



# SmartTouch Conveying Control OPERATION MANUAL



## ST Series Material Conveying System

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## 1 PURPOSE OF THIS MANUAL

This manual describes the installation and operation of Novatec's ST Series Material Conveying System controller. Before installing this product, please read this guide and any additional guides associated with the system's auxiliary equipment.

### 1.1 Explanation of Symbols

This manual includes both general and task-specific safety precautions. These precautions are highlighted in the manual by the following categories:



**WARNING:** This symbol identifies situations that are potentially hazardous to personnel or equipment.

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**NOTE**

Highlights information provided in text or procedures. This information may or may not be related to safety.

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## 2 SAFETY PRECAUTIONS AND WARNINGS

These operating instructions must be read, understood, and implemented by all personnel responsible for this system.

- ❑ All mechanical and electrical work must be performed by qualified personnel only.
- ❑ Always disconnect power before servicing.
- ❑ Refer to the machine nameplate and drawings supplied with this system for actual power requirements.
- ❑ Be sure to install the equipment in the proper electrical area according to the NEMA rating specified. Care must be taken to adhere to all national and local regulations.
- ❑ Electric power supply should be through a separate disconnect switch with properly sized overload/fuse protection.
- ❑ Thread protectors and caps provided on solenoid valves, traps, pipe ends, etc. must be removed prior to start-up.
- ❑ The customer is required to operate the equipment with all safety features in proper working condition.
- ❑ Novatec shall provide no further guarantee for function and safety in the event of unauthorized modifications.

### 3 GENERAL DESCRIPTION

The Novatec ST Series controller is a custom-programmed Mitsubishi PLC-based control system designed to incorporate existing and future equipment.

The SmartTouch ST series is a Mitsubishi based PLC and touchscreen loading control featuring intuitive operation. A choice of two touch screen styles is available: a cost effective 4.7" monochrome display and the upgrade 6.4" color display. Intuitive icons, that show functions, minimize the use of language specific text reducing confusion by non-English speaking users and enhancing control understanding. Blowback may be optioned in the main control panel. There is a piezo alarm horn on control face, plus a red alarm light on the alarm silence pushbutton.

### 4 SPECIFICATIONS

Model Number	ST-105-0-4M	ST-210-4-4M	ST-320-6-4M	ST-333-9-4M
Standard # of Vacuum Pumps	1	2	3	3
Standard # of Vacuum Receivers	5	10	20	33
Standard # of Purge Valves	0	4	6	9
Base Operator Interface	Mitsubishi GOT - GT1030-LBDW			
Remote Operator Interface	Not Available			
Cabinet Dimensions (H x W x D) inches	16x16x6	16x16x6	16x16x6 w/BB: 30x24x8	30x24x8
Panel Power Requirements	115VAC / 1 PH / 60 Hz			
Options: Blow Back (BB)	5 Stations	10 Stations	16 Stations	16 or 32 Stations

## 5 PLC OVERVIEW

### 5.1 General

The SmartTouch Series Material Conveying System Controller utilizes a centrally mounted PLC that sends commands to various conveying system components.

### 5.2 Startup And Power Loss

When power is first applied to the PLC following a power loss, the system will automatically start loading enabled stations that have material demand. If a Loading Station or Vacuum Pump is enabled, as indicated by ON, it will remain enabled. This prevents the operator from having to restart each piece of equipment. When first starting up, each station will have to be configured with the proper vacuum pump assignment, load, fill and dump times, no load alarm cycles, material number, and be enabled.

## 6 OPERATING PRINCIPLES

### 6.1 SmartTouch Conveying Controller

The program controls the operation of loading the receivers from selected sources. The SmartTouch controls the operation of the Vacuum Pumps (VP), the station “Tee” valves and the Purge (Material Source) valves. The FlexMaster must be in SYSTEM RUNNING mode

### 6.2 Vacuum Power Unit (VP)

Each VP is hard piped to multiple stations. Stations may be assigned to any VP.



**CAUTION:** Care must be taken to verify that the mechanical connection of a station valve to a VP matches the VP's assignment of that particular station

A VP will start when an associated loading station calls for material. The VP will run for the LOAD and PURGE portions of a fill cycle, plus a settable SEEK time. If no other station calls for material, the VP will shut down after the seek time expires. A new station calling for material will reset the seek timer and begin a new fill cycle. The seek timer is accessible from the HMI display's Vacuum Pump Setup page and has a default value of 120 seconds.

### 6.3 Receiver Station

Each molding machine/press or drying bin hopper is equipped with a Vacuum Receiver complete with level switch. The SmartTouch control panel allows the user to view the status of the receiver, enable or disable it, and view or change any setup parameter. Enabling of a receiver permits it to be automatically serviced by the conveying panel. A receiver may be enabled or disabled at any time. If a receiver is in a fill cycle when it is disabled, the cycle will continue to completion. Receiver Station status indications are:

- ✚ DEMAND – The Receiver is not in the fill cycle and the level switch calls for material.
- ✚ REGRIND – The Receiver is in the loading regrind material portion of the fill cycle. The station Tee valve is open and the proportioning valve is energized to draw regrind material.
- ✚ VIRGIN – The Receiver is in the loading virgin material portion of the fill cycle. The station Tee valve is open and the material source valve is energized open permitting material to be conveyed to the vacuum chamber.
- ✚ PURGE – The Receiver is in purge portion of the fill cycle. The station Tee valve is open and the material source valve is closed allowing the conveying line to be purged free of any remaining material.
- ✚ DUMP – The Receiver is in the dump portion of the fill cycle. The Station TEE valve closes, removing vacuum from the hopper. The material conveyed into the hopper gravity conveys (dumps) into the molding machine or drying bin.
- ✚ ALARM – The receiver has gone through the fill cycle, without satisfying the material level prox sensor, a consecutive number of times equal to or greater than the no load alarm setpoint.

### 6.4 The Receiver Fill Cycle

The Receiver Station number is moved into the appropriate Vacuum Pump FIFO queue when the receiver has material demand. The default VP assignment for all receiver stations is number 1. The fill cycle consists of three states, LOAD, PURGE and DUMP. When the receiver is ready to be serviced, the Vacuum Pump will start, if not already running, and the station Tee valve will open at the start of the fill cycle. The material source valve opens allowing pellets to be conveyed from the source to the vacuum chamber. The station Tee valve will remain open for the load and purge times.

When the load time expires, the material source valve closes and the purge time begins. The purge time allows any pellets in the conveying line to be carried into the JIT chamber. When the purge timer expires the station Tee valve is closed and the dump timer is started. The Vacuum Pump FIFO stack advances to service the next station at the end of the purge time. Any pellets in the vacuum chamber will be gravity conveyed into the press hopper.

If the material level switch is not satisfied at the end of the dump time, the receiver will be placed back at the end of its Vacuum Pump FIFO queue. The load, purge, and dump setpoints are changeable from the HMI and have default values of 10, 10, and 5 seconds respectively.

## 6.5 Vacuum Pump FIFO Queue

Each Vacuum Pump has a First In/First Out (FIFO) queue. Any station Receiver may be assigned to any Vacuum Pump. The queue contains the receiver numbers (1 to 120) in the order the receivers became empty and needed material. The VP services each station in the order in which the demand was generated. A station is removed from the queue at the end of the purge cycle. At this time the VP begins to service the next station in the queue, if any. A station is still in demand at the end of the dump cycle will be reentered into the queue. If there are no other stations in the queue, the fill cycle will repeat as soon as the dump cycle is complete.

## 6.6 Alarms

Each station receiver has a No Load fault. If the receiver has gone through the fill cycle, without satisfying the material level prox sensor, a consecutive number of times equal to or greater than the no load alarm setpoint, the alarm flag is set. The alarm will be cleared when the demand is satisfied or the station is disabled. The number of cycles is field changeable through the HMI, with the default value set at 3. Entering a value of zero (0) will disable the alarm. A station will continue to load even if the alarm is on.

The Vacuum Pumps have motor failure alarms. The motor failure alarm is set whenever the motor is called to run, but the motor auxiliary contact input is not made after 3 seconds. The alarm can only be cleared by pressing the "ALARM SILENCE" button on the front of the controller. Once a vacuum pump is in an alarm state, the controller will not allow that vacuum pump to attempt to convey until the alarm is cleared.

### 6.7 Typical Wiring/Network Options



## 7 INSTALLATION

After unpacking and inspecting the SmartTouch Controller, four basic activities will need to be performed. These activities are:

1. Completely install station receivers and station valves, pumps, and other mechanical components. Run material conveying lines.
2. Locate and mount the electrical controls for the main base unit, pumps, dryers, etc.
3. Wire all the equipment to the controller enclosure per the wiring diagrams.
4. Adjust each receiver station's setpoints from the HMI including: vacuum pump number, material number and load, purge, and dump times.

All national and local electrical, building, and safety codes need to be followed. Proper grounding of all equipment is important. Check the electrical wiring schematic for wiring numbers and details. The following paragraphs describe installation of typical system components. Some of them are optional and may not be required for your system.



**CAUTION:** The conveying lines must be grounded to prevent "shocks" from static electricity that are generated by some materials as they are conveyed. This is an extremely important step.

All electronics are susceptible (to varying degrees) to electrostatic damage and, although as much protection as possible has been designed into the system; this cannot completely eliminate upsets due to electrostatic voltage being accidentally introduced into the electronic circuitry.

Generally, grounding the case of the container from which the material is being conveyed (including the lines) to the same potential as the green wire ground of the conveying system eliminates most of this problem.

## 7.1 Mechanical Installation

### 7.1.1 Material Conveying Lines

The single most important activity performed to ensure satisfactory operation of a pneumatic conveying system is the actual installation of the equipment. All components should be located so that material lines and vacuum lines are as short as possible. Elbows or other changes in direction should be minimized. The material conveying line should be horizontal and/or vertical and as direct as possible with no slope. Care needs to be taken that all connectors are vacuum tight. All rigid conveying tubing should be properly supported by the customer to provide a safe and secure installation.

It is generally recommended to use flexible hose and clamps to connect material pick up lances, vacuum chambers, etc, to material or vacuum lines. The flexible hose should only be as long as needed since excess hose will reduce the efficiency of the system. The hose should not sag.

Rigid tubes and elbows should be connected together with bolted couplers. Each tube end should be square cut, round, and without burrs. The tube ends should butt together when installed, with the bolted coupler centered over the joint.

### 7.1.2 Vacuum Pump Unit

Locate the vacuum pumps so that access to the secondary filter element mounted to the unit is available. Secure to the floor or platform as necessary. Attach high voltage (check nameplate) to the motor starter located in the motor starter junction box mounted to the vacuum pump unit FROM A FIELD-SUPPLIED DISCONNECT SWITCH or to the optional combination starter with integral fused disconnect switch. An electrical ground wire is also required. Control wiring for the starter coil and auxiliary feedback will need be wired back to the control cabinet.

A clean, dry supply of 80 -120 PSIG compressed air must be connected to the pressure port on the vacuum breaker valve solenoid valve. When the vacuum breaker valve is energized, it allows ambient air to pass through the vacuum blower. This is done instead of shutting the pump down to prevent premature wearing of the pump and belt drive caused by constantly starting and stopping the pump. Eventually the pump will shut down completely (if not needed) when the seek timer expires. Note that the default time programmed into the seek timer of the system is 120 seconds when the system is first shipped to you. If the pump seems to be shutting down after an usually short or long period, check the programmed seek timer value.



### 7.1.3 Cyclone Filter

Locate the cyclone filter as close as possible to the vacuum power unit. Provide access for the material catch pan or fines drum as necessary. Secure the cyclone filter to the floor. Attach vacuum lines from the conveying system to the cyclone inlet (tangential inlet on the side of the cyclone body). Attach the cyclone outlet (top duct) to the vacuum breaker valve inlet on the vacuum power unit.



### 7.1.4 Station Valves

Locate near each station's vacuum chamber. Typically, the station valve is rigidly attached with bolted couplers to the cyclone filter vacuum lines while running rigid tube or flex hose to the lid of the vacuum chamber. The station valve solenoid is wired back to the control cabinet. Ground the system as necessary. A clean, dry supply of 80 - 120 PSIG compressed air is connected to the pressure port on the station valve's solenoid valve.



### 7.1.5 Single Inlet Vacuum Chamber

Secure the chamber to the hopper or surge bin as required. Orient the material inlet line and vacuum outlet line as required. Flex hose is normally used to connect the vacuum chamber to the supply line and station valve. Wire the material level switch back to the control cabinet.



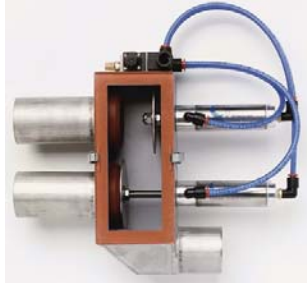
### 7.1.6 Compressed-Air Blowback

Some vacuum chambers (single and dual inlet) are provided with a compressed air blowback solenoid valve for cleaning the filter depending on the application. The pulse blowback solenoid valve is wired back to the control cabinet. A clean, dry supply of 80 - 120 PSIG compressed air is required. Connect it to either the compressed air accumulator tank supplied on large vacuum chambers or directly to the pulse blowback solenoid valve that is supplied on small vacuum chambers.



### 7.1.7 Purge Valves

Purge valves are typically installed at the silo, hopper, blender, or other material outlets where conveying lines must be emptied between load cycles. A clean, dry supply of 80 - 120 PSIG compressed air is required. The solenoid valve located on the body of the purge valve must be wired back to the control cabinet.



## 7.2 Electrical Installation

Always disconnect and lock out the main power supply before wiring power and control cables between the SmartTouch controller and the external devices. Refer to the wiring diagram and general arrangement drawings supplied with this system before making electrical connections.

- ❑ Use shielded cable for communications wiring.
- ❑ Keep communication cables and control wiring as far as possible from high voltage equipment. If you must run cable across power lines, run the cable at right angles to the line.
- ❑ Ensure the equipment grounding is properly connected. Shielded cable should be grounded at one end only and is typically grounded in the main I/O enclosure.



**WARNING:** Do not install communication cable where it will come into contact with any buildup of electrical charge!

It may be tempting to run the wire next to the material conveying lines, but a substantial buildup of electrical charge can and will occur, especially with certain types of plastic resins and, if the conveying lines are not grounded, can arc to the cable disrupting communications and/or possibly causing damage.

## 8 CONTROLS EXPLANATION

### 8.1 Mitsubishi HMI

The Mitsubishi HMI is an operator interface with touch-screen entry. The screens are graphical in nature and display information in text and/or symbol change. The screens permit data entry via touch. The HMI communicates with the Mitsubishi PLC using a fast serial link.

### 8.2 Startup

When power is first applied to the HMI, the Main Menu screen is displayed. Since no user is logged into the system at startup, DEFAULT is indicated in the user display.

Depending on system configuration, some buttons may not be visible on your screen.

## 9 OPERATOR SCREENS

### 9.1 Main Menu

The Main Menu screen has pushbuttons (PB) to navigate to other screens



Figure 1: Default Main Menu



The STATION STATUS button will take the user to the station overview status page. This page allows stations to be enabled ON and OFF as well as show the status of a large number of stations on one page.



This button navigates to the Vacuum Pump status page. These pages show the status of the vacuum pumps running, loading, purging, which station each pump is servicing. See section 11.2 for more detail.



This button navigates to the Help pages. These pages explain the meaning of the different symbols used and how to set the different parameters of the receiver stations.



The SYSTEM SETUP page is primarily used for the initial setup of the system by the administrator.



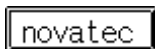
The STATION SETUP button will take the user to the parameter setup page for a receiver station. The setup page allows the user to view and adjust (if logged in to the correct password level) any station's parameters like: load time, purge time, dump time, material selection, and vacuum pump assignment.



The VACUUM PUMP SETUP button will take the user to the parameter setup page for the vacuum pumps. The setup page allows the user to view and adjust (if logged in to the correct password level) a vacuum pump's seek time, vacuum breaker valve operation, current running hours and reset current running hours.



This button navigates to the ALARM HISTORY Page. This page shows the last 5 logged alarms, when they happened.

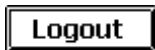


This button allows the user to login with different password levels. The different levels will gain access to modify various parameters in the system. The password levels are:

Level2 : 2222

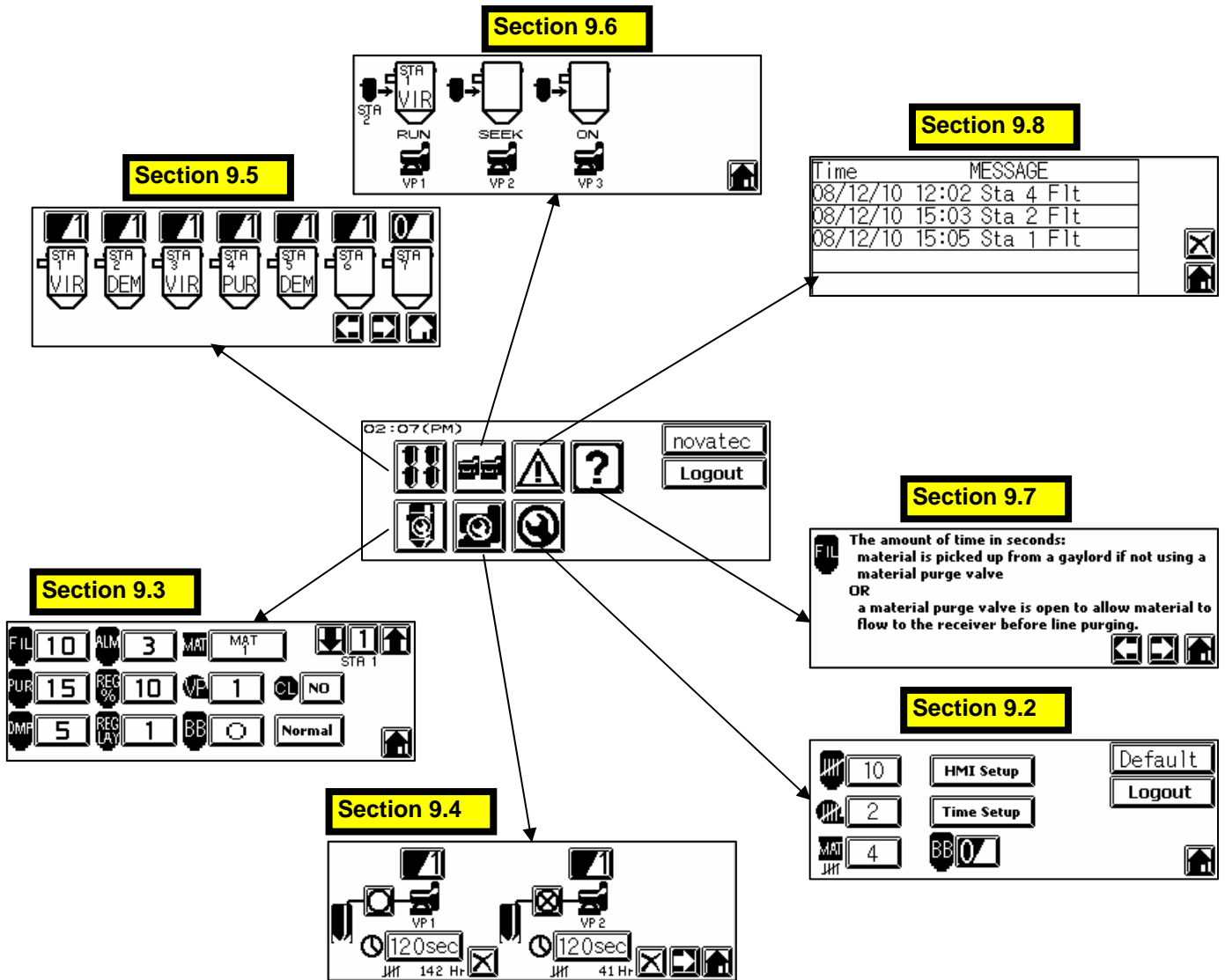
Level3 : 3333

novatec : 1948

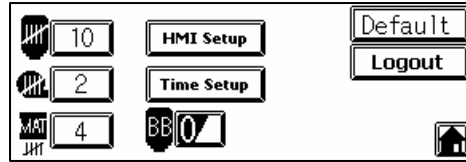


This button logs the user out of the controller.

Main Menu Navigation Map:



## 9.2 System Setup



Displays the number of Receiver Stations the panel will control.



Displays the number of Vacuum Pumps the panel will control.



Displays the number of Material Source Purge valves the panel will control.



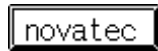
Set Date and Time of Day



Change display settings including: contrast, screen saver and beep on key press. This function requires the user to be logged in at the “novatec” password level.

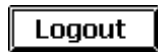


This button will tell the controller if the Blow Back option is installed and operational. This function requires the user to be logged in at the “novatec” password level.



This button allows the user to login with different password levels. The different levels will gain access to modify various parameters in the system. The password levels are:

Level2 : 2222  
 Level3 : 3333  
 novatec : 1948



This button logs the user out of the controller.



This button navigates back to the Main Screen.

### 9.3 Station Setup



Touching the STATION SETUP button on the main menu will call up the screen to view and change parameters for a particular loading station. All stations may be accessed by touching the NEXT or PREV above the station icon or pressing the number between the NEXT and PREV buttons. This will display a keypad to enter a station number to quickly access any station's setup parameters. Anyone can view a station's setup parameters, but level2 login is needed to make changes to most parameters

**FIL 10** Fill Time - the time in seconds that material enters the convey air stream. It is the time the material purge valve is open. The station Tee valve will also be open. This setting is proportional to the size of the station hopper and how difficult the material flows.

**PUR 15** Purge Time - the time in seconds that the station Tee valve is still open but the material purge valve is closed. This time is proportional to the distance from the material purge valve and the station hopper and how difficult the material flows.

**DMF 5** Dump Time - this is the time that the material takes to fall from the receiver vessel into the drying hopper. This time is proportional to how difficult the material flows.

**ALM 3** No Load Alarm - this is the number of loading cycles that the station goes through without covering the material level sensor prox. For example, as shown at the left, after 3 load cycles, the "No Load" alarm will become active if no material is covering the material level sensor prox. A setting of zero will disable the No Load Alarm.

**REG % 10** The Re grind Percent setting tell what proportion of re grind will be injected into the hopper. This value is a percentage of the LOAD time. For example, if the LOAD time was 10 seconds and the Re grind Percent was 30%, then the proportioning valve will energize for 3 seconds to fill re grind material and then virgin material will fill for the other 7 seconds.

**REG LAY 1** The Re grind Layers setting works in conjunction with the Re grind Percent. It tells the controller how many times to switch between loading re grind material and virgin material. A layer consists of both a re grind material part and a virgin material part.

**MAT MAT 1** The Material Selected button brings up a pull keypad to select what material purge valve to energize during the load cycle.

**VP 1** Vacuum Pump number that is hard piped to the station Tee valve. Requires password "level3" to make changes.

**BB O** Blow Back - if the controller is equipped with Blow Back option, then for receiver stations that are equipped with the necessary hardware, the user can define the number of pulses of Blow Back that will occur during the dump cycle. Requires password "level3" to make changes.



Closed Loop Convey is used when material needs to be guarded against moisture absorption as much as possible. Provided the necessary hard pipe lines are run, material loading does not use ambient air but rather the return air of the dryer. Requires password "level3" to make changes.



Priority Fill – Each receiver station has a fill priority assigned to it. Most receivers will have a "NORMAL" priority assigned to them. The controller will fill each of these receivers in the order in which they demand material – First In, First Out. Receivers can also be flagged as "PRIORITY" receivers. Receivers that are PRIORITY will be filled before any NORMAL receivers, even if the NORMAL receiver showed demand for material before a PRIORITY receiver. Once all the PRIORITY receivers are satisfied with material, then the controller will fill the NORMAL receivers. Requires password "level3" to make changes.



Up/Down Arrows toggle through the Stations as needed.

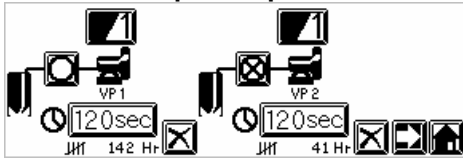


Touching the station number in the center of the up and down arrows will show a numeric keypad for station number entry.



This button navigates back to the Main Screen.

## 9.4 Vacuum Pump Set-Up



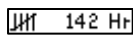
The load and purge times are shown as a countdown in seconds remaining. The next station in the queue (if any) is also shown. A station and material purge valve icon show what station the vacuum pump is currently servicing and what material is being used. The icons will change color like on the station status page with blue for loading, orange for purging, green for on (idle) and grey for off. The VPU runs intermittently depending on the loading cycle. If no station is calling for a load cycle, the VPU will run for the seek time and then stop.



**OFF** – The Vacuum Pump is disabled – no more stations will be loaded into the FIFO queue. However, stations that are already in the FIFO will be loaded until the FIFO is cleared of all stations. Then, after the seek time has expired, the vacuum pump will shut off.



**ENABLED** – The Vacuum Pump enabled – Receiver stations will be loaded as needed by the Vacuum Pump.



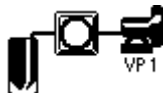
This icon shows how long each Vacuum Pump has been running (in hours).



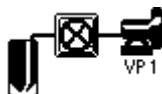
This button will reset the vacuum pump hours running counter.



**Seek Time** - this button will call up a keypad to allow the Seek Time to be changed. The seek time is a value in seconds that the Vacuum Pump will run after it is no longer used in a Station Load Cycle. The function of the seek time is to prevent excessive starts of the VP. A value is determined in the field for each system. The default value is 120 seconds.



The Vacuum Pump's VACUUM BREAKER VALVE operates normally closed. The valve is de-energized during the fill cycle. It is energized open to ambient air during the Vacuum Pump's seek time. This is Novatec standard vacuum pump operation.



The Vacuum Pump's VACUUM BREAKER VALVE operates normally open. The valve is energized during the fill cycle (fill and purge). It is de-energized open to ambient air during the Vacuum Pump's seek time. This function is to aid in interfacing with competitor's equipment.



Navigation Arrow button to show the setup of the NEXT Vacuum Pump if used.



This button navigates back to the Main Screen.

## 9.5 Station Status Screen



Each receiver station is identified by an 8 character text display. An additional option allows the names to be modified at the factory.

This screen permits the Enable/Disable control and status display of all receiver stations. Enabling a receiver permits it to be automatically serviced by the conveying panel. A receiver may be enabled or disabled at any time. If a receiver is in a fill cycle when it is disabled, the cycle will continue to completion. Receiver Station status indications are:



OFF – The Receiver is disabled – no material will convey to it.



ENABLED – The Receiver enabled – material will be conveyed to it if the material level switch is not satisfied and its Vacuum Pump is not faulted.



DEMAND – The Receiver is enabled, not in the fill cycle, and the level switch calls for material. The receiver will be placed in the FIFO and will fill when its vacuum pump becomes available.



REGRIND – The Receiver is in the loading regrind material portion of the fill cycle. The station Tee valve is open and the proportioning valve is energized to draw regrind material.



VIRGIN - The Receiver is in the loading virgin material portion of the fill cycle. The station Tee valve is open and the material source valve is energized open permitting material to be conveyed to the vacuum chamber.



PURGE – The Receiver is in purge portion of the fill cycle. The station Tee valve is open and the material source valve is closed allowing the conveying line to be purged free of any remaining material.



DUMP – The Receiver is in the dump portion of the fill cycle. The Station TEE valve closes, removing vacuum from the hopper. The material conveyed into the hopper gravity conveys (dumps) into the molding machine or drying bin.



ALARM – The receiver has gone through the fill cycle, without satisfying the material level prox sensor, a consecutive number of times equal to or greater than the no load alarm setpoint.

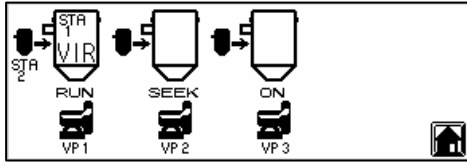


Navigation Arrow buttons to show the status of the NEXT or PREVIOUS set of receivers.



This button navigates back to the Main Screen.

## 9.6 Vacuum Pump Status Screen



This overview status screen displays the operation of the Vacuum Pump Units. Depending on model, up to 3 vacuum pumps can be seen. The status of each Vacuum Pump is displayed. This includes the current station being serviced in a station icon that appears above the vacuum pump icon.

- ON – The Vacuum Pump is enabled but not running.
- RUN – The Vacuum Pump is in the load portion of the fill cycle.
- SEEK – The Vacuum Pump is not in any fill cycle and is in idle seek time waiting for a receiver to service.
- ALARM – Vacuum Pump starter has a fault.

The Vacuum Pump runs intermittently depending on the loading cycle. If no station is calling for a fill cycle, the VP will run for the seek time and then stop.



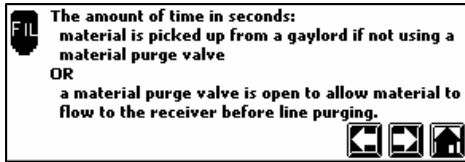
Each Vacuum Pump has a pair of receiver icons that the current station being serviced with its status and the name of the station to be serviced next. In the picture to the left: “STA 1” is currently being serviced and is filling VIRGIN material. “STA 2” is the next receiver to be serviced by the Vacuum Pump.






This button navigates back to the Main Screen.

## 9.7 Help Screen

A series of screens are provided to assist the user in understanding some of the more commonly used icons and setup parameters.





  Navigation Arrow buttons to show the NEXT or PREVIOUS Help topic screen.

 This button navigates back to the Main Screen.

## 9.8 Alarm History

Time	MESSAGE
08/12/10 12:02	Sta 4 Flt
08/12/10 15:03	Sta 2 Flt
08/12/10 15:05	Sta 1 Flt



The ALARM HISTORY screen displays the last 5 alarm conditions.



Delete all alarms that are no longer active.



This button navigates back to the Main Screen.



There is an Alarm Silence/Clear Button located on the faceplate of the control panel enclosure.

## 10 MAINTENANCE

It is recommended that maintenance and inspection be performed on a scheduled basis. Maintenance requirements may vary widely for each installation and specific operating conditions. It is suggested that a complete inspection be performed with necessary maintenance at the end of the first month, the first three months, and the first six months. These inspections will indicate how often future maintenance will be necessary.

- ❑ All electrical, mechanical repairs and tests are to be performed by qualified personnel only.
- ❑ Disconnect electric power from control box before opening panel for maintenance.
- ❑ Depressurize pneumatic system before performing maintenance or repairs on pressure containing components. Check all pressure gauges to ensure that depressurization has occurred.
- ❑ Uninsulated dryer, hopper, and heater surfaces may be in excess of 150°F during heating. Allow the system to cool completely before beginning repair work.
- ❑ Do not disable or bypass equipment safety features.
- ❑ Refer to system component manuals for additional information.
- ❑ To prevent equipment malfunction and improper material delivery, do not manually force actuated valves (i.e. Station Valves, Purge Valves, Proportioning Valves, etc.) to the open or closed position during system operation.



**WARNING:** Before beginning repair work, disconnect all power sources and secure against inadvertent reconnection.



**WARNING:** Auxiliary equipment may contain moving parts that may cut, crush, or otherwise injure personnel when safety/access covers are removed. Do not place hands or limbs in equipment during operation.

### 10.1 At Startup

- ❑ Verify station and VP settings.
- ❑ Record equipment Serial Numbers and the SmartTouch Controller program revision level.

### 10.2 Monthly

- ❑ Check system for air leaks or flow obstructions and correct as required.

### 10.3 Every 3 Months

- ❑ Check all electrical connections to make sure that they have not become loose, especially those connections at contactors, motor starters, and heater elements.

## 11 TROUBLESHOOTING

If you have questions concerning troubleshooting or the dryers operation, contact Novatec and ask for the "Service Department". If you need to place an order for a part, contact Novatec and ask for the "Parts Department" or visit our web store.

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