

Tower & Obstruction Lighting

Selection Guide	10.2
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Beacon Flasher



■ FA.....	10.4
■ FS155.....	10.4
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Lamp Monitors



Incandescent Lamps

■ FB	10.6
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Selection Guide

Tower and Obstruction Lighting Controls

Flasher · Solid State Beacon Flasher

	P/N	Voltage	Description	Page
	FS155-30RF	120 V AC	Beacon Flasher for High RF Installations, 2500 W (200 A Inrush Maximum) Meets FAA-AC NO: 150/5345-43E	10.4
	FS165-30RF	230 V AC		
	FS155-30T	120 V AC	Beacon Flasher for FM, TV, Chimneys, Bridges, Smoke Stacks, and Low RF Applications, 2500 W (200 A Inrush Maximum) Meets FAA-AC NO: 150/5345-43E	10.4
	FS165-30T	230 V AC		
	FA155-2	120 V AC	Auxiliary Unit for Synchronous Flashing of Additional Beacons, 2500 W (200 A Inrush Maximum)	10.4
	FA165-2	230 V AC		
	FA155	120 V AC	Auxiliary Unit Provides Alternate Operation for Constant Line Loading, 2500 W (200 A Inrush Maximum) (not shown)	10.4
	FA165	230 V AC		

Photo Control · Accurate Dusk to Dawn Control

	P/N	Voltage	Description	Page
	PCR10	120 V AC	Precision Photo Control Calibrated to FAA and FCC Specifications for Tower and Obstruction Lighting. Two SPST N.O. 20 A Contacts. Without Cast Aluminum Housing. Meets FAA-AC NO: 150/5345-43E	10.14
	PCR12	230 V AC		
	PCR11	120 V AC	As Above With Cast Aluminum Housing (as shown)	10.14
	PCR13	230 V AC		

Lamp Alarm Relays · Senses Lamp Failure

	P/N	Voltage	Description	Page
	SCR430T	120 V AC	Universal Light Alarm Relay. Senses the Failure of One Lamp Out of 1, 2, 3, or 4 Lamps; 116, 620 or 700 W, 120 V AC Incandescent Lamps SPDT - 10 A Isolated Alarm Contacts. Meets FAA-AC NO: 150/5345-43E	10.8
	SCR630T	230 V AC		
	SCR490D	120 V AC	Side Light Alarm Relay. Senses the Failure of One Lamp Out of 2, 3, 4, 5, 6, 7, 8, or 9; Steadily Burning 116 W, 120 V AC Incandescent Lamps SPDT - 10 A Isolated Alarm Contacts (not shown)	10.7
	SCR9L	120/230 V AC	Universal LED Lamp Alarm Relay. Senses failure of 1 lamp out of 1 to 8 lamps; Works with LED Beacons or Side Lamps 1 SPDT & 1 SPNO Alarm Contacts (not shown)	10.12

Beacon Alarm Relay · Senses Lamp Failure and Flasher Failure

	P/N	Voltage	Description	Page
	FB120A	120 V AC	Flasher and Incandescent Beacon Lamp Alarm Relay Senses Failure of Incandescent Beacon Lamps Senses Failure of Beacon Flasher Two Line Voltage Alarm Outputs SPDT - 10 A Isolated Alarm Contacts Meets FAA-AC No: 150/5345-43E	10.6
	FB230A	230 V AC		
	FB9L	120/230 V AC	Universal LED Beacon Lamp & Flasher Alarm Relay Senses failure of 1 lamp out of 1 to 8 LED Beacons 1 SPDT & 1 SPNO Alarm Contacts (not shown) 0.5A Solid State Bypass Relay Output	10.10

- Beacon Flashers
- Beacon & Obstruction Lamp Alarm Relays
- Photoelectric Controls
- Auxiliary Modules



**In Stock Available For
Immediate Shipment**

The US Federal Aviation Administration (FAA) requires that any tall building, antenna tower, smokestack, grain elevator, bridge, or other structure, which presents a hazard to air navigation, be suitably marked and lighted to warn pilots of its presence. The marking and lighting of antenna towers is also covered by US Federal Communication Commission (FCC) rules and regulations which are identical to the FAA standards.

FAA/FCC standards for lighting hazards to air navigation, require the use of red marker or white marker lights at specified locations on the obstruction. For antenna towers and similar skeletal structures, the lighting system consists of flashing red beacons and steady-burning red obstruction lights at alternate levels on the tower.

The flashers and alarm modules in this catalog meet FAA/FCC specifications for obstruction lighting equipment. They are designed to be used with the red incandescent lighting systems. These flashers, lamp outage alarm modules, and photoelectric controls provide the complete solution to your obstruction lighting control requirements.

Our solid state flashers include zero voltage switching circuitry that can extend the lamp life up to 10 times longer than that of mechanical flashers. Some are CSA Certified and CE Marked.

ISO 9001

Beacon Tower Flasher

FS & FA Series

Solid State Flasher



10 YEAR WARRANTY

- Zero Voltage Switching - Up to 10 Times Longer Lamp Life
- No RFI Caused by Contacts Closing
- High Inrush Capability - Up to 200 A
- RF Model for AM Hot Towers & Other High RF Installations
- Auxiliary Units for Synchronous Flashing or Constant Line Loading

Approvals: (FS155 & FA155 Models Only)

Description

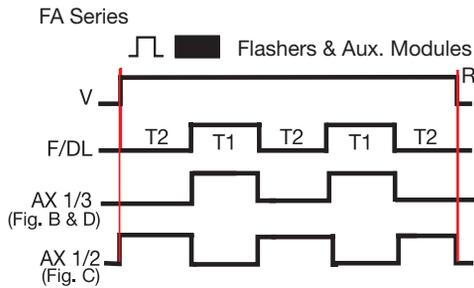
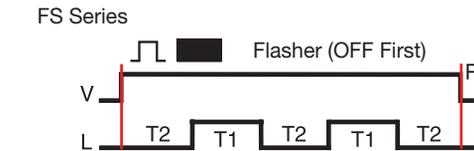
B-KON Flashers have proven their reliability through years of use on Communication Towers, Smoke Stacks, Cooling Towers, Tall Buildings, Bridges and Utility Towers. The highest quality components are encapsulated in a rugged plastic housing with a molded-in heat transfer plate. The flash rate, ratio, and fail-safe design meet FAA regulations. Zero voltage switching can increase lamp life up to ten times. The FS155-30RF & FS165-30RF include superior RF Filtering Circuitry for use in high RF installations; including AM Hot Towers.

Operation

Upon application of input voltage, the T2 OFF time begins. At the end of the OFF time, the T1 ON time begins and the load energizes. At the end of T1, T2 begins and the load de-energizes. This cycle repeats until voltage is removed.

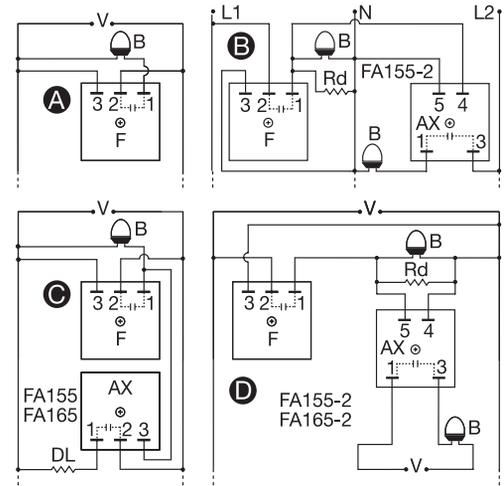
Reset: Removing input voltage resets the output and the sequence to T2.

Function



V = Voltage L = Load T1 = ON Time
T2 = OFF Time R = Reset
T1 ≅ T2

Connection



- F = Flasher (FS155-30T, FS155-30RF, FS165-30T, FS165-30RF)
- AX = Auxiliary Unit
- B = Beacon
- DL = Dummy Load for Constant Line Loading
- Rd = 3.3 KΩ @ 5 W for 120 V AC
8.5 KΩ @ 5 W for 230 V AC
- Dashed lines are internal connections.

Accessories



Female quick connect P/N's:
P1015-13 (AWG 10/12)
P1015-64 (AWG 14/16)
P1015-14 (AWG 18/22)



Quick connect to screw adaptor P/N: P1015-18

See accessory pages for specifications.

Ordering Table

Input	Wattage	Inrush	Description	Part Number
120 V AC	2500 W	200 A	For High RF Radiation locations including AM Hot Towers	FS155-30RF
120 V AC	2500 W	200 A	Standard Flasher	FS155-30T
230 V AC	5000 W	200 A	For High RF Radiation locations including AM Hot Towers	FS165-30RF
230 V AC	5000 W	200 A	Standard Flasher	FS165-30T
120 V AC	2500 W	200 A	Auxiliary unit for synchronous operating of additional beacons	FA155-2
230 V AC	5000 W	200 A	Auxiliary unit for synchronous operating of additional beacons	FA165-2
120 V AC	2500 W	200 A	Auxiliary unit to provide constant line loading	FA155
230 V AC	5000 W	200 A	Auxiliary unit to provide constant line loading	FA165

Beacon Tower Flasher

FS & FA Series

Solid State Flasher

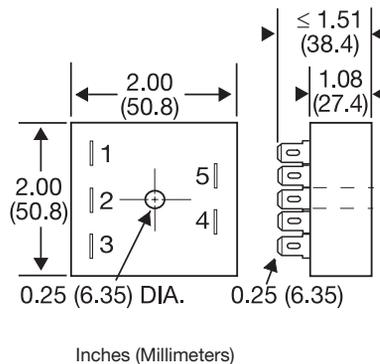
Tower &
obstruction
lighting

Technical Data

Specifications	
Operation	Single & multiple beacon flashing with auxiliary modules
Flash Rate (FS Series Only)	30 +/-10 flashes per minute
ON/OFF Ratio (FS Series Only)	50% ... 67% ON time; 33% ... 50% OFF time
Input	
Voltage	120 or 230 V AC +/-20%
Frequency	50 ... 60 Hz
Output	
Output Rating (Zero Voltage Switching)	2500 W at 120 V AC; 5000 W at 230 V AC
Inrush Current	200 A peak for 1 cycle of AC line
Mechanical	
Mounting*	Surface mount with one #10 (M5 x 0.8) screw
Termination	0.25 in. (6.35 mm) male quick connect terminals
Protection	
Circuitry	Encapsulated
Environmental	
Operating Temperature	-40°C ... +65°C
Storage Temperature	-40°C ... +85°C
Humidity	95% relative, non-condensing
Weight	≅ 3.9 oz (111 g)

* **Note:** Must be mounted to metal surface using the included heat sink compound. The maximum mounting surface temperature is 90° C.

Mechanical View



Note:

Terminal # 2 is not included on FA155-2, FA165-2.
Terminal # 4 & # 5 are not included on all others.

Flasher & Incandescent Beacon Alarm Relay

FB120A/FB230A

Tower Lighting Control



10 YEAR WARRANTY

- Senses Failed Flashing Incandescent Beacon Lamps
- Senses Failed Beacon Flasher
- Toroidal Current Sensing
- One 5 A SPDT Isolated Alarm Output
- Two 1 A Solid State Line Voltage Alarm Outputs
- Trip Delays Prevent Nuisance Alarms

Description

The FB120A and FB230A are used to monitor the operation of one two-lamp incandescent beacon and one beacon flasher (or auxiliary module). The flasher and lamps are monitored by sensing the flow of current in the circuit. If the lamp(s) or the flasher fail to operate properly, a solid state output and an isolated SPDT relay energize. When connected to a site monitoring system, this unit provides the remote beacon monitoring protection required by the FAA/FCC. On a multiple beacon structure, one unit is required for each two-lamp incandescent beacon (one unit per beacon for LED beacons).

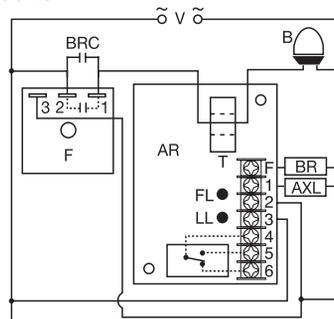
Operation

FB120A and FB230A

If one lamp in an incandescent beacon fails, the relay and solid state lamp failure outputs energize after 10 s. If the flasher fails in the ON or OFF condition, the relay and the solid state flasher failure output energizes after 6 s. If both failures occur, all three outputs energize after their trip delays.

Note: If both incandescent lamps fail, all three outputs will energize. The relay and solid state flasher failure output after 6 s, and the solid state lamp failure output after 10 s.

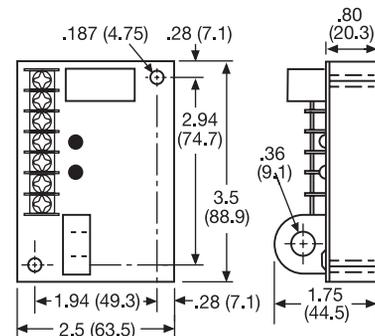
Connection



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

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

Mechanical View



Inches (Millimeters)

Ordering Table

Input	Lamp Type	Part Number
120 V AC	Incandescent Beacon	FB120A
230 V AC	Incandescent Beacon	FB230A

Technical Data

Input Voltage

FB120A
 FB230A
 Lamp Socket Voltage

120 V AC +/-15%; 50 ... 60 Hz
 230 V AC +/-15%; 50 ... 60 Hz
 +/-10%; 50 ... 60 Hz

Alarm Outputs

Type

3 Total -- 1 relay, 2 solid state
 One isolated SPDT relay rated 5 A resistive
 Two solid state line voltage outputs rated 0.5 A steady, 5 A inrush

Lamp Failure Detection

FB120A
 FB230A

For two 620 W or 700 W lamps
 For two 500 W or 700 W lamps

Trip Delays

Flasher Failure
 Lamp Failure

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

LEDs

Lamp Failure (Red)
 Flasher Failure (Red)

Glows when one or both lamps fail
 Glows when the flasher fails

Protection

Circuitry
 Mounting
 Package
 Termination

Encapsulated
 Surface mount with two #6 (M3.5 x 0.6) screws
 3.5 x 2.5 x 1.75 in. (88.9 x 63.5 x 44.5 mm)
 7 position barrier block for 20 AWG (0.5 mm²) to 14 AWG (2.5 mm²) wire

Environmental

Operating / Storage Temperature
 Weight

-40°C ... +60°C / -40°C ... +85°C
 ≅ 7 oz (198 g)

10

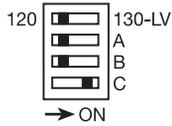
Obstruction Lamp Alarm Relay SCR490D Beacon & Obstruction



- Senses Failed Obstruction Lamps
- 2 ... 9 Steadily Burning Lamps can be Monitored
- Toroidal Current Sensing
- 10 A Isolated SPDT Alarm Output Contacts
- 1 A Solid State Line Voltage Alarm Output
- Six Second Trip Delay Prevents Nuisance Alarms

Approvals:

Switch Setting:

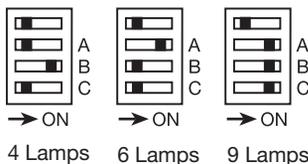


LV = Lamp Voltage

Example shown above is:
3 Lamps are Monitored
120 V AC rated lamps

Total Number of Lamps	Switches On
2	No Switches
3	C
4	B
5	B + C
6	A
7	A + C
8	A + B
9	A + B + C

Other Examples:
All 120 V AC rated lamps



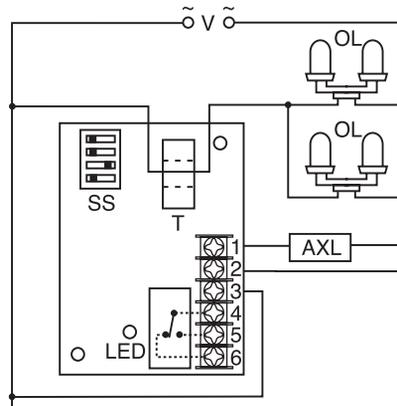
Description

The SCR490D Series is used to provide remote monitoring of steady burning incandescent marker and obstruction lighting. Four onboard switches allow operator programming for lighting systems with two through nine lamps on a single AC circuit. The SCR490D uses a toroidal sensor and electronic circuitry to sense the failure of one or more lamps.

Operation

When a lamp fails, the SCR490D senses a decrease in current flow. Then, after a fixed time delay, it transfers to its alarm mode. In alarm mode, the LED indicator, the output relay (SPDT isolated contacts), and a non-isolated solid state output are energized. Replacement of the failed lamps resets the alarm outputs and the LED indicator. To prevent false alarm signals, power must be applied to the SCR490D at the same time that lamps are energized.

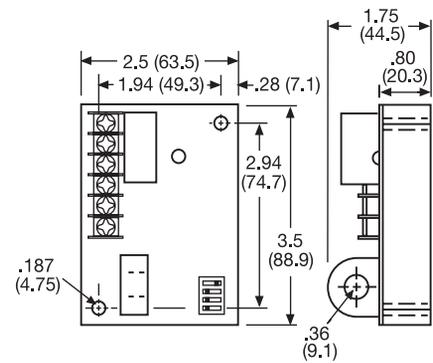
Connection



Relay contacts are isolated. Dashed lines are internal connections.

V = Voltage OL = Obstruction Lamps
T = Toroid SS = Selector Switch
AXL = Auxiliary Load/Alarm

Mechanical View



Inches (Millimeters)

Input	Part Number
120 V AC	SCR490D

Technical Data

Operation

Number of Lamps: 2 ... 9 (Selectable)
Lamp Wattage: 116 W, incandescent lamps
Rated Lamp Voltage: 120 or 130 V AC (Selectable)
Monitored Voltage: 120 V AC +/-3%
Trip Delay: ≈ 6 s Fixed

Input

Voltage/Frequency: 120 V AC / 50 ... 60 Hz
Tolerance: -20% ... +10%

Output

Line Voltage Output (Solid State Rated): ≤ 125 W to operate a spare lamp or alarm
Isolated Alarm Output: 10 A at 120 V AC or 30 V DC resistive
1/4 hp at 125 V AC; 1/2 hp at 250 V AC

Mechanical

Mounting: Surface mount w/ two #6 (M3.5 x 0.6) screws
Termination: Screws with captive clamps for up to 14 AWG (2.45 mm²) wire

Protection

Circuitry: Encapsulated

Environmental

Operating/Storage Temperature: -40°C ... +65°C / -40°C ... +85°C
Package: 3.5 x 2.5 x 1.75 in. (88.9 x 63.5 x 44.5 mm)
Humidity: 95% relative, non-condensing
Weight: ≈ 6.8 oz (193 g)

Universal Lamp Alarm Relay

SCR430T & SCR630T

Beacon & Obstruction



- Monitors Incandescent Lamps for Failure
- Senses Failed Flashing Beacon or Obstruction Lamps
- Switch Selectable Number, Voltage, & Wattage of Lamps
- 10 A Isolated SPDT Alarm Output Contacts
- 1 A Solid State Line Voltage Alarm Output
- Toroidal Current Sensing

Approvals: (SCR430T only)

Description

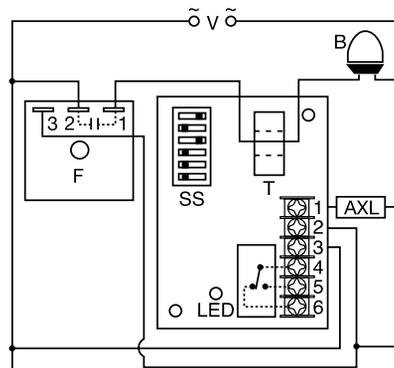
The SCR series is a Universal Lamp Alarm Relay designed to sense the failure of flashing or steady incandescent beacon lamps or steady side lights. The toroidal current sensor provides isolation and allows monitoring of more than one line at a time. The SCR Series energizes when one or more lamps fail. It will monitor the operation of one to four side lights and up to four beacon lamps.

Operation

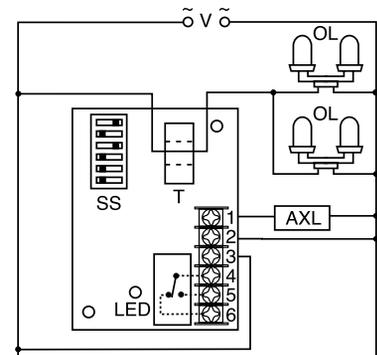
When a lamp fails, the SCR Series senses a decrease in current flow. After a fixed time delay, the LED glows and the two alarm outputs energize. The outputs and the LED are reset when the failed lamps are replaced and the current returns to the nominal setting, or when the input voltage is removed. The SCR will sense an open flasher, it will not sense a continuously on flasher (see FB Series).

Connection

Beacon Connection Diagram



Obstruction Lamp Connection Diagram



Relay contacts are isolated. Dashed lines are internal connections.

V = Voltage B = Beacon Lamps SS = Selector Switch T = Toroid
F = Flasher AXL = Auxiliary Load/Alarm OL = Obstruction Lamps

Ordering Table

Input	Part Number	Lamp Types
120 V AC	SCR430T	Incandescent
230 V AC	SCR630T	Incandescent

Universal Lamp Alarm Relay

SCR430T & SCR630T

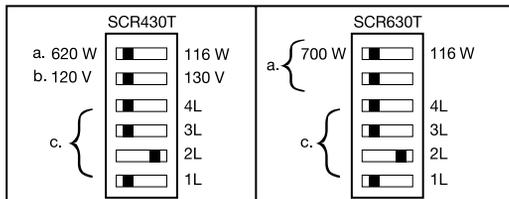
Beacon & Obstruction

Tower &
obstruction
lighting

Technical Data

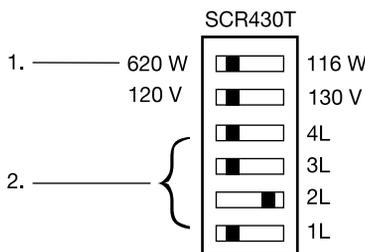
Lamp Monitoring Capacity (in lamps)		100 W	116 W	620 W	700 W	This chart is based on typical current draw of lamps at the rated voltage and the units trip point over the voltage tolerance.
SCR430T 120VAC Lamps		4	4	4	n/a	
SCR630T 230VAC Lamps		n/a	4	n/a	4	
Time Delay Trip Delay		Factory fixed \approx 6 s				
Input Input Voltage/Tolerance/Frequency		SCR430T -- 120 V AC +/-10% 50 ... 60 Hz SCR630T -- 230 V AC +/-10% 50 ... 60 Hz				
Output Line Voltage Output (Solid State Rated)		To operate a spare lamp or alarm \leq 125 W at 120 V AC \leq 250 W at 240 V AC				
Isolated Alarm Output (SPDT)		10 A at 240 V AC or 30 V DC resistive; 1/4 hp at 125 V AC; 1/2 hp at 250 V AC				
Mechanical Mounting Termination Package		Two #6 (M3.5 x 0.6) screws Screws with captive clamps for up to 14 AWG (2.45 mm ²) wire 3.5 x 2.5 x 1.75 in. (88.9 x 63.5 x 44.5 mm)				
Protection Circuitry		Encapsulated				
Environmental Operating Temperature Weight		-40°C ... +65°C \approx 6.8 oz (193 g)				

Selection Range:



- Lamp Wattage - Select the lamp wattage of the lamps in use.
- Lamp Voltage - Select the lamp voltage shown on the lamp. (SCR430T)
- Lamps ON - Select the number of lamps on during normal operation. Only one lamp switch, at a time, may be transferred to the right.

Programming Example:

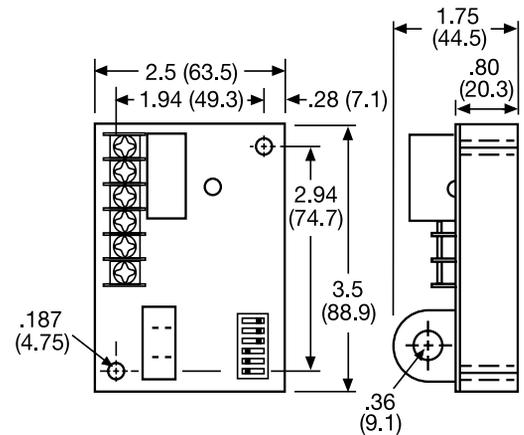


Example Shown: SCR430T-620 watts at 120 V AC lamps, two lamps are ON during normal operation.

STEP

- Select lamp wattage: 116 or 620 watts
- Select the number of lamps ON (1 thru 4) during normal operation. Only one lamp switch may be ON (RIGHT) at any time.

Mechanical View



Inches (Millimeters)

Universal Lamp Alarm Relay FB9L LED Beacons



- Senses Failed Flashing Beacon Lamps
- Switch Selectable Number, of Beacons
- Senses Flasher Failure
- 10 A Isolated SPDT Alarm Output Contacts
- 10 A N.O. Line Voltage Alarm Output
- 0.5 A Solid State Flasher Failure Output "F"
- Self Calibrating; No Fine Adjustment Required
- Meets FAA-AC No: 150/5345-43E

Description

Preliminary Data Sheet-Available 1st Quarter 2007

The FB series 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 FB Series output relay energizes when one or more lamps fail. All monitored lamps must be the same wattage and voltage. The 0.5 A solid state output energizes when a flasher failure is sensed.

Operation

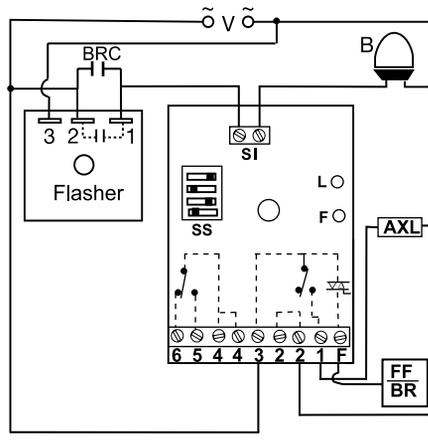
When a LED beacon lamp fails, the FB senses a decrease in current flow. After a 10 s lamp failure trip delay, the isolated SPDT (4-5-6) and non-isolated SPNO (3-1) relay contacts energize. These contacts are used to indicate a beacon failure has occurred. The "L" onboard LED indicator flashes green during 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 FB also monitors the operation of the flasher. If the flasher remains in the ON or OFF condition for more than 6 s 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.

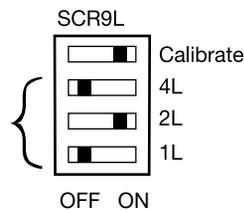
Note: In a single flasher, single beacon system, if the beacon lamp fails, zero current flow is detected. This will cause the flasher failure output to energize after 6 s and then the beacon failure outputs after 10s. This is normal operation and can be expected anytime zero current is flowing through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

Connection

Beacon Connection Diagram



Adjustment Example:



Example Shown: FB9L two lamps are ON during normal operation.

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

Dashed lines are internal connections.

V = Voltage B = LED Beacon SS = Selector Switch
SI = Sensor Input L = Indicator
F = Flasher Failure LED AXL = Auxiliary Load/Alarm
FF = Flasher Failure/Bypass Relay
BRC = Bypass Relay Contacts

Adjustment Table

Total Lamps	Switches ON
1(!)	1L
2	2L
3	1L + 2L
4	4L
5	1L + 4L
6	2L + 4L
7	1L + 2L + 4L
8	None

(!) See Note f on next page

Accessories



DIN Mount Adaptor
P/N: P1023-20



For 35mm DIN3 Rail

See Accessory Pages for Specifications

Ordering Table

Input 120 ... 230 V AC	Beacon Type LED	Part Number FB9L
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Universal Lamp Alarm Relay

FB9L

LED Beacons

Tower & obstruction lighting

Technical Data

Sensors	
Calibration Range (total all Lamps)	150 mA ... 8.0 A
Absolute Max Current (total all Lamps)	15 A Max. (May not calibrate above 8 A)
Single Lamp Current	150 mA ... 8.0 A (total all Lamps ≤ 8.0 A)
Trip Delay	
Flasher Failure	Fixed at 6 s; -0/+40%
Lamp Failure	Fixed at 10 s; -0/+40%
Input	
Input Voltage/Tolerance/Frequency	120 ... 230 V AC +/-15% 50 ... 60 Hz
Output	
Line Voltage Output (SPNO)	To operate a spare lamp or alarm 5 A at 240 V AC or 30 V DC resistive; 1/4 hp at 125 V AC; 1/2 hp at 250 V AC
Isolated Alarm Output (SPDT)	10 A at 240 V AC or 30 V DC resistive; 1/4 hp at 125 V AC; 1/2 hp at 250 V AC
Solid State Line Voltage Output (F)	0.5 a steady; 5 A inrush
Mechanical	
Mounting	One #10 (M5 x 0.8) screw
Termination	IP20 Screw Terminals for up to 14 AWG (2.45 mm ²) wire or two 16 AWG (1.3 mm ²) wires
Package	3 x 2 x 1.64 in (76.7 x 51.3 x 41.7 mm)
LEDs	
Power/Timing/Lamp Failure (Bi color)	Glows Red when one or more lamps fail (See LED Table)
Flasher Failure (Red)	Glows Red when the flasher fails
Protection	
Circuitry	Encapsulated
Environmental	
Operating / Storage Temperature	-40°C ... +60°C / -40°C ... +85°C
Weight	≅ 3.9 oz (111 g)

Calibration

The alarm relays must be calibrated after initial installation and each time the LED lamps are replaced. In order to calibrate or re-calibrate the alarm relay, the internal memory must be cleared.

Clearing Memory:

Remove input voltage, transfer the calibration switch to the off position, re-apply input voltage. The LED will flash Red to indicate the memory is clear and the relay is ready for calibration.

Calibration:

- 1) Perform visual inspection of the structure's lighting to assure all lamps and flashers are operating properly.
- 2) Remove input voltage, and check to ensure the calibrate switch is in the OFF position. Adjust the lamp selector switches for the correct number of similar (see note a) lamps to be monitored.
- 3) Reapply input voltage, the LED should flash Red. After confirming the LED is flashing Red and the lamp selector switches are properly adjusted, transfer the calibrate switch from OFF to ON. The LED will alternately flash Red & Green. Within 30 seconds the LED will glow Green indicating input power is applied and the unit is calibrated. Leave the calibrate switch in the ON position. Reapplying input voltage when this switch is in the ON position does not affect the calibration settings.

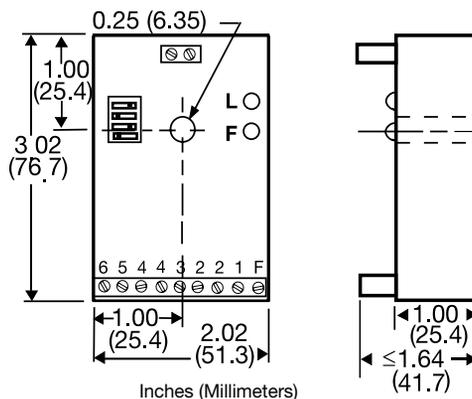
Calibration Failed:

- 4) If the relay is unable to establish trip points for the setup conditions within 60 seconds, the LED will double blink Red. Remove input voltage and repeat steps 2 and 3.

Notes:

- a. Monitoring a mixture of LED beacons and LED obstruction lamps is not possible with the SCR9L.
- b. This alarm relay is not designed to monitor incandescent lamps.
- c. This alarm relay must be recalibrated each time an LED lamp is replaced.
- d. Due to LED lamp aging, recalibration every 12 months is recommended.
- e. Applying input voltage when the calibrate switch is in the OFF position, erases the previous calibration settings. The LED will flash Red. The output relays are OFF and the unit will not sense lamp failures.
- f. Only one (1) temperature compensated LED Beacon can be monitored with this product. A combination of temperature compensated and standard LED Beacons cannot be monitored.

Mechanical View



FB9L 01.11.07

Universal Lamp Alarm Relay SCR9L LED Beacon & Obstruction Lamps



- Monitors LED Lamps for Failure
- Senses Failed Flashing or Steady Beacon or Obstruction Lamps
- Switch Selectable Number, of Lamps
- 10 A Isolated SPDT Alarm Output Contacts
- 5 A N.O. Line Voltage Alarm Output
- Self Calibrating; No Fine Adjustment required
- Meets FA-AC No: 150/5345-43E

Description

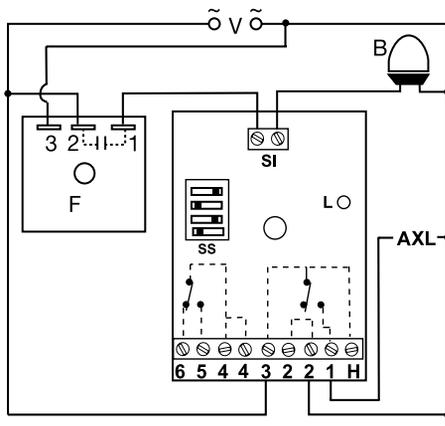
The SCR series is a Universal Lamp Alarm Relay designed to sense the failure of flashing or steady LED beacon lamps or obstruction lamps. The SCR Series energizes when one or more lamps fail. It will monitor the operation of one to eight beacon or obstruction lamps. All monitored lamps must be the same wattage and voltage. When connected to a site monitoring system, it provides the remote lamp monitoring protection required by the FAA-AC No: 150/5345-43E.

Operation

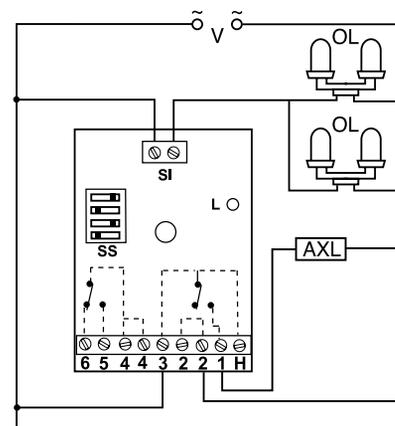
When a lamp fails, the SCR Series senses a decrease in current flow. After a 10 s trip delay, the onboard LED glows and the two alarm outputs energize. The outputs and the LED are reset when the failed lamps are replaced and the unit is recalibrated. The SCR will sense an open flasher, it will not sense a continuously ON flasher (see FB Series). Removing input voltage de-energizes the output and the LED's. It does not change the calibration

Connection

Beacon Connection Diagram



Obstruction Lamp Connection Diagram



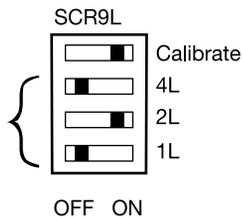
Indicator Table

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

Dashed lines are internal connections.

V = Voltage B = Beacon Lamps
 SS = Selector Switch L = LED Indicator
 F = Flasher AXL = Auxiliary Load/Alarm
 OL = Obstruction Lamps SI = Sensor Input
 H = "3" Spare AC Hot Connection (2 A Max)

Adjustment Example:



Example Shown: SCR9L two lamps are ON during normal operation.

Adjustment Table

Total Lamps	Switches ON
1(!)	1L
2	2L
3	1L + 2L
4	4L
5	1L + 4L
6	2L + 4L
7	1L + 2L + 4L
8	None

(!) See Note f on next page

Ordering Table

Input	Lamp Types	Part Number
120 ... 230 V AC	LED	SCR9L

Accessories



DIN Mount Adaptor
P/N: P1023-20



For 35mm
DIN3 Rail

See Accessory Pages for Specifications

Universal Lamp Alarm Relay SCR9L LED Beacon & Obstruction Lamps

Tower &
obstruction
lighting

Technical Data

Sensors	
Calibration Range (total all Lamps)	150 mA ... 8.0 A
Absolute Max Current (total all Lamps)	15 A Max. (May not calibrate above 8 A)
Single Lamp Current	150 mA ... 8.0 A (total all Lamps ≤ 8.0 A)
Time Delay	
Trip Delay	Factory fixed ≅ 10 s
Input	
Input Voltage/Tolerance/Frequency	120 ... 230 V AC +/-15% 50 ... 60 Hz
Output	
Line Voltage Output (SPNO)	To operate a spare lamp or alarm
Isolated Alarm Output (SPDT)	5 A at 240 V AC or 30 V DC resistive; 1/4 hp at 125 V AC; 1/2 hp at 250 V AC
Auxilliary Input Voltage (H)	10 A at 240 V AC or 30 V DC resistive; 1/4 hp at 125 V AC; 1/2 hp at 250 V AC
Mechanical	
Mounting	One #10 (M5 x 0.8) screw
Termination	IP20 Screw Terminals for up to 14 AWG (2.45 mm ²) wire or two 16 AWG (1.3 mm ²) wires
Package	3 x 2 x 1.64 in (76.7 x 51.3 x 41.7 mm)
Protection	
Circuitry	Encapsulated
Environmental	
Operating / Storage Temperature	-40°C ... +60°C / - 40°C ... +85°C
Weight	≅ 3.9 oz (111 g)

Calibration

The alarm relays must be calibrated after initial installation and each time the LED lamps are replaced. In order to calibrate or re-calibrate the alarm relay, the internal memory must be cleared.

Clearing Memory:

Remove input voltage, transfer the calibration switch to the off position, re-apply input voltage. The LED will flash Red to indicate the memory is clear and the relay is ready for calibration.

Calibration:

- 1) Perform visual inspection of the structure's lighting to assure all lamps and flashers (if used) are operating properly.
- 2) Remove input voltage, and check to ensure the calibrate switch is in the OFF position. Adjust the lamp selector switches for the correct number of similar (see note a) lamps to be monitored.
- 3) Reapply input voltage, the LED should flash Red. After confirming the LED is flashing Red and the lamp selector switches are properly adjusted, transfer the calibrate switch from OFF to ON. The LED will alternately flash Red & Green. Within 30 seconds the LED will glow Green indicating input power is applied and the unit is calibrated. Leave the calibrate switch in the ON position. Reapplying input voltage when this switch is in the ON position does not affect the calibration settings.

Calibration Failed:

- 4) If the relay is unable to establish trip points for the setup conditions within 60 seconds, the LED will double blink Red. Remove input voltage and repeat steps 2 and 3.

Notes:

- a. Monitoring a mixture of LED beacons and LED obstruction lamps is not possible with the SCR9L.
- b. This alarm relay is not designed to monitor incandescent lamps.
- c. This alarm relay must be recalibrated each time an LED lamp is replaced.
- d. Due to LED lamp aging, recalibration every 12 months is recommended.
- e. Applying input voltage when the calibrate switch is in the OFF position, erases the previous calibration settings. The LED will flash Red. The output relays are OFF and the unit will not sense lamp failures.
- f. Only one temperature compensated LED Beacon can be monitored with this product. A combination of temperature compensated and standard LED Beacons cannot be monitored.

Mechanical View

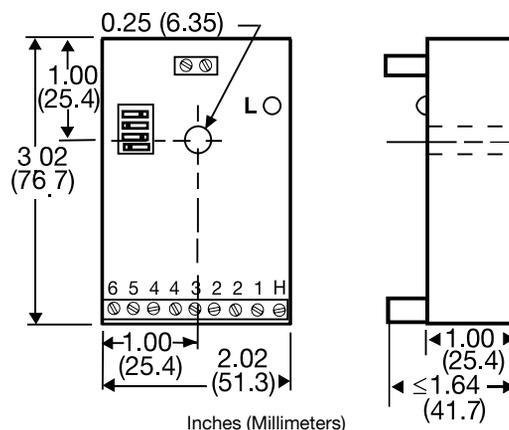


Photo Control

PCR Series

Tower & Obstruction Lighting



10 YEAR WARRANTY

- Automatic Lighting Circuit Operation: Dusk to Dawn
- Meets FAA/FCC Requirements for Obstruction Lighting
- Two 20 A Load Contacts
- Direct Replacement of Popular Photo Controls
- Time Delay Eliminates Contact Chatter

Description

The PCR Series of Photo Control is a combination of precision electronic circuitry, electromechanical output, and unique molded plastic housing. Designed and built to meet the demands of the most rigorous requirement of tower and obstruction lighting control. Each unit is factory calibrated to meet FAA and FCC specifications. Electronic circuit, output contactor, and terminal block are all contained within front plastic housing. Edge support molded into the bottom edge of housing allows easy wiring of new and existing installations. Available with or without cast aluminum junction box.

Operation

When the amount of light sensed falls below the actuation level for energization, the output relay energizes. Conversely, when the amount rises above the actuation level for de-energization, the output relay de-energizes.

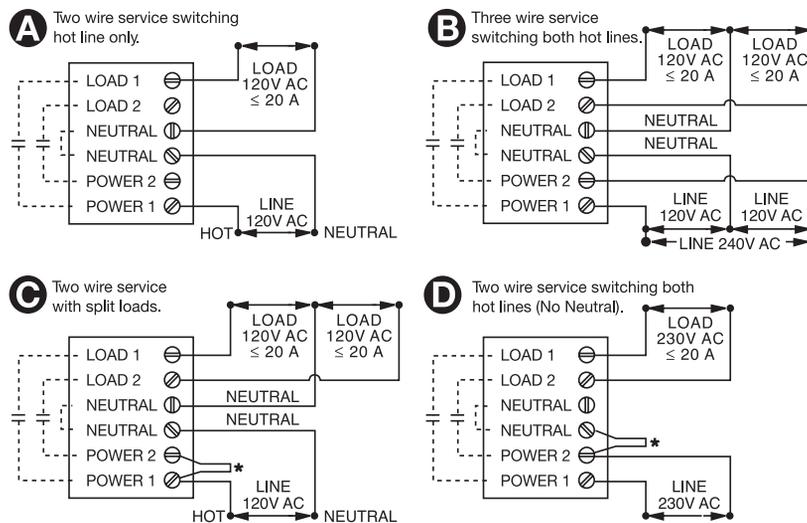
CONVERSION CHART

Part Number	Hughey & Phillips	Crouse Hinds
PCR11	PC800 120 V	PEC52010
PCR13	PC800 240 V	PEC52010-1

Applications & Connections

The PCR Series Photo Control has a unique feature that allows the installer to have both hands free while wiring. The plastic front housing of the PCR has a slot at its bottom that slips over the edge of the cast aluminum box. When wiring is complete, simply lift up, insert into the box, and secure with four screws.

Connection



* Customer Supplied Jumper - - - - Internal Connection

Ordering Table

Input	Description	Diagram	Part Number
120 V AC	Photo Control without aluminum box	A & B & C	PCR10
230 V AC	Photo Control without aluminum box	D	PCR12
120 V AC	Photo Control with aluminum box	A & B & C	PCR11
230 V AC	Photo Control with aluminum box	D	PCR13

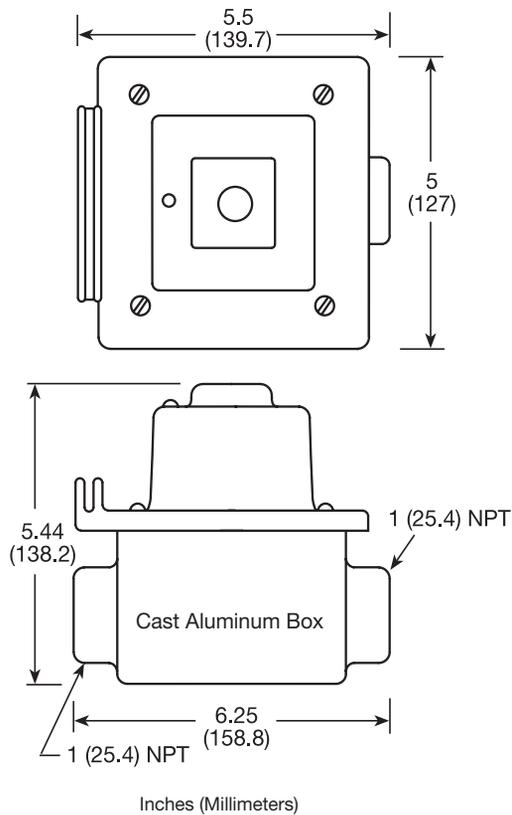
Photo Control PCR Series Tower & Obstruction Lighting

Tower &
obstruction
lighting

Technical Data

Operation Indication	LED indicates power is applied
Set Points Light Actuation Levels (Factory Calibrated)	Energized: ≤ 35 fc De-energized: ≥ 60 fc
Input Voltage/Frequency	120 V AC / 50 ... 60 Hz 230 V AC / 50 ... 60 Hz
Tolerance	120 & 230 V AC -20% ... +10%
Output Output Rating	Two SPST N.O. 20 A contacts 1 hp @ 120 V AC 2.5 hp @ 240 V AC
Mechanical Termination Package	Screw terminals for up to #8 (M4 x 0.7) AWG wire ABS plastic housing with gasket seal. Multiple knockout holes for optional mounting to Crouse Hinds or Hughey & Phillips cast aluminum electrical boxes.

Mechanical View



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