



LIGHTING CONTROLS

PHOTO-SENSITIVE SENSOR AND LIGHT LEVEL TRANSMITTER

PSR-1, PSR-1-T

DESCRIPTION

The **Kele Model PSR-1** Photo-Sensitive Sensor may be used as an input to indicate the presence or absence of light at the sensor location by a change in resistance. The **Model PSR1-T** Transmitter is a **PSR-1** coupled with a 4-20 mA transmitter. The sensor is designed to be mounted in the end of a weatherproof conduit box.

FEATURES

- Economical dark/light sensing
- 1/2" NPT design
- Track-mounted PSR-1-T transmitter
- Optional weatherproof enclosure

APPLICATION

The **Model PSR-1** has a resistance in darkness in excess of 1 MΩ and a resistance in bright light of less than 1.5 kΩ. **Models PSR-1** and **PSR1-T** indicate the presence or absence of light. They should not be used for footcandle control of occupied spaces. The **PSR-1-T** is calibrated for 4 mA in bright light (>100 footcandles) and 20 mA in darkness (0.1 footcandles).



PSR-1-T

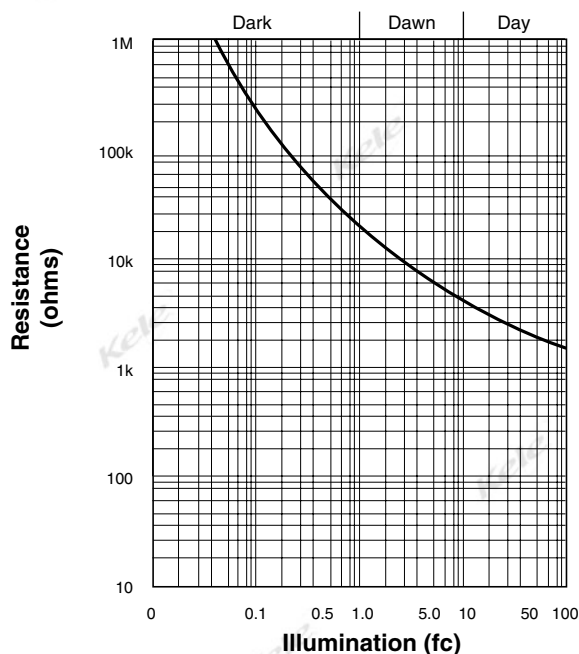
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LIGHTING CONTROLS

SPECIFICATIONS

Supply Voltage	10.5-35 VDC @ 22mA max
PSR-1-T	
Analog Output	
PSR-1	Non-Linear Reverse acting light sensitive resistor
	1 meg @ 0.03 fc (Dark) and ≥ 1K @ 100 fc (Bright)
PSR-1-T	4-20mA = 100 fc to 0 fc, Reverse acting
	Red LED indicates 4-20mA @ 675 , loop power
Sensor type	Resistive, Cadmium selenide (CdSe)
Accuracy	± 40%, Used only for Dark/Bright indication
Range Adjust	
PSR-1	Sensor only (not calibrate-able)
PSR-1-T	Transmitter factory calibrated (Zero and Span)
Response Time Adjust	None
Protective Lens	Non-polarized plastic
Operating Temperature	-13° to 167°F (-25° to 75°C)
Operating Humidity	10% to 95% Non-condensing
Wiring Terminations	2 wire pigtails
PSR-1	2 wire pigtails
PSR-1-T	Terminals
Mounting	1/2 FNPT w/ Teflon tape (Facing North)
PSR-1-T	Sensor w/ Pnl. Mnt. transmitter (<500' of 18 awg)
PSR-1-E	Enclosure mounting tabs
Enclosure Rating	NEMA 4 after mounting w/ Teflon tape
Dimensions	
PSR-1	1/2"MNPT plug w/17" lead
PSR-1-T	1/2"MNPT plug, w/1.75" W x 2.25"H PC board
PSR-1-T/E	4.63"W x 2.88" H x 2" D (11.7 x 7.3 x 5 cm)
Weight	
PSR-1	0.05 lb (0.02 Kg)
PSR-1-T	0.35 lb (0.16 Kg)
PSR-1-E	0.65 lb (0.3 Kg)
PSR-1-T-E	0.95lb (0.43 Kg)
Warranty	1 year

RESISTANCE CURVE



Accuracy is ±40%. Use only as Dark/Light indication.

LIGHTING CONTROLS

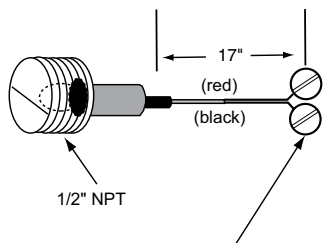
KELE PHOTO-SENSITIVE RESISTOR

PSR-1, PSR-1-T

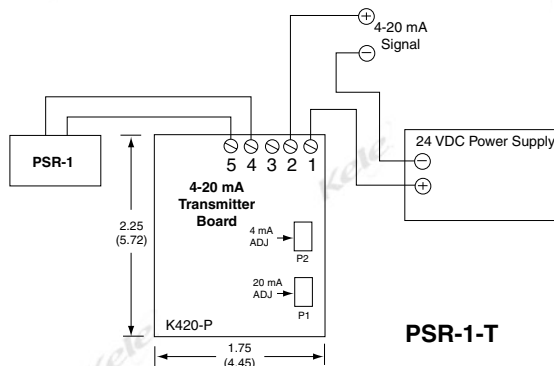


WIRING

In
(cm)

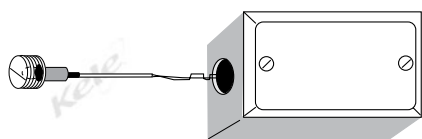


PSR-1
(Do not mount in direct sunlight)



INSTALLATION

Thread the 1/2 NPT clear lens into a water proof box or conduit coupling using Teflon tape or pipe dope to maintain a tight waterproof seal. The sensor should be mounted in a permanently shaded location. Do not allow the sensor to be exposed to direct sun light as UV light will permanently cause a sensor shift and eventual failure. Terminate the non-polar wiring to the transmitter or BAS analog input. See graph below for the approximate light to resistance performance. This sensor is good at determining day or night light levels but is not accurate enough for precision light level measurement.



**Typical Application Using
Outdoor Air Sensor with PSR-1-E**

APPLICATION NOTES

OPERATION

Due to the wide tolerance and non-linear nature of the low-cost **PSR-1** and **PSR-1-T**, the values for resistance versus light level (or mA versus light level) cannot be predicated accurately. As stated in the data sheet, it is not intended for control of lighting levels in occupied spaces.

However, an installed device will give very repeatable performance through its span. Note the following procedure is required for each individual **PSR-1** and **PSR-1-T** installed, as interchangeability is not guaranteed.

1. Install the **PSR-1** or **PSR-1-T** in its intended location and connect to controller. Preferred direction of mounting is due north toward the sky or toward a location where the sun can never appear.
2. Arrange for the sensed lighting to be darkened to the control point that is desired, using a reliable light level meter is

recommended. For outdoor lighting, the most common on/off control points are turn lights on at a point between 1 and 3 foot candles. Without a light meter, the lowest level (on point) can be estimated by observation on a cloudless day at about 5 minutes prior to sunset, or about 5 minutes after sunrise. The high (off point) level can be estimated by observation on a cloudless day at about 15 minutes prior to sunset, or about 15 minutes after sunrise. Sunrise and sunset time for your locality on a given day may be obtained at www.srrb.noaa.gov.

3. Record the value (Ohms or mA) at which each lighting control point is reached.
4. While the method is NOT recommended for analog control of lighting level in occupied spaces, the same procedure may be employed to control artificial lighting in areas that otherwise illuminated by skylights or other overwhelming sources of natural light.
5. Any exposure to direct sun may allow the temperature of the device to approach or exceed 167 F (75 c) limit. Mounting in direct sunlight will deteriorate the sensor to failure.

ORDERING INFORMATION

MODEL	DESCRIPTION
PSR-1	Photo-sensitive resistor
PSR-1-T	Photo-sensitive resistor with 4-20 mA transmitter (bright to dark)
PSR-1-E	Photo-sensitive resistor with weather resistant enclosure
PSR-1-T-E	Photo-sensitive resistor with weather resistant enclosure and 4-20 mA transmitter (bright to dark)