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USER GUIDE

UGC050-0416

ILP

Invisible Line Proofing

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: UGC050-0416

Serial Number(s):

Model Number(s):

DISCLAIMER: Conair shall not be liable for errors contained in this User Guide or for incidental, consequential damages in connection with the furnishing, performance or use of this information. Conair makes no warranty of any kind with regard to this information, including, but not limited to the implied warranties of merchantability and fitness for a particular purpose.

Table of Contents

Introduction

Purpose of the User Guide

This user guide describes the ILP Invisible Line Proofing system and explains step-by-step how to install, operate, and maintain this equipment.

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 should also 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 the operation of this equipment.

 Indicates a note. A note is used to provide additional information about the steps you are following throughout the 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 machine serial tag and data plate.

⚠ WARNING: Voltage hazard

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

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 device 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.

Zero Mechanical State (ZMS)

⚠ **CAUTION:** Before performing maintenance or repairs on this product, you should disconnect and lockout electrical power sources to prevent injury from unexpected energizing or start-up.

During maintenance, it is essential that the system be put into a state which eliminates the possibility of components making an unexpected and dangerous movement. This procedure is typically referred to as lockout. After all energy sources have been neutralized, the system is in the zero mechanical state (ZMS). This provides maximum protection against unexpected mechanical movement.

The lockout procedure must include all energy sources:

- Electrical power supply
- Compressed air supply
- Hydraulic fluids under pressure
- Potential energy from suspended parts
- Energy in springs
- Any other source that might cause unexpected mechanical movement

The following is a recommended Zero Mechanical State procedure which must be followed prior to any inspection, or maintenance of the ILP.

1 Turn off the all loading devices attached to the ILP to assure that it does not attempt to move material.

2 Perform the proper shutdown sequence to the connected dryer or drying system and allow all hopper components (internally and externally) to adequately cool.

3 Disconnect and lock out the primary electrical supply feeding the dryer and conveying conponents.

⚠ **WARNING:** Before removing lockout devices and returning switches to the ON position, make sure that all personnel are clear of the machine, tools have been removed, and all safety guards reinstalled.

SECTION
2

Description

What is the ILP?

✎ **Note**: The ILP operation requires connection to Conair's FLX-128 Plus control platform.

The Invisible Line Proofing system (ILP) is a validation system that verifies that the correct material is being conveyed to the correct destination. The ILP is a combination of a Resin Selection System (RSS), a valve at the pump, and special sensing equipment attached to the fantail manifold of the RSS table. The ILP is controlled by Conair's FLX-128 Plus control.

Typical Applications

Designed for use with resin conveying systems, the ILP can be used with any Conair Resin Selection Station (RSS). The system can be ordered all at once, or any RSS can be retrofitted with ILP capability.

✎ **Note**: The ILP is designed to work with Conair's Resin Selection Station, in conjunction with the Conair FLX-128 Plus conveying system control.

Limitations

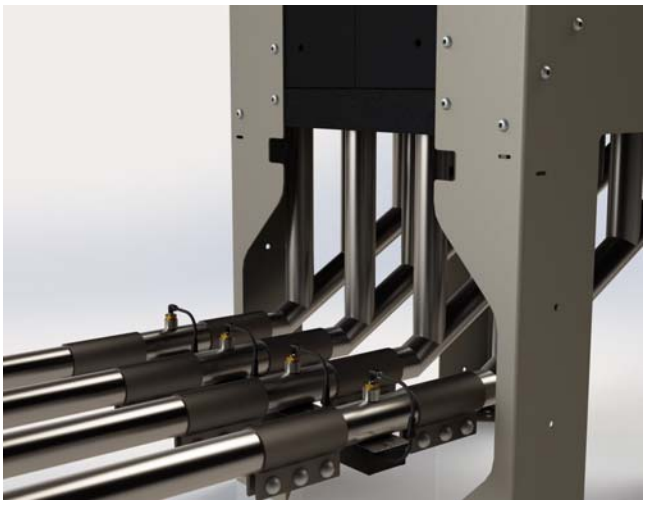
The ILP has been developed to be used in any application where a Resin Selection Table would be used. This product is not intended for use with powdered material.

The ILP proofing function can be negatively affected by static charge. Make sure that your conveying system includes a ground for static discharge.

How the ILP Works

Invisible Line Proofing, or ILP, does not use wires nor connectors nor any type of signal exchange between material line couplers to confirm that source to destination material flow connections have been properly made by the user, after being programmed into the FLX conveying system control. Instead, ILP senses the negative pressure created by the system's vacuum conveying pump in the correct material line, by means of a vacuum sensor in that line. If vacuum is not properly sensed, a vacuum release valve near the vacuum pump will allow ambient air into the vacuum system, preventing material flow.

An ILP installation includes vacuum sensors in each material line of a multi-source/multi-destination system and a vacuum release valve installed in the vacuum line.



Vacuum sensors in material lines at RSS, Resin Selection Station.

Vacuum Release Valve

How the ILP Works (cont.)

First, a source to destination selection is made by the user into the FLX conveying system control.

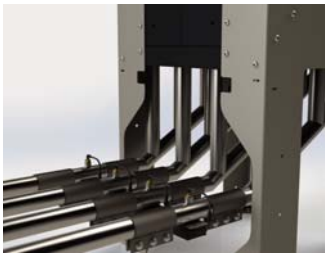
✎ **Note**: ILP vacuum sensors are designed to be very sensitive to small amounts of vacuum, and will detect vacuum in a material line, even while the vacuum release valve is open to ambient air. They will sense vacuum even though material cannot be moved through the conveying line.

Then, once the selected receiver's vacuum valve is open to vacuum for loading, the ILP sensor in that specific material line will 'feel' the vacuum passing through the material line between the receiver and the material source. The vacuum release valve of the ILP system, installed in the vacuum line near the vacuum pump, is open to ambient air to prevent conveying until an ILP sensor confirms proper material line connections:

If negative vacuum pressure from the vacuum pump is detected by the sensor installed in the selected material line at the very start of a loading cycle, the vacuum release valve will close off ambient air and full vacuum power will be directed to the material source. Material will begin to flow and the system will load normally. The vacuum release valve will open to ambient air again, at the conclusion of each loading cycle.

If negative vacuum pressure from the vacuum pump is NOT detected by the sensor installed in the selected material line, indicating an incorrect source to destination connection has been made, three things happen:

Vacuum Release Valve



Vacuum sensors in material lines at RSS, Resin Selection Station.

- The vacuum release valve located near the vacuum pump will NOT close off to ambient air inlet, and all vacuum energy will be drawn into the system through the vacuum release valve filter, preventing the system from moving material through that source/destination material path.

- The loading control will provide an alarm, informing the user that an incorrect source/destination tubing connection has been made. From that point forward, that receiver will not load material until:

  The connection has been corrected and the FLX alarm condition reset, or

  The control is reprogrammed to another source/destination and the alarm condition is reset.

- The FLX control will proceed to sequencing vacuum conveying power to other receivers requiring material.

ILP System Components

The ILP system consists of:

Pump

Dust Collector

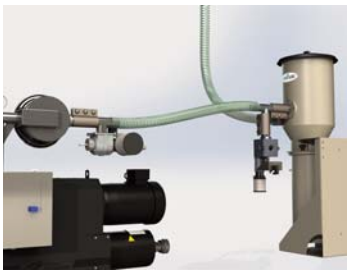
Fantail manifold

ILP Valve

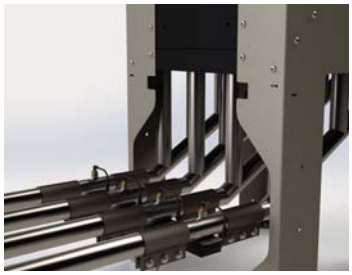
ILP pressure switches (up to 16)

Manifold Adaptor

FLX-128 Plus control



Pump and dust collector



Fantail Manifold

ILP valve

ILP pressure switches

FLX-128 Plus control

Specifications

COMPONENTS

- One vacuum pump (LDP, or PD)
- One ILP Valve
- One ILP vacuum sensor for each material to be proofed

- FLX-128 Plus
- FLX-128 Plus ILP expansion box OR
- FLX-128 Plus with Fill Sensor Cards in main or remote FLX-128 Plus box.

MODEL	ILP
Performance characteristics	
Maximum number materials	16 per ILP Box. 16 ILP Boxes per FLX-128 Plus
Required control	FLX-128 Plus
Required FLX-128 expansion	ILP Expansion Box, or Fill Sensor Cards in FLX-128 main/remote box
Dimensions	
Dimensions will vary depending on your RSS model specifics. Refer to the Resin Selection Station specifications.	
Weight	
Refer to the Resin Selection Station specifications for the size you require.	
Voltage requirements	
	120 volts for FLX-128 Plus*
Compressed air requirements	
Regulated clean compressed air	65-90 PSI (ILP Valve)

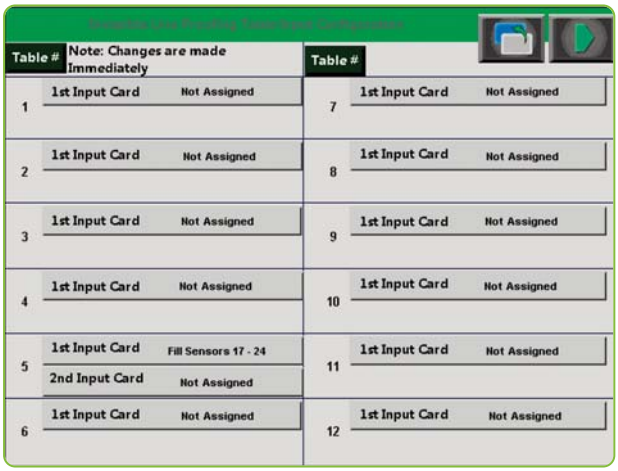
SPECIFICATION NOTES:

* FLX-128 Plus sends a 24 VDC signal to the ILP Sensors. The FLX-128 Plus also sends power to the valve on the pump.

Specifications may change without notice, consult with a Conair representative for the most current information.

CONTROL

The ILP is controlled by Conair's state-of-the-art new conveying control, the FLX-128 Plus.



SECTION
3

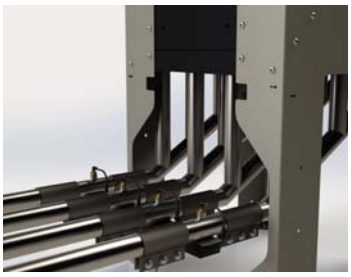
Installation

Unpacking the Boxes

The ILP comes in one or more shipping containers, depending on the options ordered.

The ILP consists of:
- An assembled RSS (Resin Selection Station Table)
- Manifold adaptors with ILP pressure switches (up to 16)
- ILP valve

Packaging for the ILP can be varied depending upon what has been ordered, so carefully inventory all items.



Fantail Manifold

Contact Conair Parts
1 800 458 1960
From outside of the United States, call:
814 437 6861

1 **Carefully remove all components** from their shipping containers.

2 **Remove all packing material, protective paper, tape, and plastic.** Do not discard installation notice tags.

3 **Carefully inspect all components** to make sure no damage occurred during shipping, and that you have all the necessary hardware.

ILP valve

ILP pressure switches

✎ **Note**: Conair recommends that unit is left attached to the skid for easy movement using a fork-truck. The unit should only be removed from the skid to be placed in it's final operating location.

TIP: Inspect all of the equipment in the presence of the fright carrier's representative for damage during shipment. Note any damage on the delivery receipt before signing it. If damage is evident, file a claim immediately against the carrier as it is their responsibility to pay for any damage incurred during shipping. Make sure to include a detailed report of the damage along with photos. Note that the camera and some other components are delicate and may not operate properly if damaged.

4 **Take a moment to record serial numbers.** The RSS table should have one serial number, and the FLX-128 Plus should have another. Be sure to document these numbers, as well as serial numbers to the pump and valve.

Preparing for Installation

Depending on how your ILP/RSS was shipped, you may need all or some the following tools for installation:

- ❒ **wire strain relief**
- ❒ **crane or fork truck to move RSS/ILP into position**
- ❒ **set of Allen wrenches**
- ❒ **set of metric and standard wrenches**
- ❒ **flashlight**
- ❒ **Phillips Head screw driver**

Clearance for Proper Operation

Operation of the ILP requires use access to the front and the back of the machine.

To the front of the RSS table, at least 48 inches {122 cm} of clearance is necessary for the operator to easily make resin selection changes at the table, and periodically clean and inspect the unit.

To the rear of the RSS table, at least 36 inches {92 cm} of clearance is necessary for maintenance and inspection.

⚠ **IMPORTANT:** The ILP should not be installed in extreme temperature locations. Ambient air temperatures below 41°F {5°C} and above 104°F {40°C} should be avoided.

Installation of the ILP requires that a ground be used for static discharge in the material lines.

Assembling the RSS/ILP

⚠ **CAUTION:** Always follow local and national guidelines when moving the equipment with an overhead crane or fork truck.

Depending on options ordered, and shipping distance, the RSS/ILP may arrive fully assembled, or in various stages of assembly. To protect sensitive equipment, the sensors and other equipment may have been removed after testing to be packaged safely for shipping.

If your RSS/ILP has arrived fully assembled, *see Moving the ILP into position later in this section of the User Guide.*

Assembling the RSS/ILP (if not fully assembled)

1. **Reference the drawings at the end of this user guide** and select the drawing that reflects your installation.

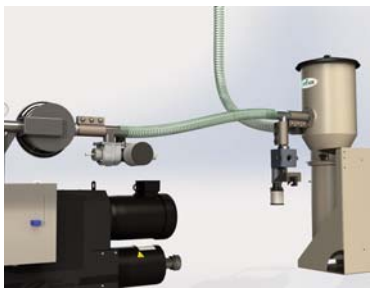
2. **Align the RSS table fantail manifold with the material conveying lines.** Leave room to attach the couplings with the ILP vacuum sensors if they are not already installed.

3. **Attach the couplings and the ILP vacuum sensors** (if not already installed.)

4. **Refer to the wiring diagrams that came with your equipment and connect the ILP vacuum sensors to the FLX-128 Plus.**

5. **Place the ILP valve on the Dust Collector.** The valve should be oriented such that access to the filter is available for maintenance. The Dust Collector should be installed and appropriately secured to handle the weight of the ILP valve.

✎ **Note**: In some applications, the ILP valve may be attached to the pump.



6. **Refer to the wiring diagrams that came with your equipment and connect the ILP valve to the FLX-128 Plus.**

7. **Connect the required compressed air to the ILP valve.**

Connecting the Main Power

The ILP components connect to various power supplies. Refer to the User Guides that came with your FLX-128 Plus, the LDP or PD Pump, and other components. The ILP vacuum sensors get the 24 VDC power they require from the FLX-128 Plus. The ILP valve gets the power it requires from the FLX-128 Plus as well.

⚠ **CAUTION:** Always disconnect and lock out the main power supply before making electrical connections. Electrical connections should be made only by qualified personnel.

⚠ **IMPORTANT:** Always refer to the wiring diagrams that came with your equipment to locate specific electrical components. Illustrations in the User Guide are intended to be representative only.

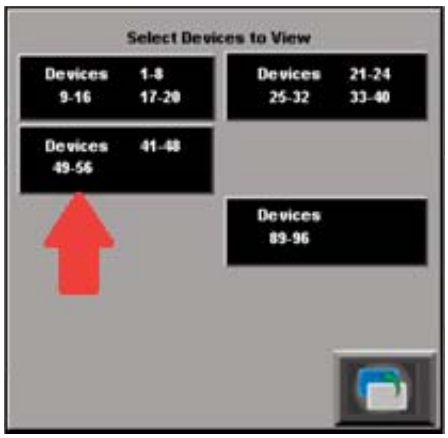
SECTION
4

Operation

Preparing the FLX-128 Plus for the ILP

Invisible Line Proofing (ILP) occurs automatically when a loader is assigned to a pump with an ILP valve and the selected source is located on an ILP table. The ILP valve prevents loading of the incorrect material until the source's input has been made. The FLX-128 Plus control needs to be configured to work with the ILP. The following sets of instruction will lead you through the process of setting up the FLX-128 Plus for use with the ILP system.

Device Settings



1 **From the Home page of the FLX-128 Plus, press the "Devices" button.**

2 **Click on the preferred device (loader) you want to enable for use with the ILP.**

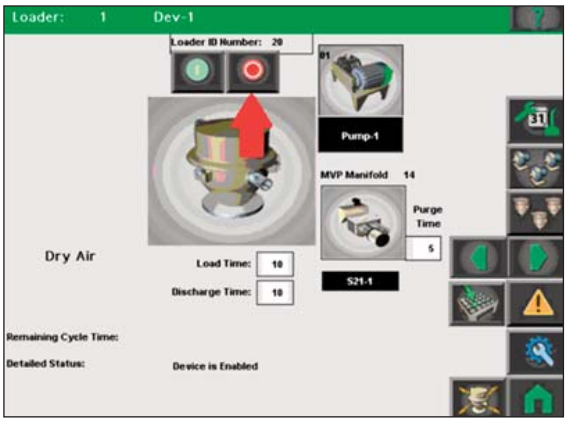
3 **Click on the device (loader) that you would like to modify the ID number of and enable for ILP use.**

(continued)

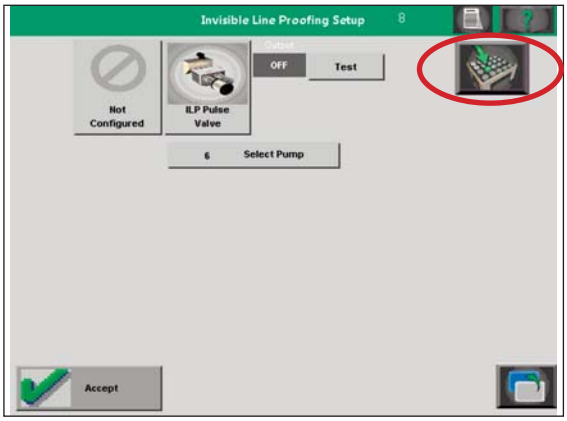
Device Settings

(continued)

4 Click the "Disable" loader button. The device must be disabled before changes can be made to the settings**.**

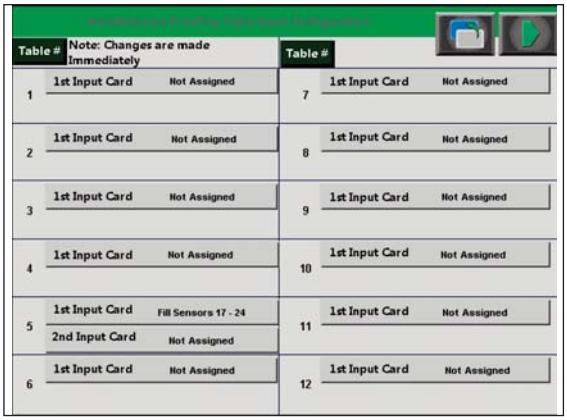


5 Each ILP valve is configured from the second of the device configuration pages. Once the ILP device type is selected, an associated pump can be assigned to the valve.



6 The proofing table icon button accesses the ILP Table Input Configuration screen.

7 ILP Table Input Configuration screen is where the fill sensor inputs are assigned to the 16 possible ILP tables. Select the table to be configured and pick an input card from the pull down menu. After the first 8 inputs are assigned to a table, the second 8 inputs can be assigned. The IP address range is from 131-146.



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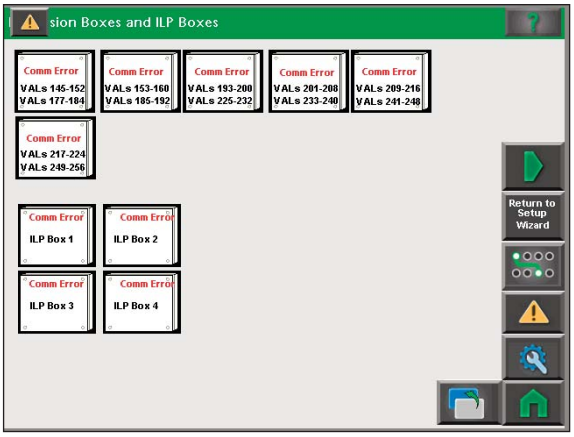
Device Settings

(continued)

8 **The status of the ILP sensor boxes can be view from the second Setup IO screen along with the standard source**



9 **Each source on an ILP table is assigned the table number and the manifold position on the table from the first device configuration screen.** These numbers are combined to form one number where the table number is multiplied by 100 and added to the position.

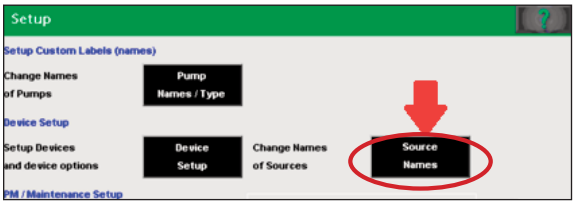
Example: Manifold 3 on ILP table 5 would translate to the number 503.

10 **Repeat this process for each device that will be used with the ILP.**

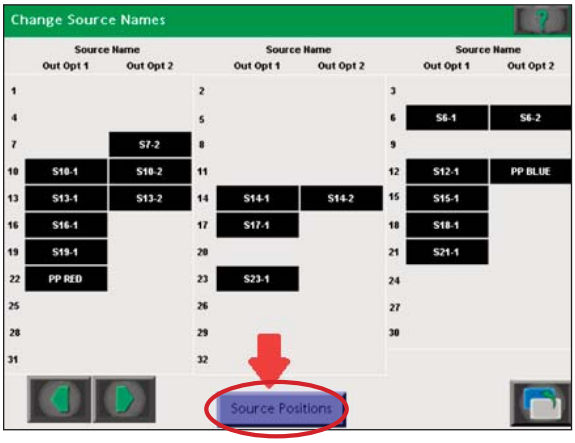
Source Settings

1 From the Home page of the FLX-128 Plus, press the "Settings" button.

2 Press the "Source Names" button. The Source Names page displays the source ID of the different materials.



3 Select the "Source Positions" button to indicate which manifold that source is connected to. The "View Source Positions" screen will display manifold positions for sources.



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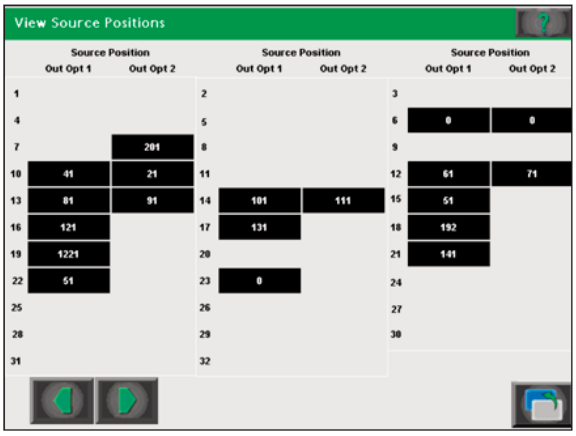
Example: Manifold 3 on ILP table 5 would translate to the number 503.



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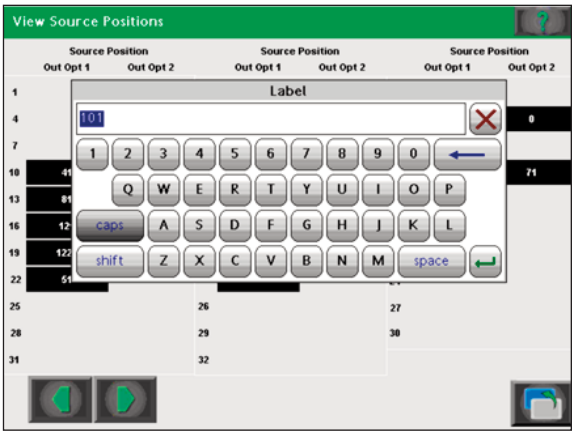
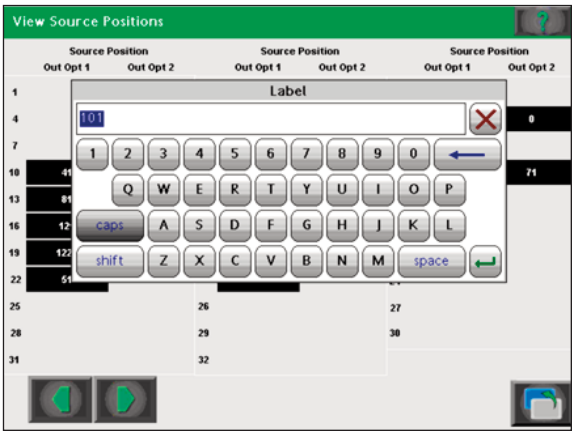
Source Settings

(continued)

5 **Press the material button to assign the manifold number that you want the device to draw from.**



6 **Repeat step 5 for each source position you would like to change.**



Testing the Operation of the ILP

After initial installation, or after re-locating or adjusting the ILP/RSS in any way, it is a good idea to test for proper operation. Testing should be completed without material in the system.

NOTE: This test will be performed of the ILP. Make sure that the FLX-128 Plus has been configured as described in the procedures in the Installation and Operation sections of this user guide.

1 **Make sure that the FLX-128 Plus is powered on and ready for operation.**

2 **Verify that the compressed air source is on and connected to the ILP valve.**

3 **Verify that the Pump (PD or LDP) is on and ready for operation.**

4 **Verify that conveying line connections are been made, and equipment is ready for operation.**

5 **On the FLX-128 Plus control, select a source material from one of the four material selection screens.** The manifold position number will be displayed on the screen if it is located on an ILP table.

6 **Place the loader hose in the correct manifold and enable the loader.** If the hose placement is correct, the material will attempt to load. If the hose placement is incorrect or no input is received, an alarm will become active, and material would not load.

7 **Testing is complete.** If something did not work correctly, *refer to the Troubleshooting section of this manua*l. If the FLX-128 Plus had any alarms, *refer to the Troubleshooting section of the FLX-128 Plus manual*.

SECTION
5

Maintenance

Preventative maintenance schedule

The ILP requires regular maintenance to ensure peak performance. Most maintenance is simple and can be performed by operators without specialized maintenance training.

- **Daily, or as often as needed**
  - ❒ **Visually inspect the RSS Table, ILP Value, Pump, Dust Collector, and ILP Vacuum Sensors.**
  - ❒ **Check all of the cables and junction boxes associated with the ILP.** Make sure all cables are intact, undamaged, out of harm's way, etc.
  - ❒ **Using a clean and dry microfiber cloth, wipe each the RSS table top.**

- **Monthly, or as often as needed**
  - ❒ **Using a clean, dry cloth wipe the RSS table top and the ILP Sensors.**
  - ❒ **Replace ILP Valve filter.**

- **Yearly, or as often as needed**
  - ❒ **Cycle power to the FLX-128 Plus control.** If you have not powered the unit down in a year, cycle power so that the FLX-128 Plus can re-start**.**

SECTION
6

Troubleshooting

Before Beginning

You can avoid most problems by following the recommended installation, operation and maintenance procedures outlined in this User Guide. If you have a problem, this section will help you determine the cause and tell you how to fix it.

Before you begin troubleshooting:

- ❏ Find any wiring, parts, and assembly diagrams that were shipped with your equipment. These are the best reference for correcting a problem. The diagrams will note any custom features or options not covered in this User Guide.

- ❏ Verify that you have all instructional materials related to the ILP. Additional details about troubleshooting and repairing specific components are found in these materials.

- ❏ Check that you have the manual(s) for other equipment connected in the system. Troubleshooting may require investigating other equipment attached to, or connected with the ILP.

A Few Words of Caution

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

This equipment should only 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 and adjusted 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 machine serial tag and data plate.

WARNING: Electrical hazard

Before performing maintenance or repairs on this product, disconnect and lock out electrical power sources to prevent injury from unexpected energization or start-up. A lockable device has been provided to isolate this product from potentially hazardous electricity.

What the ILP Can Tell You

The Invisible Line Proofing system (ILP) is a validation system that verifies that the correct material is being conveyed to the correct destination. The ILP is a combination of a Resin Selection System (RSS), the ILP Vacuum Sensors, the ILP Valve, the pump (LDP or PD), the Dust Collector, and the FLX-128 Plus.

The Invisible Line Proofing (ILP) system uses tube labels on the RSS (Resin Selection Station) in coordination with software to verify that the correct tube is in the correct location in the RSS table. This ensures that the correct material will be conveyed to the desired location and eliminates cross-contamination.

Conair's FLX-128 Plus can be used to program a desired material change. Once the operator has completed moving the tube(s), the ILP will convey material if the connection is correct.

Understanding Alarms

The ILP, in conjunction with the FLX-128 Plus monitors material sources and destinations, and prevents incorrect conveying of material.

On the FLX-128 Plus, when there is an active alarm, the square at the bottom right of the screen will change from green to red, and will display the current active alarm.

The information in the flashing red box tells you what has triggered the alarm, and at what time the alarm occurred.

ILP Alarms and Problems

Symptom	Possible cause	Solution
Alarm - Communication error	**A cord or cable is unplugged or damaged.**	❒ Make sure that all cords are connected and undamaged. This includes cords to and from the FLX-128 Plus enclosure, to and from the ILP Sensors, the ILP Valve, the receivers, and the pump.
Material not conveying	**There is an alarm or error outside the ILP system.**	❒ Check the FLX-128 Plus for alarms. ❒ Check all conveying equipment for faults or alarms.
Loss of vacuum	**Tube cut or disconnected**	❒ Verify that all tubes are connected and undamaged.
	Loader Filter clogged/plugged	❒ Check and replace filter in the loader if necessary.
	System leak	❒ Check for any leaks in the material conveying system.
	Receiver flapper open	❒ Verify that the Receiver is operating properly.
	Pump not running	❒ Verify that the pump is on and operating correctly.
	Dust Collector clogged	❒ Check to make sure that the Dust Collector does not need emptied or that the filter does not need replaced.
	Cyclone clogged (if equipped)	❒ Verify that the Cyclone is operating correctly and does not need emptied or cleaned.
	ILP Valve malfunction	❒ Verify that the ILP Valve opens and closes properly. ❒ Verify that connection between the valve and the control is intact and not kinked or damaged.

ILP Alarms and Problems
(continued)

Symptom	Possible cause	Solution
Alarm - Loss of vacuum (continued)	**ILP Valve malfunction**	❒ Verify that the valve is connected to compressed air, and that the compressed air is operating at the appropriate pressure. ❒ The ILP sensor may need replaced. Contact Conair Service if the valve does not appear to be operating properly.
Material is not conveying	**ILP Sensor not functioning correctly**	❒ Check other material lines, to see if there is a problem with one of the sensors. ❒ Check the sensor for resistance/continuity. ❒ Check wiring and connection of the sensor to the FLX-128 Plus. ❒ Verify that the sensor is not damaged. ❒ Remove the coupling and sensor and wipe the tubing and sensor to verify that they are clean. ❒ Verify that the material conveying lines have a ground for static discharge. ❒ Check for a vacuum leak in the system. ❒ Verify communications to the distribution box or FLX-128 Plus. ❒ Verify that compressed air is available and at the correct pressure for the ILP valve.

ILP Alarms and Problems
(continued)

Symptom	Possible cause	Solution
Alarm - ILP input not found (the FLX-128 Plus tries for 25 seconds to connect to the ILP sensors. If no vacuum is sensed, this alarm is triggered.)	**Bad Connection**	❒ Verify connections between sensors and FLX-128 Plus, and connections between ILP valve and FLX-128 Plus.
	Incorrect settings in FLX-128 Plus	❒ Verify that the FLX-128 Plus setup has been completed between ILP Proofing function.
	Loss of Vacuum	❒ See Troubleshooting section of this User Guide.
	No material	❒ See Troubleshooting section of this User Guide.

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. Most manuals can be downloaded free of charge from the product section of the Conair website. www.conairgroup.com

How to Contact Customer Service

To contact Customer Service personnel, call:

✎ **NOTE:** Normal operating hours are 8:00 am - 5:00 pm EST. After hours emergency service is available at the same phone number.

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, control type from the serial tag, 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.