

POWER EQUIPMENT

Freedom Series™ CSS

Switchgear Style L-847 Circuit Selector Switch



The *Freedom Series™* Switchgear Style Circuit Selector Switch (CSS) was designed to complement our switchgear constant current regulators and is an integral component of our Airfield Lighting Switchgear Regulator Assembly (ALSRA). With over forty years in developing power and control solutions, the next-generation *Freedom Series™* family of products sets new standards in performance, ease of maintenance, and personnel safety and reliability while providing the airport the freedom to define and specify their own unique control and monitoring requirements.

System Application

The *Freedom Series™* L-847 Circuit Selector Switch is designed to switch the output of a 6.6 or 20A constant current regulator into one or more series lighting loops. Control can be from the CSS (local) or from a control and monitoring system (remote).

Freedom Series™ L-847 Circuit selectors may be individually mounted or integrated into a switchgear line-up assembly. They are designed for Class A Indoor applications. Typical applications include:

- Switching of PAPI, VASIS, and approach circuits from one approach end to the opposite end. Reduces number of regulators required in half.
- Provides individual control of multiple small circuits from a single regulator (ie. taxiways). Allows standardization of regulator sizes while still providing individual circuit control.
- Control of stopbars, lead-on lights and directional taxiway centerlines as part of a Surface Movement and Guidance Control System (SMGCS).

Standards Compliance

- FAA Advisory Circular 150/5345-5B, Sep 14/06, Type L-847.
- Transport Canada Standards.
- Canadian Department of National Defence Standards.
- ICAO Aerodrome Design Manual Doc 9157, Part 5.

Note: Header Fig. L-847-4 Circuit Selector in 1" wide cell.

Features and Capabilities

- 5000V rated for use with 6.6A or 20A regulators.
- Input voltage 100 to 240V, 50 / 60Hz, 120VA
- Operating range -40°C to + 55°C, 0 to 100% relative humidity, and 0 to 3000m altitude.

- Available in 1" wide or 1" wide cells to match sizes of switchgear constant current regulators. Up to 6 circuit selectors can be mounted in an individual cell.
- High voltage vacuum switch technology provides maintenance free operation. Make before break operation ensures reliable operation with any make of CCR. Vacuum switches are rated 65A.
- Reverse L-847 Option allows a single load to be powered from different regulators providing backup operation without rewiring the field circuit.
- No calibration or adjustments required.

Control and Monitoring

- Available with traditional parallel control interface (relays). Each circuit selector can be individually configured to fail on or off upon failure of the control system.
- Also available with direct control interface from the front panel of a *Freedom Series™* constant current regulator. The direct control interface provides mechanical latching relays ensuring that circuits remain in their last state upon failure of the control system.
- Monitoring presence of output current in each series loop for positive "On indication" to control system.
- Monitoring of each local control switch "remote" position, input power available and door open signals for indication to the control system. This information can provide feedback to the tower when the circuit selectors are out-of-service or in local control from the vault.



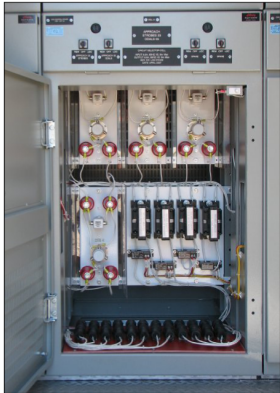
Freedom Series regulator keypad with 6 auxiliary control switches and status lights for direct CSS control.

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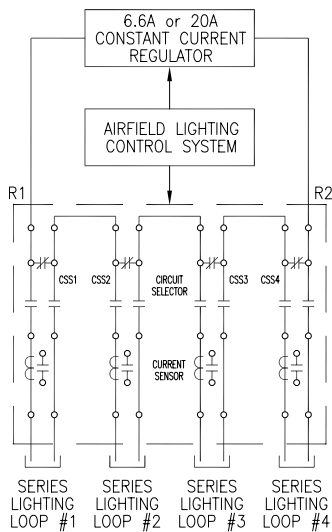
Freedom Series™ CSS

Safety Features

- All high voltage connections are fully guarded for personnel safety.
- Enclosure can be locked to prevent access by unauthorized personnel.
- A safety interlock ensures power is disconnected when the door is opened. The interlock is designed to wire into the CCR control circuit to automatically trip the CCR when the door is opened.

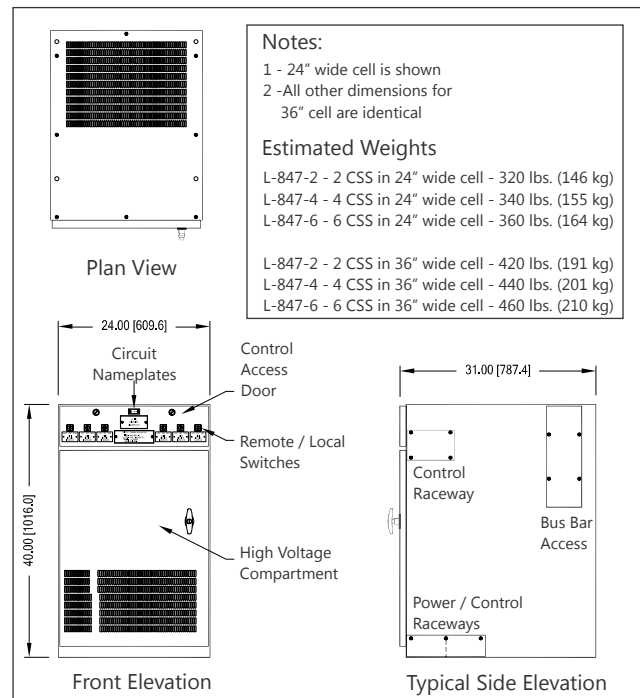


L-847-4 Circuit Selector with 4 Selector Switches, local control switches, S1 cutouts, and current sensors



Available Switchgear Features

- Circuit Selector cells may be integrated with constant current regulators and other cells to form a continuous switchgear line-up. The cells can be stacked two-high and mounted side by side.
- Integral 2, 3, or 4 conductor 600 A, 600 V power bus in both the upper and lower cells provides up to 1200 A capacity. An internal ground bus is standard in switchgear assemblies.
- Integral horizontal power and control raceways allow all field and control cables to be routed within the switchgear assembly with no external conduit or cable trays required.
- Integral vertical power and control raceways (two each) allow top or bottom cable exit from each cell or from selected cells.
- Bus guards are removable from the front for ease of service and inspection of bus connections.
- Freedom Series™ Circuit Selectors are cable raceway and bus work-compatible with existing Westinghouse, Hughey & Phillips or Honeywell switchgear installations. Close-coupling to Siemens and Crouse-Hinds installations is also available.



Ordering Information

Type:

FCS1 - Freedom Series Circuit Selector, Parallel Interface
 FCS2 - Freedom Series Circuit Selector, Direct CCR Control

Construction:

N - 24" wide Cell (narrow)
 W - 36" wide Cell (wide)

Number of Circuits:

1 - One Circuit	3 - Three Circuits	5 - Five Circuits
2 - Two Circuits	4 - Four Circuits	6 - Six Circuits

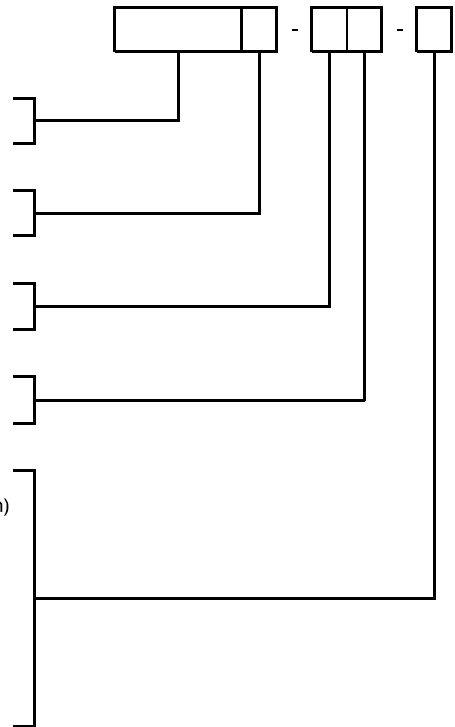
Control Voltage:

A - 24VDC Internal	C - 48VDC Internal	E - 120VAC Internal
B - 24VDC External	D - 48VDC External	F - 120VAC External

Options (Select as Many as Required) * :

- 01 - Latching Failsafe Relays (maintains last state if control system fails)
 (not available with Direct CCR Control as the CCR provides this function)
- 02 - Reverse L-847 Operation
 (allows a single load to be powered from multiple CCRs)
- 03 - 25kAIC Power Bus (3 Bus)
- 04 - 25kAIC Power Bus (4 Bus)
- 05 - 65kAIC Power Bus (3 Bus)
- 06 - 65kAIC Power Bus (4 Bus)
- 20 - Internal Field Cutout (one per loop)
- 21 - Output Current Monitoring (contact closure per loop)
- 22 - Status Monitoring (input power, door open, switch in remote (per loop))

* Contact Liberty for compatibility of options



Application Engineering

If you have any unique power or control system requirements or applications, please do not hesitate to contact us.

Our engineering staff would be pleased to work with you on finding a cost-effective solution using current technology.