.1.

To change a zone from ART to PID:

1. On the Quick Set screen, touch the zone to change.

   To select more than one zone, touch the additional zones and they will be selected.
2. Using the Parameter Scroll buttons, scroll to **ART/PID**.
3. Touch **ART/PID** and the selected zones will toggle from **ART** to **PID**.
4. Touch **OK**.

7.4.5 When to Use the Manual ART Function

Due to a change to a particular zone, such as the replacement of a heating element or thermocouple, the ART parameters for that zone may need to be reset. Poor control of the zone may also lead the operator to make this decision. For example, the temperatures may be consistently swinging over and under setpoint, yet not triggering an alarm. This is not to be confused with shear heat from the material, which appears as sudden increases in temperature with no undershoot.

When ART is manually run on a zone, Neo2 deletes its knowledge base on that zone and "re-thinks" the control process. It then stores this data and uses it to calculate the proper output to control this zone best at setpoint. Use this function sparingly and only permit highly qualified individuals to use it. The molding process may be interrupted if ART is run on several zones at one time, but this is rare. It is best to run ART on a zone once it is at setpoint.

7.4.5.1 Running ART on a Zone

When Neo2 runs a mold for the first time it automatically performs the ART process on all zones that have ART selected. If a particular zone is not controlling properly when it has reached its setpoint, ART can be manually run on that zone. The system must be running and ART must be selected for that zone on the PID/ART screen. If the zone had been previously ARTed, ART will be displayed on the zone button. If it has never been ARTed, the zone button will display NO ART.

NOTE: Neo2 must be in Advanced mode to change this setting. Refer to Section 4.2.1.

NOTE: The system must be in run mode before a zone can be Re-ARTed.

To ART a zone:

1. On the Quick Set screen, touch the zone to ART.

   To select more than one zone, touch the additional zones and they will be selected.

2. Touch **Re-ART** and the tuning process will begin on the selected zones.

   During the ART process the following will be displayed on the zone data buttons:

   - 6 Zone Layout — zone number, zone name and ART in the middle of the button.
   - 12 Zone Layout — zone number, zone name and ART in the middle of the button.
   - 24 Zone Layout — zone number and ART in the middle of the button.
   - 48 Zone Layout — zone number and ART in the middle of the button.

   The time it takes to ART on a zone is dependent on the time it takes for the heater to heat up. Small heaters will be the fastest and large manifold heaters will take more time.

Chapter 8 Mold Diagnostics

Throughout the history of hot runner molding, diagnosing problems in the mold has been a tedious, painstaking job. If done incorrectly or completely ignored, poor diagnostics result in a high probability of failure when the mold is placed into the machine.

8.1 Mold Test

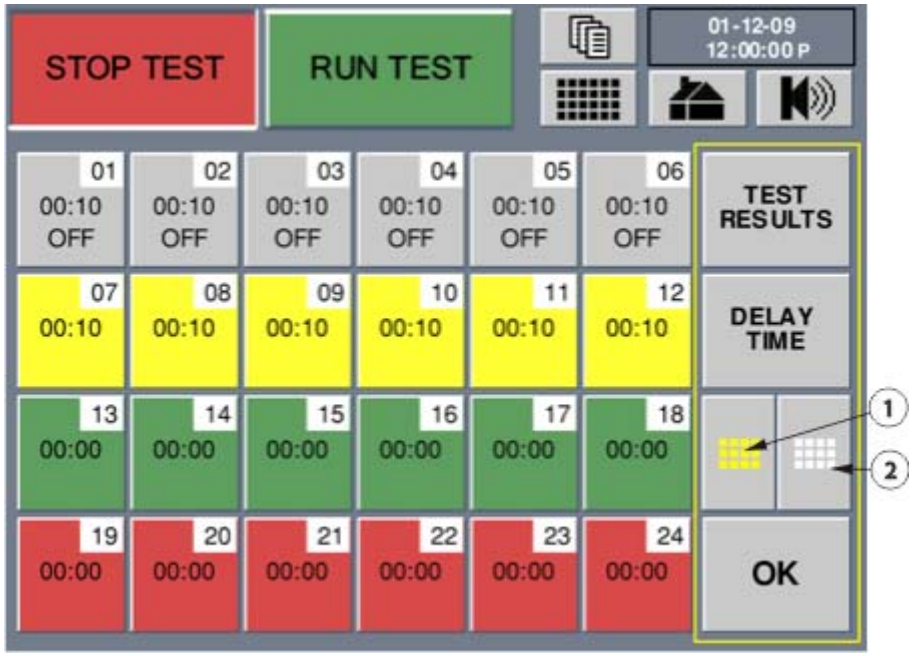
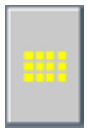


Figure 8-1 Mold Test Screen

1. Select All Button **2.** Clear All Button

Function Button	Description
Zone	Displays the zone number and the test/result status. • Grey - Zone is turned off or not selected for testing. • Yellow - Zone is being tested or is selected for testing. • Red - Test is complete and zone has failed one or more tests. • Green - Test is complete and zone has passed all tests.
TEST RESULTS	Displays the results from the last test.
DELAY TIME	Used to adjust the time delay between one zone completing testing and the next one starting.
	Clears all of the selected zones.
	Selects all of the selected zones.
OK	Closes the Test screen.

8.1.1 Running a Mold Test

To run the automated mold diagnostics test please follow the steps below:

1. Before connecting any power to the controller or the mold, clean the area. Remove any debris or fluids from the surrounding area.

CAUTION!

Mechanical hazard - risk of damage to the equipment — Do not rely on the possibility of a ground in the mold cables. Using a piece of grounding wire and attach it to the mold ground connector on the Altanium mainframe.

2. For safety reasons, make sure the controller and mold share the same ground.
3. Check all mold wiring one more time to make sure there are no bare wires, frayed ends or cut insulation.
4. If thermocouple and power cables are available, connect them from the controller to the mold, checking them for a clean fit.
5. Connect the Altanium mainframe to the main input power and turn it On via the main disconnect.
6. Load a mold setup before running the Mold Test.
7. Verify the zones to test are turned On. Any zones turned Off will not be tested.
8. On the Home screen touch **Mold Test**.

   NOTE: The mold test function can performed when the system is stopped.

9. Touch the zone or zone to test.
10. On the Mold Test screen, touch **RUN TEST** and the diagnostics test will begin.

    The test can be stopped at any time by touching **STOP TEST**.

8.1.2 Setting the Delay Time

Neo2 can wait for a certain period of time before moving on to test the next zone. This is necessary in some molds because sometimes a heater will continue to heat up long after power has been removed. This is very common with large manifolds. If the Neo2 started testing the next zone before the previous zones temperature stopped increasing this could affect the test results. The default setting is 10 seconds. Each mold can have its own set of delay times.

To set the delay time:

1. Touch the zone or zone to add the delay time.
2. Touch **DELAY TIME**. The numerical key window appears.
3. Enter the delay time (MM:SS).
4. Touch the **Enter** button.

8.2 Test Results

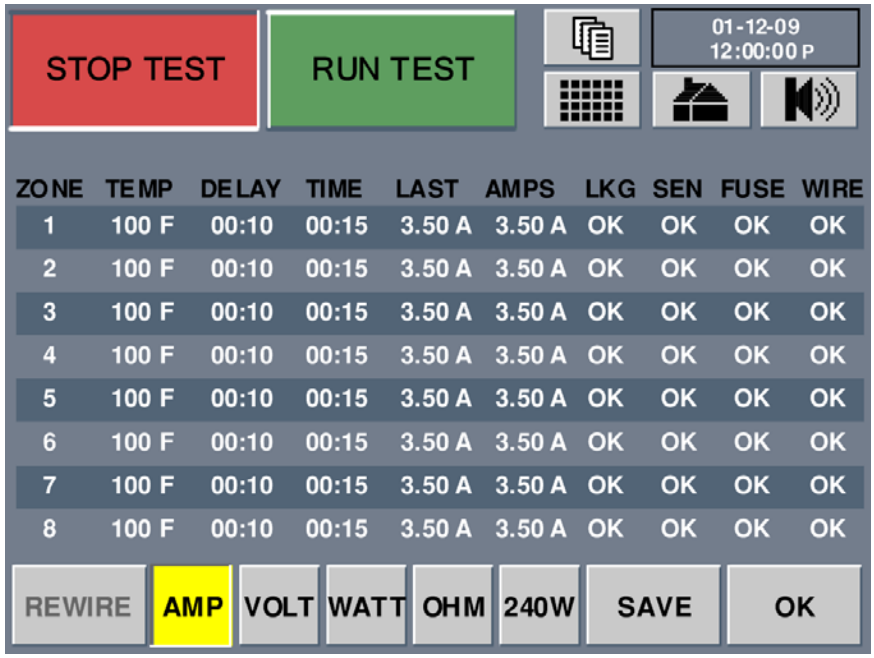


Figure 8-2 Mold Test Results Screen

Function Button	Description
REWIRE	During the test, if the Neo2 finds any thermocouples wired incorrectly, touch this button, acknowledge to confirmation dialog box to rewire the thermocouples to the correct location.
AMP, VOLT, WATT, OHM. 240V	These buttons select the information displayed in the associated column.
SAVE	Saves the AMPS, VOLTS, WATTS, OHMS and 220V WATTS readings on all zones into the LAST column for future reference.
OK	Closes the Test Results screen.

8.2.1 Test Results Display

Item	Description
ZONE	The zone number. The operator can view up to 12 zones on one page. If there are more than 12 zones use the **PAGE** button to view the rest of the zones.
TEMP	The actual zone temperature being read from the thermocouple in the mold by the Neo2.
DELAY	Used to set a delay time between zones to allow for cooling. The default is 10 seconds.
TIME	The zones elapsed test time.
LAST	The AMPS, VOLTS, WATTS, OHMS and 220V WATTS readings that were saved the last time the diagnostics were ran and the **SAVE** button was pressed.
AMPS	The actual AMPS, VOLTS, WATTS, OHMS and ADJ WATTS readings of each tested zone. The column header will change based on the information being displayed.
EL	The earth leakage status for each zone.
SEN	The thermocouple sensor test results for each zone.
FUSE	The fuse test results for both fuses on each zone.
WIRE	The thermocouple wiring test results.

8.2.2 Saving Test Data for Future Reference

The test results of a mold can be saved to compare them to another test at a later date. To do this they are saved to the internal memory of the Neo2.

NOTE: Each mold setup can store its own set of saved Test data.

To save the test data to the internal memory:

- Touch **SAVE** following the completion of the Test. The values for all zones will be transferred to the LAST column.

8.2.3 Automatic Thermocouple Rewiring

Often thermocouples can be inadvertently cross-wired in the mold, where the thermocouple for one heater ends up connected with another heater, and vice versa.

The Neo2 Test checks the thermocouple/heater wiring and determines if it is correct or not. When the Test is complete it will provide the operator with a possible re-wiring solution and ask for confirmation. The operator may choose to ignore or accept its findings. If the Test program finds a mis-wired zone, it will ask the operator if they want the controller to re-wire the thermocouples to where it thinks they belong. If the Test determines that a thermocouple is wired to the wrong heater, the Neo2 will display the information under the WIRE column.

For example, if the thermocouple for heater number 5 was wired to heater number 1 and vice versa, the Neo2 would display a 5 on zone 1 and a 1 on zone 5 under the WIRE column.

If the operator does not have time to physically re-wire the mold:

1. Touch and hold **REWIRE**.
2. Acknowledge the confirmation dialog box and the Neo2 will automatically reassign the thermocouples to the correct location.

8.2.4 Viewing Amps, Volts, Watts and Ohms Data

During the Diagnostics Test, the Neo2 measures the amperage for each heater and displays the value under the AMPS column. It also measures Volts, calculates Watts and Ohms for each heater in the mold.

To view the Amps, Volts, Watts or Ohms data:

1. Touch **VOLTS** and Volts readings appear in the table.
2. Touch **WATTS** and the Watts readings appear in the table.
3. Touch **OHMS** and the Ohms readings appear in the table.
4. Touch **AMPS** and the Amps reading appears in the table.

Not all factories are equipped with the same supply voltage (240VAC) but most heater wattage specs are based on 240 volts. If the operator wants to know what the wattage of the heater would be based on 240VAC, the data displayed in the WATTS column is an accurate representation of the actual wattage of the heater based on its supply voltage.

To see what the wattage would be at 240 volts:

- Touch **240V** and the adjusted wattage is displayed based on 240 VAC.

Chapter 9 System Setup and Customization

The chapter explains how to configure the system using the System Setup, Advanced System Setup, Customize and Option screens.

9.1 System Setup

In the System Setup screen the System parameters can be adjusted. To access the System Setup screen, touch the **SYSTEM SETUP** button on the Home screen.

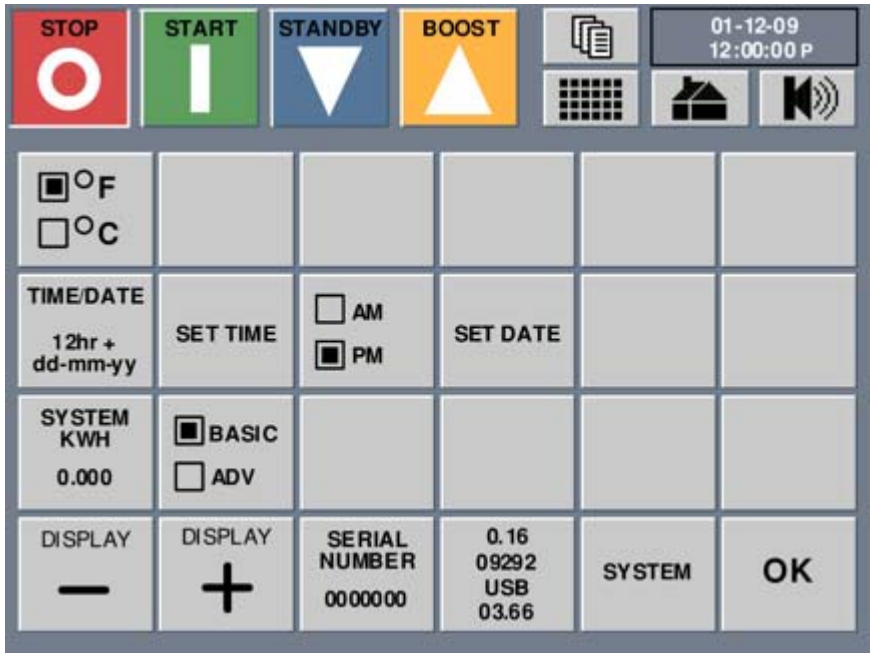


Figure 9-1 Setup Screen — Basic

9.1.1 System Serial Number

Each Neo2 has a unique serial number assigned to it before it leaves the factory. In the event the operator needs to contact Husky, they may ask for this number. Only Husky personnel can change this number.

9.1.2 Software Release Number

Located in the center of the screen is the Neo2 Software Release Number, Build Number and the USB Controller version. In the event the operator needs to contact Husky for service, the technician may ask for these numbers. This is not a button and touching it will do nothing.

9.1.3 System KWH

This field displays a running kilowatt hours total for the system. This is informational only.

9.1.4 Basic And Advanced Display Modes

As described in Chapter 4–Neo2 Operator Interface, Neo2 has two different operator interface modes, Basic and Advanced. Basic and Advanced modes can be modified in the Customize screen to display only those zone parameters that are desired.

Basic mode allows the operator to adjust the following parameters; Setpoint, Zone On/Off, Regulation, Standby Setpoint, and Boost Setpoint.

Advanced mode allows the operator to adjust the Basic parameters plus; Alarm, Abort, Slave, Sensor, Output Control, AMC, PCM, PID/ART, P, I, D, Re-ART, Earth Leakage, Name, Power Limit, Min/Max Limits, Remote Standby and Remote Boost if configured.

All Neo2 systems are shipped from the factory in Basic mode.

9.1.5 Setting the Units (°F or °C)

Neo2 allows the temperature to be displayed in either Fahrenheit or Celsius for all zones. The default setting is Fahrenheit (°F).

To change the units:

1. On the Home screen, touch **SYSTEM SETUP**.
2. Touch **°F / °C** and the units will toggle from **°F** to **°C** or vice versa.

9.1.6 Changing the Time and Date

The date and time can be changed on the system. The system can display the date and time in the following formats.

- 24 hour and YY-MM-DD
- 12 hour and DD-MM-YY

9.1.6.1 Changing the Date and Time Format

To change the Time/Date format:

1. On the Home screen, touch **SYSTEM SETUP**.
2. Touch **TIME/DATE** and the units will toggle from 12hr to 24hr format or vice versa.

9.1.6.2 Changing the Date

To change the date:

1. On the Home screen, touch **SYSTEM SETUP**.
2. Touch **SET DATE**

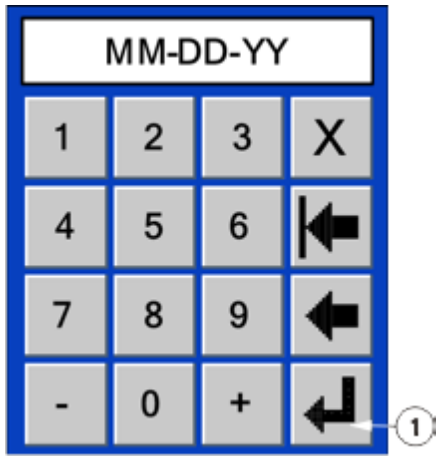


Figure 9-2 Date Key Window

1. Enter Button

3. Enter the new Date.
4. Touch **Enter**.

9.1.6.3 Changing the Time

To change the time:

1. On the Home screen, touch **SYSTEM SETUP**.
2. Touch **SET TIME**.

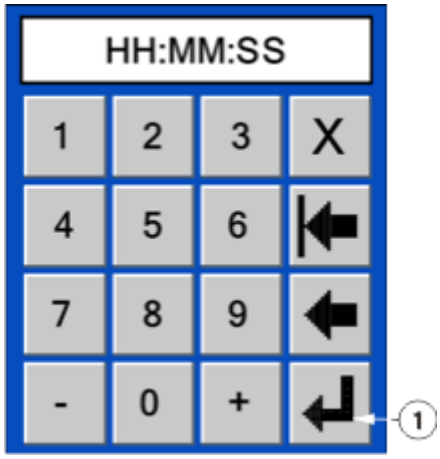


Figure 9-3 Time Key Window

1. Enter Button

3. Enter the new time.
4. Touch **Enter**.

9.1.6.4 Changing AM and PM with a 12-Hour Clock

The **AM/PM** button is used to differentiate the time of day when the 12-hour time format is selected. AM is indicated by a small A and PM by a small P in the Time/Date field.

To change the AM and PM setting:

- Touch the **AM/PM** button and the system will toggle between the two parameters.

NOTE: This button is only active when the 12-hour time format is selected.

9.1.7 Adjusting the Screen Brightness

Neo2 allows the operator to increase or decrease the brightness of the screen.

To increase the brightness of the screen:

- Touch the **+** button repeatedly until the desired brightness is achieved.

To decrease the brightness of the screen:

- Touch the **-** button repeatedly until the desired brightness is achieved.

9.2 Advanced System Setup

In Advanced System Setup, additional system parameters and settings can be adjusted.

To access the Advance System Setup screen a code is required. Contact Husky technical service for the Advanced System Setup screen code.

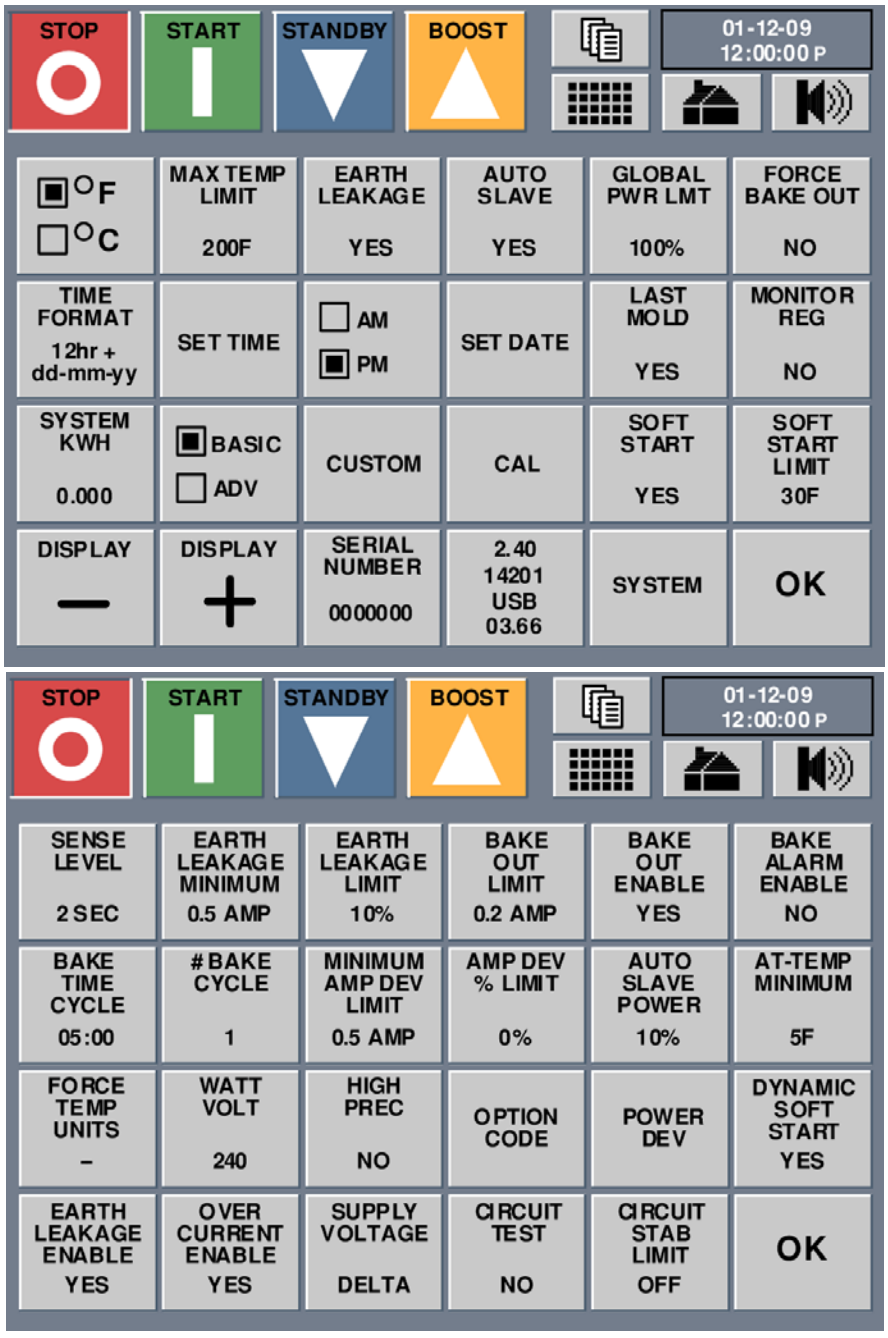


Figure 9-4 Advanced System Setup Screen

To access the Advanced System Setup screen:

1. Touch **SYSTEM**. The numeric key window appears.
2. Enter the Advanced System Setup screen code and then touch **Enter**.

9.2.1 Setting the Maximum Temperature Limit

The **MAX TEMP LIMIT** button sets the over maximum temperature limit for the system. This value is interpreted as the number of degrees over the setpoint the maximum temperature alarm is activated.

To set the maximum temperature limit:

1. On the Advanced System Setup screen, touch **MAX TEMP LIMIT**. The numerical key window appears.

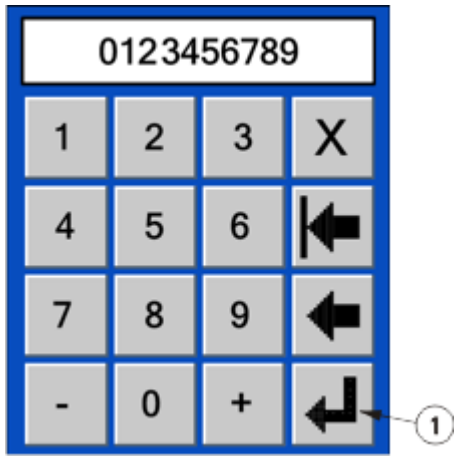


Figure 9-5 Numerical Key Window

1. Enter Button

2. Enter the value for the number of degrees over the setpoint for maximum temperature. The default setting is 111 °C (200 °F).
3. Touch **Enter**.

9.2.2 Setting the Earth Leakage

The **EARTH LEAKAGE** button enables or disables the earth leakage testing on the system. This setting overrides the individual zone settings.

To set the earth leakage testing on the system:

1. On the Advanced System Setup screen, the **EARTH LEAKAGE** button displays the setting.
2. Touch **EARTH LEAKAGE** to toggle the setting between **YES** and **NO**. The default setting is YES.

9.2.3 Enabling or Disabling Auto Slave Function

The **AUTO SLAVE** button sets the auto slave function for the system. If auto slave is set to No, it does not affect the ability to manually slave zones.

To enable or disable the autoslave function:

1. On the Advanced System Setup screen, the **AUTO SLAVE** button displays the setting.
2. Touch **AUTO SLAVE** to toggle the setting between **YES** and **NO**. The default setting is YES.

9.2.4 Setting the Global Power Limit

The **GLOBAL PWR LIMIT** button sets the Power Limit for the system. This setting overrides any individual power limit setting for a zone if the individual setting is higher than the global power limit.

To set the global power limit for the system:

1. On the Advanced System Setup screen, touch **GLOBAL PWR LIMIT**. The numerical key window appears.

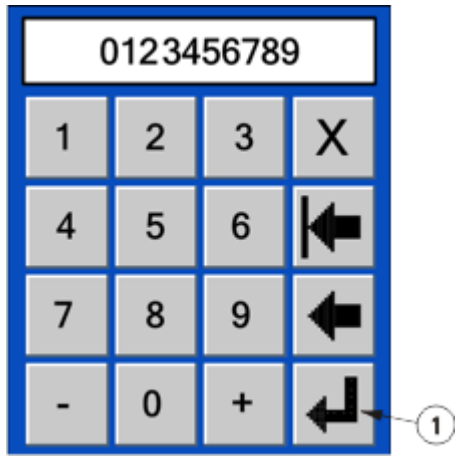


Figure 9-6 Numerical Key Window

1. Enter Button

2. Enter the value for the power limit. The default setting is 100%.
3. Touch **Enter**.

9.2.5 Setting the Forced Bake Out Time

Forced bake-out is primarily used with cards that do not have current measurement capability (XL-Series cards as indicated by a black colored heat sink). In this case, the ability to detect a earth leakage does not exist and as a result the automatic wet-heater bake out detection will not work. However, if the mold is running in a humid environment or it is felt

that there is a high probability of moisture being trapped in the heaters, then a user should use the Forced Bake-Out feature.

NOTE: The default value for the **FORCE BAKE OUT** button is 0, which indicates that this function is turned off. Each value greater than 0 indicates the amount of time (in minutes) that the system will automatically go through the wet heater bake-out process whenever the start button is pressed. Additionally, if the system contains either the X-Series (Silver heat sink) or XE-Series (Green Heat sink) cards and this feature is activated, the bake out routine will be automatically initiated on every startup and the current detection, on these cards, for this particular fault, will be overridden.

To set the force bake out time for the system:

1. On the Advanced System Setup screen, touch **FORCE BAKE OUT**. The numerical Key window appears.
2. Enter the value for the time limit. The range is 1 to 30 minutes (0=OFF). The default setting is 0.
3. Touch **Enter**.

9.2.6 Calibrating the Thermocouple Inputs

NOTE: Contact Technical Services for instructions on calibrating the thermocouple inputs.

To open the System Calibration screen:

1. On the Advanced System Setup screen, touch **CAL**.
2. If calibration is required, contact Technical Services for instructions.

9.2.7 Automatically Loading the Last Mold Setup

If set to yes the system will load the last mold setup that was loaded prior to the systems power down. Also, when this feature is enabled it bypasses the Security and Mold Setup screens during the boot up sequence.

To automatically load the last mold setup:

1. On the Advanced System Setup screen, the **LAST MOLD** button displays the setting.
2. Touch **LAST MOLD** to toggle the setting between **YES** and **NO**. The default setting is YES.

9.2.8 Setting the Monitor Regulation

The **MONITOR REG** button allows for the Regulation setting for the zones to be set to Monitor in addition to the Automatic and Manual settings. Monitor reads the temperature only and not power output control.

To set the monitor regulation:

1. On the Advanced System Setup screen, the **MONITOR REG** button displays the setting.
2. Touch **MONITOR REG** to toggle the setting between **YES** and **NO**. The default setting is NO.

9.2.9 Access the Customize Screen

To access the Customize screen:

On the Advanced System Setup screen, touch **CUSTOM**. Refer to Section 9.3 for details.

9.3 Customizing the Display

This feature allows the administrator to customize the screens displayed during the boot-up sequence and the zone parameters that are available in the Quick Set screen.

To access the Customize screen, on the Advanced System Setup screen, touch **CUSTOM.**

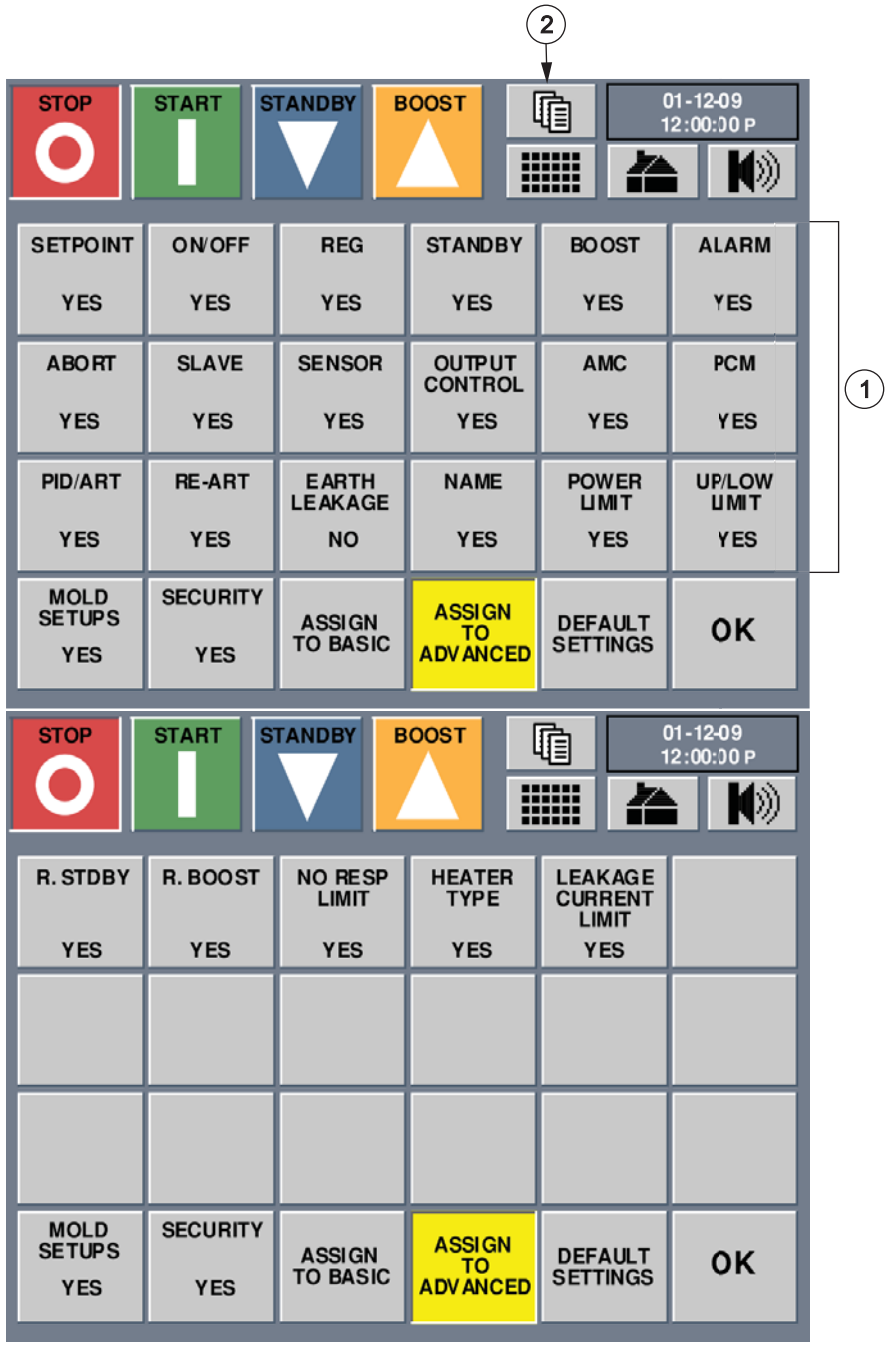


Figure 9-7 System Customize Screen

1. Parameters Buttons **2.** Next Page Button

9.3.1 Displaying Zone Parameters

The first three rows on the Customize screen are the zone parameters that can be selected to display on the Quick Set screen. These zone parameters can be assigned to either the Basic mode button or the Advanced mode button. Doing so modifies the number of zone parameters that will be displayed in the Quick Set screen when in Basic or Advanced modes.

To select the zone parameters to display:

1. On the Customize screen, touch the parameter button. The button toggles the setting between **YES** and **NO**.

   If the PID/ART parameter has been set to No, then the P, I and D settings in the Quick Set screen are turned off as well. If PID/ART parameter is set to Yes, the P, I and D settings are turned On.

   NOTE: Use the **Next Page** button to access the remote standby (R. STDBY) and remote boost (R. BOOST) parameters.

2. Touch **OK** to return to the Advanced Setup screen.

9.3.2 Enabling or Disabling the Mold Setups Screen

The **MOLD SETUPS** button enables or disables the access to the Mold Setup screen on the system. The button on the Home screen will be greyed out.

Additionally, this setting overrides the boot-up sequence and automatically sets the Load Last Mold Setup feature to On.

To enable or disable the Mold Setup screen:

1. On the Customize screen, touch **MOLD SETUPS**. The button toggles the setting between **YES** and **NO**.
2. Touch **OK** to return to the Advanced Setup screen.

9.3.3 Enabling or Disabling the Security Screen

The **SECURITY** button enables or disables the access to the Security screen on the system. The button on the Home screen will be greyed out.

Additionally, this setting overrides the boot-up sequence and removes security from all zone parameters and settings in the system.

To enable or disable the Security screen:

1. On the Customize screen, touch **SECURITY**. The button toggles the setting between **YES** and **NO**.
2. Touch **OK** to return to the Advanced Setup screen.

9.3.4 Assign to Basic

Touch **ASSIGN TO BASIC**, to assign the user defined zone parameter settings to the Basic button in the System Setup screen. If selected, anytime a user puts the system in Basic mode, the available zone parameters will reflect what was assigned to the Basic button from this screen.

9.3.5 Assign to Advanced

Touch **ASSIGN TO ADVANCED**, to assign the user defined zone parameter settings to the Advanced button in the System Setup screen. If selected, anytime a user puts the system in Advanced mode, the available zone parameters will reflect what was assigned to the Advanced button from this screen.

9.3.6 Reset to Default Settings

Touch **DEFAULT SETTINGS** and acknowledge the confirmation dialog box. This returns all of the settings in the Customize screen to the factory defaults. This includes restoring the boot-up sequence.

9.4 Timers

The Timers screen allows the operator to select and setup the standby, boost timers.

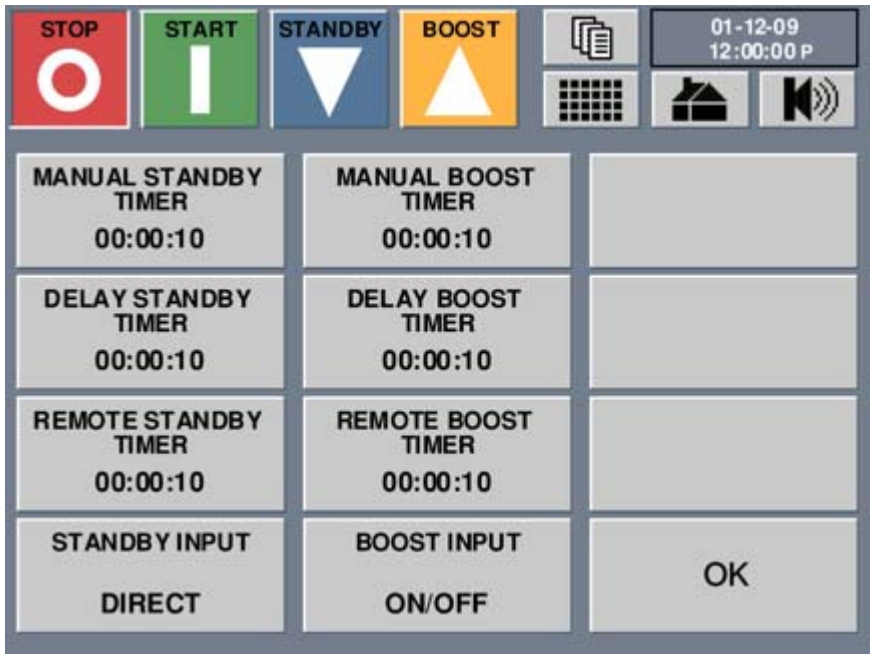


Figure 9-8 Options Screen

9.4.1 Standby Timers

To reduce the temperatures in the mold for a certain period of time, the Standby timers associated with each standby function can be set. Once the system enters standby, the timer will start. When the timer finishes, the temperatures will return to the normal setpoint. The

Standby timer is used to protect the material from burning if the molding machine is stopped for a specified period

9.4.1.1 Setting the Manual Standby Timer

Once the system is in manual standby the manual standby timer starts to count down. When the time limit is over the system will return to run mode.

To set the manual standby timer:

1. On the Home screen, touch **TIMERS**.
2. Touch **MANUAL STANDBY TIMER**.
3. Enter the new timer value (HH:MM:SS).
4. Touch **Enter**.

9.4.1.2 Setting the Remote Standby Timer

The Input Option settings and Standby Cycle Enable setting determine how the system reacts when it receives the Remote Standby input.

NOTE: If the system is not equipped with Remote Standby, only the Manual Standby timer setting is displayed on the Timers screen.

To set the remote standby timer:

1. On the Home screen, touch **TIMERS**.
2. Touch **REMOTE STANDBY TIMER**.
3. Enter the new timer value (HH:MM:SS).
4. Touch **Enter**.

9.4.1.3 Setting the Delay Standby Timer

The Delay Standby timer is a feature available with Remote Standby. If a Delay Standby time is set, Neo2 will not decrease the temperatures until the delay time has elapsed.

For example, when the operator opens the door on the molding machine to check the mold, a signal to start Delay Standby could be sent to Neo2. If the door is closed before the delay time has elapsed, Neo2 will not enter Standby. If the door remains open, Neo2 then enters Standby

To set the delay standby timer:

1. On the Home screen, touch **TIMERS**.
2. Touch **DELAY STANDBY TIMER**.
3. Enter the new timer value (HH:MM:SS).
4. Touch **Enter**.

9.4.1.4 Standby Operation Description

Table 9-1 Manual Standby Operational Description

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

Manual Standby can be cancelled at any time by touching STANDBY or STOP buttons.

Table 9-2 Remote Standby Operational Description

Manual Time	Delay Time	Remote Time	Input Mode	Cycle Enabled	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	No	System delays for specified time and then enters Standby until the timer expires.
----	X:XX:XX	0:00:00	Trigger	No	System delays for specified time and then enters Standby indefinitely.
----	X:XX:XX	X:XX:XX	Trigger	Yes	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.
----	X:XX:XX	0:00:00	Trigger	Yes	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

Table 9-2 Remote Standby Operational Description (Continued)

Manual Time	Delay Time	Remote Time	Input Mode	Cycle Enabled	Operation - STANDBY Button Select
----	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.

Remote Standby can be cancelled at any time by touching the STANDBY or STOP buttons.

9.4.2 Boost Timers

To increase the temperatures in the mold for a certain period of time, the Boost timers associated with each boost function can be set. Once the system enters boost, the timer will start. When the timer finishes, the temperatures will return to the normal setpoint.

9.4.2.1 Setting the Manual Boost Timer

Once the system is in manual boost the manual boost timer starts to count down. When the time limit is over the system will return to run mode.

To set the manual boost timer:

1. On the Home screen, touch **TIMERS**.
2. Touch **MANUAL BOOST TIMER**.
3. Enter the new timer value (HH:MM:SS).
4. Touch **Enter**.

9.4.2.2 Setting the Remote Boost Timer

The Input Option settings determine how the system reacts when it receives Remote Boost input.

NOTE: If the system is not equipped with Remote Boost, only the Manual Boost timer setting is displayed on the Timers screen.

To set the remote boost timer:

1. On the Home screen, touch **TIMERS**.
2. Touch **REMOTE BOOST TIMER**.
3. Enter the new timer value (HH:MM:SS).
4. Touch **Enter**.

9.4.2.2.1 Changing the Standby Cycle

To enable or disable the Standby Cycle:

1. On the Home screen, touch **Options**
2. Touch the **Standby Cycle** box to toggle the Standby Cycle On or Off.

NOTE: This setting will not appear if the system does not have Remote Standby available.

9.4.2.3 Setting the Delay Boost Timer

The Delay Boost timer is used to wait for a specified period before entering Boost.

To set the delay boost timer:

1. On the Home screen, touch **TIMERS**.
2. Touch **DELAY BOOST TIMER**.
3. Enter the new timer value (HH:MM:SS).
4. Touch **Enter**.

9.4.2.4 Boost Operation Description

Table 9-3 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.

Manual Boost can be cancelled at any time by touching BOOST or STOP buttons.

Table 9-4 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.

Table 9-4 Remote Boost Operational Description (Continued)

Manual Time	Delay Time	Remote Time	Input Mode	Operation - Boost Button Select
----	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 Boost until the input signal is not active. If the input signal is active when the system is started, it will immediately go into Boost mode.

Remote Boost can be cancelled at any time by touching BOOST or STOP buttons.

9.5 Alarms and the Error Log

Neo2 Alarms Status screen allows the operator to view the status of each zone and reset any alarms that occur in the system.

9.5.1 Viewing Alarms

To view alarms:

1. On the Home screen, touch **ALARM STATUS**.

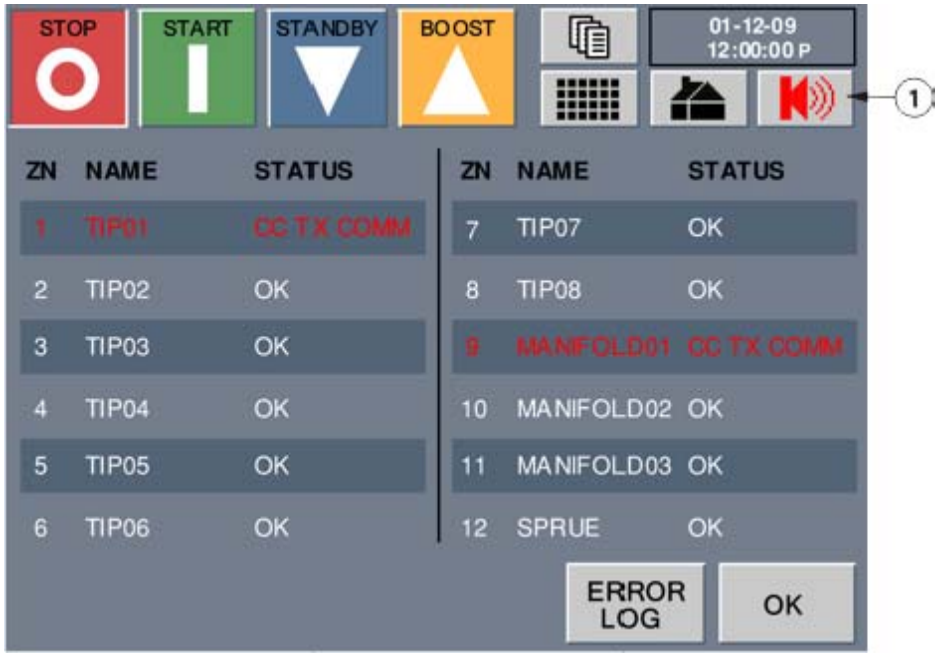


Figure 9-9 Alarm Screen

1. SPEAKER Button

2. Touch **OK** to return to the Home screen.

9.5.2 Clearing and Resetting Alarm and Abort Errors

When a alarm occurs the **SPEAKER** button will flash red and the siren will sound.

To clear and reset an alarm or abort error:

1. Touch the **SPEAKER** button to silence the audible alarm but the **SPEAKER** button will remain flashing red. This will not remove the error message on the screen.

2. A second touch of **SPEAKER** will reset the error message.

If after one minute the operator has not touched **SPEAKER** a second time (resetting the error message) the system will initiate the audible alarm again.

9.5.3 Viewing the Error Log

The Error Log allows the operator to view the last 400 errors that occurred in the system.

To view the Error Log:

1. On the Alarms Status screen, touch **ERROR LOG**.

Figure 9-10 Error Log Screen

2. Touch **OK** to return to the Home screen.

Error Log Column Heading	Description
#	The error number listed from newest to oldest.
ZN	Zone number
DATE	Date the alarm occurred.
TIME	Time the alarm occurred.
MD	Mold setup at the time the alarm occurred.
SET	The setpoint at the time the alarm occurred.
ACT	The actual temperature at the time the alarm occurred.
SYSTEM	The status of the system at the time the alarm occurred.
STATUS	The actual alarm that occurred on the zone.

9.5.4 Printing the Error Log to File

Refer to Section 4.4.

9.5.5 Alarm and Abort Conditions

In the event an error occurs, Neo2 will turn on the audible alarm and display the Alarm Status screen. The zone or zones with the errors will be highlighted in red.

9.5.5.1 Alarm Conditions (Warning Errors)

The following conditions will cause the audible alarm to initiate. Since these are Warning Errors, they will not shut down the system.

Table 9-5 Alarm Condition Descriptions

Alarm Condition	Description
ALM OVER	Over Temperature Alarm. A zone's actual temperature has exceeded its setpoint by the amount set for the alarm limit.
ALM UNDER	Under Temperature Alarm. A zone's actual temperature has dropped below its setpoint by the amount set for the alarm limit.
A-SLAVE	Lost Thermocouple, Auto Slave activated. A zone has had its thermocouple become defective while running in automatic control mode. The system has AUTOMATICALLY SLAVED this zone to another one using data collected before the thermocouple became faulty. The faulty zone is now being controlled by the power output from another similar zone. Once a zone is Slaved, the auto-slaved zones number on the Home screen will switch between the slaved zone number and the master zone number.
AMC-NO T/C	Lost Thermocouple, AMC activated. 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-Slave feature. The zone has been setup to go into AUTOMATIC MANUAL CONTROL 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.

9.5.5.2 Abort Conditions (Shut Down Errors):

The following conditions will cause the audible and visual alarms to initiate. Since they are Shut Down Errors, they will cause the system to shut down and remove power to the heaters.

Table 9-6 Abort Condition Descriptions

Abort Condition	Description
ABT OVER	Over Temperature Abort. A zone's actual temperature has exceeded its setpoint by the amount set for the abort limit.
ABT UNDER	Under Temperature Abort. A zone's actual temperature has dropped below its setpoint by the amount set for the abort limit.
FUSE 1	Fuse 1 Blown. One of the heater protection circuits (fuses) has been blown. It is necessary to replace it. Refer to Section 12.2.3.
FUSE 2	Fuse 2 Blown. One of the heater protection circuits (fuses) has been blown. It is necessary to replace it. Refer to Section 12.2.3.
NO RESP	No Thermocouple Response. Neo2 has been applying between 96% and 100% power to this heater and the thermocouple is not responding. The thermocouple may be pinched or the mold could be mis-wired.
LOST T/C	Lost Thermocouple. This zone has a defective or open thermocouple.
REV T/C	Reversed Thermocouple. The positive and negative leads from the thermocouple have been switched or the connections are reversed. As power is applied to the heater, the temperature decreases instead of increasing. The operator must correct this situation at the point where the wires are reversed.
EARTH LEAKAGE	Earth Leakage. This zone has current flowing greater than 3 Amperes to ground (earth) and there is potential for a short circuit.
OVER MAX	Over Maximum Temperature. 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 200 °F over the normal setpoint.
OVER CRNT	Over Maximum Current. The current on this zone has risen above the maximum value allowed.
NO HEATER	This zone is not showing any current draw. This usually means there is not a heater hooked up to this zone or the wires to the heater have been severed.
CC RX COMM	Control Card Receive Communications Error. This zone has stopped receiving data from the Neo2 operator interface.
CC TX COMM	Control Card Transmit Communications Error. This zone has stopped transmitting data to the Neo2 operator interface.
CC MAX TEMP	Control Card PCB Over Temperature. The temperature sensor on the control card is reading too high, this means the PCB is running too hot. A possible cause could be that one of the system fans has stopped working.

Chapter 10 Heating the Mold

This chapter describes how to start the Neo2 system and check for any errors, and alarm conditions if any errors occur.

WARNING!

Risk of serious injury, death or equipment damage. Read this entire manual before attempting the startup of the system. Call the nearest Husky Regional Service and Sales office if you have any questions.

10.1 Starting the Neo2 System

With all Altanium/Neo2 to mold connections made and the mold cooling turned on, Start Neo2 by touching START in the upper left-hand area of the display. Following this Neo2 will enter into its startup routine to heat the mold to its setpoint.

10.2 Earth Leakage / Wet Heater Bake Out System

Neo2 is equipped with an advanced Earth Leakage/Wet Heater Bake Out system. From the moment the system is started, Altanium will constantly check for earth leakage conditions on every heater in the mold simultaneously. When necessary, it will initiate a low voltage bake out on the faulty zone(s) to try to bake the moisture out of the heater(s).

There are two types of earth leakages, which are described below.

For X Cards (ICC^2):

- The system will declare an earth leakage error based on a user settable percentage limit, or if a zone has not gone through diagnostics, based on a default value of 0.2 amps.
- The system will declare a bake out error based on a user settable **Bake Out Limit** with a default value of 0.2 amps and an adjustable range from 0 to 5 amps. Any value of 0.2 amps or higher, but lower than the earth leakage limit, will trigger a bake out error.
- The calculated earth leakage limit or the default value is compared against the minimum limit and the lower of the two values is applied.

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 declare an earth leakage error based on a

user settable **Earth Leakage Fault Limit** with a default value of 500 milliamps and an adjustable range from 1 to 999 milliamps.

- 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.

NOTE: Make a note of the zone(s) that are displaying EARTH LEAKAGE and turn the system's main breaker off as soon as possible so the problem can be fixed.

Neo2 allows the Earth Leakage check ON or OFF for the entire system to be turned off. The default setting is ON for all zones. Turning Earth Leakage off is only necessary under very special circumstances. To turn the Earth Leakage check off please call the nearest Husky Regional Service and Sales office.

10.3 Soft Start Routine

For many years hot runner molders started their molds by turning on the manifold zones (larger mass, longer time required to heat up) first. Once the manifolds were hot, they would turn on the probes (small mass, fast time to heat up) and wait for them to reach setpoint. The manifold has the potential to grow and shift first and in many cases can misalign itself to the probes. Also, the material in the manifold channel now has a varied residence heat time to the material internal to the probes. In each case the possibility of a mold leak or gate misalignment is added.

With Neo2, all zones warm up simultaneously, rising in temperature at the same rate to ensure even thermal expansion and identical residence heat time on the material.

During the Soft Start routine Neo2 will display the following:

1. After touching **START**, Neo2 will begin the Bake Out process if necessary.

   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.

2. Once all temperatures are up to their setpoint you are ready to begin molding.

Chapter 11 System Options

The Altanium/Neo2 has a host of optional features available for an additional cost to assist you in your molding process.

11.1 Altanium/Neo2 Optional Components

Software settings for the system options are available in the OPTIONS menu.

Integrated I/O	This includes 3 inputs and 3 outputs that are internal to the Neo2 enclosure and managed through the system's operator interface. The available functionality is fixed as follows: Inputs: R. Standby, R. Boost and R. Stop Outputs: At-Temperature, Abort (PCM) and Alarm Error
Altanium I/O Box	This is an external box that enables the use of additional inputs and outputs that are not supported using the integrated I/O. This option is available in user definable packages of two, four and All.
SPI Communication	The SPI option enables the Neo2 to communicate with any central network or molding machine that supports the Society of Plastics Industry (SPI) standard protocol.

11.2 Integrated I/O

The integrated I/O are internal to Neo2 and managed through the operator interface.

11.2.1 Integrated I/O Option (Inputs)

The table below provides a description of the inputs that are included with the Integrated I/O option. To activate any input, all that is required is the closure of two contacts on the Input connector. Refer to Table 11-3 for connection details.

CAUTION!

Mechanical hazard - risk of damage to the equipment. DO NOT apply a voltage to any of the Inputs. Doing so could damage Neo2.

Table 11-1 Integrated I/O Option (Inputs)

Option Name	Description
R. STANDBY	If the R. STANDBY (Remote Standby) digital input option is turned on, it will place all zones that have a Remote Standby setpoint set into the Standby mode whenever this input signal gets activated.
R. BOOST	If the R. BOOST (Remote Boost) digital input option is turned on, it will place all zones that have a Remote Boost setpoint set into the Boost mode whenever this input signal gets activated.
R. STOP	If the R. STOP (Remote Stop) digital input option is turned on, it will STOP the system whenever this signal is remotely activated. This state will remain until the START button is selected or Remote Start is activated. **NOTE:**You cannot start the system when this input is active.

11.2.2 Integrated I/O Option (Outputs)

The table below provides a description of the outputs that are included with the Integrated I/O option. All outputs are dry contacts; whatever you put in you will get out when the output is activated. Refer to Table 11-4 for connection details.

CAUTION!

Mechanical hazard - risk of damage to the equipment. DO NOT apply a voltage greater than 120 VAC/VDC (1amp) to any of the Outputs. Doing so could damage Neo2.

Table 11-2 Integrated I/O Option (Outputs)

Option Name	Description
ALARM RLY	If the Alarm Error dry contact output option is turned on, it will be activated when an Alarm or Abort condition occurs. This state will remain until the alarm condition is CLEARED or RESET.
PCM RLY	If the PCM dry contact output option is turned on, it will be activated when an Abort condition occurs, and the PCM setting in the Quick Set screen is set to System. This state will remain until the alarm condition is CLEARED or RESET.
AT TEMP	If the AT TEMP (at temperature) dry contact output option is turned on, it will be 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.

11.2.3 Input and Output Option Cable Pin-Out Description

Below are the cable connection details for all of the optional Inputs and Outputs. The connectors are shown as if you were looking at the contact side of the cable.

Table 11-3 Optional Inputs

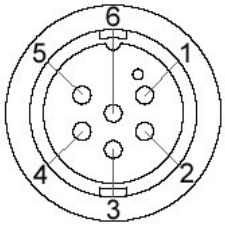
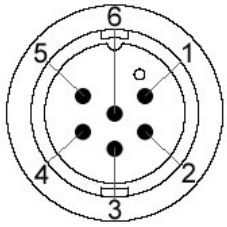
	Option Inputs (female)	Pins	Wire Colors
	Remote Standby Input	1 - 2	green - orange
	Remote Boost Input	3 - 4	red - blue
	Remote Stop Input	5 - 6	white - black

Table 11-4 Optional Outputs

	Option Outputs (male)	Pins	Wire Colors
	Alarm Error Output	1 - 2	green - orange
	Abort Error Output	3 - 4	red - blue
	At Temperature Output	5 - 6	white - black

11.3 Altanium I/O Box

The addition of any inputs and outputs that are not supported by the integrated I/O option, requires an Altanium I/O (Input/Output) box. This box connects to Neo2 via an 8-pin communications cable. It can also be mounted remotely at the location of your choice.

Figure 11-1 Altanium I/O Box

1. Front view **2.** Side view

11.3.1 Connecting the Altanium I/O Box to the Neo2 Display

1. Before you can use any of the I/O options, you must connect an 8-pin communications cable between the Altanium I/O Box and Neo2.
2. Connect the appropriate wires in the Input and Output cables to the required location (for example, the injection molding machine).
3. Connect the I/O box to the I/O COMM Port on Neo2.

11.3.2 I/O Box Options (Inputs)

The Input options that can be purchased for your Altanium/Neo2, along with a description of each, are listed below. To activate any input, all that is required is the closure of two contacts on the Input connector.

CAUTION!

Mechanical hazard - risk of damage to the equipment. DO NOT apply a voltage to any of the inputs. Doing so could damage the I/O box or Neo2.

Table 11-5 I/O Box Options (Inputs)

Option Name	Description
R. STANDBY	If the R. STANDBY (Remote Standby) digital input option is turned on, it will place all zones that have a Remote Standby setpoint set into the Standby mode whenever this input signal gets activated.
R. BOOST	If the R. BOOST (Remote Boost) digital input option is turned on, it will place all zones that have a Remote Boost setpoint set into the Boost mode whenever this input signal gets activated.
R. START	If the R. START (Remote Start) digital input option is turned on, it will START the system whenever this signal is remotely activated. This state will remain until the STOP button is selected or Remote Stop is activated.
R. STOP	If the R. STOP (Remote Sto)p digital input option is turned on, it will STOP the system whenever this signal is remotely activated. This state will remain until the START button is selected or Remote Start is activated. **NOTE:** You cannot start the system when this input is active.
M. BOOST	If the M. BOOST (Remote Manual Boost) digital input option is turned on, it will place all zones that have a Manual Boost setpoint set into the Boost mode whenever this input signal gets activated. This acts just like selecting the BOOST button in Neo2.

11.3.3 I/O Box Options (Outputs)

The Output options that can be purchased are listed below, along with a description of each. Some of these options are part of the Remote Load option. All outputs are dry contacts; whatever you put in, you will get out when the output is activated.

CAUTION!

Mechanical hazard - risk of damage to the equipment. DO NOT apply a voltage greater than 120 VAC/VDC (1amp) to any of the Outputs. Doing so could damage the I/O Box or Neo2.

Table 11-6 I/O Box Options (Outputs)

Option Name	Description
ALARM RLY	If the Alarm Error dry contact output option is turned on, it will be activated when an Alarm or Abort condition occurs. This state will remain until the alarm condition is CLEARED or RESET.
PCM RLY	If the PCM dry contact output option is turned on, it will be activated when an Abort condition occurs, and the PCM setting in the Quick Set screen is set to System. This state will remain until the alarm condition is CLEARED or RESET.

Table 11-6 I/O Box Options (Outputs) (Continued)

Option Name	Description
AT TEMP	If the AT TEMP (at temperature) dry contact output option is turned on, it will be 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.
R. STANDBY	If the R. STANDBY (Remote Standby) dry contact output option is turned on, it will be activated when Neo2 has received the Remote Standby signal.
AT BOOST	If the AT BOOST (at boost) dry contact output option is turned on, it will be activated ONLY when all zones are above the under temperature alarm limit while in BOOST mode. This state will remain until any zone drops below the under temperature alarm limit. If any or all zones go above the over temperature alarm limit the state will remain.
RUN LIGHT	If the RUN LIGHT Output dry contact output option is turned on, it will be activated whenever the system is running. This state will remain until the system is stopped.
MOLD COOL	The Mold Cooling signal is activated based on the temperature limit set on the Mold Cooling Enabled button in the Options screen. If the controller is heating up (Start button is pressed), then the output changes state once all zone temperatures are above the Mold Cooling Enable limit If the controller is cooling down (Stop button is pressed), then the output returns to its original state once all of the zone temperatures are below the Mold Cooling Enable limit
TEMP ERR	If the TEMP ERR (over maximum temperature error) dry contact output option is turned on, it will be activated when any zone exceeds the Over Maximum Temperature limit.
AT STANDBY	This signal is activated only when all zones are above the under temperature alarm limit while in STANDBY mode. This state should remain until any zone drops below the under temperature alarm limit. Additionally, If any or all zones go above the over temperature alarm limit the state will remain.
COMM ERR	If the Comm Error dry contact output option is turned on, it will get activated if Neo2 stops communicating with any of the Control Cards. This state will remain until communications are restored.

11.3.4 Input/Output Option Connector Pin-Out Description

Below is the connection detail for all of the optional Inputs and Outputs

Table 11-7 Optional Inputs

Option Inputs (Female)	Pins	Wire Colors
Remote Standby Input	C - D	red, blue/red
Remote Boost Input	A - B	green, orange/green
Remote Start Input	E - F	orange, orange/black
Remote Stop Input	G - H	black, blue/black
Remote Manual Boost Input	T - U	black/red, red/black

Table 11-8 Optional Outputs

Option Outputs (Male)	Pins	Wire Colors
Alarm Error Output	G - H	black, blue/black
Priority Control Mode Output	C - D	red, blue/red
System At Temperature Output	A - B	green, orange/green
System At Boost Temperature Output	J - K	white, blue/white
Run Status Light Output	L - M	red/green, orange/red
CAN Communications Error Output	Z - a	white/red/black, red/white/black
Remote Standby Output	E-F	orange, orange/black
Max Temp Error Output	T-U	black/red, red/black
Mold Cooling Enable Output	N-P	black/white, white/black
At Standby Temperature Output	R-S	green/white, black/red/white

11.4 Configuring the Altanium Inputs and Outputs

The optional Inputs and Outputs are available in the following configurations:

- Integrated (Without I/O Box): 3 Inputs and 3 Outputs
- Two I/O Package (With I/O Box): User configured for up to two options in any combination of inputs or outputs
- Four I/O Package (With I/O Box): User configured for up to four options in any combination of inputs or outputs
- All I/O Package (With I/O Box): User configured for All available options in any combination of inputs or outputs

The Neo2 allows each digital input and output channel to be turned on or off as well configured for normally closed or open operation.

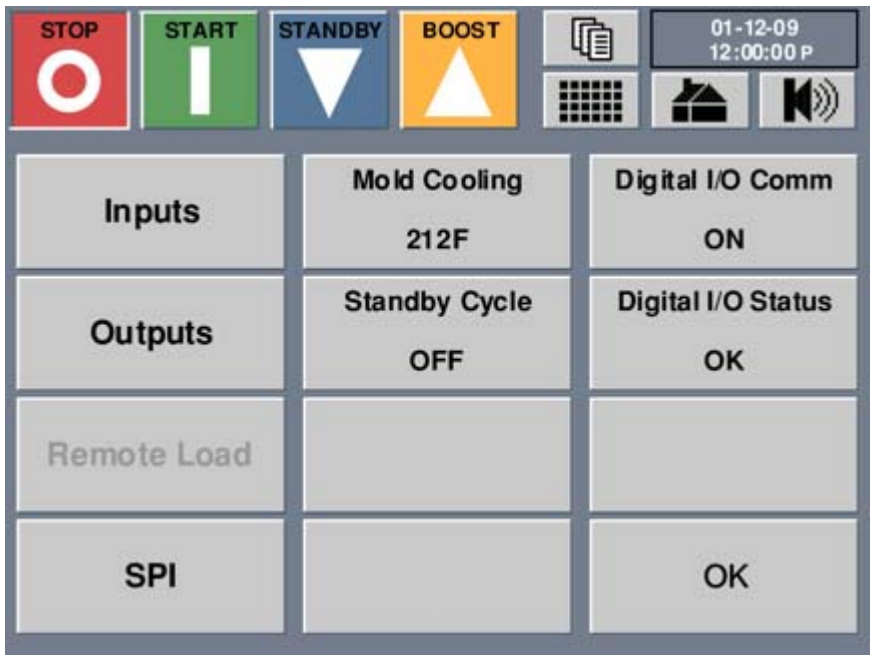


Figure 11-2 Options Screen

11.4.1 Turning the Digital Input/Output On or Off

This button is used to enable or disable communication to an external I/O box by toggling between ON or OFF. The button displays the current configuration. It is only active if the system is configured to run with the external I/O box.

1. On the Home screen, touch **Options**.
2. On the Options screen touch the **DIGITAL I/O COMM** to toggle the digital I/O communication from **ON** or **OFF** and vise versa.

11.4.2 Turning an Input/Output On or Off

Neo2 allows the operator to set each Input or Output to On or Off. Inputs/outputs that are On are enabled to and inputs/outputs that are Off are disabled.

To turn a input or output on or off:

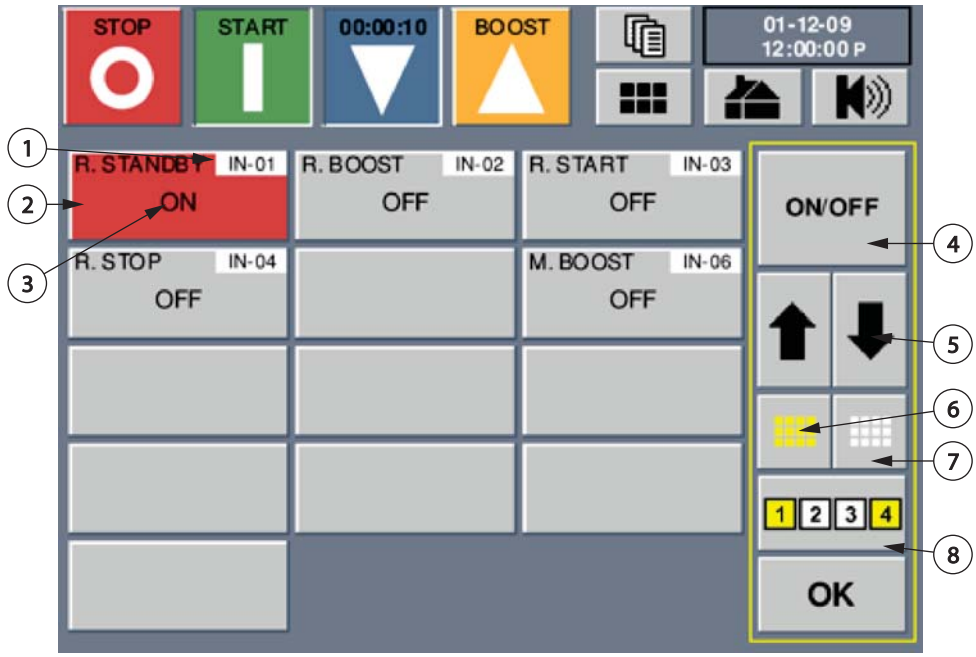


Figure 11-3 Inputs Screen

1. Input Number **2.** Selected Input **3.** Current Option Value **4.** Option Type **5.** Option Scroll Buttons **6.** Select All Button **7.** Clear All Button **8.** Block Button

1. On the **OPTIONS** screen touch **Inputs** or **Outputs**.
2. On the Input or Output screen, touch the input or output you want to adjust.
3. Using the scroll buttons, scroll to the option.
4. Touch **ON**/**OFF** to toggle the selected zones from **ON** to **OFF** or vice versa.
5. Touch **OK**.

11.4.3 Configuring Input or Output Channels as Normally Open or Closed

Digital inputs are activated by relay switches, located in a separate piece of equipment, that are wired to the I/O box. The Inputs or Outputs screen allows all digital input or output channels to be configured as normally open or normally closed.

To configure each the input or output channel to normally Open or Closed:

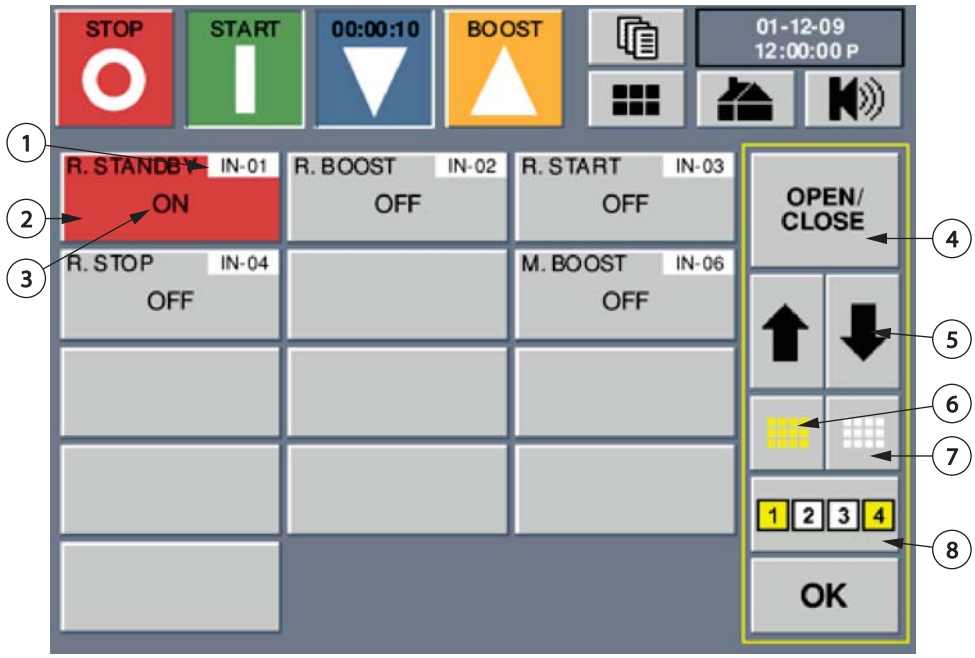


Figure 11-4 Inputs Screen

1. Input Number **2.** Selected Input **3.** Current Relay Status Value **4.** Relay Status Option
5. Option Scroll Buttons **6.** Select All Button **7.** Clear All Button **8.** Block Button

1. On the **OPTIONS** screen touch **Inputs** or **Outputs**.
2. On the Input or Output screen, touch the input or output you want to adjust.
3. Using the Scroll buttons, scroll to the option.
4. Touch **OPEN/CLOSE** to toggle the selected zones from **OPEN** to **CLOSE** or vice versa.
5. Touch **OK**.

11.5 Enabling the Mold Cooling Temperature Limit

The Mold Cooling Enabled signal is activated based on the temperature limit set on the **Mold Cooling** button in the Options screen. If the controller is heating up, the output changes state once all zone temperatures are above the Mold Cooling Enable limit. If the controller is cooling down, then the output returns to its original state once all zone temperatures are below the Mold Cooling Enable limit.

1. From the Home screen, touch **OPTIONS**.
2. Touch Mold Cooling, and a numerical Key window appears
3. Enter the temperature value, and then press Enter.

11.6 SPI Communication Protocol

The SPI option allows the Neo2 to communicate with any central network or molding machine that supports the Society of Plastics Industry (SPI) standard protocol.

Touch OPTIONS, and then SPI to open the SPI Communication screen.

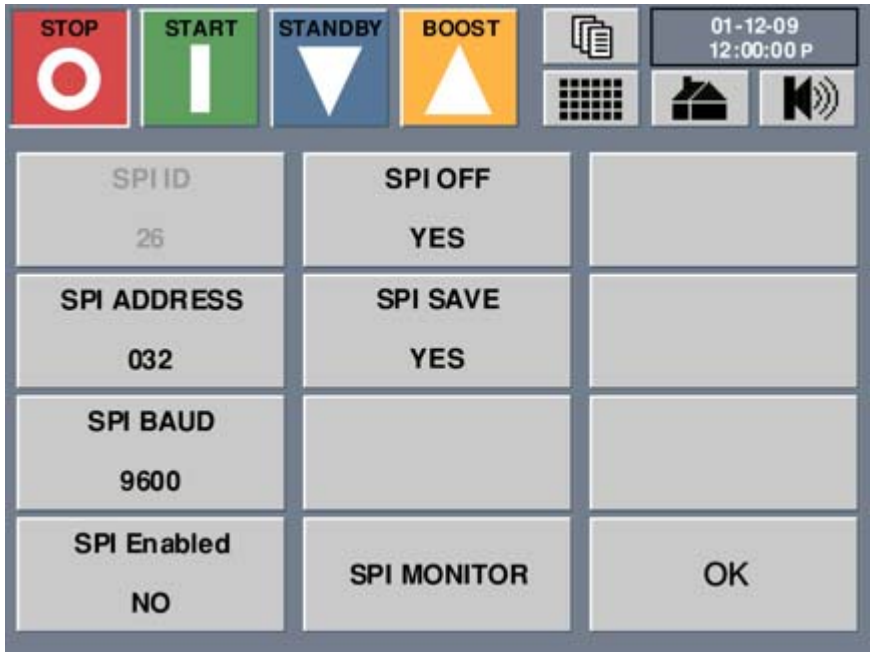


Figure 11-5 SPI Communications Screen

Table 11-9 SPI Communication Screen Item Descriptions

Item	Description
SPI ID	The SPI device ID. The default is 26h and cannot be changed.
SPI Address	The SPI address. Available settings are 32 to 254. The default is 32.
SPI Baud	The SPI baud rate setting. Available settings are 1200, 2400, 4800, 9600, and 19.2k. The default is 9600.
SPI Enabled	The setting to turn SPI ON or OFF. Available settings are YES and NO. The default is NO.
SPI Off	The setting allows or prevents setup parameters to the injection molding machine. Available settings are YES and NO. The default is YES.
SPI Save	The setting allows or prevents permanent changes. Available settings are YES (allows changes) and NO (prevents changes). The default setting is YES.
SPI Monitor	Access the SPI Communications Monitor screen.

11.6.1 Viewing the SPI Communications Monitor

This screen can be used to monitor communications traffic. The screen displays transmit, receive, error and status information for diagnostic purposes.

To view the SPI Communications Monitor:

1. Touch **OPTIONS**, then the **SPI** to open the SPI Communication screen.
2. Touch **SPI MONITOR** to open the SPI Communications Monitor screen.

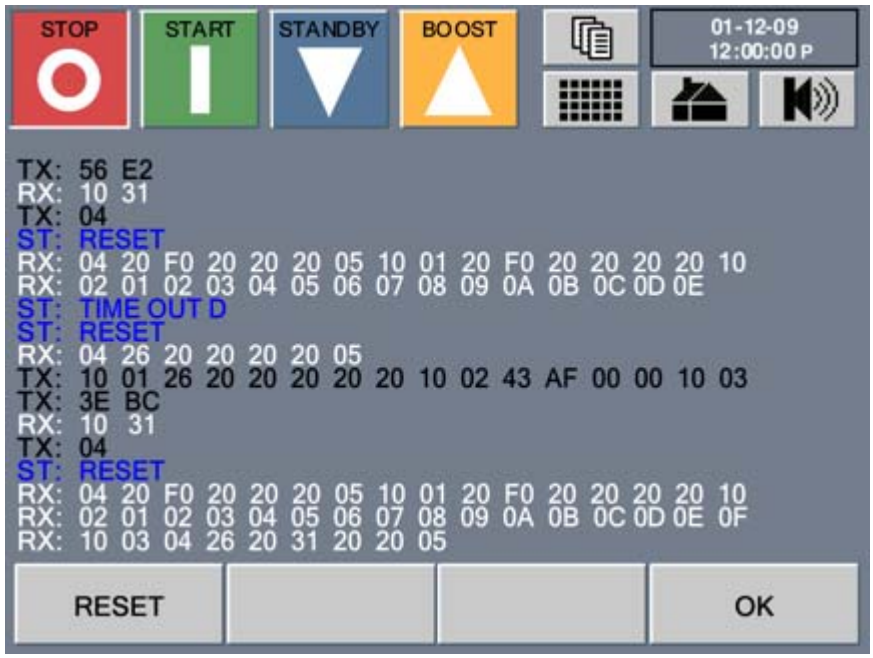


Figure 11-6 SPI Communications Monitor Screen

The screen is color coded to indicate the date type.

- Yellow - SPI protocol status
- Blue - Data Error
- White - Transmitted data
- Black - Received data

Table 11-10 SPI Communications Monitor

Button	Description
RESET	Touch to reset the SPI channel.
OK	Touch **OK** to exit the screen.

Chapter 12 User Service

This chapter provides instructions for servicing the Altanium/Neo2 system, including the following:

- Replacing an ICC^2 or ICC^3 (Intelligent Control Card). Refer to Section 12.2.2.
- Replacing a blown fuse on an ICC^2 or ICC^3 (Intelligent Control Card). Refer to Section 12.2.3.
- Replacing a blown fuse on the display and internal cooling fan. Refer to Section 12.2.4.
- Replacing a Neo2 display. Refer to Section 12.3.
- Cleaning the system. Refer to Section 12.5.

12.1 Altanium/Neo2 Display

The Altanium/Neo2 system is based around a modular concept. The two major components are the Neo2 operator interface and the card cage which houses the ICC^2 or ICC^3 (Intelligent Control Cards).

Figure 12-1 Neo2 Remote Display

CAUTION!

Mechanical hazard - risk of damage to the assembly. The Neo2 remote mounted operator interface assembly is very unstable when the display is rotated in the forward position. Attach the interface directly (using screws or other fastening hardware) to a solid surface to prevent it from tipping over and being damaged when used in this configuration.

The Neo2 display is used to enter and display molding parameters. There are no user-serviceable parts inside a Neo2 display.

12.2 Servicing the Altanium System

The Altanium card cage contains everything needed to run 1 to 12 heaters in the mold. This consists of a green Passive Backplane and 1 to 6 green ICC^2 or ICC^3 (Intelligent Control Cards) which are plugged into the Passive Backplane. The number of ICC^{2}s or ICC^{3}s your system contains is based on the number of zones ordered with the system. All ICC^2 or ICC^3 are the same and can be interchanged with other ICC^2 or ICC^3 (Do not mix ICC^{2}s and ICC^{3}s in the card cage). The Passive Backplanes contain CAN communications address switches and can be interchanged with other Passive Backplanes if the switches are set properly.

DANGER!

Electrical hazard – risk of serious injury or death. Do not work on mold or Altanium without locking out and tagging the Altanium main switch. Failure to do so will result in death or serious injury.

12.2.1 Altanium Card Cage

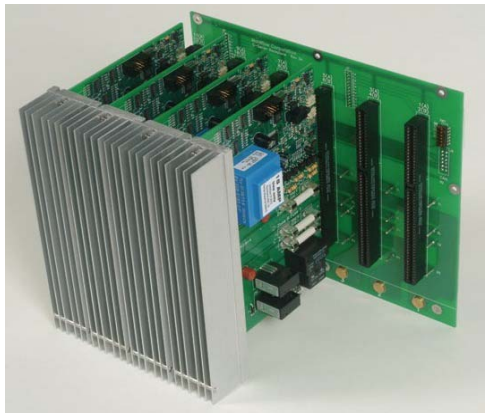


Figure 12-2 12 Zone Card Cage

Access all user-serviceable parts, including fuses and circuit boards, by loosening the upper and lower slotted screws on each heat sink assembly and then sliding your screwdriver between the horizontal silver post and the ledge on the cabinet and prying the board out.

Located inside each card cage are 1 to 6 two-zone ICC^2 (Intelligent Control Cards) or 1 to 6 four-zone ICC^3 and a single Passive Backplane.

IMPORTANT!

You must have an ICC^2 or ICC^3 (Intelligent Control Card) present in the position labeled 1 in all card cages for the system to function properly.

12.2.2 Replacing an Intelligent Control Card (ICC^2 or ICC^3)

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.

Use a ground strap when handling any of the Altanium components.

To replace an ICC^2 or ICC^3, do the following:

1. Locate the Card Cage that contains the faulty ICC^2 or ICC^3. Use the on-screen Card Layout feature to assist in locating the card.

CAUTION!

Mechanical failure mode - attempting to remove a card when the upper and lower heatsink mounting screws are not fully disengaged from the female threads on the cabinet can result in catastrophic damage to the card.

2. Loosen the upper and lower slotted screws on the heat sink from the female threads in the cabinet.
3. Slide a screwdriver between the silver post and the ledge on the cabinet and gently pry the board out. (Figure 12-3)

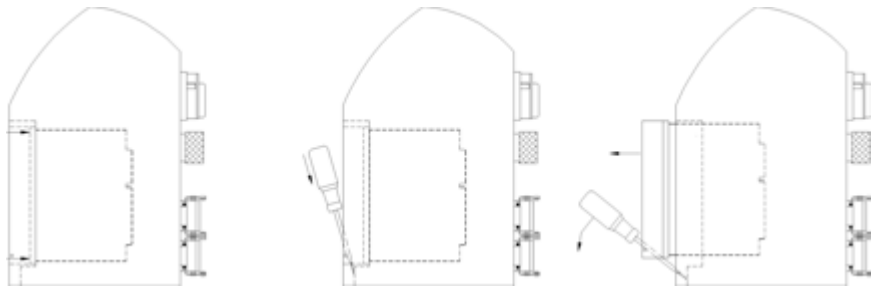


Figure 12-3 Removing the Board

CAUTION!

Static electricity hazard - risk of damage to the equipment. Do not, under any circumstances, place any PCB on carpets, rugs, or other material that is likely to create a static charge.

4. Carefully place 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. An incorrectly oriented card will not seat properly.
6. Tighten the upper and lower slotted screws on the heat sink.

12.2.3 Replacing a Blown Fuse on an ICC^2 or ICC^3 (Intelligent Control Card)

If Neo2 informs you that there is a blown fuse in the system, make a note of the error (which fuse is blown) before proceeding.

To replace a blown fuse:

DANGER!

Hazardous voltage – risk of electrical shock or burns. The controller must be disconnected from the power source before maintenance is performed. Make sure the controller is turned off and unplugged. Lock out and tag the controller in accordance with local codes. Make sure the work area is blocked off and a Danger sign is posted at all entry points. Always maintain control of the work area and the power plug.

1. Turn the main input power disconnect switch to the OFF position.
2. Disconnect the controller from the power source.
3. Attach a lock and tag to the main input power disconnect switch.

CAUTION!

Static electricity hazard – risk of damage to equipment. Electronic devices could be severely damaged by static electricity. Before accessing or handling any electronic device, make sure you are properly grounded and all static electricity has been discharged by either wearing an anti-static strap or touching a large grounded metal surface for several seconds.

4. Make sure you are properly grounded by either wearing an anti-static strap or touching a large grounded metal surface for several seconds.
5. Locate the Card Cage that contains the faulty ICC^2 or ICC^3 (Intelligent Control Card).
6. Loosen the upper and lower slotted screws on the heat sink. These two screws are captive so they do not fall into the system or get lost on the floor.
7. Slide your screwdriver between the silver post and the ledge on the cabinet and gently pry the board out. (refer to Figure 12-3)

CAUTION!

Static electricity hazard – risk of damage to equipment. Do not, under any circumstances, place any PCB on carpets, rugs, or other material that is likely to create a static charge.

8. Carefully place the ICC on an earthed/grounded surface.
9. Remove and replace the faulty fuse with one of identical type and rating. Husky recommends Bussmann ABC or equivalent fuses. Make sure the fuse is fully seated. Poor seating will cause a hot spot, which can cause problems for the system.

   NOTE: A 30 Amp card will only have two fuses.
10. Slide the new card into the slot and push the card slowly and firmly back into place. A wrongly oriented card will not seat properly.

WARNING!

Hazardous voltage – risk of electrical shock or burns. The upper and lower slotted screws, that hold the heat sink in place, must be firmly tightened before the controller is energized

11. Tighten the upper and lower slotted screws on the heat sink.
12. Plug in the controller.
13. Turn the main input power disconnect switch to the ON position.

12.2.4 Replacing a Blown Fuse on the Display and Internal Cooling Fan

If the cooling fan, located on the back of the mainframe, stops running and the operator interface goes blank, there is a possibility that the internal fuses for these devices have blown.

To replace a fuse on the display and the cooling fan:

1. Remove the screws holding the upper access panel on the back of the controller mainframe.
2. Locate the fuse block on the inside of the panel between the fan and the disconnect switch.

CAUTION!

Mechanical hazard - risk of damage to the device. When replacing the fuses, take care not to stress the wire harnesses that run between the mainframe and the access panel.

3. Replace the fuses with SIBA part number 189020 6.3 Amp or equivalent only.
4. Install the rear panel back and tighten the mounting screws. Make sure the wires are not pinched between the panel and the mainframe.

12.3 Replacing a Neo2 Display

In some cases the Neo2 will not come on if the display module is defective.

IMPORTANT!

There are no user serviceable parts inside this Display Module and all warranties are void if it is opened by anyone other than factory personnel.

To remove the display module:

DANGER!

Hazardous voltage – risk of electrical shock or burns. The controller must be disconnected from the power source before maintenance is performed. Make sure the controller is turned off and unplugged. Lock out and tag the controller in accordance with local codes. Make sure the work area is blocked off and a Danger sign is posted at all entry points. Always maintain control of the work area and the power plug.

1. Turn the main input power disconnect switch to the OFF position.
2. Disconnect the controller from the power source.
3. Attach a lock and tag to the main input power disconnect switch.
4. Face the front of the system and rotate the display in the full forward position.

IMPORTANT!

It is recommended that a second person provides assistance.

5. Using a 4 mm hex wrench, remove the two M5 screws that hold the Neo2 display to the mainframe.
6. Carefully pull the display away from the mainframe. This exposes the cable connectors between the mainframe and the display.
7. Disconnect all cables connecting the display to the mainframe.
8. Install the replacement display module by reversing the above steps.
9. Plug in the controller.
10. Turn the main input power disconnect switch to the ON position.

12.4 Calibrating the Thermocouple Inputs

The system has been factory-calibrated and in most cases it is not necessary to recalibrate until Neo2 has been running for one year. If calibration is necessary, contact your nearest Husky Regional Service and Sales office for calibration instructions.

12.5 Cleaning the System

- 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, window cleaner sprayed onto a cloth, not directly onto the cabinet, is recommended.

Chapter 13 SPI Protocol Option

The system communicates with any central network or molding machine that supports the Society of Plastics Industry (SPI) standard protocol.

The system assumes a device ID of 26h on the SPI communications channel. This ID has been assigned to general-purpose temperature controllers with multiple zones. The system supports a subset of the commands that have been defined for this ID. The commands for this ID that are not supported by the system do not have equivalent functions in the system.

13.1 SPI Command Summary

The SPI commands supported by the system are listed below. The system supports the defined poll and select functions for each command. If a selected command is directed to all zones in the system, the error requirements must be satisfied for every zone before an ACK is returned.

- Echo.
- Version.
- Process Setpoint 1.
- Process Value.
- Alarm Active Status.
- Alarm 1 Setpoint.
- Alarm 2 Setpoint.
- Alarm 1 Reset.
- Controller Status.
- Manual Percentage Output.
- Open/Close Loop Control.

13.1.1 Echo

Summary	SPI controller integrity command.
Errors	If the data length for the selected function is incorrect, the system will return a NAK.
Version Summary	The system transmits the device ID (26h) and SPI software version number.
Errors	None.

13.1.2 Process Setpoint

Summary	This command is used to set and read the temperature setpoint for an automatically controlled zone. It is valid even if the selected zone is running in MANUAL or VIEW regulation mode.
Errors	The following conditions result in a NAK response with an invalid data error for the select function: • Incorrect data length. • Invalid zone number. • A value less than the minimum allowed setpoint. • A value greater than the maximum allowed setpoint. The following conditions result in an invalid data error in response to a polled function: • Invalid zone number.

13.1.3 Process Value

Summary	This command is used to read the actual temperature of a specified zone. It is valid for zones in all regulation modes. If the zone does not have a thermocouple input or thermocouple type assigned, or if the thermocouple is disconnected, 0.0 is returned. Otherwise a value between 32 °F and 932 °F is returned.
Errors	The following conditions result in an invalid data error in response to a polled function: • Invalid zone number.

13.1.4 Alarm Active Status

Summary	This command is used to read error status for a single zone. A value of 0 is returned if no errors are active. It is valid for all zones in all regulation modes.
Errors	The following conditions result in an invalid data error in response to a polled function: • Invalid zone number.

13.1.5 Alarm 1 Setpoint

Summary	This command is used to set and read the alarm window value for a single zone. The alarm window is used only for zones with Auto or View regulation.
Errors	The following conditions result in a NAK response with an invalid data error for the select function: • Incorrect data length. • Invalid zone number. • A value less than 0 °F or greater than 900 °F. • A value greater than the abort window value. The following conditions result in an invalid data error in response to a polled function: • Invalid zone number.

13.1.6 Alarm 2 Setpoint

Summary	This command is used to set and read the abort window value for a single zone. The abort window is used only for zones with Auto or View regulation.
Errors	The following conditions result in a NAK response with an invalid data error for the select function: • Incorrect data length. • Invalid zone number. • A value less than 0 °F or greater than 900 °F. • A value greater than the abort window value. The following conditions result in an invalid data error in response to a polled function: • Invalid zone number.

13.1.7 Alarm 1 Reset

Summary	This command is used to clear the errors for all the zones in the system. The system does not have the ability to clear an error for an individual zone.
Errors	The following conditions result in a NAK response with an invalid data error for the select function: • Incorrect data length. • Invalid zone number.

13.1.8 Controller Status

<table>
<tr><td>Summary</td><td colspan="3">This command is used to read the condition of a single zone. The definition of the status bits is given below:</td></tr>
<tr><td></td><td>BIT</td><td>SPI DEFINITION</td><td>SYSTEM DEFINITION</td></tr>
<tr><td></td><td>0</td><td>Heater Power</td><td>Power to heater is not zero</td></tr>
<tr><td></td><td>1</td><td>Soft Start</td><td>Soft start is active</td></tr>
<tr><td></td><td>2</td><td>Manual Control</td><td>Manual regulation (Not Auto or View)</td></tr>
<tr><td></td><td>3</td><td>Low Alarm 1</td><td>Alarm under temperature</td></tr>
<tr><td></td><td>4</td><td>High Alarm 1</td><td>Alarm over temperature</td></tr>
<tr><td></td><td>5</td><td>Low Alarm 2</td><td>Abort under temperature</td></tr>
<tr><td></td><td>6</td><td>High Alarm 2</td><td>Abort over temperature</td></tr>
<tr><td></td><td>7</td><td>Open T/C Alarm</td><td>Lost thermocouple</td></tr>
<tr><td></td><td>8</td><td>Reverse T/C Alarm</td><td>Reversed thermocouple</td></tr>
<tr><td></td><td>9</td><td>Shorted T/C Alarm</td><td>Not supported</td></tr>
<tr><td></td><td>10</td><td>Open Output Device</td><td>Fuse blown</td></tr>
<tr><td></td><td>11</td><td>Shorted Output</td><td>Not supported</td></tr>
<tr><td></td><td>12</td><td>Earth Leakage</td><td>Not supported</td></tr>
<tr><td></td><td>13</td><td>Low Current Alarm</td><td>Not supported</td></tr>
<tr><td></td><td>14</td><td>High current</td><td>Not supported</td></tr>
<tr><td></td><td>15</td><td>Out Of Control</td><td>Not supported</td></tr>
<tr><td>Errors</td><td colspan="3">The following conditions result in an invalid data error in response to a polled function:
• Invalid zone number.</td></tr>
</table>

13.1.9 Manual Percent Output

Summary	This command is used to set and read the manual percent output for a manually-regulated zone. It is valid even if the zone is running in the Auto or View regulation mode.
Errors	The following conditions result in a NAK response with an invalid data error for the selected function: • Incorrect data length. • Invalid zone number. • A value less than the minimum allowed percentage. • A value greater than the maximum allowed percentage. The following conditions result in an invalid data error in response to a polled function: • Invalid zone number.

13.1.10 Open/Closed Loop

Summary	This command is used to set the regulation mode of a zone to either Manual or Automatic only. No provision is made for setting the regulation to View.
Errors	The following conditions result in a NAK response with an invalid data error for the selected function: • Incorrect data length. • Invalid zone number. The following conditions result in an invalid data error in response to a polled function: • Invalid zone number. • Zone regulation is set to View.