# **Flashers and Tower Lighting Controls**

Tower and Obstruction Lighting Controls



FB9L

## Universal Lamp Alarm Relay

CE



# Wiring Diagram



V = Voltage B = Beacon F = Flasher BRC = Flasher Bypass Relay Contacts T = Toroid AR = FB Alarm Relay BR = Bypass Relay Coil FL = Flasher Failure LED LL = Lamp Failure LED AXL = Lamp Alarm Relay Coil

NOTE: Flasher module may be located on either the line or load side of the toroidal sensor.

## Description

The FB9L is a universal lamp alarm relay designed to sense the failure of flashing LED beacon lamps. It will monitor the operation of one to eight beacons connected to a single flasher and/or auxiliary modules and the operation of the flasher. The FB9L output relay energizes when one or more lamps fail. All monitored lamps must be the same wattage and voltage. The 0.5A solid-state output energizes when a flasher failure is sensed.

### Operation

When a LED beacon lamp fails, the FB9L senses a decrease in current flow. After a 10s lamp failure trip delay, the isolated SPDT (4-5-6) and non-isolated SPNO (3-1) relay contacts energize. These contacts are used to indicate a beacon failure has occurred. The "L" onboard LED indicator flashes green during the trip delay and glows red after the output relay energizes. Connected to a site monitoring system, it provides remote beacon monitoring required by FAA-AC No: 150/5345-43E.

The FB9L also monitors the operation of the flasher. If the flasher remains in the ON or OFF condition for more than 6s the solid-state output energizes and the "F" flasher failure, onboard LED glows red. This output is normally used to energize an external flasher bypass relay. The contacts of the bypass relay are used to route voltage around the failed flasher and to indicate an alarm condition.

**Note:** In a single flasher, single beacon system, if the beacon lamp fails, zero current flow is detected. This will cause the flasher failure output to energize after 6s and then the beacon failure outputs after 10s. This is normal operation and can be expected anytime zero current is flowing through the monitored conductor.

## Features & Benefits

FEATURES	BENEFITS	
Self calibrating	Saves time at installation. No fine adjustment required.	
Failsafe beacon monitoring	Alarm monitors for failed LED lamps in addition to flasher function	
Number of beacons monitored is switch selectable for up to 8	User selection allows quick set up and easy adaption to multiple applications	
Universal voltage 120 to 230VAC	Meets wide application requirements	
Isolated, 10A, SPDT alarm output contacts	Provides remote beacon monitoring when connected to a site monitoring system, which is required by the FAA	

### Accessories



### C103PM (AL) DIN Rail

35 mm aluminum DIN rail available in a 36 in. (91.4 cm) length.



## P1023-20 DIN Rail Adapter

Allows module to be mounted on a 35 mm DIN type rail with two #10 screws.

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### **Specifications**

### Sensors

FB9L

Calibration Range (total all Lamps) Absolute Max Current (total all Lamps) Single Lamp Current Trip Delay Flasher Failure Lamp Failure Input Input Voltage/Tolerance AC Line Frequency Output Line Voltage Output (SPNO)

Isolated Alarm Output (SPDT)

Solid-State Line Voltage Output (F) Mechanical Mounting Dimensions

Termination

#### LEDs

Power/Timing/Lamp Failure (Bi-color) Flasher Failure (Red) Protection Circuitry Environmental Operating/Storage Temperature Weight FAA-AC No. 150mA - 8.0A

15A max. (may not calibrate above 8A) 150mA - 8.0A (total all lamps  $\leq$  8.0A)

Fixed at 6s; -0/+40% Fixed at 10s; -0/+40%

120 to 230VAC / ±15% 50/60Hz To operate a spare lamp or alarm 5A @ 240VAC or 30VDC resistive; 1/4 hp @ 125VAC; 1/2 hp @ 250VAC 10A @ 240VAC or 30VDC resistive; 1/4 hp @ 125VAC; 1/2 hp @ 250VAC

0.5A steady; 5A inrush

One #10 (M5 x 0.8) screw H 76.7 mm (3"); W 50.8 mm (2"); D 41.7 mm (1.64") IP20 screw terminals for up to 14 AWG (2.45 mm<sup>2</sup>) wire or two 16 AWG (1.3 mm<sup>2</sup>) wires

Glows red when one or more lamps fail Glows red when the flasher fails

Encapsulated

-40° to 60°C / -40° to 85°C ≅ 3.9 oz (111 g) 150/5345-43E

## **Indicator Table**

L	Green	Input ON & Calibrated
L	Green Flashing	Trip Delay
L	Red	Lamp Failure
L	Red/Green Flashing	Calibrating
L	Red Flashing	Not Calibrated
F	Red	Flasher Failure