45LUM Luminescence Sensor Installation Instructions

Original instructions in English

IMPORTANT SAVE THESE INSTRUCTIONS FOR FUTURE USE.

Description

The 45LUM Luminescence sensor provides a solution for detection of substances which are invisible to the human eye. This sensor detects lumiphors or flourescents which are emitted from the object being detected. The sensor converts the UV light into a visible light, which is then received by the luminescence sensor. This sensor can detect particles such as glue, clear labels, oils, greases, paint, detergents, and chalks.

The 45LUM contains a teach button to simplify the setup process and even provides the option to remote teach the sensor. The sensor has one discrete output which is light operate (L.O.) and it contains a small light spot for accurate positioning. The sensor contains a rotatable plug and is also offered with various mounting accessories to ease installation.

The 45LUM sensor is an excellent solution to a broad range of applications including industries such as automotive, packaging, material handling, and food and beverage. Flourescent/lumiphores in an object can be easily detected, however, flourescents/lumiphores can also be added to a material and not affect the original product.

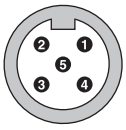
Features

- Sensing range of 5…50 mm (0.2…2 in.)
- Detection of luminescence/flourescent particles and materials
- Easy setup of switch points using teach button
- External teach capability
- Rotatable plug for flexibility during installation
- IP67 enclosure
- Self-contained sensor

Specifications

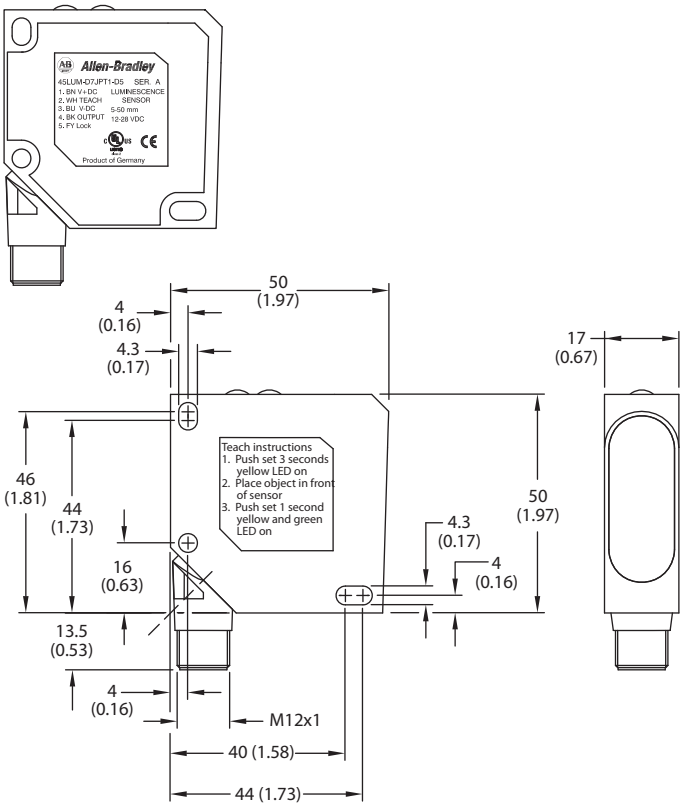
Certifications	UL, cULus, and CE Marked for all applicable directives
Enclosure Type Rating	IP67
Operating Temperature [C(F)]	-10…+55° (+14…+131)
Storage Temperature [C(F)]	-20…+80° (-4…+176)
Vibration	10…55 Hz, 1 mm amplitude, meets or exceeds IEC 60947-5-2
Shock	30 g with 11 ms pulse duration, meets or exceeds IEC 60947-5-2
Optical	
Sensing Range	5…50 mm (0.2…2.0)
Light Source	Visible ultraviolet LED
Indicator LEDs	Green: Power and mode; Yellow: Object detected/switching output active
Electrical	
Operating Voltage	12…28V DC
No Load Supply Current	≤ 40 mA
Protection Type	Class 2 protection, short circuit, reverse polarity
Outputs	
Response Time	1 ms
Output Type	PNP, N.O., light operate
Output Function	Light operation for discrete output
Output Current	≤ 100 mA
Switching Frequency	500 Hz
Mechanical	
Housing Material	ABS
Lens Material	Glass
Connection Type	5-pin DC micro (M12) QD, rotatable

Pinout and Color Codes

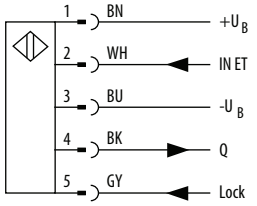


Pin	Color	Connection
1	Brown	V+ 12…28V DC
2	White	Input (remote teach)
3	Blue	V- 0V DC
4	Black	Output
5	Grey	Teach button lock

Dimensions [mm (in.)]

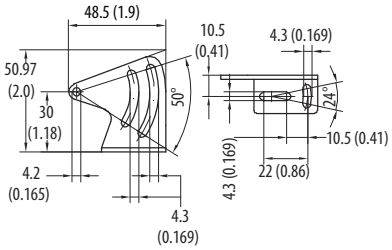


Wiring Diagrams

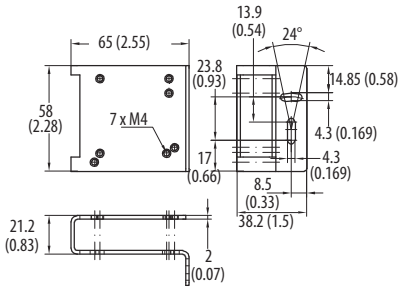


Mounting [mm (in.)]

45BPD-BKT1



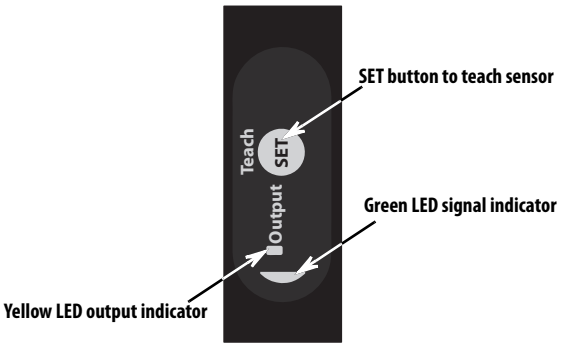
45BPD-BKT2 (protective bracket)



Teach Interface

How to teach the sensor

1. Familiarize yourself with the LED indicator and teach button.



2. The sensing distance of the 45LUM is 5…50 mm (0.20…2.0 in.).
3. Position the target in front of sensor.
4. The optimal distance is 18 mm (0.71 in.).
5. Push the SET button for three seconds — the green and yellow LEDs will turn on.
6. Push the SET button for one second — the yellow and green LEDs will turn on. The teach setup is complete.

Maximum Range/Sensitivity

It is possible to configure the sensor for maximum sensitivity by following these steps:

1. Position the sensor so that there is not target in range (nothing closer than 50 mm).
2. Push SET for three seconds. The green and yellow LEDs will turn OFF.
3. Push SET for one second. The green LED will turn ON.

The teach setup is completed.

Push Button Lock and Unlock

Sensors with teach or manual adjustment are flexible and can be used in many applications. However, some engineers do not like the idea of an operator or maintenance person making changes to the settings of a sensor after the initial setup. These engineers often ask for fixed range sensors. Another potential solution is to prevent adjustment by locking the teach button.

The push button on the 45LUM can be locked. A permanent lock can be achieved by attaching the grey wire (pin 5) to V-. If the grey wire is connected to V-, the push button is completely ignored by the sensor and no changes can be made. By taking advantage of this feature, the engineer originally applying the sensor can greatly reduce the likelihood of the settings of the sensor later being changed.

Remote Teach

The sensor can be taught remotely via the white wire (pin 2). Connection to +V acts the same as the button being pressed and no connection is the same as the button not being pressed. The sensor can be taught by following the same teach/timing sequence as used in the push button teach (e.g., connect to the +V for more than three seconds to teach the "target," disconnect from the +V; remove the target and connect to the +V for less than one second to teach the "no target" condition. All push button functions can also be carried out via RT.

1. Connect the white wire to V+ for more than three seconds (voltage is greater than 12…28V).
2. Teach the sensor by placing the target in front of the sensor. The sensing distance for 45LUM is 5…50 mm (0.2…2 in.).
3. Disconnect the white wire from V+.

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