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USER GUIDE
UGC021-0106

Integrated Loading System

ILS Model - CompactLogix, Versaview

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Please record your equipment's model and serial number(s) and the date you received it in the spaces provided.

It's a good idea to record the model and serial number(s) of your equipment and the date you received it in the User Guide. Our service department uses this information, along with the manual number, to provide help for the specific equipment you installed.

Please keep this User Guide and all manuals, engineering prints and parts lists together for documentation of your equipment.

Date:

Manual Number: UGC021-0106

Serial Number(s):

Model Number(s):

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SECTION

1

Introduction

Purpose of the User Guide

This User Guide describes the installation and operation of the ILS control.

Before installing this product, please take a few moments to read the User Guide and review the diagrams and safety information in the instruction packet. You also should review manuals covering associated equipment in your system. This review won't take long, and it could save you valuable installation and operating time later.

How the Guide is Organized

Symbols have been used to help organize the User Guide and call your attention to important information regarding safe installation and operation.

⚠ Symbols within triangles warn of conditions that could be hazardous to users or could damage equipment. Read and take precautions before proceeding.

1 Numbers indicate tasks or steps to be performed by the user.

◆ A diamond indicates the equipment's response to an action performed by the user.

❒ An open box marks items in a checklist.

● A circle marks items in a list.

Indicates a tip. A tip is used to provide you with a suggestion that will help you with the maintenance and operation of this equipment.

✎ Indicates a note. A note is used to provide additional information about the steps you are following throughout this manual.

Your Responsibility as a User

You must be familiar with all safety procedures concerning installation, operation and maintenance of this equipment. Responsible safety procedures include:

- Thorough review of this User Guide, paying particular attention to hazard warnings, appendices and related diagrams.
- Thorough review of the equipment itself, with careful attention to voltage sources, intended use and warning labels.
- Thorough review of instruction manuals for associated equipment.
- Step-by-step adherence to instructions outlined in this User Guide.

ATTENTION:
Read this so no one gets hurt

We design equipment with the user's safety in mind. You can avoid the potential hazards identified on this machine by following the procedures outlined below and elsewhere in the User Guide.

⚠ WARNING: Improper installation, operation or servicing may result in equipment damage or personal injury.

This equipment should be installed, adjusted, and serviced by qualified technical personnel who are familiar with the construction, operation and potential hazards of this type of machine.

All wiring, disconnects and fuses should be installed by qualified electrical technicians in accordance with electrical codes in your region. Always maintain a safe ground. Do not operate the equipment at power levels other than what is specified on the the machine serial tag and data plate.

⚠ WARNING: Voltage hazard

This equipment is powered by single-phase alternating current, as specified on the machine serial tag and data plate.

A properly sized conductive ground wire from the incoming power supply must be connected to the chassis ground terminal inside the electrical enclosure. Improper grounding can result in severe personal injury and erratic machine operation.

Always disconnect and lock out the incoming main power source before opening the electrical enclosure or performing non-standard operating procedures, such as routine maintenance. Only qualified personnel should perform troubleshooting procedures that require access to the electrical enclosure while power is on.

SECTION
2

Description

What is the Intelligent Loading System?

The Integrated Loading System (ILS) is a flexible, configurable, loading control system. It is available in three basic architectures: local I/O, remote I/O, and fully distributed. Architectures can be deployed simultaneously.

Local I/O Architecture
In the local I/O architecture, the PLC processor and operator interface, as well as enough I/O to support up to 48 loaders and 14 pumps, are located in a single enclosure.

Remote I/O Architecture
Up to six additional enclosures can be remotely installed that can each support 16 loaders. Each of these enclosures can be mounted centrally to a group of loaders to minimize wiring runs.

Fully Distributed Architecture
With the fully distributed architecture, the PLC and operator interface are mounted in separate enclosure without local I/O. Instead, remote Allen Bradley MaXum I/O drops are distributed throughout the plant, connecting to the PLC via DeviceNet flat media. Two networks can be installed which allow totally flexible configuration. Up to 54 Maxum blocks can be added to each scanner's network. Of these 54 blocks, 48 can be used to attach loaders, multi-source loaders or granulators. The remaining six Maxum blocks are reserved for pumps.

Once connected, these devices can be configured on the operator interface.

This control system configuration greatly simplifies installation, reducing labor, and wiring costs and allows system expansion by simply adding more I/O modules.

The system architectures use Allen Bradley Compact Logix PLC for control. An Allen Bradley ten inch Versaview operator interface is connected to the processor via Ethernet communications. Three additional operator interfaces can be remotely mounted, as needed, elsewhere in the plant. Additionally, the operator interfaces can be upgraded from 10 to 15 inches.

Typical Applications

Conveying applications with more than 32 loaders, 32 material sources regrind evacuation or multiple interfaces.

Specifications

Model	ILS
Performance Characteristics	
Maximum number of standard devices*	245
Maximum number of pumps	26
Controller	Allen Bradley CompactLogix
Operator interface inches {mm}	10 {254} Allen Bradley Versaview 15 {381} Allen Bradley Versaview (optional) Up to 4 operator interfaces, simultaneously
Communications	Ethernet, DeviceNet
Output voltage to devices	24 VDC or 24 VAC
Input voltage from devices	24 VDC
Dimensions inches {mm}	
Fully distributed base unit (controller and operator interface)	
Height	24 {610}
Width	24 {610}
Depth	10 {254}
Local I/O base unit (controller, I/O, and operator interface)	
Height	42 {1067}
Width	36 {914}
Depth	12 {305}
Remote I/O base unit (I/O)	
Height	30 {762}
Width	24 {610}
Depth	8 {203}
Distributed I/O power supply unit	
Height	20 {508}
Width	20 {508}
Depth	9 {229}
Weight lb {kg}	
Fully distributed base unit (controller and operator interface)	
Installed	50 {22.7}
Shipping	80 {36.3}
Local I/O base unit (controller, I/O, and operator interface)	
Installed	120 {54.4}
Shipping	160 {72.6}
Remote I/O base unit (I/O)	
Installed	75 {34.0}
Shipping	105 {47.6}
Distributed I/O power supply unit	
Installed	30 {13.6}
Shipping	75 {34.0}
Voltages Total amps	
Fully distributed base unit (controller and operator interface)	120 VAC/5 A/60 Hz
Local I/O base unit (controller, I/O, and operator interface)	120 VAC/15 A/60 Hz
Remote I/O base unit (I/O)	120 VAC/15 A/60 Hz
Distributed I/O power supply unit	120 VAC/5 A/60 Hz

NOTE: *: A device may be a vacuum receiver, a grinder or a regrind vacuum receiver.

SECTION
3

Installation

Unpacking the Boxes

The ILS distributed loading control comes in one or more boxes, depending on the options ordered. The boxes should include:

- ❒ Base unit with touchscreen interface panel;
- ❒ Remote operator panel;
- ❒ Power supply unit;
- ❒ MaXum I/O modules and bases;
- ❒ DIN blocks and bases;
- ❒ Termination blocks and bases;
- ❒ Kwik-Link flat DeviceNet cable;
- ❒ Cable installation brackets.

Master Control Unit with Touchscreen Interface Panel

Power Supply Unit

1 **Carefully remove the ILS components** from their shipping containers, and set upright.

2 **Remove all packing material, protective paper,** tape and plastic.

3 **Carefully inspect all components to make sure no damage occurred during** shipping. Notify the shipper immediately if damage is found.

4 **Take a moment to record serial numbers, the software version number and** electrical power specifications in the blanks provided on the back of the the User Guide's title page. The information will be helpful if you ever need service or parts.

5 **You are now ready to begin installation.** Follow the preparation steps on the next page, paying particular attention to all wiring consideration and recommendations.

Preparing for Installation

You should plan the location of the ILS base unit to ensure easy access and minimal wiring. Remote touchscreen panels can be connected to the control via an ethernet port inside the control enclosure of the primary touchscreen interface.

1 Select a mounting location for the base unit.
The base unit interface can be mounted on a wall or other stable vertical surface. Select a location that:

- ❒ **Is central to loaders that the ILS will control.** Keep the ILS base unit as close as possible to the loading stations to minimize the amount of wire needed to connect the vacuum receivers to the control.
- ❒ **Provides adequate clearance for safe operation and maintenance.** The base unit should be mounted at a height that allows the operator to easily see and use the touch screen. Maintain at least 3 feet (1 m) clearance in front of the base unit for safe access to the Input/Output enclosure.
- ❒ **Provides a clean, dry, vibration-free environment.** Exposure to wide temperature variations, high ambient temperature, power line fluctuations, caustic fumes or excessive amounts of dust, dirt, vibration, shock and moisture could harm performance and reduce the life of this equipment.
- ❒ **Provides a grounded source of 120 VAC power.** The three-prong power cords supplied with the ILS base unit and power supply requires a grounded 120 VAC outlet rated for at least 15 amp service.

2 Plan the power/communication cable routes.

- ❒ **Review all wiring guidelines and diagrams** provided in the manuals and electrical diagrams supplied with the ILS system and your conveying equipment before beginning installation. *See* ***Wiring Considerations.***
- ❒ **Keep communication wires away from sources of** static electricity. Static electricity can damage the controls. Communication cables should ***not*** be run near the material lines and hoses, which produce large amounts of static electricity when material is conveyed.
- ❒ **Avoid running communication cables across power** feed lines. If you must run the cable across power feed lines, run the cable at right angles (90°) to the lines.
- ❒ **Do not run power cable together with communication cables** inside cable trays. Communication cables include ethernet and DeviceNet communications.

Installing the ILS

Installation consists of:

❒ Installing the Kwik-Link flat DeviceNet cables.
❒ Installing the MaXum bases and termination blocks.
❒ Installing the MaXum I/O units.
❒ Mounting the base unit and power supply.
❒ Installing the loader drop cables.
❒ Wiring the purge and pocket valves included in the system.
❒ Installing the drop cables between the pump MaXums and the pump starters.
❒ Installing remote operator panel(s).
❒ Initial setup of the system control.

Wiring Considerations

⚠ **WARNING:** Improper installation may result in equipment damage or personal injury.

- Disconnect and lock out the main power supply to equipment in the conveying system before attempting to wire power and communication cables between the ILS control, vacuum receivers, pumps, dust collectors and material valves.
- Install all wiring, disconnects and fuses in accordance with electrical codes in your region. All electrical installations should be done only by qualified electrical technicians.
- Always refer to the wiring diagrams supplied with your control before making electrical connections. The diagrams show the most accurate electrical component information.
- Protect communication cables from sources of static electricity and electrical noise.

❒ Use shielded cable or run wire through a contiguous metal conduit or wireway. Failure to use a metal shield can expose the controls to static electricity, which can damage electronic components.

❒ Do not run communication cables near material lines and hoses, which produce large amounts of static electricity when conveying material.

❒ Keep communication cables at least 5 feet (1.5 m) from electric motors, transformers, rectifiers, arc welders, generators, induction furnaces and sources of microwave radiation.

❒ Avoid running communication cable across power feed lines. If you must run cable across power lines, run the cable at right angles to the line. Keep the cable at least 6 inches (0.15 m) from AC power lines of less than 20 A; 1 foot (0.30 m) from lines of 20A to 100 kVA; and 2 feet (0.60 m) from lines of 100 kVA or more.

- Always maintain a safe ground. Follow the safe grounding procedures in the wiring diagram package. Ground the shielded cable inside the Input/Output enclosure only.
- Do not operate the equipment at power levels other than those specified on the the equipment data plate.

Mounting the Base Unit and Power Supply

The ILS base unit and power supply should be mounted on a wall, or other secure vertical surface, at a height providing easy access and a clear view of the touchscreen panel.

1. **Bolt the base unit and** power supply to the mounting surface. Use the mounting brackets on the base unit enclosures.

2. **Ground the base unit cabinet.** Connect a ground wire to the base unit enclosure. Follow procedures outlined by your regional electrical codes and the wiring diagrams included with this manual.

Installing the Brackets

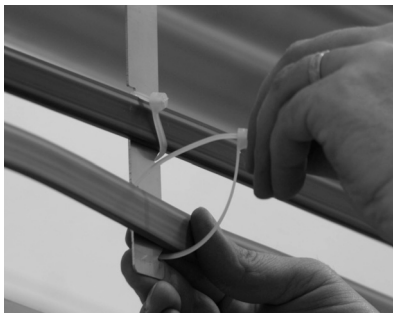
⚠ **WARNING:** Improper installation may result in equipment damage or personal injury.

Always refer to the wiring diagrams that came with your controls before making electrical connections. The diagrams show the most accurate electrical component information.

It is important to keep the communication wires away from conveying lines, which can produce large amounts of static electricity.

1 Install the Kwik-Link flat DeviceNet cable brackets provided or prepare your chosen method of cable support.

2 Install the two Kwik-Link flat DeviceNet cables. The gray cable provides communications and inputs; the black cable provides output power. Insure that the cables are installed so that the tabbed edge of the cable may be installed into the MaXum bases and termination blocks correctly.



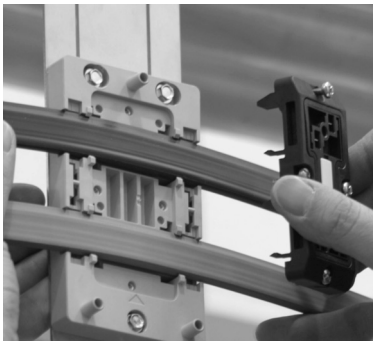
3 Install the MaXum base brackets or prepare your chosen method of MaXum support wherever there is a loader or a pump.

Installing the Bases and Cables

1 **Install the MaXums bases** on the base brackets.

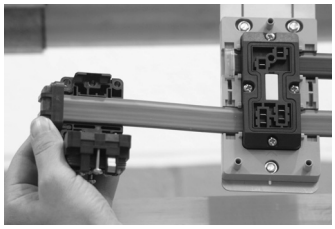
2 **Install the Kwik-Link flat DeviceNet cables** in the MaXum bases. Insure that the cables are properly installed in the bases and the piercing caps are clamped evenly. If the cables are not flat in their slots, the contacts will not pierce the cables correctly. Remove the bases and discard. Install a new base 1/2 inch to 1 inch from the removed base. Refer to Allen Bradley MaXum MaXum I/O Cables Bases Manual (Publication 1792D-5.9) included with the bases for further details.

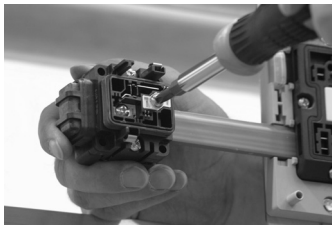
Initially install just two bases, one loader and one pump. The remaining bases can be installed one at a time after the system is powered up.



Installing the Terminal Blocks

1 **Install the termination blocks** on the two ends of the gray cable. Install any link couplers if the system has multiple segments and multiple power supplies.





2 **Install the base unit anywhere along the length of the flat cable** run within 25 feet of the cable. Install the DeviceNet Mini-DIN termination tap on the gray flat cable. Connect the base unit to the DeviceNet cable using the attached Mini-DIN connector.

Attaching Power Supply Units

1 **Install the power supply units along the DeviceNet cable** so that the power from the units will be evenly distributed along the cable. For example if there are ten loaders evenly spaced along a 75 meter cable, the power supply should be placed in the center of the cable with five loaders on one side and five on the other. If nine of the loaders were on one end and the tenth loader on the other end, the power supply should probably be placed somewhere in the middle of the nine loaders on the one end. The desired result will be that half of the current from the power supply will flow one direction down the auxiliary power cable and half of the current will flow in the other direction. If there are questions refer to your Allen-Bradley DeviceNet Cable System Planning and Installation Manual (Cat. No. DN-6.7.2), or contact your Conair Representative. Install the power supply units within 25 feet of the DeviceNet cable.

2 **Install the two power supply taps on the DeviceNet cable.** The two power supply cables from the power supply unit must be placed on the correct flat cable. The cable marked "DeviceNet Power Supply" should be attached to the gray DeviceNet cable and the cable marked "Auxiliary Power" should be attached to the black auxiliary power cable.

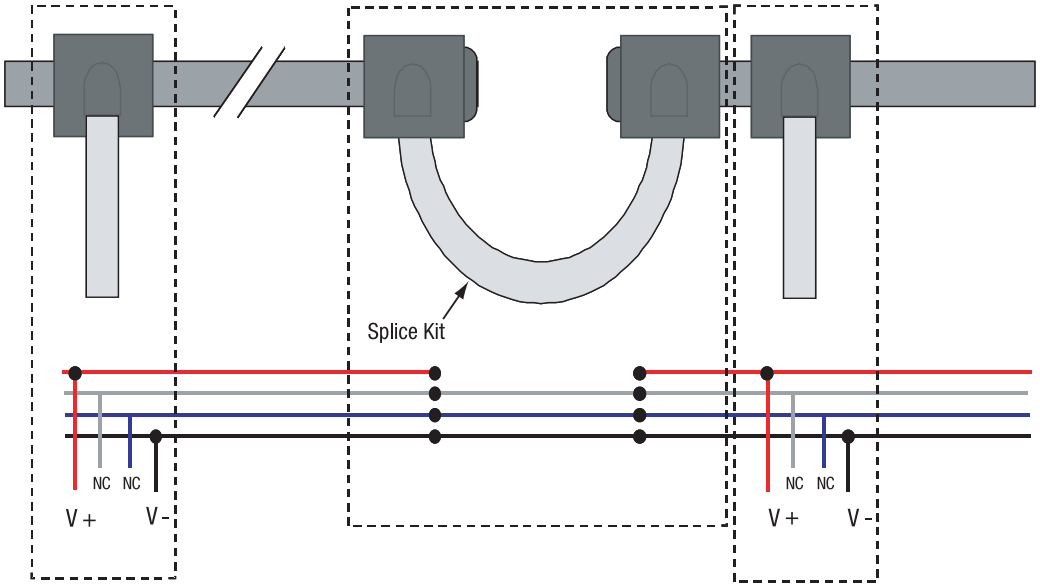
Installing a Splice Kit

You will need to install a splice kit for every 16 loaders or 75 meters of cable installed. You can order a splice kit from the Conair Parts department (800.458.1960, or outside the US 814.437.6861)

1 Install a base on either end of the DeviceNet cable run.
See Section 3, "Installing the Bases and Cables."

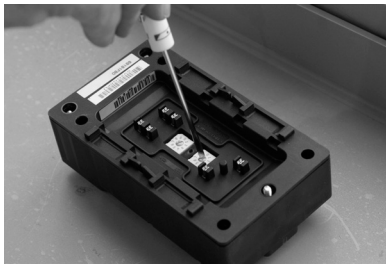
2 Install a splice kit on the bases.

Connecting Multiple Power Supplies with Flat Media

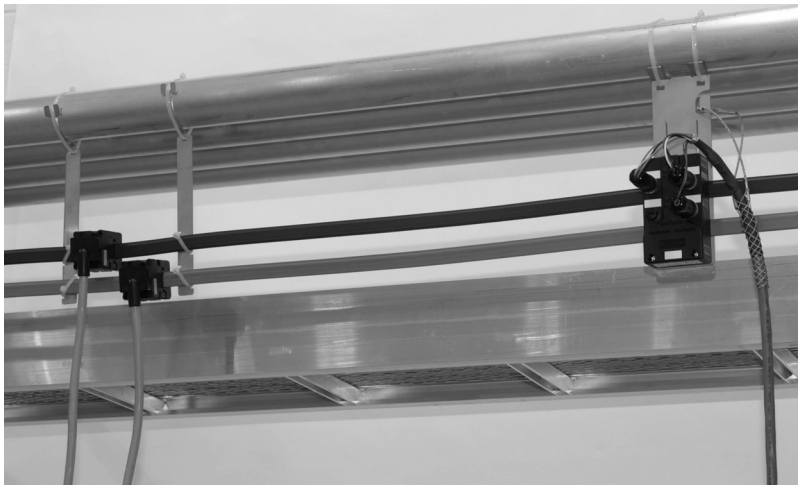


Installing the I/O Units

1 **Install the MaXum I/O units on the bases.** Set the rotary switches on the bottom of the block to the desired node number. MaXum should be set to 1-54. Do not duplicate addresses on the same network. Mark the white tag on the block with the node number for future reference. Please refer to Allen Bradley MaXum MaXum 4 Input/4 Output Module Manual (Publication 1792D-IN012B-EN-P) included with the MaXums for further details.



2 **Install the loader drop cables between the MaXums and the Universal Terminal Boxes (UTB).** The connectors should be installed on the MaXums so that the connector with four wires is installed on the upper left MaXum connectors. Install the connector with three wires on the upper right MaXum connectors. The final loader drop cable connector should be installed on the lower right hand MaXum connector.



Installing the I/O Units (continued)

3 **Install the wiring for any purge and pocket** valves included with the system. The purge/pocket valve should be wired from the junction box on the valve to the nearest Universal Terminal Box (UTB). The wiring should be connected to the UTB using the supplied green Phoenix connector. The pocket valve is given a number based on the loader it is connected to. For example the pocket valve that is connected to loader number 12's UTB will be addressed as material source number 12 in the settings screen.

4 **Install the drop cables from the pump** MaXums to the pump starters. Insure that the input side of the MaXum goes to the input connection on the starter and that the output side of the MaXum goes to the output connection on the starter.

Wiring Pocket Conveying Valves (optional)

The ILS can operate pocket conveying valves, which are used in central drying and distribution systems. The pocket valve allows multiple loaders to draw dry material as needed from a single drying hopper. Since the valves are located at the material source instead of the loader, separate wiring connections to the nearest loader universal terminal box (UTB) are required.

✎ **NOTE:** Purge valves and pocket conveying valves connect to the same outputs on the ILS control. Therefore, pocket conveying valves cannot be used with loaders that are connected to purge valves.

Connecting to Main Power

The ILS base unit and power supply are equipped with a three-prong plugs and power cords.

1 **Plug the power cords into grounded 120 VAC** outlets rated for at least 15 Amp service.

2 **Make sure the base unit is grounded.**

WARNING: Electrical shock hazard

Failure to provide proper grounding can cause control malfunctions and could result in personal injury from electrical shock.

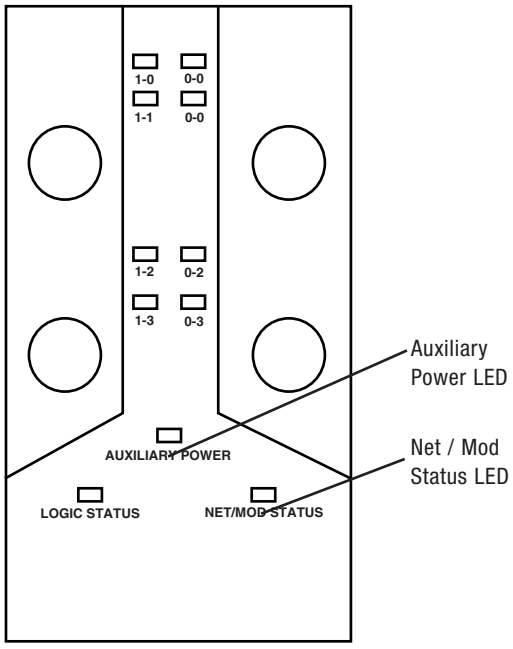
The control must be connected to a grounded power source. A properly sized conductive ground wire must be connected to the chassis ground terminal inside the base unit enclosure.

Starting Up the ILS

1 **Once the system is completely assembled** check that all connections are terminated correctly.

2 **Turn on the power supply unit and test to make sure** that power is correctly distributed. It is recommended that you remove the MaXum that is located farthest from the power supply and, using a voltmeter, check to insure that both the DeviceNet and Auxiliary power is 24 VDC.

3 **Once the power supply unit is turned on,** check each MaXum to insure that the Auxiliary Power LED is on and glowing green. If not, the MaXum base is not clamped correctly and will need to be removed, discarded, and a new base installed. Install the new base so that the piercing contacts enter the flat cable at a different location than the incorrectly mounted base. In the event that the LEDs fail to illuminate, a known good MaXum should be temporarily fitted to the base to check if the MaXum module may be bad.



Starting Up the ILS (continued)

4 Once the first two MaXums display a green Auxiliary Power LED, turn on the power switch on the base unit to start the controller and touchscreen. With the processor in run mode, check all the MaXums for the condition of the Net/Mod Status LED. On all MaXums, the Net/Mod status LED show as blinking red or blinking green. If any block shows a solid red Net/Mod status light, either the address is incorrect on the rotary switches for one or more blocks may be defective. Check all switch positions and correct/replace the block(s) as necessary.

5 When the MaXums show solid green on auxiliary power, and the Net/Mod status LEDs blinking green, the enable the nodes via the operator interface. (*See Section 3, "Installing the I/O Units")*. When a node is enabled, the blinking red light changes to solid green (this may take a few seconds).

6 Install remaining MaXum base and MaXums. This can be done all at once or one at a time. Enable the blocks as they are installed and check the status LEDs for the correct status.

7 After MaXums are enabled and show a solid green Auxiliary Power LED and a solid green Net/Mod Status light, the system is ready to run.

✎ **NOTE:** MaXums and bases can be added or removed from the system while the system is powered on.

Remote I/O System Architecture

Installing the I/O Enclosures

1 **Install the DeviceNet Mini-DIN termination tap on the gray flat cable.** (*See Section 3 "Installing the Terminal Blocks"* for detailed information.)

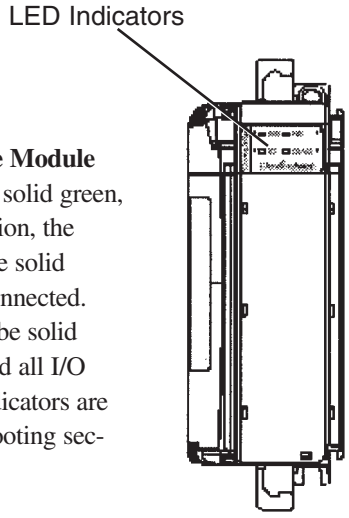
2 **Connect the I/O rack to the DeviceNet cable** using the attached Mini-DIN connector.

Note: The following installation procedures apply to the Proofing Station I/O Enclosure and the 16-Device Enclosure.

Starting Up the I/O Enclosure

1 **Turn on the I/O Enclosure.**

2 **Once the enclosure is turned on, check the Module Status Indicator** (MS). It should be on and solid green, indicating the device is operational. In addition, the Network Status Indicator (NS) should also be solid green, indicating the device is on-line and connected. Finally, the I/O Status Indicator (IO) should be solid green, indicating the device is operational and all I/O modules are in Run Mode. If these three indicators are not solid green, please refer to the troubleshooting section.



Main Enclosure

The main enclosure can have 9 local configurations and five remote configurations. At a minimum, there will be two modules to accommodate 14 pumps plus a back-up pump. As these optional modules are added and/or the number of local loader capacity is increased to 48, the number of I/O modules increases up to 21 for a fully featured local I/O configuration. These I/O modules are spread over several racks.

The ILS control can be expanded to add up to six loading networks and 18 gate-ways via Allen-Bradley 1769-SDN DeviceNet scanners. If any scanners are required, the first three I/O slots are reserved for them. The first two scanners are configured for loading controls. The third scanner is configured to be a Gateway interface. If one or more scanner is not needed, (e.g., only one scanner for loading is required), the other slot(s) can be filled with Allen-Bradley 1769-ARM Address Reserve Module(s).

The local I/O is referred throughout the manual as Network 0.

Distributed I/O

Up to 54 Maxum blocks can be added to each loading scanner's network. Of these 54 blocks, 48 can be used to attached loaders, multi-source loaders or granulators whose DeviceNet addresses are 1-48. The remaining six Maxum blocks with addresses 49-54 are reserved for pumps. The pumps on the first scanner network are designated as Pump 15-20. The pumps on the second loading scanner network are designated as Pump 21-26. The distributed I/O on the first scanner is referred throughout the manual as Network 1 and the distributed I/O on the second scanner is referred to as Network 4.

Remote I/O

Each scanner can support up to 6 Remote I/O enclosures. These enclosures can each support up to 16 loaders, sources or granulators. These enclosures have DeviceNet addresses 57, 58, 59, 60, 61 and 62.

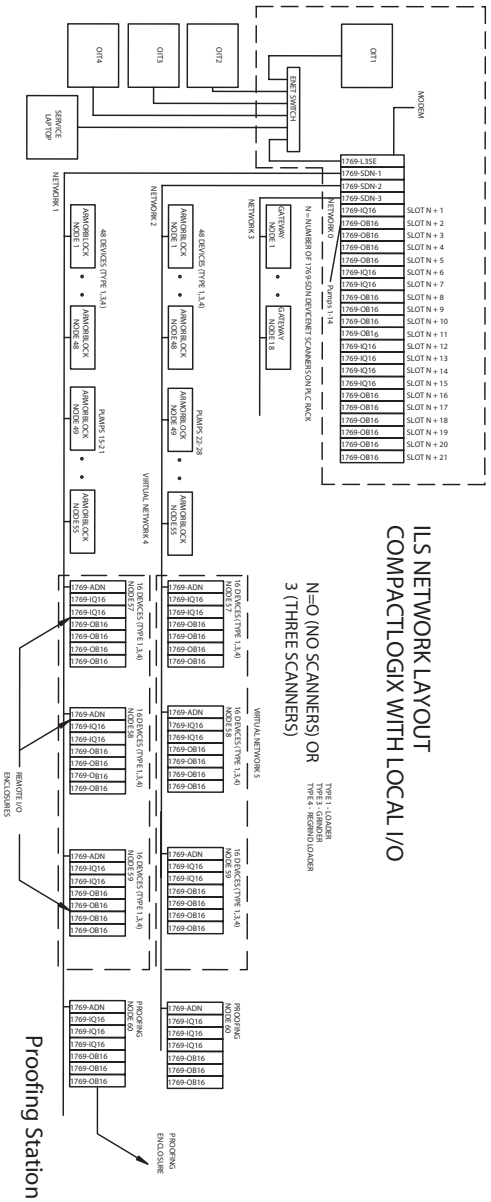
Scanner 1 Address
57-network 2 1-16
58-network 2 17-32
59-network 2 33-48
60-network 3 1-16
61-network 3 17-32
62-network 3 33-48

Scanner 2 Address
57-network 5 1-16
58-network 5 17-32
59-network 5 33-48
60-network 6 1-16
61-network 6 17-32
62-network 6 33-48

Proofing Station

Two proofing station can be added to any scanner. The switch setting is factory set to 55,56.

ILS Network Layout - CompactLogix



ILS Network Layout - CompactLogix

Semi-Distributed Main Enclosure Configuration Options

SLOT	MODULE	CONFIG 1 FUNCTION	CONFIG 2 FUNCTION	CONFIG 3 FUNCTION	CONFIG 4 FUNCTION	CONFIG 5 FUNCTION	CONFIG 6 FUNCTION	CONFIG 7 FUNCTION	CONFIG 8 FUNCTION
N+1	1769-IQ16	PUMP OL	PUMP OL	PUMP OL	PUMP OL	PUMP OL	PUMP OL	PUMP OL	PUMP OL
N+2	1769-OB16	PUMP STARTERS	PUMP STARTERS	PUMP STARTERS	PUMP STARTERS	PUMP STARTERS	PUMP STARTERS	PUMP STARTERS	PUMP STARTERS
N+3	1769-OB16	LOADERS 1-16	LOADERS 1-16	LOADERS 1-16	LOADERS 1-16	LOADERS 1-16	LOADERS 1-16	LOADERS 1-16	LOADERS 1-16
N+4	1769-OB16	LOADERS 17-32	LOADERS 17-32	LOADERS 17-32	LOADERS 17-32	LOADERS 17-32	LOADERS 17-32	LOADERS 17-32	LOADERS 17-32
N+5	1769-OB16	SOURCES 1-16	SOURCES 1-16	SOURCES 1-16	SOURCES 1-16	SOURCES 1-16	SOURCES 1-16	SOURCES 1-16	SOURCES 1-16
N+6	1769-IQ16	DEMAND 1-16	DEMAND 1-16	DEMAND 1-16	DEMAND 1-16	DEMAND 1-16	DEMAND 1-16	DEMAND 1-16	DEMAND 1-16
N+7	1769-IQ16	DEMAND 17-32	DEMAND 17-32	DEMAND 17-32	DEMAND 17-32	DEMAND 17-32	DEMAND 17-32	DEMAND 17-32	DEMAND 17-32
N+8	1769-OB16	N/A	OPTION 1 1-16	OPTION 1 1-16	OPTION 1 1-16	OPEN/CLOSE	OPEN/CLOSE	OPEN/CLOSE	OPEN/CLOSE
N+9	1769-OB16	N/A	OPTION 1 17-32	OPTION 1 17-32	OPTION 1 17-32	LOADERS 33-48	LOADERS 33-48	LOADERS 33-48	LOADERS 33-48
N+10	1769-OB16	N/A	N/A	OPTION 2 1-16	OPTION 2 1-16	SOURCES 17-32	SOURCES 17-32	SOURCES 17-32	SOURCES 17-32
N+11	1769-OB16	N/A	N/A	OPTION 2 17-32	OPTION 2 17-32	SOURCES 33-48	SOURCES 33-48	SOURCES 33-48	SOURCES 33-48
N+12	1769-IQ16	N/A	N/A	N/A	FILL 1-16	DEMAND 33-48	DEMAND 33-48	DEMAND 33-48	DEMAND 33-48
N+13	1769-IQ16	N/A	N/A	N/A	FILL 17-32	N/A	FILL 1-16	FILL 1-16	FILL 1-16
N+14	1769-IQ16	N/A	N/A	N/A	N/A	N/A	FILL 17-32	FILL 17-32	FILL 17-32
N+15	1769-IQ16	N/A	N/A	N/A	N/A	N/A	FILL 33-48	FILL 33-48	FILL 33-48
N+16	1769-OB16	N/A	N/A	N/A	N/A	N/A	N/A	OPTION 1 1-16	OPTION 1-16
N+17	1769-OB16	N/A	N/A	N/A	N/A	N/A	N/A	OPTION 1 17-32	OPTION 1 17-32
N+18	1769-OB16	N/A	N/A	N/A	N/A	N/A	N/A	OPTION 1 33-48	OPTION 1 33-48
N+19	1769-OB16	N/A	N/A	N/A	N/A	N/A	N/A	N/A	OPTION 2 1-16
N+20	1769-OB16	N/A	N/A	N/A	N/A	N/A	N/A	N/A	OPTION 2 17-32
N+21	1769-OB16	N/A	N/A	N/A	N/A	N/A	N/A	N/A	OPTION 2 33-48

N = NUMBER OF 1769-SDN DEVICENET SCANNERS ON PLC RACK

CONFIG 1 - 32 LOADERS, 16 SOURCES, NO OPEN/LOOP CONVEYING AND NO OPTIONS

CONFIG 2 - 32 LOADERS, 16 SOURCES, NO OPEN/LOOP CONVEYING AND ONE OPTION

CONFIG 3 - 32 LOADERS, 16 SOURCES, NO OPEN/LOOP CONVEYING AND TWO OPTIONS

CONFIG 4 - 32 LOADERS, 16 SOURCES, NO OPEN/LOOP CONVEYING, TWO OPTIONS PLUS FILL SENSORS

CONFIG 5 - 48 LOADERS, 48 SOURCES, INCLUDES OPEN/LOOP CONVEYING AND NO OPTIONS

CONFIG 6 - 48 LOADERS, 48 SOURCES, INCLUDES OPEN/LOOP CONVEYING AND NO OPTIONS WITH FILL SENSORS

CONFIG 7 - 48 LOADERS, 48 SOURCES, INCLUDES OPEN/LOOP CONVEYING, ONE OPTION PLUS FILL SENSORS

CONFIG 8 - 48 LOADERS, 48 SOURCES, INCLUDES OPEN/LOOP CONVEYING, TWO OPTIONS PLUS FILL SENSORS

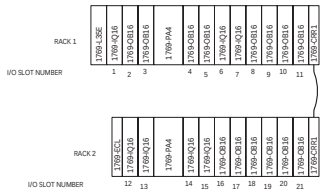
ILS Network Layout - CompactLogix

Remote I/O Enclosure

SLOT	MODULE	TYPE 1 FUNCTION	TYPE 3 FUNCTION	TYPE 4 FUNCTION
1	1769-IQ16	DEMAND	DEMAND	DEMAND
2	1769-IQ16	FILL	NOT USED	FILL
3	1769-OB16	LOAD	LOAD	LOAD
4	1769-OB16	RATIO	NOT USED	RATIO
5	1769-OB16	POS. DISCHARGE	NOT USED	POS. DISCHARGE
6	1769-OB16	PURGE/POCKET	PURGE/POCKET	PURGE/POCKET

Proofing Station

SLOT	MODULE	FUNCTION
1	1769-IQ16	SOURCES 1-16
2	1769-IQ16	SOURCES 17-32
3	1769-IQ16	SOURCES 33-48
4	1769-OB16	DESTINATIONS 1-16
5	1769-OB16	DESTINATIONS 17-32
6	1769-OB16	DESTINATIONS 33-48



MAIN ENCLOSURE

(EXAMPLE OF RACK & SLOT LOCATION)

SECTION
4

Operation

Setting or Changing the Security Level

Upon power-up, the PLC and operator interface(s) turn on and the main screen is displayed initially. At this point, the security level is "Default".

Security level is set to Default upon powering up.

There are five Levels of security: The security levels are Default (DEFAULT), Operator (OPER), Supervisor (SUPER), Supervisor 2 (SUPER2) and Service (SERVICE). The Chart below shows the level of password required to complete common tasks.

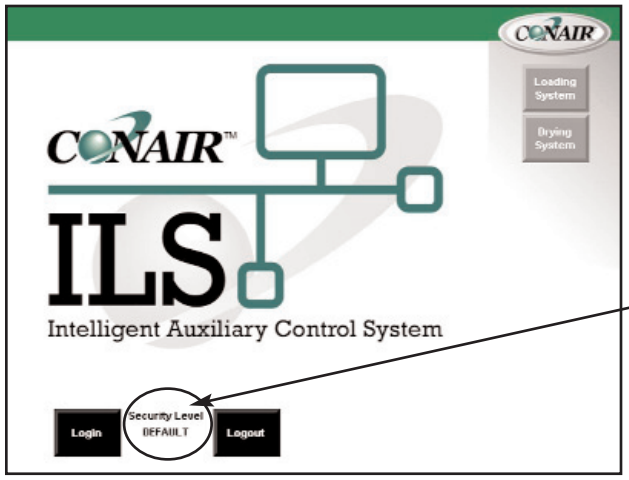
Task	Password level required				
	DEFAULT	OPER	SUPER	SUPER2	SERVICE
Enable/Disable Loader	YES	YES	YES	YES	YES
Enable/Disable Pump	YES	YES	YES	YES	YES
Change all times, Load time, dump times etc	NO	YES	YES	YES	YES
Test Pump	NO	YES	YES	YES	YES
Change Source for pocket and Purge	NO	NO	YES	YES	YES
Assign Backup Pump	NO	NO	YES	YES	YES
Lockout Source for Loader	NO	NO	NO	YES	YES
Shutdown HMI	NO	NO	NO	YES	YES
Reset Pump Cycles	NO	NO	NO	YES	YES
Change Date and Time	NO	NO	NO	YES	YES
Change Device Names	NO	NO	NO	YES	YES
Turn on Options	NO	NO	NO	YES	YES
Add Devices	NO	NO	NO	YES	YES
Add Armorblock Pumps	NO	NO	NO	YES	YES
Backup/Restore	NO	NO	NO	YES	YES
Disable All Loaders / Pumps from Maint Screen	NO	NO	NO	YES	YES
View IO Status	NO	NO	NO	YES	YES
Clear Database	NO	NO	NO	NO	YES
Acces Backup/Restore Maint Screen	NO	NO	NO	NO	YES
Controller Configuration	NO	NO	NO	NO	YES
Software Configuration	NO	NO	NO	NO	YES

Passwords:

Security Levels	Password
DEFAULT	*none*
OPER	oper
SUPER	super
SUPER2	2super2

Setting or Changing the Security Level (continued)

After 5 minutes of non-use, the security level is set back to "Default".



Security level will return to Default after 5 minutes of non-use

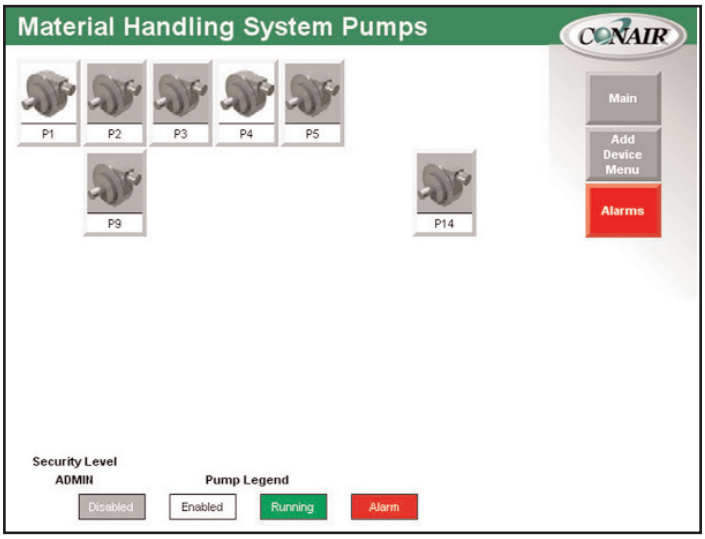
HMI

A maximum of 4 operator interface terminals can exist on a single network. These are referred to as HMI1, HMI2, HMI3 and HMI4.

The PLC Ethernet address is 192.168.10.3 and the four operator interface terminals are factory set to 192.168.10.4, 192.168.10.5, 192.168.6 and 192.168.10.7. The subnet mask for all units is 255.255.255.0.

System Navigation

The system supports up to 26 pumps, each of which can service up to 30 loaders. Pressing the Loading System button from the main screen navigates to the Pump Overview screen.



Configuration Backup/Restore

The following information is backed up: device configurations (loaders, dryers, ect.), pump configurations, controller configuration, software configuration, active boxes and armorblock.

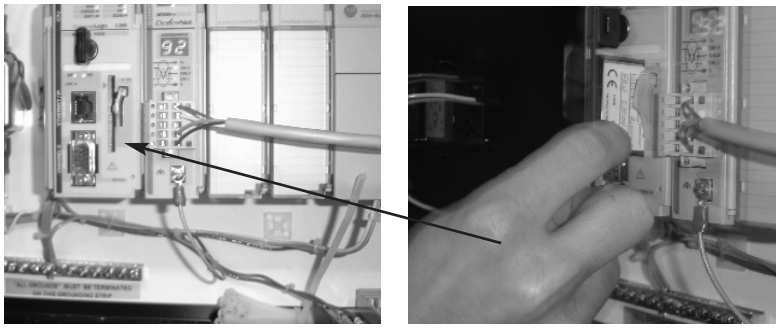
- Device configurations include names, parameters, setpoints, and pump/loader assignments.
- Pump configurations include names, parameters, and control bits.

Backups can be completed as follows: User initiated, Automatic and As Installed.

- **User Initiated** - The user initiated backup can be performed anytime, however pumps must be disabled during this backup. (Super2 login required).
- **Automatic** - The automatic backup will perform backups either daily or weekly at either 12AM or 12PM. (Super2 login is required to configure).
- **As Installed** - The as installed backup will be initiated when the equipment has been setup for the first time. (Service login required- consult factory for service password and login information).

All Backups and Restorations requires the following:

- A Compact Flash card formatted for FAT file system.
- The Compact Flash card should be inserted into the PLC processor Compact Flash slot.



⚠ **CAUTION:** Do not cycle power to the PLC or remove the Compact Flash card during the backup/restore process. Removing the Compact Flash card or cycling the power on the PLC will cause the data to be corrupt or possibly damage the Compact Flash card.

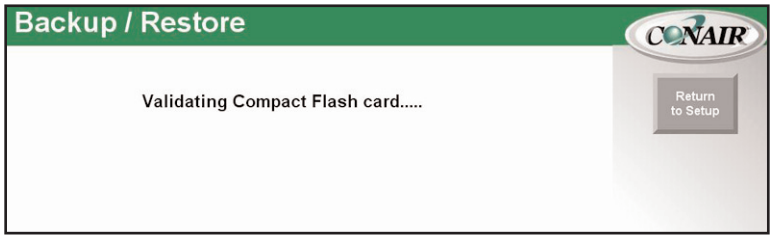
Performing a User Initiated Backup

1. **Login as Super2 from Main menu.**

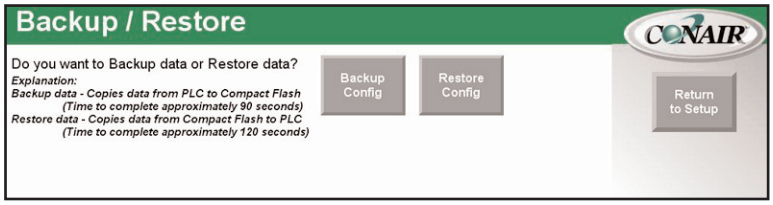
2. **If pumps are enabled**, manually disable them from the pump screens or go to the Setup screen => Maint Page => and select the Disable Pumps button.

3. **Select Backup/Restore from the Setup screen.**

4. **The Backup/Restore window validates the Compact Flash card.** If there is an error, refer to (*section 4, Backup/Restore Troubleshooting Messages, beginning on page 4-12*.)

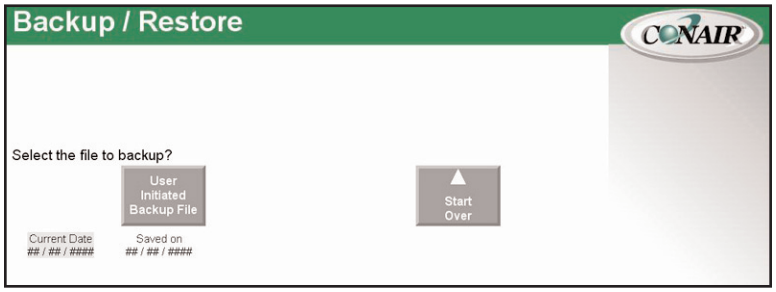


5. **Select "Backup Config".** This will copy the data from the PLC to Compact Flash card.

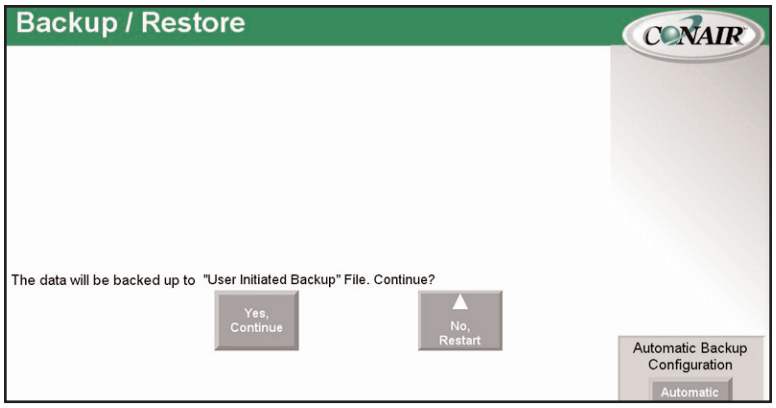


Performing a User Initiated Backup
(continued)

6 **Select the "User Initiated Backup File".** (In order to cancel the operation and exit the screen or change selection, press the "Start Over" button. The "saved on" shows the last time the file was saved.)

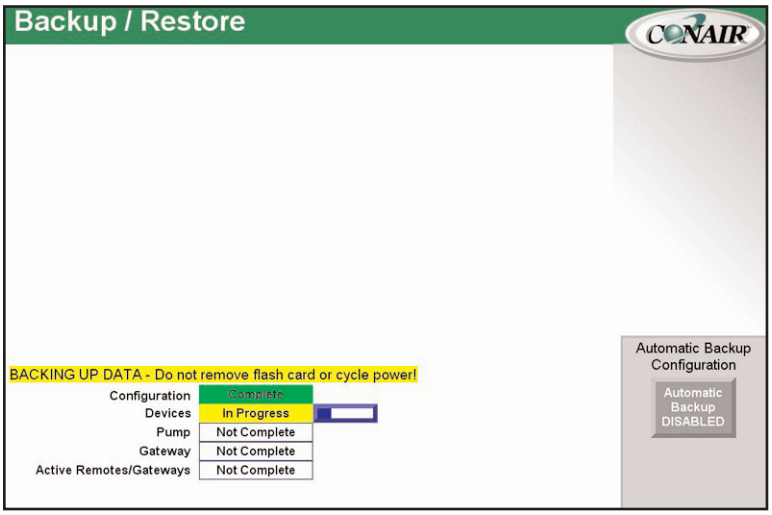


7 **Press the "Yes, Continue" button to continue the operation or "No, Restart" to cancel or abort.**

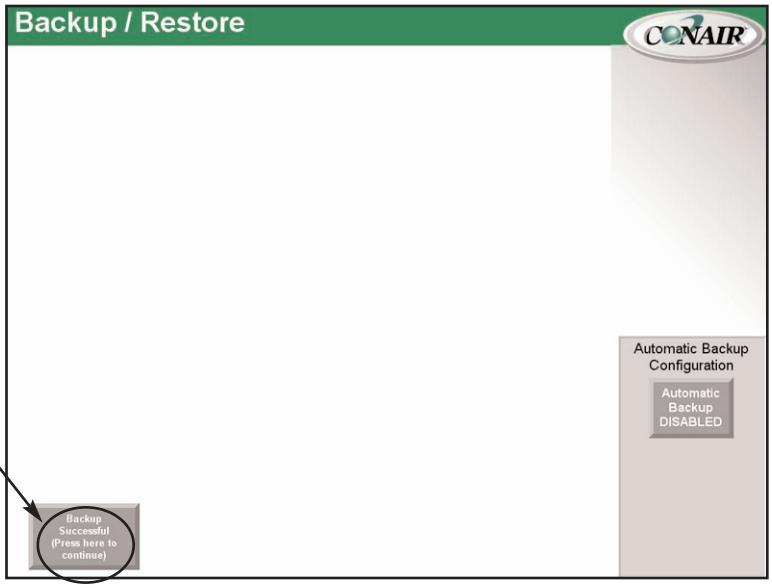


Performing a User Initiated Backup
(continued)

8 **The backup process is shown.** If there is an error, refer to (*section 4, Backup/Restore Troubleshooting Messages, beginning on page 4-12*.)



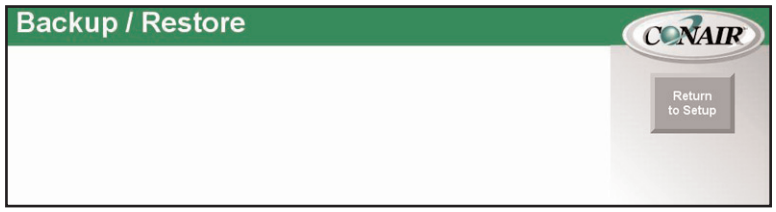
9 **Press the "Backup Successful (press here to continue)" button.** If there is an error, refer to (*section 4, Backup/Restore Troubleshooting Messages, beginning on page 4-12*.)



Backup Successful (press here to continue) button

Performing a User Initiated Backup
(continued)

10 **Exit the screen by pressing the "Return to Setup" button.**



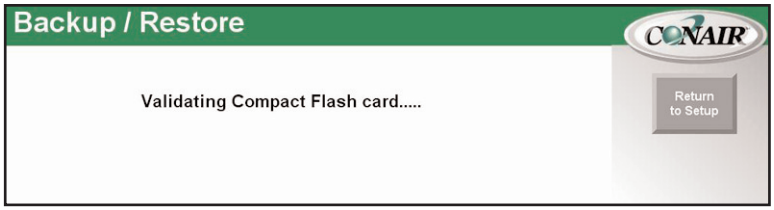
Restoring Saved Data

1 **Login as SUPER2 from the main menu.**

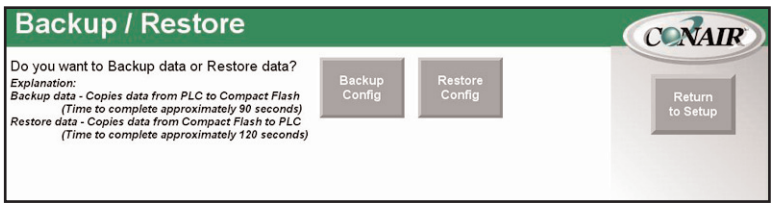
2 **If pumps are enabled,** manually disable them from the pump screens or go to the Setup screen => Maint Page => and select the Disable Pumps button.

3 **Select Backup/Restore from the Setup screen.**

4 **The Backup/Restore window validates the Compact Flash card.** If there is an error, refer to (*section 4, Backup/RestoreTroubleshooting Messages, beginning on page 4-12*.)

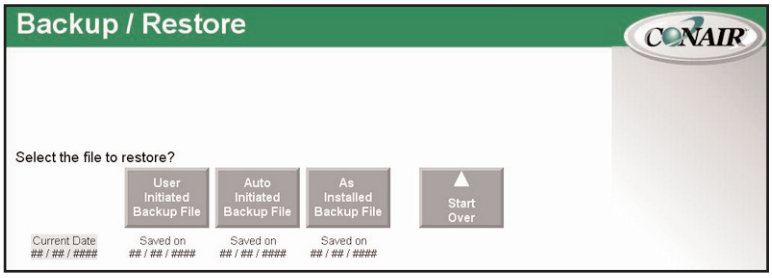


5 **Select "Restore Config".** This will copy from the Compact Flash card to . . the PLC.

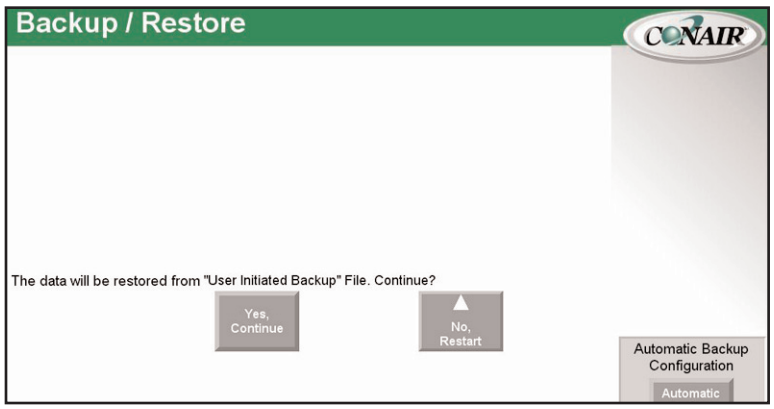


Restoring Saved Data (continued)

6 **Select the file you want to restore.** Each file will show the last time the file was saved. If a file does not exist on the Compact Flash card it will not be an option to select.

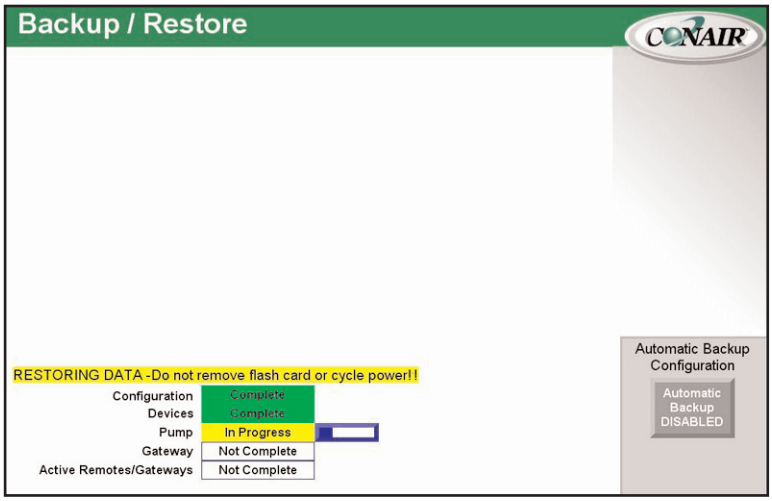


7 **Press the "Yes, Continue" button to confirm and continue the operation or "No, Restart" to cancel or abort.**

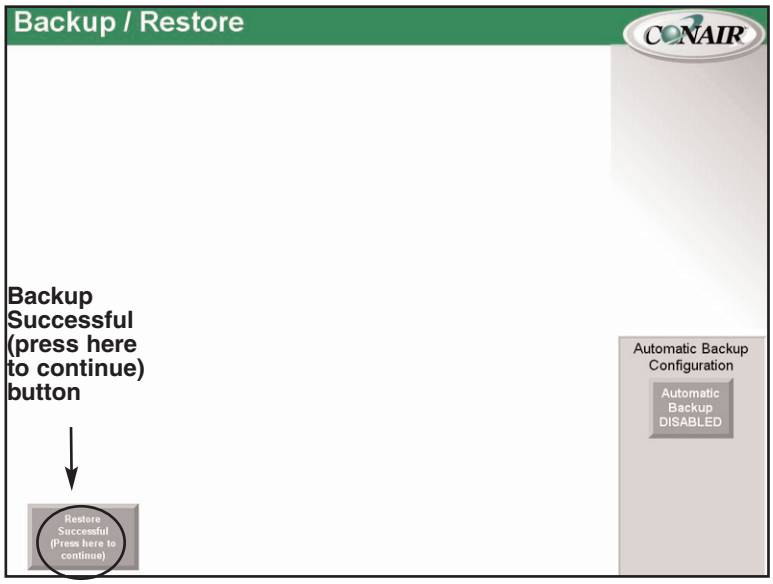


Restoring Saved Data (continued)

8 **The restore process is shown.** If there is an error, refer to (*section 4, Troubleshooting Messages, beginning on page 4-12*.)

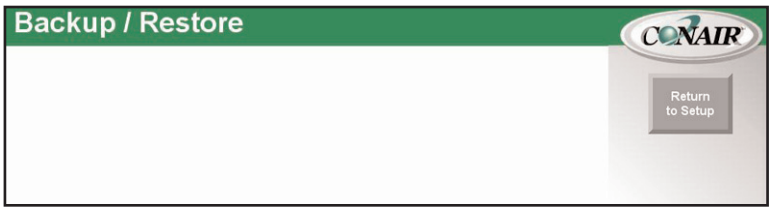


9 **Press the "Restore Successful (press here to continue)" button.** If there is an error, refer to (*section 4, Troubleshooting Messages, beginning on page 4-12*.)



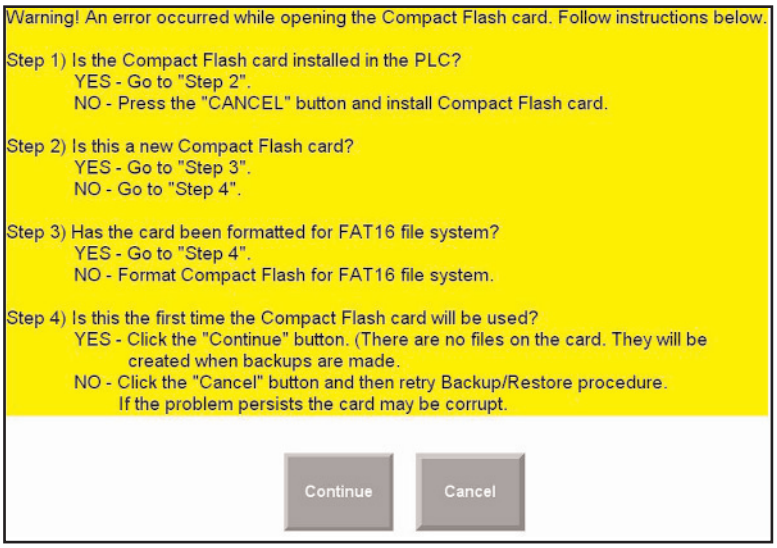
Restoring Saved Data (continued)

10 **Exit the screen by pressing the "Return to Setup" button.**

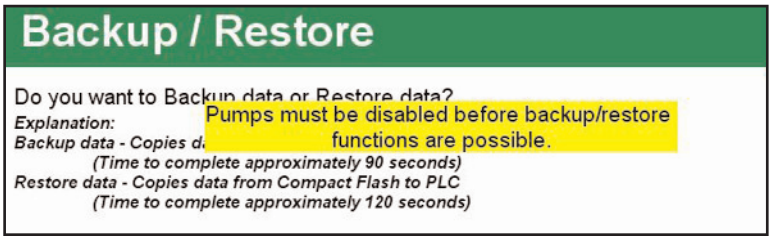


Backup/Restore Troubleshooting Messages

If the card does not pass the validation process the following error will be displayed with a procedure to troubleshoot.

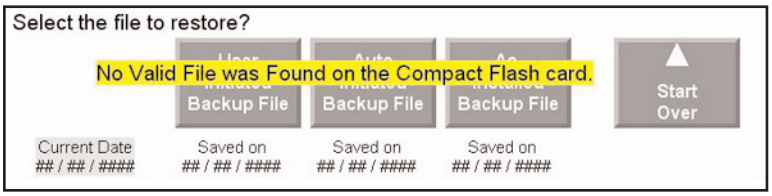


The following error occurs after the validation process if the pumps are not disabled.

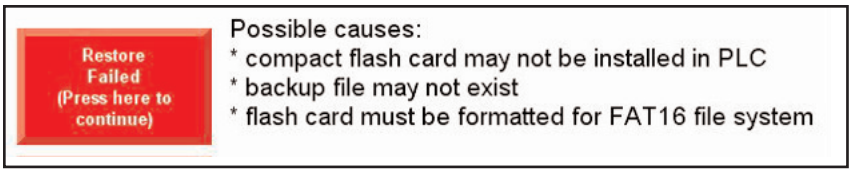


Backup/Restore Troubleshooting Messages (continued)

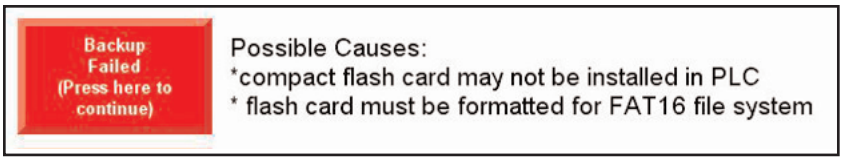
The following error occurs if there are no valid files on the Compact Flash card to restore from.



The following error occurs during the Restore process.

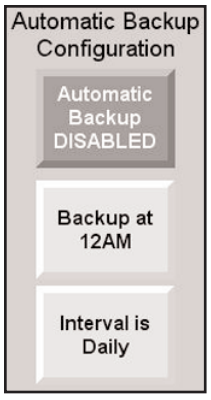


The following error occurs during the Backup process.



Automatic Backup Configuration

The Automatic backup is configured from the Backup/Restore screen. You will need to choose between a number of choices in order to run the Automatic Backup.



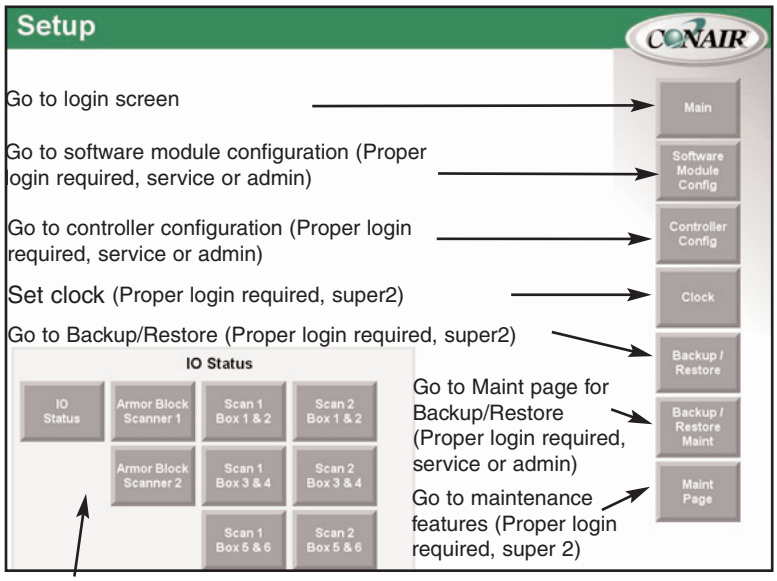
1 Choose to enable/disable the Automatic Backup.

2 Choose the time of day to backup your system, either at 12AM or 12PM.

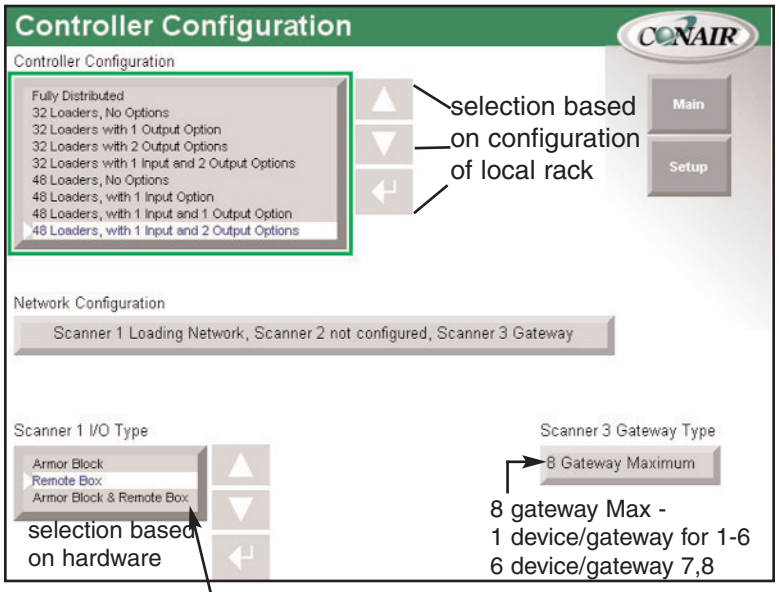
3 Choose to backup your system on either a daily or weekly configuration. (weekly is based on the day the system was enabled).

Super2 login in required to preform this configuration.

System Navigation

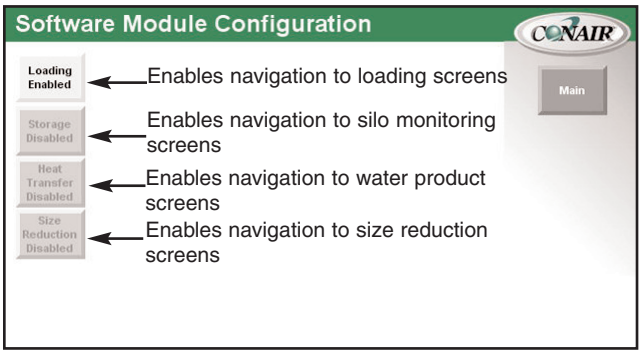


IO for controller configuration. (Depending upon controller configuration some IO may not be available.)



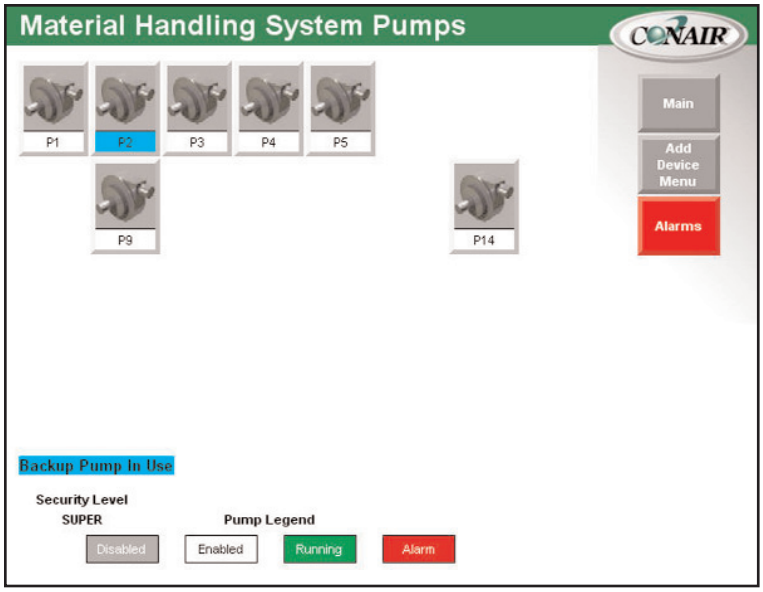
Visibility based on above network configuration.

System Navigation



Material Handling Systems Pumps Overview Screen

On this screen, all pumps having attached loaders will be shown. Each pump icon displays the name and status of the pump and is also a navigation button to that pump's configuration screen. The pump status can be determined by the color of the icon's background which can be deciphered from the legend at the bottom of the screen.



On this screen, the operator can navigate back to the Main screen by pressing the Main button, view Alarm information by pressing the Alarms button, pump status is shown below.

Pumps Overview Screen (continued)

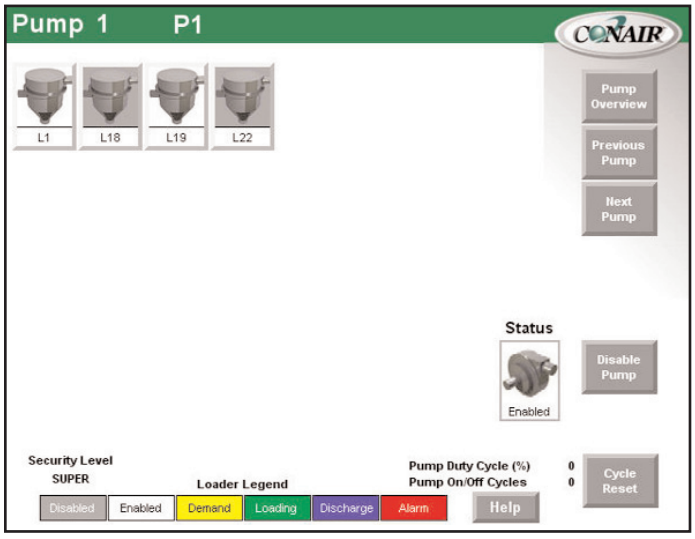
If one of the pumps fails, a backup is available which can be enabled on the individual pump screen. If a pump is being backed up, the background behind its name changes from white to blue and the text field “Backup Pump in use” appears.

Once connected and assigned, the pump will run and service the loaders assigned to the pump being backed up. To modify any of the pump's or its attached loaders' parameters, press the icon of the pump being backed up and change the values as needed. The status (enabled, running, discharge, etc) of the backup pump is displayed.

The final action that can be taken on the pump overview screen is to add devices to screens. This is done by pressing the Add Device button which is only visible if the user is logged on as a super2. (*See Section 4, Adding Loaders for instructions on adding a device.)*

Pump Screen

From the pump overview screen, pressing on one of the pumps navigates to the screen for that pump. All of the loaders including their name and status being serviced by the pump are shown. Each loader icon is also a navigation button to that loader's configuration screen. As with the pump overview screen, a legend at the bottom deciphers each loader's status.



Pump Screen (continued)

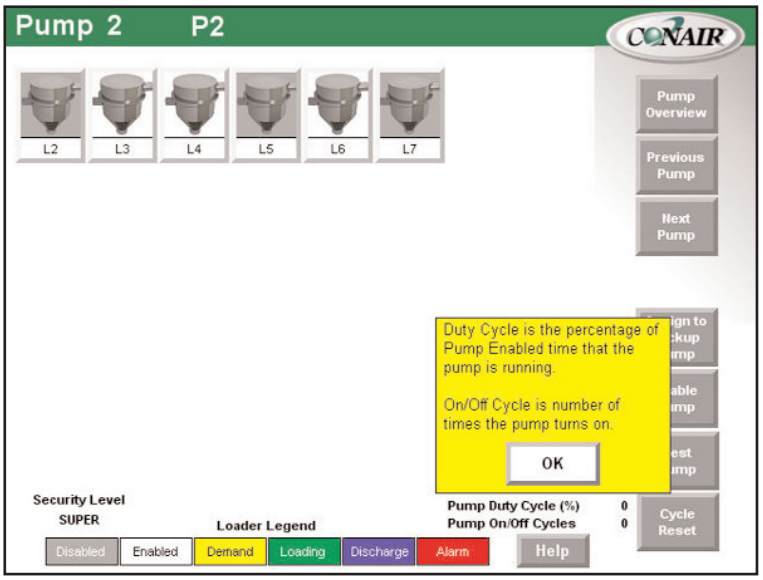
In the title bar, the pump number (e.g., Pump 2) is displayed, along with the pump name. Users at the super2 level can change the name by pressing on the title bar and entering the name on the pop-up keypad.

At the Default or Oper security level, the user can enable or disable the pump or navigate to the loaders.

The loaders appear under the loader base on network and device in ascending order. This is also the order in which loaders are serviced by the pump.

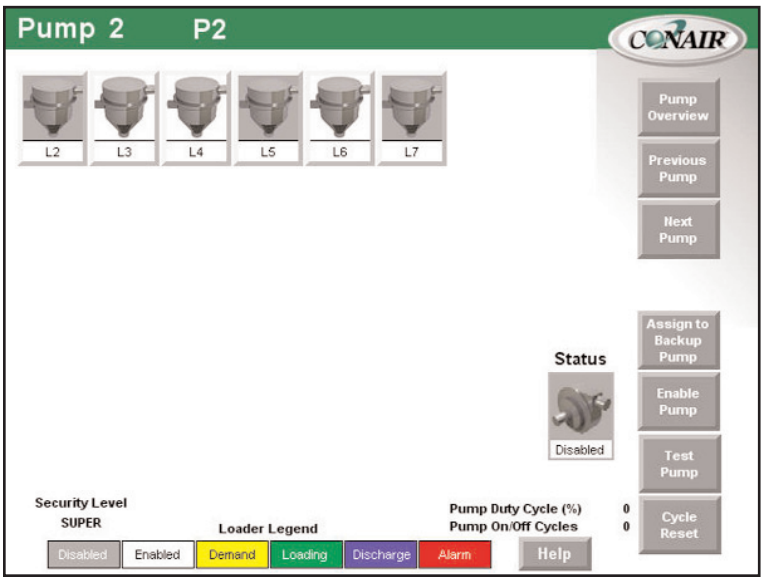
The user may scroll through the pumps by pressing the Next Pump and Previous Pump buttons. Pressing these buttons will navigate to the next (or pervious) pump that has loaders attached.

The PLC calculates each pump's duty cycle and number of on/off cycles. Pressing the help button provides a definition of each. Cycle reset buttons resets both values.



Pump Screen (continued)

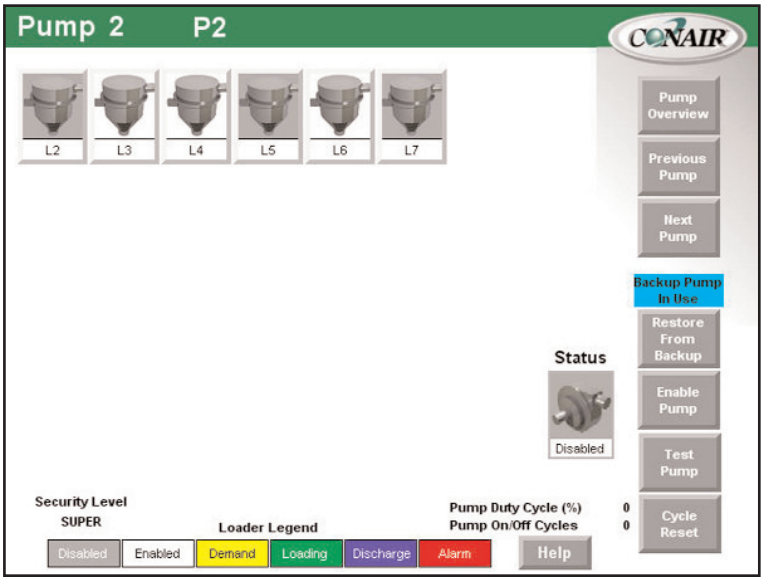
A Pump can be backed up in the event it fails or is in need of service. In order to backup a pump, the backup pump can not be assigned to another pump. The pump to be backed up must be disabled and the security level must be “super” or higher. If these conditions are true, the “Assign to backup pump” button appears .



When this occurs, the “Backup Pump in use” test field and “Restore from Backup” buttons appear.

Pump Screen (continued)

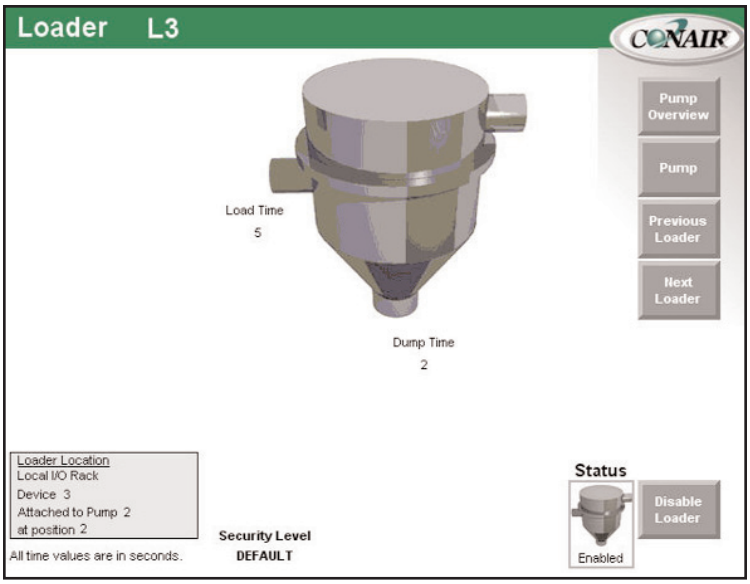
When this occurs, the “Backup Pump in use” test field and “Restore from Backup” buttons appears.



If the pump is disabled and the user is logged on as a supervisor, the test pump button appears. This allows the output to the starter to be engerized.

Loader Screen

From the pump screen, press the icon of the attached loader to be configured. The loader's screen will open to display its configuration.



In the title bar, the loader number (e.g., L1) is displayed. Users at the super2 level can change the name by pressing on the title bar and entering the name on the pop-up keypad.

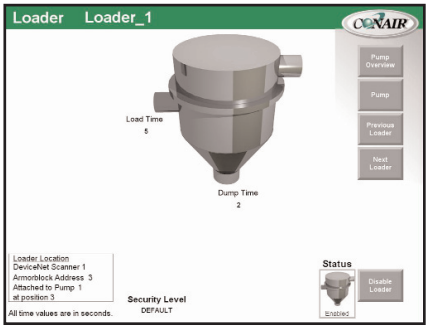
In the lower left hand corner is information about the network configuration of the loader including which network, which position within the network, which pump the loader is attached to, and the position of the loader.

There are numerous configuration settings available on the loader screen. In order to change or enable them, the user must be logged on as a supervisor. At the operator or default security level, the user can enable or disable a loader as well as view the settings (for example, load time, dump time, etc.) that have been enabled. At a minimum, the load time and dump time are displayed.

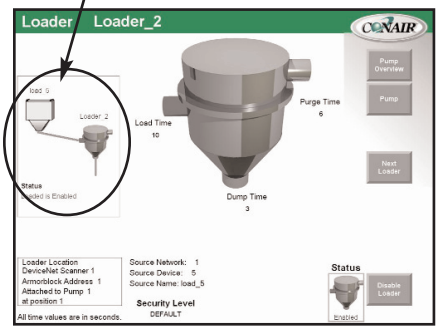
Loader Screen (continued)

There are four different views depending upon the configuration of your system.

Indicates status and pipe changes. Based upon status, piping will change color.

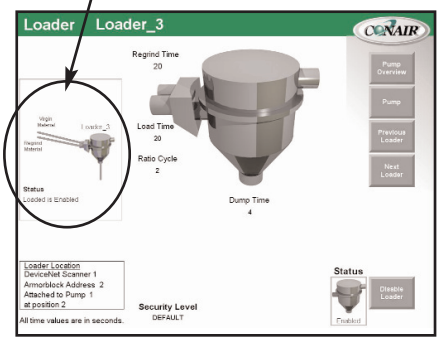


- **This is a basic loader**



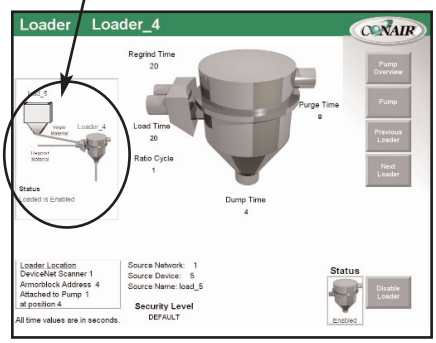
- **This is a loader with either pocket / purge valve** (Graphic on left side shows status and piping changes. Based upon status, piping will change color.)

Indicates status and pipe changes. Based upon status, piping will change color.



- **This is a loader with regrind** (Graphic on left side shows status and piping changes. Based upon status, piping will change color.)

Indicates status and pipe changes. Based upon status, piping will change color.



- **This is a loader with regrind and a purge valve** (Graphic on left side shows status and piping changes. Based upon status, piping will change color.)

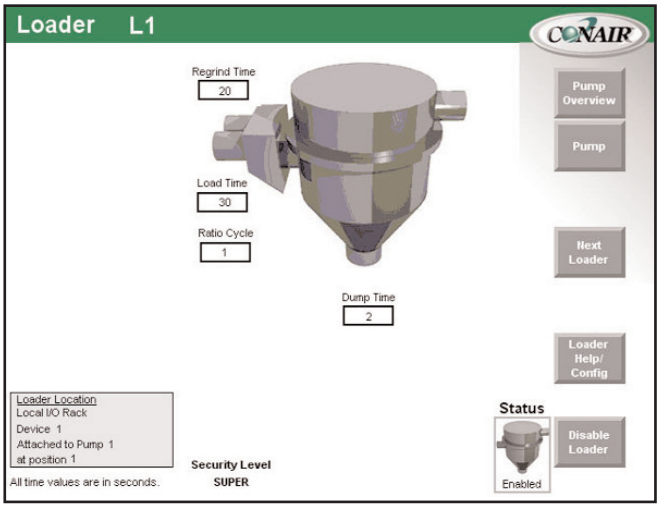
TIP: Based upon status, piping will change color. Colors are as follows:
Green: material flow through pipe.
Blue: air through pipe.
Gray: no flow through pipe.

Status of Fill Sensor is displayed when the Fill alarm is enabled. If the Fill alarm is disabled and the fill sensor is on, the status will be displayed showing On and Full to alert the operator why the loader is not filling. If the fill sensor is on and a demand is on either the demand or fill sensor is faulty.

Loader Screen (continued)

The following list is a description of the loader parameters:

- Load Time: The number of seconds (1-300) that the receiver loads material.
- Regrind Time: The number of seconds (1-300) that regrind, or a second material, should be loaded with virgin material when a ratio valve is used. This parameter is only visible when the ration valve is enabled.
- Dump Time: The number of seconds (1-300) that the receiver will discharge material into a vessel before the next load cycle begins.

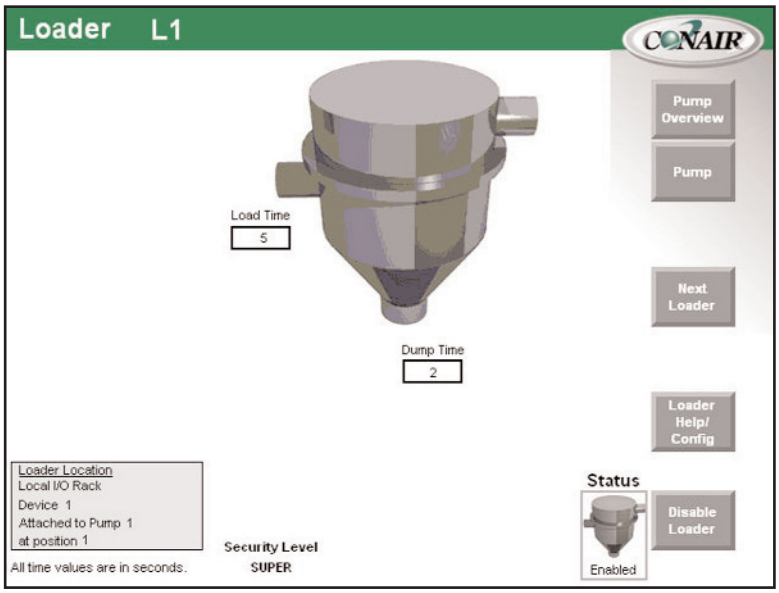


- Purge Time: The number of seconds (1-300) that the vacuum continues to pull material through the line after a purge or pocket convey valve closes to the material source. This clears the line of material. This parameter is only visible if either the purge valve or pocket convey valve options are enabled.
- Ratio Cycle: The number of times (1-5) that a ratio valve switches between virgin and regrind material when a ratio vale is is used. This parameter is only visible if the ratio valve option is enabled.
- Alarm Check: The number of times (1-20) that the system will try to load a receiver before an alarm is sounded when the demand has not been satisfied.
- Source Network: The communication network (0-4) that identified a material source equipped with a purge or pocket convey valve. This setting is also used for material line proofing. This parameter is only visible if the purge or pocket convey valve option is enabled and is read only on this screen.

Loader Screen (continued)

- Source Device: The location (1-48) within the source network that identifies the material source. This parameter is only visible if the purge or pocket convey valve option is enabled and is read only on this screen.

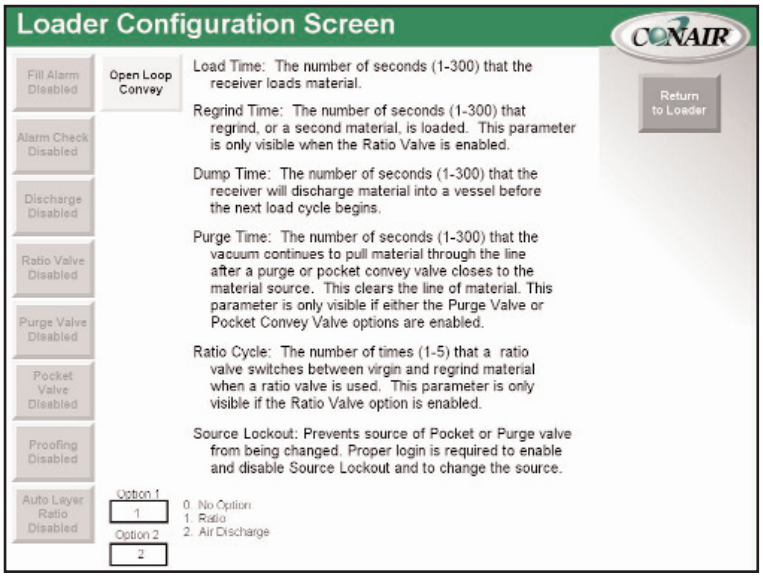
- Source Name: Name of the material source. This parameter is only visible if the purge or pocket convey valve option is enabled and is read only on this screen.



When logged on as a supervisor, buttons to enable or disable various options are displayed on the left hand side of the screen. The following is a list of these options.

- Fill Alarm Disabled
- Alarm Check Disabled
- Discharge Disabled
- Ratio Valve Disabled
- Purge Valve Disabled
- Pocket Valve Disabled
- Proofing Disabled
- Auto Layer Ratio Disabled

Loader Screen (continued)



- Alarm Check: Activates a material alarm if the receiver or hopper is not filled by the loader within the number of tries set by the user. This function requires a demand sensor in the vessel. When enabled, the alarm check parameter is made visible.

- Fill Alarm: Activates a fill alarm if the loader does not fill before the load time is reached. This option requires an optional fill sensor in the receiver.

- Ratio Valve: Allows control of more than one material into one vacuum receiver. This function requires an optional ratio valve at the material inlet of the receiver. When enabled, the large loader icon changes to show the ratio valve.

- Purge Valve: Purges material from the conveying line at the end of the loading cycle. This function requires the installation of a valve at the base of the drying hopper or other vessel.

- Pocket Convey Valve: Releases material from the source into the conveying line. This function requires the installation of a valve at the base of the drying hopper or other vessel.

Loader Screen (continued)

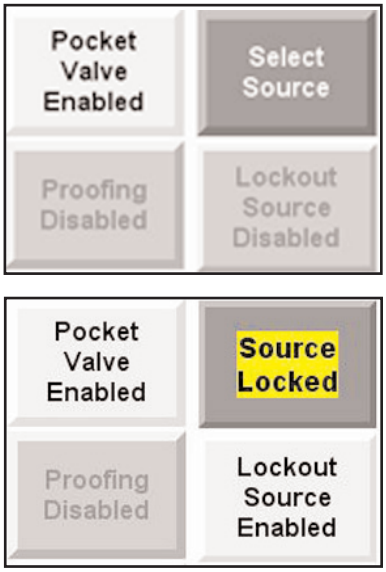
Source Lockout

The Source Lockout is only an option when either Pocket or Purge Valve is enabled. The Super2 login is required to lockout and unlock a source. When enabled, this ensures that a material source will not be changed by an operator until the lockout has been removed. Depending on your application this may or may not be critical.

To lockout a source

1 Select the source by pressing the select source button and select the desired source.

2 Press the Source Locked button. The source you have selected is now locked.



Loader Screen (continued)

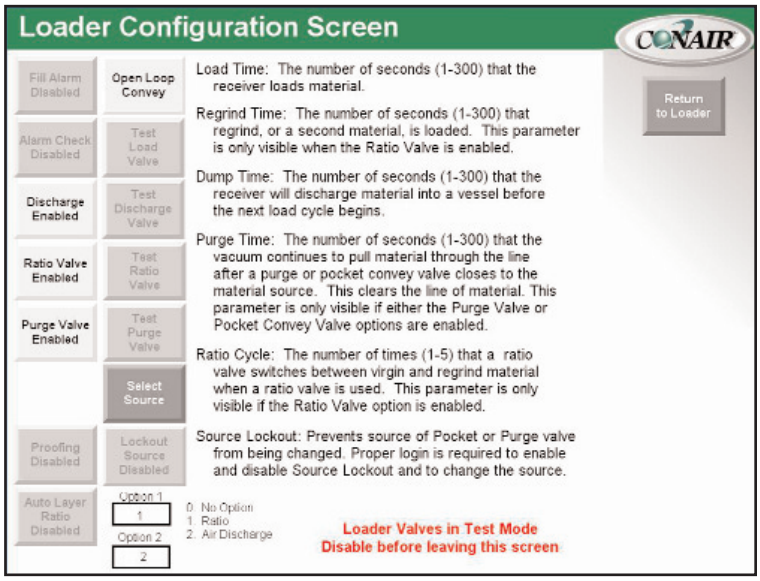
- Proofing: Indicates that a material line is connected to the correct material source. This function required material line couplings equipped with electrical plugs.

- Auto-layer Ratio: Automatically layers virgin and regrind material based on the number of ratio cycles.

  ✎ **NOTE:** The total time a loader is under vacuum is:
  Regrind Time + Load Time + Purge Time = Total Time

- Discharge: Enables the discharge output during the discharge cycle.

- Test Valve Buttons: The Load Valve, Discharge Valve, Ratio Valve and Purge/Pocket Valve can be manually turned on. This feature can be especially helpful during installation and troubleshooting. These buttons are only visible if the features are enabled and if the loader is disabled. Note: The test button must be deactivated in order to leave the screen.



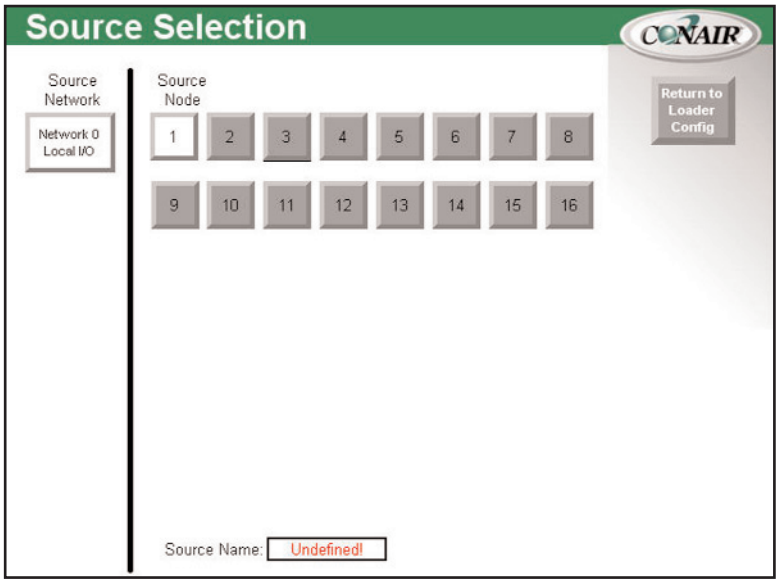
Local I/O Options

If the loader is connected to the local I/O, two optional features; Discharge Valves and Ratio may not be available. On the Loader configuration screen, if the loader is on Network 0 (local I/O), depending on the hardware configuration, input fields for configuring these options become visible at the supervisor security level.

If Ratio is selected (option 1 or option 2 = 1), the Ratio Valve button becomes visible. If Discharge is selected (option 1 or 2 = 2), the Discharge Valve button becomes visible.

Source Selection

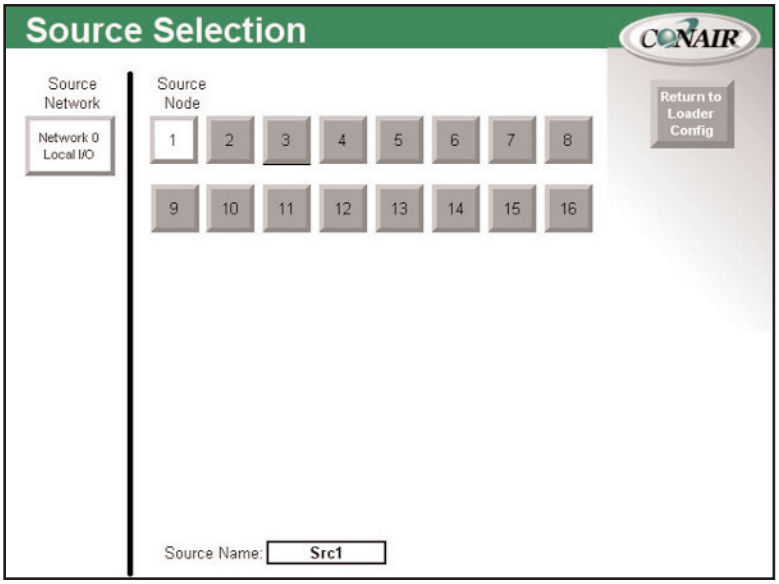
If the purge or pocket options are enabled, the Select Source button appears. Pressing this button navigates to the Source Selection screen. This screen is used to the network and device number of the source. Only valid sources may be selected. For example, if there are only 16 local sources, only Network 0 and devices 1-16 will be selectable.



Source Selection (continued)

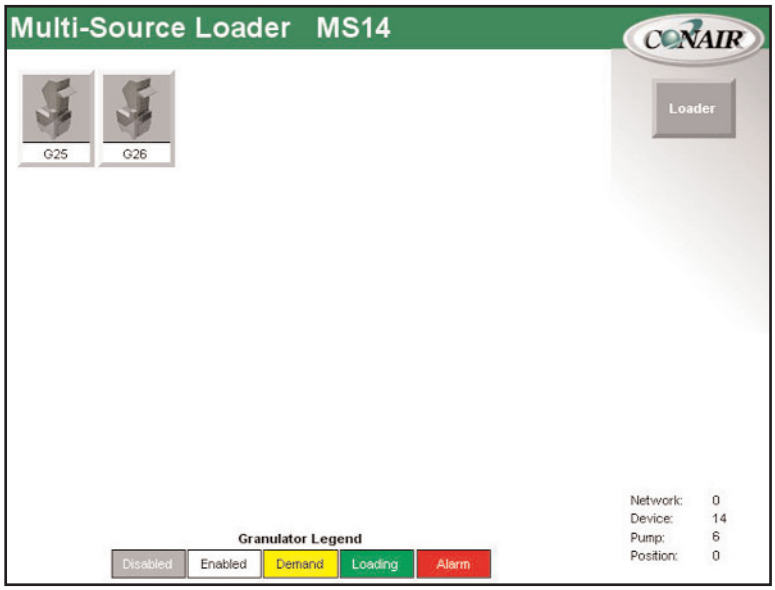
Once the source has been selected, the source name can be entered. If the source has already been defined as a source (*see section 4, Device Configuration*), the source name will already be defined. Otherwise, the name will be undefined. Even if a loader has been assigned to the same I/O position, the name of the source at the same position will be undefined. For example, if Loader 1 exists at Network 0, Device 1, a source at this I/O position will be undefined.

The source name can be entered by pressing the "undefined" text field.



Multi-source Loader Screen

If one or more loaders attached to a pump are configured as multi-source loaders, they will appear on the pump screen as a loader with a MS across the icon. The primary difference between a multi-source loader and any other loader is the multi-source loader loads material from more than one source, typically granulators. As such, granulators can be attached to a multi-source loaders in the same manner that loaders are attached to pumps.



Pressing a multi-source loader icon from the pump screen navigates to the multi-source loader. All of the attached granulators will be shown on the screen. The setup is nearly identical to the pump screen.

In the title bar, the name of the multi-source loader is displayed. Users at the supervisor level can change the name by pressing on the title bar and entering the name on the pop-up keypad.

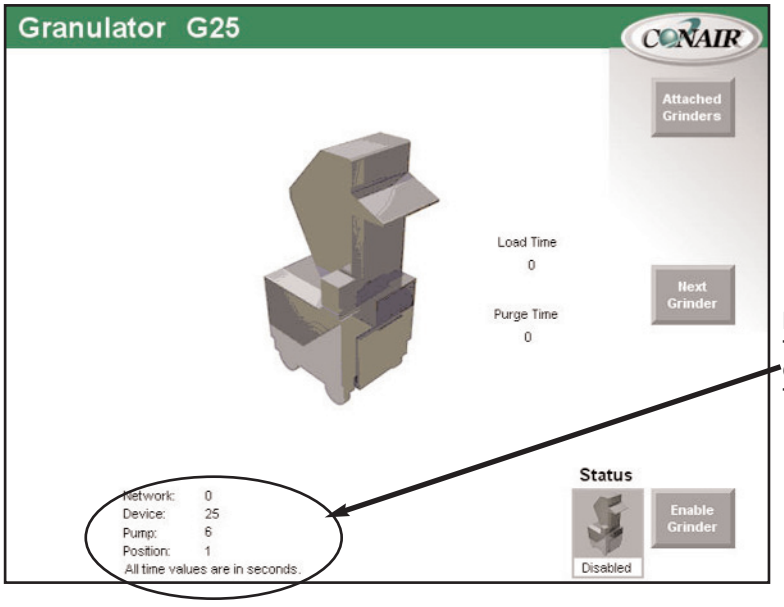
Multi-source Loader Screen (continued)

In the lower left hand corner is information about the network configuration of the loader including which network, which position within the network, which pump the loader is attached to, and the position of the loader.

On the right hand side of the screen, the loader button allows navigation to the Loader screen. On this screen, the discharge time and alarm check valves may be adjusted at the supervisor level. Pressing the loader Help/Configuration button allows Alarm check and discharge to be enabled.

Granulation Configuration

Pressing a granulator icon from the multi-source screen navigates to the granulator screen. This screen consists of a couple of options and parameters.



Information about the network configuration of the granulator.

Granulation Configuration (continued)

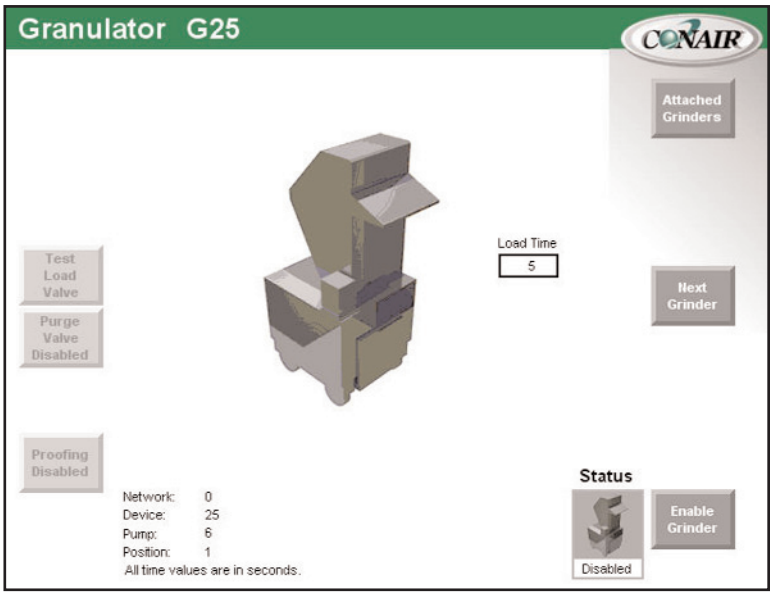
In the title bar, the name of the granulator is displayed. Users at the supervisor level can change the name by pressing on the title bar and entering the name on the pop-up keypad.

In the lower left hand corner is information about the network configuration of the granulator including which network, which position within the network, which multi-source loader the granulator is attached to, and the position of the granulator.

There are numerous configuration settings available on the granulator screen. In order to change or enable them, the user must be logged on as a supervisor. At the operator or default security level, the user can enable or disable a granulator as well as view the Load Time and Purge Time.

The following list is a description of the loader parameters:

- Load Time: The number of seconds (1-300) that the receiver loads material.
- Purge Time: The number of seconds (1-300) that the vacuum continues to pull material through the line after the purge valve closes. This clears the line of material. This field is visible only if the purge button is enabled.



When logged on as a supervisor, the Purge Valve button is visible. This valve allows material to be purged from the conveying line at the end of the loading cycle.

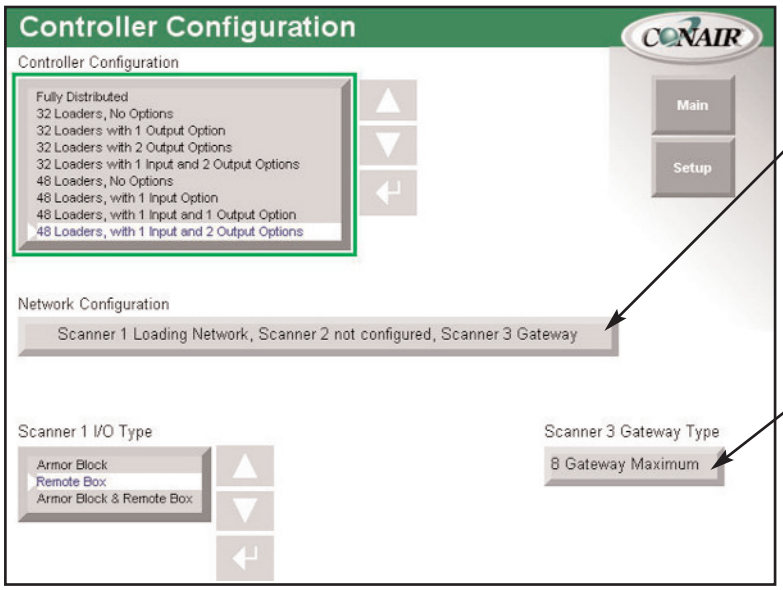
Drying Configuration

To configure dryers, the third slot must have scanner preconfigured drying. There are three configurations for a gateway network; 8 gateway maximum, 11 gateway maximum and 18 gateway maximum.

In the 8 gateway maximum configuration, the first six gateways can support one device only. The next two gateways can support six devices each.

In the 11 gateway maximum configuration, the first ten gateways support only one device. The last gateway can support up to eight devices.

In the 18 gateway maximum configuration, all gateways can support only one device.

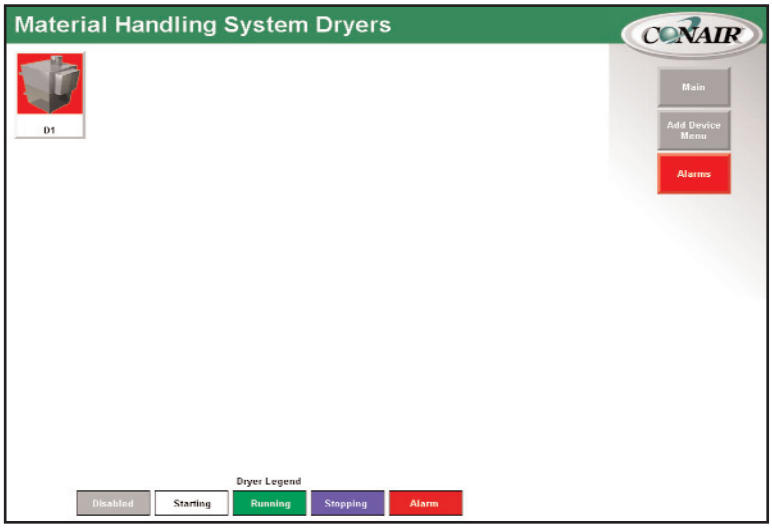


Shows Gateway scanner present

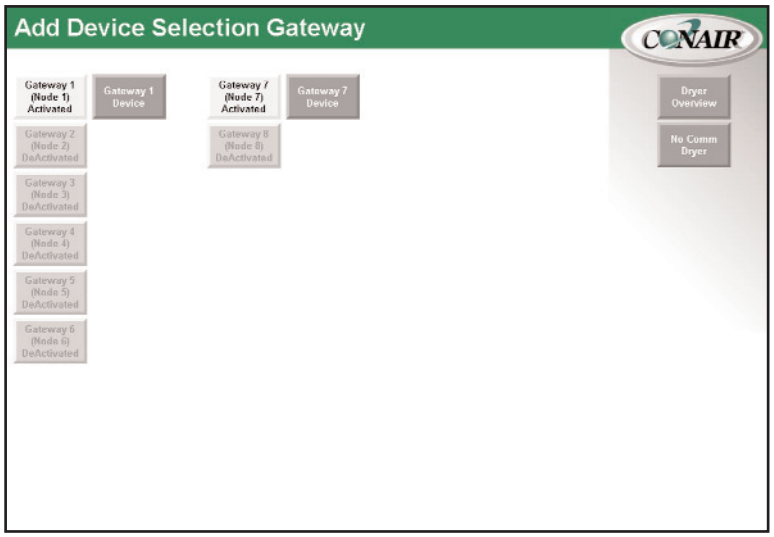
Shows Gateway type

Add Device

To add devices to a gateway, the "Add Device Menu" button is pressed from the "Material Handling System Dryers" screen.

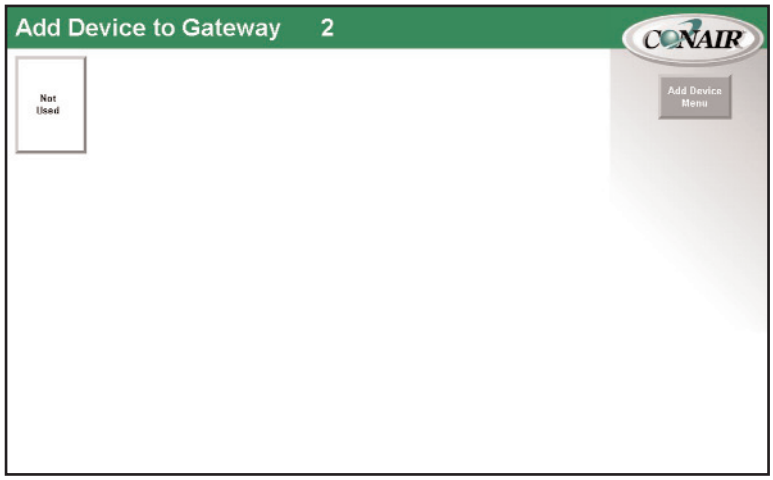


The "Add Device Selection Gateway" screen is accessed showing allowable gateways and status. Once a gateway is activated, its device button becomes visible.



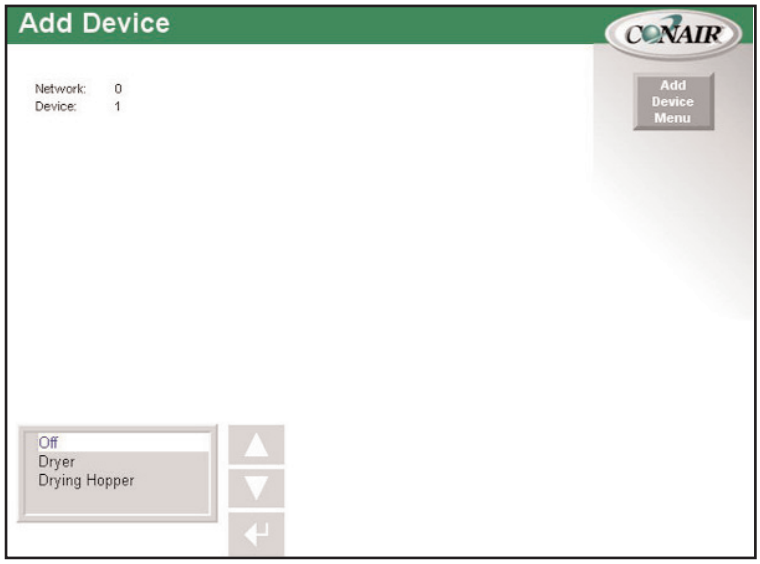
Add Device (continued)

This will lead to the add gateway device screen, which allows for the selection of the appropriate device type.



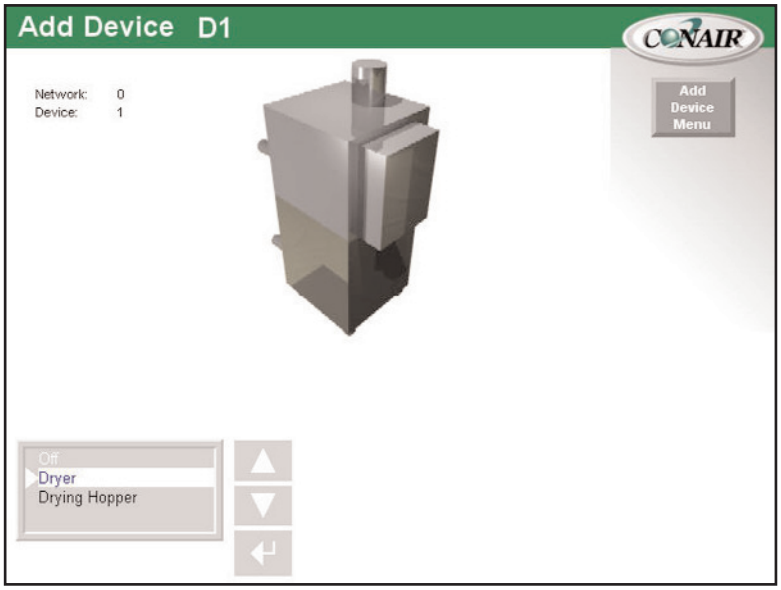
To add a Dryer to a Gateway, make sure the Gateway Device is set up to accept a dryer, e.g., for an 8 Gateway Scanner, you have selected Gateway 1-6, for an 11 Gateway Scanner, you have selected Gateway 1-10 or for the 18 Gateway Scanner, you have selected Gateway 1-18.

From the Add Device to Gateway screen, press the Not Used icon. This will navigate to the Add Device screen where you have a choice between adding a Dryer or a Drying Hopper.



Add Device (continued)

Select Dryer with the Up/Down arrow keys and press the Enter Key. A larger dryer icon will appear on the screen. Prior to exiting the screen, press the green title bar. A popup window will appear to enter the dryer's name.

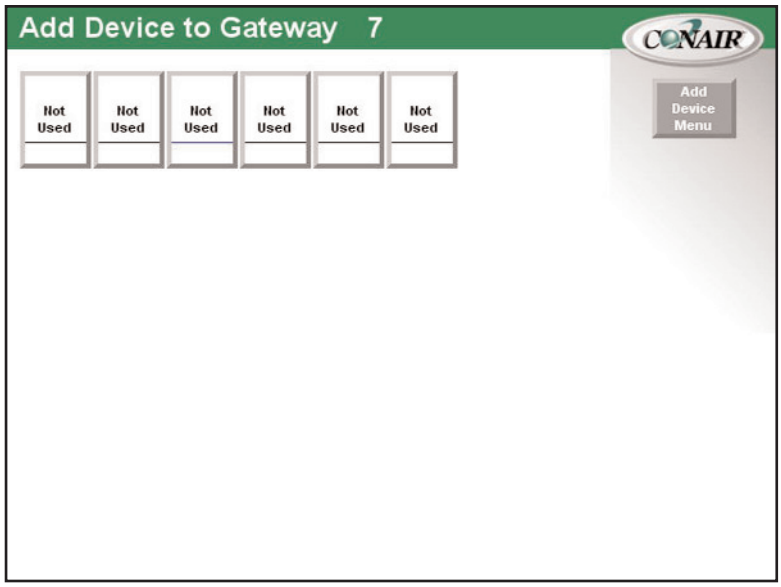


You can then exit the screen by pressing the Add Device Menu button.

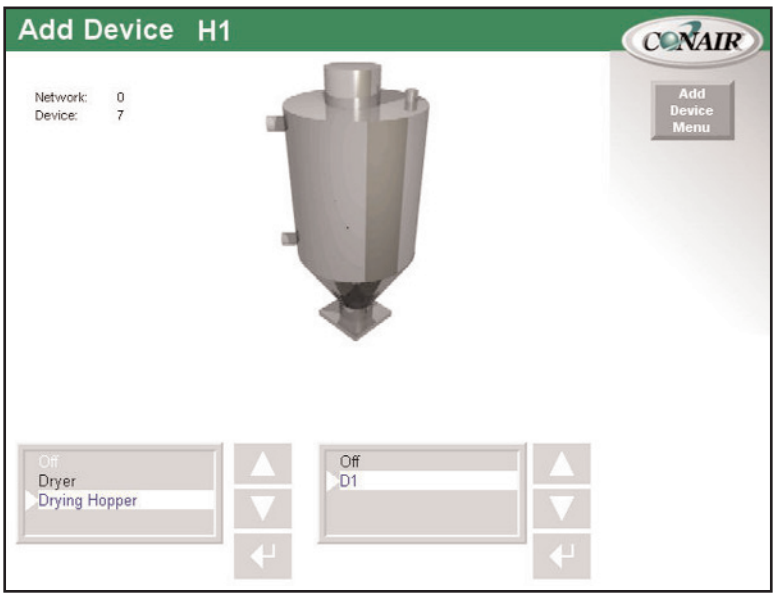
To add a Drying Hopper, make the sure Gateway Device is set up to accept a drying Hopper, e.g., for an 8 Gateway Scanner, you have selected Gateway 7 or 8 or for an 11 Gateway Scanner, you have selected Gateway 11.

From the Add Device to Gateway Screen, press the appropriate Not Used icon. The Drying Hopper has a modbus address 1-6. This address should match the Drying Hopper you are adding.

Add Device (continued)

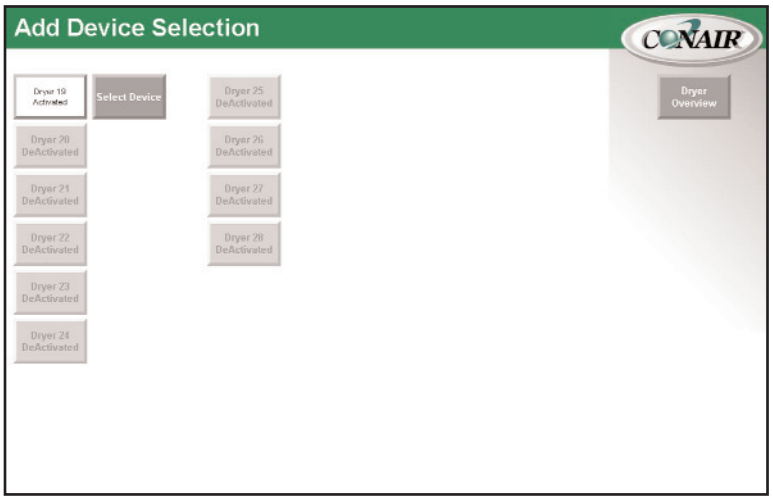


Select Drying Hopper with the Up/Down arrow keys and press the Enter Key. At this point, a list of all configured dryers is listed. Select the appropriate dryer with the Up/Down arrow keys and press the Enter Key. Prior to exiting the screen, press the green title bar. A popup window will appear to enter the drying hopper's name.



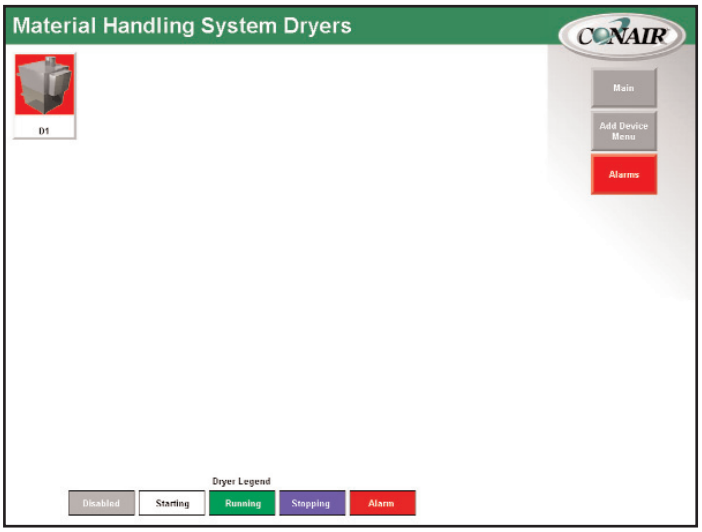
Add Device (continued)

If a dryer is a non-communicating dryer it can be added from the "Add Device Selection Gateway" Screen, then press the "no comm dryer" button. The "No comm dryer" add screen will be displayed. This screen is similar to the "Add Device Selection Gateway" Screen and addition of non-communicating dryers is identical to the procedure for adding devices to gateways.



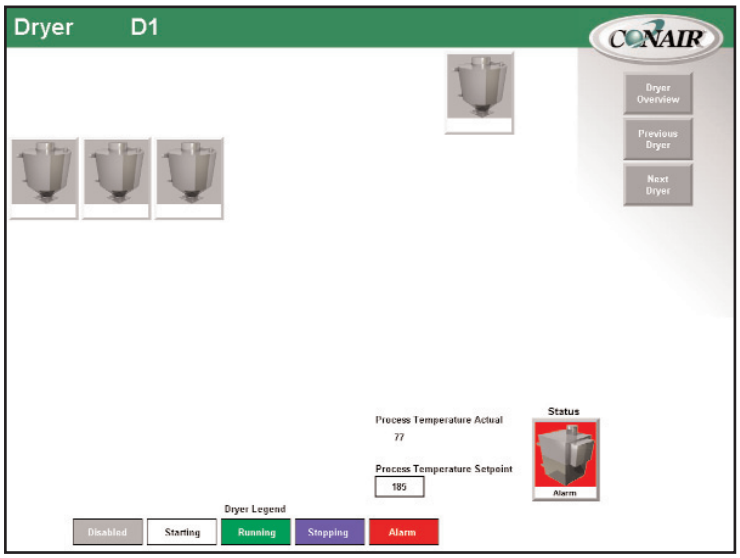
Display

Any configured dryers are shown on the Material Handling System Dryer screen.



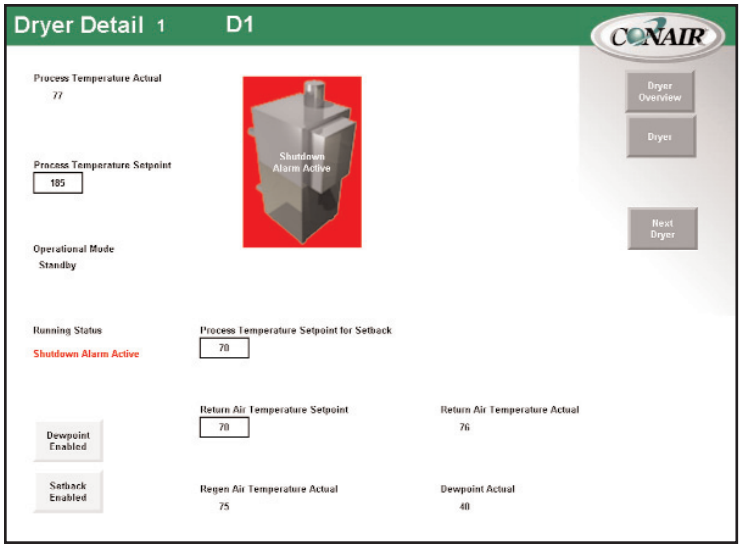
Display (continued)

To access information on the dryer and its attached hoppers press that dryer. The Dryer screen will appear.

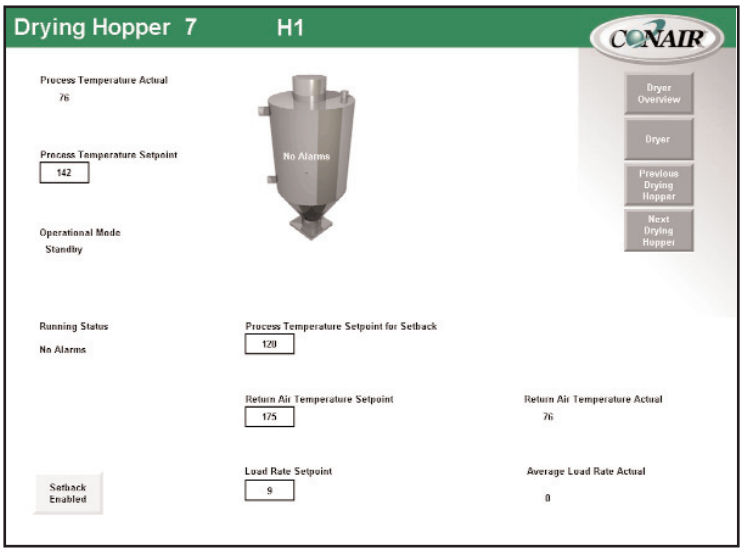


Display (continue)

Pressing the dryer icon again will display the dryer detail screen, showing all information available for that dryer.

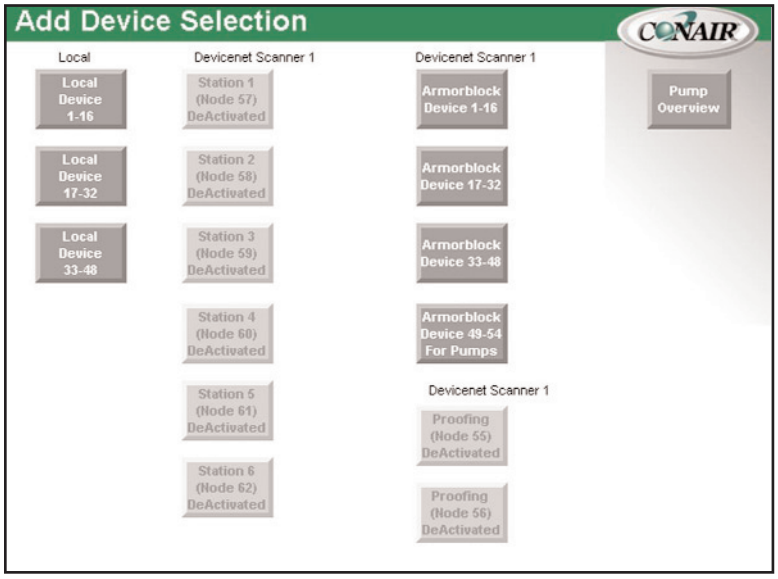


Going back to the Dryer screen and pressing an attached hopper, will show the hopper detail screen. All information for that hopper is displayed on that screen.



Device Configuration

In order to add a device (loader, multi-source loader or granulator) to the system configuration, the user must first be logged on as a super2. Then, from the Pump Overview screen, press the Add Device button.



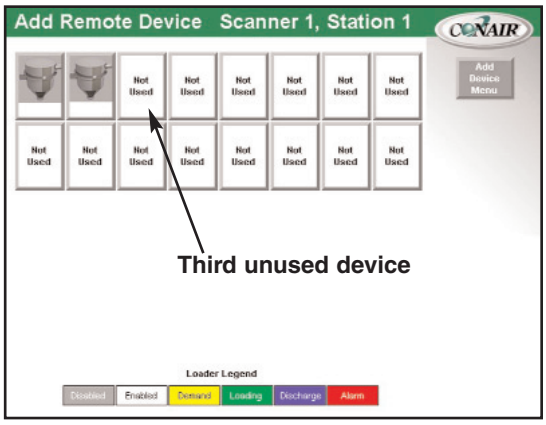
✎ **NOTE:** Depending of the number of scanners attached to your system you may see fewer buttons on your screen.

Device Configuration (continued)

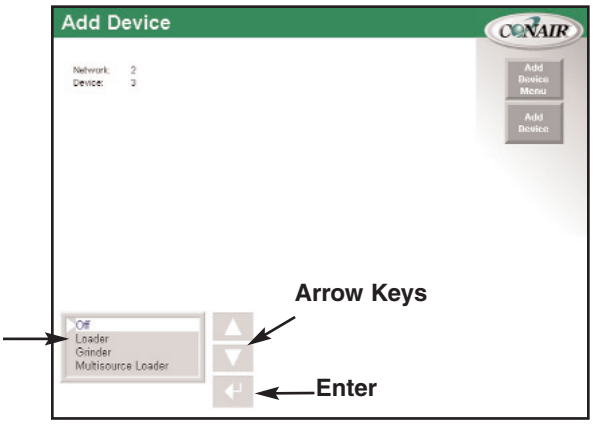
From the Add Device screen, the configuration of the local rack is set, the remote I/O boxes are activated and navigation to the various groups of 16 devices is effected. Once on the various Add Device screens, the logic of adding a device is the same for each type of device.

The following are examples of the screens you will see if you were adding a new loader.

From the Add Local Devices screen, select any unused portions 1-16.



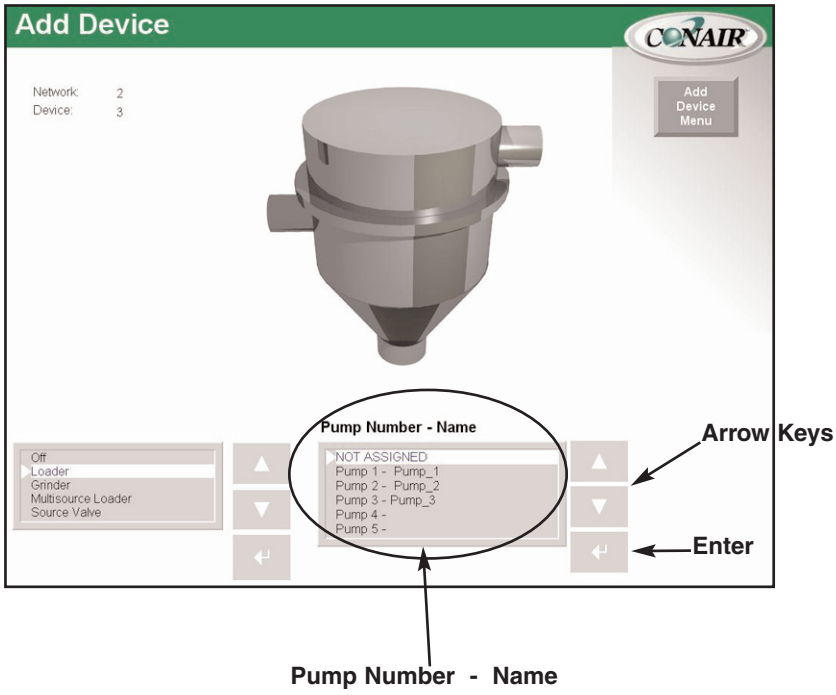
In this example the third unused device was selected.



Using the arrows, select “Loader” and then press enter. The Loader will be displayed on the screen.

Device Configuration (continued)

Once the loader has been selected, an entry box for the pump number will appear, using the arrows navigate to the desired pump, and then press the enter key.



Device Configuration (continued)

If the configuration is 1-7, only loaders can be added. If the configuration = 8, loaders, multi-source loaders and granulators can be added.

Configuration	Loaders	Sources	Open Loop	Options	Fill Sensors
1	32	16	No	0	No
2	32	16	No	1	No
3	32	16	No	2	No
4	32	16	No	2	Yes
5	48	48	Yes	0	No
6	48	48	Yes	0	Yes
7	48	48	Yes	1	Yes
8	48	48	Yes	2	Yes

Adding Loaders

From the Add Device screen, select loader using the up/down arrows and press Enter. A pump list will appear to the right. Press the data entry field to select the pump to which the loader will be added.

Pressing the Add Device button will navigate back one screen to allow another Loader from this group to be added. Pressing the Add Device Menu button will navigate back to allow a different group of I/O to be selected. Prior to leaving the screen, a name can be assigned to the loader by pressing the title bar.

To add Multi-source Loaders, please follow the process above.

Adding Granulators

Adding a Granulator is very similar to adding loaders. After the Grinder has been selected, a list of configured MS Loaders appears. Select MS Loader, define a name for the grinder and proceed as normal.

Adding Sources

Adding sources is similar to adding a loader except after a “source” is selected, the next step is defining a name for the source.

Read Only Data

A read only memory area has been set up for external data collection. The Ethernet IP address of the PLC is 192.168.10.3. The addresses in the PLC are as follows:

Read_all_pumps[0..26]
- Single dimension array of 27 elements, each element containing the following:
  - Name (type HMI string - 10 characters)
  - Configuration (type DINT)
    - Bit 0: 0 - disabled
    - Bit 0: 1 - enabled
  - Status (type DINT)
    - 0 - disabled
    - 1 - enabled
    - 3 - running
    - 5 - alarm
  - Alarm(type DINT)
    - 0 - no alarm
    - 4 - overload

Read_dry_hopper[0..18]
- Single dimension array of 19 elements, each element containing the following:
  - Name (type HMI string - 10 characters)
  - Status (type DINT)
    - 0 - not running
    - 3 - running
    - 5 - alarm
  - Temperature_setpoint (type DINT)
  - Temperature_actual (type DINT)
  - Process_temp_setpoint_for_setback (type DINT)
  - Return_air_temp_actual (type DINT)
  - Return_air_Temp_Setpoint (type DINT)
  - Load_Rate_Setpoint (type DINT)
  - Load_Rate_Actual (type DINT)
  - Operational_Mode (type DINT)
    - 0 - Lost Communications
    - 1 - Standby
    - 2 - Starting
    - 3 - Stopping
    - 4 - Autotuning
    - 5 - Calibrating
    - 6 - Running
    - 7 - Indexing

Read Only Data (continued)

8 - Index End
9 - Index Reset
10 - Test Mode

Running Status (type DINT)
0 - No Alarms
1 - No Alarms
2 - Setback Active
4 - Shutdown Alarm
8 - Passive Alarm
16 - Alarm Silenced
32 - 60 seconds before Index
20 - Shutdown Alarm Acknowledged
24 - Passive Alarm Acknowledged

Read_Dryer[0..18]

Single dimension array of 19 elements, each element containing the following:

Name (type HMI string - 10 characters) Status (type DINT)

Status (type DINT)
0 - not running
3 - running
5 - alarm

Process_temp_setpt (type DINT)
Process_air_temp_actual (type DINT)
Process_temp_setpt_for_setback (type DINT)
Return_air_temp_actual (type DINT)
Return_air_temp_setpt (type DINT)
Regen_air_tem_actual (type DINT)
Dewpoint_actual (type DINT)
Operational_Mode (type DINT)
0 - Lost Communications
1 - Standby
2 - Starting
3 - Stopping
4 - Autotuning
5 - Calibrating
6 - Running
7 - Indexing
8 - Index End
9 - Index Reset
10 - Test Mode

Read Only Data (continued)

Running_Status (type DINT)
- 0 - No Alarms
- 1 - No Alarms
- 2 - Setback Active
- 4 - Shutdown Alarm
- 8 - Passive Alarm
- 16 - Alarm Silenced
- 32 - 60 seconds before Index
- 20 - Shutdown Alarm Acknowledged
- 24 - Passive Alarm Acknowledged

Read_loacal_loader_net0[0..48]

Single dimension array of 49 elements, each element containing the following:

Name (type HMI string - 10 characters) Status (type DINT)

Status (type DINT)
- 0 - disabled
- 1 - enabled
- 2 - demand
- 3 - running
- 4 - discharge
- 5 - alarm

configuration (type DINT mapped bitwise)
- Bit 0 - Loader Enable
- Bit 1 - Positive Discharge Enable
- Bit 2 - Ratio Enable
- Bit 3 - Purge Enable
- Bit 4 - Pocket Enable
- Bit 5 - Material Alarm Enable
- Bit 6 - Proofing Enable
- Bit 7 - Ratio Auto Layer Enabled
- Bit 8 - not used
- Bit 9 - Fill Alarm Enable
- Bit 10 - Closed Loop Convey Enable
- Bit 11 - Test Load Valve
- Bit 12 - Test Ratio Valve
- Bit 13 - Test Discharge Valve
- Bit 14 - Test Purge Valve

Read Only Data (continued)

Alarm (Type DINT mapped bitwise)
- Bit 3 - Material Alarm
- Bit 4 - Fill Alarm
- Bit 5 - Proofing Alarm

Pump (type DINT)
Dump_time (type DINT)
Alarm_check (type DINT)
Load_time (type DINT)
Source_Network (type DINT)
Source_Device (type DINT)
Purge_time (type DINT)
Regrind_time (type DINT)
Ratio_Cycles (type DINT)

In addition to Read_loacal_loader_net0, there are six identical read only memory data types entitled:

Read_scanner1_armor_net1
Read_scanner1_remotes_net2
Read_scanner1_remotes_net3
Read_scanner2_armor_net4
Read_scanner2_remotes_net5
Read_scanner2_remotes_net6

SECTION
5

Maintenance

Maintenance Checklist

You should develop a preventive maintenance schedule for all components in the conveying system to ensure optimum operation and performance.

The ILS requires the following maintenance checks:

- **Whenever you change materials**

❒ **Verify the loader settings for pump systems** or loaders effected by the material change. Pay particular attention to load times, dump times, and material source identification if you have pocket conveying valves and material line proofing. (*See "Changing Loader Settings")* in the Operation section.

- **Quarterly**

❒ **Check power and cable connections and wires.** Over time, the power and cable connections between the ILS and conveying system components may become loose or wires may become worn. Tighten any loose connections and replace any wire or cable that has become worn or damaged.

- **After loading new software, or as needed**

❒ **Recalibrate the operator interface.** If the operator panel becomes unresponsive to a touch on the screen, you may need to recalibrate the touchscreen. This could happen after reloading or updating the ILS software. (*See "Operator Interface Calibration.")*

Operator Interface Calibration

If the operator interface becomes unresponsive to a touch on the screen, you may need to recalibrate the touchscreen. In order to calibrate the Operator Interface touchscreen, the security level must be "Admin".

From the Network screen, press the Shutdown button. The system takes several seconds to respond, so there is no need to keep tapping the shutdown button. After approximately ten seconds, the RSViewME Station screen appears. From this screen, press the Terminal Settings button. From the Terminal Settings screen, select Input Devices and press Enter. From the Input Devices screen, select Touchscreen and press Enter. From the Touchscreen screen, select Calibration and press Enter.

Follow the instructions by touching the four corners when prompted. Once complete, touch the screen within 30 seconds. The screen is now calibrated. Press the Close button on the next three screens until the RSViewME Station screen appears. Press Run.

⚠ **CAUTION: Changes to other settings in the Versaview may result in improper operation.**

SECTION
6

Troubleshooting

Before Beginning

Before you begin troubleshooting:

❑ Find the manuals and wiring diagrams that were shipped with your equipment. These materials contain details you will need to diagnose and repair problems in specific components, including custom wiring, features or I/O options not covered in this User Guide.

A Few Words of Caution

⚠ **WARNING: Improper installation, operation or servicing may result in equipment damage or personal injury.**

The ILS should be installed, adjusted, and serviced only by qualified technical personnel who are trained in the operation and troubleshooting of this type of equipment.

 **DANGER: Electrical shock hazard**

Diagnosing the cause of electrical system and CPU problems in this equipment may require the use of precision electronic measuring equipment, as well as access to the electrical enclosure while power is on. Only qualified electrical technicians, trained in the use of the equipment and in avoiding exposure to voltage hazards, should perform procedures that require access to the enclosure while power is on.

⚠ **WARNING: Develop and follow procedures for safe operation and maintenance of the system.**

The ILS allows operators and maintenance personnel to disable and enable conveying system components. Unexpected energization of these components could result in equipment damage or injury.

Safe maintenance procedures should include:

❒ Disconnect any loader, pump or material valve from main power and/or compressed air sources before servicing. Ensure that all energy sources for the device are locked out and tagged.

❒ Before removing lockout devices and enabling system components, verify that all personnel are clear of the machine, tools have been removed, and any safety guards have been reinstalled.

Operator Interface Alarms

The following is a description of the alarms that can be displayed on the Operator Interface screen.

Alarm	Description
Overload on pump	Indicates a pump overload.
Material Alarm	The number of load cycles exceeds the alarm check value without satisfying the demand.
Fill	The material fails to reach the fill sensor within the cycle time.
Proofing	Indicates that proofing failed for the given device.
Configuration Fault	Indicates that a loader is has been enabled without being assigned to a valid pump.

When an alarm is triggered, the alarm buzzer is energized and the alarm screen pops up and displays the alarm time, the time the alarm is acknowledged and the alarm message described above. Available buttons include the following::

- Acknowledge - acknowledges the highlighted alarm
- Acknowledge all - acknowledges all alarms
- Silence - silence the alarm buzzer
- Clear alarm history - clears all alarms from the screen
- Close - closes the alarm window

Network Errors - Fully-Distributed System or Remote I/O System

DeviceNet Network Errors

What This Section Contains

This section describes the diagnostics provided by the LED diagnostic indicators on the front panel of the 1769-SDN scanner module.

Diagnostic Indicators

The first step in troubleshooting is to observe the 1769-SDN scanner module's LEDs and 7-segment numeric displays. The indicators function as follows.

- The bicolor (green/red) Module Status LED indicated whether the scanner has power and is functioning properly.
- The bicolor (green/red) Network Status LED provides information about the Devicenet channel communication link.
- The numeric display shows Node Address ad Status Display information. Status information precedes the node address.

The following tables summarizes the meaning of the LEDS and numeric codes.

Operator Interface Alarms

Indicator	Color/Status	Indicates	Recommended Action
Module	Off	No power applied to the module	Off
	Flashing Green	No Bus Master (MicroLogix or CompactLogix Controller) present.	Flashing Green
	Solid Green	Normal operation	No action required
	Flashing Red	Recoverable Fault - memory has been erased or is being programmed.	Complete flash update or start a new update.
	Solid Red	Unrecoverable fault	Verify module connectors are properly seated. If they are, cycle power to another controller. If this does not correct the problem, replace the controller. If replacing the controller does not correct the problem, replace the scanner.
Network	Off	No module power, not network power, or communications are not occurring between the module and the DeviceNet network. (This may be an acceptable condition.)	Verify module has power. Check that the DeviceNet cable is securely connected and the DeviceNet network is powered. Verify the network power is adequate (11 to 25 V dc).
	Flashing Green	Device is operational. There are no connections established with any of the network devices.	If the module is supposed to be controlling DeviceNet slaves, configure the module's scanlist.
	Solid Green	Normal operation. Scanlist is configured. Module is not in Idle mode.	No action required
	Flashing Red	One or more of the devices that the scanner is communicating with is in a timed out state.	Monitor the status display, or the module's status field to determine which slave device is offline.

Operator Interface Alarms

Indicator	Color/Status	Indicates	Recommended Action
Network	Solid Red	Critical network failure. Duplicate DeviceNet node address detected.	Reset module. Change module's node address of change conflicting device's node address. If failure continues, replace module.

Indicator	Color/Status	Indicates
7-Segment Numeric Display	Node Address and Status Display	Indicates diagnostic information about the status of the module. • When the numeric display is showing 0 to 63, it is indicating the scanner's DeviceNet node address. • When is shows 70 to 99, it indicates an Error Code for the displayed node address. • When it flashes alternating numbers, one is the Error Code (70 to 99), and the other is the Node Number (0 to 63) that has generated the error. See the list of error codes on page XXX for more information.

Node Address/Status Indicator

Numeric Code	Description	Action
70 - Duplicate Node	Controller has failed Duplicate Node Address Check. The node address selected is already in use.	Change the module's or conflicting device's network address (node number) to an available one.
71 - Illegal Scanlist Data	Illegal data in scanlist	Reconfigure the scan list table and remove any illegal data.
72 - Slave Timeout	One of the module's slave devices has stopped communicating	Inspect the module's slave devices and verify the DeviceNet connections.
73 - Electronic Key Mismatch	The slave device Vendor ID key parameter does not match the slave's configuration in the module's scanlist.	Make sure that the device at the flashing node address matches the desired electronic key (vendor, product code, product type).
75- No Messages Received	No network traffic received by the scanner. 10 seconds have elapsed and no network traffic for the module or for any other device have been received.	Verify the scanlist is correctly configured to scan slave devices. Verify DeviceNet network connections.
76- No Message For Scanner	No direct network traffic for the scanner detected. 10 seconds elapsed and no DeviceNet input being screened by the module has been received.	None. There are other active devices on the network, initiating messages, but none of the messages are for the module.
77- Slave Data Size Mismatch	The data being received from the slave device does not match the configuration in the scanlist.	Either reconfigure the slave device, or change the module's scanlist to match the slave device.
78- No Such Device	Slave device in scanlist does not exist.	Either add the device to the DeviceNet network or delete the device's entry in the scanlist.

Node Address/Status Indicator

(continued)

Numeric Code	Description	Action
79 - Transmit Failure	The module has failed to transmit a message.	Make sure that the module is connected to a valid network. Check for disconnected cables.
80 - In Idle Mode	The module has failed to transmit a message.	Make sure that your module is connected to a valid network. Check for disconnected cables.
81- Scanner Faulted	The Scanner has stopped producing and consuming I/O data. This condition does not affect the scanner's system or messaging modes.	Check the FAULT valve in the module command array.
82 - Fragmentation Error	Error detected in sequence of fragmented I/O messages from device.	Check scanlist table entry for slave device to make sure that input and output data lengths are correct. Check slave device configuration.
83 - Slave Init Error	Slave device is returning error responses when the module attempts to communicated with it.	Check slave device's configuration. Reboot slave device.
84 - Not Yet Initialized	Module has not completed its initial attempt to establish communications with its slaves.	None. This code clears itself once the module attempts to initialize all the slave devices on the network.
85 - Receive Buffer Overflow	Data size returned is larger than expected.	Configure the slave device for a smaller data size.
86 - Device Wend Idle	Device is producing idle state.	Check the device configuration and slave nose status.

Node Address/Status Indicator

(continued)

Numeric Code	Description	Action
90 - Disabled Network	DeviceNet Port is Disabled.	Check for the DISABLE being set in the Module Command Array.
91 - Bus Off	Bus off condition detected on integral DeviceNet port.	Check the DeviceNet connections and physical media integrity. Check system for failed slave devices of network interference. Check the Baud Rate.
92 - No DeviceNet Power	No network power detected on DeviceNet port.	Provide network power. Make sure the module drop cable is providing the proper power to the DeviceNet port.
95 - FLASH Update	Flash update in progress.	None. Do not disconnect the module from the network while a FLASH update is in progress.
98 - Firmware Corrupted	Firmware is corrupted.	Reflash module firmware. Do not power cycle the module. Doing so will cause the module to become inoperable. If the problem persists contact Rockwell Automation Technical support.
97- Hard Fault		Cycle power. Reflash module firmware. Contact Rockwell automation technical support.

Indicator	Color	Description
RUN	off	The controller is in Program or Test mode.
	solid green	The controller is in Run mode.
FORCE	off	No tags contain I/O force values. I/O forces are inactive (disabled).
	solid amber	I/O forces are active (enabled). I/O forces values may or may not exist.
BAT	off	The battery supports the memory.
	solid red	Either the battery is not installed or it is 95% discharged and should be replaced.
I/O	off	Either there are no devices in the I/O configuration of the controller. or the controller does not contain a project (controller memory is empty).
	solid green	The controller is communicating with all the devices in its I/O configuration.
	flashing green	One or more devices in the I/O configuration of the controller are not responding.

IO Status Indicator

This bi-color (Green/Red) LED indicates the status of the communication link.

IO Status Indicator

Indicator	Color	Description
I/O continued	flashing red	The controller is not communicating to any devices. The controller is faulted.
OK	Off	No power is applied.
	flashing red	If the controller is: a new controller the controller requires a firmware update. If the controller is not new a major fault occurred. To clear the fault, either: - Turn the keyswitch from PROG to RUN to PROG - Go online with RSLogix 5000 software.
	solid red	The controller detected a non-recoverable fault, so it cleared the project from memory. To recover: 1. Cycle power to the chassis. 2. Download the project. 3. Change to Run mode. If OK LED remains solid red, contact your Rockwell Automation representative or local distributor.
	solid green	Controller is OK.
	flashing green	The controller is storing or loading a project to or from nonvolatile memory.

NOTE: (1) The flash rate of the LED is approximately 1 flash per second. The LED should be on for approximately 0.5 seconds and off for approximately 0.5 seconds.

RS-232 serial port LEDs (channel 0)

Indicator	Color	Description
DCH0	off	Channel 0 is configured differently than the default serial configuration.
	solid green	Channel 0 has the default serial configuration.
CH0	off	No-RS-232 activity.
	flashing green	RS-232 activity.

RS-232 serial port LEDs (channel 0)

Indicator	Color	Description
CF	off	No activity.
	flashing green	The controller is reading from or writing to the CompactFlash card.
	flashing red	CompactFlash card does not have a valid file system.

Network Status Indicator

The Network (NET) Status LED provides the following information.

State	Status	Description
Off	Not powered No IP address	The module is not powered, or does not have an IP address. • Verify there is chassis power and that the module is completely inserted into the chassis and backplate. • Make sure the module has been configured.
Flashing Green	No connections	The module has obtained an IP address, but has no established connections.
Green	CIP connections	The module has an IP address and at least one established connection.
Flashing Red	Connection timeout	One or more of the connections in which the module is the target has timed out.
Red	Duplicate IP address	The module has detected that its IP address is already in use. Assign a unique IP address to the module.

Link Status Indicator

The Link Status LED provides the following information.

State	Status	Description
Off	No data transmission	Module is not ready to communicate.
Green	Ready	Module is ready to communicate.
Flashing Green	Data transmission in progress	Module is communicating over the network.

OK Status Indicator

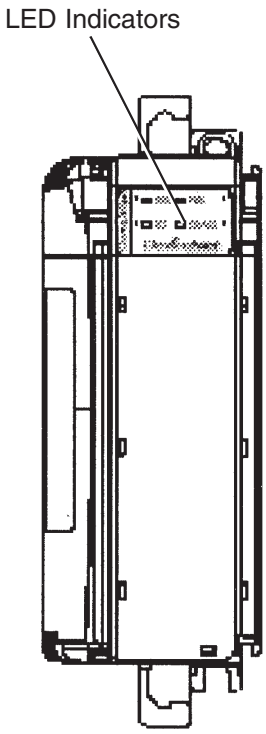
The OK Status LED provides the following module information.

State	Status	Description
Off	No power	Module does not have 24 V DC power. Verify there is chassis power and the module is completely inserted into the chassis and backplate.
Flashing Green	Standby	Module is not configured.
Green	Operational	Module is operating correctly.
Flashing Red	Minor fault	A recoverable fault has been detected. This could be caused by an error in the configuration.
Red	Major fault	An unrecoverable fault has been detected. Recycle power to the module. If this does not clear the fault, replace the module.
Flashing Red and Green	Self test	The module is performing a power-up self-test.

Network Errors - Local or Remote I/O System

Troubleshooting with the Indicators

This section addresses the diagnostic indicators for a local or remote I/O system and their meanings.



Diagnostic Indicators

LED Indication	Meaning
Module Status (MS)	
OFF	No power
Flashing GREEN/OFF	On-line, but configuration missing
Solid GREEN	Device is operational
Flashing RED/OFF	Recoverable fault: • Configuration is incorrect • Duplicate MAC ID (node address) check failed • Node address switch changed • Main program checksum failed • Configured I/O size is too large
Solid RED	Unrecoverable fault: • Terminator/end cap is missing • Connector/cable between modules is missing/not connected • Bad configuration memory • Watchdog tripped
Network Status (NS)	
OFF	No power or no network access
Flashing GREEN/OFF	On-line, but not connected
Solid GREEN	On-line and connected
Flashing RED/OFF	Connection time-out
Solid RED	Critical network failure

(continued)

LED Indication	Meaning
I/O Status (IO)	
OFF	No power or outputs are off
Flashing GREEN/OFF	Idle/program mode - one or more I/O modules in Idle Mode
Solid GREEN	Device operational - all I/O modules in Run Mode
Flashing RED/OFF	Recoverable fault - one or more I/O modules may be in Fault Mode
Solid RED	Unrecoverable fault - one or more I/O modules may be in Fault Mode
Diagnostic Status (DIAG)	
OFF	No power or no diagnostics running
Flashing Amber	Main program detected an error - number of flashes indicates the error
Flashing RED/OFF	Diagnostics found error - number of flashes indicates which test failed: • One flash - RAM test failed • Two flashes - Boot program checksum failed • Three flashes - Main program checksum failed • Four flashes - Configuration checksum failed • Five flashes - Access to program or configuration failed

EtherNet/IP: Module Status (MS) indicator

Condition	Status	Indicates	Recommended Action
off	no power	The controller does not have power.	Check the controller power supply.
flashing green	standby	The port does not have an IP address and is operating in BOOTP mode.	Verify that the BOOTP server is running.
solid green	OK	The port is operating correctly.	Normal operation. No action required
solid red	held in reset	The controller is holding the port in reset or the controller is faulted.	Clear the controller fault. Replace the controller.
	self-test	The port is performing its power-up self-test.	Normal operation during power-up. No action required.
	major fault	An unrecoverable fault has occurred.	Cycle power to the controller. Replace the controller.
flashing red	updating firmware	The port firmware is being updated.	Normal operation during firmware update. No action required.

EtherNet/IP: Network Status (MS) indicator

Condition	Status	Indicates	Recommended Action
off	no link	The port is not connected to a powered Ethernet device.	Verify that all Ethernet cables are connected.
		The port cannot communicate on Ethernet.	Verify that Ethernet switch is provided.
flashing green	self-test	The port is performing its power-up self-test.	Normal operation during power up..
	data transmission and reception	The port is communicating on Ethernet.	Normal operation. No action required.
		Unrecoverable fault	
solid green	link OK	The port is connected to a powered Ethernet device.	Normal operation. No action required.
		The port can communicate on Ethernet.	

We're Here to Help

Conair has made the largest investment in customer support in the plastics industry. Our service experts are available to help with any problem you might have installing and operating your equipment. Your Conair sales representative also can help analyze the nature of your problem, assuring that it did not result from misapplication or improper use.

Additional manuals and prints for your Conair equipment may be ordered through the Customer Service or Parts Department for a nominal fee.

How to Contact Customer Service

To contact Customer Service personnel, call:

From outside the United States, call: 814-437-6861

You can commission Conair service personnel to provide on-site service by contacting the Customer Service Department. Standard rates include an on-site hourly rate, with a one-day minimum plus expenses.

Before You Call...

If you do have a problem, please complete the following checklist before calling Conair:

- ❒ Make sure you have all model, serial and parts list numbers for your particular equipment. Service personnel will need this information to assist you.
- ❒ Make sure power is supplied to the equipment.
- ❒ Make sure that all connectors and wires within and between control systems and related components have been installed correctly.
- ❒ Check the troubleshooting guide of this manual for a solution.
- ❒ Thoroughly examine the instruction manual(s) for associated equipment, especially controls. Each manual may have its own troubleshooting guide to help you.
- ❒ Check that the equipment has been operated as described in this manual.
- ❒ Check accompanying schematic drawings for information on special considerations.

Equipment Guarantee

Conair guarantees the machinery and equipment on this order, for a period as defined in the quotation from date of shipment, against defects in material and workmanship under the normal use and service for which it was recommended (except for parts that are typically replaced after normal usage, such as filters, liner plates, etc.). Conair's guarantee is limited to replacing, at our option, the part or parts determined by us to be defective after examination. The customer assumes the cost of transportation of the part or parts to and from the factory.

Performance Warranty

Conair warrants that this equipment will perform at or above the ratings stated in specific quotations covering the equipment or as detailed in engineering specifications, provided the equipment is applied, installed, operated and maintained in the recommended manner as outlined in our quotation or specifications.

Should performance not meet warranted levels, Conair at its discretion will exercise one of the following options:

- Inspect the equipment and perform alterations or adjustments to satisfy performance claims. (Charges for such inspections and corrections will be waived unless failure to meet warranty is due to misapplication, improper installation, poor maintenance practices or improper operation.)
- Replace the original equipment with other Conair equipment that will meet original performance claims at no extra cost to the customer.
- Refund the invoiced cost to the customer. Credit is subject to prior notice by the customer at which time a Return Goods Authorization Number (RGA) will be issued by Conair's Service Department. Returned equipment must be well crated and in proper operating condition, including all parts. Returns must be prepaid.

Purchaser must notify Conair in writing of any claim and provide a customer receipt and other evidence that a claim is being made.

Warranty Limitations

Except for the Equipment Guarantee and Performance Warranty stated above, Conair disclaims all other warranties with respect to the equipment, express or implied, arising by operation of law, course of dealing, usage of trade or otherwise, including but not limited to the implied warranties of merchantability and fitness for a particular purpose.