

# Auto-Configuration; Intelligent Flexibility

Conair revolutionized control of conveying systems with the FLX (flexible) control. SmartFLX is the fastest (6000 times faster to be exact) control ever - designed specifically for today's newest conveying technology. The SmartFLX maintains all the features and capability that made previous versions so popular, plus more! Smarter, faster, and stronger, the SmartFLX is easily expandable and can continue to grow with your plant. This system is designed to be easier to install, configure, and use than any other conveying control - all with lightning speed.

The flexible control system utilizes a combination of centralized I/O and expansion modules, interconnected via industrial Ethernet or fiber to provide control of up to 128 receivers, 40 pumps, and 128 source valves. A large color touchscreen with descriptive graphics, enhanced diagnostics, and advanced help screens assures that any user will be comfortable with the control.

Lower capital cost and lower long-term operating costs. Win-Win!



SmartFLX

## Easily control small to large conveying systems; grow as you go

The SmartFLX allows Conair to configure your conveying control specifically for your application. You'll get custom clean wiring diagrams, with the ability to update/modify all prints when you grow or update your system in the future. The SmartFLX includes enhanced testing, help, and diagnostics, to keep your system running at optimum levels. Features like Ethernet diagnostics can analyze packets and alarm if it detects possible damage to a wire from being run-over, bent, or twisted. Using a VFD and customized recipes, the same pump can convey at multiple rates to the same or different receivers. Each receiver can have unique recipes, which store settings for your different processes.

We know that components are commonly spread across plants, processing machines, mezzanines, pump rooms, multi-component blenders and material supply hoppers. That's no problem for the SmartFLX since it provides input/output (I/O) in modular panels, interconnected via Ethernet or fiber. Connections to individual conveying components are minimized since I/O modules can be placed where they are needed and connected to the main SmartFLX control via Ethernet (distances under 200 feet) or fiber optic cable (distances over 200 feet).

### ▶ **Communications in microseconds**

No delays here. The SmartFLX is literally 1000x faster than the previous generation. Seconds count, so we've made sure that the SmartFLX operates and communicates much more quickly than any other control. Once you try it, you'll be impressed.

### ▶ **Economical and expandable**

Buy for the components you have today, and then expand with additional modules as your business grows. The SmartFLX is the right choice for small systems all the way up to 128 receivers and 40 pumps. (Larger systems available Summer of 2021.)

### ▶ **Minimize wiring with modular components; connections made easier**

Groups of receivers, pumps and valves can be easily added with a simple Ethernet connection or fiber cable to modular expansion panels. And every time you add a new component, you'll get an up-to-date clean wiring diagram.

### ▶ **Color touchscreen**

The 10-inch full color touchscreen control provides easy navigation via internationally understood icons. Up to two additional touchscreens can be added wherever you need them.

### ▶ **Stay connected - VNC, email and text alerts, SmartServices ready!**

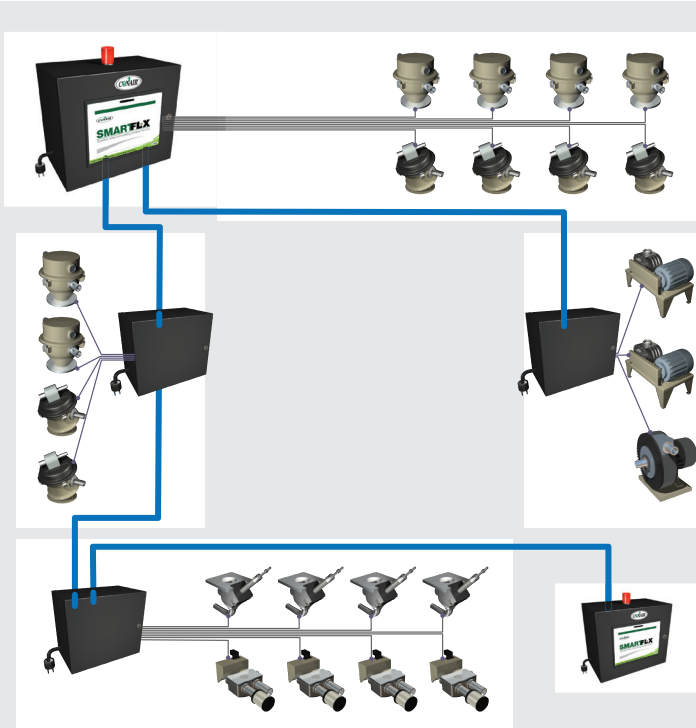
An available VNC connection allows you to connect and operate the system from any PC, anytime, anywhere. Alarms and notifications can be sent via email and text to selected personnel. Best of all - the SmartFLX is SmartServices ready - of course.

### ▶ **Wave Conveying™ and Conveying with Optimizer ready**

Conair's patented Wave Conveying™ System is a game changer. SmartFLX controls it. The revolutionary Conveying with Optimizer valve works in conjunction with the AI capabilities of the SmartFLX, and the pump, receivers, and sensors to fully optimize any conveying system.



# How it Works



- 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

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

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

# Features

- Enhanced set-up wizard, diagnostics and help screens.
- First-In/ First-Out (FIFO) priority loading
- Load and hold loading
- Keystroke logging
- 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
- VNC remote connection
- SmartServices ready
- Multiple levels of password protection
- Text messaging and email capabilities
- Preventive maintenance tracking
- SQL Reporting
- Industrial CAT 5 Ethernet or fiber optic network wiring
- Alarms can be set for use in up to eight different zones
- Custom navigation, custom receiver groups
- Ready for use with Wave Conveying™ and Silo Truck-Fill Line Proofing equipment

# Options

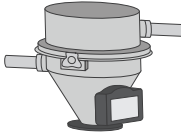
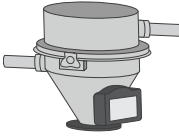
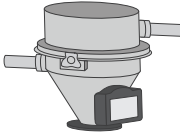
- Add simple expansion panels for groups of receivers, pumps, source valves or a combination of receivers and valves.
- Control where you need it. Two additional full color operator interface panels can be located wherever is best for you. Each panel controls the entire conveying network
- Remote alarm and/or Remote HMI with alarm.
- Conveying with Optimizer, easily-retrofitable and AI driven.



## The Recipe Advantage

Ten unique and customizable 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)
- Discharge time
- Ratio settings
- VFD speed
- Wave Conveying™ settings
- Purge time

	Receiver #1	Receiver #2	Receiver #3
Recipe name	ABS	PPE Blue Line#2	Line #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

## Improved User Interface

The SmartFLX is even easier to use, with an improved user interface. The control has a larger screen, improved icon and graphics, simple menu navigation, and contextual help mode. In contextual help mode, the control overlays a description of all the different features and selections of the control.



**Contextual Help Mode**

A number indicating severity of the alarm 1=severe, ...

Time	Priority	Event	Type	Detail
The time the alarm changed state		The state of the alarm, set, reset, set/ack, reset/ack. Also indicates if the alarm has been acknowledged	A description of the alarm including the name of the device that caused the condition	<p><b>[Device]   Source not enabled</b></p> <p>This alarm indicates that the source device assigned to the receiver is not enabled. This will prevent the receiver from filling.</p> <p><b>Cause</b></p> <p>The receiver's assigned source is disabled.</p>

SmartFLX

flexible resin conveying system control

Groups

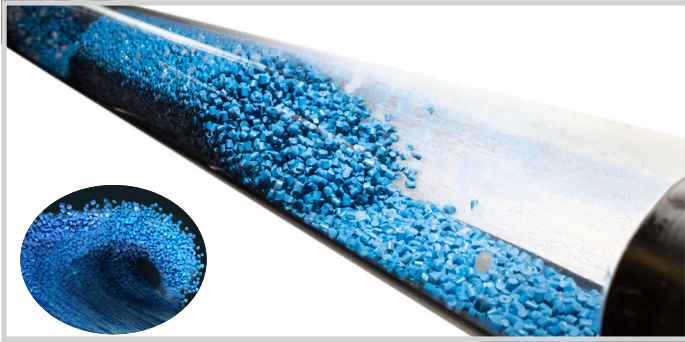
- Group A Bld11
  - Pump 1
  - Receiver 1
  - Receiver
- Nicks Group
  - Pump 2
  - Pump 6
  - Receiver
- New Group
  - Receiver 5

SmartFLX

- Report
- Alarm List
- System
- Configuration
- Users
- Maintenance
- Help

Station ID 101 | 96 | 101 | 95 | 204 | 146  
Firmware v1.01.3 10/28/2020

# Wave Conveying™, RFID Proofing, and AutoWave Ready...



## Wave Conveying™ Operation

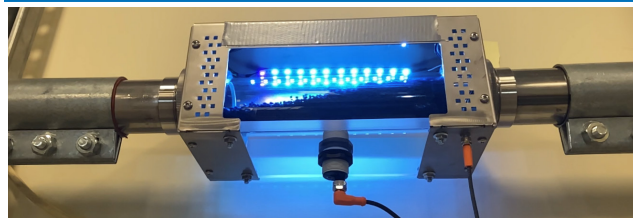
The SmartFLX is essential for the operation of Conair's Wave Conveying™ system. Wave Conveying uses slow-speed conveying (300 – 2800 feet-per-minute) to move sensitive materials that often cause problems like dust, angel hair, or wear to conveying systems when conveyed at the high speeds of conventional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

See the Wave Conveying specification sheet for more information.



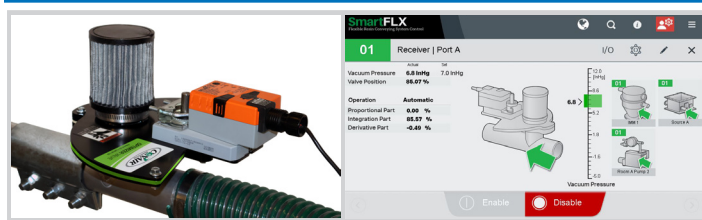
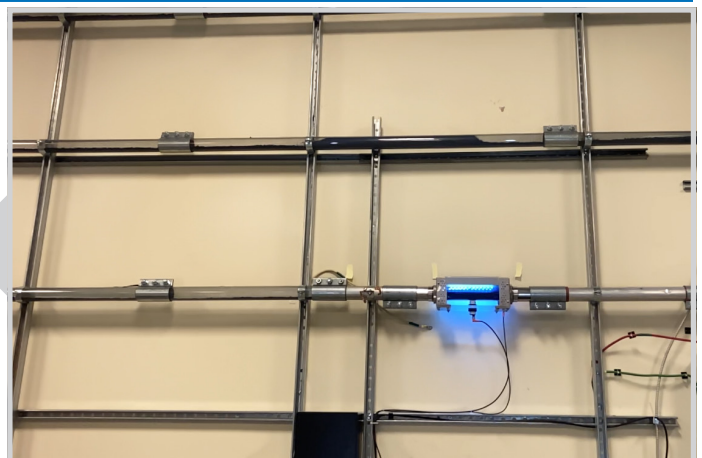
## RSS with Wireless RFID Proofing

The Resin Selection Station is perfect for providing flexibility to convey any material to any destination. The RFID proofing option eliminates the potential for incorrect material changes, and provides a time-stamped material history for proper traceability. Proofing is completed via wireless communication at the physical connection. Operators are directed by LED lights to make the correct connection. Material movement will not occur until the correct connection is established. That's real proofing. (Available Summer 2021.)



## AutoWave

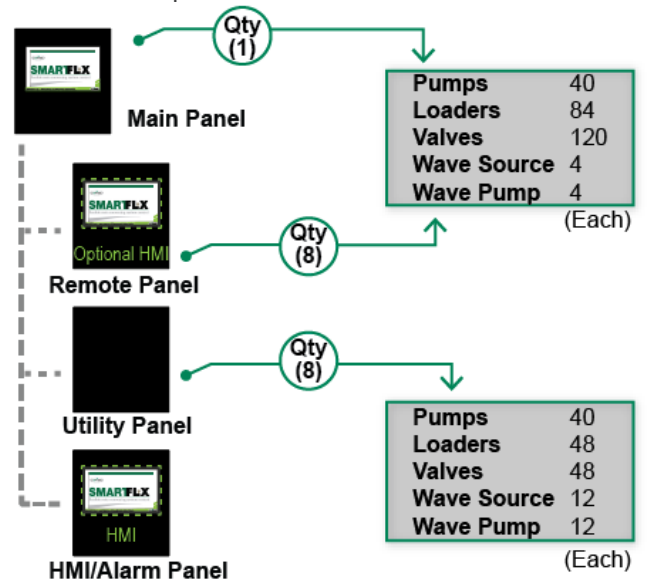
With AutoWave, Wave Conveying just became automated. The AutoWave system tracks material movement, and allows the operator to select the Wave Conveying flow desired (Wave Stream, Wave Pulse, or standard dilute phase), and the SmartFLX makes all the adjustments necessary to make the material flow as desired. SmartFLX and AutoWave work together to keep material flow at the desired speed. (Available Summer 2021.)



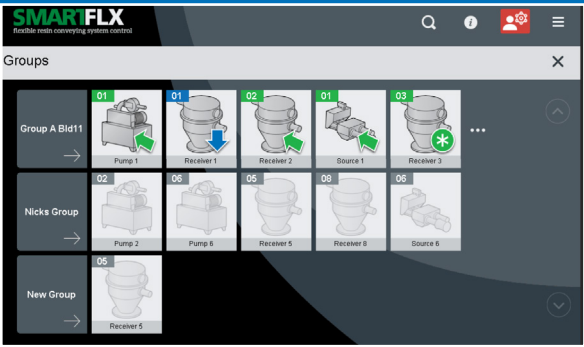
## Conveying with Optimizer

The artificial intelligence built into Conveying with Optimizer replaces error-prone human decisions, instead making autonomous system adjustments that move material while compensating for typical conveying system faults. The Optimizer package combines novel software, hardware, sensors, and intelligence with the high-speed computing power of the SmartFLX control. Together, these elements sense, calculate, and compensate for changing conditions far faster than a human could, while ensuring optimal air/material ratios and trouble-free conveying. And, the capability of the Optimizer feature enables it to continually refine and perfect each conveying cycle over time.

**Flexible** - Flexible I/O allows configuring, installing, and growing a system to be more simple.



# Control Features



The SmartFLX Conveying Control is not only the fastest communication and most powerful and flexible control to date, but is also the most intuitive loading system control to operate.

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

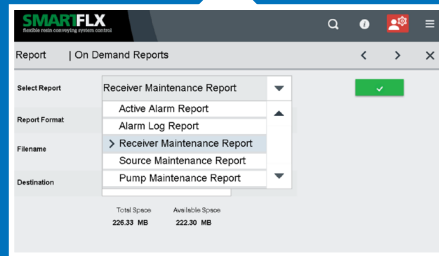
## Operating system

- 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.



## On-demand reporting

- Many on-demand reports from preventative maintenance reports by device to alarm history.



## Detailed screens

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

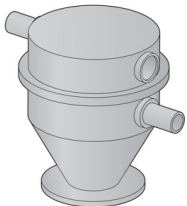


**Central vacuum unloading:** SmartFLX has the ability to not only load hoppers and machines, but also unload vessels that need to be kept evacuated, like granulator bins. A level sensor in the bin can trigger unloading from multiple bins to a common receiver, or dedicated receivers.

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

**System restoration:** User/system settings can be output to a USB drive for future use.

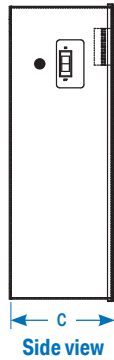
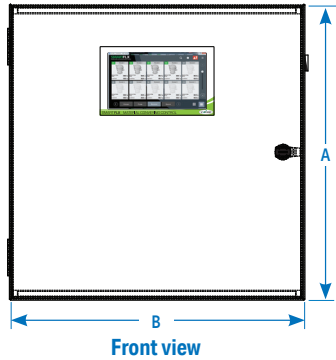
**Email and text option:** With this option, the SmartFLX can send alarm messages as emails or text messages.



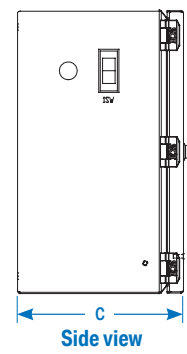
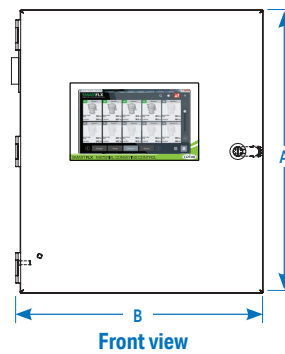
**Multi-source:** The multi-source button allows a single receiver to pull material from multiple sources to a common destination.

# Specifications

## Main Control Panel and Remote I/O



## Remote HMI and Expansion Panels



Model		SmartFLX				
<b>Performance characteristics</b>						
Maximum number of vacuum receivers	up to 128					
Maximum number of vacuum pumps	up to 40					
<b>Programmable Logic Controller:</b>						
Main control panel	X20CP1684 PLC CPU with 400Mhz Atom processor with L1 and L2 cache, 512 MB LPDDR SDRAM and 1 GB flash memory.					
Remote I/O	PLC racks in remote panels on a PowerLink network					
Operator interface	10.1-inch touch screen					
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					
<b>Input/Output Capabilities (maximum possible in a system)</b>	<b>Main control panel (available with or w/o HMI)*</b>	<b>Remote I/O panel (available with or w/o HMI)*</b>	<b>Utility panel</b>			
Panels	1	8	8			
Receivers (per panel)	up to 32	up to 32	up to 48			
Pumps (per panel)	up to 40	up to 40	up to 40			
Valves (per panel)	up to 120	up to 120	up to 48			
<b>Dimensions inches (mm)</b>	<b>Main control panel</b>	<b>Main control w/ optional voltage</b>	<b>Remote I/O w/ HMI</b>	<b>Remote I/O w/ HMI w/ optional voltage</b>	<b>Remote HMI</b>	<b>Expansion panels</b>
A - Height	30 {762}	36 {914}	30 {762}	36 {914}	14 {355}	14 {355}
B - Width	30 {762}	30 {762}	24 {609}	30 {762}	12 {304}	12 {304}
C - Depth	8 {203}	8 {203}	8 {203}	8 {203}	8 {203}	8 {203}
<b>Approximate weight lb (kg)</b>						
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}

### Specification Notes

\* Maximum of five HMI total.

† Total number of receivers on the panel is dependent on options (fill sensor) and alarms.

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

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

