Total Control of Various Size Conveying Systems; Easily Expandable

Now with features never offered before by any conveying control, the FLX-128 Plus was designed for today's newest conveying technology. The FLX-128 Plus maintains all the features and capability that made the original FLX-128 so popular, plus much more! Smarter, faster, and stronger, the FLX-128 Plus is designed to work with Conair's Wave Conveying™ System, the ILP (Invisible Line Proofing), the MVP (Material Vision Proofing), the AS (AutoResin Selector), the RCU (Railcar Unloading) and Silo Truck-Fill Line Proofing. The FLX-128 Plus Flexible Control System utilizes a combination of centralized I/O and expansion modules, interconnected via industrial Ethernet to provide control of up to 128 receivers, 40 pumps (plus 2 back-up pumps) and 256 source valves. A color touchscreen with descriptive picture icons assures that even with little or no training, any user will be comfortable monitoring or making changes on up to 40 independently operating vacuum systems.

Model FLX-128 Plus

With Recipes and VFD Control, Multiple Functions with Each Pump

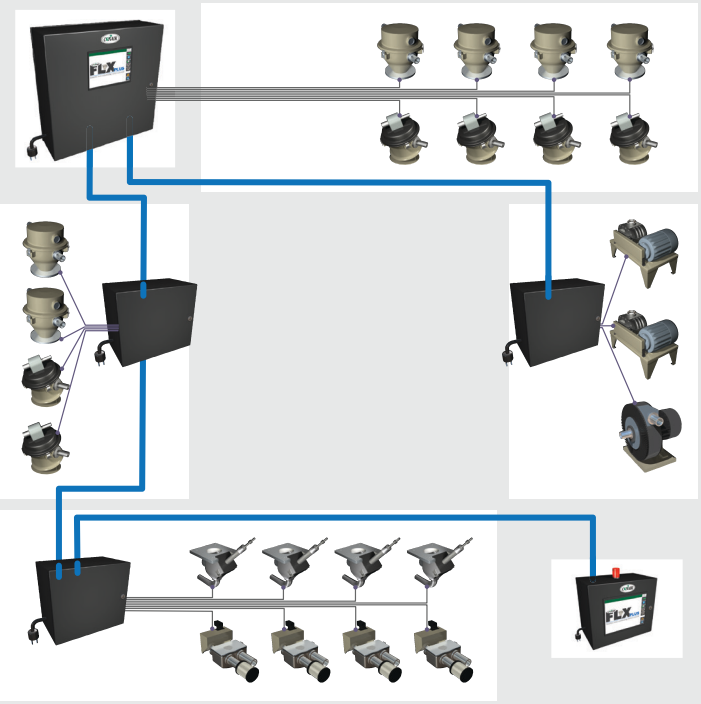
The FLX-128 Plus allows one pump to do multiple functions. Using a VFD and customized recipes, the same pump can convey at multiple rates to the same or different receivers. Each receiver can have up to ten unique recipes, which store settings for load time (programmable to 1/10th of a second), VFD speed, Wave Conveying™ settings, and purge time.

Conveying components are commonly spread across plants; on processing machines, on mezzanines, in pump rooms, on multi-component blenders and source valves and grouped at material supply hoppers. In these common arrangements, the FLX-128 Plus conveying control is right at home, providing input/output (I/O) capability in modular panels, interconnected via Ethernet. Connections to individual conveying components are minimized since I/O modules can be placed where they are needed and connected to the main FLX-128 Plus control via Ethernet.

The FLX-128 Plus system utilizes Programmable Logic Controllers (PLC's) in modular panels, with touchscreen panel(s) equipped with colorful icons to assure that all authorized personnel can operate the system. Shared conveying components, like back-up pumps and material purge valves, operate seamlessly with multiple vacuum systems.

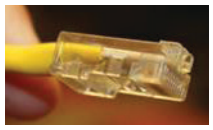
- **Economical and expandable**
  Buy only the control capacity you need today, and then expand with additional modules as your business grows. The FLX-128 Plus is the right choice for small systems all the way up to 128 receivers and 40 pumps.
- **Minimize wiring with modular components**
  Groups of receivers, pumps and valves can be easily added with a simple Ethernet connection to modular expansion panels.
- **Color touchscreen**
  The 8-inch full color touchscreen control provides easy navigation via internationally understood icons. Add up to five additional touchscreens, wherever you need them. A 15-inch control is available as an option.
- **Remote access via web pages**
  Ethernet connection allows you to connect and view the system from any PC, anytime, anywhere.
- **Wave Conveying™, ILP, MVP, AS, RCU and Silo Truck-Fill ready**
  The FLX-128 Plus is ready for use with Conair's Wave Conveying™ System, ILP (Invisible Line Proofing), and/or MVP (Material Vision Proofing), and/or AS (AutoResin Selector), RCU (Railcar Unloading) and Silo Truck-Fill Line Proofing equipment.

How it Works



- Once I/O panels are interconnected to the main FLX-128 Plus control panel, the FLX instantly recognizes them and makes all connected conveying components available for use. The FLX automatically provides pump management for independently operating systems that call upon shared source valves at the same time.

- Input and output signals can be connected via a Conair UTB (Universal Terminal Box) for an easy plug-in loader connection.



Ethernet Cable

Fiber Optics

- Ethernet makes the long runs. Via CAT 5 copper wire or fiber optics, the Ethernet network connects all of the FLX-128 Plus expansion panels. Receivers, pumps and valves then wire into these localized panels.

Features

- First-In/ First-Out (FIFO) priority loading
- Load and hold loading
- Multi-source, multi-destination conveying
- Unloading (reverse regrind) system capability
- Ratio loading, positive discharge and fill sensor operation
- Purge and pocket valve operation
- Broad choice of expansion panels for system growth
- Up to six Human Machine Interface (HMI) panels
- Multiple levels of password protection
- Set-up Wizard, I/O test mode, help screens
- Text messaging and email capabilities
- Preventive maintenance tracking
- CAT 5 or fiber optic network wiring
- Industrial Ethernet communications
- Alarms can be set for use in up to eight different zones
- Custom navigation, custom receiver groups
- Ready for use with Wave Conveying™, ILP, MVP, AS, RCU and Silo Truck-Fill Line Proofing equipment

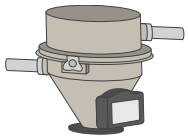
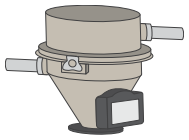
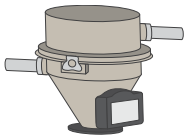
Options

- Add simple expansion panels for groups of receivers, pumps, source valves or a combination of receivers and valves
- Control where you need it. Up to six (6) full color operator interface panels can be located wherever is best for you Each panel controls the entire conveying network
- Remote alarm and/or Remote HMI with alarm

The Recipe Advantage

Ten unique recipes can be set for each receiver (up to 128 maximum) for quick setup. Each recipe allows for setting:

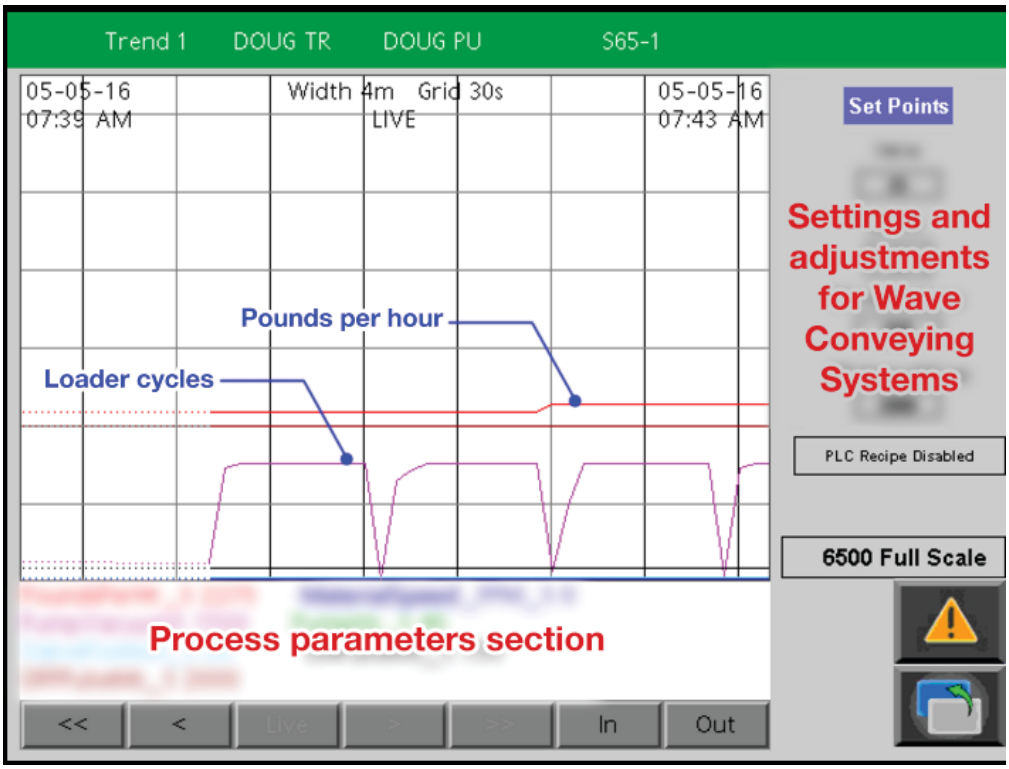
- Load time (can be programmed down to 1/10th of a second
- VFD speed
- Wave Conveying™ settings
- Purge time

	Receiver #1	Receiver #2	Receiver #3
Load Recipe	6	3	9
Purge Recipe	10	0	0
			
VFD	60%	80%	100%
Load Time	30s	20s	15s
Operation	Wave Conveying	Standard	Wave Conveying

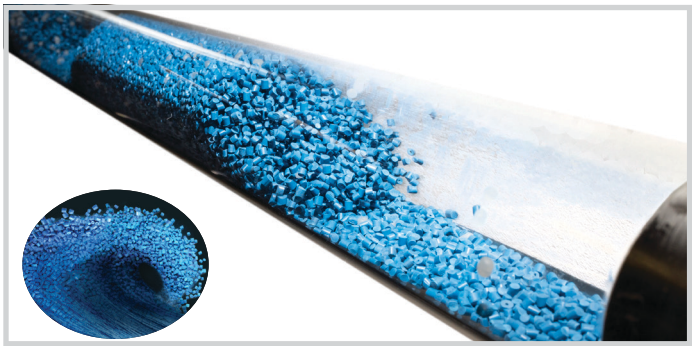
Performance Graph

This web-enabled Performance Graph screen shows current throughput, and can be used for diagnostics for up to 10 receivers at a time. The Performance Graph displays:

- VFD speed
- Resin speed (when equipped with Wave Conveying Sensor)
- Throughput (when equipped with fill sensor)
- Wave Conveying valve pulses
- Wave Conveying valve parameters
- Pump pressure (Wave Conveying Pump Expansion Box required)



ILP, MVP, Wave Conveying™, AS, RCU, Silo Truck-Fill Ready…



Wave Conveying™ Operation

The FLX-128 Plus is essential for the operation of Conair's Wave Conveying™ system. Wave Conveying uses slow-speed conveying (300 – 2800 feet-per-minute) to move sensitive materials that often cause problems like dust, angel hair, or wear to conveying systems when conveyed at the high speeds of conventional conveying.

See the Wave Conveying specification sheet for more information.

MVP Operation

Let the Material Vision Proofing (MVP) system not only assure proper connections, but also tell the operator where the hose should be connected. A camera keeps track of all connections. The MVP can monitor up to 12 material sources.

See the MVP specification sheet for more information

ILP Operation

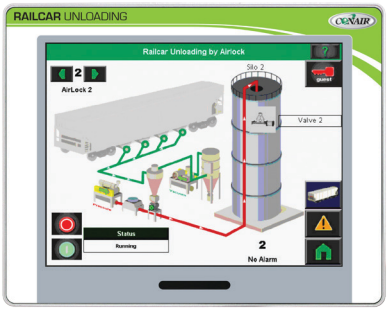
Add invisible Line Proofing (ILP) to your system to assure each material connection never suffers from human error. Each connection must be made correctly, or material through that line will not move. The FLX-128 Plus can control 16 ILP Stations, each capable of proofing 16 material lines.

See the ILP specification sheet for more information.

AS Operation

Conair's AutoResin Selector (AS) is the most advanced automated material selection system yet. An operator uses the AS control to input which source needs to be connected to which destination. FLX-128 Plus Communication uses an RS485 connection from the AS valve control wired back to the any of the FLX-128 Plus boxes with an HMI.

See the AS specification sheet for more information.



RCU Operation

The powerful Conair Railcar Unloading (RCU) package integrates control functions for multiple railcar unloading systems, airlocks, material-routing valves, and silo monitors/loaders. It enables authorized users to view and manage the entire process – railcar unloading, silo sections, material routing, and silo filling.

See the RCU specification sheet for more information.

Silo Truck-Fill Operation

The Silo Truck-Fill Line Proofing system utilizes silo fill quick change couplings that are mechanically locked, and are only opened by plant pre-authorized supervisors who can log in to the FLX-128 Plus control platform and unlock the appropriate silo fill line.

See the Silo Truck-Fill Line Proofing specification sheet for more information

Control Features

The FLX-128 Plus Conveying Control System is not only powerful and flexible, but is also the most convenient loading system control to operate.

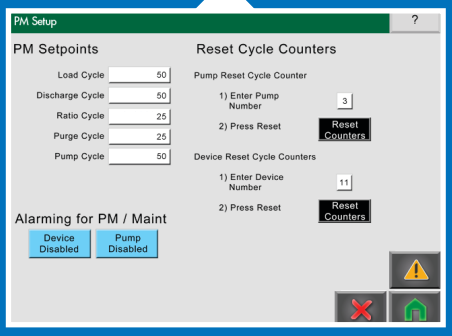
- Colorful icons mimic the system components they represent and change to show operating status with minimal need for words.
- Help screens provide multi-lingual support for every page and every control activity.
- Shop floor personnel immediately understand and find the touchscreen FLX very easy to use.

Operating system

- An entire group of receivers can be viewed at once and each function is exhibited so you know exactly what's happening in your operation. Shown are loading, dumping and demand activities.

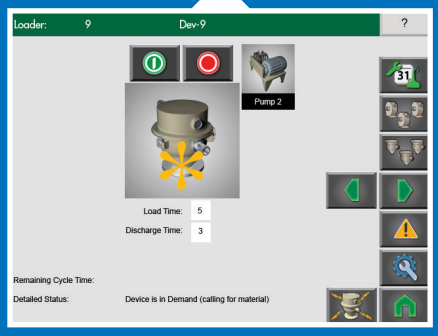
Preventative maintenance

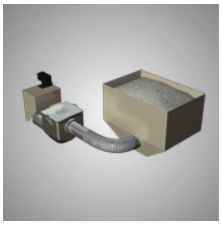
- The FLX-128 Plus automatically keeps track of equipment run times to help you plan periodic maintenance. Back-up pumps may be easily selected with the press of an icon on the touchscreen.



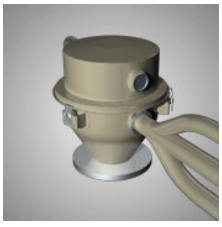
Detailed screens

- From selecting equipment interconnections to adjusting load times, monitoring and managing resin movement throughout your factory has never been easier.





Central vacuum unloading: Each FLX-128 Plus has the ability to not only load hoppers and machines, but also unload vessels that need to be kept evacuated, like granulator bins. A level sensor in the bin can trigger unloading from multiple bins to a common receiver, or dedicated receivers.

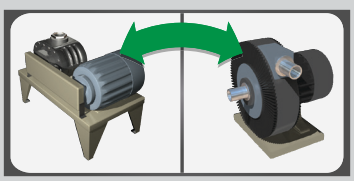


Multi-source: The multi-source button allows a single receiver to pull material from multiple sources to a common destination.

Valve sharing: The FLX-128 Plus's sophisticated pump management capability, often referred to as valve sharing or pump stacking means the FLX-128 Plus will automatically organize multiple demands on common components like purge valves, streamlining operation and eliminating redundant equipment needs.

System restoration: Both the PLC program and user settings are preserved on memory cards for safekeeping.

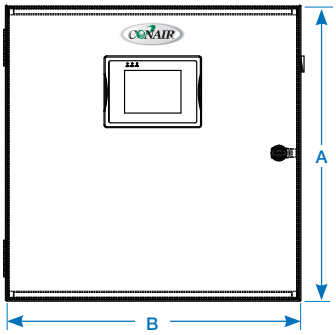
Email and text option: With this option, the FLX-128 Plus can send alarm messages as emails or text messages.



Make it clear: The FLX-128 Plus not only displays icons that aid in understanding system operation, but specific icons can be selected for the actual equipment in use, with minimal need for words.

Specifications

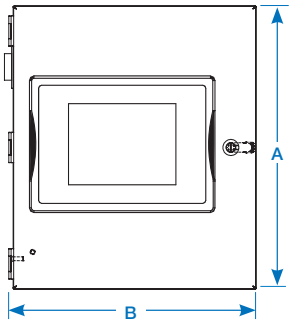
Main Control Panel and Remote I/O



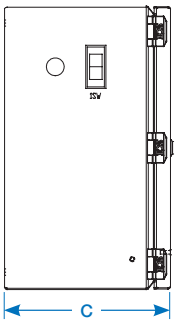
Front view

Side view

Remote HMI and Expansion Panels



Front view



Side view

Model	FLX-128 Plus
Performance characteristics	
Maximum number of vacuum receivers	up to 128
Maximum number of vacuum pumps	up to 40 (plus 2 back-up)
Programmable Logic Controller:	
Main control panel	Wago 8202
Remote I/O	Wago 750-871
Operator interface	Red Lion (8-inch standard, 15-inch optional)
Output voltage to receivers/valves	24 VDC (24/120 VAC optional)
Input voltage to receivers	24 VDC
Output voltage to pumps	24 VDC (24/120 VAC optional)
Power/Amps	120 VAC/1.6 Amps/60 Hz

Input/Output Capabilities	Main control panel (available with or w/o HMI)*	Remote I/O (available with or w/o HMI)*	Receiver expansion panel	Pump expansion panel	Source Valve expansion panel	Ratio Valve expansion panel	Wave Conveying Pump/VFD expansion panel	Wave Conveying Valve expansion panel
Receivers	up to 32	up to 32	up to 8†	-	-	up to 8	-	-
Pumps	up to 10, (plus 1 back-up)	up to 10, (plus 1 back-up)	-	up to 4	-	-	up to 4	-
Valves	up to 64	up to 64	-	-	up to 16	up to 16	-	up to 8

Dimensions inches {mm}	Main control panel	Main control w/ optional voltage	Remote I/O w/ HMI	Remote I/O w/ HMI w/ optional voltage	Remote HMI	Expansion panels
A - Height	24 {609}	36 {914}	24 {609}	36 {914}	14 {355}	14 {355}
B - Width	24 {609}	30 {762}	24 {609}	30 {762}	12 {304}	12 {304}
C - Depth	8 {203}	8 {203}	8 {203}	8 {203}	8 {203}	8 {203}
Approximate weight lb {kg}						
Installed	60 {27}	48 {21}	60 {27}	60 {27}	29 {13}	22 {10}
Shipping	72 {32}	60 {27}	72 {32}	72 {32}	36 {16}	35 {15}

Maximum number of expansion panels (per panel type) ‡	
Main control panel	1 panel maximum (32 loaders and 64 valves each – with or without HMI)*
Remote I/O panel	1 panel maximum (32 loaders and 64 valves each – with or without HMI)*
Receiver expansion panel	8 panels maximum (8 loaders each, or 16 loaders each with no options)
Pump expansion panel	5 panels maximum (4 pumps each)
Source valve expanison panel	8 panels maximum (16 valves each)
Receiver/valve combo expansion panel	8 panels maximum (8 loaders and 16 valves each)
Pump/VFD expansion panel	5 panels maximum (4 pumps each – required for Wave Conveying)
Wave Conveying valve expansion panel	8 panels maximum (8 devices and 16 valves each)

Specification Notes

* Maximum of six HMI total.

† Total number of receivers on the receiver expansion panel can be 8 with options (fill sensor) and alarms, or 16 with no options.

‡ Selected I/O expansion panels cannot exceed the total FLX capacity of 128 receivers, 40 pumps and 256 source valves.

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