Encore® LT Automatic Powder Spray Systems

⚠️ **WARNING:** Allow only qualified personnel to perform the following tasks. Follow the safety instructions in this document and all othe related documentation.

Controller Interface

Enable/Disable

Select Charge Mode Settings

KV/µA Setting/Output

STD/AFC Mode Toggle

Trigger LED

Flow Air Output (Classic)
Flow Air % Output (Smart Flow)

Smart Flow LED

Atomizing Air Output (Classic)
Total Flow Output (Smart Flow)

Low Power Mode: Press the **Enable/Disable** button for three seconds to put the controller to sleep. To wake the controller press the button again.

External Trigger Mode: Guns that are turned on and off by an external signal. To turn off a single gun, press the **Enable/Disable** button in its controller. The next trigger signal automatically turns the gun back on.

Continuous Trigger Mode: In this mode, **Enable/Disable** buttons turn the guns on and off.

When the gun is triggered, the Trigger LED lights will illuminate, and the actual kV/µA outputs are displayed. The two air flow displays always show the setpoints.

The Smart Flow LED light will illuminate when the controller is configured for the Smart Flow mode. Refer to the Powder Flow Setting for an explanation.

Press the **+** or **–** buttons to select the desired setpoint. The longer a button is pressed, the faster the units change.

Electrostatic Settings
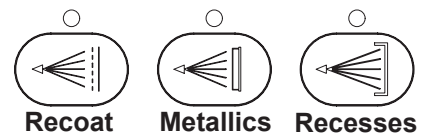
Select Charge® Mode

Select Charge Modes and electrostatic setpoints are:

Re-Coat:	100 kV, 15µA
Metallics:	50 kV, 50µA
Deep Recesses:	100 kV, 60µA

The KV/µA **+** or **–** buttons have no effect in Select Charge Mode.

Recoat   Metallics   Recesses

The controller switches to STD or AFC mode if the STD/AFC button is pressed.

Classic Electrostatic Mode

Classic Mode is the default electrostatic mode. In Classic mode the user can choose to control kV (STD) output or μA (AFC) output, but not both at the same time. When using the AFC mode, the user set a top limit for current output. If the current output goes above the limit, kV output is decreased to maintain the current setting.

Press the STD/AFC button [STD/AFC] to toggle between STD and AFC mode.

Press the View button [◁] to toggle the display between kV and μA.

Valid ranges are the same as in Custom Mode.

Custom Electrostatic Mode

Custom Mode is the factory optional mode. In Custom mode, both kV and μA can be adjusted independently. Both the STD and AFC LEDs are lit when this mode is configured.

The controller must be configured to use this mode. Refer to your system manual for configuration settings.

Use the View button [◁] to toggle the display between kV and uA.

- The valid STD (kV) range is 0 or 25−100 kV.

- The valid AFC (μA) range is 5−100 μA.

Encore LT PE Mode

To configure the controller for the Encore PE system, set function number 3 (Electrostatic Control) to setting 2 (Encore PE).

When the controller function number 3 is set to PE, the electrostatic settings will allow the user to control both kV and μA (custom mode) and they will be able to control the μA setting to values less than 3.0 μA in 0.1 μA increments.

Powder Flow Settings

Classic Flow Mode − This is the factory default mode. This is the traditional method of setting powder flow and velocity, by setting flow and atomizing air percentages separately and balancing them manually for optimum results.

Press the **+** or **−** buttons to select the desired setpoint. The longer a button is pressed the faster the units change.

Smart Flow Mode − This is the factory default mode. In this mode, the user sets the Total Flow rate and the Flow Air %. If the flow air % decreases, the flow air pressure decreases, but the atomizing air pressure increases, so that the result is that the powder velocity remains the same.

The Smart Flow LED lights when the controller is configured for Smart Flow mode.

sets the powder flow rate (Flow Air %).

sets the powder velocity (Total Flow).

Setting values for both are 0−99%.

Set Total Flow first to obtain the desired pattern size and penetration, then set Flow Air % for the desired powder flow.

NOTE: If either Total Flow or Flow Air are set to 0% then the controller cannot output any air when triggered and no powder is pumped.

Classic Flow Mode

To use Classic Flow mode, the controller must be configured for it. Refer to your system manual for configuration settings.

sets the flow air pressure as a percentage of maximum pressure.

sets the atomizing air pressure as a percentage of maximum pressure.

Setting values for both are 0−99% of maximum air pressure.

Controller Configuration

During power up or wake up from disable, press and hold the **+** or **−** buttons on the kV/uA panel for 1 second. When the kV/µA panel displays F − 1 for function 1 the controller is in configuration mode.

To change functions, press the Plus or Minus buttons on the kV/µA panel. To change function values press the **+** or **−** buttons on the Flow Air panel. To save your settings and exit Configuration Mode, press the Enable/Disable button.

Function No.	Name	Settings	Default
1	Gun Type	0 = Encore	0
2	Trigger Type	0 = External, 1 = Continuous	0
3	Electrostatic Control	0 = Custom, 1 = Classic, 2 = PE	1
4	Powder Flow Control	0 = Smart, 1 = Classic	1
5	Cable Length	0 = 6 meters, 1 = 12 meters, 2 = 18 meters	0

System Operation

NOTE: Allow powder in feed hoppers to fluidize for several minutes before spraying powder.

1. Turn on controller power. Make sure all gun controllers are enabled. The displays on the gun controller interfaces should light.

2. Multi-Gun Controller: Turn the interlock keyswitch to READY.

3. **External Trigger Mode:** Start the conveyor and run parts through the booth. The guns should be triggered automatically by your triggering device.

   Continuous Trigger Mode: Start the conveyor, then press the Enable/Disable buttons to start spraying power.

4. Adjust each controller to achieve the desired spray pattern, powder flow rate, and transfer efficiency.

On Initial Startup: With the gun triggered, air set to zero, and no parts in front of the gun, record the µA output for each gun in the system. Monitor the µA output daily, under the same conditions. A significant increase in µA output indicates a probable short in the gun resistor. A significant decrease indicates a resistor or voltage multiplier that requires service.

Interface Messages

Trigger LED flashing:

• A trigger signal is received but the gun controller is disabled. Press the Enable/Disable button to enable the controller.

• A trigger signal is received but the conveyor is off or the controller is locked out, or both. Start the conveyor and turn the keyswitch to READY.

Flow display toggles between the setpoint and CO: Conveyor is off.

Total Air/Atomizing display toggles between the setpoint and LO: Controller is locked out.

 Conveyor Off

 Controller Locked
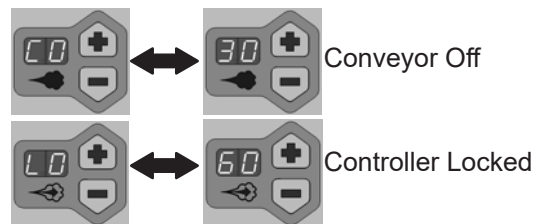
kV/µA display flashes: Spray gun is shorted. Refer to Troubleshooting for more information.

Troubleshooting

Refer to your system manual for more troubleshooting procedures, resistance checks, and continuity checks.

Problem	Possible Cause	Corrective Action
1. Powder not charging, kV/µA display blinking	Gun power supply shorted	Check gun cable and power supply. Refer to your system manual for more information.
2. Uneven pattern, unsteady or inadequate powder flow	Blockage in spray gun, powder feed hose, or pump	Check the feed hose and pump.
	Nozzle, deflector, or electrode assembly worn	Remove, clean, and replace as necessary.
	Low pump air pressure	Increase pump air setpoints.
	Low fluidizing air pressure	Increase air pressure.
	Damp powder	Check powder supply.
3. Voids in powder pattern	Worn nozzle or deflector	Remove and replace if necessary.
	Plugged electrode assembly or powder path in gun	Remove and clean.
4. Low powder flow or surging	Low supply air pressure	Input air must be greater than 4.0 bar (58 psi).
	Pump throat worn	Check and replace if necessary.
	Pickup tube blocked	Check and clean if necessary.
	Fluidizing air not adjusted correctly	Check and adjust.
	Powder hose plugged, kinked, or ID too small for length	Check hose. If longer than 20 ft, use 1/2 in. ID hose.
	Regulator on controller manifold plugged or malfunctioning	Remove tubing at controller and check air flow. Replace regulator if necessary.
5. Loss of wrap, poor transfer efficiency	Low electrostatic voltage	Increase voltage setpoint.
	Poor electrode connection	Remove and clean. Check electrode and gun power supply.
	Poorly grounded parts	Check part grounds. Resistance to ground should be less than 1 meg-ohm.
6. Powder build up on electrode	Insufficient air wash air	Remove air wash connector from rear panel. Check orifice for blockage and clean if necessary.
7. No kV output from spray gun	Damaged gun cable or gun power supply	Check cable and power supply.
8. More than one key on the keypad quits working when pressed	Flex connection from the keypad to the main board is not seated properly	Loosen and re-seat the flex circuit on the main board, making sure the ribbon cable is fully inserted into the J8 connector. See operator's manual for more information.