

L-828/ L-829 Constant Current Regulator

Ferroresonant



COMPLIANCES

FAA AC 150/5345-10 (Current edition)

ETL Certified

Meets "Buy American" requirements

ICAO Annex 14



PRODUCT APPLICATION

The Navigate Series® L-828/ L-829 Constant Current Regulator is used to provide power to airfield lighting systems. It provides a selectable AC constant current to change the airfield lighting intensity according to existing visibility conditions.

THEORY OF OPERATION

The CCR regulates the output current using a Ferroresonant transformer. The Ferroresonant transformer allows for a low distortion sinusoidal output that is not easily affected by input line transients or disturbances. This style of transformer will also naturally regulate the output current without any controls at all, albeit a higher current than what is desired. With an auxiliary control winding, energy can be removed from the output, thus lowering the output current to the desired regulated value. A resonant tank circuit is formed between another set of transformer windings and an external capacitor bank. This tank circuit helps to maintain a sinusoid of a desired frequency as well as facilitate the transfer of energy away from the output.

A microcontroller module (DCMU) receives system feedback and provides closed-loop control of the transformer output through the Firing Card (FC) and a Solid-State Relay (SSR) via the control coil of the transformer. Output voltage is sensed through a transformer sense winding, while input and output current are sensed through chassis-mounted current sense transformers.

POWER & CONTROL EQUIPMENT - 4.11

FEATURES

- Enclosure has provisions for floor mounting, and the 4kW and 7.5kW types are stackable to save space. Castors are available separately.
- Digital precision control of waveform, high-speed response, and local data storage.
- Digital Display may monitor output power, input voltage, input current, output voltage, VA, load VA changes, power factor, efficiency, number of failed lamps, programmable warning and alarm levels, accumulated operating time, as well as field circuit insulation resistance to earth ground (automatic megger as an option).
- Membrane keys with tactile response give maintenance workers immediate feedback and ease of menu navigation.
- Ferroresonant design provides a stable output current that is not affected by flashing loads.
- All CCRs are user configurable, including selection of 1 to 5 brightness steps, output current adjustment, selection of monitoring features, operational parameters and alarm setpoints.
- Diagnostic Data & User settings are accessible via RS-232 PC connection.

CONTROL CONFIGURATIONS

System may be operated locally (via keypad) or remotely (from tower control system). Output is configurable for 1, 3, or 5 brightness steps.

Remote control accepts 24VDC/48VDC, or 120VAC depending on which model of DCMU is ordered; control power may be supplied internally from CCR or externally from control system.

ENVIRONMENTAL CHARACTERISTICS

- Operating Temperature: -40 °C to +55 °C
- Elevation: Up to 6,600 feet (2,000 meters)
- Humidity: Up to 95%

ELECTRICAL REQUIREMENTS

Power Input 50/60Hz, 208/240/480VAC

ORDERING INFORMATION

CCR Order Number: L-82X-X-X-X-X-X-X-X-X-X-X

Type:
 L-828
 L-829

kW Output:
 1 = 4kW
 2 = 7.5kW
 3 = 10kW
 4 = *15kW
 5 = *20kW
 6 = *30kW
 *Denotes pending ETL certification.

Input Voltage Options:
 1 = 208V
 2 = 240V
 3 = 480V

S1 Cutout Options:
 1 = None
 2 = S1 External
 3 = S1 Internal

Frequency:
 1 = 60Hz
 2 = 50Hz

Megger Options:
 1 = Megger
 2 = No Megger

DCMU Voltage Options:
 1 = 120V
 2 = 24/48V

Circuit Breaker Options:
 1 = No Circuit Breaker
 2 = 208V Circuit Breaker
 3 = 240V Circuit Breaker
 4 = 480V Circuit Breaker

Caster Options:
 1 = Casters
 2 = No Casters

Brightness Options:
 1 = 1-Step
 3 = 3-Step
 5 = 5-Step

Current Sense Transformer Options:
 0 = No Transformer
 1 = With Transformer

RENEWAL PARTS

Description	Part Number
Capacitor, 50uF, 600VAC	A1-02-0176-002
Interlock Switch	A1-12-0126-001
Fuse, 1A	A1-21-0033-004
Fuse, 3A, 600V	A1-21-0039-003
Firing Card	A3-06-1502-001
S1 Internal Cutout Kit	A3-06-3177-001
S1 External Cutout Kit	A3-06-3177-002
DCMU, 120/24V	A3-06-3178-001
DCMU, 120V	A3-06-3178-002
MOV, 820V, 10kA	A3-06-3181-001
MOV, 205V, 6kA	A3-06-3181-002
Snubber	A3-06-3181-003
MOV, 23VRSMS, 1kA	A3-06-3181-004
Megger Card Kit	K1-02-0033-001
Megger Resistor Assy Kit	K1-02-0033-002
5.25" Plastic Housing Kit	K1-02-0033-003
Lightning Arrestors 2.55 KV Kit	K1-02-0034-001
Lightning Arrestors 5.10 KV Kit	K1-02-0034-002
480V-120VAC Transformer Kit	K1-02-0038-001
120V-12VAC Transformer Kit	K1-02-0038-002
Power Transformer Kit	K1-02-0038-003
Contactora, 25A, 600V Kit	K1-02-0039-001
Contactora, 40A, 600V Kit	K1-02-0039-002
Contactora, 60/75A, 600V Kit	K1-02-0039-003
Contactora, 90A, 600V Kit	K1-02-0039-004
Contactora, 185A, 600V Kit	K1-02-0039-005
Contactora, 225A, 600V Kit	K1-02-0039-006
Display Kit	K1-02-0040-001
SSR Kit	K1-02-0044-001
Circuit Breaker, 15A, 600V Kit	K1-02-0046-001
Circuit Breaker, 25A, 600V Kit	K1-02-0046-002
Circuit Breaker, 30A, 600V Kit	K1-02-0046-003
Circuit Breaker, 50A, 600V Kit	K1-02-0046-004
Circuit Breaker, 60A, 600V Kit	K1-02-0046-005
Circuit Breaker, 70A, 600V Kit	K1-02-0046-006
Circuit Breaker, 90A, 600V Kit	K1-02-0046-007
Circuit Breaker, 110A, 600V Kit	K1-02-0046-008
Circuit Breaker, 125A, 600V Kit	K1-02-0046-009
Circuit Breaker, 160A, 600V Kit	K1-02-0046-010
Circuit Breaker, 185A, 600V Kit	K1-02-0046-011

WEIGHT AND DIMENSIONS

Size(kW)	Dimensions in Inches	Weight in lbs. (kg)
4	40x24x24	345 (156)
7.5	40x24x24	465 (211)
10	40x24x24	565 (256)
15	40x30x36	965 (438)
20	40x30x36	1065 (483)
30	40x30x36	1350 (612)