

# POWER EQUIPMENT

## CHF

### CHF Constant Current Regulator

FERRORESONANT, AIR-COOLED, 50/70 KW



### Compliance with Standards

**FAA:** L-828/L-829 AC 150/5345-10 (Current Edition). ETL Certified.

**Military:** UFC 3-535-01; NAVAIR 51-50AAA-2

### Uses

#### FAA L-828/ L-829

Supplies three or five precision output levels to power series lighting circuits on airport runways and taxiways.

### Features

- Advanced CCR architecture produces minimal EMI, high efficiency, and near unity power factor for AC 150/5345-10 test conditions, exceeding FAA and military requirements for power factor and efficiency. Advanced architecture has excellent input power factor and efficiency at all intensity steps and lower loads.
- Does not exceed the conducted power line emission limits given in Table 4 of AC 150/5345-10 with testing as specified in the Code of Federal Regulations (CFR) Title 47, Subpart B, Section 15.107b. Does not exceed the radiated emission limits given in Table 5 of AC 150/5345-10 with testing as specified in the Code of Federal Regulations (CFR) Title 47, Subpart B, Section 15.109b.
- Optional integrated ACE™ unit provides state-of-the-art remote control and L-829 monitoring capability. Unique “cycle” mode allows output True-RMS current and voltage, VA, watts, lamps-out, and series circuit insulation resistance value to be alternately displayed. A visual indication is also provided for all other FAA-monitored parameters, including open circuit, overcurrent, loss of input power, loss of input voltage, low VA (drop in load VA of 10%), Remote/Local status, and incorrect output current.
- No input turn on in-rush current surge
- Available in one class and two styles:  
Class 2 = 20 A maximum output current (50-70 kW only)  
Style 2 = 5 Brightness Steps
- If input power loss occurs, operation will resume within five seconds after restoration of input power
- Field upgradable from L-828 to L-829 with ACE unit
- Industrial powder coat finish
- Input lightning protection and output lightning protection included

### Theory of Operation

Ferroresonant circuitry and a solid-state control system accurately regulate the output current to within the FAA-allowable range from no load to full load and with input voltage variations of -5% to +10% of nominal.

### ACE Unit

The optional ACE™ unit provides L-829 monitoring and optional megging or CCR input monitoring capability. Each unit is installed locally at each CCR that requires remote control and/or monitoring within the airfield lighting electrical vault. Optional CCR input monitoring monitors the following:

- CCR input current
- CCR input voltage
- CCR input volt-amps (VA)
- CCR input power (watts)
- CCR input power factor
- CCR % efficiency
- CCR run-time by step
- CCR cycle count

The ACE unit is also a component of ADB Safegate's distributed control and monitoring system. Each unit can be easily connected to an Airport Lighting Control & Monitoring System (ALCMS) by simply adding redundant communication wires. See ADB Safegate ACE data sheet 2084 for additional information.

### Environmental Operating Conditions

Temperature: -40 °C to +55 °C (-40 °F to +131 °F)  
Humidity: 10 to 95%  
Altitude: 0 to 6,600 ft (2,000 m)

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### Ordering Code

CHF XX XX - X X X X

#### Amperage

20 = 20 A output

#### Size<sup>1</sup>

50 = 50 kW, 20 A only

70 = 70 kW, 20 A only

#### Output Range

5 = 5-step without Series Cutout<sup>2</sup>

6 = 5-step with Series Cutout<sup>2</sup>

#### Input Voltage

3 = 480

#### Monitoring Options (See Application Notes)

0 = None (Standard L-828)

1 = ALCMS Scanning Monitor Interface

2 = ALCMS Scanning Monitor Ready

3 = L-829 Monitoring (ACE)

4 = Insulation Resistance Monitoring System (IRMS) Ready

5 = L-829 Monitoring (ACE) and IRMS

6 = L-828 with Digital Power Meter

#### CCR Input/Output Monitoring

0 = No optional CCR input or output circuit monitoring<sup>3</sup>

A = With L-829 or IRMS monitoring; without optional input CCR monitoring<sup>4</sup>

G = With L-829 or IRMS monitoring; with optional input CCR monitoring<sup>4</sup>

#### Notes

<sup>1</sup> For CHF sizes 4-30 kW, contact the ADB SAFEGATE Sales Department.

<sup>2</sup> 3-step, 20 A is not standard FAA operation. ADB Airfield Solutions can offer a non-ETL Certified Style 1, Class 2 CCR for dedicated 5.5 A sign circuits or other needs. Please contact the ADB SAFEGATE Sales Department for more details.

<sup>3</sup> Used only with Monitoring Options 0, 1, 2, and 6.

<sup>4</sup> Used only with Monitoring Options 3 and 5.

### Electrical Supply

Power Input:	60 Hz, single-phase, available in 480 VAC
Power Factor:	0.95 or more for 50 and 70 kW
Efficiency:	93% minimum for 50 kW 94% minimum for 70 kW
Remote Control:	120 VAC, 60 Hz or +48 VDC, ±10%

### Input Fuses F1, F2

Size	208 V	220 V	240 V	347 V	480 V
50 kW	N/A	N/A	N/A	N/A	47A0106
70 kW	N/A	N/A	N/A	N/A	47A0141

### Dimensions

CCR Size	Dimensions (H × W × D) <sup>1</sup>	Weight - lb (kg)
50 kW <sup>2</sup>	70 × 33 × 34 - in	2150 (975.2) <sup>2</sup>
70 kW <sup>2</sup>	177.8 × 83.8 × 86.4 - cm	2400 (1088.6) <sup>2</sup>

#### Notes

<sup>1</sup> Based on Input Voltage


<sup>2</sup> 50 kW and 70 kW CCR units are only available with a 480 Vac input.

### CCR Kits

Various kits are available to customize CCRs for specific application requirements.

Current Sensing Relay Kit	94A0343
Provides a dedicated contact closure if CCR output current is present.	
Elapsed Time Meter Kit	94A0263
Provides CCR run-time information on L-828 CCRs.	
Input Lightning Protection Kit, 208-480V AC	94B0011
Provides input lightning protection for older CCRs. Input lightning protection is included and required for CCRs certified to FAA AC 150/ 5345-10F or later.	
Auxiliary ACE Monitoring	94A0512
Provides CCR Run Time, which displays total hours in each CCR step setting, and CCR Cycle Count, which displays the total number of times the CCR has been turned on/off.	

## Application Notes

Monitoring Option	Description	Application
0	None	Standard L-828 supplied with analog ammeter
1	ALCMS Scanning Monitor Interface (SMI)	The SMI option adds Primary Power and Remote/Local monitoring relays. Dry relay contacts are connected to a dedicated terminal block for each monitored point. Typical application: connecting ADB Safegate L-828 CCR to ALCMS or L-827 that is manufactured by others. Note that this option does not provide dedicated output current or voltage transformers.
2	ALCMS Scanning Monitor Ready (SMR)	The SMR option adds several monitoring relays (including Primary Power and Remote/ Local) and also CCR output current and voltage transformers. All monitored signals are connected to a dedicated terminal block. Application only for connecting ADB Safegate L-828 CCR to ADB Safegate Gen I/II ALCMS scanning monitoring system.
3	L-829 Monitoring (ACE™)	Includes FAA L-829 monitoring equipment. <ul style="list-style-type: none"> <li>• If application is for connection to ADB L-890 ALCMS: Add a "/A" to end of Ordering Code. The ACE unit will then be programmed to provide monitoring data via dual-redundant communication links.</li> <li>• If application is for a stand-alone L-829 CCR: Ordering Code is not changed. The ACE unit is programmed to deactivate a dry contact closure if a fault is present. The fault alarm can then be connected to any external monitoring system.</li> </ul>
4	Insulation Resistance Monitoring System (IRMS) Ready	This option adds an IRMS board in the CCR. Application: connection to externally mounted ADB Safegate ACE unit.
5	L-829 Monitoring (ACE) and IRMS	Includes FAA L-829 and IRMS equipment. <ul style="list-style-type: none"> <li>• If application is for connection to ADB L-890 ALCMS: Add a "/A" to end of Ordering Code. The ACE unit will then be programmed to provide monitoring data via dual redundant communication links.</li> <li>• If application is for a stand-alone L-829 CCR with Insulation Resistance Monitoring: Ordering Code is not changed. The ACE unit is programmed to deactivate a dry contact closure if a fault is present. The fault alarm can then be connected to any external monitoring system.</li> </ul>
6	L-828 with Digital Power Meter 	This option replaces the analog ammeter with a Digital Power Meter. The Digital Power Meter is used on L-828 CCRs to indicate True RMS output current, voltage, VA, and watts. It can also be set to activate an alarm if there is a 10% or 15% drop in the load (Low VA).