e*DART*® Process Control Software v10 Manual

NOTE *eDART Process Control Software version 10 is compatible ONLY with the following touchscreen:* Model: *1715L*, MFG Part #: *E603162*, CDW Part #: *1994217*

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Basic Setup with e*DART*® Software

This section walks you through the setup for the software for the *eDART*.

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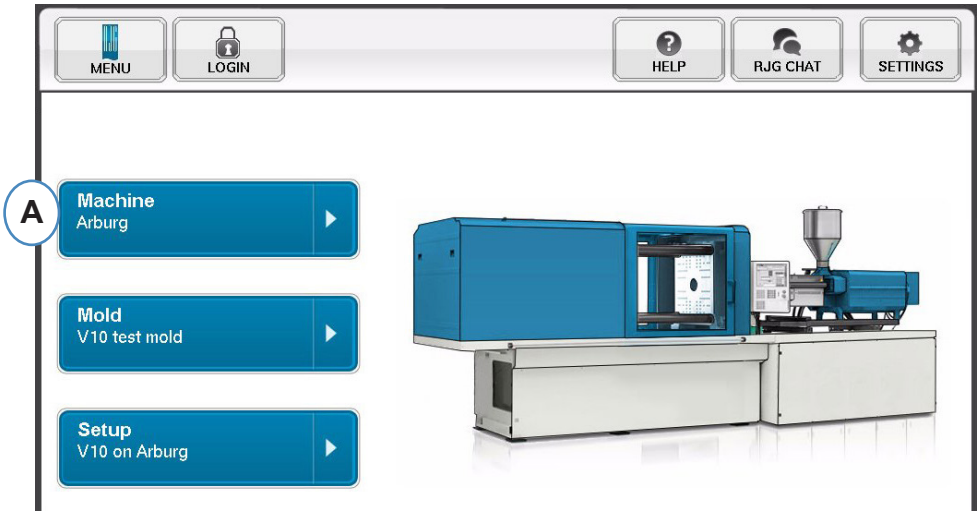
Start Machine

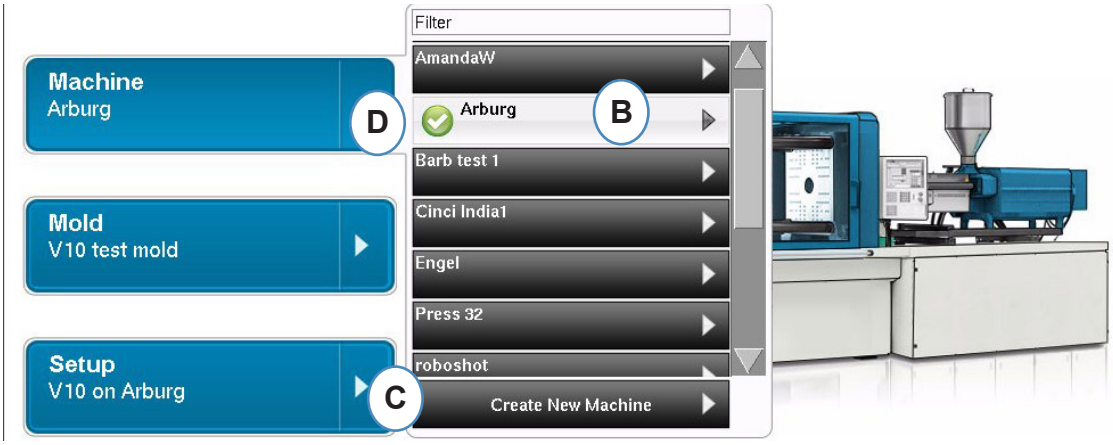
The *eDART* allows for many Machine, Mold, and Process setups to be stored in the memory for future runs. It is necessary to set up the Mold or Machine only once, the first time that it is started. Machine input, output configurations and the Machine size information are stored in the Machine file. Mold Sensor locations are stored in the Mold file. Alarm Limits and diverter settings are stored in the Process folder.

Always choose the Machine name from the Drop-down menu if it already exists. Only create a new Machine after checking for an existing Machine setup.

Once a Machine is created there is no need to set it up again. The *eDART* will remember all of the configurations for the machine. The Sequence Module is a Machine Identifier and will automatically select the Machine from the Machine Drop-down menu when connected to the system.



A: Click on the “Machines” Button on the *eDART* Home Page.



B: If the Machine is in the list click on it to select.

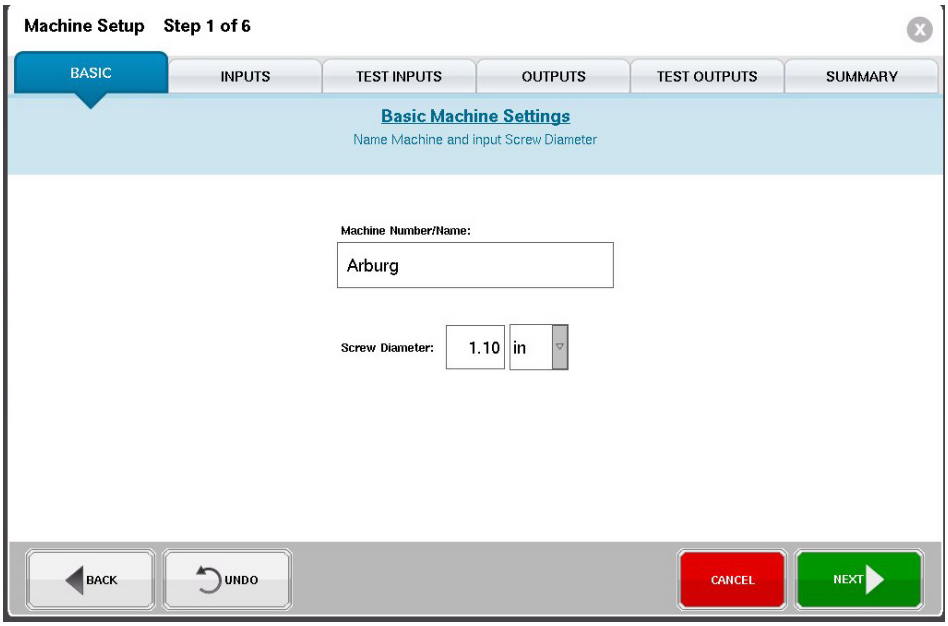
C: If the Machine is not in the list click on “Create New Machine”.

D: The selected Machine will be highlighted and have a check mark beside the name.

If a Machine is selected from the drop-down menu the Machine Name will show on the Machine button.

Create New Machine

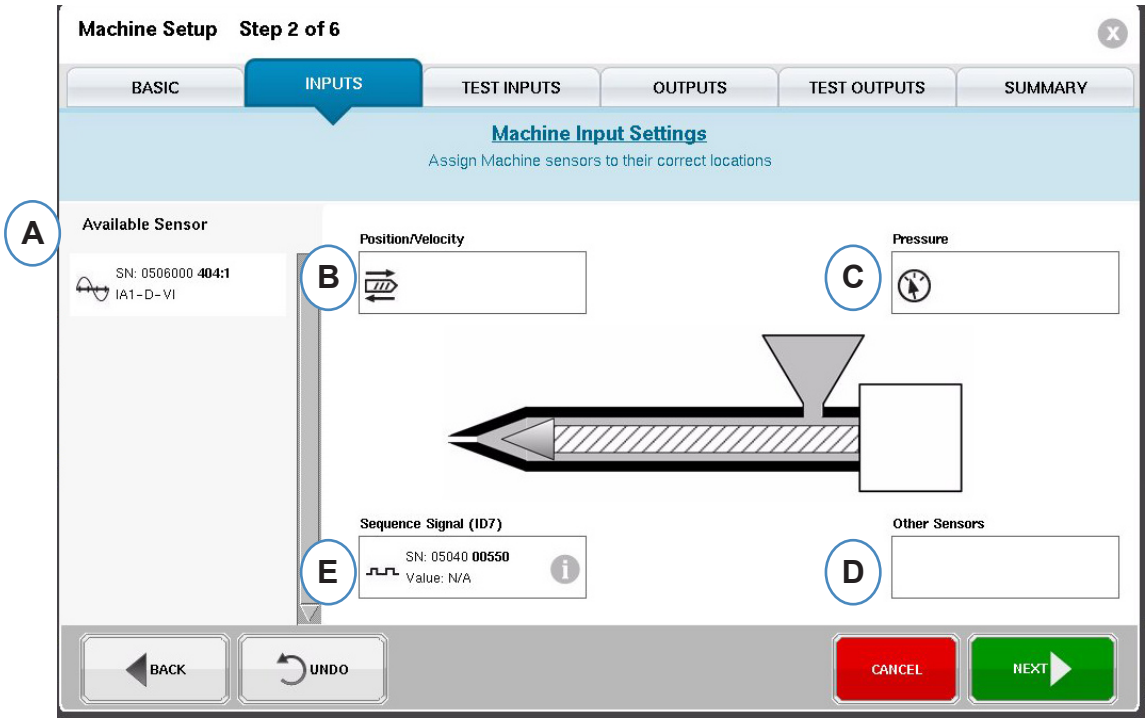
When Create New Machine is selected the *eDART* will step through the Machine Creation Process. The first window will show the “Basic” tab. Do not use the Create new Machine Button if the Machine exists in the drop down menu. Instead, click on it to select.



Sensor Icon Legend

	LE-R-50 - Stroke Encoder
	Proximity Switch
	Hydraulic Sensor
	Pressure Sensor
	Analog Input
	OR2-D
	Delta Pressure Sensor
	ID-7
	Mold Deflection
	Temperature Sensor

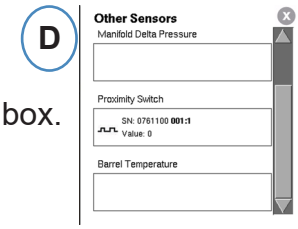
Placing Sensors



A: Available Sensor List - Drag and drop sensors from the Available Sensor list into their correct locations. When a sensor is held over a location the window will open and allow correct placement of sensor within the location.

B: Drag the LE-R-50 or analog input modules connected for screw position into this box. See Position/Velocity section for details.

C: Drag the Hydraulic sensor or the analog input module connected for injection pressure into this box. See Injection Pressure section for details.



D: Drag any other Machine sensors that are connected to the Machine into this box.

E: When you connect the Sequence Module to the *eDART* it will automatically assign it to the Sequence Signal area. See Sequence Module Config for more information.

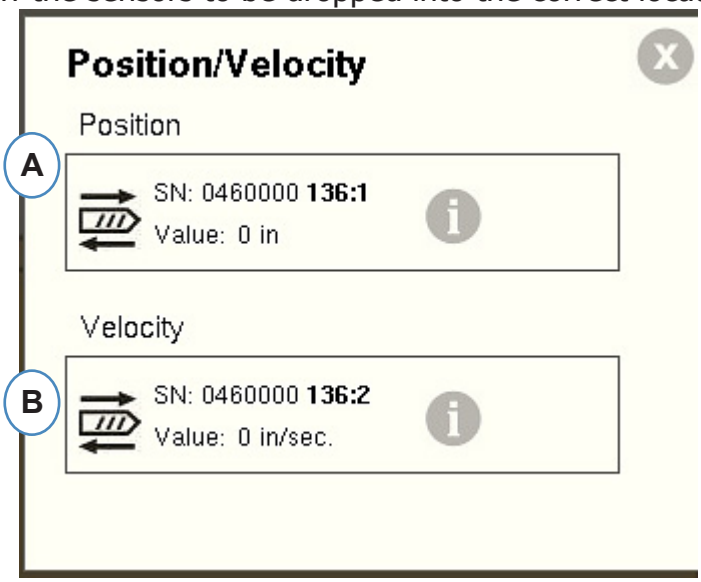
All sensors attached to the system will automatically display in one of the Available Sensor lists. Mold sensors will show up in the Mold Available Sensor list and Machine Sensors will show up in the Machine Available Sensor List from the setup portion of the Job creation process.

The Sequence Module is a Machine Identifier for the *eDART* system. After the initial setup for the Machine the *eDART* will automatically display the Machine Name on the start page.

Configuring Sensors

Position/Velocity For LER-50

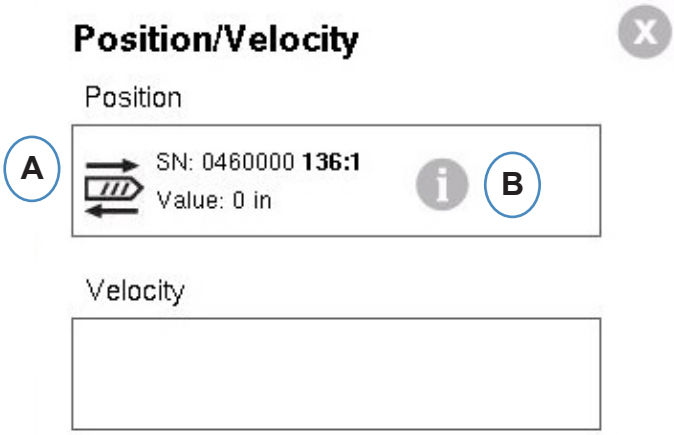
When the Position/Velocity sensor is placed over the Position/Velocity location on the machine, a window will open up to allow the sensors to be dropped into the correct location.



A: Drop the LE-R-50 sensor output 1 from the “Available Sensor” List into the Position location. Select the screw direction. (see Set Screw Direction)

B: The Velocity sensor will automatically assign.

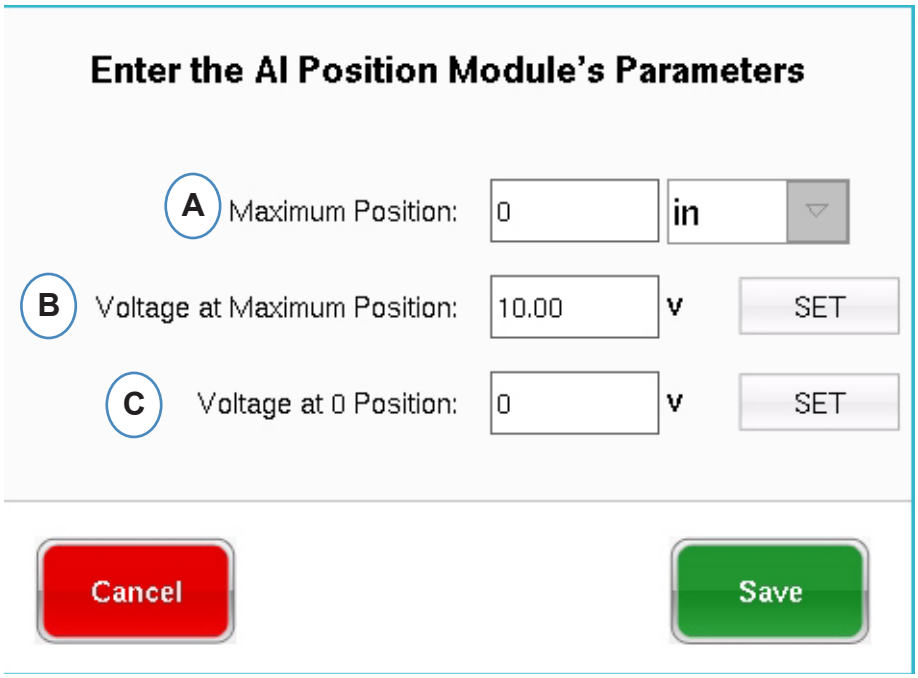
Position/Velocity From Analog Input



A: Drag analog input connected to Position or Velocity into the correct locations.

B: Click on the “i” to get Analog Input scaling window Scale Analog Inputs for Position and Velocity.

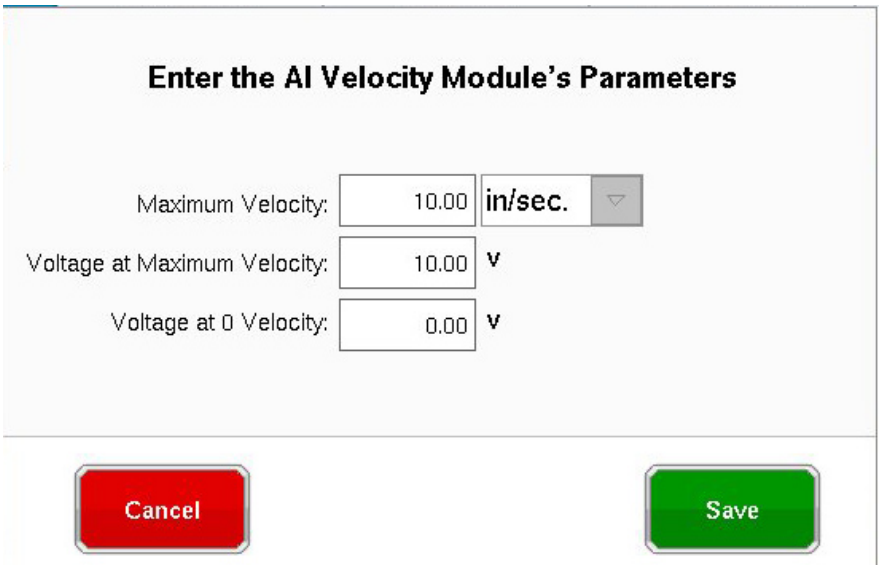
Position/Velocity Analog Configuration



A: Enter the maximum shot size on the machine.

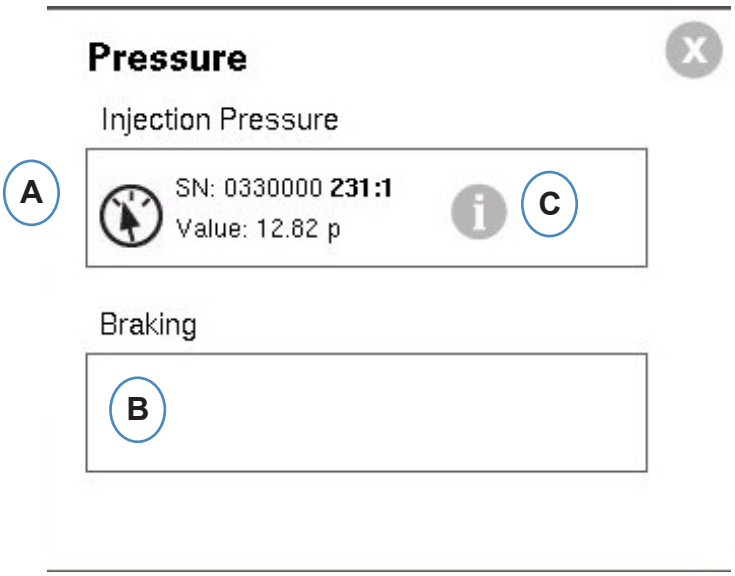
B: Run the screw to the maximum shot size, select "Set" to automatically set the maximum position voltage level.

C: Run the screw to bottom (0 cushion), select "Set" to automatically set the 0 position voltage level.



Injection Pressure Hydraulic Sensor Configuration

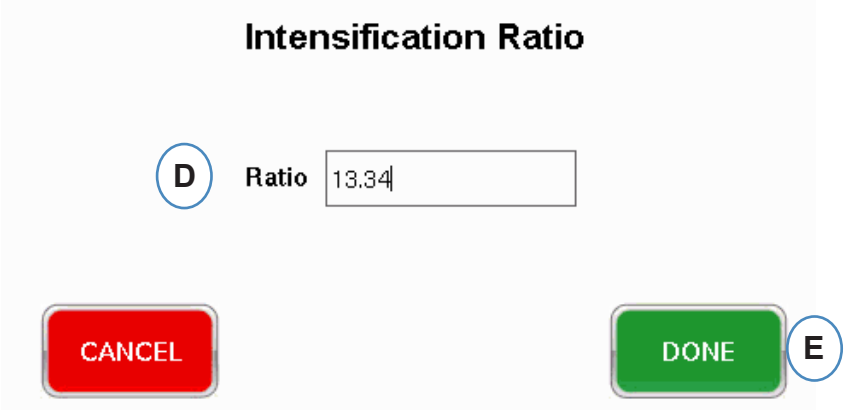
Hydraulic Machines require a Hydraulic Pressure sensor.



A: Drag the Hydraulic sensor from the Available Sensor List to the Injection Pressure Location.

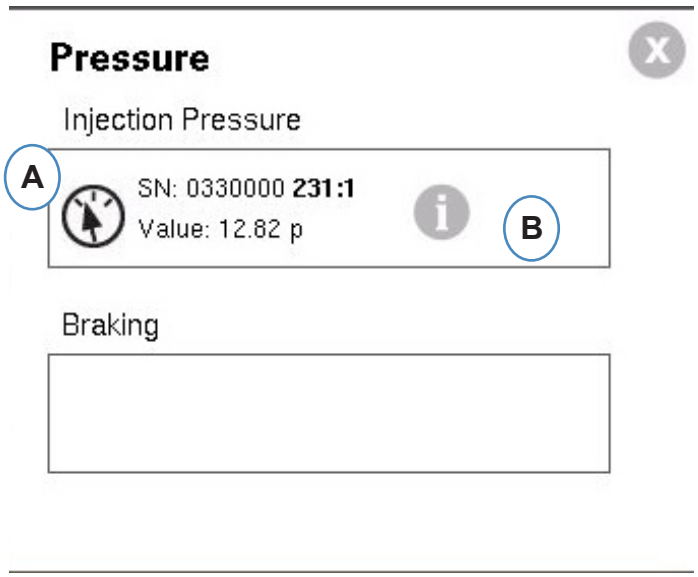
B: If the Machine has the Dynamic Braking option, drag that sensor into the Braking Pressure Location.

C: Click on the “i” to enter the Intensification Ratio window.



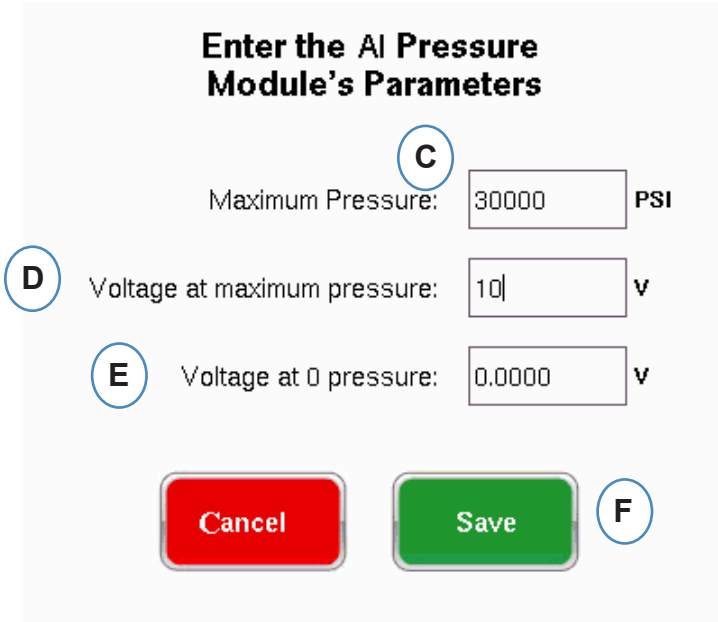
Injection Pressure Analog Configuration

Electric Machines Require an Analog Input Module to be wired to the Output for Injection Pressure from the Machine.



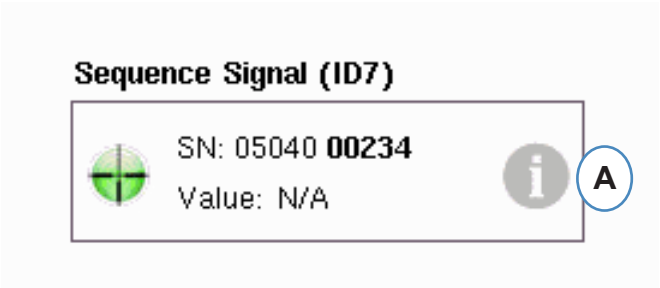
A: Drag the Analog Input wired to the Injection Pressure Output to the Injection Pressure location.

B: Click on the “i” to get the scaling window.



Sequence Module Configuration

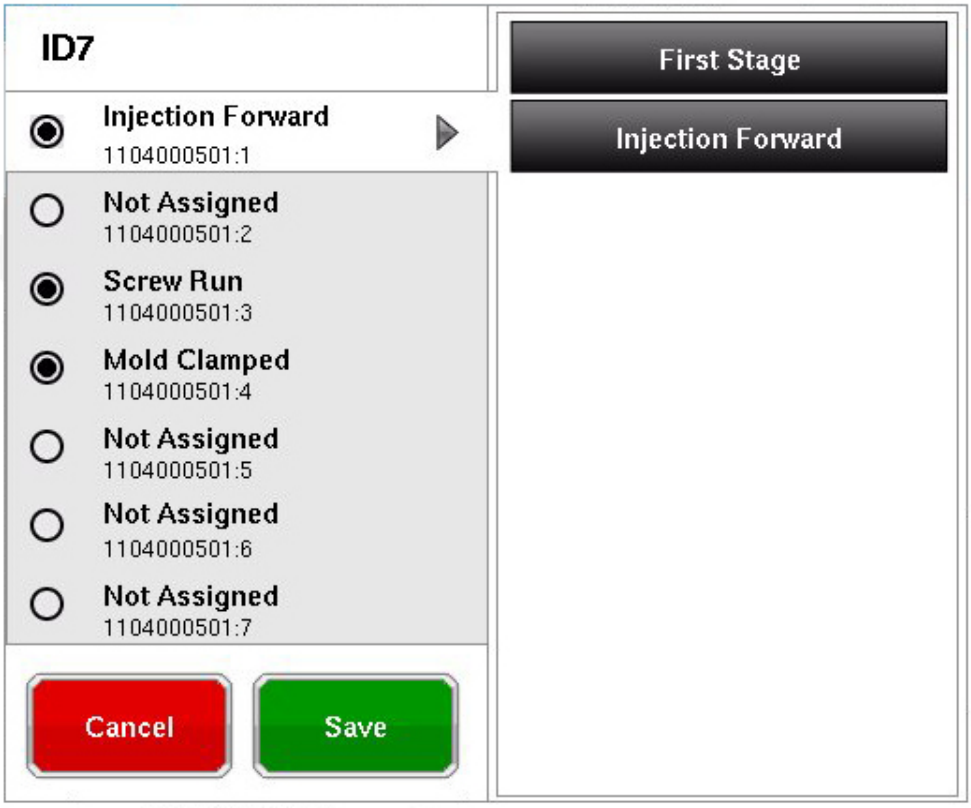
Triggers or Machine Sequence signals are 24VDC on/off signals from the machines digital outputs. The *eDART* uses these signals for timing. The sequence module will automatically assign itself to the Sequence signal box.



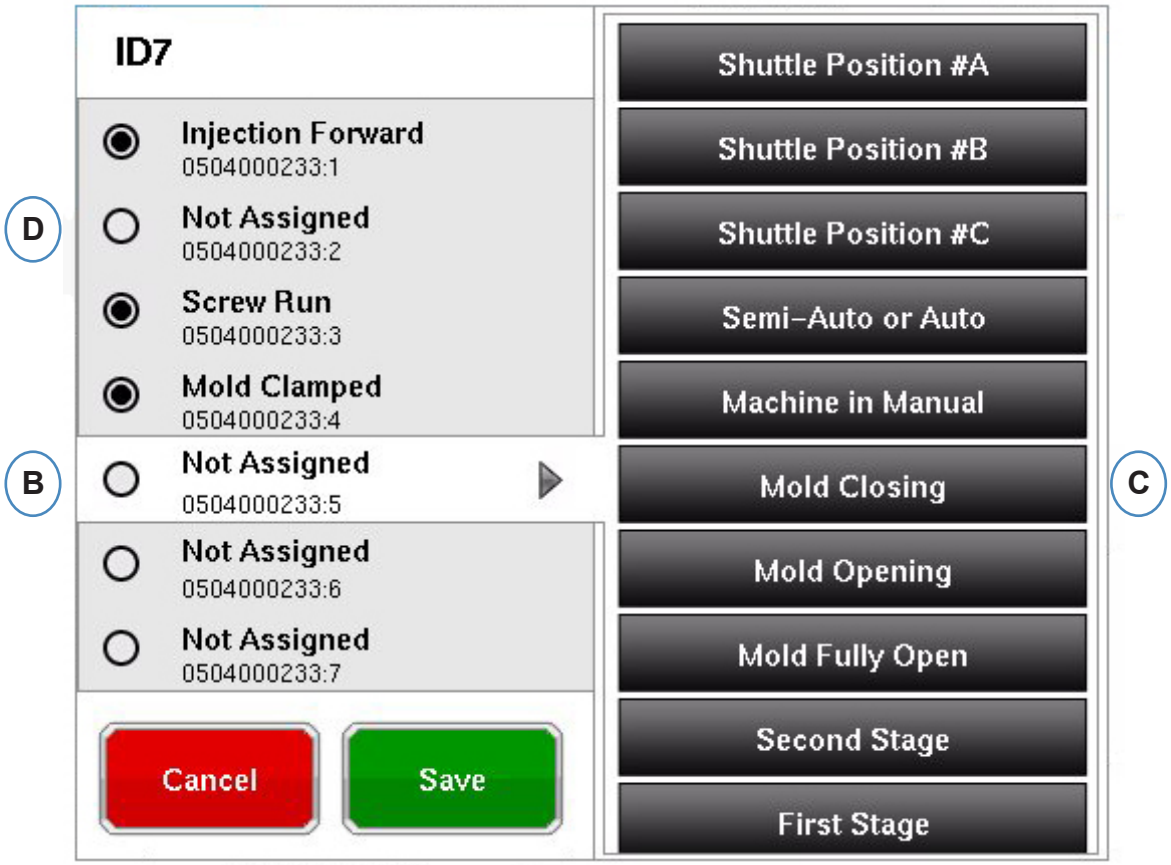
A: Click on the ”i” to see the trigger lights and assign signals

Triggers tell the *eDART* when to execute different functions like zeroing sensors, Starting Cycles, and calculating values, therefore, it is important that the triggers are labeled exactly what they are.

The required signals, Injection Forward, Screw Run and Mold Clamped are pre assigned to the sequence module and can’t be changed.



Triggers that are connected but not Pre-Assigned need to be labeled.



B: Click the terminal location to assign the trigger name.

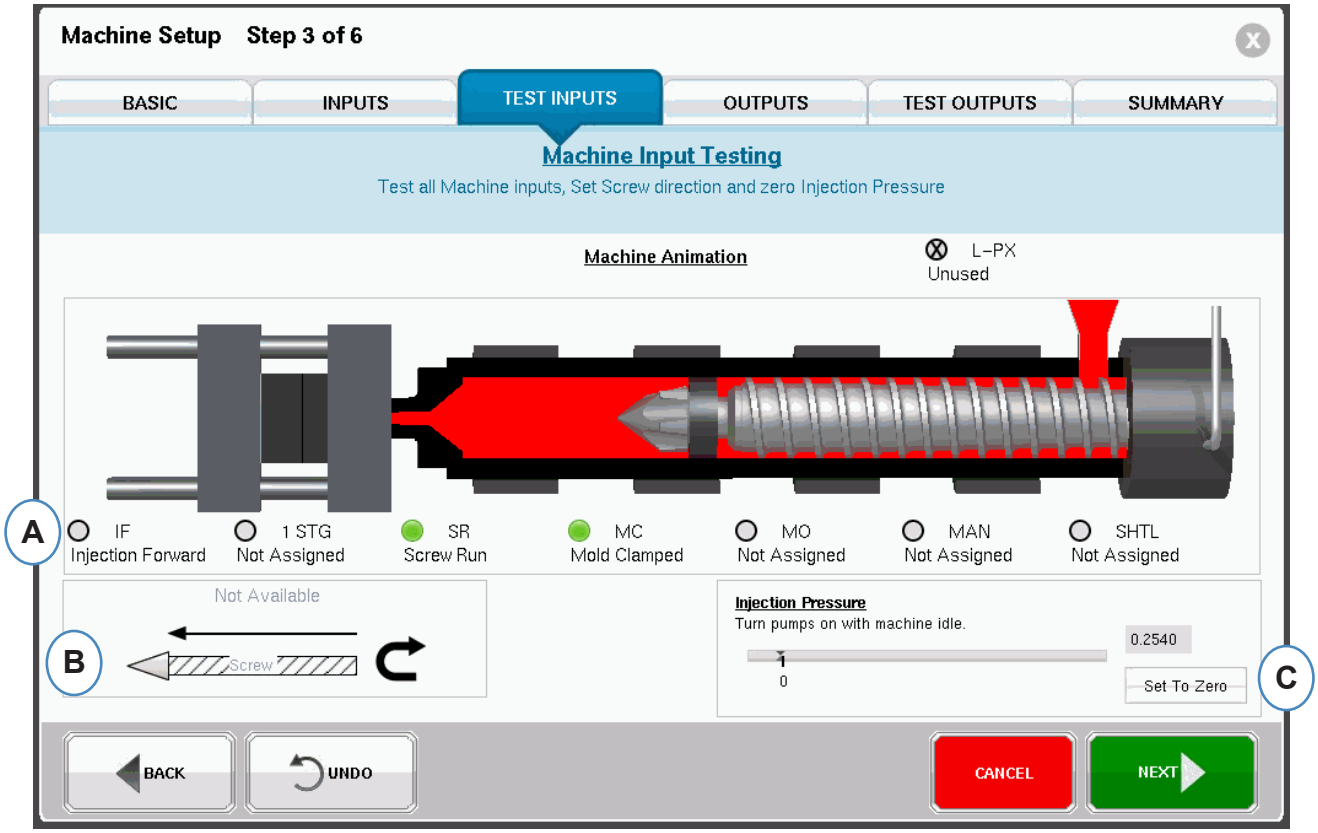
C: Click on the correct label for the trigger connected to the terminal.

D: To unassign a previously selected trigger, click on the terminal and change it to “Not Assigned”.

It is extremely important to label the triggers correctly. Leave them as “Not Assigned” if you are unsure.

Testing Inputs/Outputs

When all sensors have been assigned, and the “Next” Button is clicked, the *eDART* will automatically take you to the Test Inputs Screen.



A: To verify triggers, watch the lights to make sure that the triggers come on and off at the correct times.

The Picture is an animation of your Machine and should move with the machine as a visual aid in Trigger assignment.

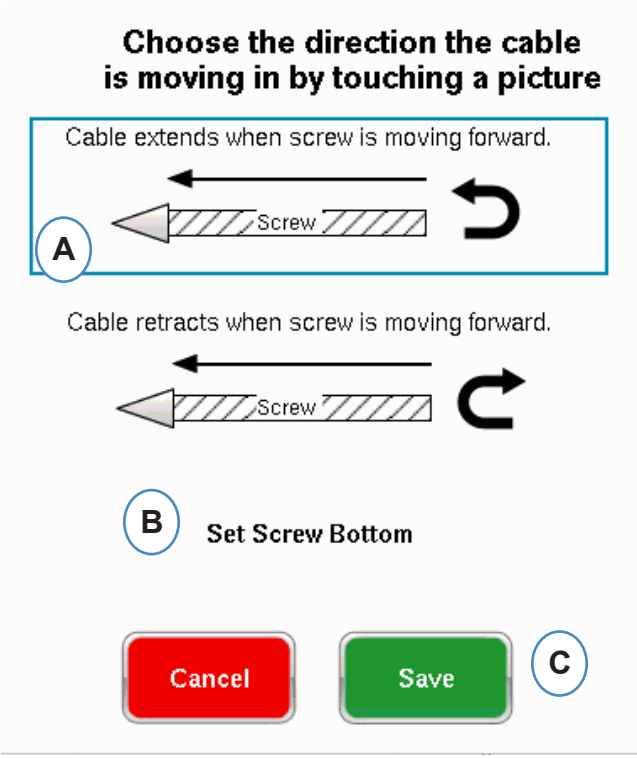
If the trigger light does not light up, label that input terminal not used or correct wiring to module.

If the trigger lights up at the wrong times, label that input terminal not used or correct wiring to module. You must go back to the Inputs page to makes changes.

B: Click on this button to set the direction of the screw. See Set Screw Direction for details.

C: Click this button to zero the injection pressure. See Zero Injection Pressure for details.

Set Screw Direction

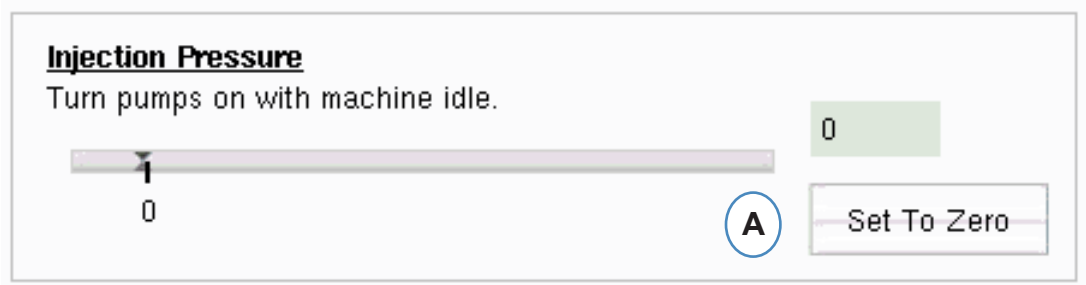


A: Select option that matches the stroke sensor cable direction.

B: Bottom the screw and select, to set the screw bottom postition.

Zero Injection Pressure

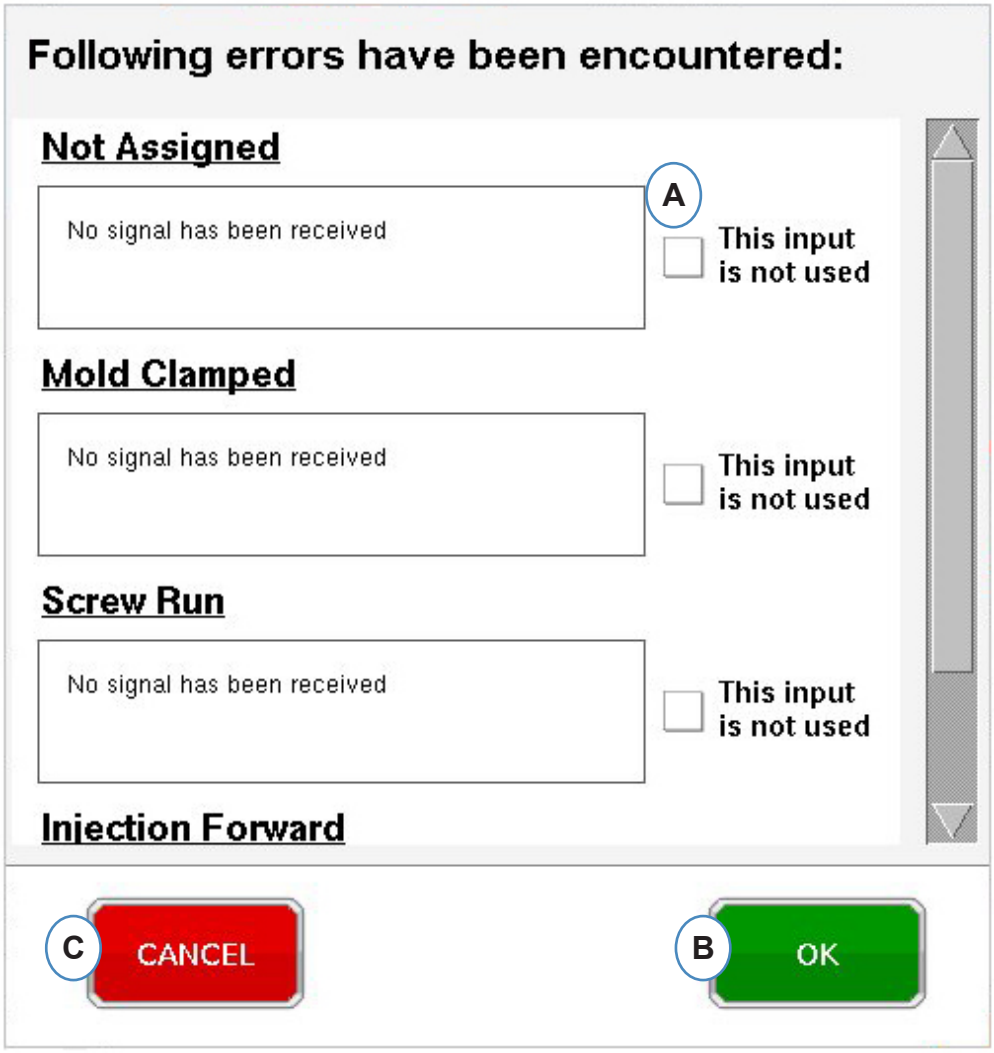
This needs to be completed while the machine is not injecting.



A: Select “Set To Zero” to set the Zero (0) while the machine is idle.

Automatic Trigger Testing

This window will appear after completing the Test Input page. If the triggers are incorrect during the cycle, an error message will appear once the job has started.



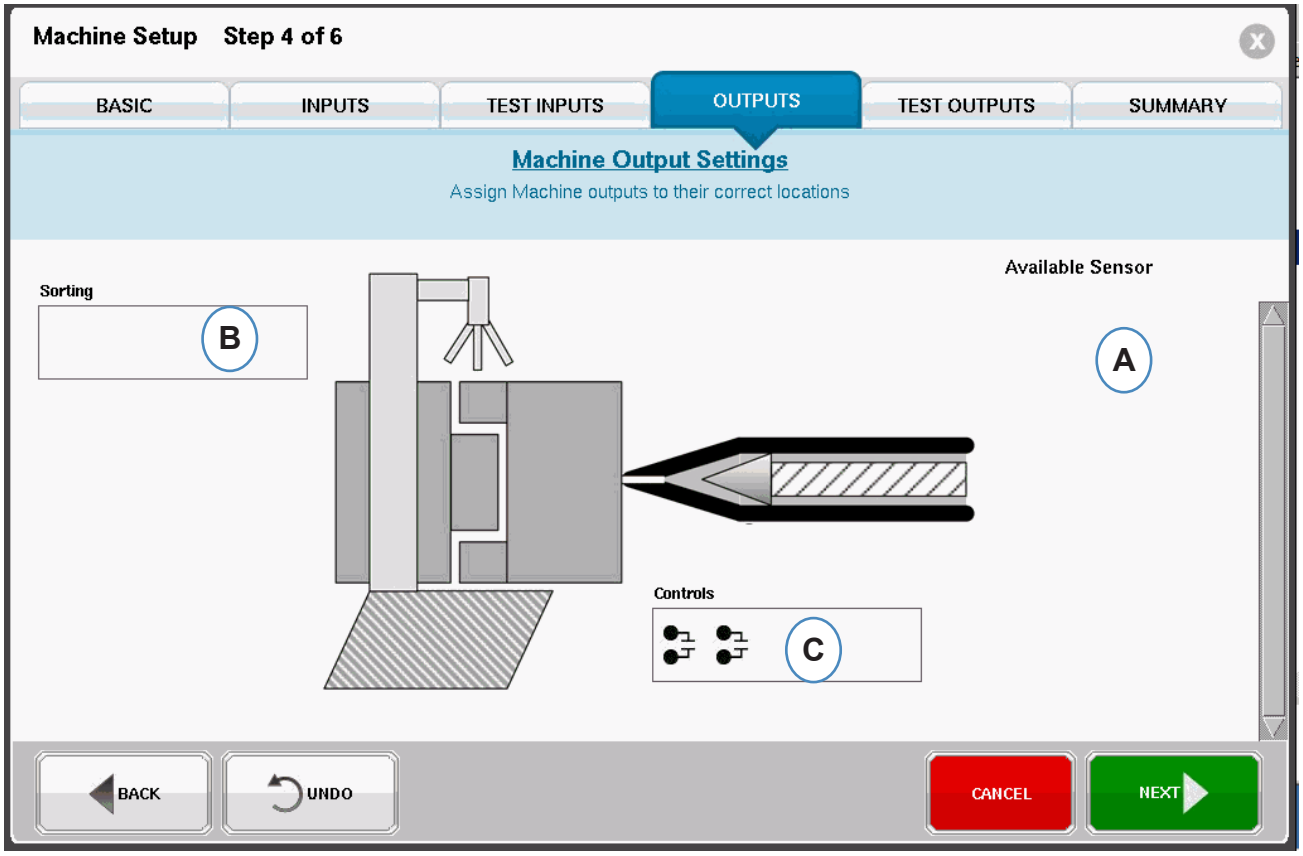
A: Click on the “This input is not used” box if the trigger is not working or incorrect.

B: Select “OK” to proceed without correcting the errors.

C: Select “Cancel” to return to the test inputs page to correct the errors.

Configure Outputs

Use the *eDART* Outputs page to assign the output modules wired to machine.



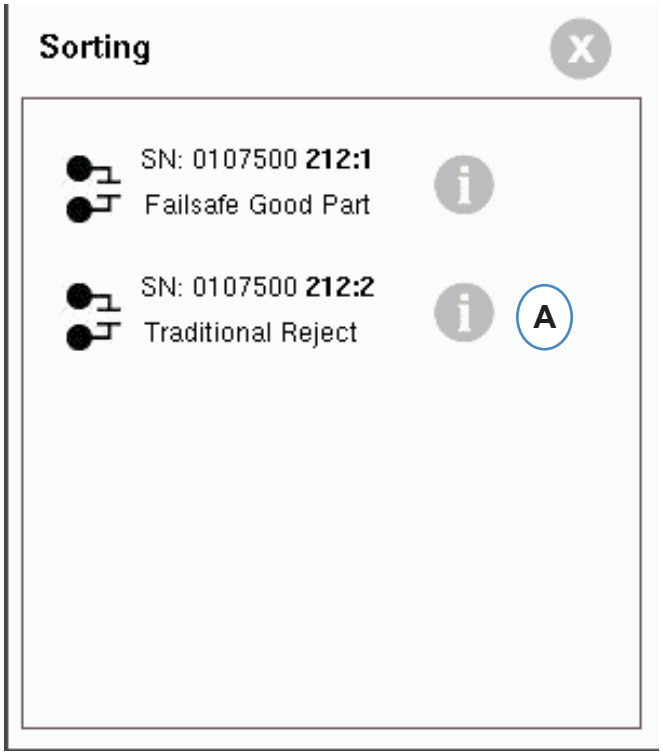
A: Available Sensor List - Drag Output Modules from the Available sensor list into the location where they are wired.

B: If a module is attached to the Robot or Part Diverter drop it into the Sorting box. See Sorting for details.

C: If a module is wired to V>P transfer of the machine drop it into the Controls box. See Control Velocity to Pressure Transfer for details.

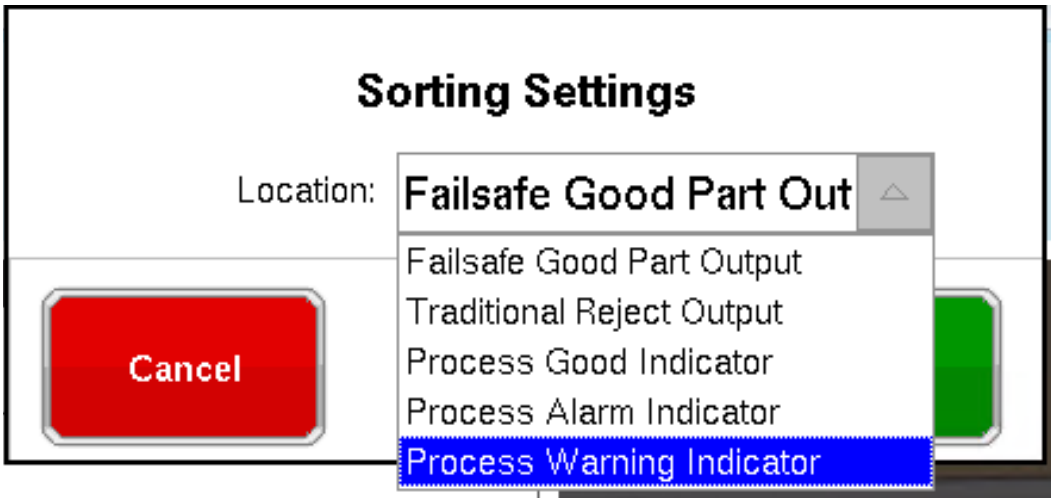
Sorting

When a Sensor from the Available Sensor list is held over the Sorting box, the window will open so that the sensors can be dropped into their positions.



A: Click on the “i” to configure the sorting output.

Sorting cont.

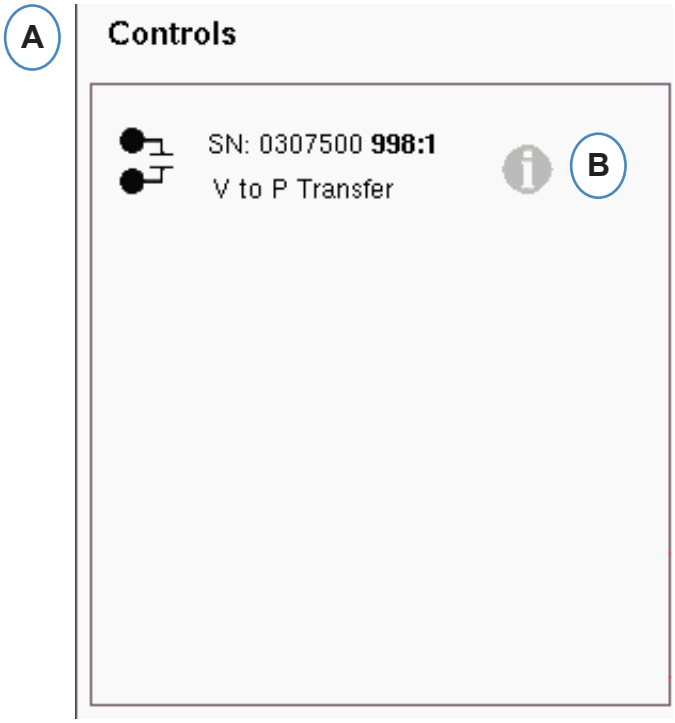


Shot Containment:

If the entire shot is to be segregated for inspection you will need one side of an OR2 module wired to Robot or Diverter. There will be only one OR2 module entry in the Sorting box. Click on the “i” and choose “Failsafe Good Part Output”.

Control Velocity to Pressure Transfer

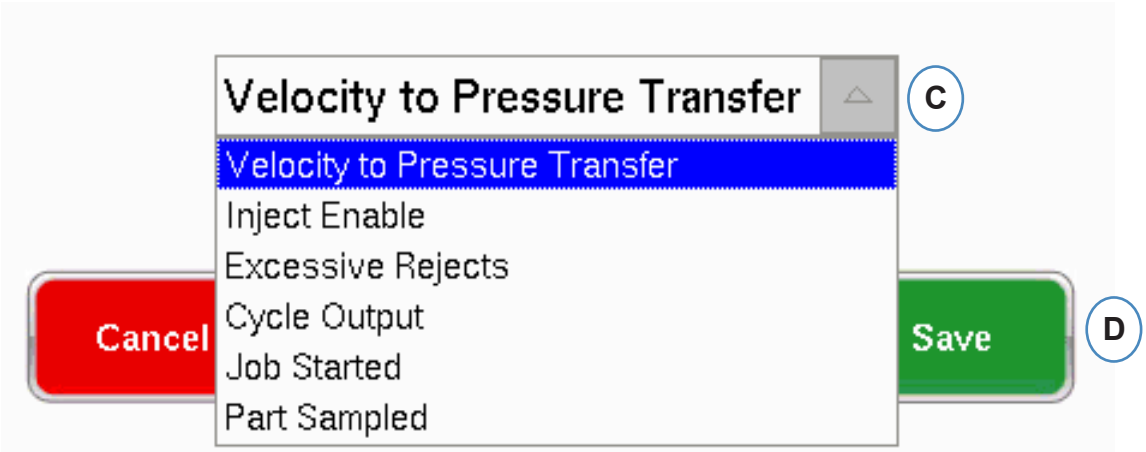
When you hold a sensor over the Control box, the window will open so that all of the control sensors can be added to control list.



A: Drop all of the Modules wired to controls into the Controls box.

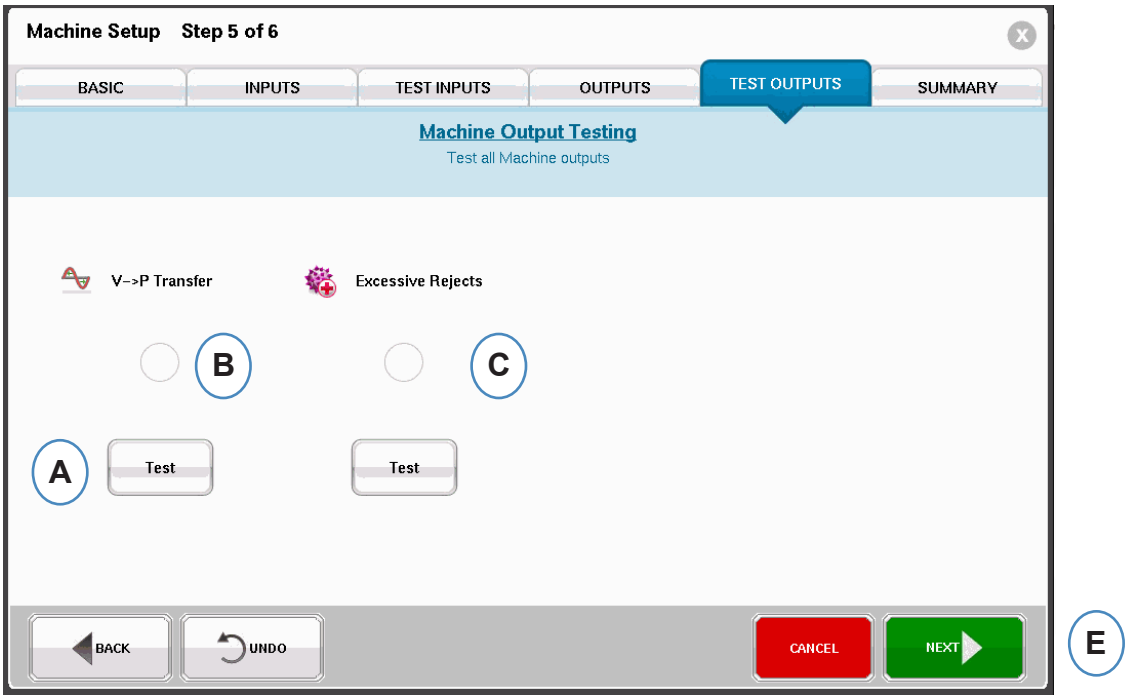
B: Click on the “i” button to set up the control output type for each module.

C: Choose the desired setting from the drop down.



Output Testing

Use the Test output page to insure that the outputs work as expected.



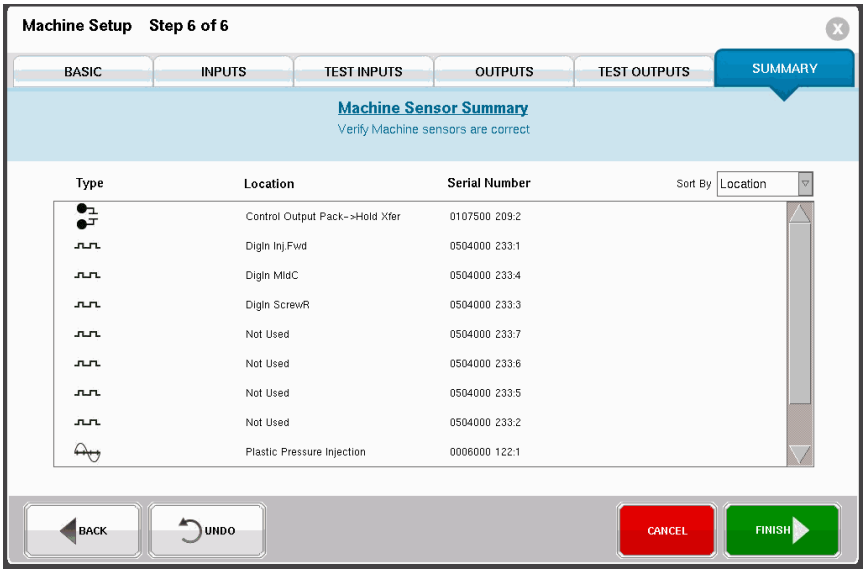
A: Click on the Test button to test each output.

B: Check that the light turns green.

C: Check that the LED on the output module turns green. Check that the device alternates correctly on the machine, robot, etc.

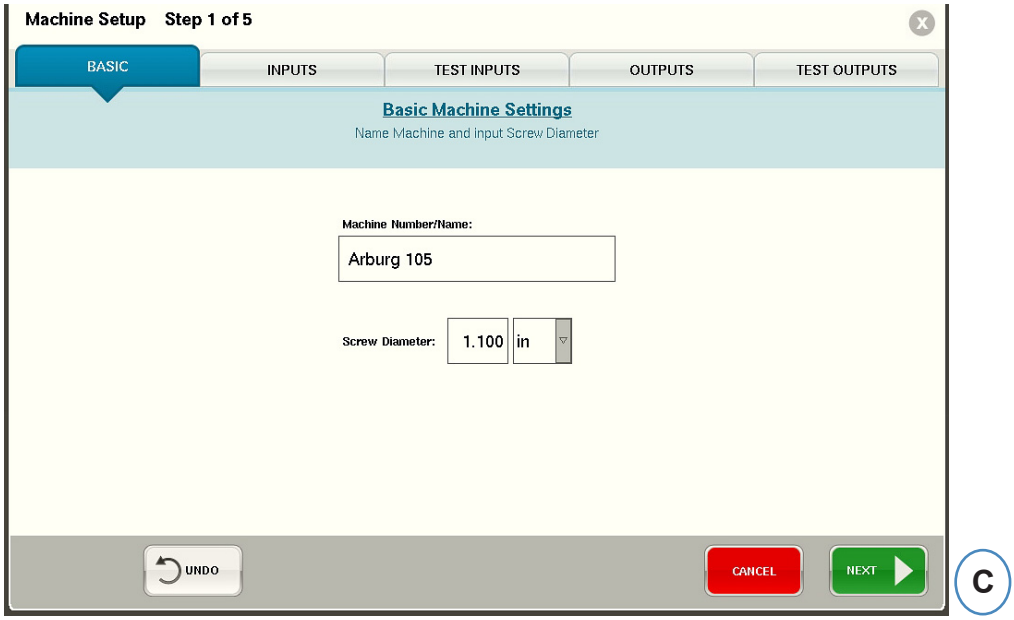
Summary Tab

This tab shows the type, location and serial number of all sensors relating to this machine, whether they are in use or not. Click 'Finish' to continue.



Modify Existing Machine

A: Click on the “Machine” button.

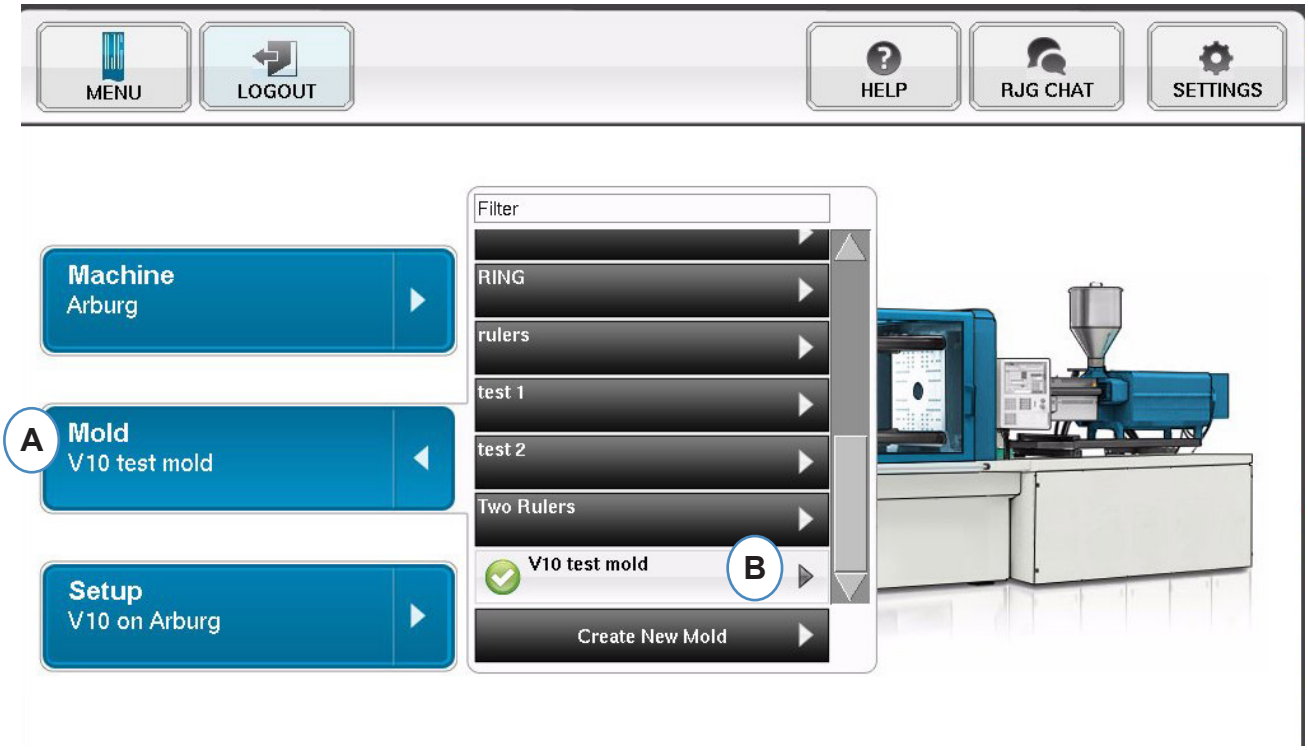


B: Click on the arrow beside the Machine Name to get to the Machine Setup window.

Choose Pre-Existing Mold

When a Mold is created the *eDART* will remember all of the Sensor Locations and Types. It is not necessary to set the Mold up again. Instead, just select it from the Mold Drop-down menu.

Lynx Mold Pressure Sensors are Mold Identifiers. Once they have been set up in a Mold file the *eDART* will remember which Mold they are in and automatically select it from the Mold list. If they are moved to a different Mold you will need to choose the correct Mold from the Mold select drop-down menu or create a new mold if it does not yet exist.

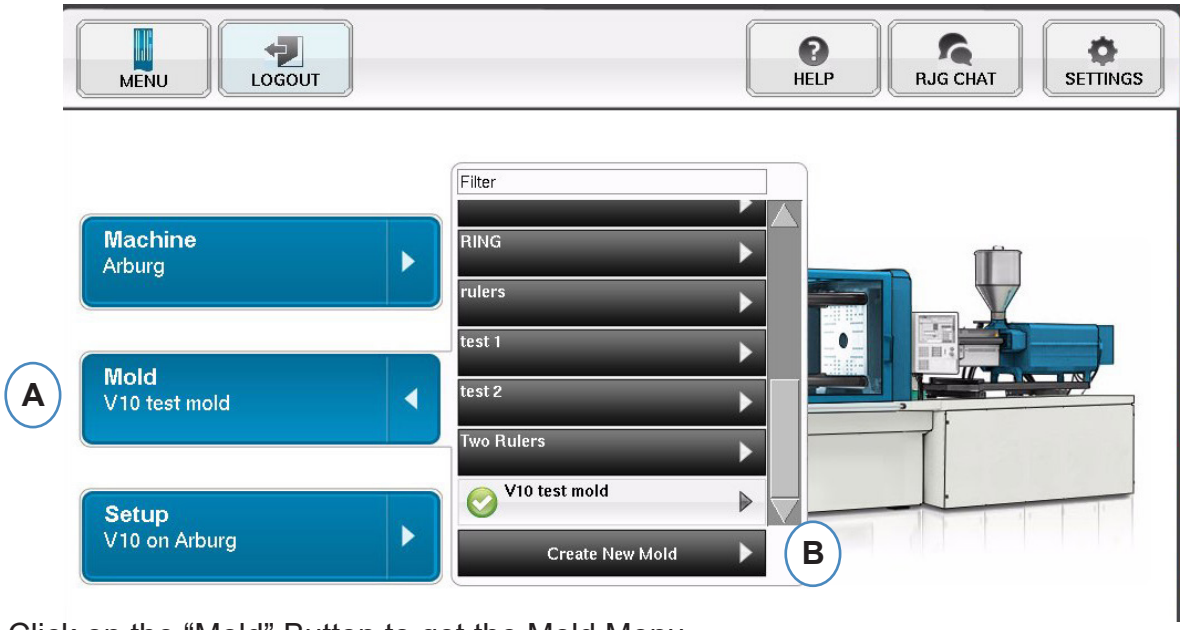


A: Click on the “Mold” Button.

B: Click on the correct Mold to Select.

Create New Mold

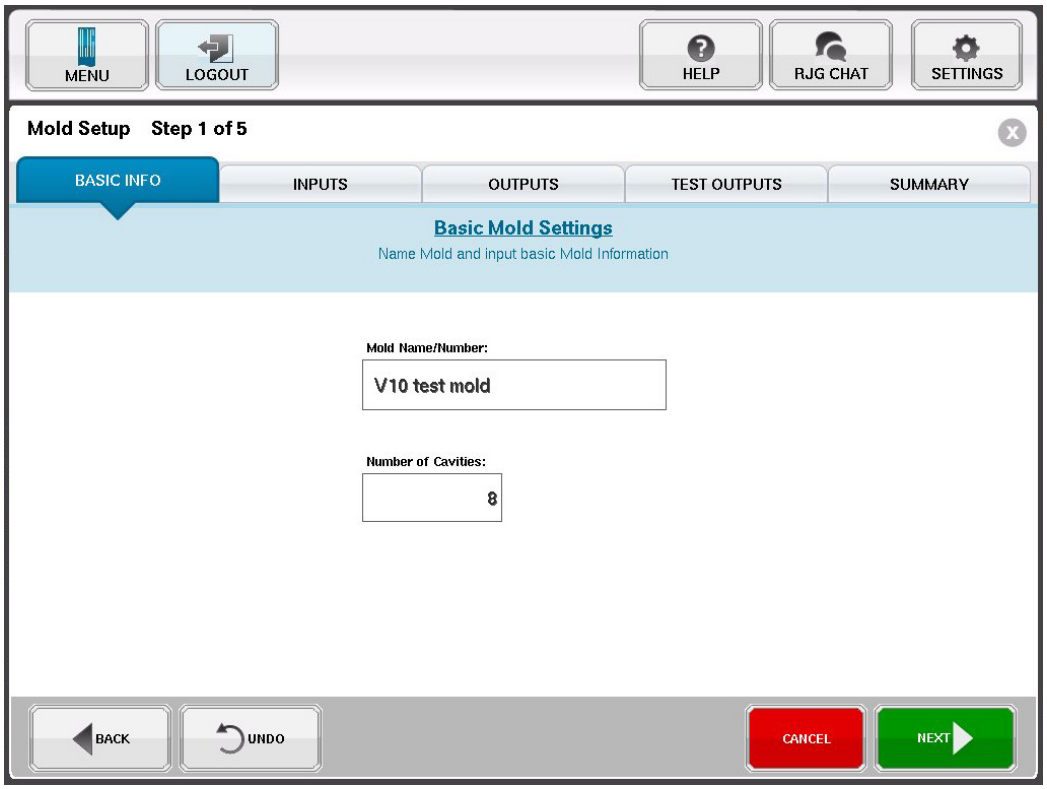
Do not use the “Create New Mold” button if the Mold has been set up previously. Instead select it from the drop-down menu.



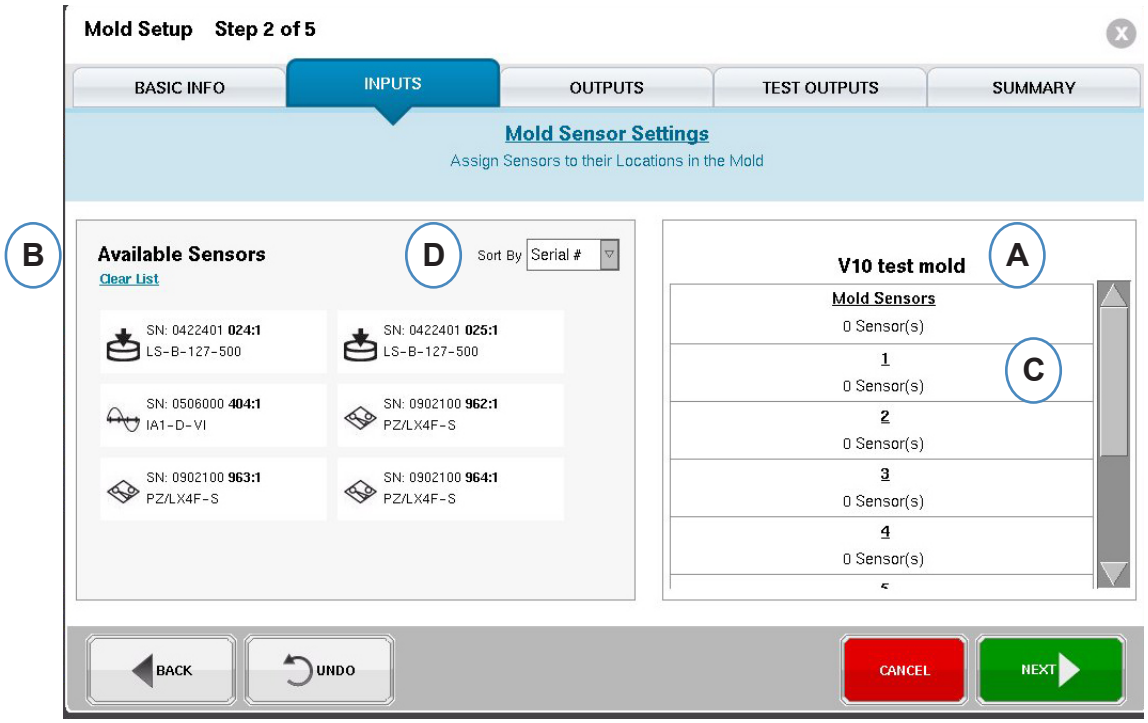
A: Click on the “Mold” Button to get the Mold Menu.

B: Click on the “Create New Mold” Button.

When “Create New Mold” button is selected the Mold Setup window will appear.

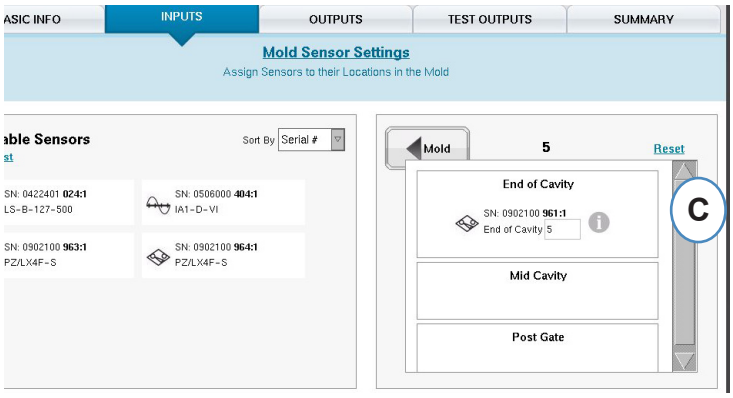


Sensor Assignment/Placement



A: The Mold Name portion of the display will reflect the number of cavities entered for the Mold.

B: Available Sensor List - Drag a sensor from the “Available Sensor” list on the left to the correct cavity in the Mold on the right side of the window.

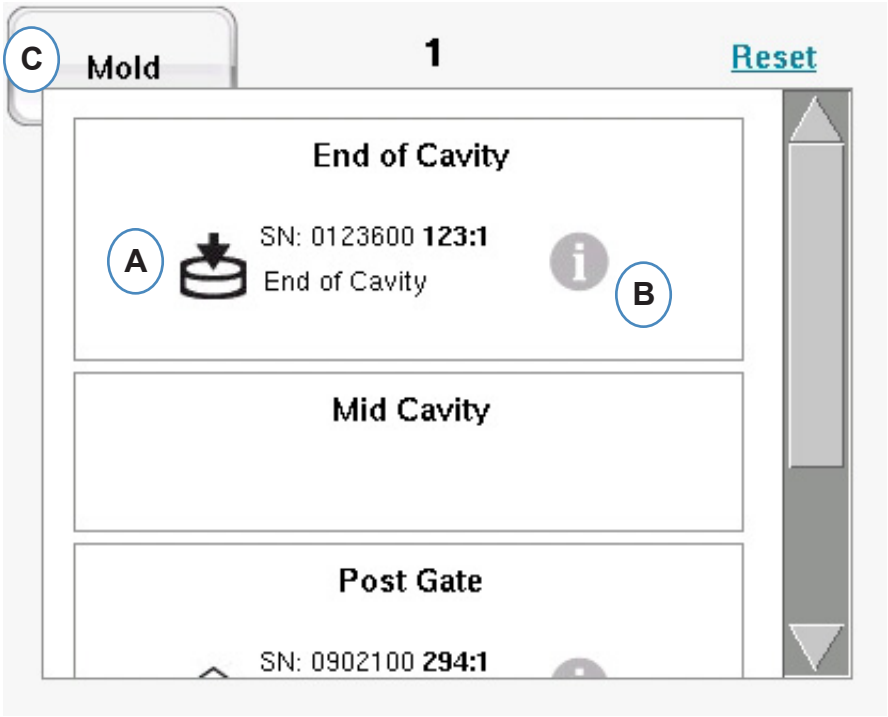


C: When you place the sensor over the cavity, a window will appear for that Cavity only. Drop the sensor into the correct location within the cavity. See Cavity Location Sensor Placement for details.

D: Sort Sensors by either Serial number or Model number.

Cavity Location Sensor Placement

The Individual Cavity Window will appear when a sensor is held over a cavity in the mold window.



A: Drop the sensor into the correct Location within the individual cavity window.

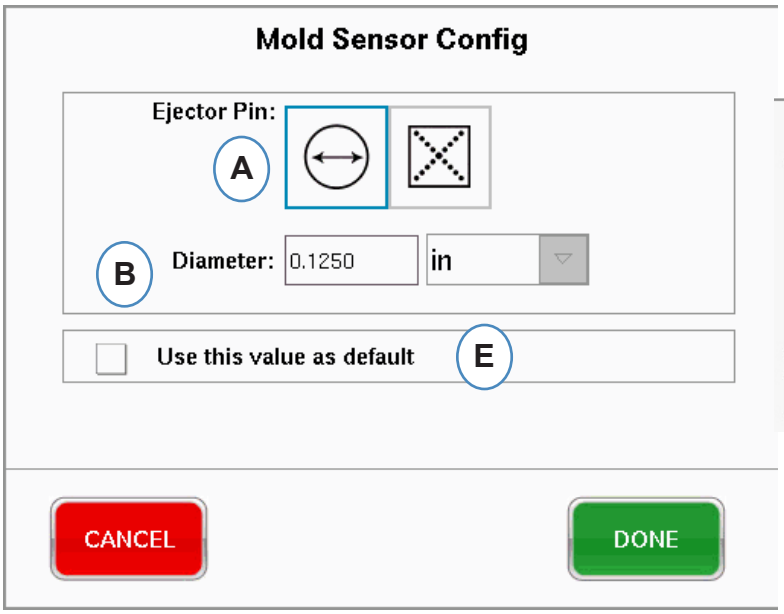
Post Gate, End of Cavity, Mid Cavity - There may be several sensors in each Cavity.

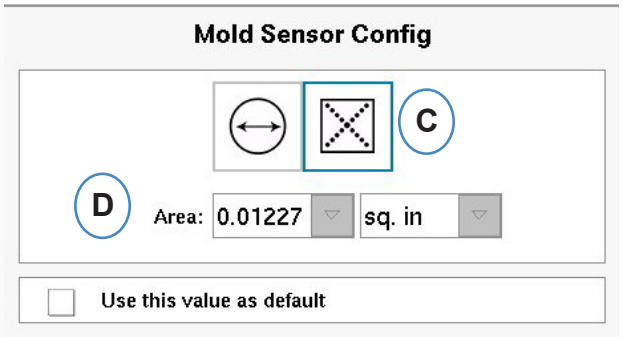
B: Click on the “i” to display the “Mold Sensor Config” window. See “Mold Sensor Config” window for more details..

C: Click the Mold button to go back to all cavities.

Configuring Sensors in the Mold
Mold Sensor Config - Strain Gage

When the “i” is selected next to an indirect sensor a window will appear to allow for entry of pin size.





A: Choose to enter the Ejector Pin diameter.

B: Enter Ejector Pin diameter.

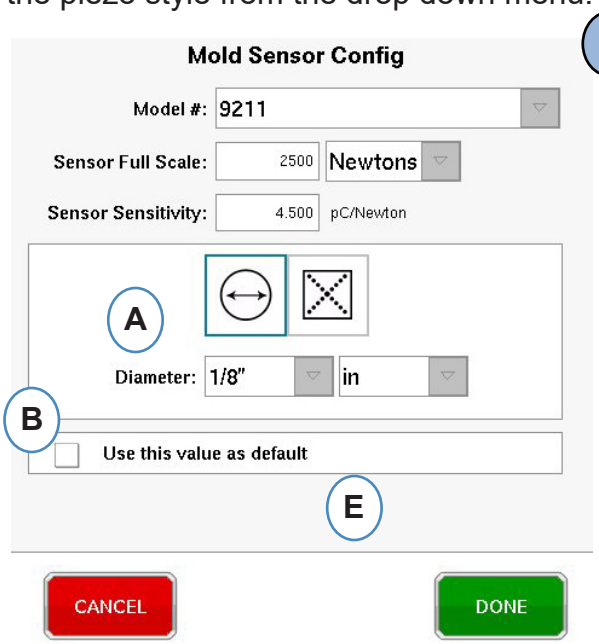
C: Choose to enter pin/blade area.

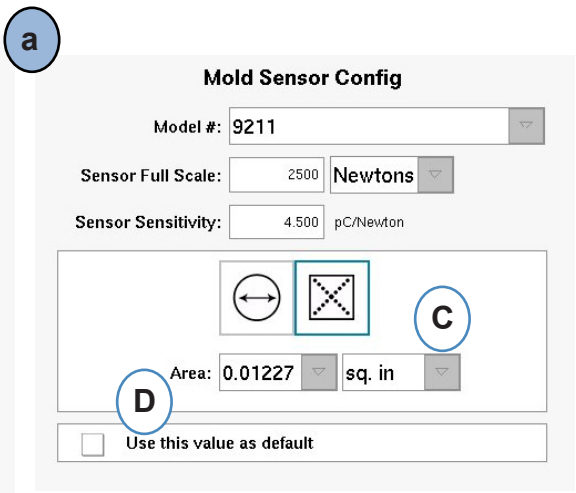
D: Enter pin/blade area.

E: If all pins are the same size, select this option.

Mold Sensor Config - Piezo - Indirect

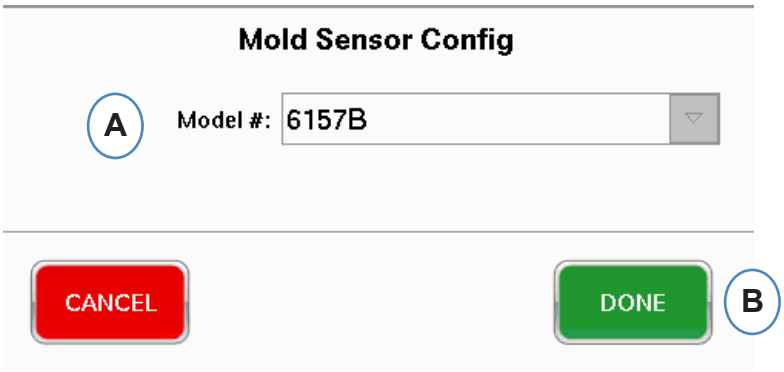
a: Choose the piezo style from the drop down menu.



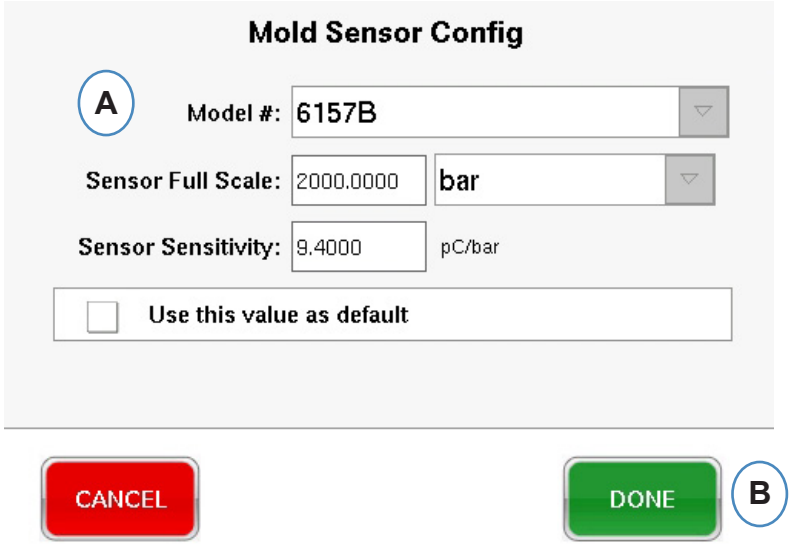


Mold Sensor Config - Piezo Flush Mount

Clicking on the “i” button for a sensor will start the sensor identification window. If you are using a sensor adapter instead of a Lynx Sensor you will need to identify what sensor is attached to the adapter.

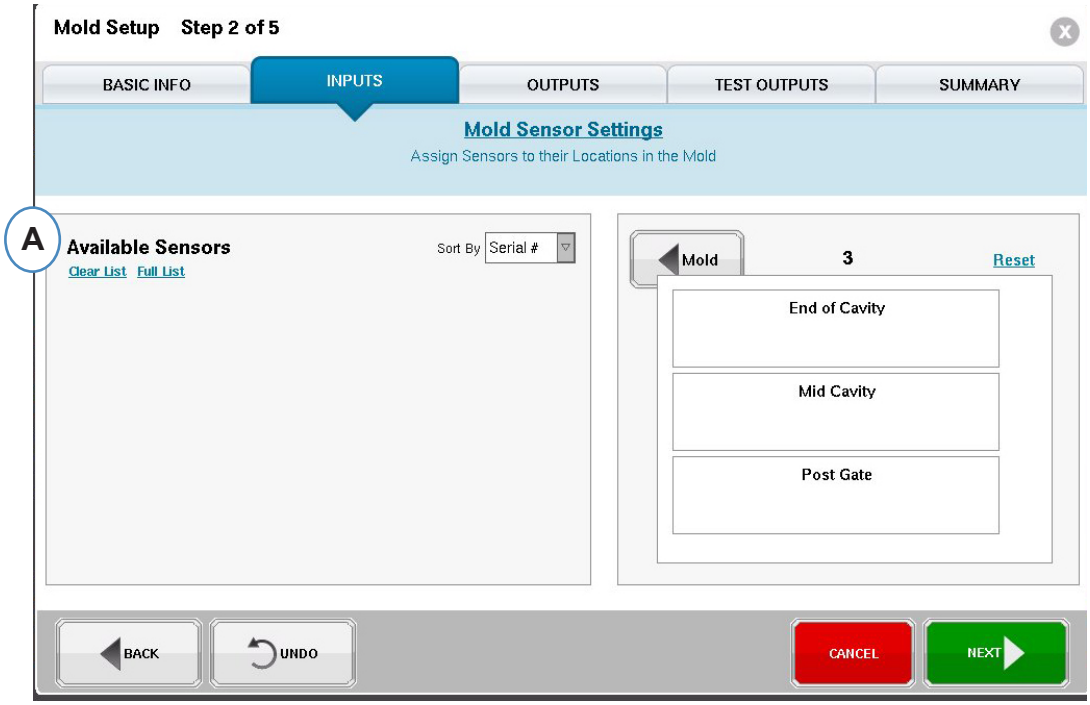


Piezo Sensor Adapter



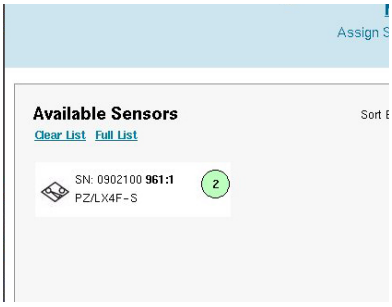
Locate Sensors

If placement of sensors within the mold and cavities is unknown, the “Sensor assignment” tab can help locate them. When the mold is initially set up the “Available Sensor” list will have a “Clear List” choice to aid you.



A: Click on “Clear List” to remove all sensors from the “Available Sensor” list.

Apply Pressure to each sensor; or pin.



Indirect Sensors:

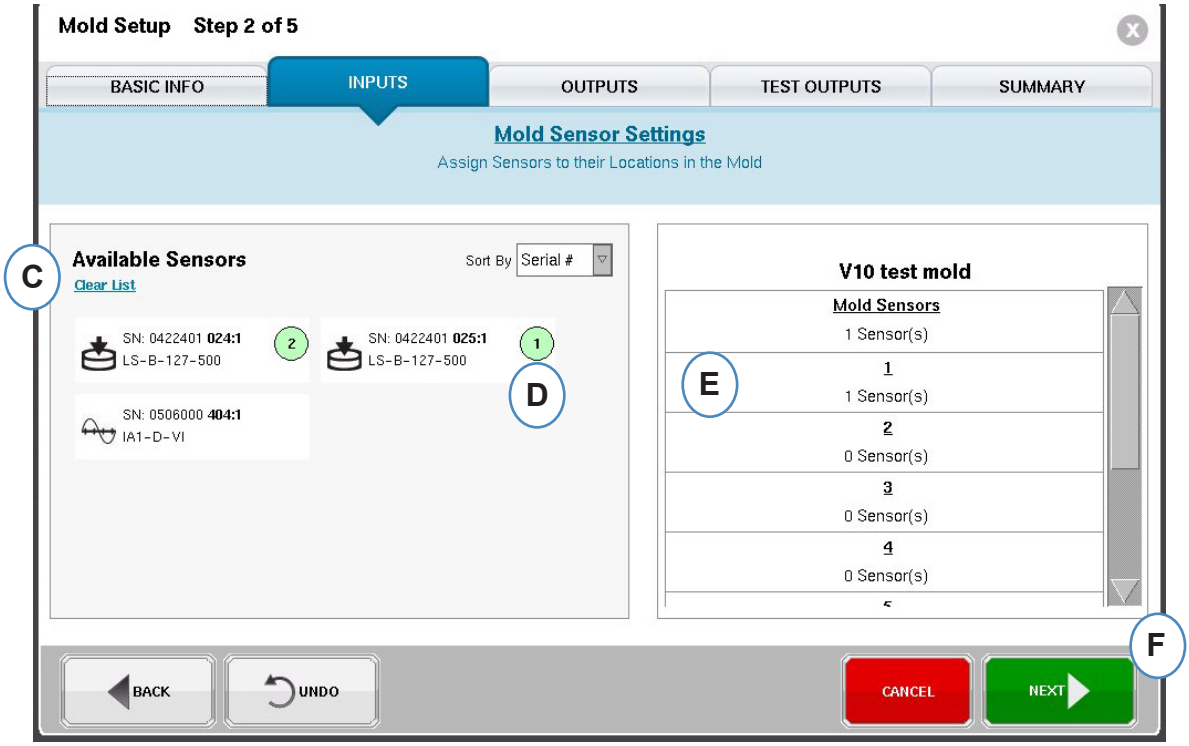
1. Open mold
2. Extend ejector pins
3. Push on pins one at a time
4. Note the order that pins were pushed

Direct Sensors

1. Apply pressure to sensors
2. Note the order that sensors were loaded

Locate Sensors cont.

Sensors will appear in the "Available Sensor" list when pressure is applied to them.



C: Watch "Available Sensor" list for sensors to appear.

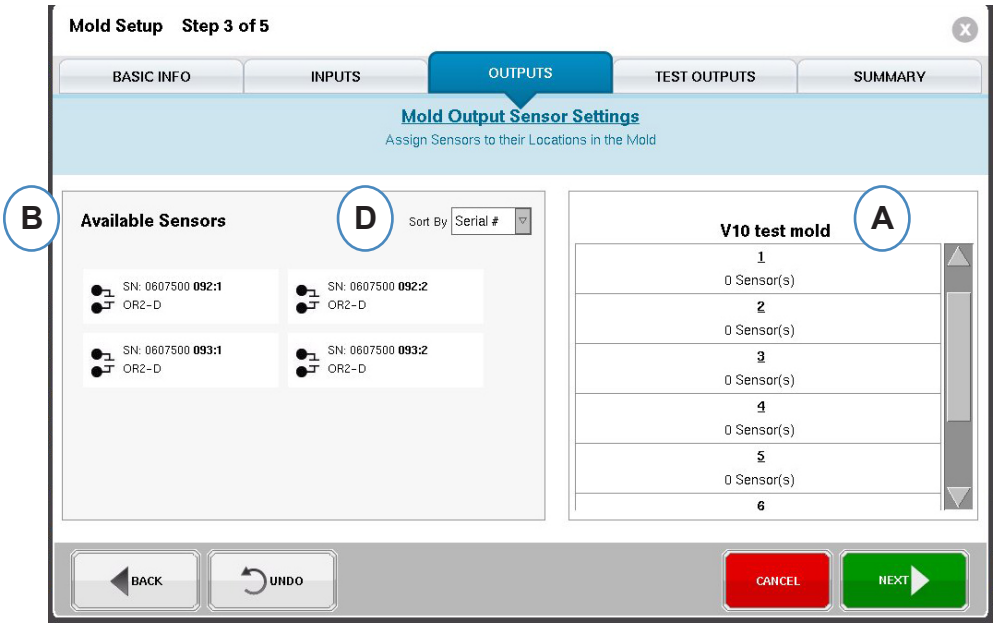
D: Sensors will highlight and be numbered in the order in which they were pressed.

E: Drag sensors into their correct cavity and location.

Configuration for Individual Cavity Part Containment

Individual cavity containment requires one relay from an OR2-D module to be assigned to each cavity.

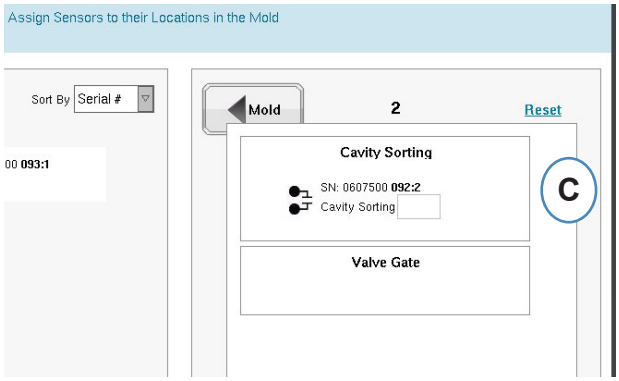
It is helpful if maintenance notes the serial numbers wired to the robot for each cavity.



A: The Mold Name portion of the display will reflect the number of cavities entered for the mold.

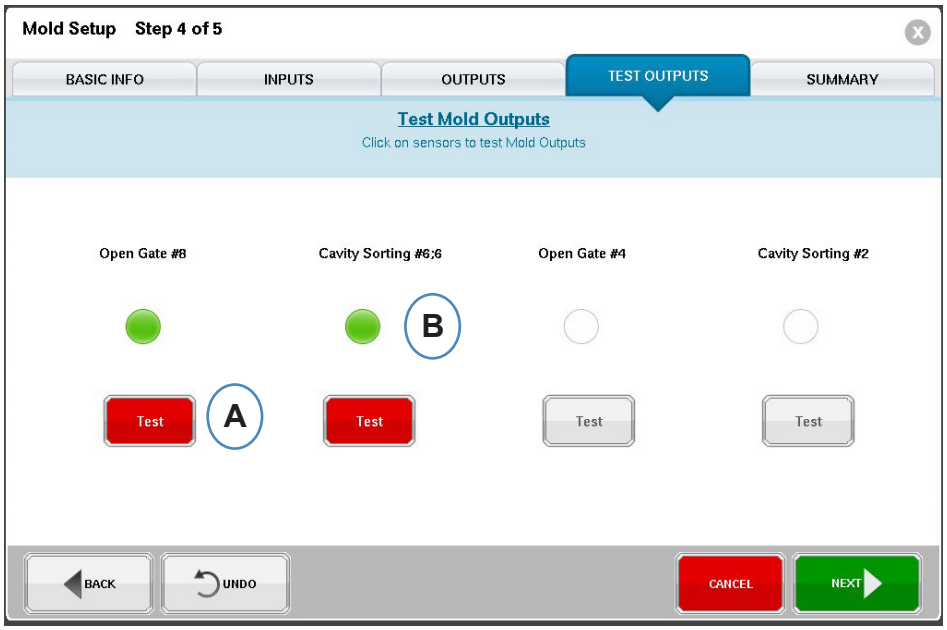
B: Available Sensor List - Drag a sensor from the “Available Sensor” list on the left to the correct cavity in the Mold on the right side of the window.

C: When you place the sensor over the cavity a window will appear for that Cavity only. Drop the sensor into the correct location within the cavity. See Cavity Location Sensor Placement for details.



D: Sort Sensors by either Serial number or Model number.

Mold Setup - Test Outputs



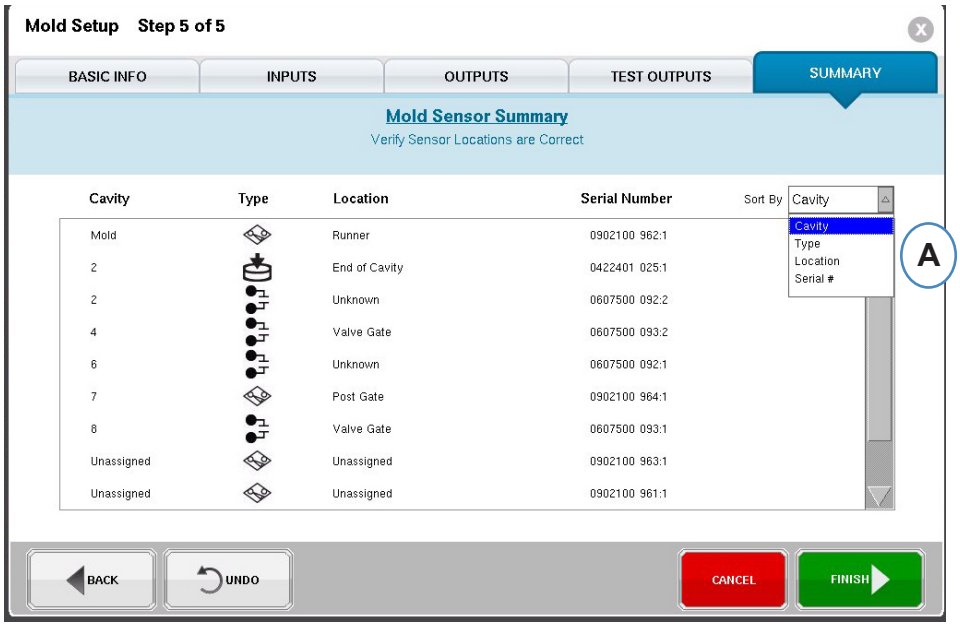
A: Click on the Test button to test each output.

B: If the test is successful the light associated with that output turns green.

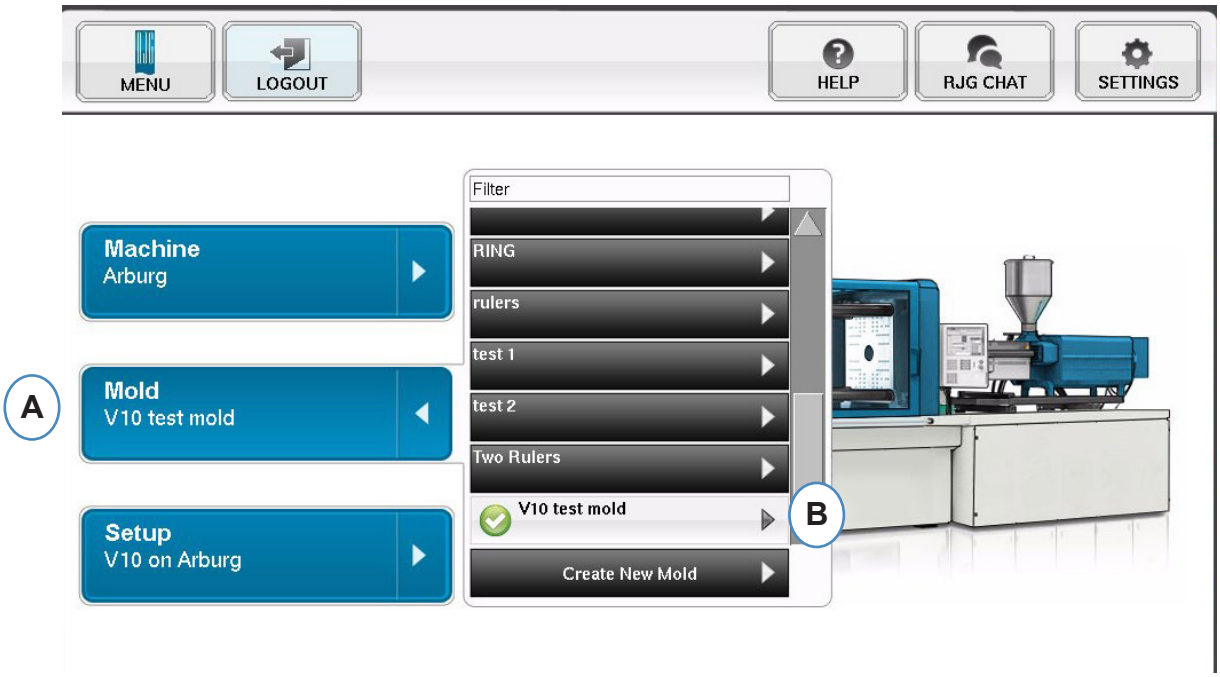
Mold Setup - Summary

At a glance view of all sensors, their placement in the mold and their serial numbers.

A: Sort by Cavity, Type, Location or Serial Number.



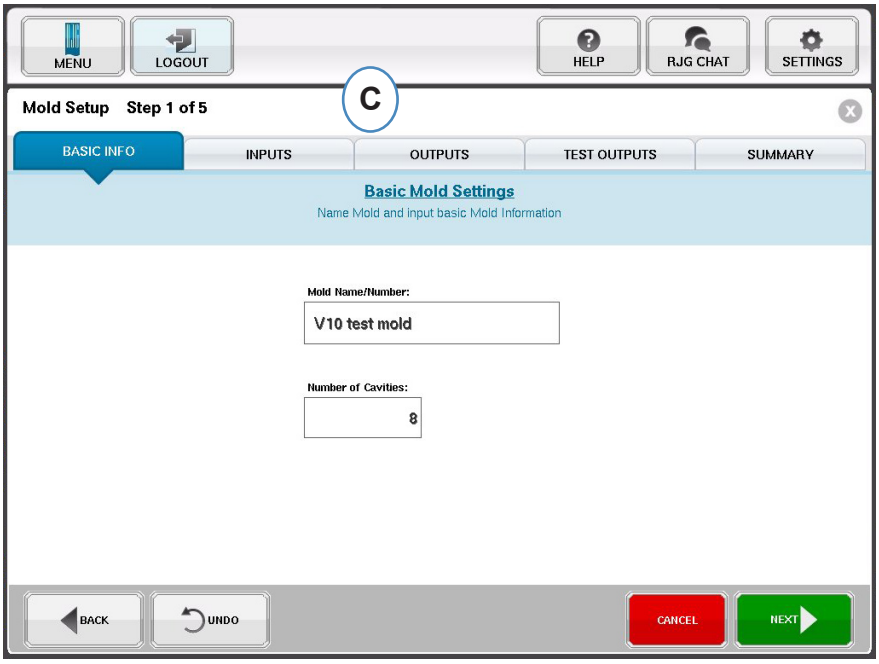
Modify Existing Mold



A: To modify an existing mold, click on the “Mold” button.

B: Click on the arrow next to the Mold that needs to be edited.

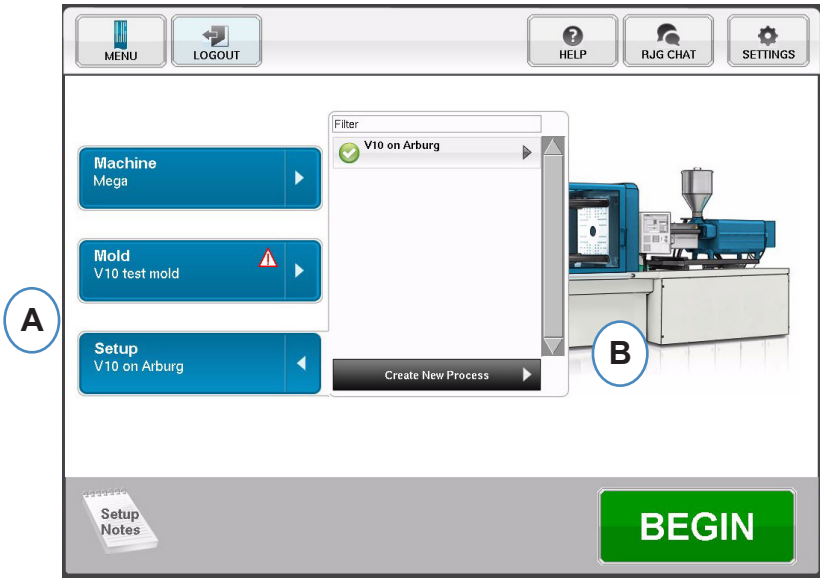
C: Go to the appropriate tab or field to make the required edits. Click “Next” until the last screen is reached. Click ‘Finish’ to continue.



Setup Process Overview

Setup

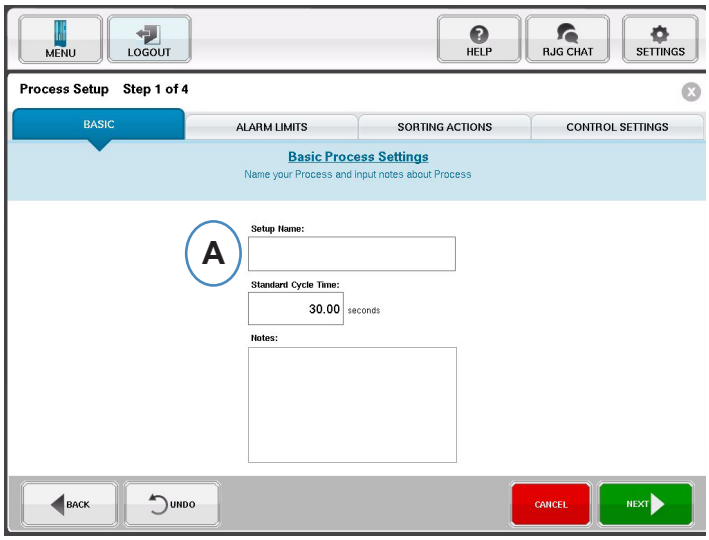
Use this to create a new setup or if something has changed in a saved process that will affect alarm settings or the timing of the part segregation device. Saving a setup for the new process allows you to get back to the old process at a later time if necessary. (Refer to the Process Setup Manual for more details)

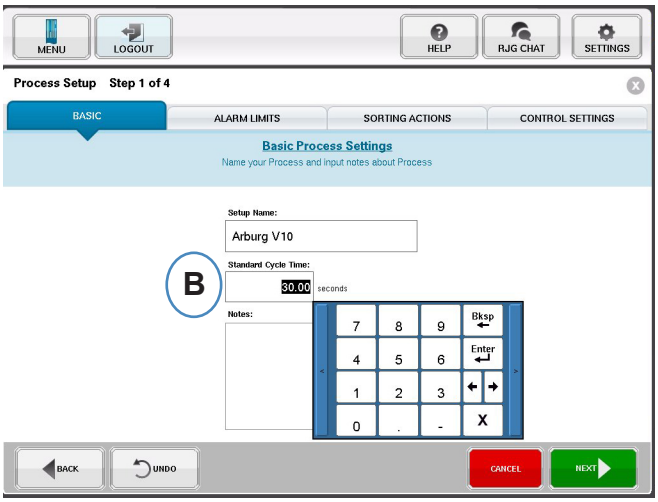


A: Click on the “Setup” button from the Home Page of the *eDART.*

B: Click on the “Create New Process Button”.

Basic Setup





When “Create New Process” is selected, the “Basic” process setup screen will appear.

A: Enter the Process Name.

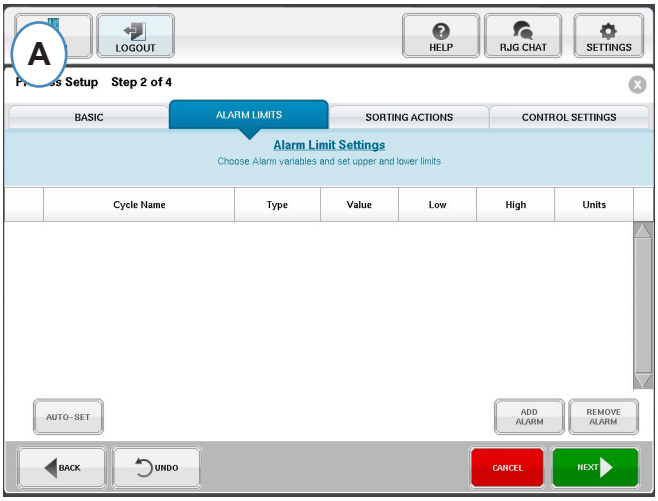
B: Enter the Standard Cycle Time for this process

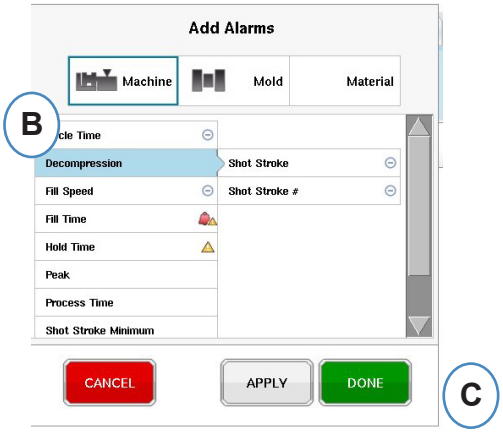
Alarm Limits

Click on the “Next” button to go to the “Alarm Limits” tab. (Refer to the Process Setup Manual for more details)

This configuration will include the addition of Process Alarms/Warnings and Part Diverter/Robot Signal Controls.

When a process alarm or warning is added, the *eDART* will display both a low and high alarm. These alarm levels can be set either automatically or manually based on actual part characteristics.





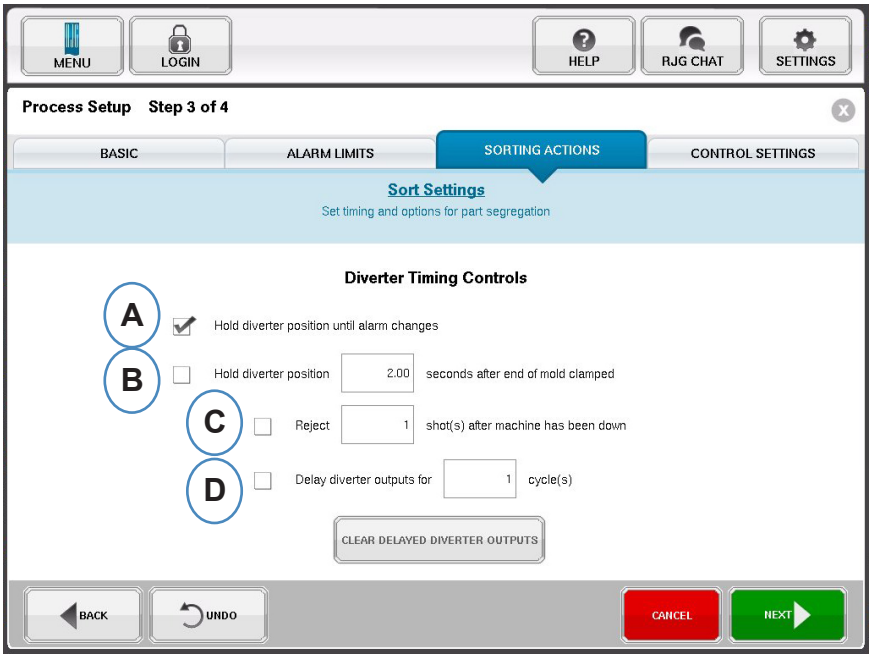
A: Click on the “Add Alarm” Button. When “Add Alarm” Button is selected the *eDART* will display the list of available alarms.

B: Choose the positions you wish to monitor or alarm

C: Click “Done” to apply Warnings and Alarms when complete

Sorting Actions

Click the “Next” button to display the “Sorting Actions” Window. This window will allow for input on how to treat the sorting output signal to insure the parts reach their proper destination. (Refer to the Process Setup Manual for more details)



A: Check this box to hold the part diverter in one position until there is a change in the alarm state.

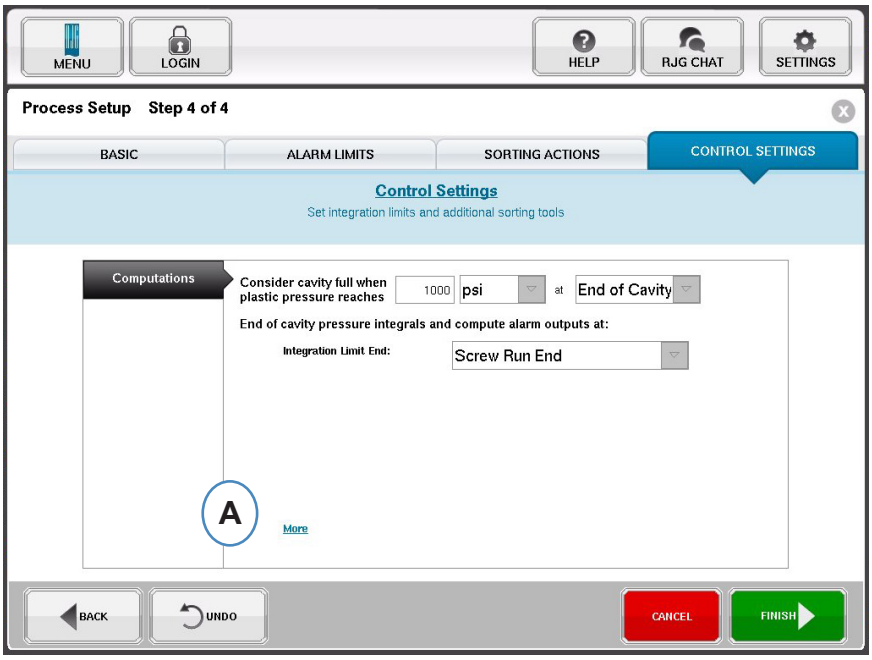
B: Check this box and enter the amount of time for the contact to be held closed when a good part signal is generated.

C: To use the “Reject After Down” feature, check this box and enter number of parts to be rejected after the Machine has been down.

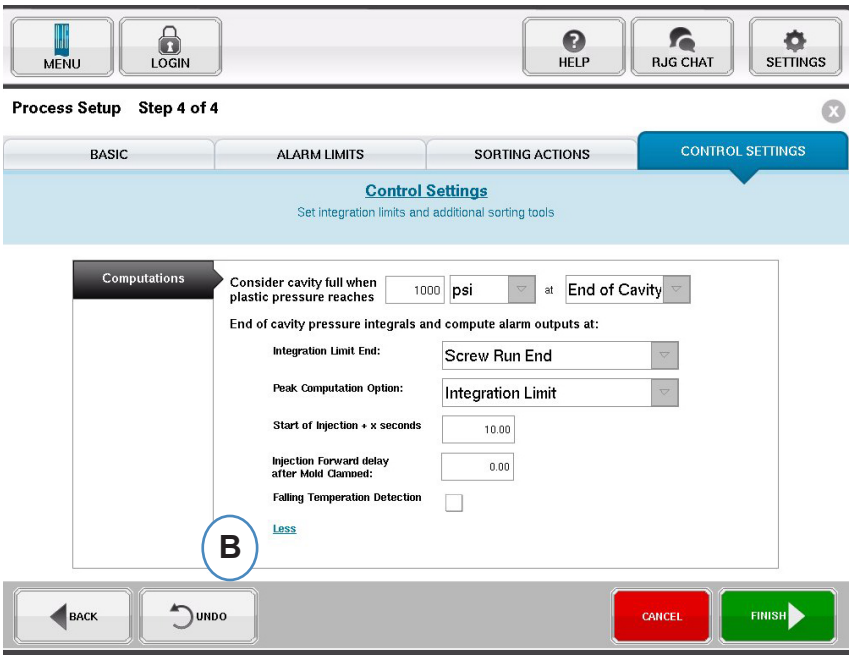
D: To use the “Diverter Delay” feature, check this box and enter the number of cycles that you would like to delay the output. Use this feature for conveyers that have many parts on it before the diverter device or over-mold processes that have alarms set on the 1st shot.

Control Settings

This page allows the user to configure how alarms are calculated. It also contains the settings for additional control output configurations. This page allows for the modification of Integration limits and for configuration so that you can see a temperature drop instead of temperature rise in LSR or other thermo-set materials. (Refer to the Process Setup Manual for more details)



A: Click here for more control options.

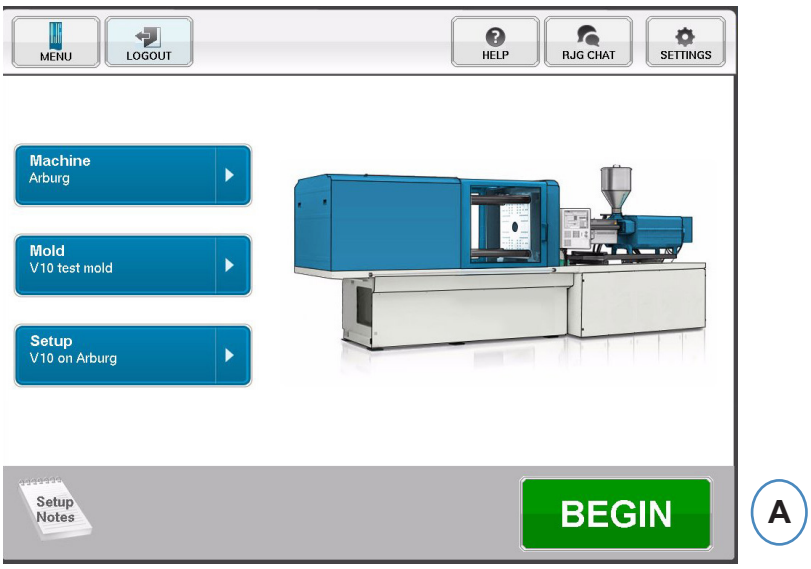


B: Click on “Less” to hide them.

C: Click on “Finish” to complete the process setup and go back to the main window.

Start Job

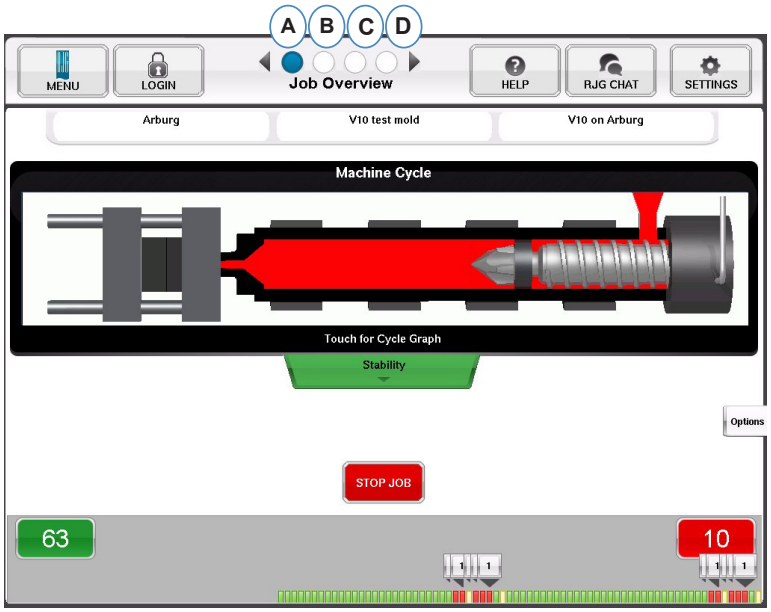
Once you have set up the machine, the mold, and the process as seen in the previous pages, you are ready to start your job.



A: To Start the process, click on the “Begin” button at the bottom of the screen.

Job Overview

At the top of the Overview page are four ‘buttons’. These allow you to navigate between the screens. You can click on each button or use the arrows to go back and forth as well.



A: Job Overview: At a glance basic information

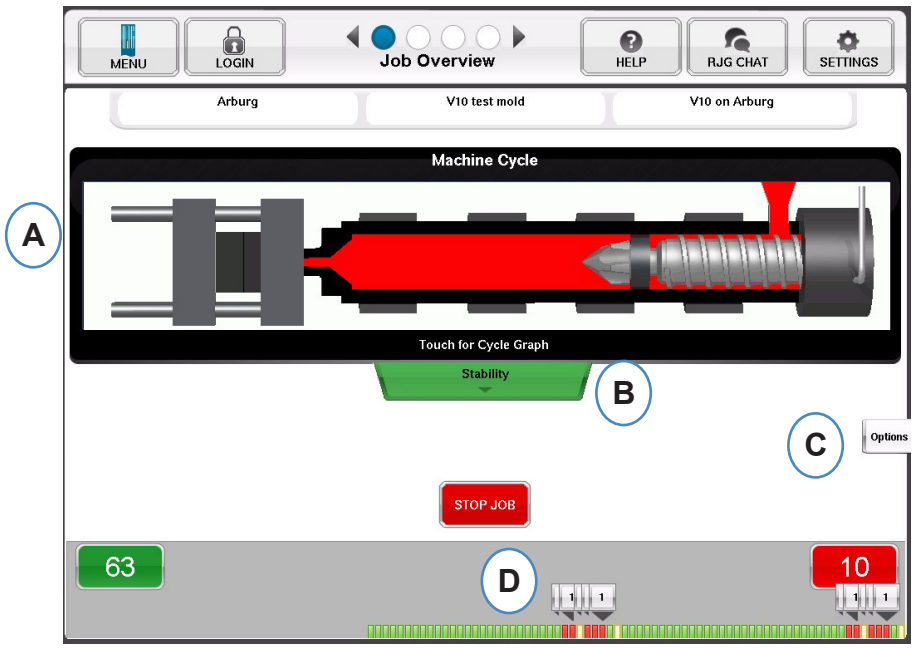
B: Cycle and Summary Graphs

C: Job Audit page

D: Diagnostics page

Job Overview, continued

On this screen you will see:



A: Machine Status

B: Machine, Material and Mold Match status indicator

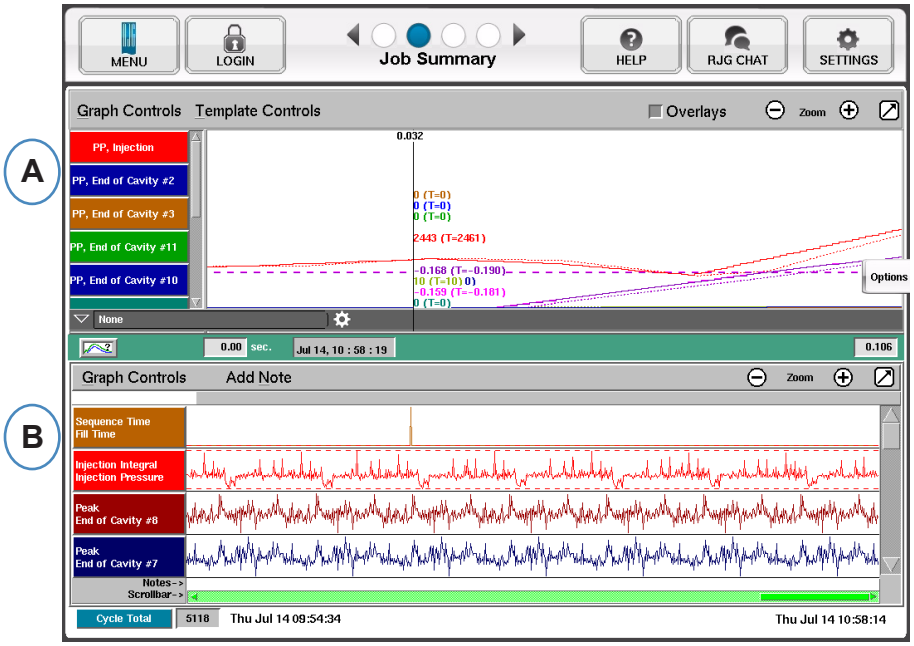
C: Software Tools and Options

D: Good / Bad Part Counts and 100 shot history

Cycle and Summary Graph View

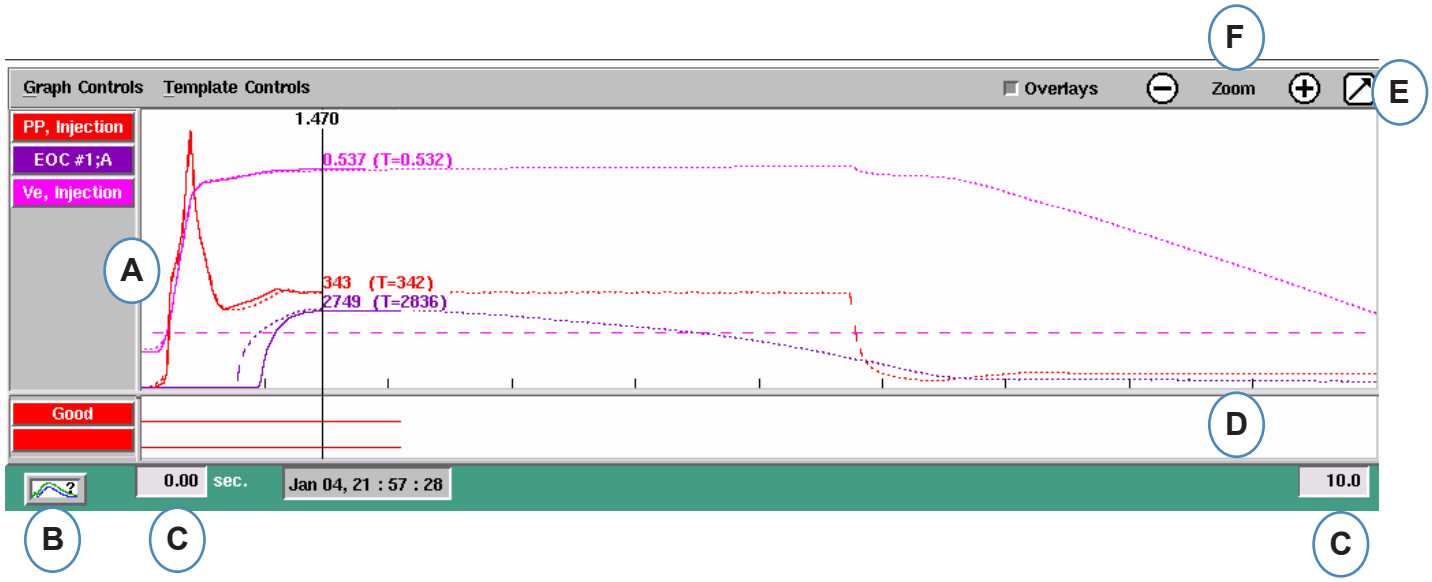
A: Cycle Graph

B: Summary Graph



Cycle Graph

The Cycle Graph is where the real time data is displayed visually. All active sensors will be available to view in the graphical real time form.



A: Main Graph Area. All real time graphs will be displayed in this area.

B: Curve Help Screen. This screen shows sample curves and gives descriptions of important features of each curve.

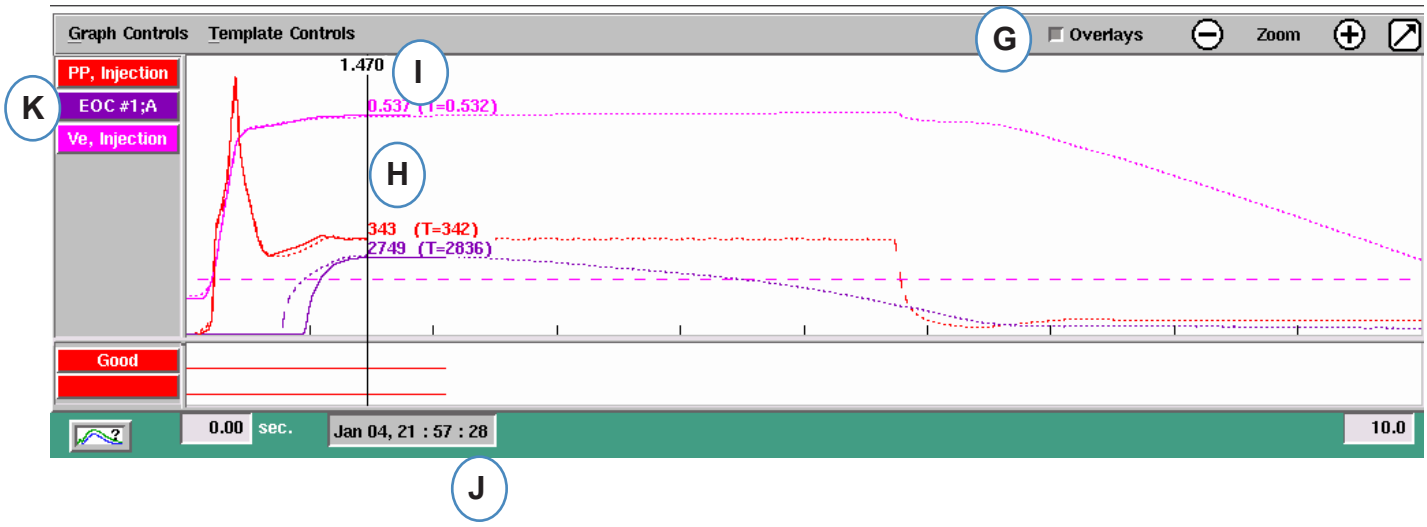
C: Time span visible on the graph. These values can be changed to show any portion of the graph in detail.

D: Digital input-output graph area. Any on/off signals can be displayed in this portion of the graph. These signals would include triggers, control outputs, and sorting outputs.

E: Click this button to maximize or minimize the graph.

F: Use the plus and minus signs to zoom in and out. The graph will always start from 0 seconds as you zoom.

Cycle Graph cont.



.

G: Click this button to overlay all future cycles on the display.

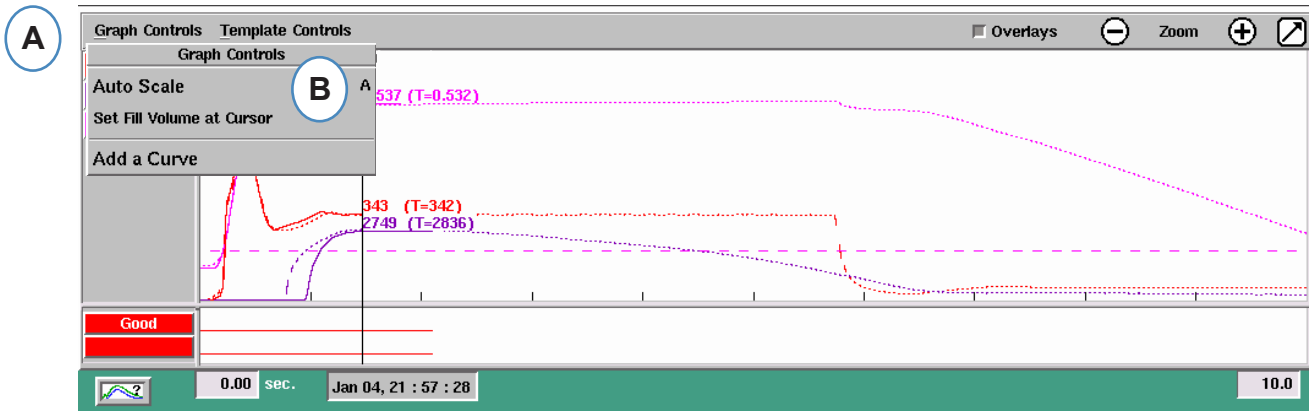
H: Cursor. The cursor can be placed on the graph to view values for curves at specific times.

I: Time into the cycle will be displayed at the top of the cursor.

J: Time Date Stamp for the present shot is displayed here. All shots are differentiated with a time date stamp.

K: Each Curve displayed on the Cycle Graph will have a Curve Identification button. The Curve name will be displayed on the button and will be the color of the curve.

Graph Control Menu Auto Scale Curves

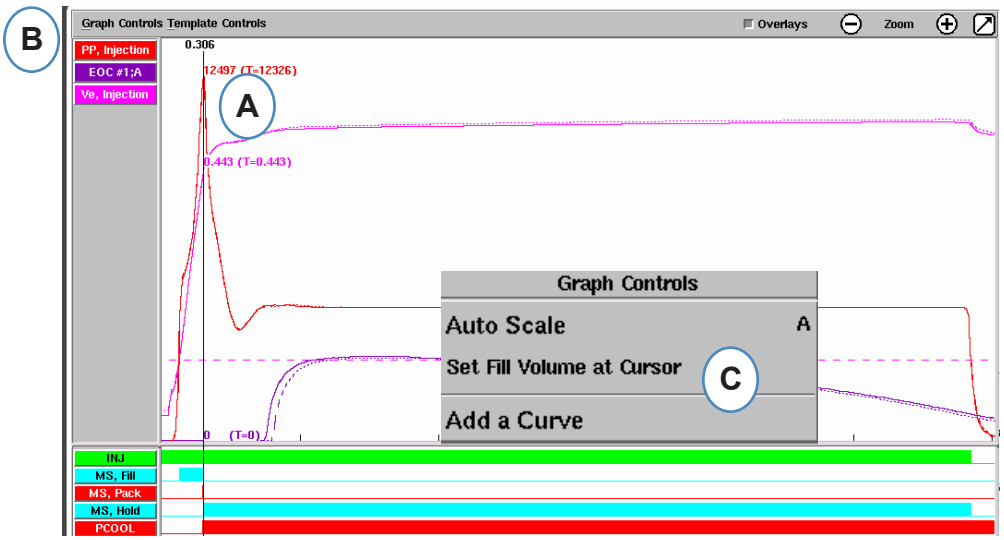


A: Click on the “Graph Controls” Menu.

B: Click on “Auto Scale” from the menu. The curves will automatically scale fit the screen.

Set Fill Volume at Cursor

The *eDART* uses the area under the fill portion of the Injection Curve as an Effective Viscosity Measurement as the area varies directly with variation in viscosity. This value is correct only when calculated during the dynamic fill portion of the cycle. To insure that this is calculated at an appropriate place, the volume at transfer needs to be entered into the *eDART.*



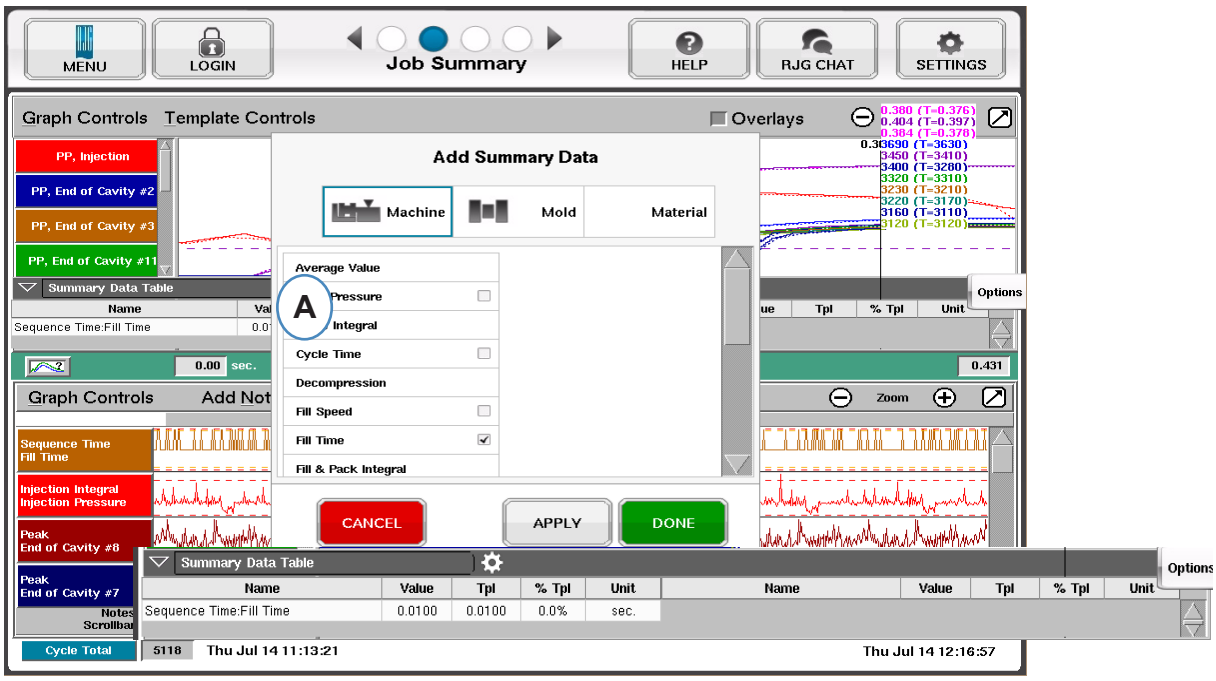
A: Place the Cursor at transfer on the Cycle Graph.

B: Click on the “Graph Controls” Menu.

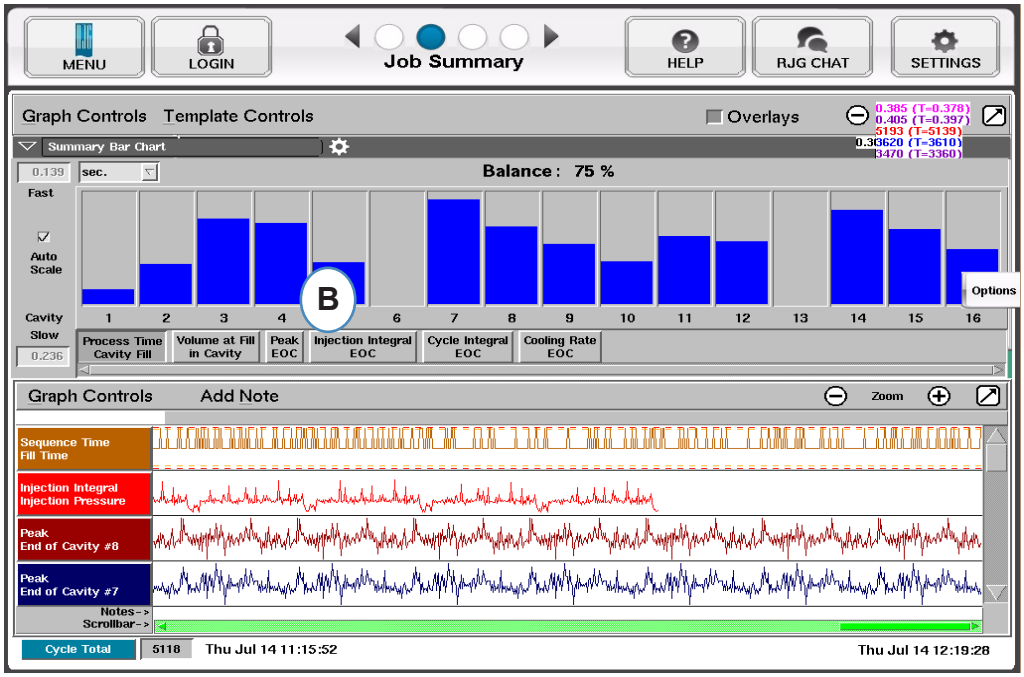
C: Click on “Set Fill Volume at Cursor”. The *eDART* will use the volume measurement at that point as an ending point for the Effective Viscosity Measurements.

Cycle Graph Values

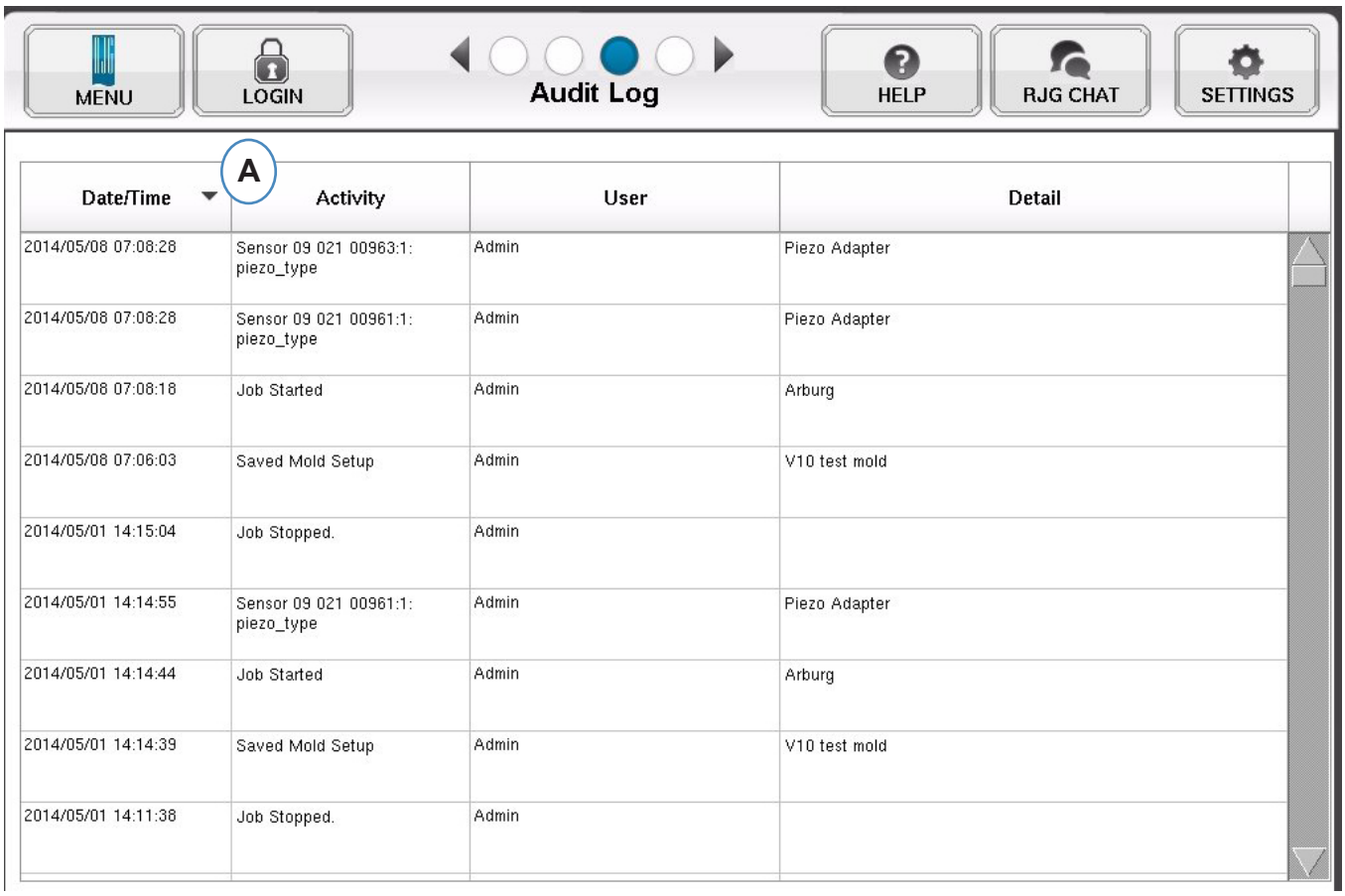
A: To see numerical values for curves on the Cycle Graph, click your curser on Summary Data Table, select the settings gear, and check the boxes for the values you wish to see, and click Apply.



B: When 4 or more sensors are present, a bar graph can been also be obtained by clicking Summary Bar Chart to veiw the desired curve.



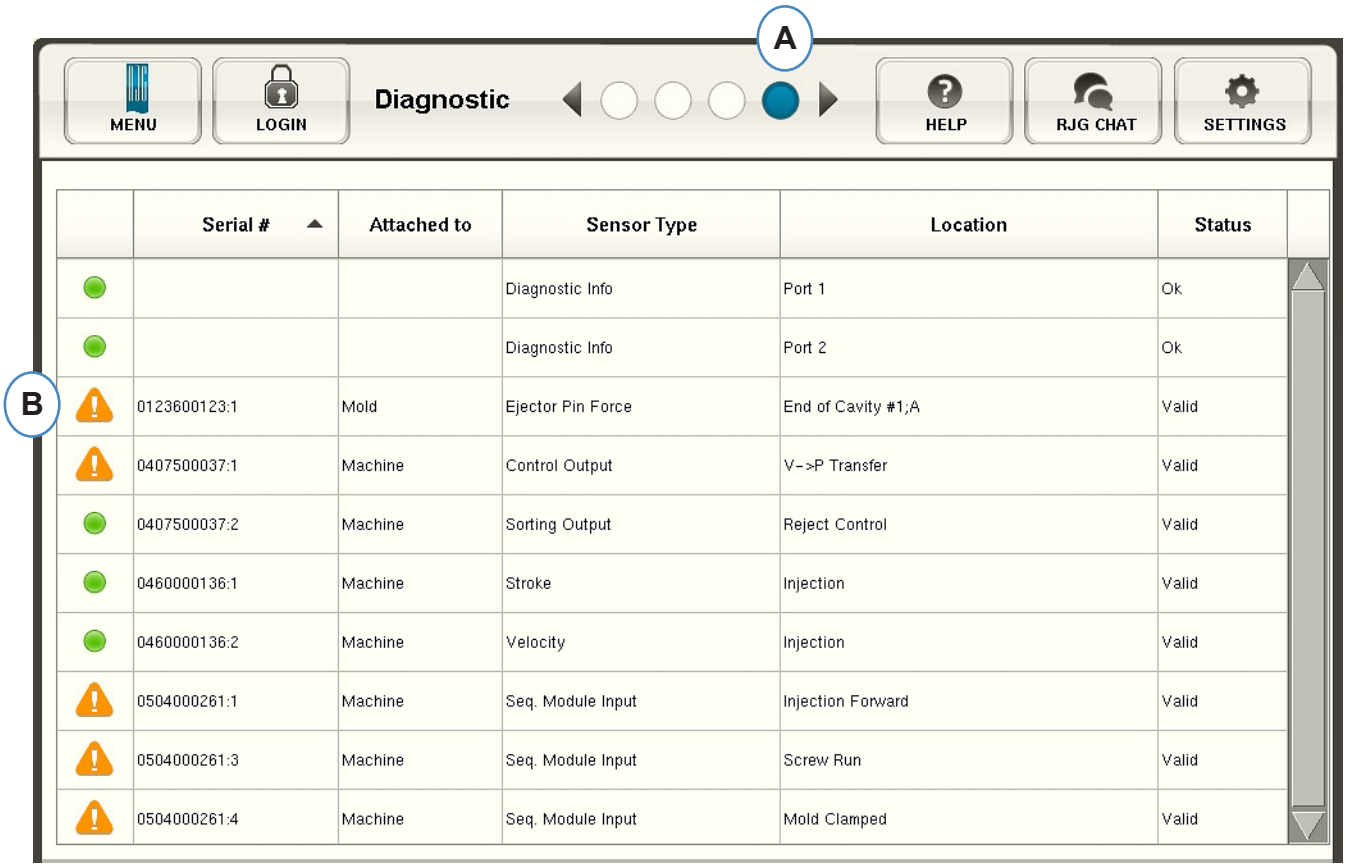
Audit Log



Date/Time	Activity	User	Detail
2014/05/08 07:08:28	Sensor 09 021 00963:1: piezo_type	Admin	Piezo Adapter
2014/05/08 07:08:28	Sensor 09 021 00961:1: piezo_type	Admin	Piezo Adapter
2014/05/08 07:08:18	Job Started	Admin	Arburg
2014/05/08 07:06:03	Saved Mold Setup	Admin	V10 test mold
2014/05/01 14:15:04	Job Stopped.	Admin	
2014/05/01 14:14:55	Sensor 09 021 00961:1: piezo_type	Admin	Piezo Adapter
2014/05/01 14:14:44	Job Started	Admin	Arburg
2014/05/01 14:14:39	Saved Mold Setup	Admin	V10 test mold
2014/05/01 14:11:38	Job Stopped.	Admin	

A: Sort by Date, Activity or User to see what changes have been made over a period of time, and who made them.

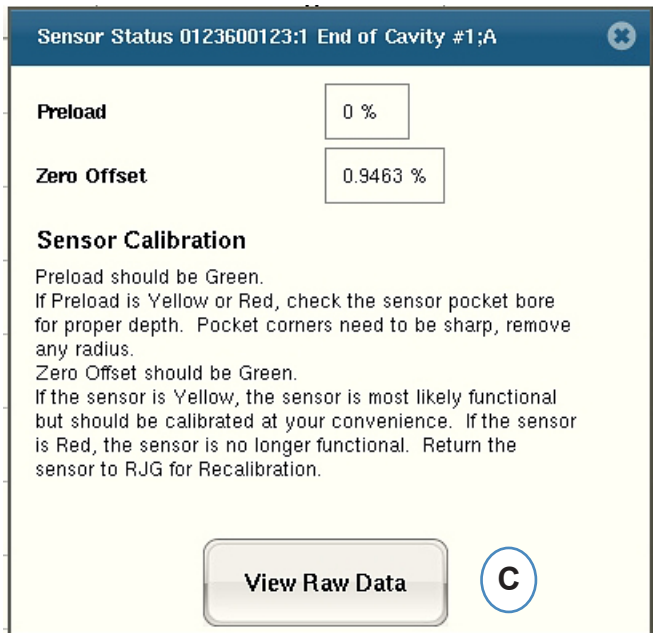
Diagnostics



	Serial #	Attached to	Sensor Type	Location	Status
			Diagnostic Info	Port 1	Ok
			Diagnostic Info	Port 2	Ok
	0123600123:1	Mold	Ejector Pin Force	End of Cavity #1;A	Valid
	0407500037:1	Machine	Control Output	V->P Transfer	Valid
	0407500037:2	Machine	Sorting Output	Reject Control	Valid
	0460000136:1	Machine	Stroke	Injection	Valid
	0460000136:2	Machine	Velocity	Injection	Valid
	0504000261:1	Machine	Seq. Module Input	Injection Forward	Valid
	0504000261:3	Machine	Seq. Module Input	Screw Run	Valid
	0504000261:4	Machine	Seq. Module Input	Mold Clamped	Valid

A: Click on the arrow or the fourth dot to get to the diagnostic page.

B: Click on the triangle to display information about sensor status.



C: Click on the “View Raw Data” button to display more detailed information about the sensor.

Remote Access & Viewing the e*DART*

This section describes the options for remote access and viewing of the *eDART*.

In This Chapter

46 Remote Access

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Remote Access
Viewing the e*DART*

First, it is important to establish what you want to do with your system. In general, you will want to do one of the following:

- View the Current Process (in real-time)
- Copy/Move Data, Templates, etc.
- Analyze Data

Before you can do any of these things, you will need to make a physical connection from the *eDART* to a remote computer. The options for remote viewing are listed and described below. RJG strongly recommends utilizing an Ethernet connection because of its speed and ease of use.

NOTE
Installation of eDART™ System Utilities Software is required

Making the Connection

Ethernet (preferred method)

An Ethernet connection links the *eDART* to another computer or a network so that information can be transmitted between them. See the “Making the Connection” section for detailed instructions on making the Ethernet Connection.

- Network: An eDART can be wired into an office network using a hub.
- Cross Over Cable: Allows a computer to communicate with an *eDART* directly without using a hub.

For instructions on making a connection using a modem, see the “Making the Connection” section for detials.

After you make a physical connection to the *eDART*, you can choose what you would like to do:

1. Analyze Data
   Use the Analyzer program to view saved *eDART* data. Refer to the Analyzer section of this chapter for more information.

2. Copy/Move Data, Templates, etc.
   Use the “Filezilla” program to copy or move *eDART* data, templates, or other files to an office computer, server, or other location so that the information can be emailed, burned to disk, etc. Refer to later section for Filezilla FTP program information.

3. View Current Process
   Viewing the current process in real-time requires a Phindows license for each remote computer you are using for viewing.

4. Update Your *eDART* Software
   You can perform an *eDART* software update using either a serial or Ethernet connection.

NOTE
The computer must have a network card installed.

Ethernet Connection

Network

To wire the *eDART* into your existing network, connect the Ethernet cable to the RJ-45 Ethernet port on the *eDART*. Connect the other end of the Ethernet cable to the hub.

Crossover Cable

To wire the *eDART* directly to another computer (without a hub), connect one end of the Ethernet crossover cable to the RJ-45 Ethernet port on the *eDART*. Connect the other end of the cable to the computer's network jack.

You must stop Phindows before diconnecting the Ethernet crossover cable.

Your computer will need a fixed IP address. You can also set the IP address of the eDART to match your network. Select "Configure eDART" from the QNX icon on the *eDART* toolbar. This will prevent issues involving changing the IP address each time the computer is moved. For more information, refer to the "Configure *eDART*" section of the Helpviewer.

Viewing the Current Process

Phindows

The Phindows program allows users on remote Windows platforms to connect to and interact with applications running on a QNX computer (e.g. *eDART*).

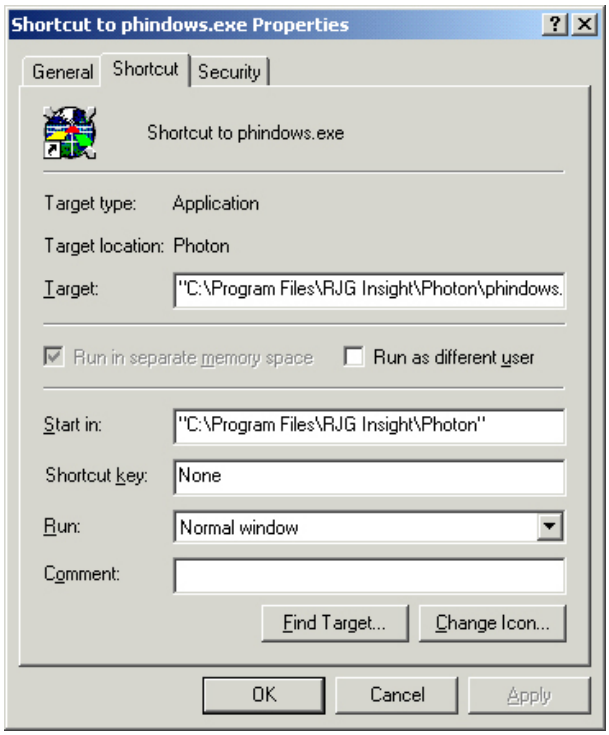
You can view the software remotely at as many workstations as desired. You will, however, need a separate Phindows license for each workstation. Phindows is an optional piece of software for the *eDART* system.

Installation

1. Select “Run” from the Start menu
2. Type “A:\setup.exe”
3. Click OK.

You can also create a Phindows shortcut for each *eDART*.

1. Use Windows Explorer to find Phindows.exe in C:\Program Files\RJG Insight System\Photon\phindows.exe.
2. Right click on Phindows.exe
3. Select “Create Shortcut”
4. Right click on the shortcut and select Properties from the menu.
5. Click on the Shortcut tab.
6. Modify the Target to read: C:\Program Files\RJG Insight System\Photon\phindows.exe -t (IP Address) -n (Node number) -u -o1.
7. Click OK to save the changes
8. Verify that the eDART is attached to the network
9. Double click the shortcut to run the program

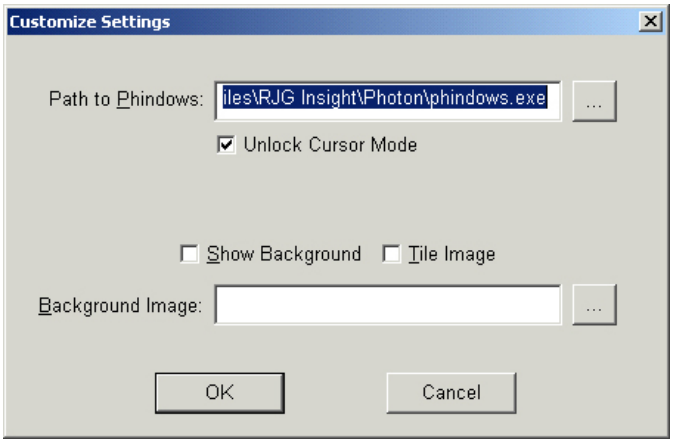


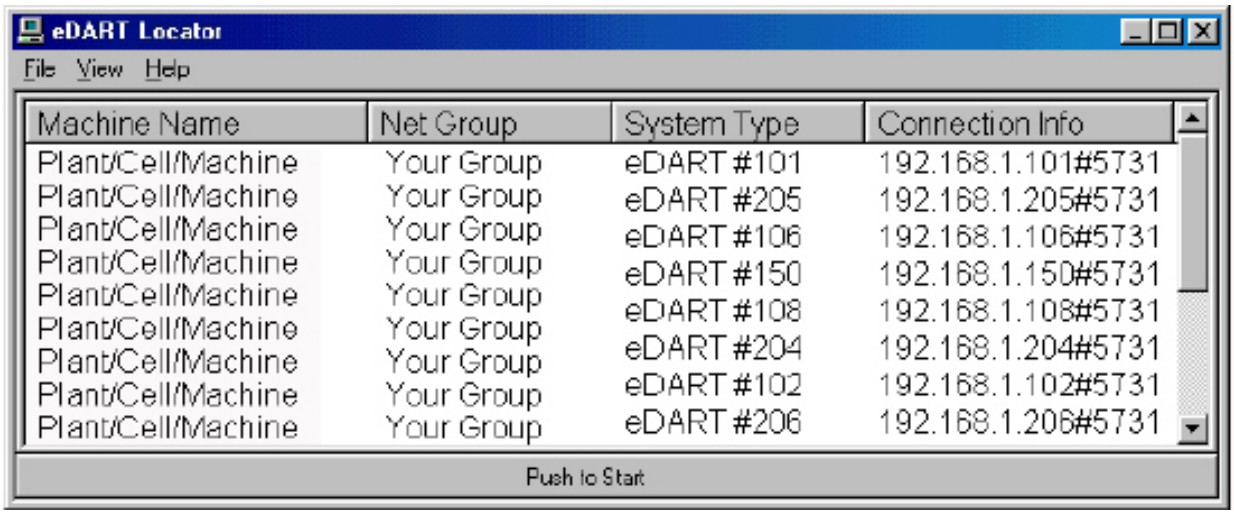
eDART Locator

eDART Locator is part of the *eDART* System Utilities Software CD. It is used in conjunction with Phindows to view *eDARTs* from a Windows computer.

- Double click the *eDART* Locator option inside the RJG Insight System folder on the desktop.
- First, choose File, Settings. Use the browser (...) button to choose the path to Phindows.
- When finished, click OK.

Next, find the *eDARTs* under the Machine Name heading. Double click the desired name to view the software for that *eDART*.





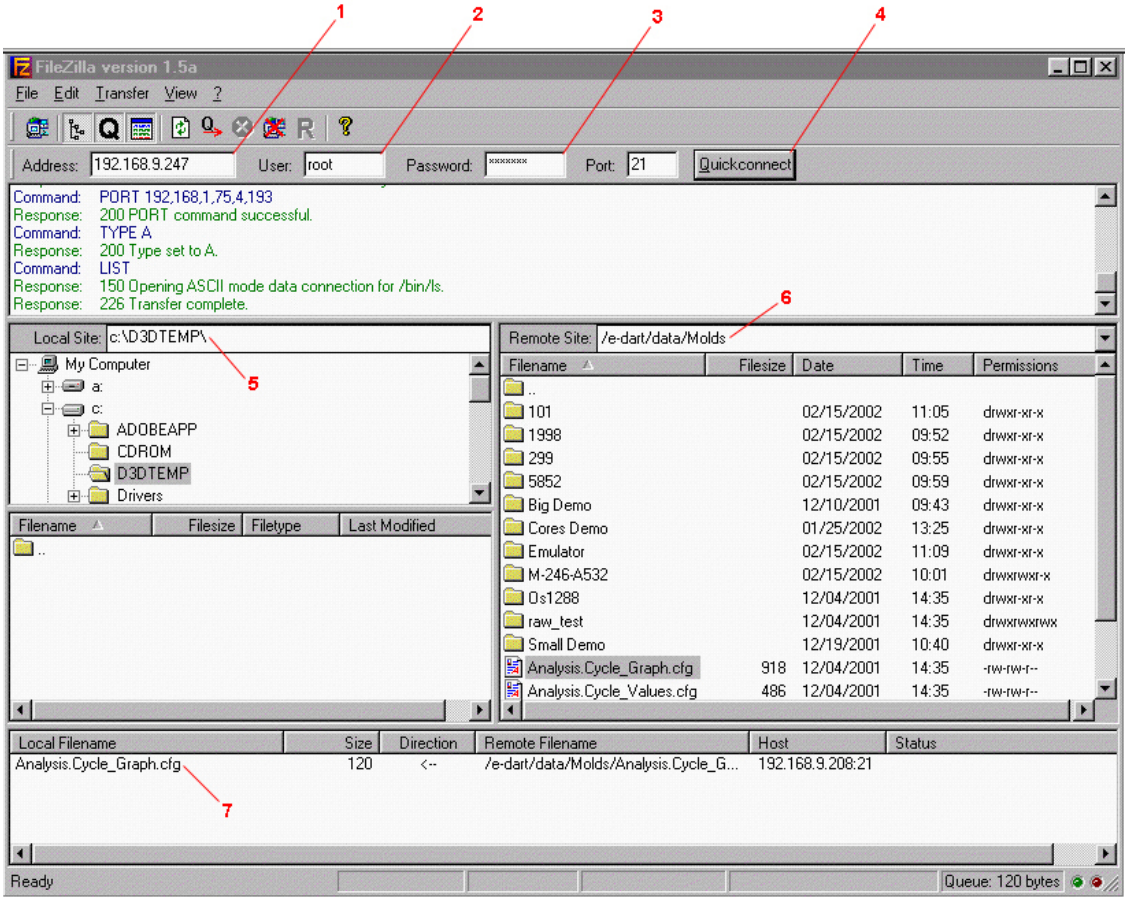
If *eDART* names do not appear, you will have to add the IP addresses to a list file.
Inside the RJG Insight System folder there is an “Edit eDART IP List” option. Double click on this option to open the file.

- Type in the IP address of the first *eDART*.
- Click Enter and then type the next IP address.
- Choose File, Save and then close.
- Re-open *eDART* Locator.

FTP File Transfer

To transfer data from an *eDART* to another PC, laptop, or server, access the Filezilla program from your “RJG Insight System” folder. You should see the screen below:

NOTE
Installation of *eDART*™ System Utilities Software is required.



1. Address: Type in the IP address of the *eDART* or computer you would like to connect to. If you are using a serial connection, type in “10.0.0.1”.
2.
3. User: Type in “root”. Use lowercase letters.
4.
5. Password: Type in “evintea”. Use lowercase letters.
6.
7. Quickconnect: Click this button to connect to the IP Address you’ve specified.
8.
9. Local Site: By clicking on the “+” and “-” boxes, select the directory location you would like the transferred data to be placed.
10.
11. Remote Site: Select the “e-dart” folder and then select the “data” folder. From the list of data, select the file(s) you would like to transfer by clicking the name once to highlight it.
12.
7. Once highlighted, hold down the left mouse button and drag the file here. Repeat for each file to be transferred. When all files have been selected, right-click anywhere in this box to bring up a menu. From the menu, select “Process Queue”. The file(s) will be transferred to the Local Site you’ve selected.

NOTE
Clicking on the folder followed by two dots takes you up one level.

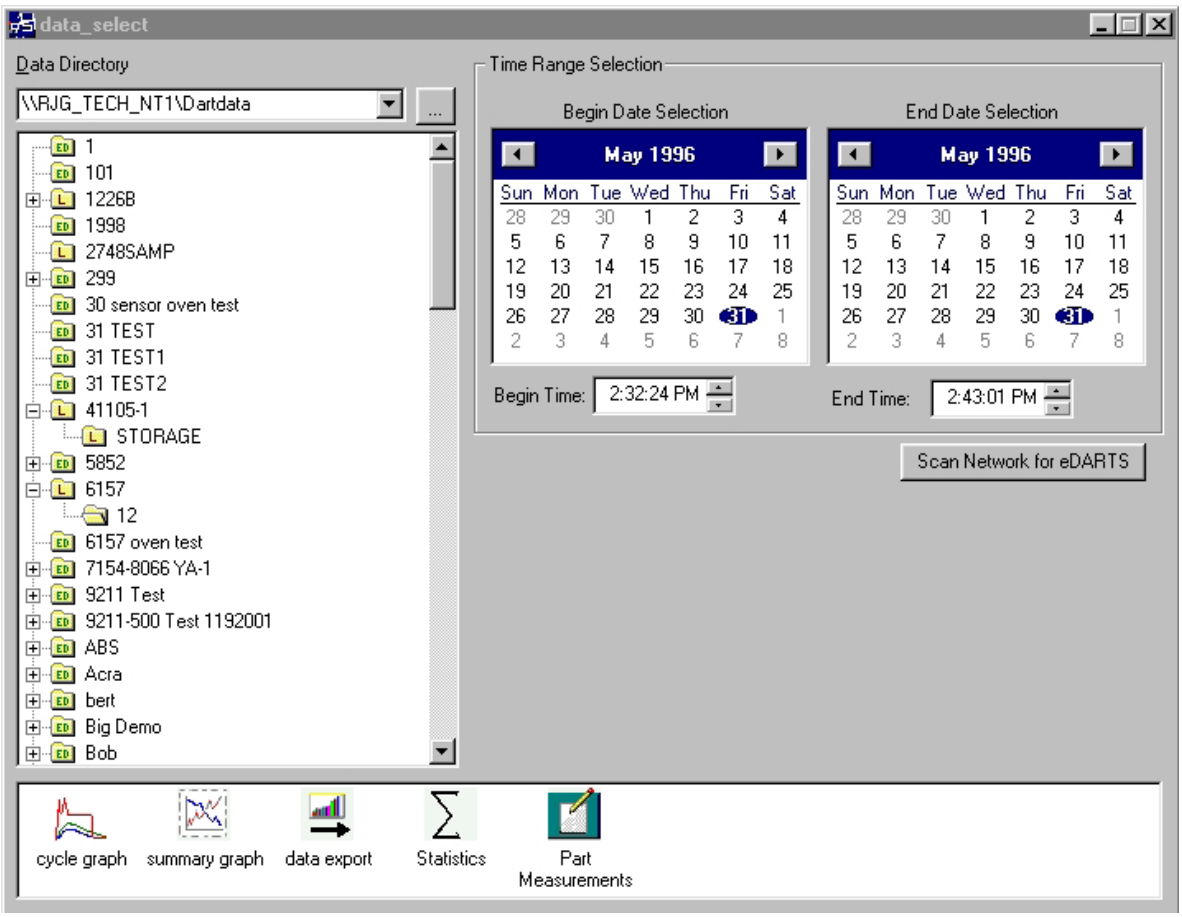
Once installed, the Filezilla program contains detailed help.

Analyzer

The Analyzer is a Windows application for use with RJG's DART*Vision*™ or Insight System™. Follow the instructions below to use the Analyzer tool.

1. Launch the Analyzer
   The main screen of the Analyzer is the data selector. The Data Directory at the left side of the screen lists directories where data has been saved (by mold).

At the bottom of the screen is a toolbar where you can select various tools for the viewing, analysis, or calculation of data.



2. Select a folder
   In the Data Directory, click on the folder with the name of the mold data you would like to view. If you want to choose a specific set of data from the folder, click the "+" to the left of the folder. This will expand the directory and give more specific options.

> ***NOTE***
> ***If the folder is labeled "L", it contains local data (data from the directory you chose above). If the folder is labeled "ED", that data is from an eDART on the network.***

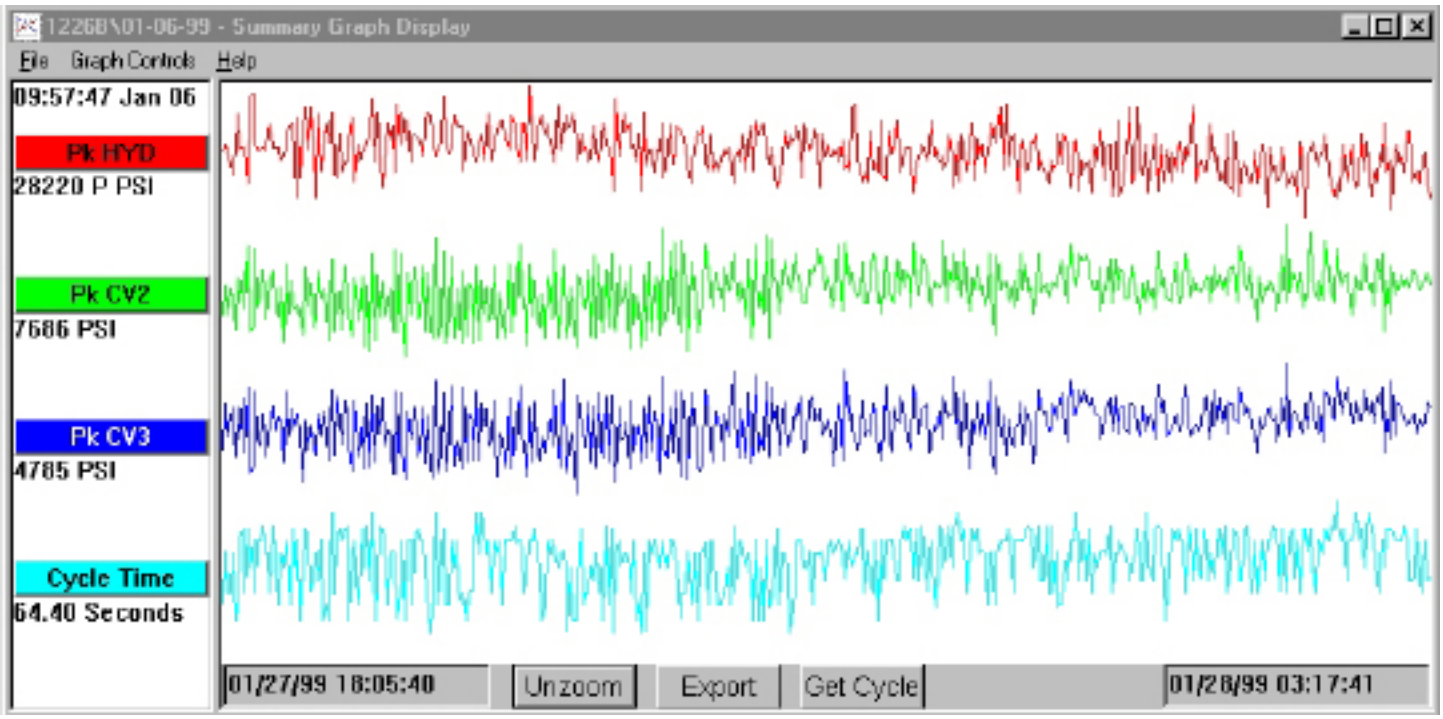
3. Select Start and End Date
   The two calendars on the right side of the screen allow you to choose a start date and end date for the data you have chosen to view. If the background color is gray, there is no data available to display. If it is white, data is available. The dates marked with bold text indicate dates where data exists. Using the calendar on the left, select the starting date for the data you would like to view. Using the calendar on the right, select the ending date. You can also select data starting and ending times below the calendars.

(View the Current Process continued)

4. Select an Application
   From the toolbar at the bottom of the screen, choose the application that you would like to use with your selected data range.

Summary Graph

The Summary Graph provides a graphical display of summary values allowing you to view trends. Multiple summary value trends can be displayed here at one time. A summary value is a single number (data point) for each cycle; i.e. peak cycle integral, cycle time, etc.



Title Bars
Displayed at the left side of the screen, these bars indicate which summary measurements are being shown on the graph. To add a measurement to the summary graph, choose “Add Curve” from the Graph Controls menu or click on the title bar and press the Add Curve button.

Cursor
The cursor is the vertical line on the graph. It can be moved on the graph by left clicking on the point you want the cursor to move to or left click and drag the cursor itself. The numerical values for each data point are displayed underneath the title bars.

Get Cycle
The Get Cycle button at the bottom of the screen will bring up the cycle graph for the data selected by the cursor.

(View the Current Process continued)

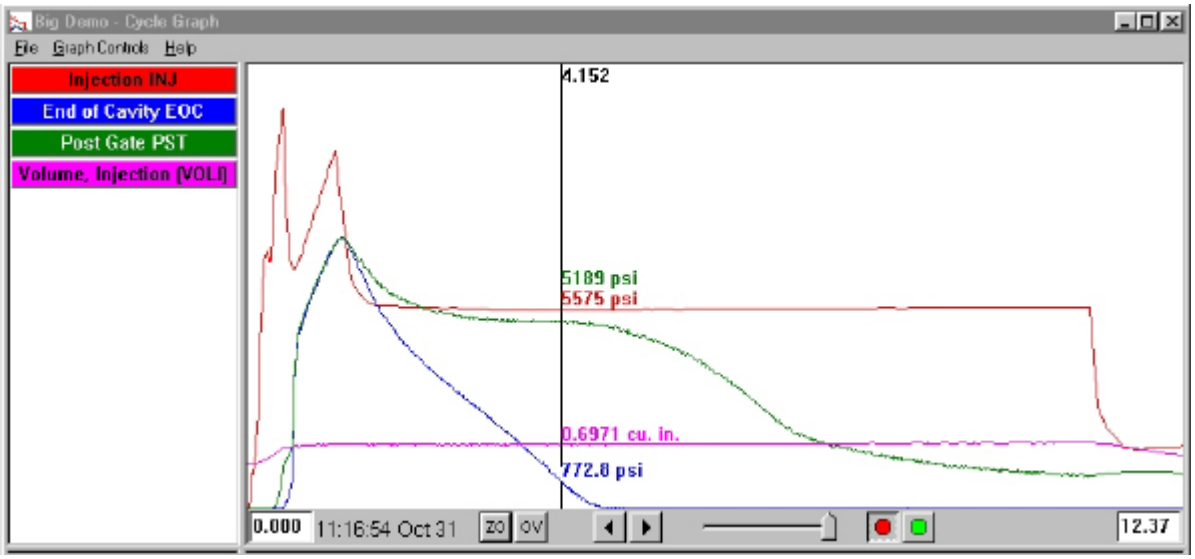
Export
Press this button to export the data on the summary graph to an Excel spreadsheet. To select only a certain area of the summary graph to export, zoom in on that area (right click and drag) and then press the Export button.

Note
To add a note, place the cursor on the desired data point and choose Add Note from the Graph Controls menu. The note will appear as a small icon at the bottom of the graph. To view the note, simply click on its icon. To change the note, choose Edit Note from the Graph Controls menu.

Zoom/Unzoom
To zoom in on a particular area of a curve, choose Zoom from the Graph Controls menu or right click and drag on the desired area of the graph.

Cycle Graph

The Cycle Graph displays saved cycle data, one shot at a time.



Overlays
You can view multiple shots at a time by turning the Overlays function on (Press the OV button at the bottom of the screen).

Zoom
To zoom in on a particular area of a curve, choose Zoom from the Graph Controls menu or right click and drag on the desired area of the graph.

Cursor
The vertical cursor on the graph displays the numerical values for each curve. It can be moved on the graph by left clicking on the point you want the cursor to move to or left click and drag the cursor itself.

(Cycle Graph continued)

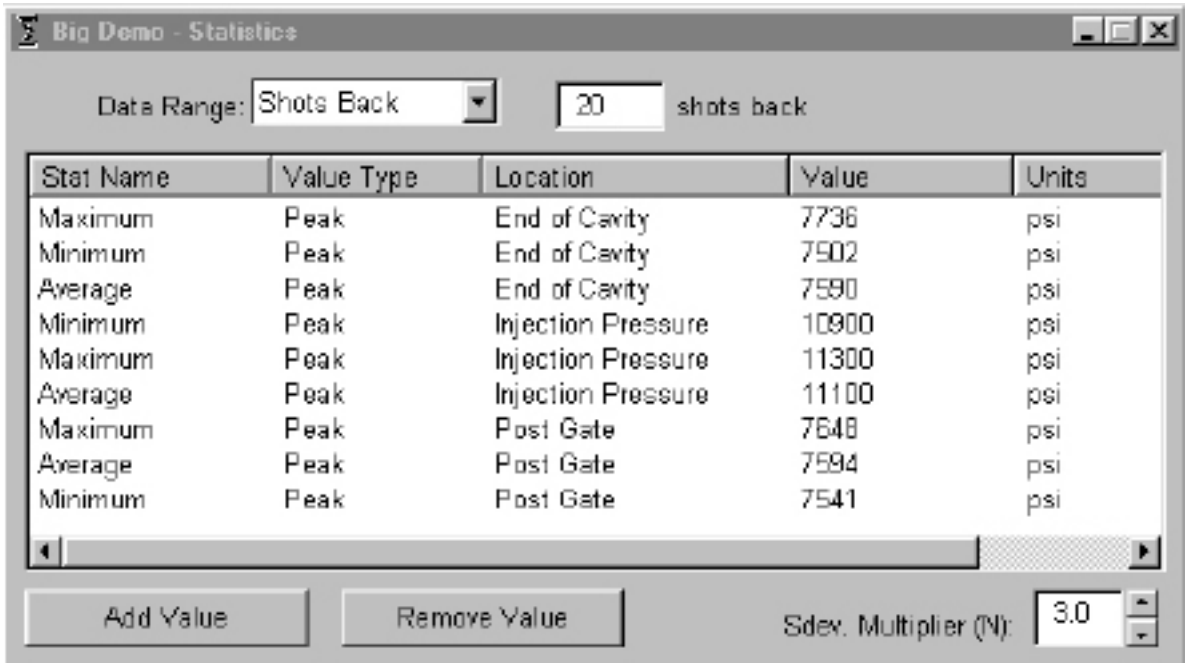
Add a Curve
To add a curve that is not displayed, select Add Curve from the Graph Controls pull-down menu.

Data Replay
You can scroll through data using the arrows at the bottom of the screen. The shot time stamp indicates the date and time each specific shot was made. You can replay the data by pressing the green button at the bottom of the screen. Set the replay speed using the slider to the left. As the cycles replay, the cursor will move on the summary graph (if both screens are visable) so you can see which cycle data corresponds to the summary data. The red button will stop replay.

Save as Template
To use the cycle data on the graph as a template to compare other cycles against, select “Save as Template” from the Graph Controls menu. Type in a description of the template and press Save. The template can be modified in the Template Controls selection. These templates are readable by the *eDART*.

Statistics Screen

The Statistics screen will calculate average, standard deviation, etc. for the data range displayed on the summary screen.



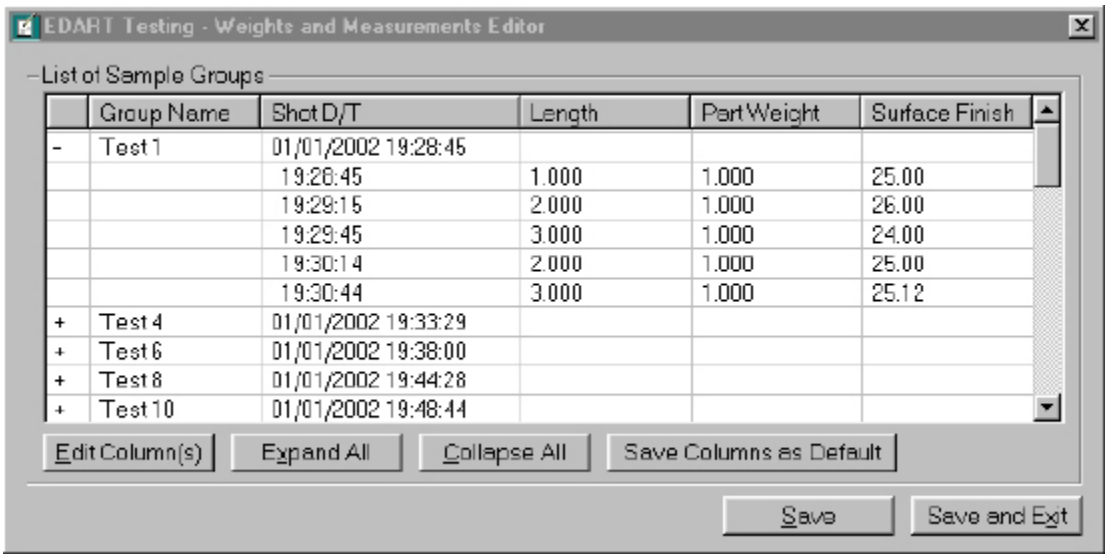
Stat Name	Value Type	Location	Value	Units
Maximum	Peak	End of Cavity	7736	psi
Minimum	Peak	End of Cavity	7502	psi
Average	Peak	End of Cavity	7590	psi
Minimum	Peak	Injection Pressure	10900	psi
Maximum	Peak	Injection Pressure	11300	psi
Average	Peak	Injection Pressure	11100	psi
Maximum	Peak	Post Gate	7648	psi
Average	Peak	Post Gate	7594	psi
Minimum	Peak	Post Gate	7541	psi

Adding/Removing Values
To add additional values, press Add. Choose the calculation (Average, Maximum, Minimum, Standard Deviation, etc.) you would like to apply to the selected data range and press OK. Select a summary measurement and location from the list that you would like to view and press OK. Repeat to add additional measurements. To remove a measurement that had already been added, highlight it and press Remove.

(Cycle Graph continued)

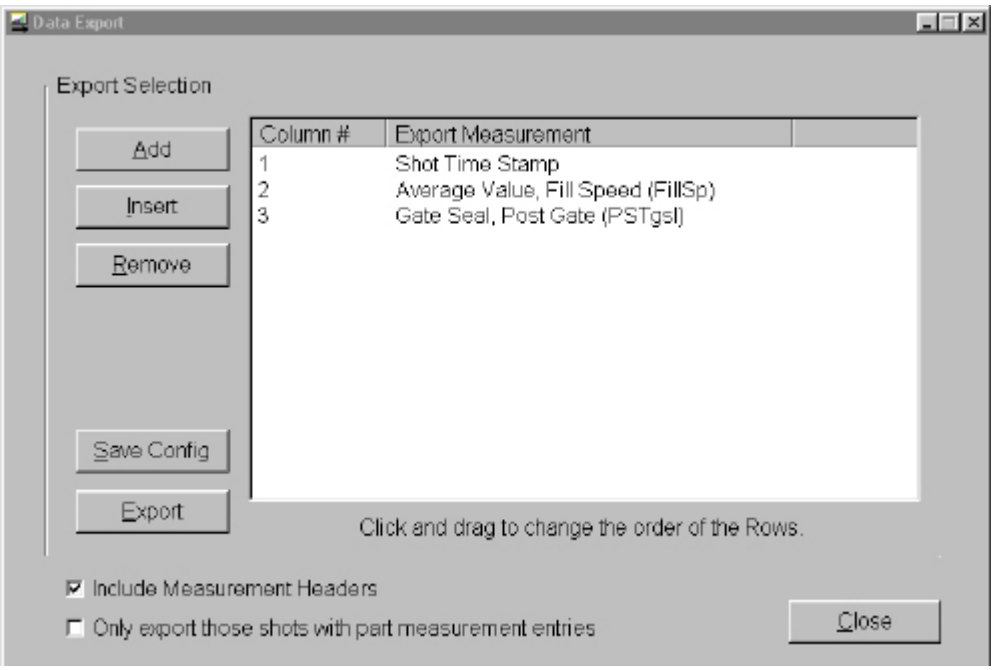
Data Range
Choose a view (Summary View, Shots Back, or Whole View) from the Data Range combo box at the top of the screen. If you select Shots Back, you can indicate the number of shots.

Part Measurement
The Part Measurements tool is used with the Part Sampling tool in the eDART software. Using the Part Sampling tool, you can collect samples for later analysis by marking the datapoints where you took these. In the Part Measurements tool, you can enter part measurements.



	Group Name	Shot D/T	Length	Part Weight	Surface Finish
-	Test 1	01/01/2002 19:28:45			
		19:28:45	1.000	1.000	25.00
		19:29:15	2.000	1.000	26.00
		19:29:45	3.000	1.000	24.00
		19:30:14	2.000	1.000	25.00
		19:30:44	3.000	1.000	25.12
+	Test 4	01/01/2002 19:33:29			
+	Test 6	01/01/2002 19:38:00			
+	Test 8	01/01/2002 19:44:28			
+	Test 10	01/01/2002 19:48:44			

Data Export
The Data Export tool allows you to choose summary measurements and export them to a csv (Excel readable) file where additional data analyis can be done. This tool can also be accessed from the summary graph.



(Cycle Graph continued)

Adding/Removing Summary Measurements
Press Add and select a summary measurement and location from the list that you would like to view and press OK. The measurement header will appear at the end of the list.

To insert a measurement in a specific place in the list, highlight the measurement header directly below where you would like the new measurement to appear. Press Insert and select a summary measurement and location from the list. The measurement headers can also be moved around by clicking and dragging.

To remove a measurement that has already been added, highlight the header and press Remove.

Save Config
Saves the specific measurement names. This is useful if you frequently export a particular format.

Include Measurement Headers
Check this box if you would like the measurement headers to be exported along with the data.

Only Export those Shots with Part Measurement Entries
Check this box if you would like to only export the Part Measurement data.

When finished, press *Export*.

NOTE
Data Export works with summary data only.

e*DART* Process Setup

This section describes how to set up a process on your *eDART* by using either an existing process or by creating a new process.

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59 Create New Process

61 Alarm Limits

63 Remove Alarm

64 Adjust Alarm Levels Automatically

65 Adjust Alarm Levels Manually

66 Sorting Actions

67 Control Settings

69 Excessive Reject Tab

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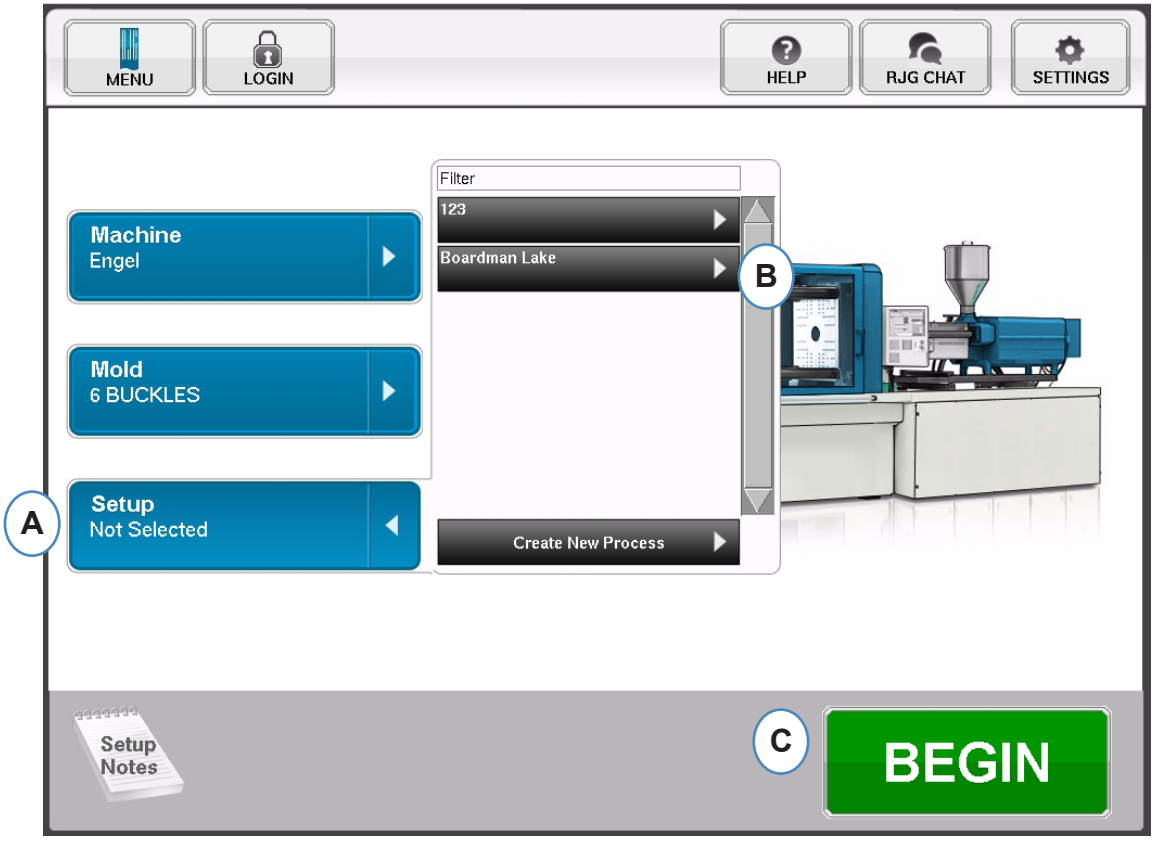
Select Existing Process

If you have a process setup from a previous run, simply select it from the list. The *eDART* will remember saved setups from previous runs. It is not necessary to enter a new process when you restart a job.



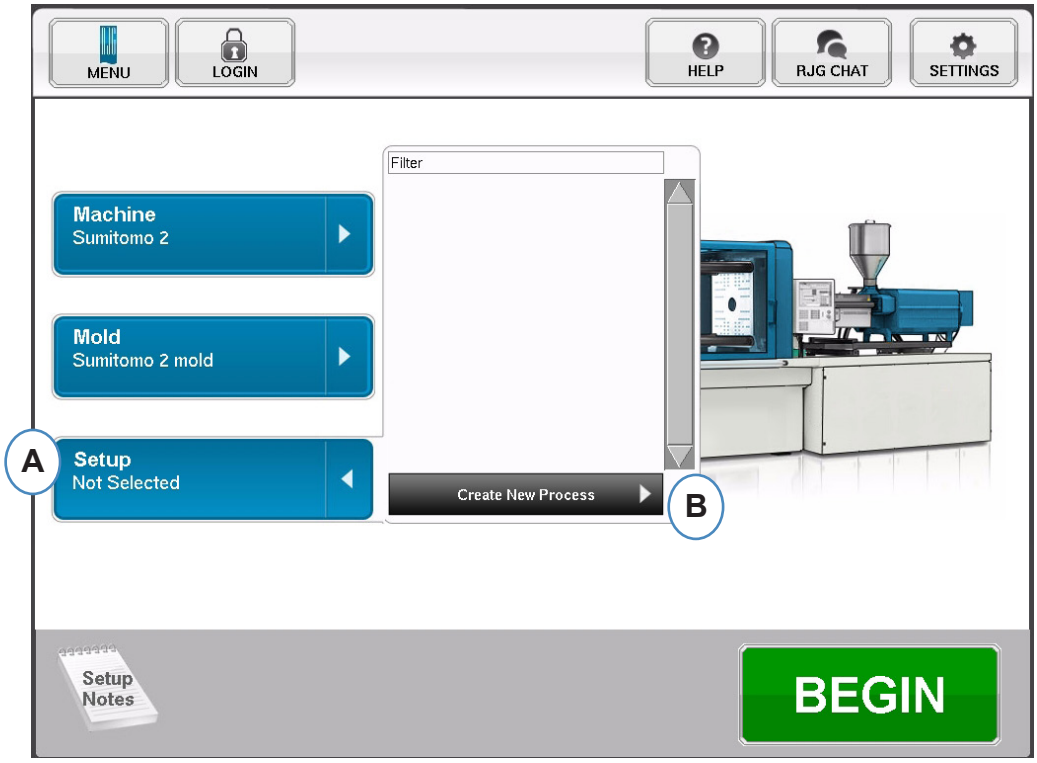
A: Click on the “Setup” Button.

B: Click on the Process that you would like to run.

C: Click the “Begin” button when Machine, Mold, and Process are selected.

Create New Process

Only create new setup if something has changed in your process that will affect alarm settings or the timing of the part segregation device. Saving a new setup for the new process allows you to get back to the old process at a later time if necessary.

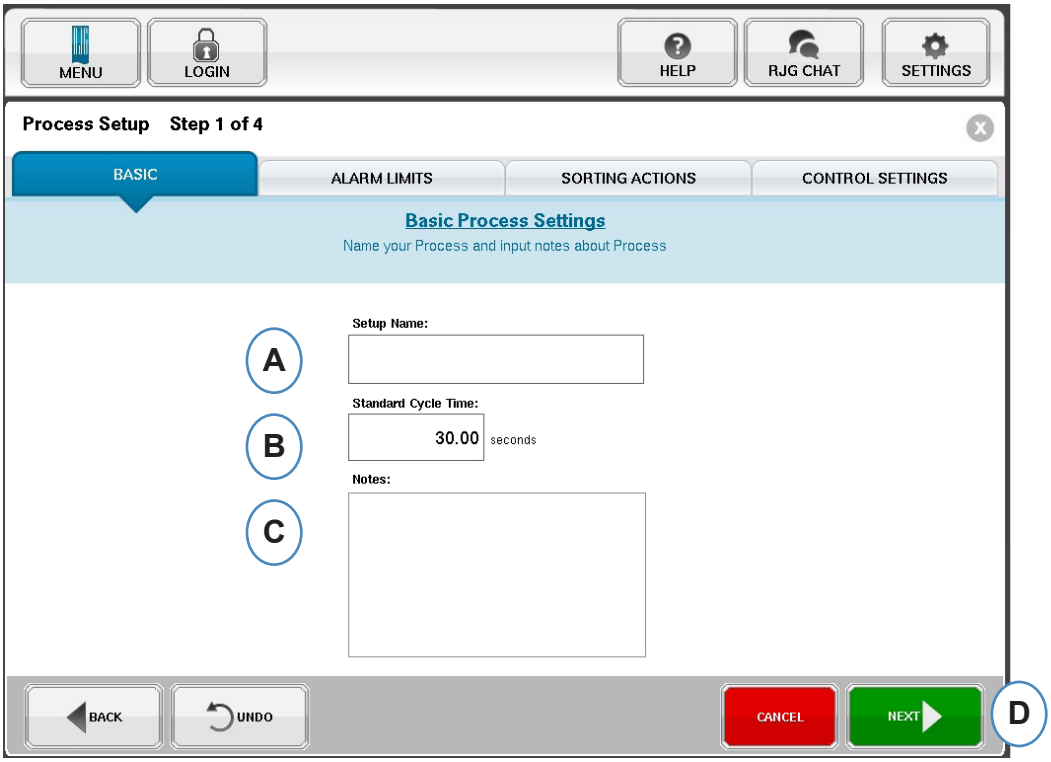


A: Click on the “Setup” button from the Home Page of the *eDART.*

B: Click on the “Create New Process Button”.

Create New Process con't.

When "Create New Process" is selected, the Basic Process setup screen will appear.



A: Enter the Process Name.

B: Enter the Standard Cycle Time for this process

C: Enter any notes about the process

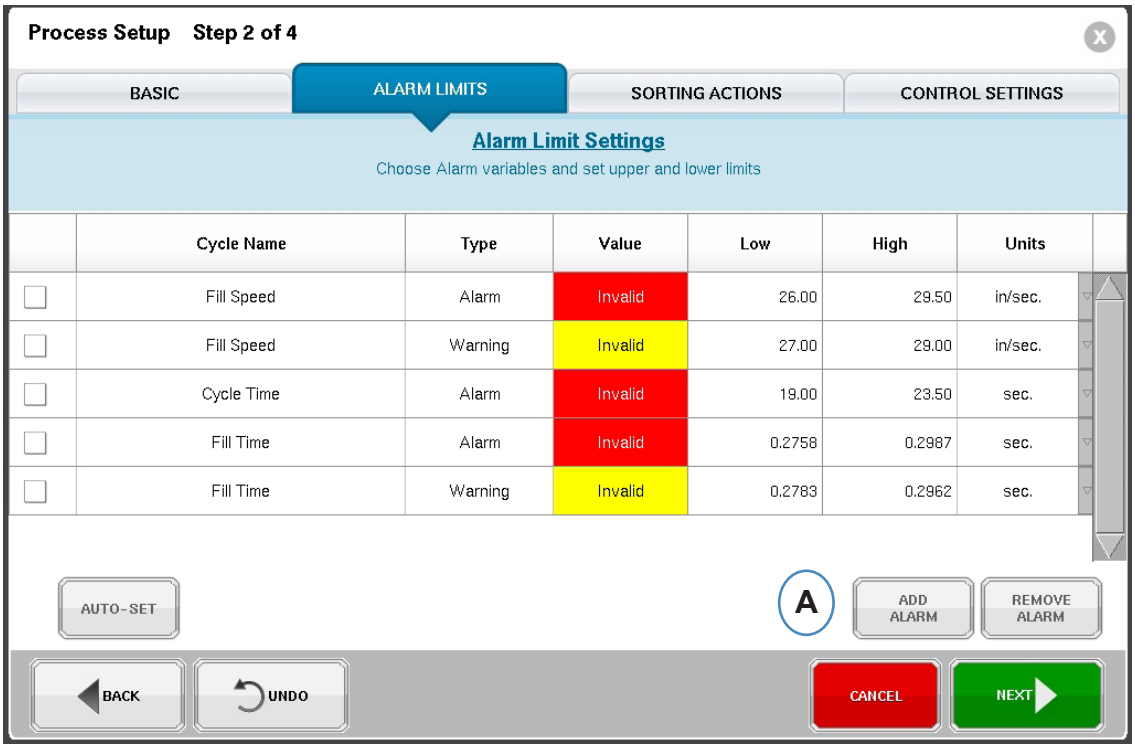
D: Click on 'NEXT' to go to the next page

Alarm Limits

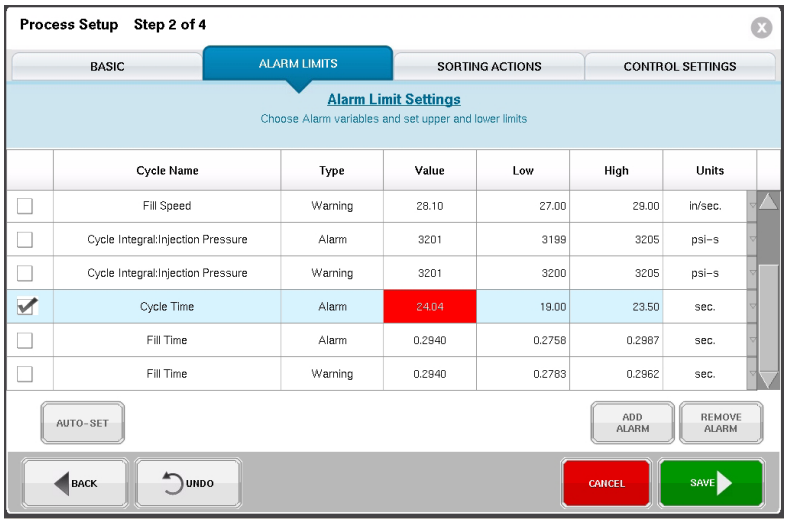
When the “Next” button is selected the “Alarm Limits” tab will open to allow for process configuration.

This configuration will include the addition of Process Alarms/Warnings and Part Diverter/Robot Signal Controls.

When a process alarm or warning is added, the *eDART* will display both a low and high alarm. These alarm levels can be set either automatically or manually based on actual part characteristics.

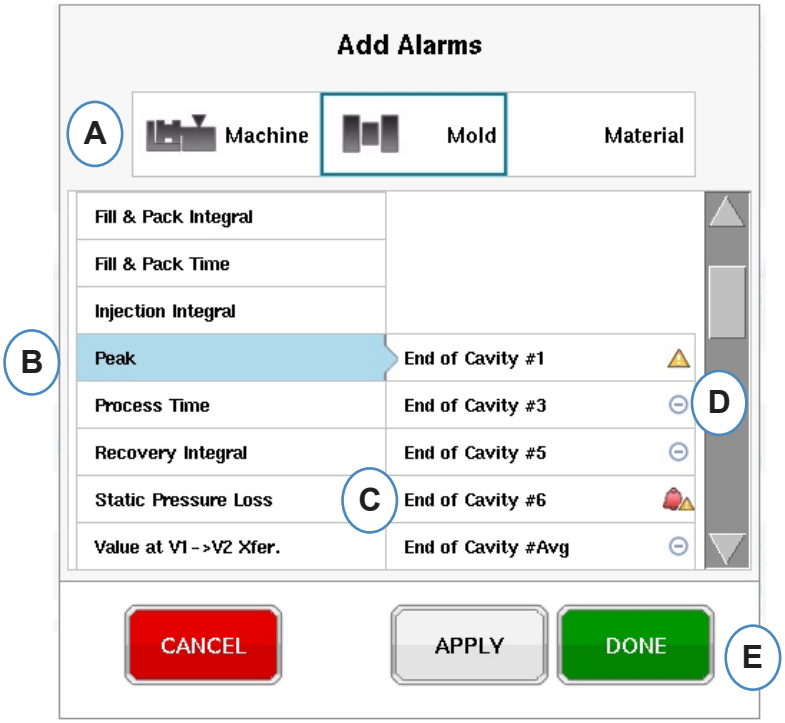


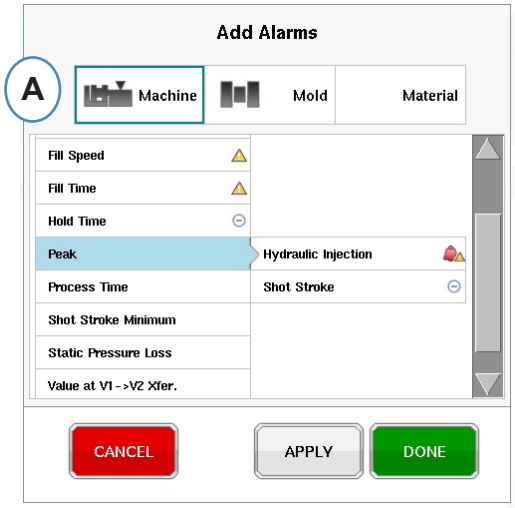
A: Click on the “Add Alarm” Button. When “Add Alarm” Button is selected the *eDART* will display the list of available alarms. All values will show “Invalid” until the process is actually running.

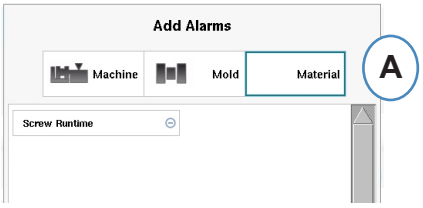


The same screen can be accessed from within a running process using the Options Menu.

Alarm Limits cont.







A: Click on the button that represents the type of alarm to be added.

Machine alarms include any machine based variable the *eDART* can calculate. Fill Time, Cycle Time, etc…

Mold alarms include any mold based variable, Peak End of Cavity, Pack Rate, etc…

Material alarms would include changes to the material, Effective Viscosity, Screw Recovery, etc...

B: Click on the Alarm type from the list. If there are more than one variable of that type the *eDART* will display the location choices to the right of the type.

C: Choose the desired location from this area.

D: Click on this icon to toggle between alarm types: Alarm, Warning, Alarm and Warning.

No Alarm

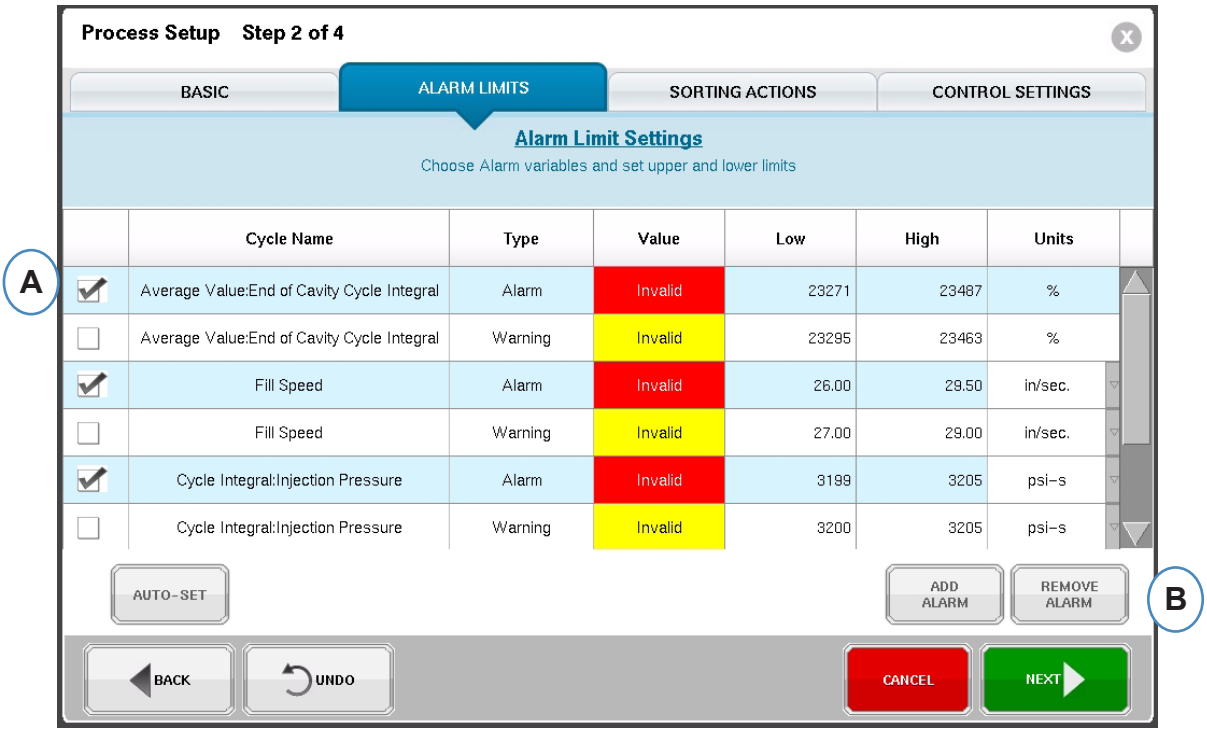
Warning Alarm

Reject Alarm

Reject and Warning Alarm

Remove Alarm

All alarms added to the process will be displayed on the “Alarm Limits” tab. From this tab you can edit the levels for your alarms both manually and automatically and remove alarms

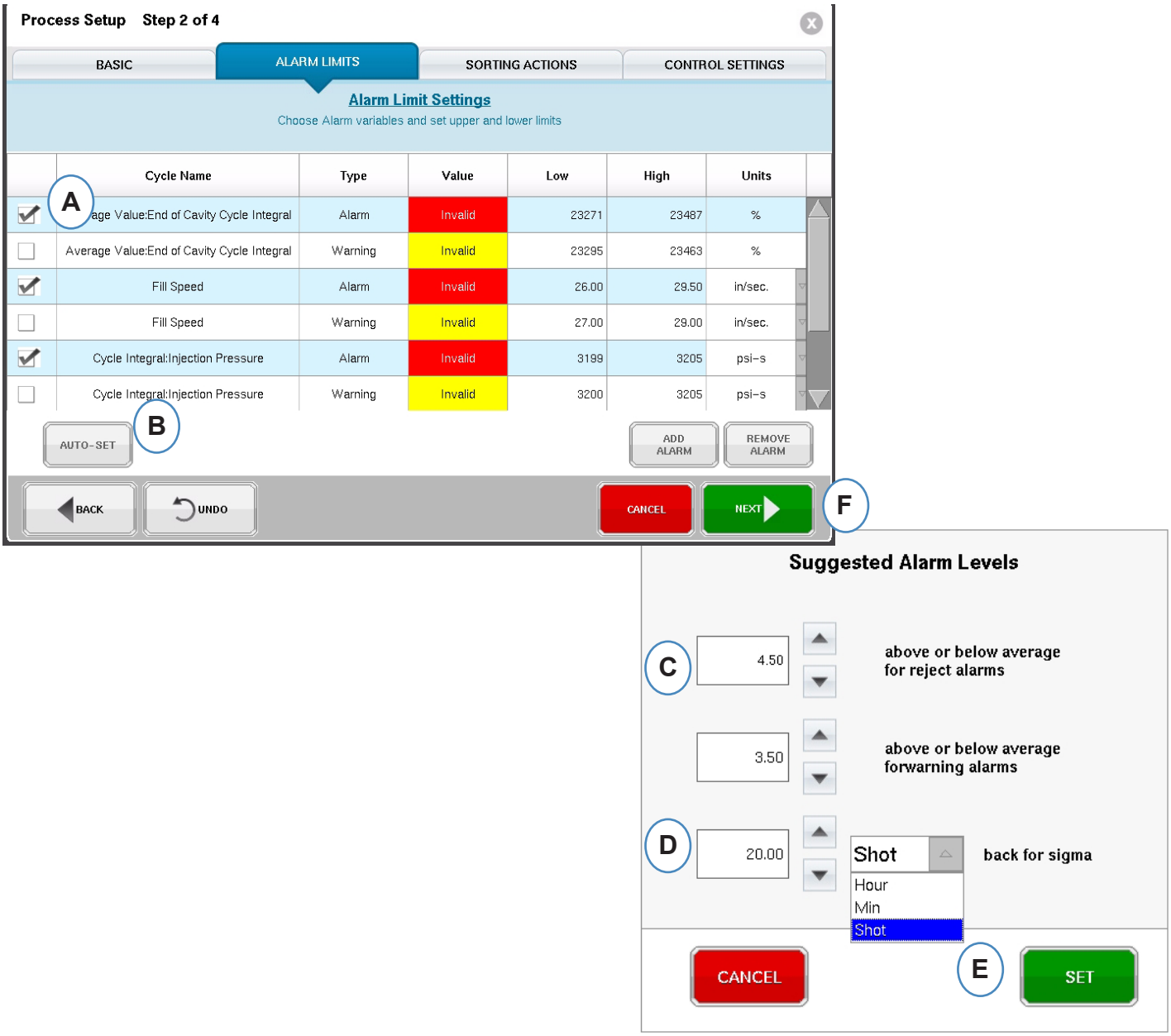


A: Click on the check box next to the alarm to be removed.

B: Click on the “Remove Alarm” button.

Adjust Alarm Levels Automatically

Once Process Alarms are added, use the Alarm Limits page to adjust the limit levels. This can be done automatically or manually based on the part characteristics.



A: Click on the check box for each variable alarm that you want to adjust automatically.

B: Click on the “Auto-Set” button.

C: Enter the desired statistical level for the alarms selected to be adjusted.

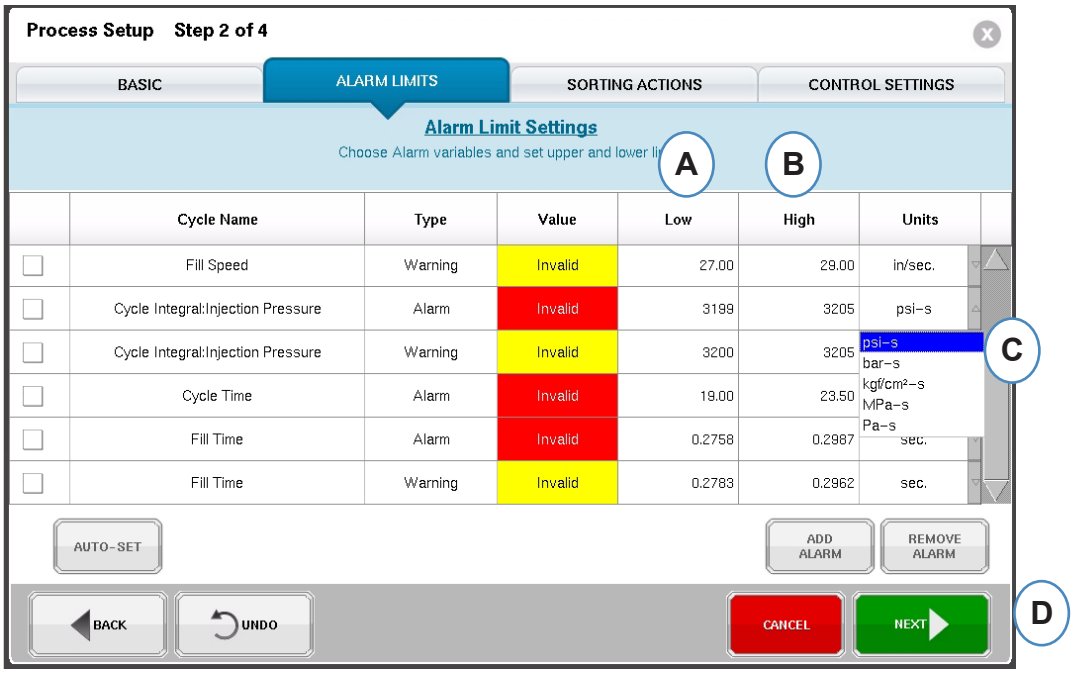
D: Enter the number of shots to use for the level adjustment.

E: Click on the “Set button”.

F: Click on the “Next” button on the main Alarm Limit page.

Adjust Alarm Levels Manually

Most plastic parts have a very specific set of criteria that needs to meet to be considered a Good Part. The most accurate way to set alarms in the *eDART* is based on in-cavity variables and actual part dimensions. The *eDART* system has many tools to aid in the selection of these alarm variables. Once the alarm variables are identified, a simple high-low study can be executed to determine the correct alarm level based on part measurements. Always pull the levels in some to insure the alarms are conservative.



A: Enter the value for the Low alarm in this box. Parts with a value below this level should be too small or short.

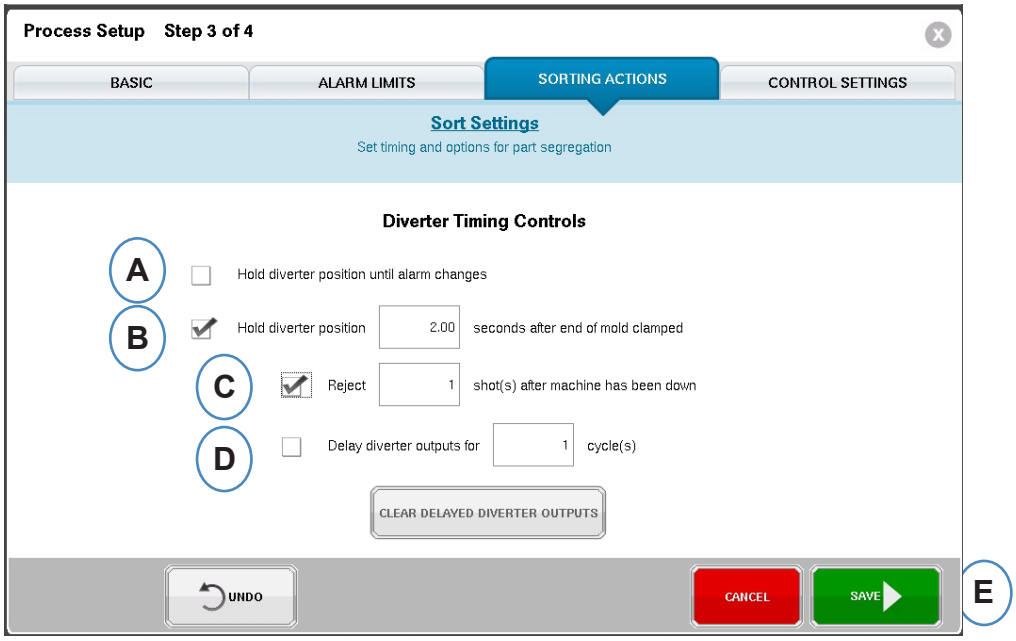
B: Enter the value for the High alarm in this box. Parts with a value above this level should be dimensionally too big.

C: Use the drop-down menu to choose the units in which the values are to be displayed.

D: When all alarms have been added and the levels have been set, click on the “Next” button to continue to the next portion of the set-up.

Sorting Actions

When the “Next” button is selected the *eDART* will display the “Sorting Actions” Window. This window will allow for input on how to treat the sorting output signal to insure the parts reach their proper destination.



A: Check this box to hold the part diverter in one position until there is a change in the alarm state.

B: Check this box and enter the amount of time for the contact to be held closed when a good part signal is generated.

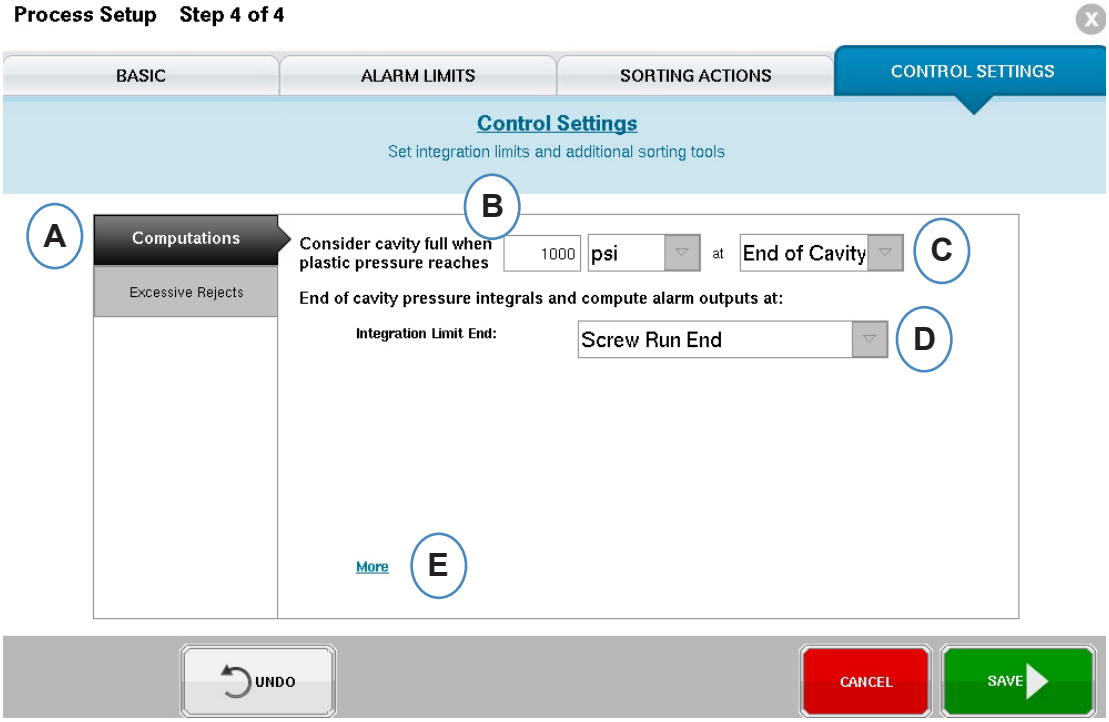
C: To use the “Reject After Down” feature, check this box and enter number of parts to be rejected after the Machine has been down.

D: To use the “Diverter Delay” feature, check this box and enter the number of cycles that you would like to delay the output. Use this feature for conveyers that have many parts on it before the diverter device or over-mold processes that have alarms set on the 1st shot.

Control Settings

This page allows the user to configure how alarms are calculated. It also contains the settings for additional control output configurations. This page allows for the modification of Integration limits and for configuration so that you can see a temperature drop instead of temperature rise in LSR or other thermo-set materials.

Computations Tab



A: Click on the “Computations” tab.

B: The value that you enter here will set the pressure at which the *eDART* stops calculating Cavity Fill time.

C: Click on the drop down menu to choose the sensor to be used for Cavity fill time calculations. The *eDART* default is set to 1000 PSI at the End of Cavity. This value is valid for most thermoplastics.

D: Click on the drop down menu to choose the Integration Limit. This is the place where the Cycle Integrals calculation ends. This is where the *eDART* calculates the value and sends out the Good Part/ Bad Part signal to the part segregation device.

E: For a complete list of options click on “More”.

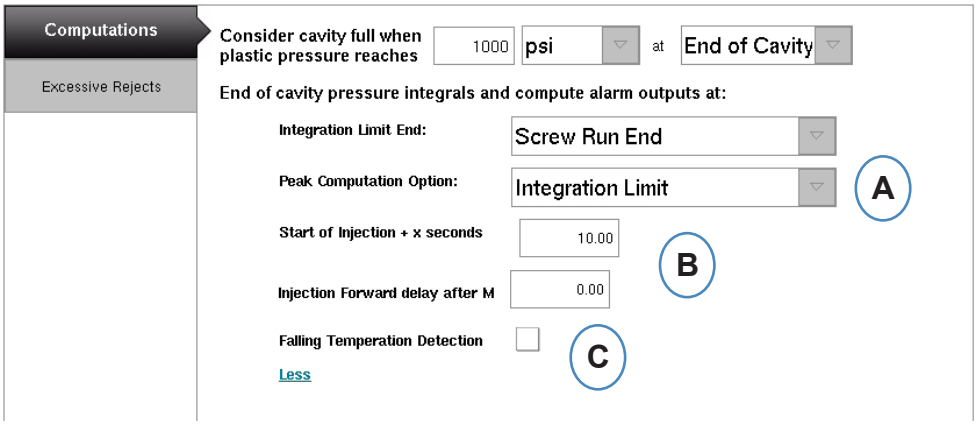
Screw Run End: Most Robots look for a Good Part/ Bad Part signal at this time.

Injection Start: If the robot or part segregation device needs to see the signal at a different time use Injection Start and put the end time in the Integration Limit Offset Time.

Mold Clamped End: This setting will capture the integral for the entire cycle, but the Good Part/ Bad Part Signal output will be too late for most robots.

Control Settings cont.

Integration Settings



A: Click on the drop down menu to choose the time that the *eDART* looks for Peaks within the cycle.

Integration Limit – the *eDART* will look for peak pressures at the Integration Limit set in step 3.
End of Injection – the *eDART* will calculate peak pressures at the end of hold.

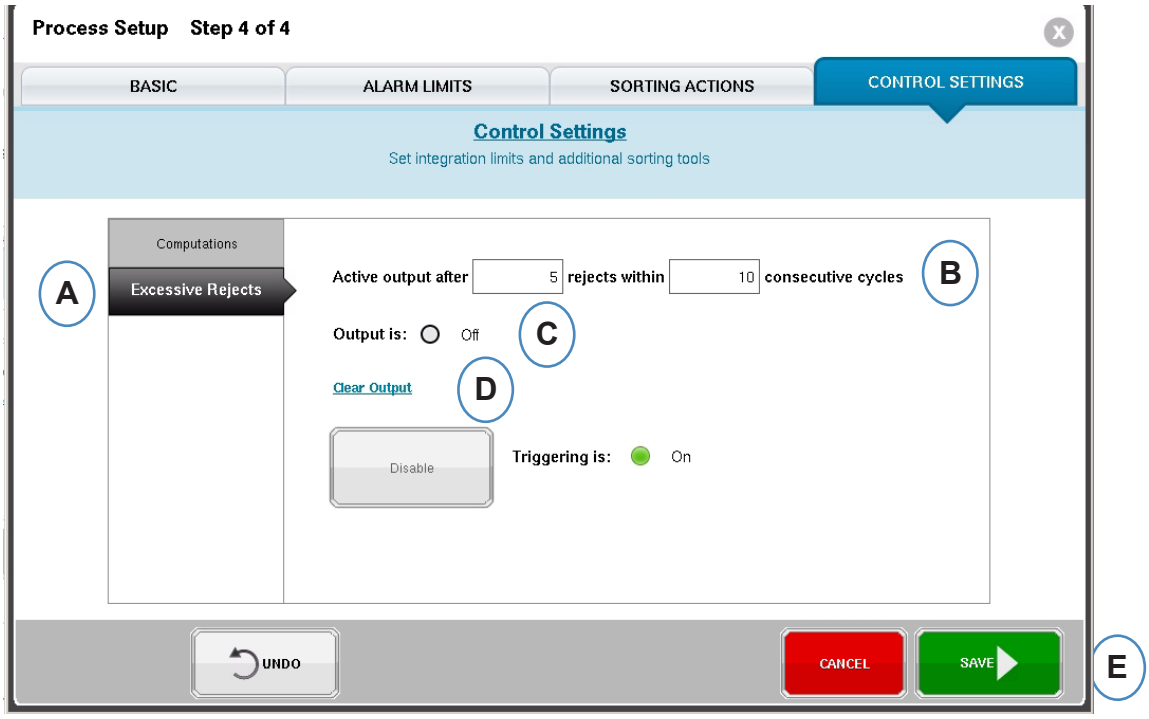
B: If using the" Injection Start" option for the Integration Limit, enter the Integration limit time here.

C: Click on this check box if monitoring thermo-set materials like LSR.

Excessive Reject Tab

The Excessive Reject tool allows you to stop the Machine if you make more than a set number of rejects in a set number of cycles.

The Excessive Rejects Tool requires the use of 1 side of an OR2-D module wired to the Injection Circuit of the Machine.



A: Click on the “Excessive Rejects” tab.

B: Enter the criteria to stop the Machine.

C: This light will turn green when the output is actuated.

D: When the “Excessive Reject Output” fires to prevent the machine from injecting it is necessary to click on “Clear Output” before the machine will be allowed to inject.

E: Click on the “Finish” button when all of the Tabs have been completed.

e*DART* Overview Screen

This section describes the features found in the *eDART* Overview Screen

In This Chapter

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73 Process Match Variable

74 Cycle History

75 Options Tab

76 Quality Sampling Tool

77 Process Settings

78 Velocity to Pressure Transfer Tool

82 Saving Master Setup

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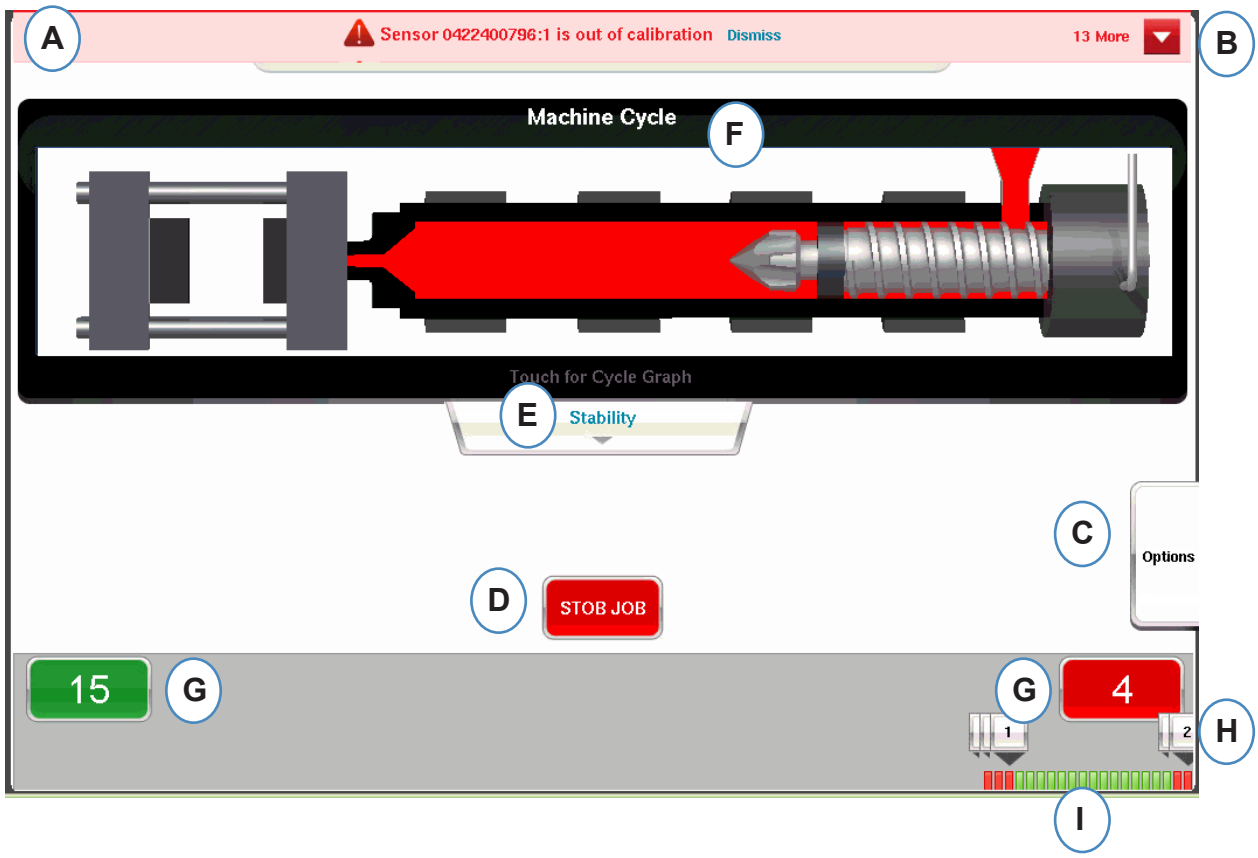
Overview

After the Mold, Machine and Process is selected on the Job setup screen and the job is started, this screen will appear. From this screen you can navigate to any part of the *eDART* including the setup screens if the job is stopped.



A: This information bar will show any errors that the *eDART* can identify. Click on “Dismiss” to remove warning.

B: Click on this arrow to display all error messages.

C: Options tab will allow access of tools like the Part Sampling tool and the Velocity to Pressure Transfer tool along with setup options, summary note entry screen, and save new setup screen.

D: Stop the job using this button.

E: This tab displays the Process Match status. Details about the Mold, Machine, and Material matches are available.

F: Animation of press functions. The animation will move with the machine and process.

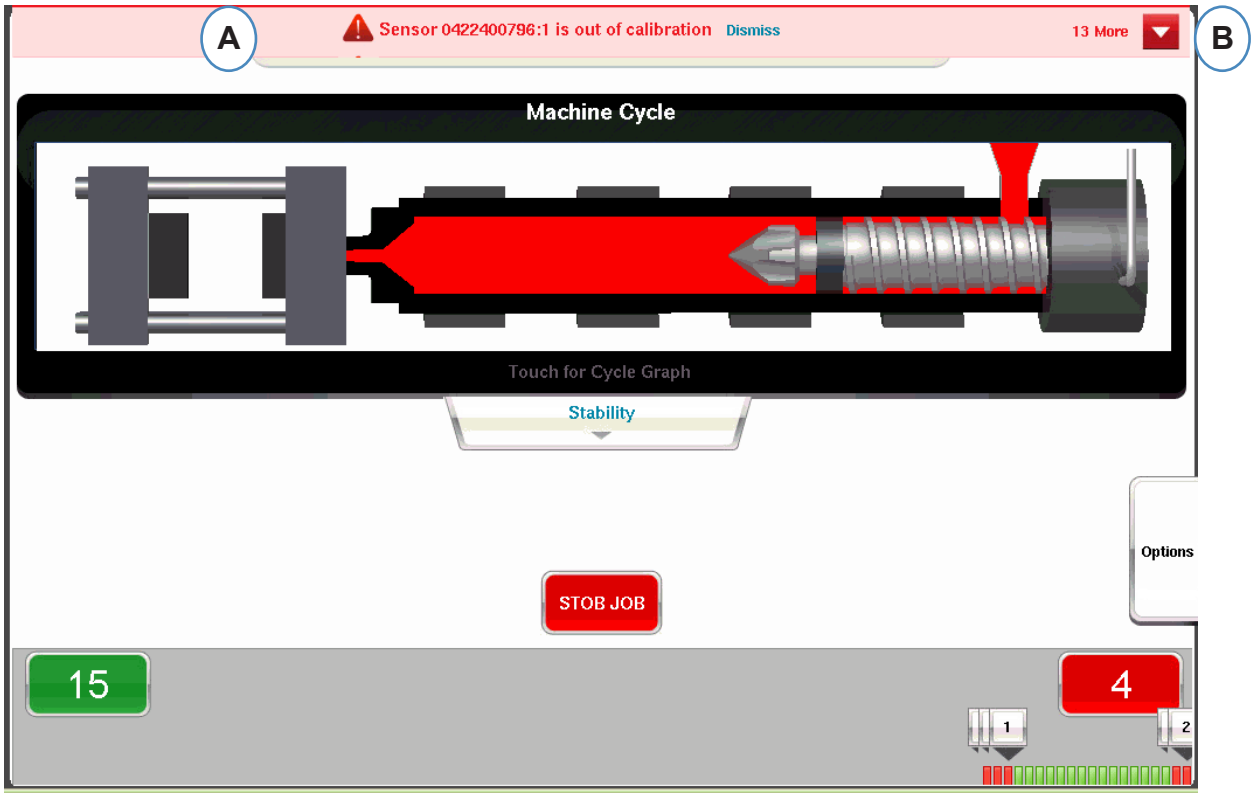
G: The green and red boxes at the bottom of the screen will indicate your part count. Number of good parts will show in the green area and number of reject parts will show in the red area.

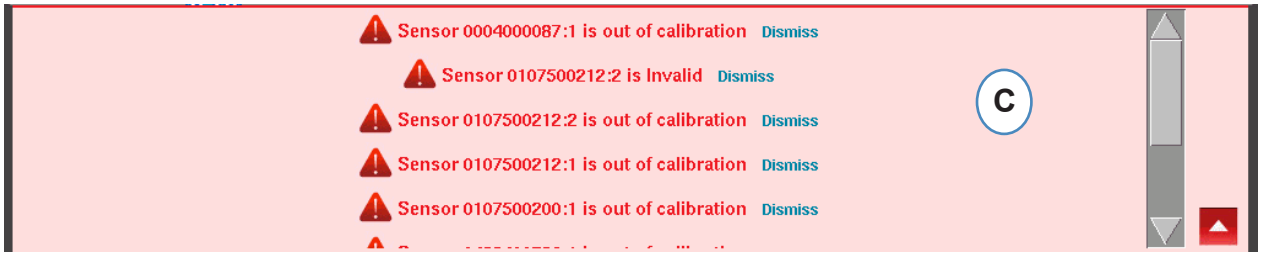
H: Cycle Alarm note. For each reject cycle a note will be displayed showing which variable limit was exceeded.

I: Cycle history. This will display the alarm state for each of the last 100 shots.

Error Display

The *eDART* will display error messages at the top of the screen.





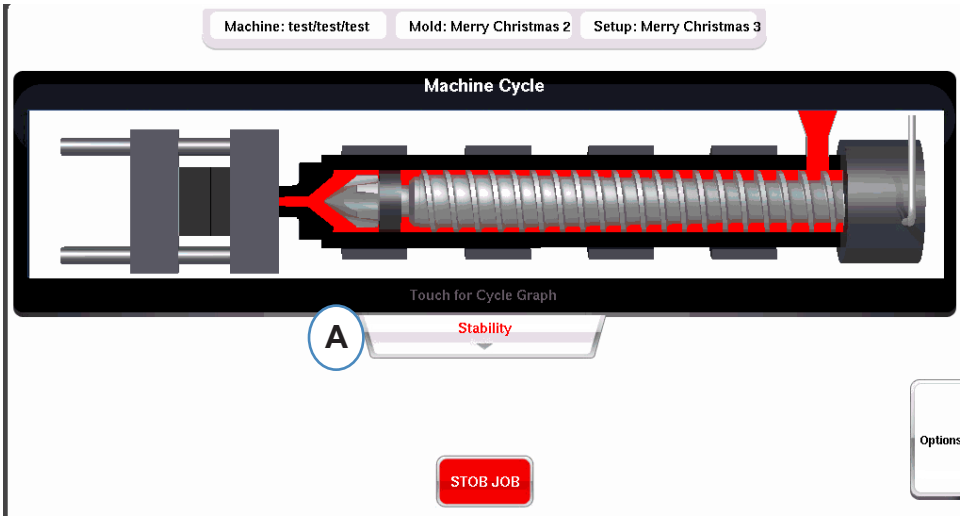
A: Check this bar to see error messages.

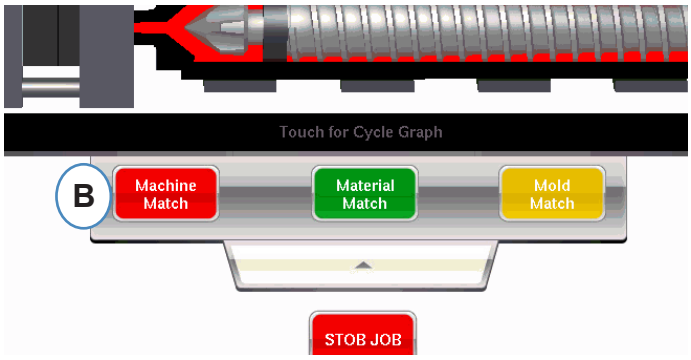
B: Click on this arrow to display more error messages. When the arrow is selected the error message window will expand to show more messages.

C: Click on “Dismiss” to remove each warning.

Process Match Variable

The Process Match is determined by the alarm and warning limits that have been set on key variables.





C

Machine Match Values

Cycle	Value	Template Value
Sequence Time:ScrewR	3.6770 sec.	3.7990 sec.
Sequence Time:MldC	5.8490 sec.	5.8480 sec.
Sequence Time:Cycle Time	18.0560 sec.	17.5500 sec.
Sequence Time:Fill Time	0.1510 sec.	0.2750 sec.
Average Value:Stable Hold	3962.7275 psi	104.8083 psi
Average Value:Fill Speed	3.4315 in/sec.	2.5108 in/sec.
Average Value:Back Pressi	608.7394 psi	4.7141 psi
Peak:Shot Stroke	0.6766 in	0.6741 in
Sequence Time:Hold Time	0.0050 sec.	0.0030 sec.

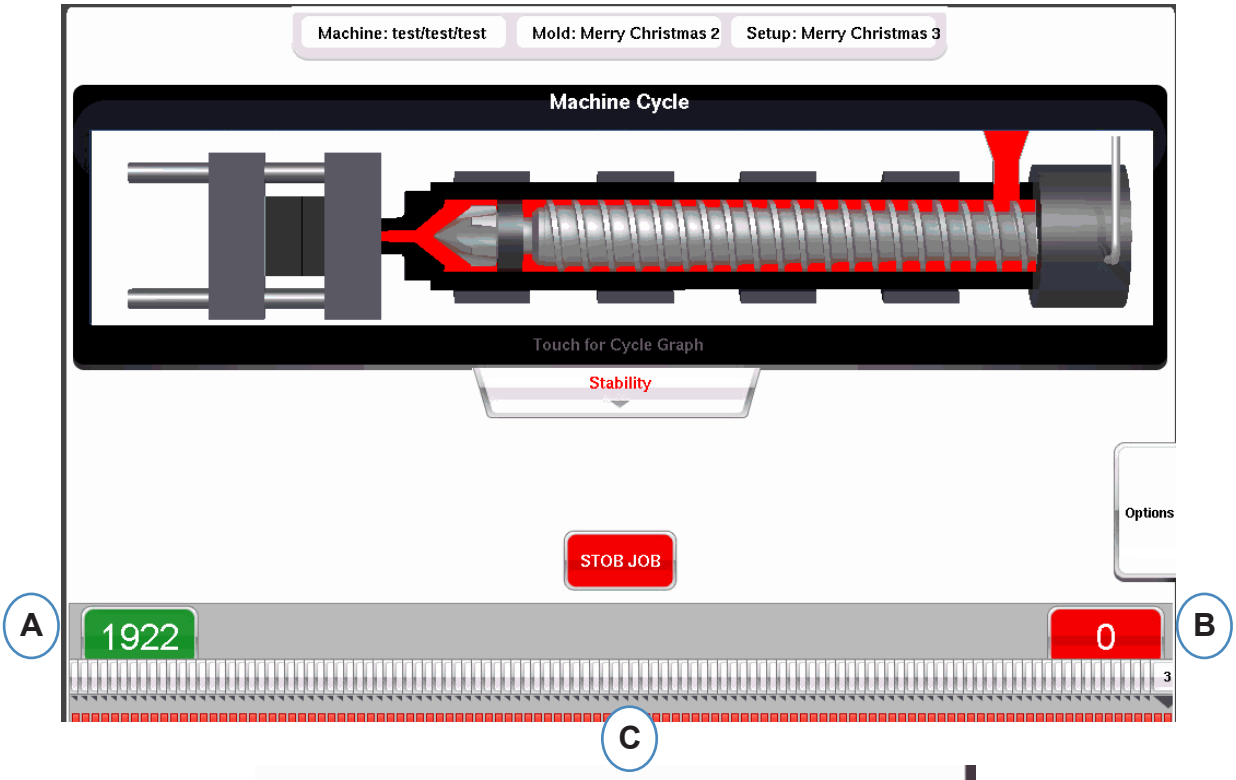
A: Displays green, red or yellow based on the Process Match. Click on the “Stability” tab to access the template match values.

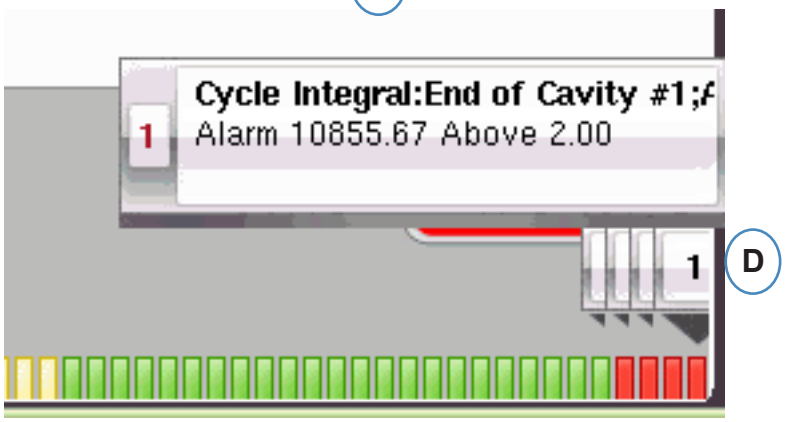
B: Click on the button for the Process Match information you wish to access.

C: You can look at the template match numbers for the Mold, Machine or the Material values that have exceeded the alarm will highlight in red or yellow. Mold match will open the graphics screens.

Cycle History

The Cycle history for the last 100 shots will be displayed at the bottom of the Main *eDART* screen. Good shots will show as green and Reject shots will show in red. Part counts for both good and reject shots will also be displayed for the whole run.





A: Reject Parts count

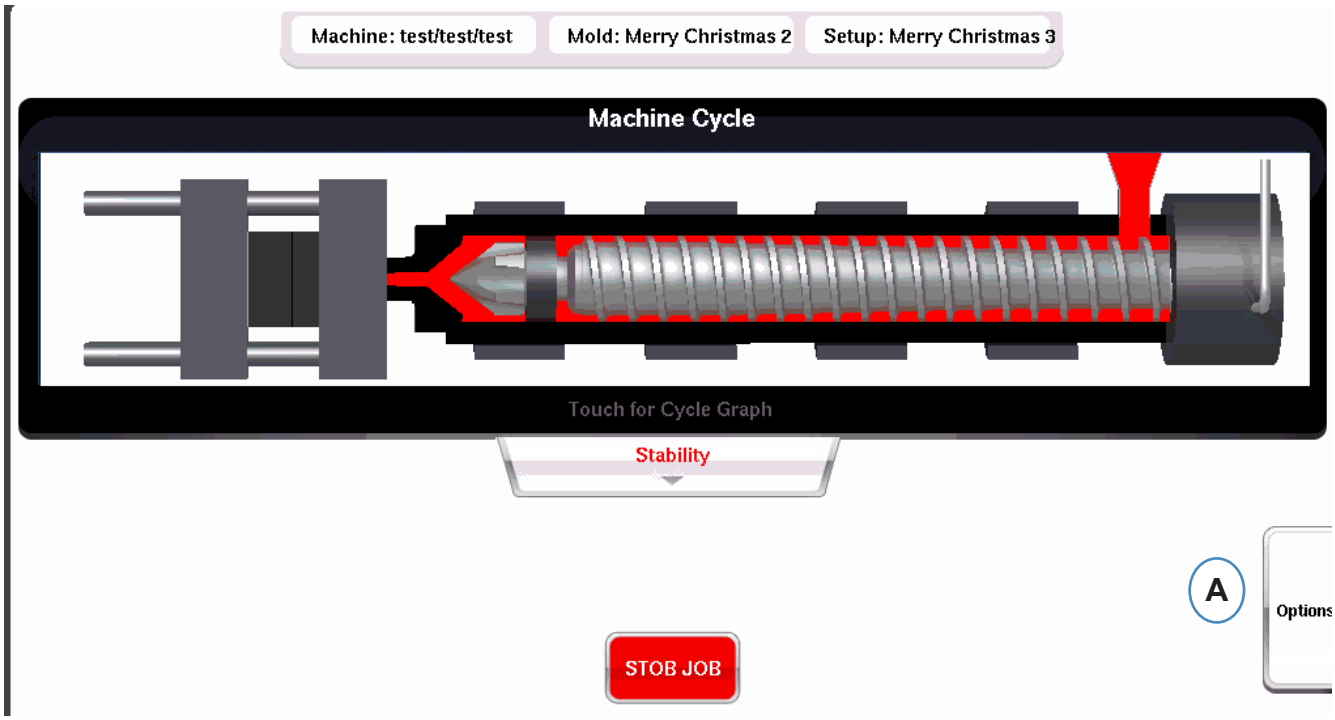
B: Good Parts count

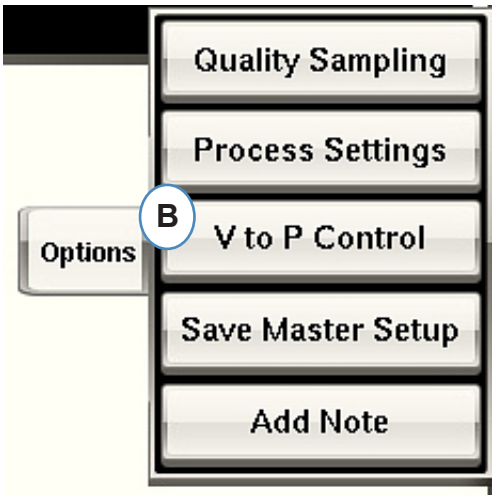
C: Visual display of alarm status for last 100 shots

D: Click on the note to display details for the reject cycle.

Options Tab

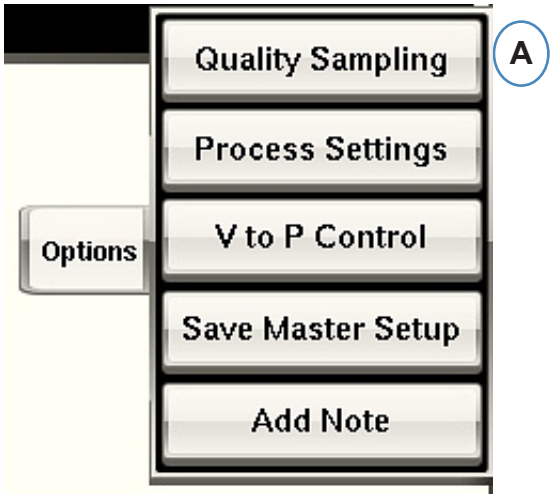
The “Options” tab on the *eDART* Overview screen will allow access to job setup as well as tools used during processing.

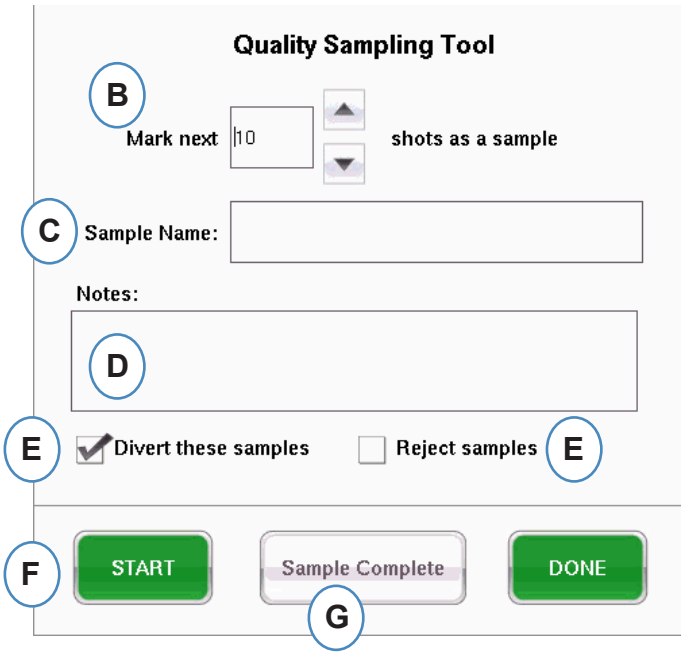




Quality Sampling Tool

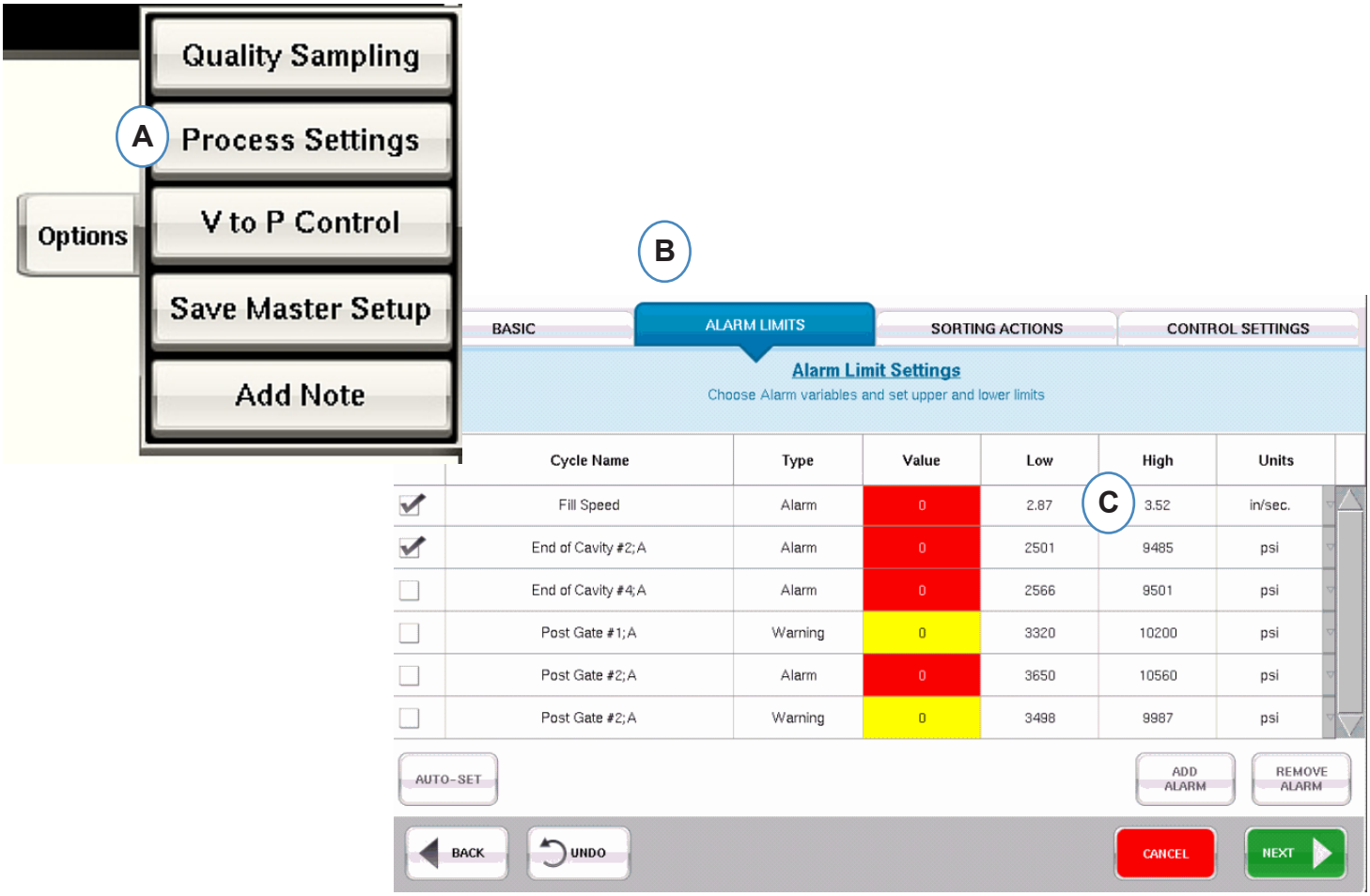
The “Quality Sampling” tool will allow you to take sample parts and later correlate the part to the data for that part. This tool marks the shots as samples and creates a new data set.





Process Settings

Clicking on the “Process Settings” button will open the Alarm Limits and Part Sorting control pages.



A: You can add alarms, change alarm levels and adjust part sorting controls from this window.

B: Click on Tab you wish to edit.

C: Enter changes to the limits.

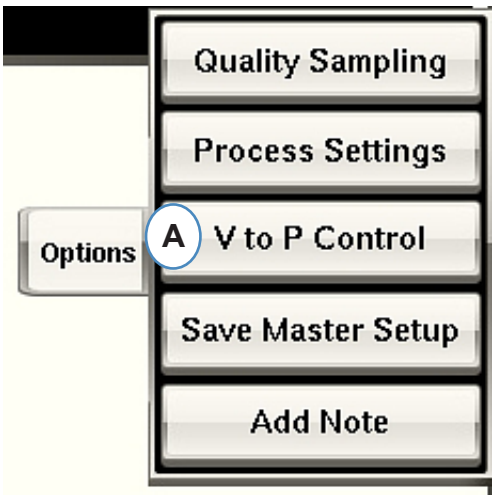
D: Any changes made here will be retained until the job is stopped. Once the job is stopped, the changes will be lost unless you save them as a new Master Setup.

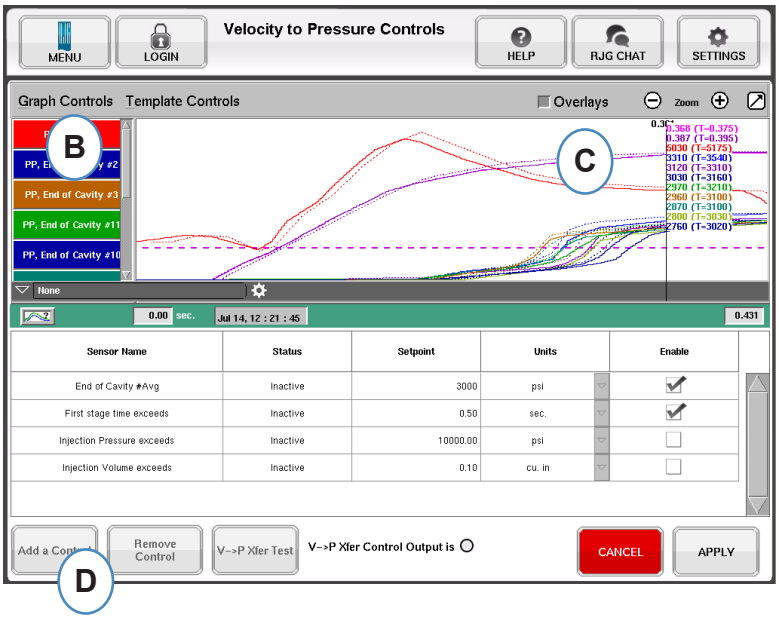
*See “Save as Master Setup” section.

Velocity to Pressure Transfer Tool

The Velocity to Pressure Transfer Control Tool allows input of cavity pressure set-points for external Velocity to Pressure Transfer. One side of an OR2-D module will need to be wired to the external transfer input on the Machine.

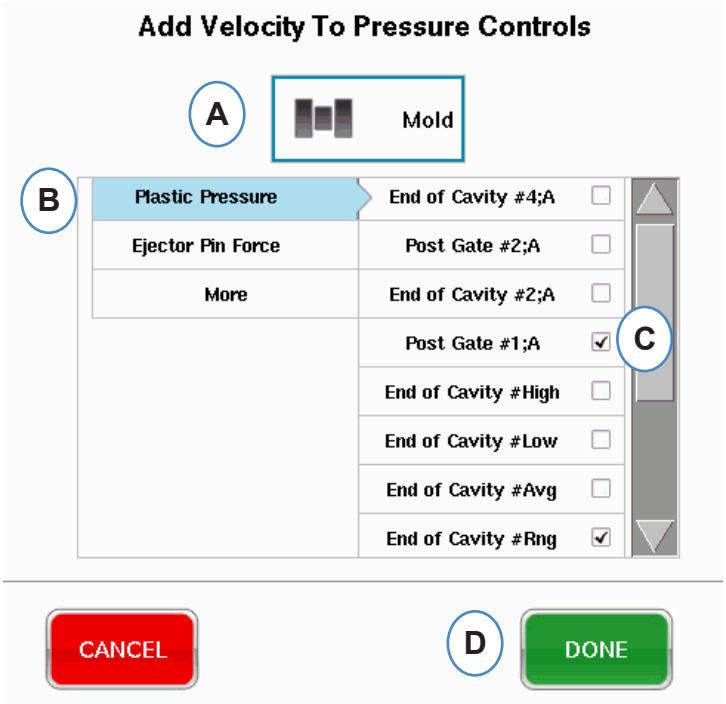
Click V to P Control, to view where the In-Mold sensor and set-points are selected and set. These controls include Cavity Pressure and Cavity Temperature sensors.



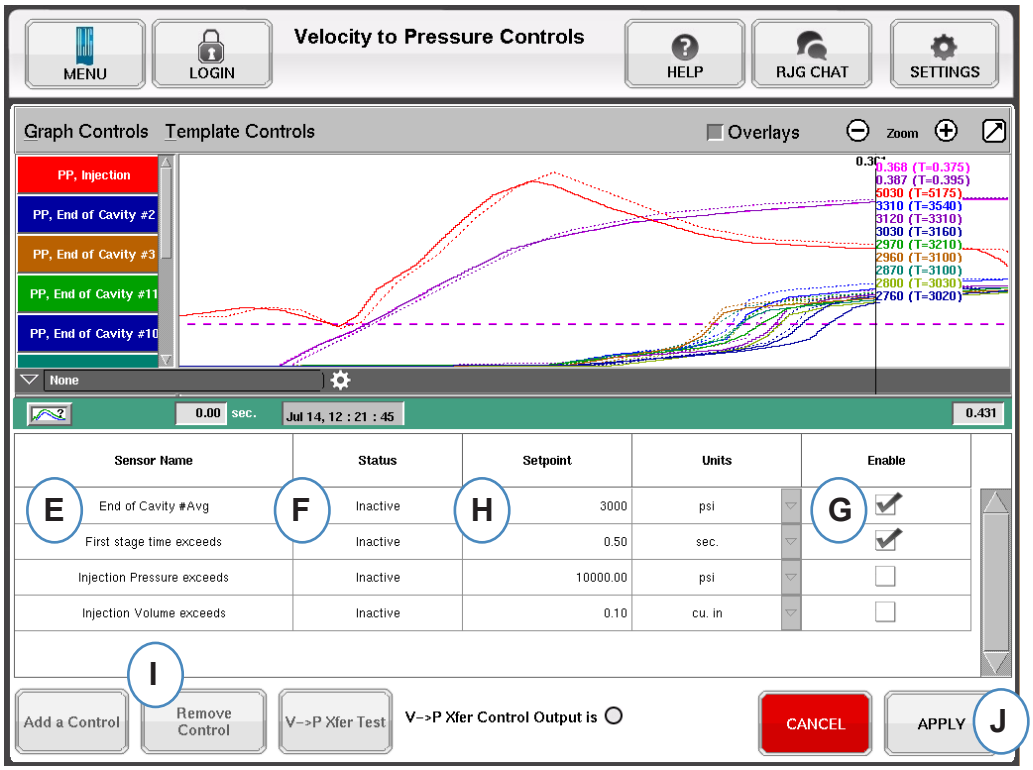


Velocity to Pressure Transfer Tool cont.

When “Add Control” is clicked a window will appear that contains all of the available in Cavity control sensor.



Velocity to Pressure Transfer Tool cont.



E: Selected Control sensor will be displayed in this box.

F: Status of control will show in this box. This will turn to “Active” if it is the first set-point achieved.

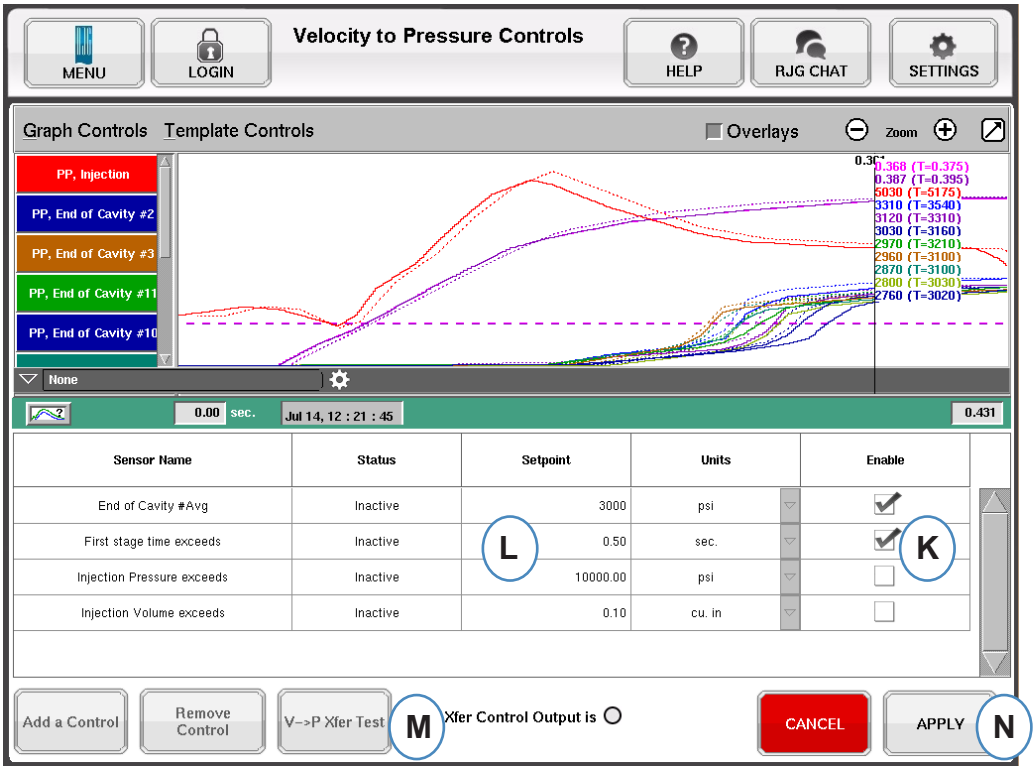
G: Check this box to enable the set-point control for that sensor.

H: Enter set-point for control.

I: To remove a control, highlight the row for that control and click the “Remove Control” button.

Velocity to Pressure Transfer Tool cont.

Secondary Controls Tab



K: Check the box to enable set-point. More than 1 can be selected for additional backups.

L: Enter set-point values for each control backup selected.

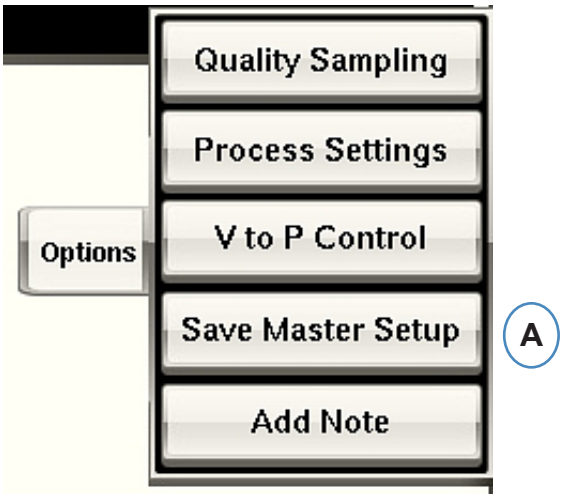
M: Use this button to test the control output. Click on the “Test Controls” button, the light should turn green and the LED on the OR2-D module should also light.

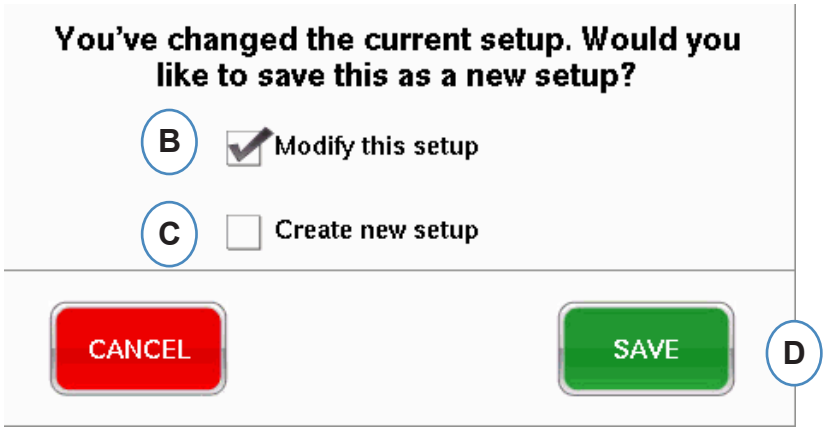
The Velocity to Pressure Transfer Control tool will transfer the machine to pressure control based on which set-point it sees first. Therefore, any set-point that is enabled will become a backup in case the cavity pressure fails.

ALWAYS SET BACKUP SET-POINTS ON THE MACHINE!!

Saving Master Setup

If new templates, alarms or control set-points are needed for a new material, color or cavitation, you can save the settings as a new Master Setup. If the changes are temporary for this run, do not save a new Master Setup and settings will be returned to the original Master Setup when the job is stopped.





A: Click on the "Save as New Setup" buttton from the options tab on the *eDART* overview screen of the *eDART.*

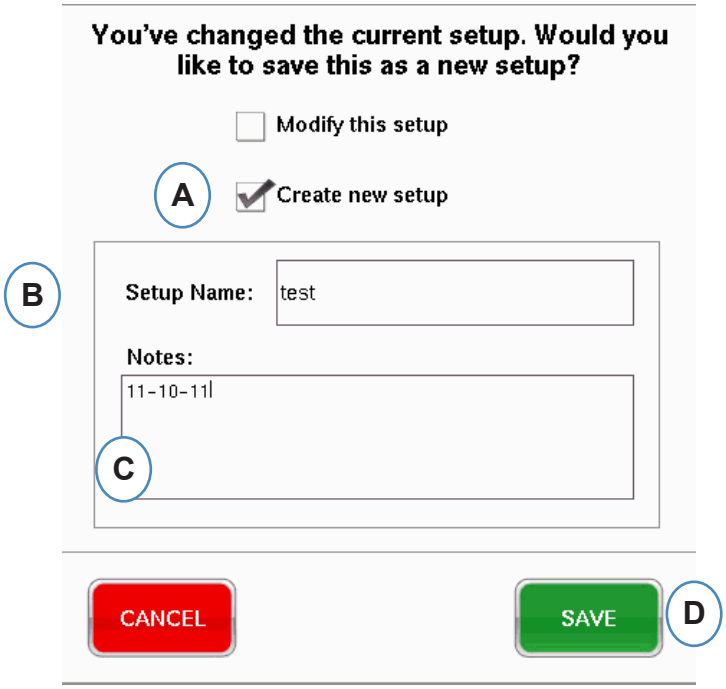
B: Check this box if you want to overwrite the previous setup with the new changes.

C: Check this box if you want to save the process changes as a new setup for the Mold.

D: Click one "SAVE" to save the process changes. If you click "CANCEL", no changes will be saved.

Save as Master Setup cont.

When the “Create new Setup” check-box is selected the window will open up to allow entry of the name and notes for the new process.



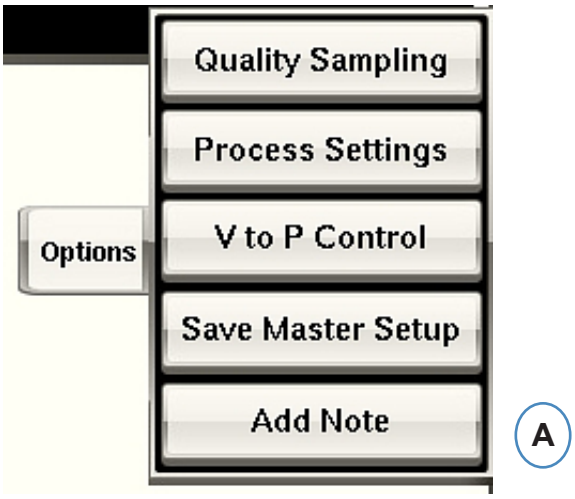
A: Check this box to save the setup as a new setup.

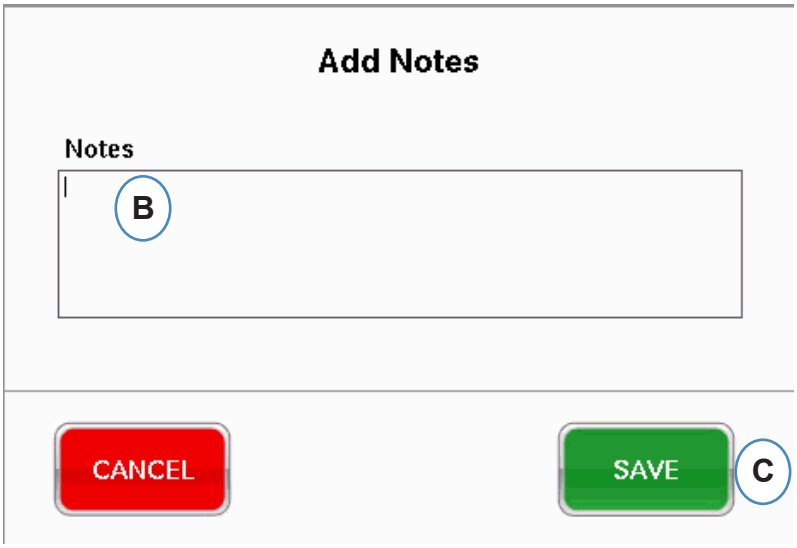
B: Enter the name of the new setup.

C: Enter any notes that you would like to save with the setup.

Add Note Tool

When the “Add Note” button is selected the *eDART* will open the Note entry window. The Note will be saved on the last cycle on the Summary Graph and will be available to view from there as well as in analyzer during data analysis.





A: Click on the “Add Note” button from the Options tab on the Main *eDART* Screen.

B: Enter the note content in this box.

Cycle Graph

This section describes the features found in the *eDART* Cycle Graph portion of the software.

In This Chapter

86 Cycle Graph

88 Graph Control Menu Auto Scale Curves

88 Set Fill Volume at Cursor

88 Set Volume Zero at Cursor

89 Adding Curves

93 Template Controls

94 Individual Curve Menu

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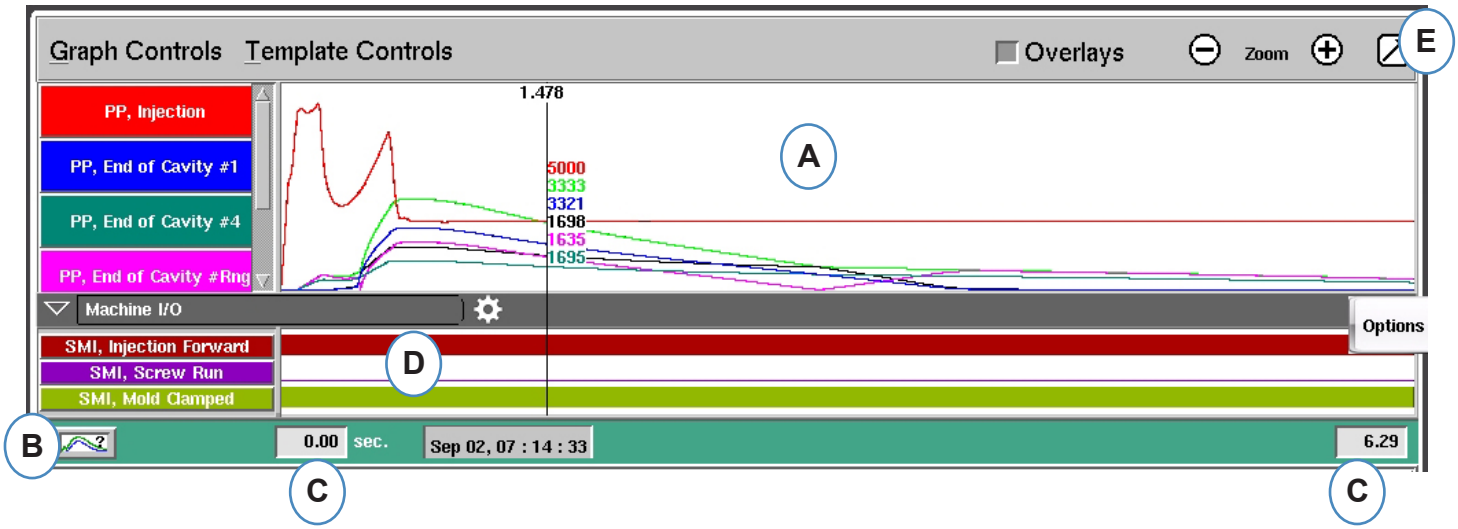
Cycle Graph

The Cycle Graph is where the real time data is displayed visually. All active sensors will be available to view in the graphical, real time form.



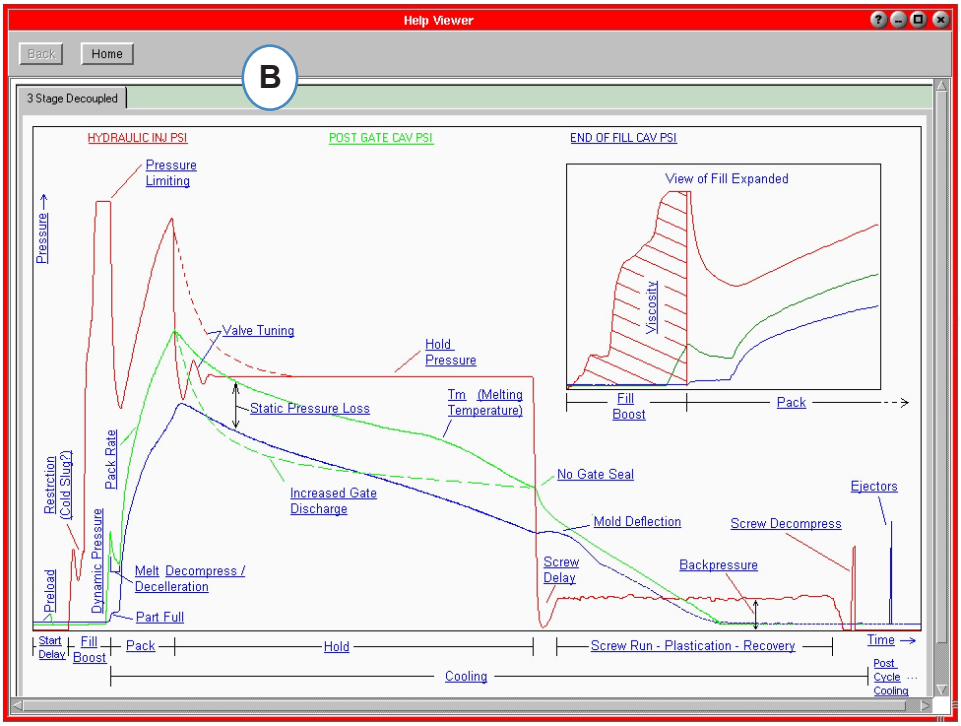
A: Main Graph Area. All real time curves will be displayed in this area.

B: Curve Help Screen. This screen shows sample curves and gives descriptions of important features of each curve.

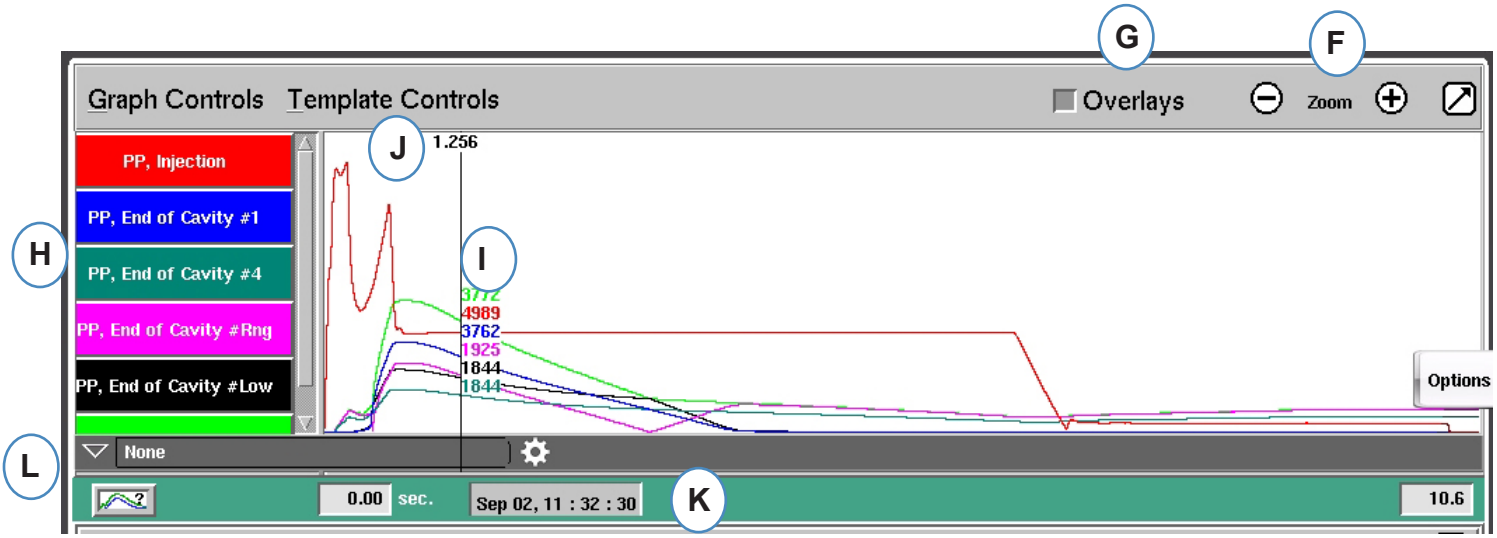
C: Time span visible on the graph. These values can be changed to show any portion of the graph in detail.

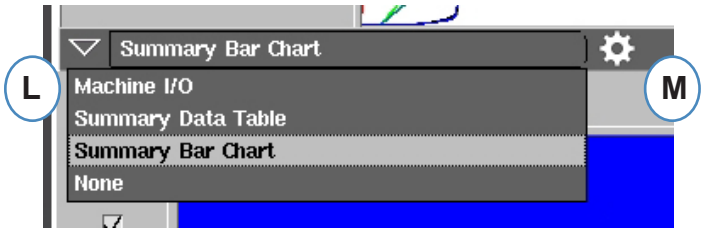
D: On/Off signals including triggers, control outputs and sorting outputs, can be displayed in this portion of the graph.

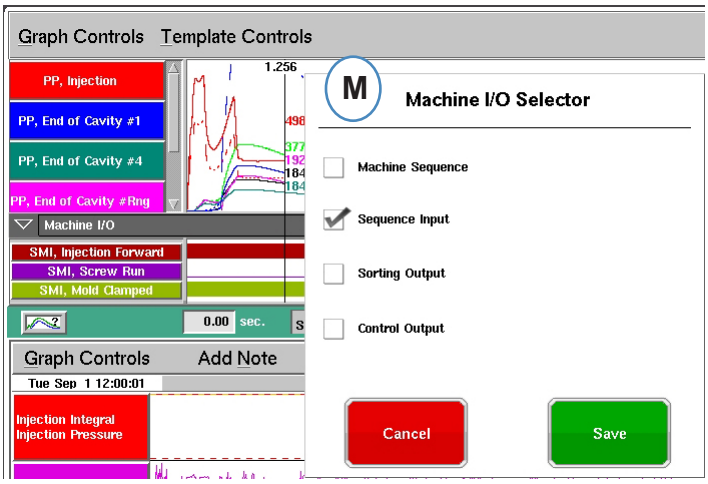
E: Click this button to maximize or minimize the Cycle Graph.



Cycle Graph cont.







F: Use the plus and minus signs to zoom in and out. The graph will always start from 0 seconds as you zoom.

G: Click this button to overlay all future cycles on the display.

H: Each Curve displayed on the Cycle Graph will have a Curve Identification button. The Curve name will be displayed on the button and will be the color of the curve.

I: Cursor. The cursor can be placed on the graph to view values for curves at specific times.

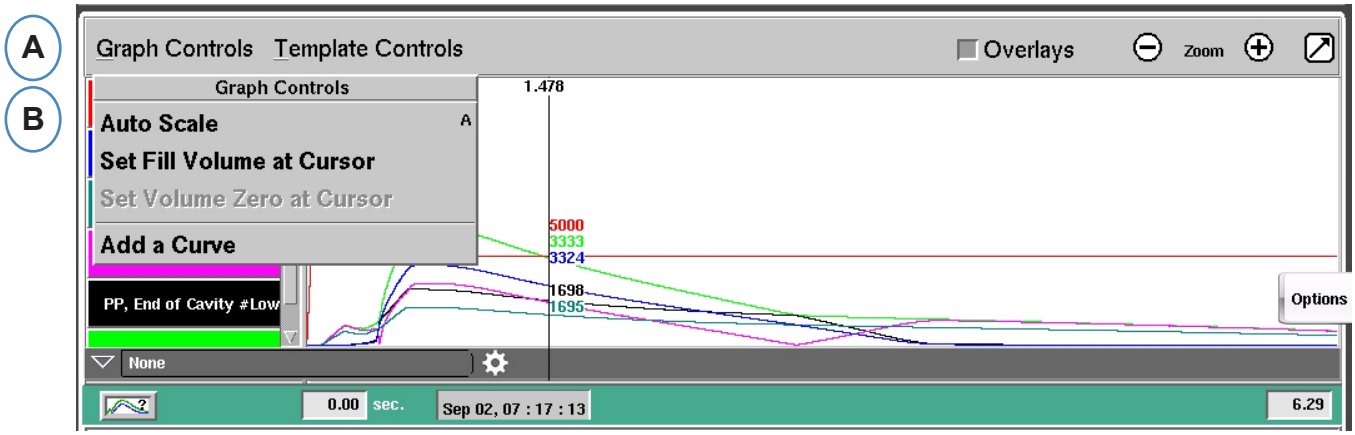
J: Time into the cycle will be displayed at the top of the cursor.

K: Time Date Stamp for the present shot is displayed here. All shots are differentiated with a time date stamp.

L: Machine I/O, Summary Data Table, and Summary Bar Chart can all be access and displayed by clicking on the arrow on this bar.

M: Click on this gear after selecting your data type. The selection list for that data set will pop up.

Graph Control Menu Auto Scale Curves

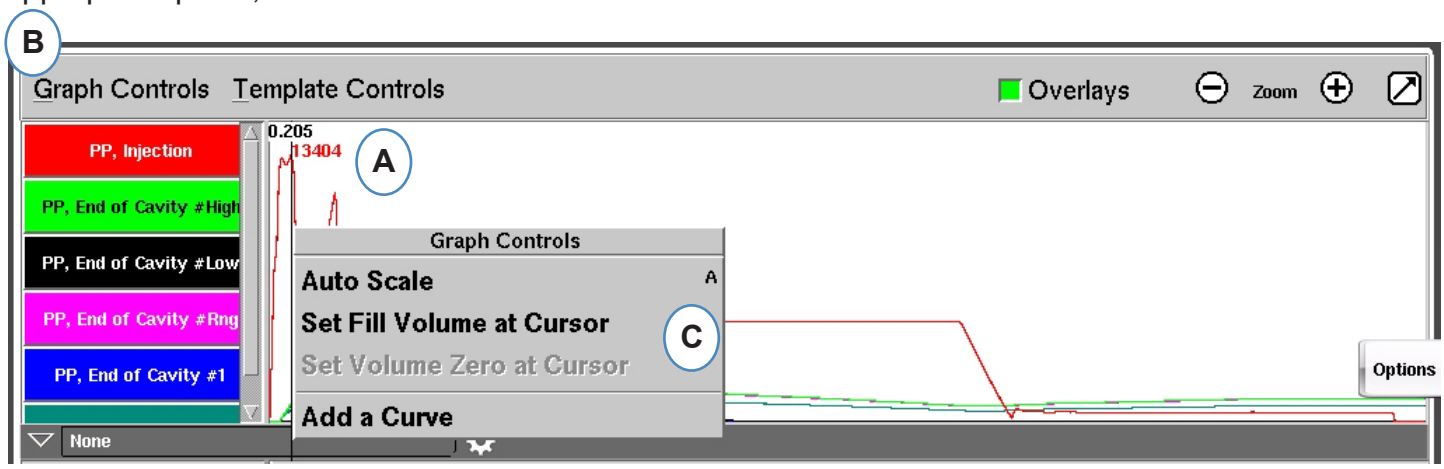


A: Click on the “Graph Controls” Menu.

B: Click on “Auto Scale” from the menu. The curves will automatically scale fit the screen.

Set Fill Volume at Cursor

The *eDART* uses the area under the fill portion of the Injection Curve as an Effective Viscosity Measurement as the area varies directly with variation in viscosity. This value is correct only when calculated during the dynamic fill portion of the cycle. To insure that this is calculated at an appropriate place, the volume at transfer needs to be entered into the *eDART.*



A: Place the Cursor at transfer on the Cycle Graph.

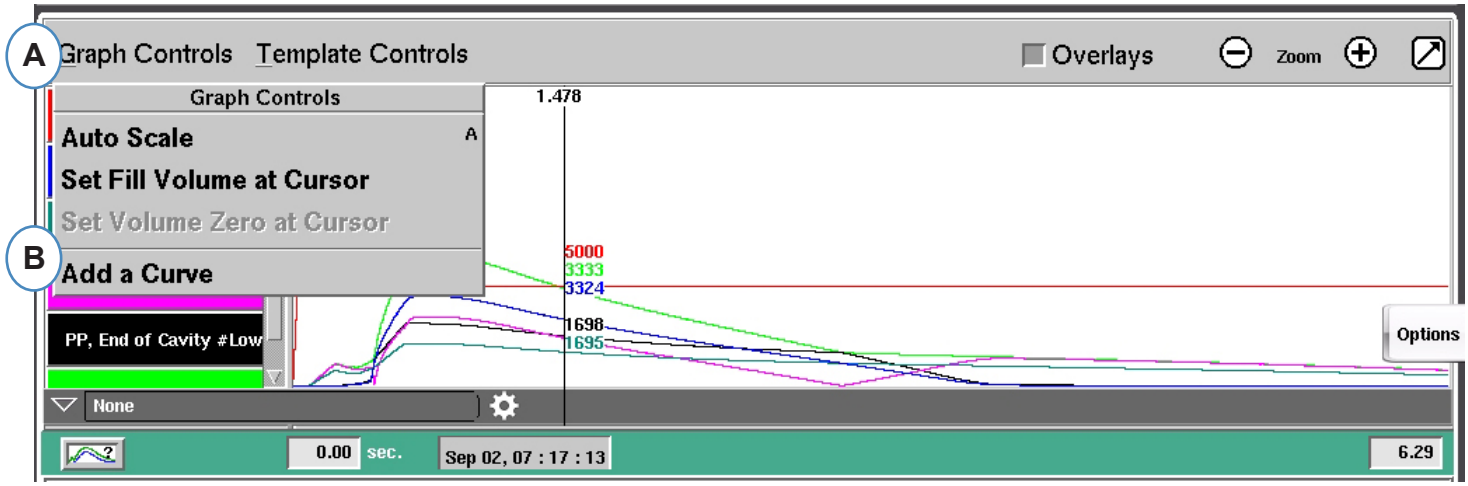
B: Click on the “Graph Controls” Menu - or right click on the cursor.

C: Click on “Set Fill Volume at Cursor”. The *eDART* will use the volume measurement at that point as an ending point for the Effective Viscosity Measurements.

Set Volume Zero at Cursor

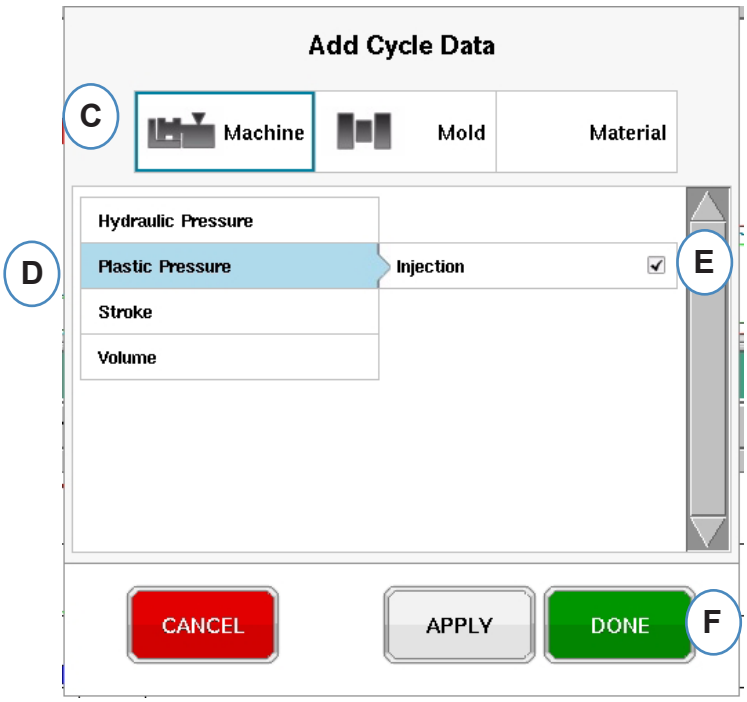
This is active only when you do not have automatic Screw Run trigger on your machine. It is used to provide a zero volume value to the *eDART*.

Adding Curves



A: Click on the “Graph Controls” menu.

B: Click on “Add a Curve”. When “Add a Curve” is selected the *eDART* will display the Add Cycle Data.



C: Click on the button that represents the type of curve to be added. Machine or Mold Curves will be available for each sensor connected to the system.

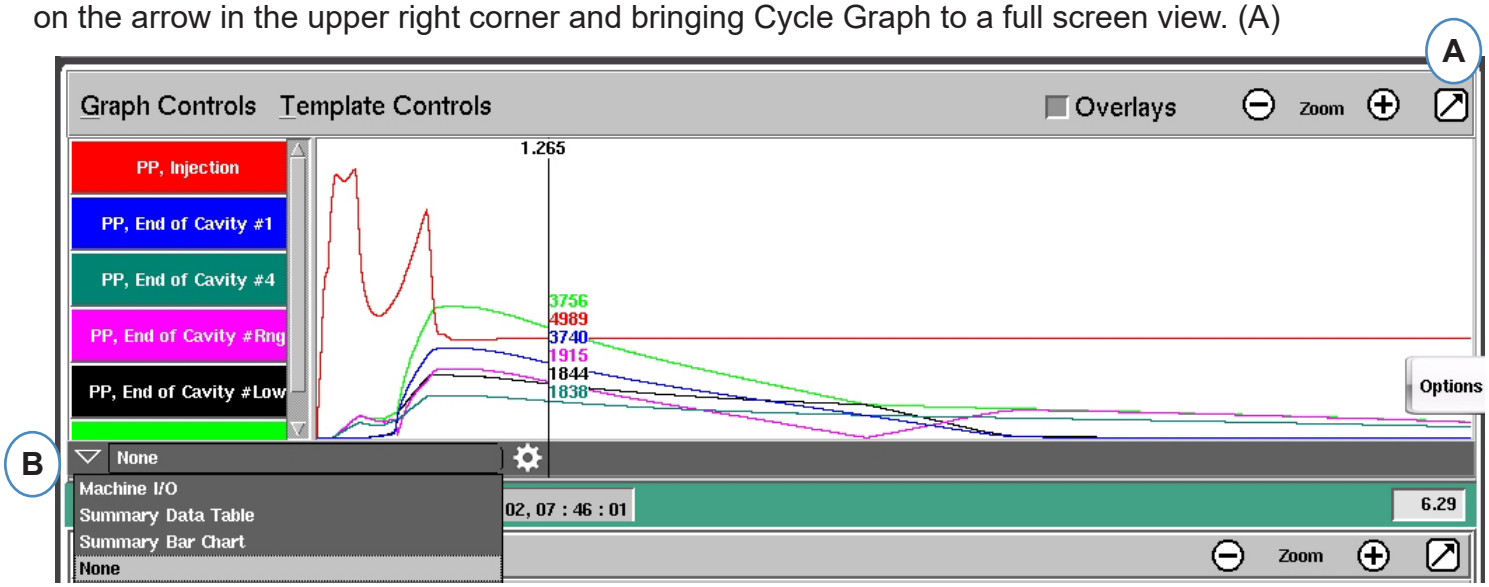
D: Choose the type of sensor curve to be added.

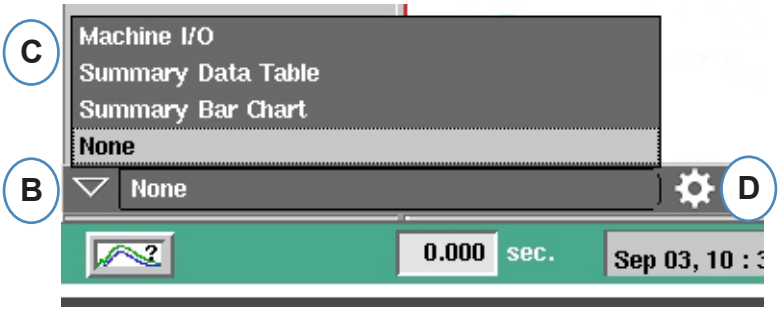
E: Choose which location you would like to display for the variable type selected.

F: Click on “Done” to have these changes take place.

Machine I/O, Summary Data Table, and Summary Bar Chart

These functions can be used in the split screen format but they are best used and viewed by clicking on the arrow in the upper right corner and bringing Cycle Graph to a full screen view. (A)





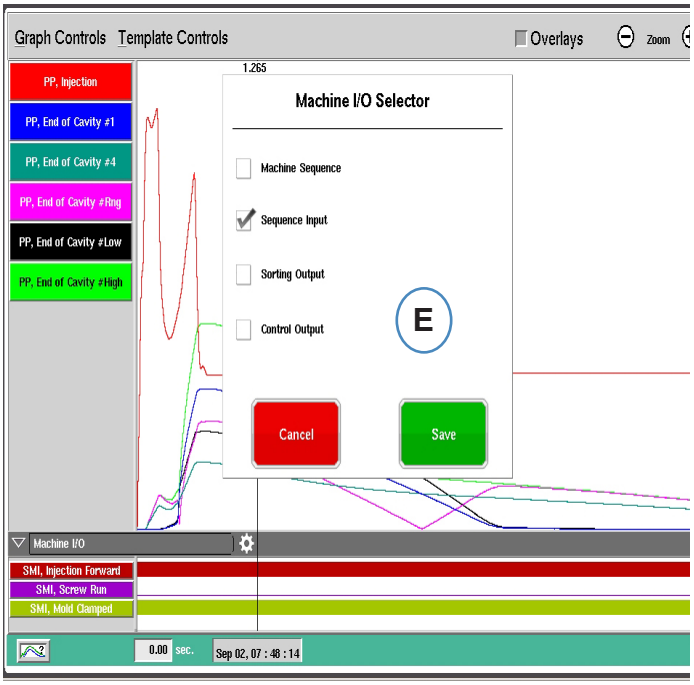
A: Bring screen to full view

B: Click on the down arrow to see the list of options to view

C: Click on the type of Data that you would like to view.

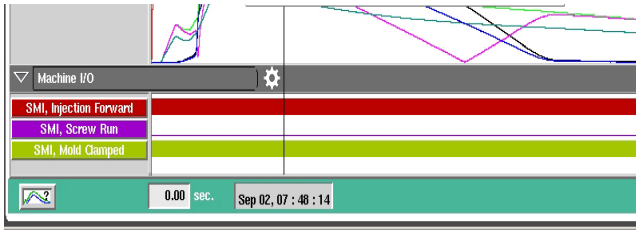
D: Before you can see the data, you need to click on the “gear” to the right of the tool bar. It will bring up the options for whichever data set you have chosen to view. (Not for Summary Bar Chart).

E: From this list, select the specific things you wish to see. Click on “Save” to view your choices.



Machine I/O

The Inputs or Outputs will be displayed in this area of the graph.



- The thin line signifies the signal is off.
- The wide solid line signifies the signal is on.

Machine Sequence will display the machine triggers

- Injection Forward, Screw Run, Mold Clamped, etc...

Control Outputs will display Control outputs from the *eDART*

- V>P Transfer, Excessive Reject output.

Sorting Outputs will display the signals sent to the robot or containment device

- Good Part outputs, etc...

Summary Data Table

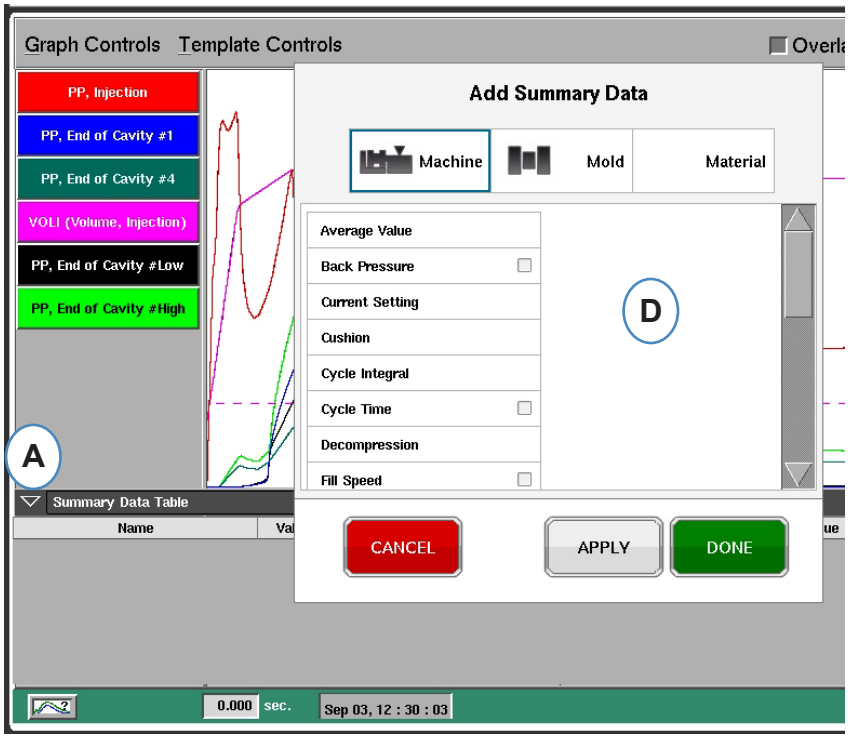
A: Click on the down arrow

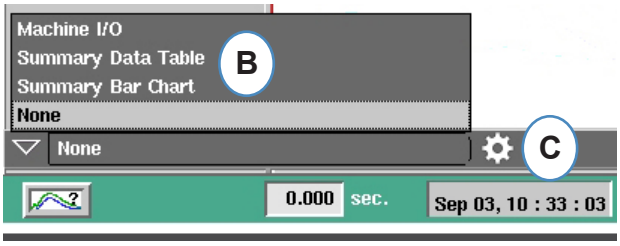
B: Select the Summary Data Table button

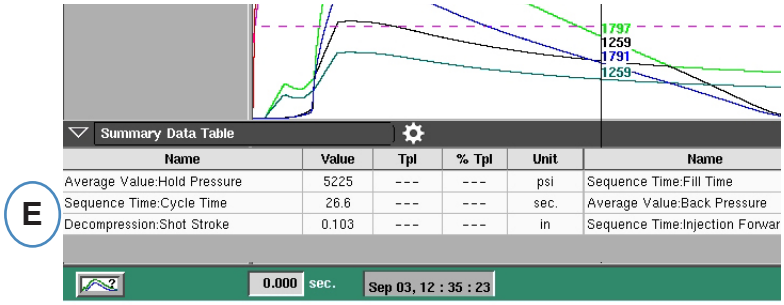
C: Click on the "gear" button to the right of the selection drop down

D: Choose the values you wish to view and click on "Done" when finished

E: You should see a view similar to this after you click on the "Done".







Summary Bar Chart

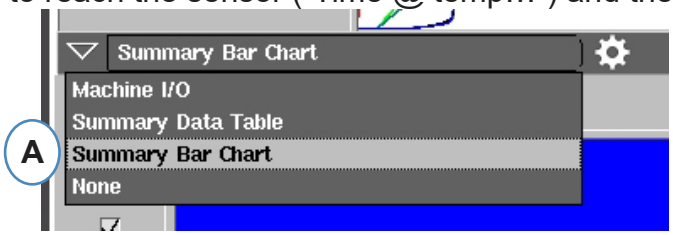
Injection molds with hot runner manifolds can be notorious for being out of balance. To bring a mold into balance a molder typically tries running fill-only parts and adjusting tip temperatures until the parts are about the same size or weight. Summary Bar Graph helps simplify the troubleshooting when this happens.

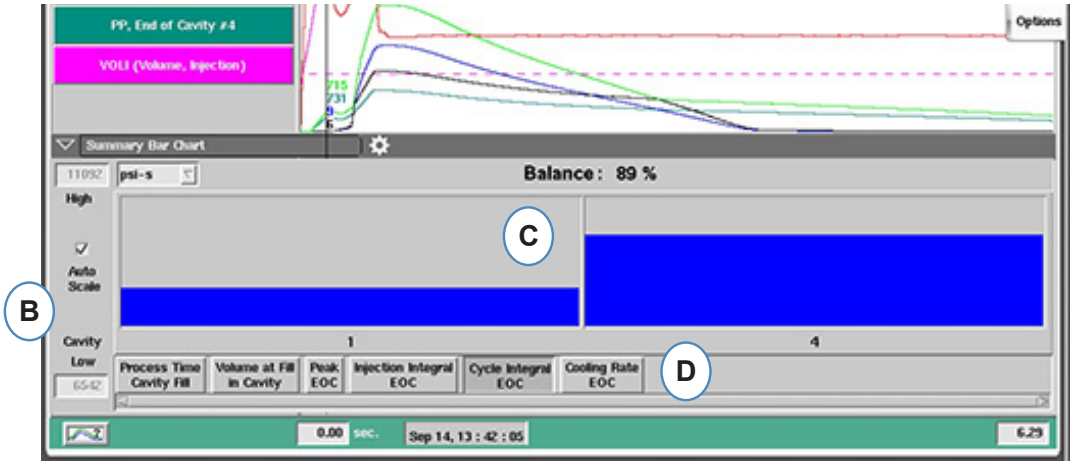
A: When using multiple In-cavity pressure sensors, the Summary Bar Chart will show balance over the tool using the sensors in each cavity.

B: The viewer tool automatically sets up and scales the bars for the number and range of sensors found. You will not need to click on the gear to choose what you view.

C: The Summary Bar Chart makes the visual process of balancing much simpler. You can see the high (fast filling) cavities and lower those temperatures while raising the tip temperatures for the lower bars until they all come into balance.

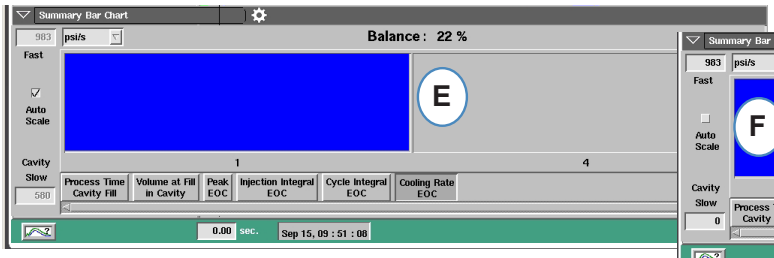
D: Check the balance of other parts of the process using the tabs at the bottom of the screen: filling and packing, pressurization and mold temperature. If the mold has only temperature sensors (no pressure) you can see the balance of the time to reach the sensor ("Time @ temp…") and the mold temperature at that point (minimum).

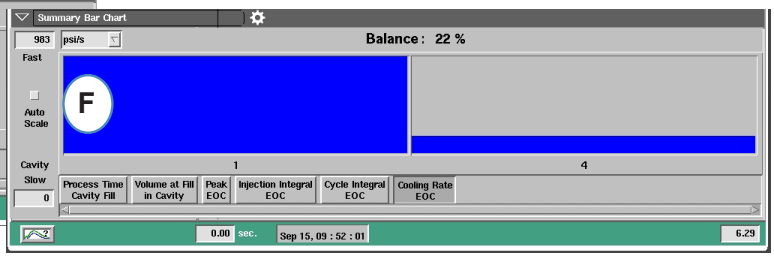




E: If significantly out of balance, you might see a screen looking like this.

F: To bring the other column into view, you will need to un-check the "Auto Scale" and set the bottom value to "0".

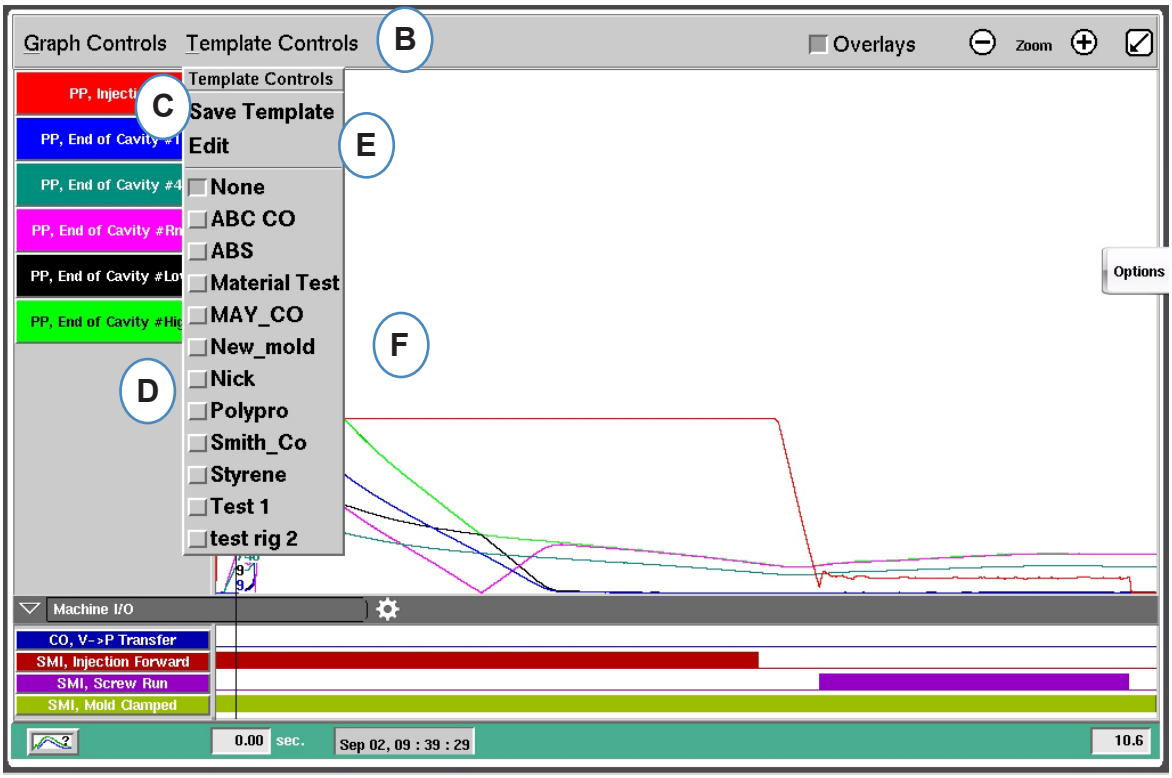




Template Controls

A Template is the blue print for your perfect part. When a template is created the *eDART* will display it on the cycle graph as a dotted line for each sensor. The *eDART* will also compare each future cycle to the template and calculate the difference between the template and the current cycle.

Before a Template is created the job should be soaked in and stable. Never create a template when job is first started. Fill Volume should be set at cursor before template is created.



A: Set up job and let it run until it is stable.

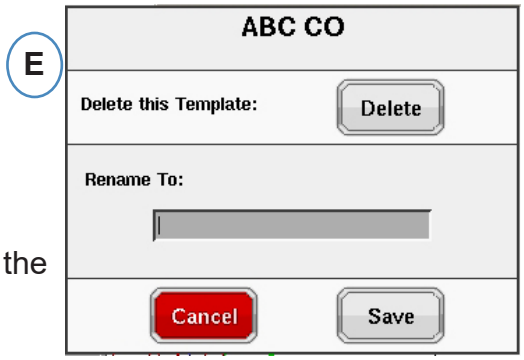
B: Click on the “Template Controls” Menu.

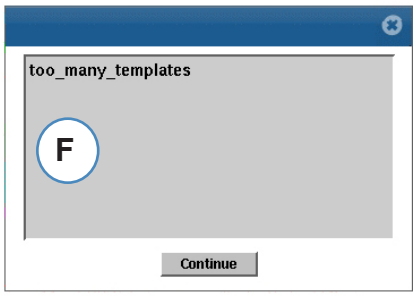
C: To save a Template, click on the “Save Template” button.

D: To choose an existing template, click on the button in front of the name of the one you wish to choose. That will apply the template. To turn the template off, simply click on “None”.

E: Choose “Edit” to delete or re-name a current Template

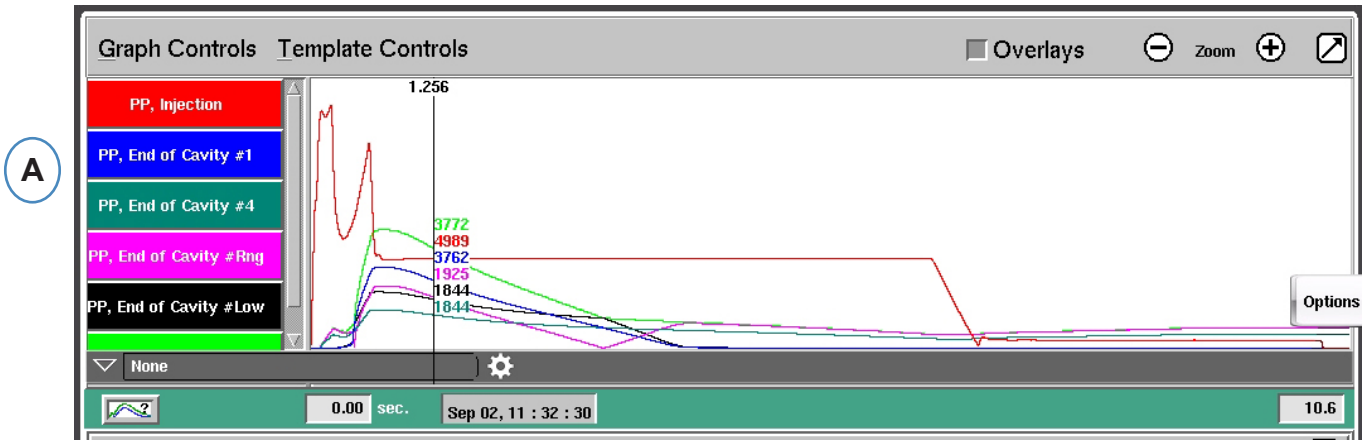
F: The limit is 10 templates. This message will appear when the limit has been reached. You will need to delete one in order to add any more.





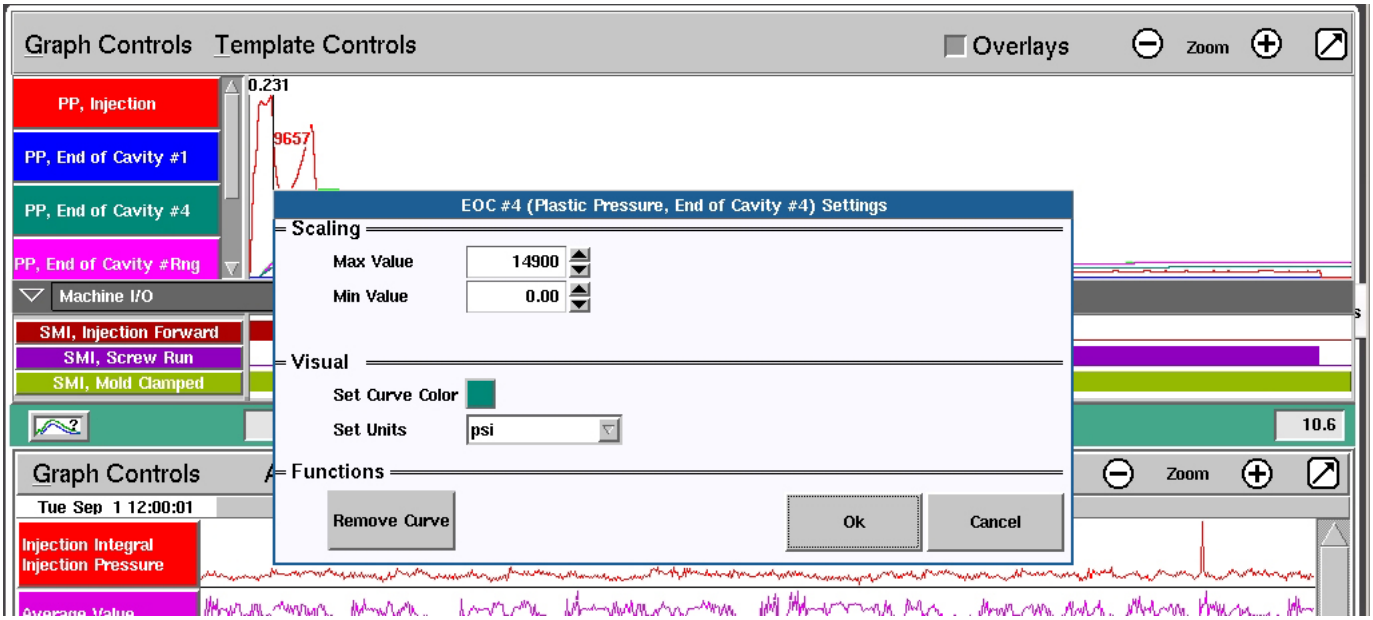
Individual Curve Menu

Each curve displayed on the Cycle Graph will have its own menu. The menu can be accessed by clicking on the header for the curve.

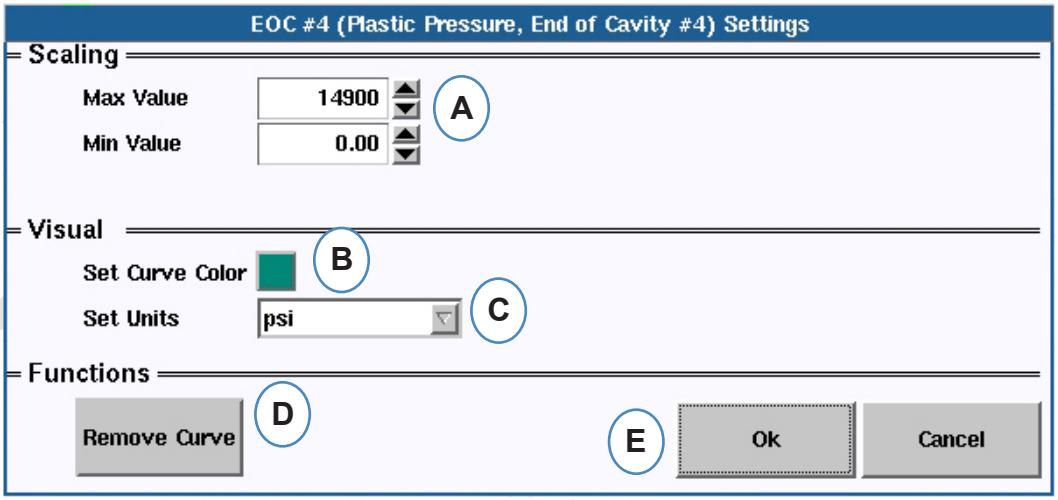


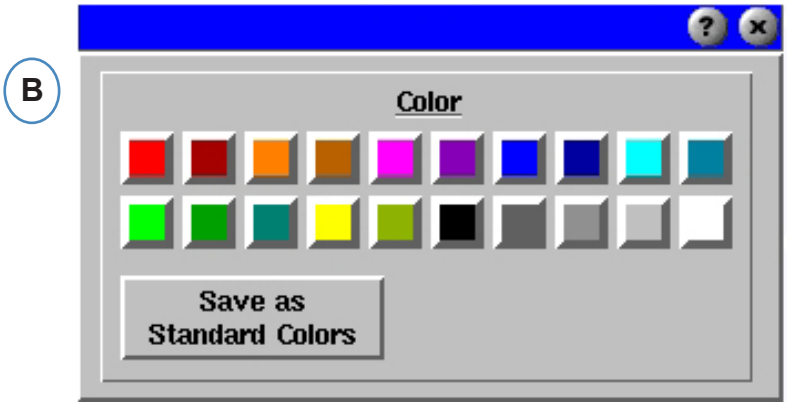
A: Click on the header for the curve to be modified.

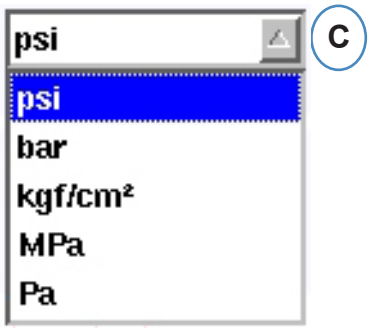
When the curve menu is selected a window will appear with the options for curve modifications.



Individual Curve Menu cont.







A: Scale the graph limits by changing these values with either the arrow buttons or directly enter new values.

B: Click on the color button to change the curve color. Choose the new color from the color window.

C: Choose the units that you would like to display from the drop down menu.

Summary Graph

This section describes the features found in the *eDART* Summary Graph Screen

In This Chapter

97 Summary Graph

98 Auto Scale All Curves

98 Add A Curve

99 Remove All Curves

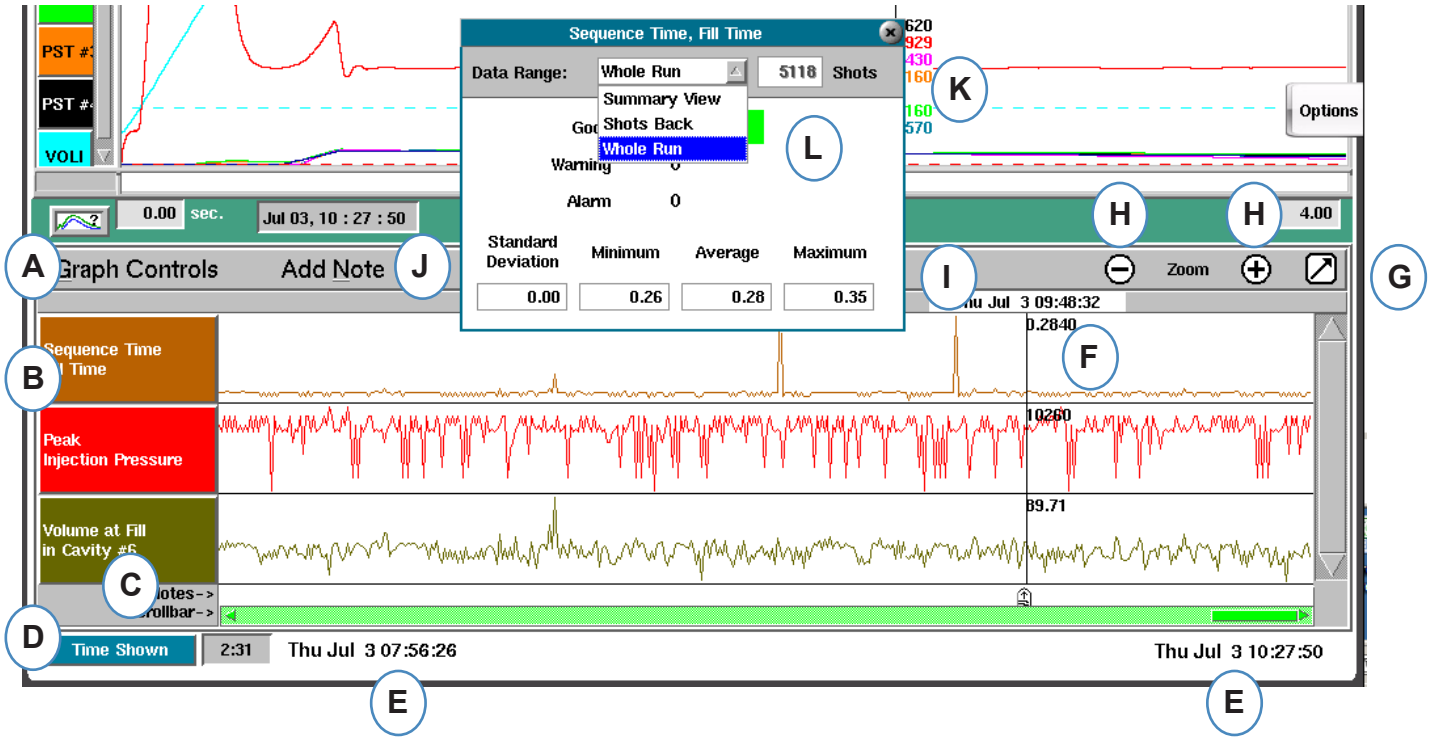
100 Add Note at Cursor

101 Individual Curve Configuration

7/3/2014
Rev. E.6.0

Summary Graph

The Summary Graph will track one variable over time. The variable value will be plotted each cycle, therefore trends can be observed using this graph.



A: Graph Controls Menu- Use this menu to manage all Summary graph curves.

B: Variable header – Variable identification and menu for individual variable curve.

C: Note – Notes can be saved with the Summary data. The notes will be displayed in this area.

D: Time and Cycle count button – Click this button to display Cycle Total, Cycle Shown, Time Shown, or Time Total.

E: Data Range – The data displayed on the graph was created between these dates and times.

F: Cursor – Place the cursor by left clicking on a cycle or use arrow keys on the keyboard.

G: Full Screen - Use this arrow button to maximize or minimize the graph.

H: Zoom – Use the – and + buttons to zoom into the data.

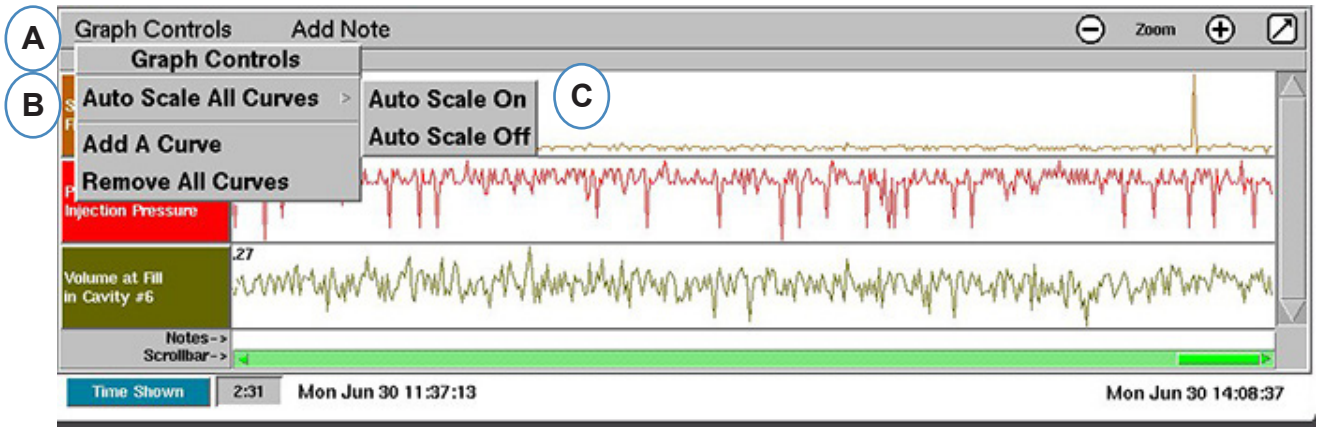
I: Time/Date Stamp – The time/date stamp for the shot will be displayed at the top of the cursor.

J: Add Note – Notes can be added at cursor location and saved with data.

K: Data View - Click on any point in a curve on the Summary Graph and the data from that point will be displayed

L: Use the Drop down to change what data set you wish to view.

Auto Scale All Curves

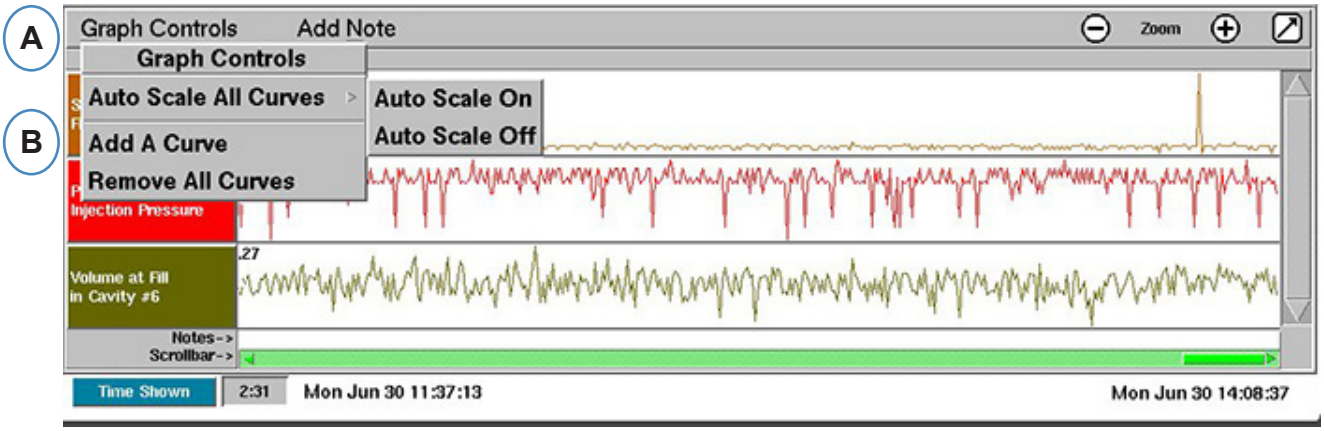


A: Click on the “Graph Controls” Menu.

B: Click on “Auto Scale All Curve”. The *eDART* will scale all of the curves on the graph to fit the screen.

C: Choose to turn auto-scale on or off.

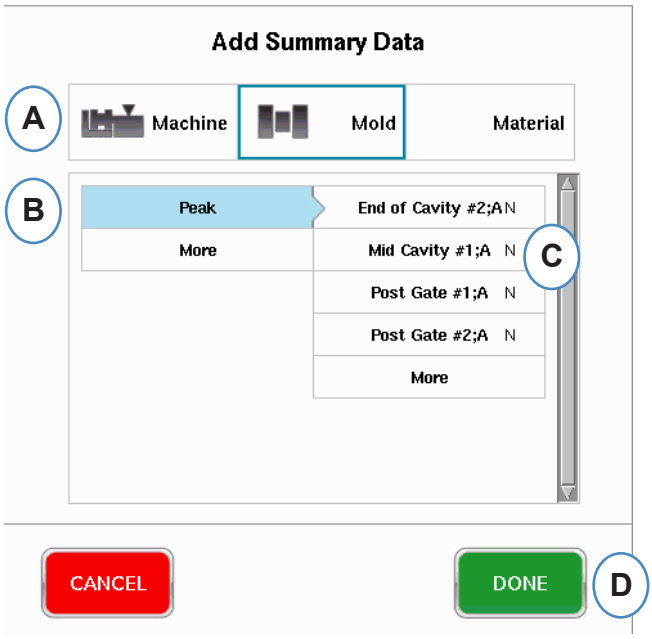
Add A Curve



A: Click on the “Graph Controls” menu.

B: Click on “Add A Curve”.

Add A Curve con't.

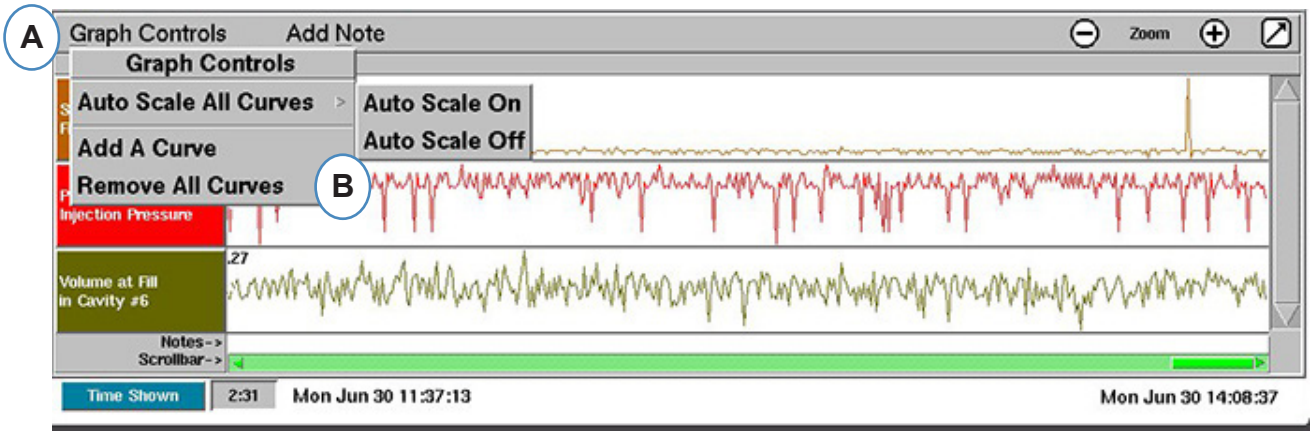


A: Click on appropriate button for desired variable. Machine, Mold, or Material.

B: Click on the desired variable type from the left column.

C: Click on the check box for the desired sensor location from the right column.

Remove All Curves

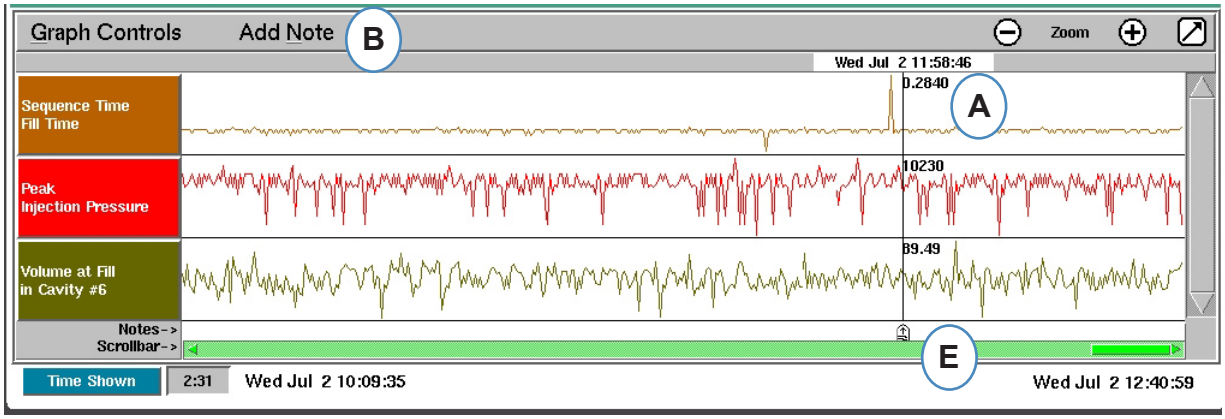


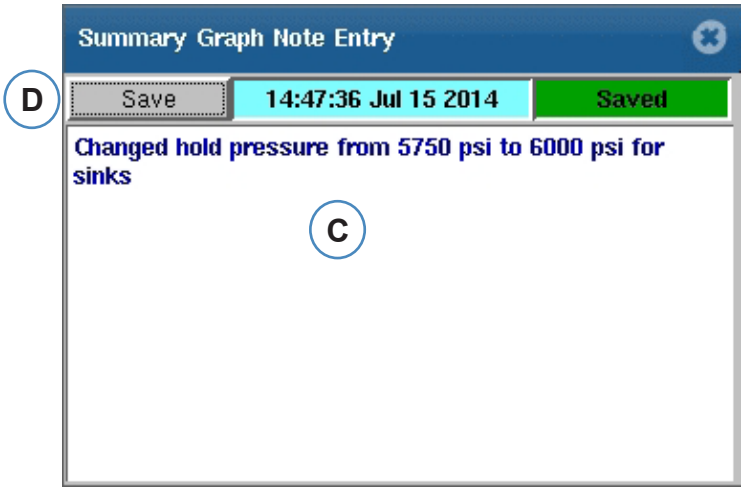
A: Click on the "Graph Controls" button.

B: Click on "Remove all Curves".

Add Note at Cursor

Notes can be added anywhere in the data using the “Add Note at Cursor” function. The notes are saved with the data and can be read any time the data is analyzed.





A: Position the cursor at the cycle where the note is to be added.

B: Click on “Add Note”. The add note box will appear when “Add Note” is selected.

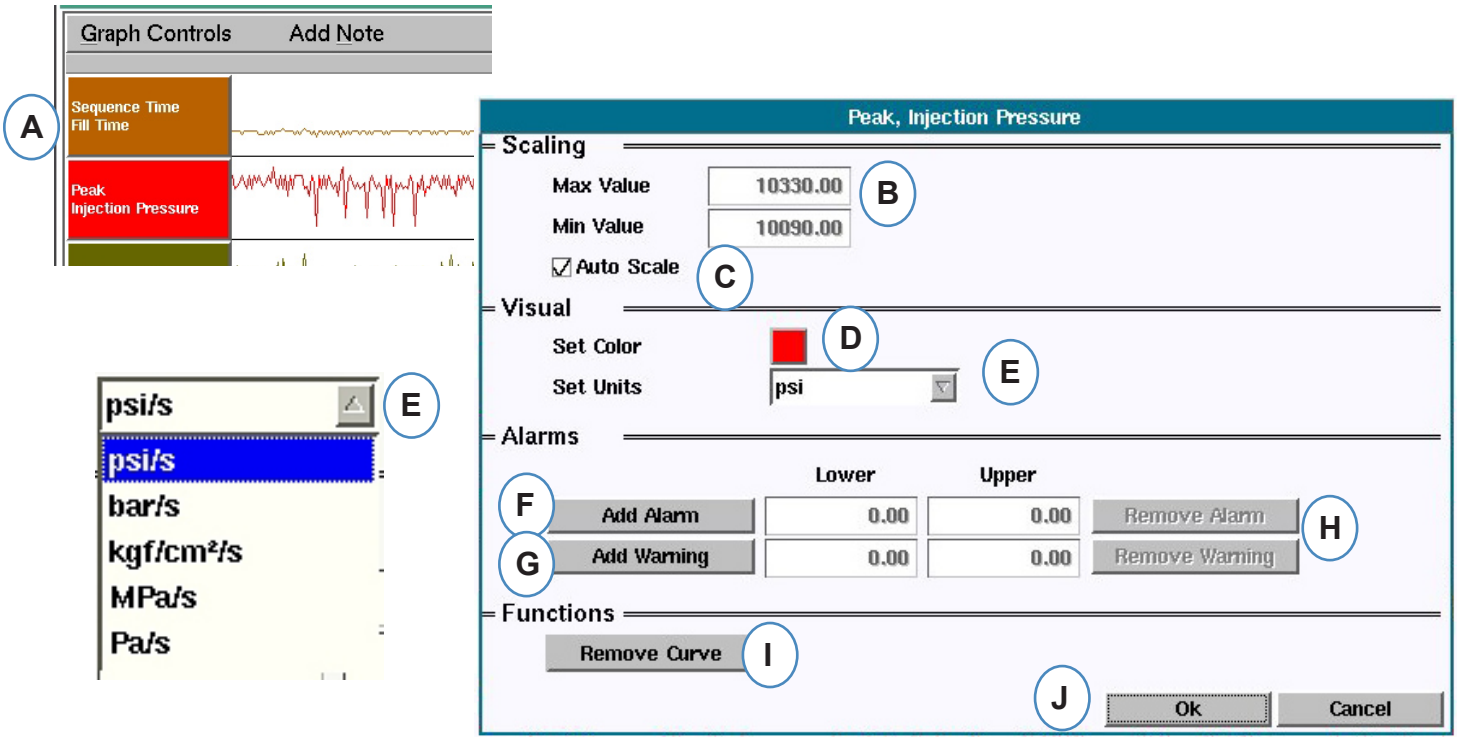
C: Type note in this area.

D: Click on the “Save” button.

E: The note will be displayed here. To read the note displayed, click on it.

Individual Curve Configuration

The color, scaling, etc. can be configured for each summary variable.



A: Click on the header for the curve to be altered. When the curve header is selected a menu for the curve configuration will appear.

B: Enter custom curve scaling here.

C: Check this box if you would like to use the auto-scale feature.

D: Click on the color box to change the curve color.

E: Set units for displayed curve be clicking on the drop down button. Choose the units that you would like to display.

F: Add Alarm

G: Add Warning

H: Remove Alarm or Warning

I: Remove selected Curve

e*DART* Settings Button

This section describes the features found in the Settings protion of the *eDART* software.

In This Chapter

103 ***eDART*** Settings Button

104 Manage Machines

104 Manage Molds/Setups

106 Configure ***eDART***

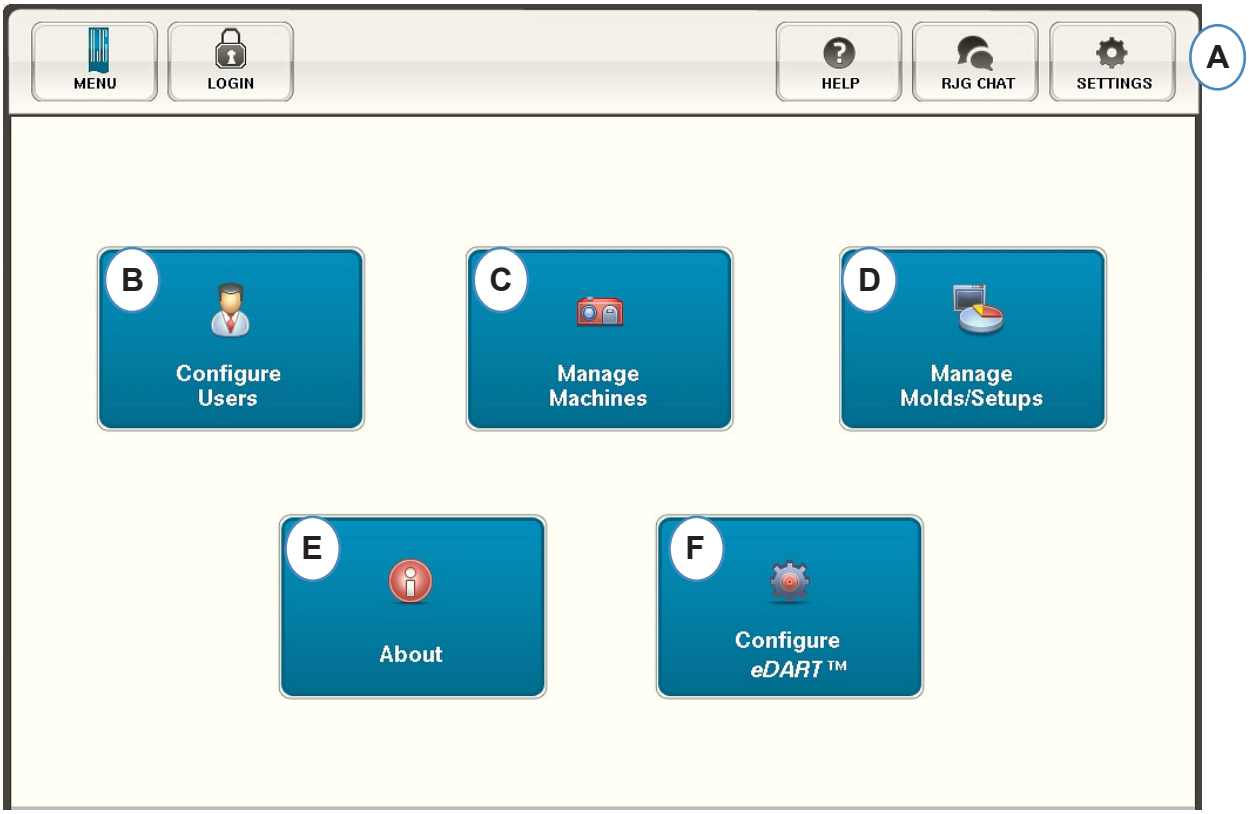
107 Networking Setup

109 Serial Ports

5/31/2012
Rev. E.5.5

eDART Settings Button

From anywhere in the *eDART* you can access the settings pages. The settings button will be at the top of the screen. This button will allow access of the networking setup, Mold and Machine management, security and software version information.



A: Open the *eDART* “Settings” menu.

B: Set Security (see Security Section for more details).

C: View machine list and delete unwanted machines.

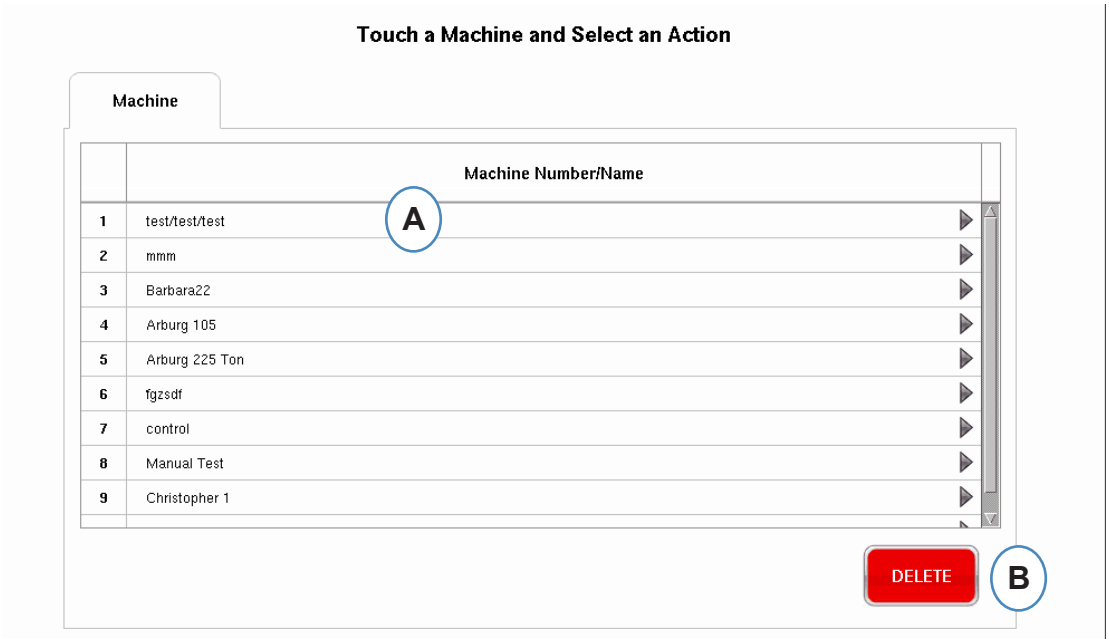
D: View Mold/Setup list and delete unwanted molds or settings.

E: *eDART* serial number, type and software version.

F: Set up the Network, languages, time, etc...

Manage Machines

The “Manage Machines” button allows the user to cleanup machines that are no longer in use.

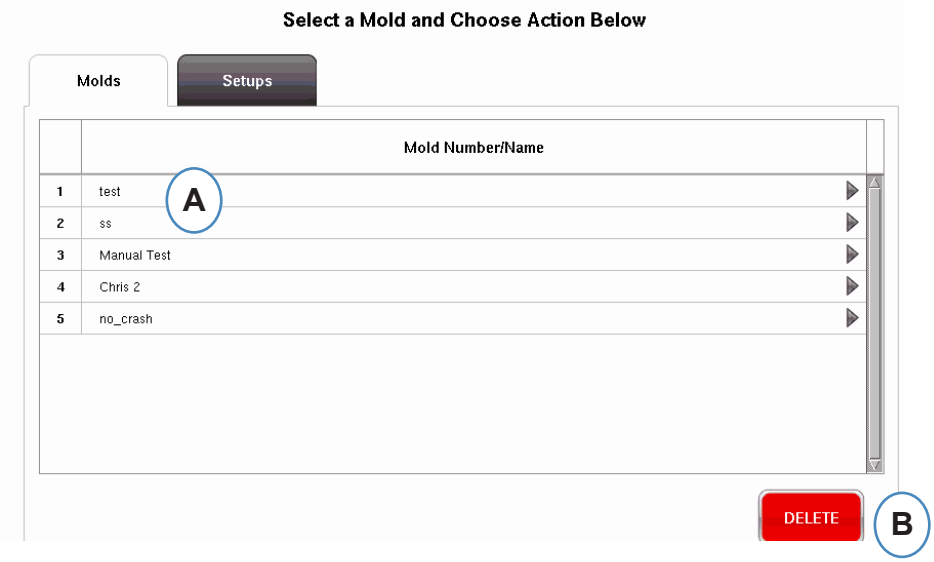


A: Select a Machine.

B: Click on the “Delete” Button. Confirm the action when prompted.

Manage Molds/Setups

The “Manage Molds Setup” button will allow the user to cleanup Molds that are no longer in use.

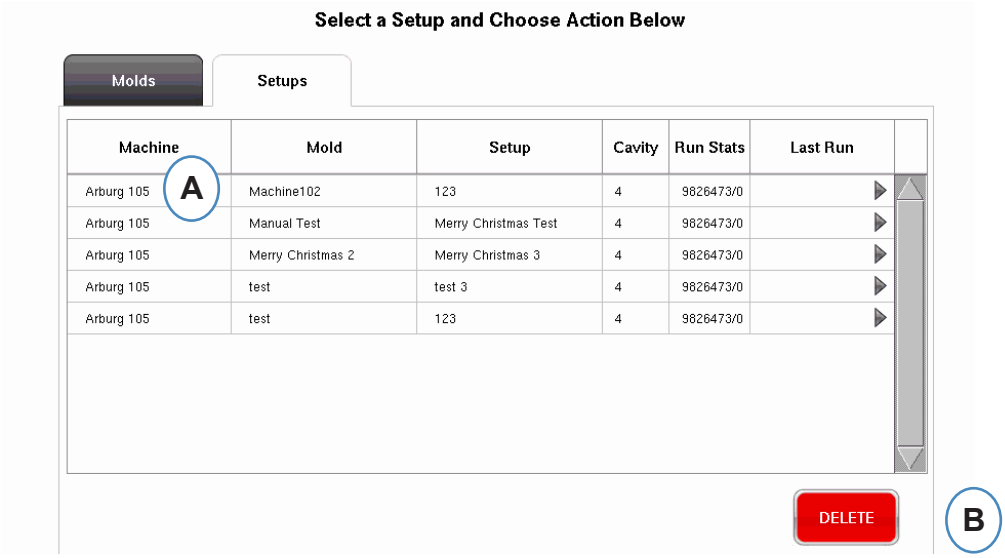


A: To remove a Mold highlight the Mold to be removed.

B: Click on the “Delete” button. Confirm the action when prompted.

Manage Molds/Setups cont.

The Manage Setups Tab will allow for management of processes saved.

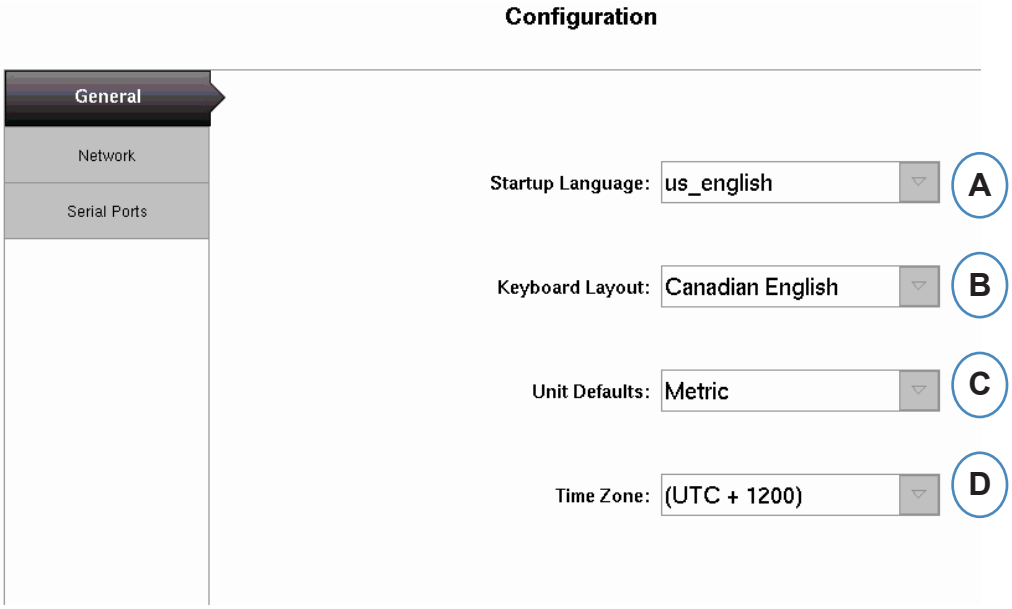


A: To select a setup, click on it to highlight.

B: To delete the setup, select the “Delete” button. Confirm action when prompted.

Configure *eDART*

The *eDART* Configuration screen allows for configuration of network settings, Languages and *eDART* Ports.



A: Use this drop down to choose the *eDART* Startup Language. German, French, Spanish, and English are available.

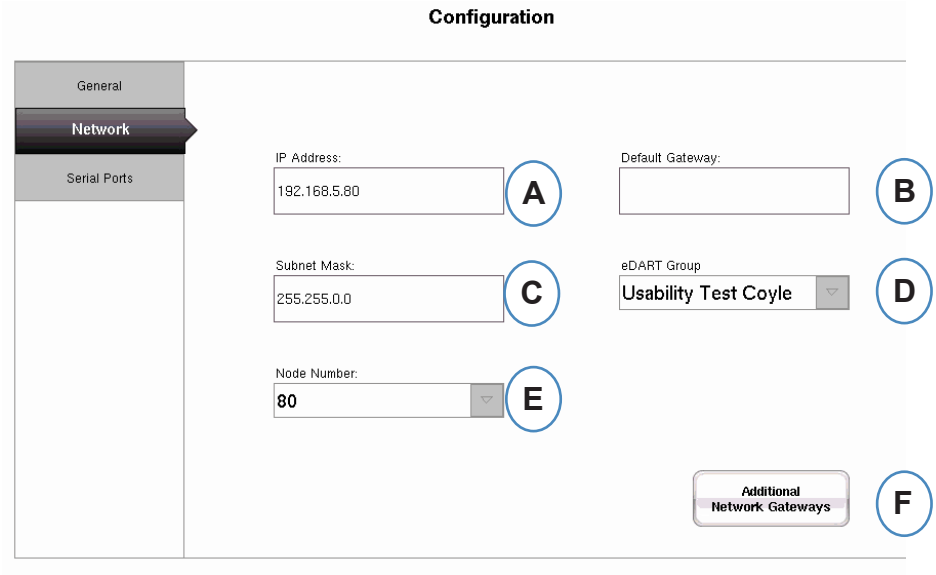
B: Use this drop down menu to choose the keyboard style.

C: Use this drop down menu to choose the default units.

D: Use this drop down menu to choose the correct time zone for your area.

Networking Setup

eDART networking is set up from the Networking tab. Without the use of an *eDART* Data Manager the *eDART* will require static IP Addresses set to be on the network. If you are using an *eDART* Data Manager most things on this page can be made automatic from the EDM.



A: If you are not using the RJG *eDART* Data Manager you will need to enter a static IP address to see the *eDART* on your network. If you are using an EDM you can configure the EDM to handle the addressing automatically.

B: If the *eDART* is connected through a switch or other smart device, you may need to enter the default gateway here to see the *eDART* on your network. If you are using an EDM you can configure the EDM to handle addressing automatically.

C: If you are not using an EDM you will need to enter the subnet mask here. If you are using an EDM you can set the EDM to configure automatically.

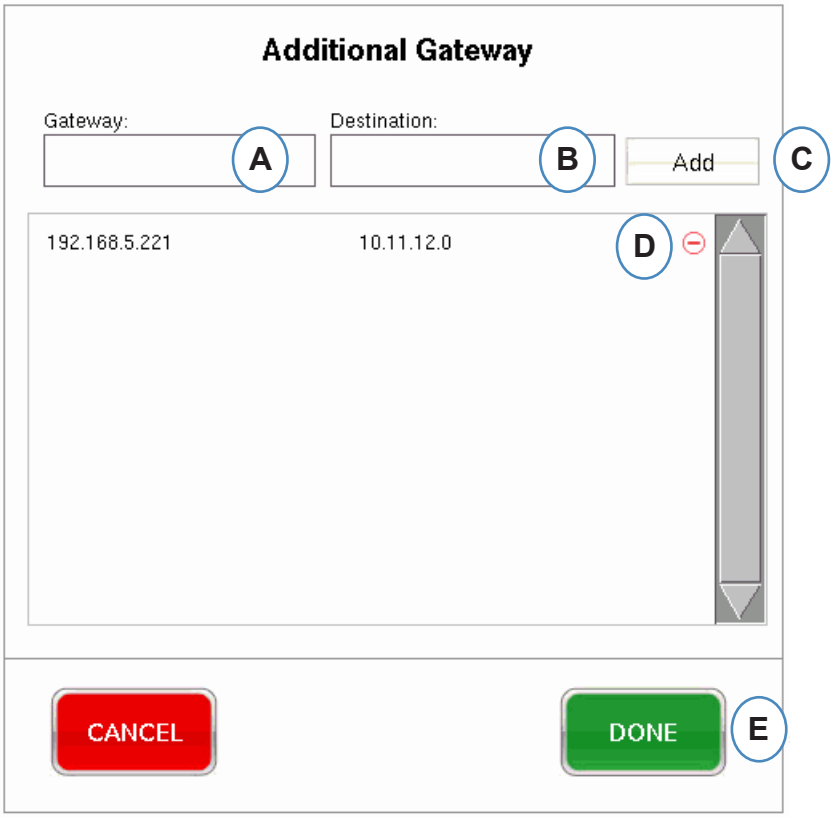
D: If you are using the EDM you have the option to use a tool called cross copy. The EDM will automatically copy setups initiated on the *eDART* to all other *eDART*s that have the same group name. Enter the group name here if you are using this option.

E: To change the node number, type the new Node number here. You must reboot the *eDART* for the new Node number to take effect.

F: To add additional Gateways, click on the “Additional Network Gateways” button.

Networking Setup cont.

Additional Gateways



A: Type in additional gate way IP address.

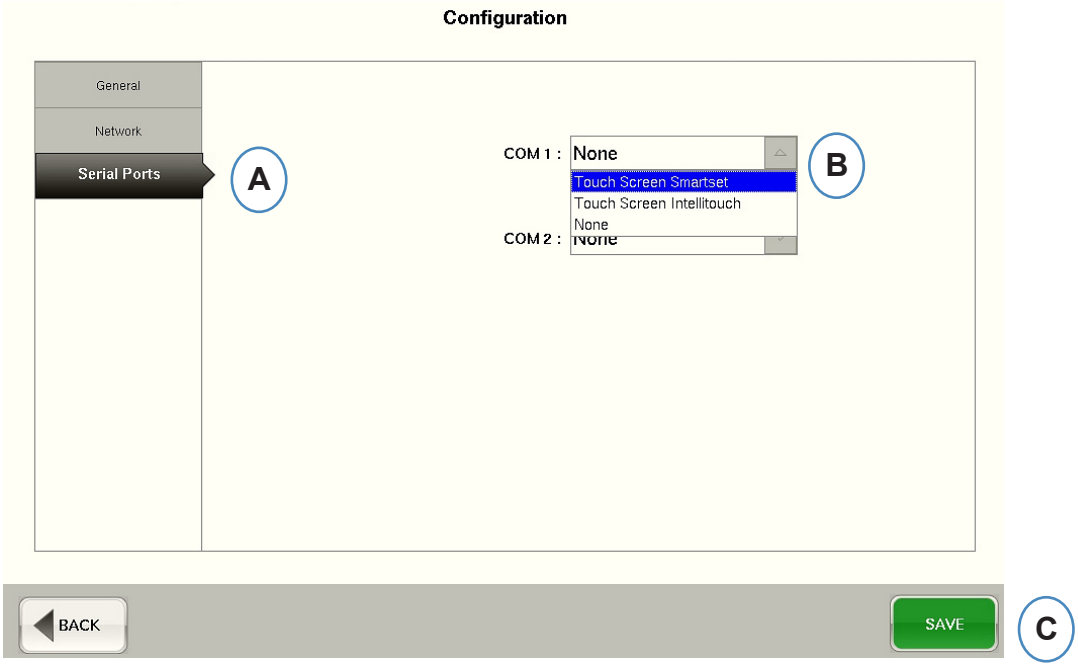
B: Type in Destination address.

C: Click on the “Add” button.

D: Click on the minus sign to remove the gateway.

Serial Ports

The “Configure Ports” tab will allow you to configure serial ports on the *eDART* for Touch Screens. The *eDART* will configure the touchscreen and add the controls to calibrate the touch screen.



A: Click on the “Serial Port” Tab in the Configurations Window.

B: Choose the correct style of touch screen from the drop down menu.

eDART Security

This section describes the features found in the *eDART* Security Section of the software.

In This Chapter

111 Security

112 Configure Groups

113 Configure Users

114 Change Password or Security Level

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Security

A: Security is pre-set on critical functions. To set security levels for the *eDART* click on the 'Settings' button on the top right corner of your screen.

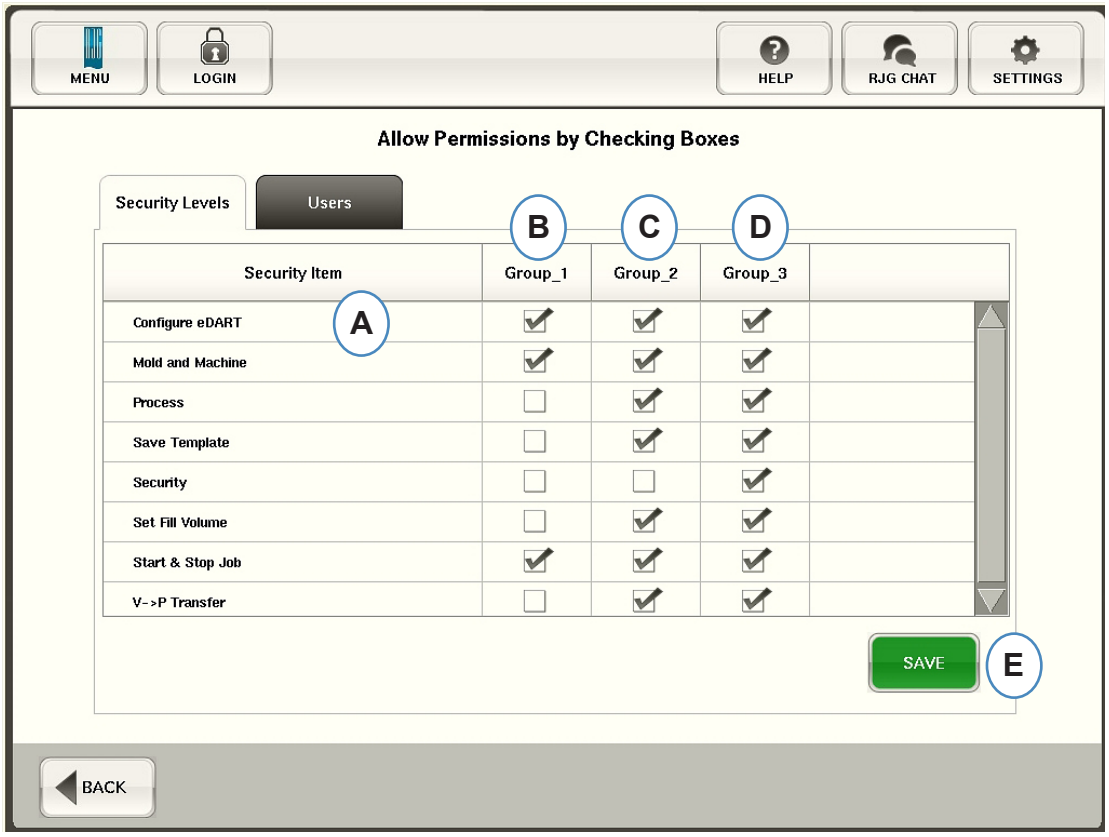
B: Then choose 'Configure Users'.

Administrator

The Administrator will come pre-set with access to everything and a separate password that can be changed once the *eDART* is in your facility.

Configure Groups

From this screen you can set the security levels for each group. Later you will assign each user to a specific group based on their security level and access.



A: Select each software function for which a given group will have access.

B: Select functions for basic users, such as Operators.

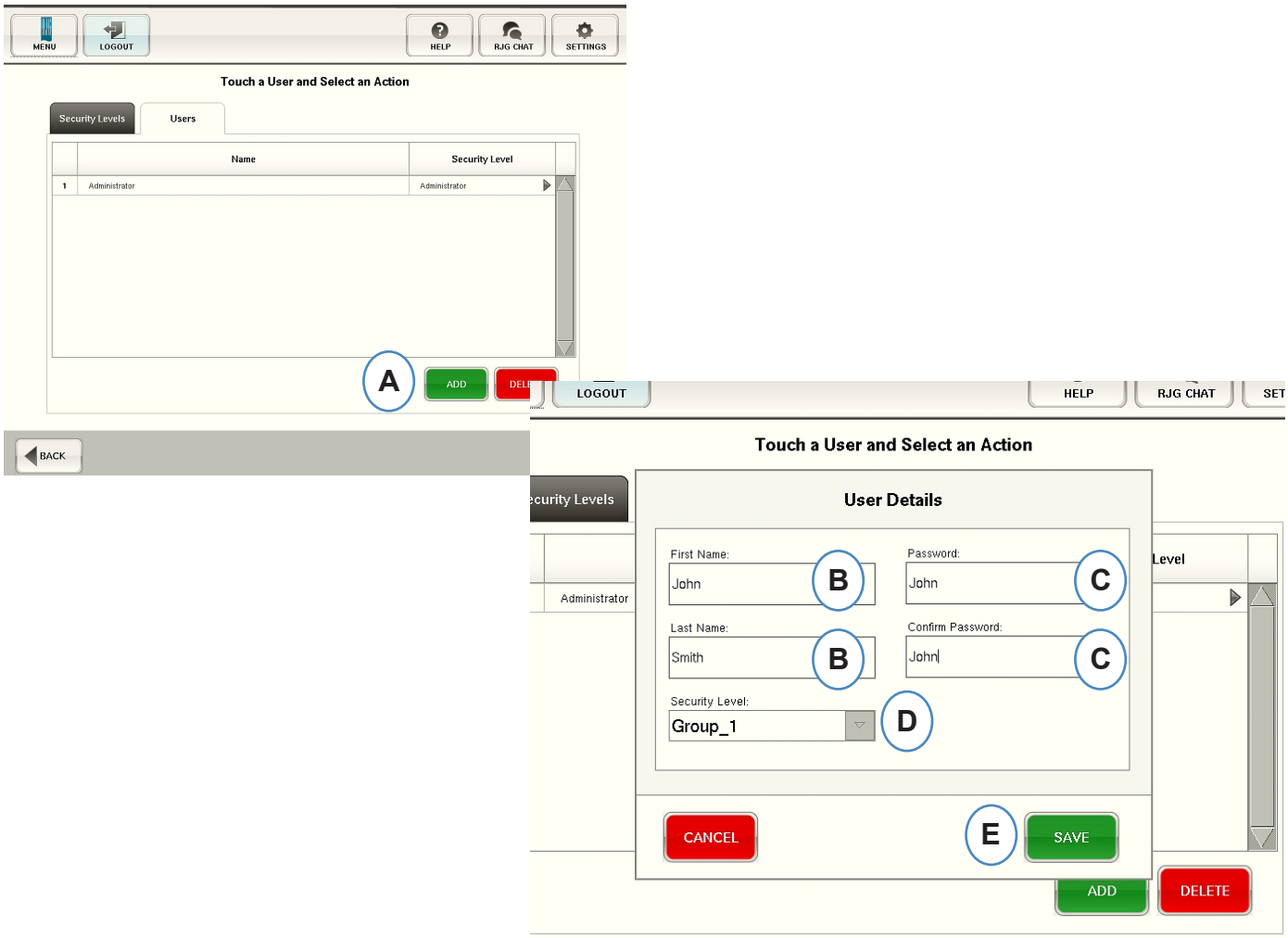
C: Select functions for intermediate users, such as Process Technicians.

D: Select functions for advanced users, such as Process Engineers.

E: Save the selections. Enter the Administrator Password when prompted.

Configure Users

Choose the “Users” tab to assign users into groups and establish passwords.



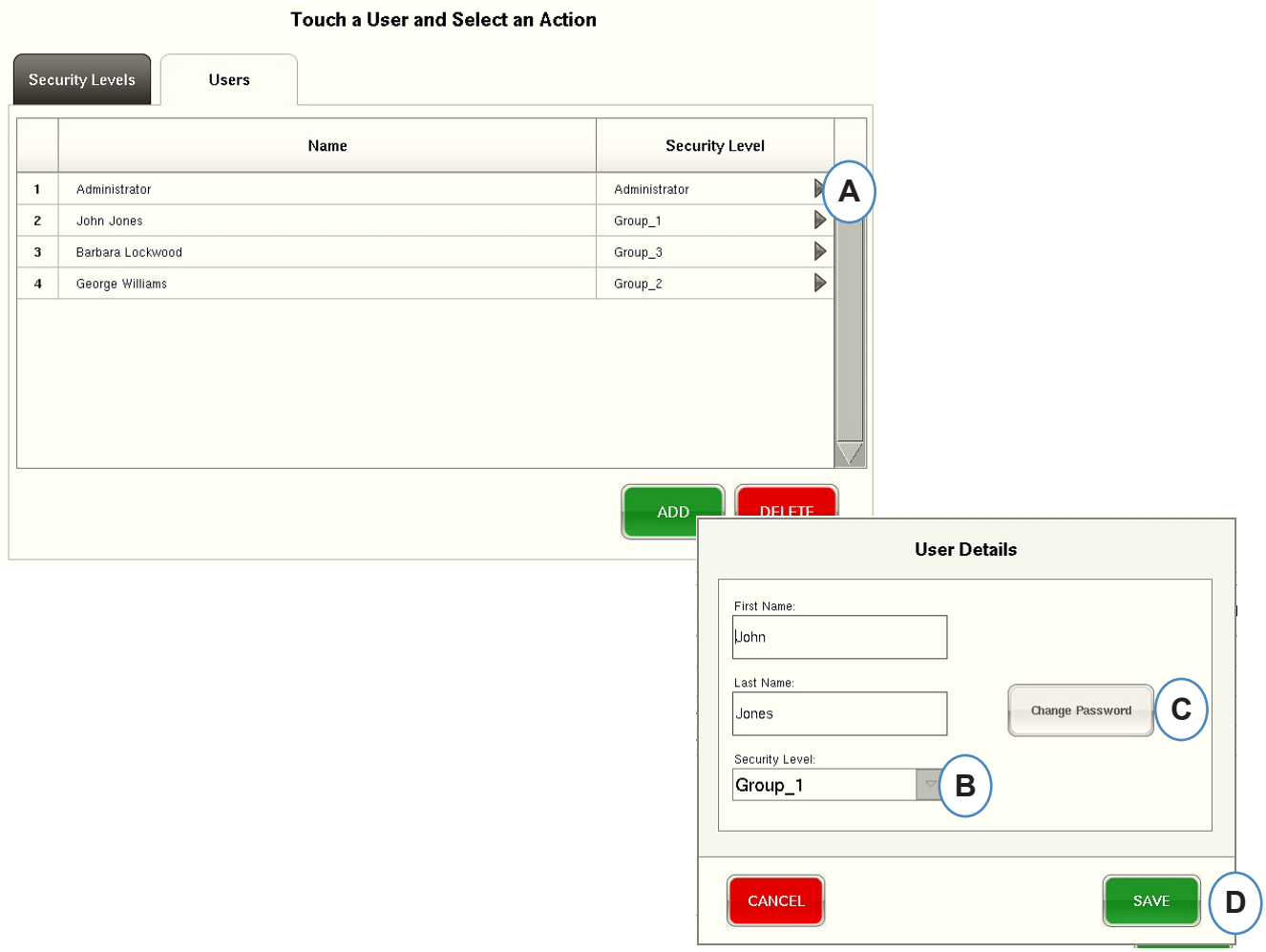
A: Click on the “Add” button.

B: Enter User First and Last Name of User.

C: Enter your password then again to Confirm.

D: Select Security level for the user from the drop down menu.

Change Password or Security Level



A: Click on the arrow beside the user profile to be modified.

B: Choose the new security level from the drop down menu.

C: Change the password by clicking on the ‘Change Password’ button.

D: Click on the ‘Save’ button when all information is entered correctly. Enter the Administrator password when prompted.

Log Files and Raw Data Viewer

This section describes the features found in the Log Files and Raw Data Viewer sections of the *eDART* software.

In This Chapter

116 Audit Log

117 Diagnostic Page

118 Raw Data Viewer

119 Sensor Data Details

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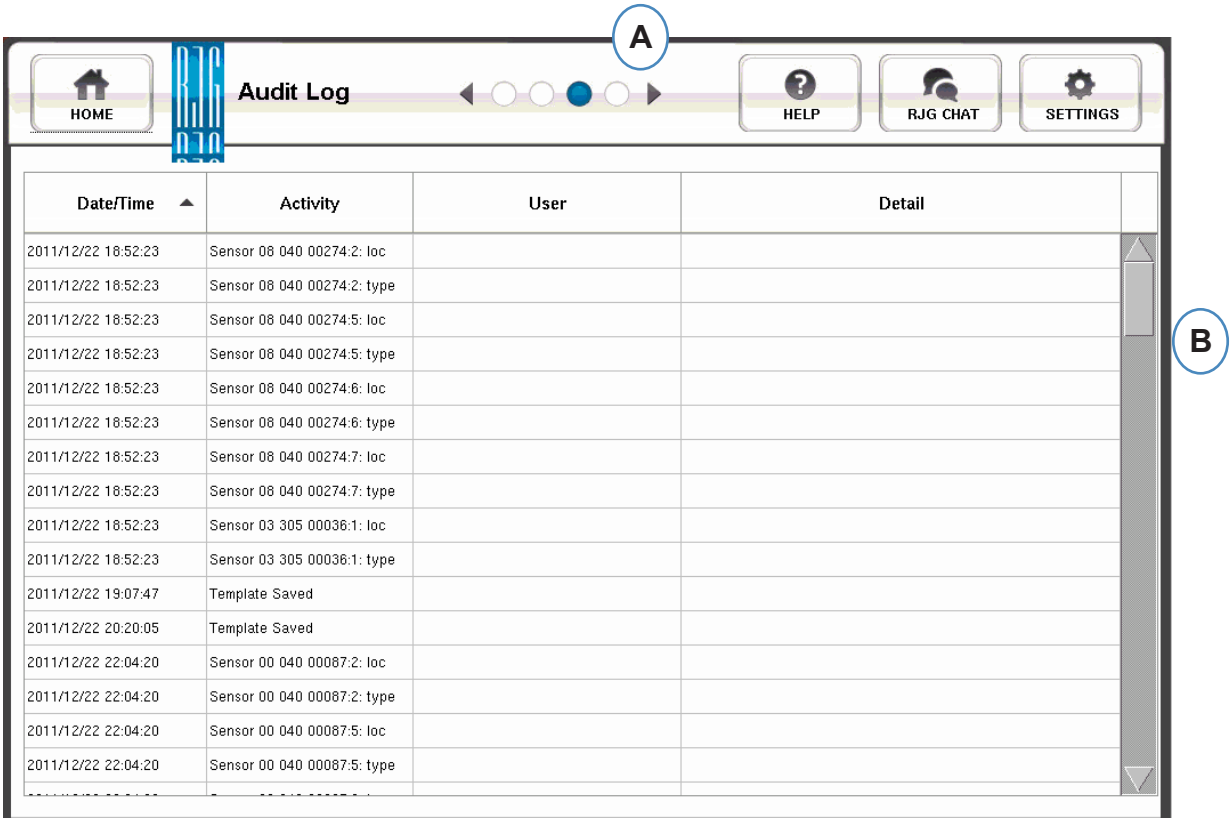
Audit Log

Changes made in the *eDART* can be seen on the Log page. The *eDART* will report what the change, when it was made and who made it as long as security is enabled.

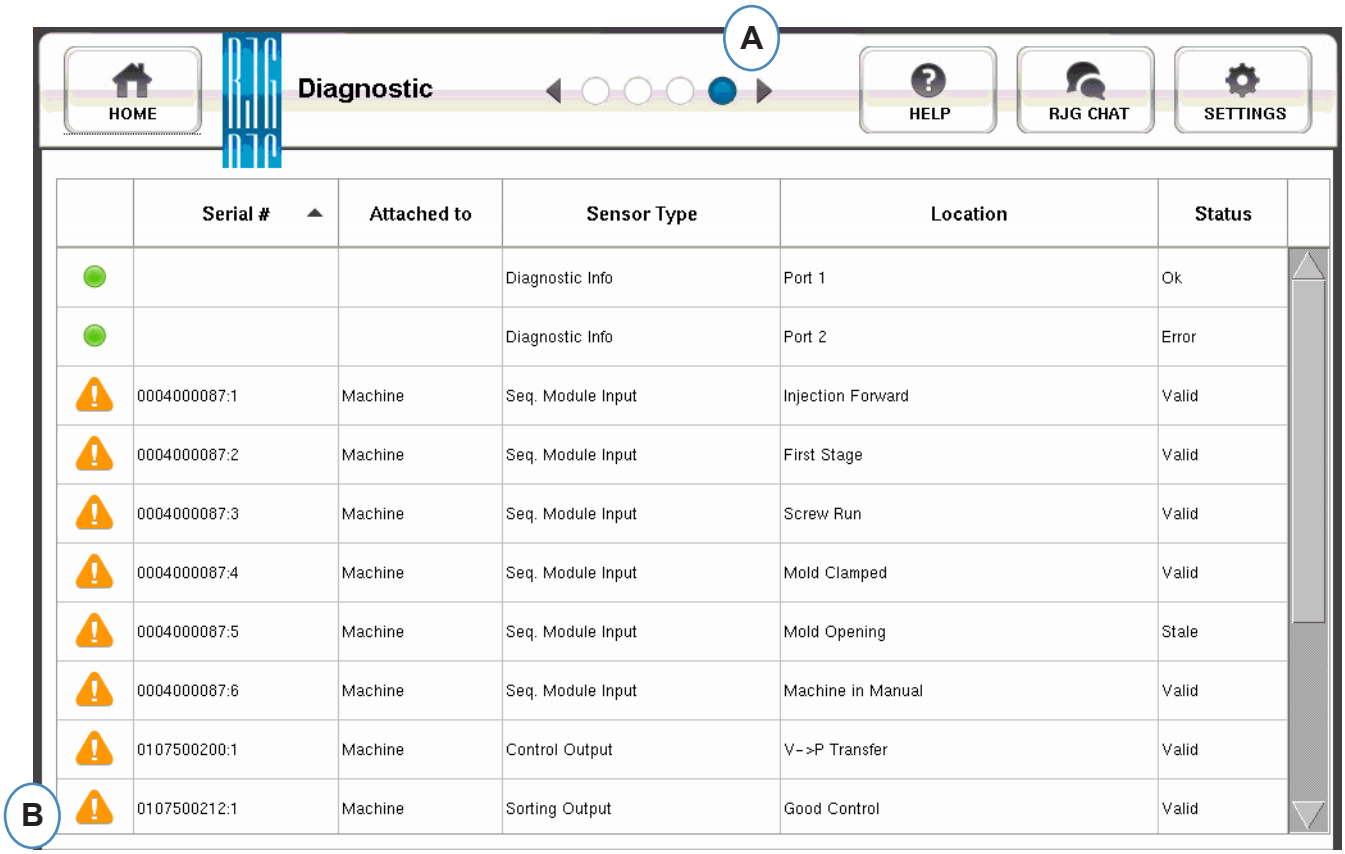


Date/Time	Activity	User	Detail
2011/12/22 18:52:23	Sensor 08 040 00274:2: loc		
2011/12/22 18:52:23	Sensor 08 040 00274:2: type		
2011/12/22 18:52:23	Sensor 08 040 00274:5: loc		
2011/12/22 18:52:23	Sensor 08 040 00274:5: type		
2011/12/22 18:52:23	Sensor 08 040 00274:6: loc		
2011/12/22 18:52:23	Sensor 08 040 00274:6: type		
2011/12/22 18:52:23	Sensor 08 040 00274:7: loc		
2011/12/22 18:52:23	Sensor 08 040 00274:7: type		
2011/12/22 18:52:23	Sensor 03 305 00036:1: loc		
2011/12/22 18:52:23	Sensor 03 305 00036:1: type		
2011/12/22 19:07:47	Template Saved		
2011/12/22 20:20:05	Template Saved		
2011/12/22 22:04:20	Sensor 00 040 00087:2: loc		
2011/12/22 22:04:20	Sensor 00 040 00087:2: type		
2011/12/22 22:04:20	Sensor 00 040 00087:5: loc		
2011/12/22 22:04:20	Sensor 00 040 00087:5: type		

A: Click on the arrows until the third dot is active. This is the Log page.

B: Scroll to the time/data in which you are interested.

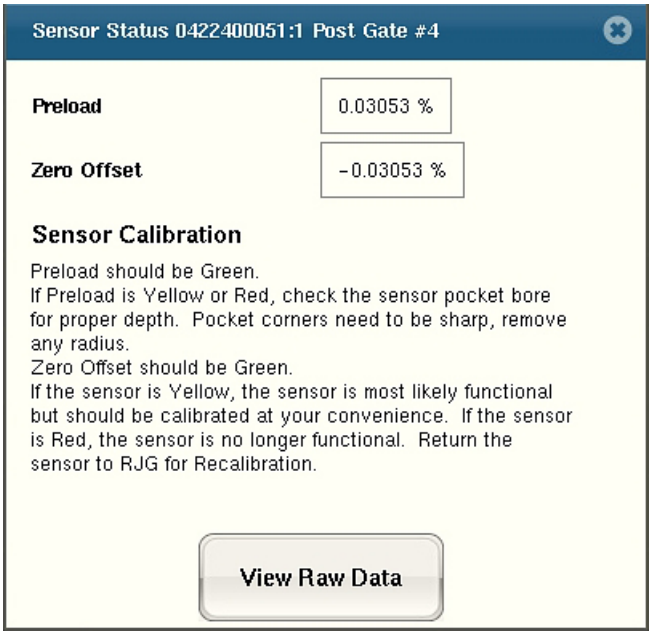
Diagnostic Page



	Serial #	Attached to	Sensor Type	Location	Status
			Diagnostic Info	Port 1	Ok
			Diagnostic Info	Port 2	Error
	0004000087:1	Machine	Seq. Module Input	Injection Forward	Valid
	0004000087:2	Machine	Seq. Module Input	First Stage	Valid
	0004000087:3	Machine	Seq. Module Input	Screw Run	Valid
	0004000087:4	Machine	Seq. Module Input	Mold Clamped	Valid
	0004000087:5	Machine	Seq. Module Input	Mold Opening	Stale
	0004000087:6	Machine	Seq. Module Input	Machine in Manual	Valid
	0107500200:1	Machine	Control Output	V->P Transfer	Valid
	0107500212:1	Machine	Sorting Output	Good Control	Valid

A: Click on the arrows to get to fourth dot. This is the diagnostic page.

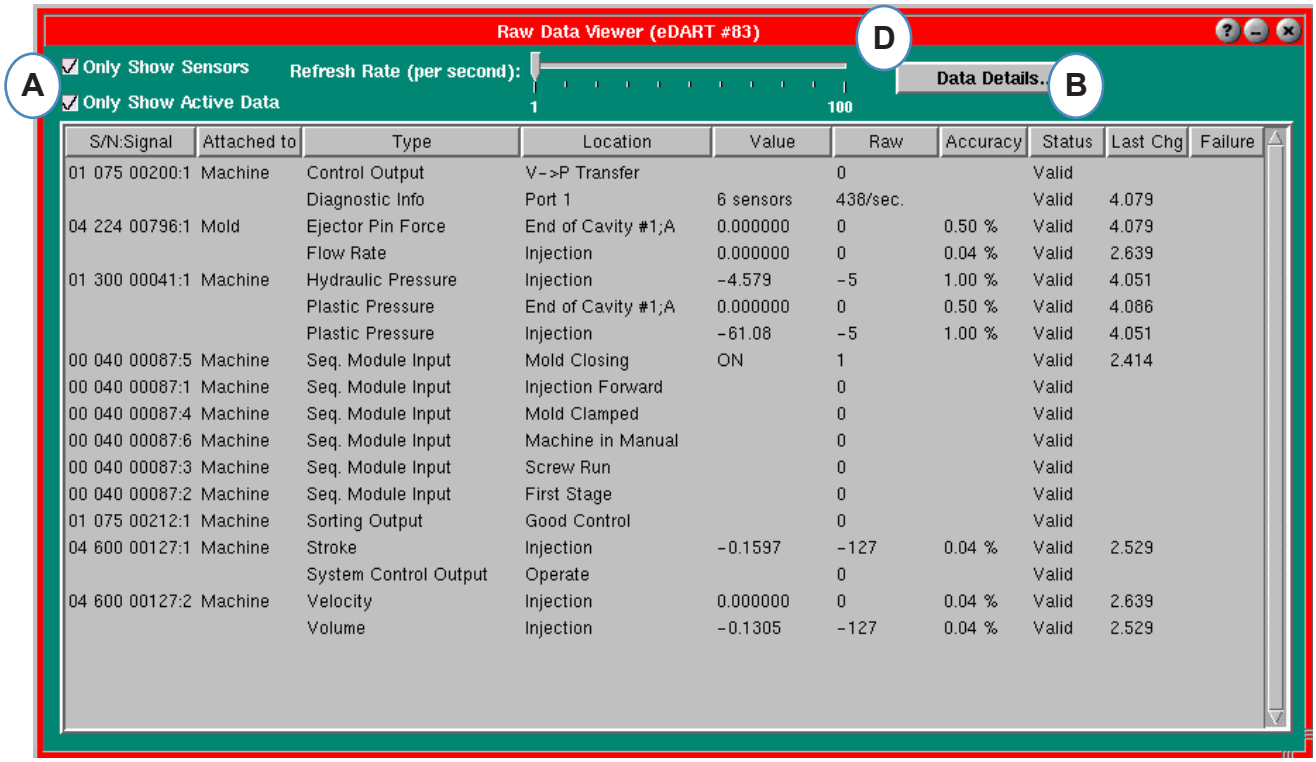
B: Click on the triangle to display information about sensor status.



C: Click on the “View Raw Data” button to display more detailed information about the sensor.

Raw Data Viewer

When the triangle is selected a diagnostic will appear.



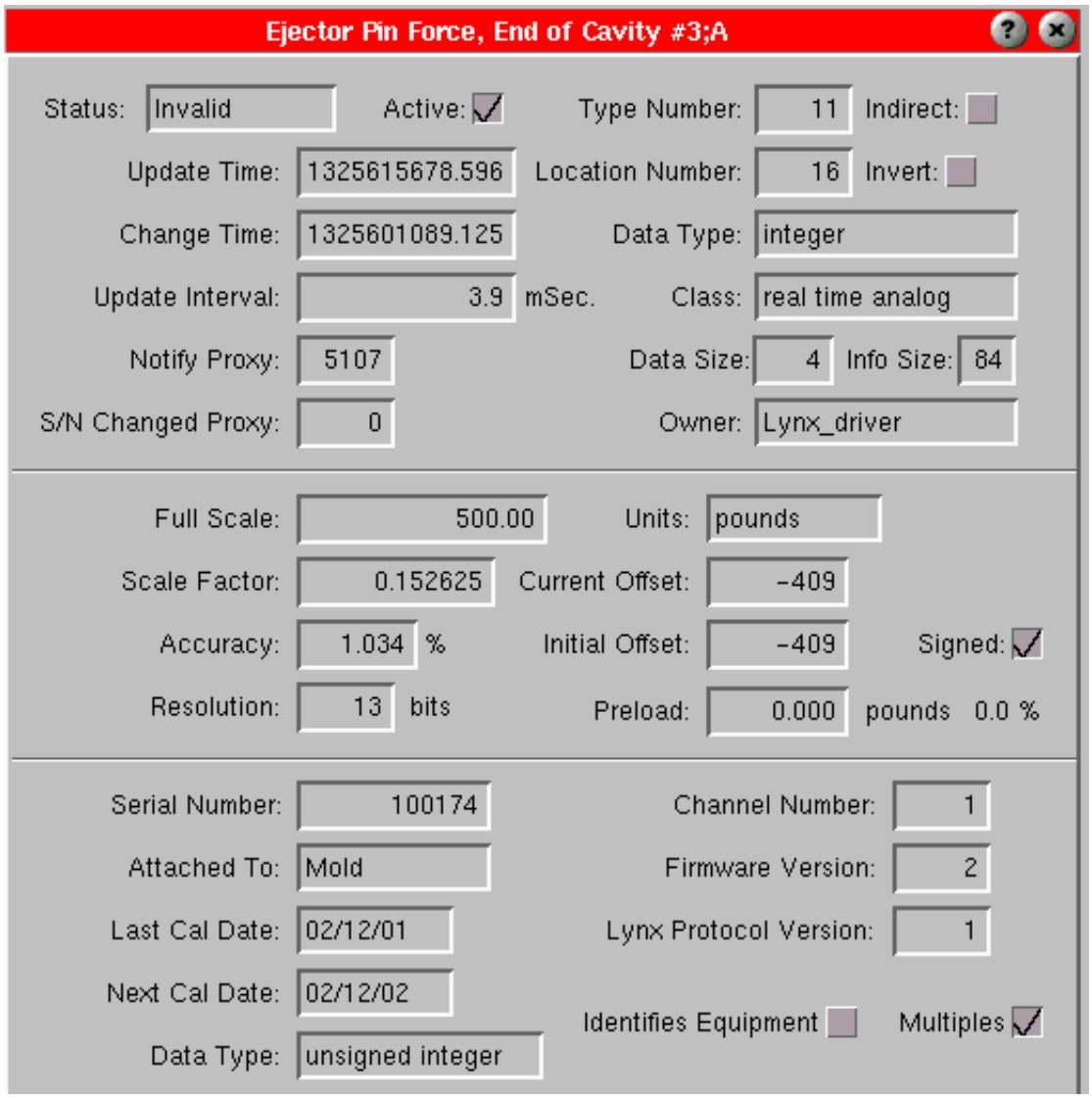
S/N:Signal	Attached to	Type	Location	Value	Raw	Accuracy	Status	Last Chg	Failure
01 075 00200:1	Machine	Control Output	V->P Transfer		0		Valid		
		Diagnostic Info	Port 1	6 sensors	438/sec.		Valid	4.079	
04 224 00796:1	Mold	Ejector Pin Force	End of Cavity #1;A	0.000000	0	0.50 %	Valid	4.079	
		Flow Rate	Injection	0.000000	0	0.04 %	Valid	2.639	
01 300 00041:1	Machine	Hydraulic Pressure	Injection	-4.579	-5	1.00 %	Valid	4.051	
		Plastic Pressure	End of Cavity #1;A	0.000000	0	0.50 %	Valid	4.086	
		Plastic Pressure	Injection	-61.08	-5	1.00 %	Valid	4.051	
00 040 00087:5	Machine	Seq. Module Input	Mold Closing	ON	1		Valid	2.414	
00 040 00087:1	Machine	Seq. Module Input	Injection Forward		0		Valid		
00 040 00087:4	Machine	Seq. Module Input	Mold Clamped		0		Valid		
00 040 00087:6	Machine	Seq. Module Input	Machine in Manual		0		Valid		
00 040 00087:3	Machine	Seq. Module Input	Screw Run		0		Valid		
00 040 00087:2	Machine	Seq. Module Input	First Stage		0		Valid		
01 075 00212:1	Machine	Sorting Output	Good Control		0		Valid		
04 600 00127:1	Machine	Stroke	Injection	-0.1597	-127	0.04 %	Valid	2.529	
		System Control Output	Operate		0		Valid		
04 600 00127:2	Machine	Velocity	Injection	0.000000	0	0.04 %	Valid	2.639	
		Volume	Injection	-0.1305	-127	0.04 %	Valid	2.529	

A: Make sure that both check boxes are checked when checking sensors to eliminate un-needed data.

B: Check this column to see the status of the sensor.

C: To display more detailed information about the sensor, highlight the line for that sensor.

D: Click on “Data Details”.

Sensor Data Details

When “Data Details” is selected a window will open to show details for selected sensor