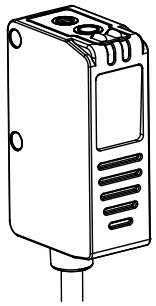
Q26 Luminescence Sensor

Datasheet

Q26 Luminescence Sensor for Luminescent Mark Detection

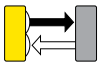


- Reliably detects luminescent plastics, coatings, lubricants, and other targets on even and uneven surfaces
- Simple configuration with the push button on the sensor's housing or via a remote input line
- Rotary switch selects Light Operate or Dark Operate
- IP67-rated housing for use in rugged industrial environments
- Compact housing size: 14 × 25 × 42 mm

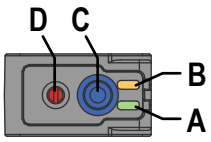
WARNING: Not To Be Used for Personnel Protection

Never use this device as a sensing device for personnel protection. Doing so could lead to serious injury or death. This device does not include the self-checking redundant circuitry necessary to allow its use in personnel safety applications. A sensor failure or malfunction can cause either an energized or de-energized sensor output condition.

Models

Model	Mode	Range	Ouput	Connector
Q26PLUMQ5	 Diffuse Ultraviolet	10 mm to 30 mm	PNP	4-pin M12/Euro-style quick disconnect fitting on a 150 mm (6 in) PVC cable jacket
Q26NLUMQ5			NPN	

Mounting and Configuring the Luminescence Sensor



A - Power LED (green)
B - Output LED (amber)
C - TEACH button
D - DO / LO Rotary Selection (DO = fully clockwise; LO = fully counterclockwise)

1. Mount the luminescence sensor.
2. Align the luminescence sensor and the luminescent mark or luminescent target.
3. Select operating mode Light Operate or Dark Operate.
   - Turn the rotary switch (D) *counterclockwise* to select Light Operate if an output is desired when a luminescent mark (target) is present.
   - Turn the rotary switch (D) *clockwise* to select Dark Operate if an output is desired when a non-luminescent background is present.

TEACH Procedures

There are two ways to teach the Q26 Luminescence Sensor: press the TEACH button on the sensor or use a remote input line. The Q26 Luminescence Sensor has three TEACH procedures:

- Light SET
- Two-Point TEACH
- Dark SET

Light SET

1. Present the luminescent target and the sensor will set the threshold appropriately.

Method	Action	Result
TEACH Button	Position the luminescent target in front of the light spot emitted by the sensor.	Power LED: ON Output LED: depends on LO/DO selection, previous teach, and target.
Remote Input Line		

2. Teach the sensing condition.

Method	Action	Result
TEACH Button	Press and hold the TEACH button until the Power LED goes OFF, then release before the power LED turns ON again (less than 3 seconds).	Power LED: ON Output LED: ON (LO Mode), OFF (DO Mode)
Remote Input Line	Hold the remote wire high (to + V dc) until the Power LED goes OFF, then release before the power LED turns ON again (less than 3 seconds).	

If the TEACH procedure was accepted, the Power LED turns ON and the sensor automatically returns to Run mode.

3. If the TEACH procedure was not accepted, the Power LED flashes and the Output LED is OFF. If the Power LED continues to flash, the TEACH procedure failed because of a low signal. Manually return the sensor to Run mode.

Method	Action	Result
TEACH Button	Press and hold the TEACH button until the flashing Power LED turns solid green.	The sensor returns to Run mode. Power LED is ON.
Remote Input Line	Hold the remote input line high (to + V dc) until the flashing Power LED turns solid green.	

As an alternative, follow the steps for Two-Point TEACH.

Two-Point TEACH Mode

Present both the luminescent mark and the background in two steps. The sensor will set the switching threshold between the two conditions and optimize its sensitivity.

1. Present the target.

Method	Action	Result
TEACH Button	Position the luminescent target in front of the light spot emitted by the sensor.	Power LED: ON Output LED: depends on LO/DO selection and target.
Remote Input Line		

2. Teach the sensing condition.

Method	Action	Result
TEACH Button	Press and hold the TEACH button until the Power LED goes OFF, then ON (at least 3 seconds) and then release before the Power LED turns OFF again (less than 5 seconds).	Power LED: OFF Output LED: OFF
Remote Input Line	Hold the remote input wire high (to + V dc) until the Power LED goes OFF, then ON (at least 3 seconds) and then release before the Power LED turns OFF again (less than 5 seconds).	

3. Present the background.

Method	Action	Result
TEACH Button	Position the background in front of the light spot emitted by the sensor.	Power LED: OFF Output LED: OFF
Remote Input Line		

4. Teach the background condition.

Method	Action	Result
TEACH Button	Press the TEACH button (approximately 1 second), then release.	Power LED: ON Output LED: OFF (LO Mode), ON (DO Mode) If the TEACH procedure was accepted, the sensor automatically returns to Run mode.
Remote Input Line	Hold the remote wire high (to + V dc) (approximately 1 second), then release.	

During the two-point TEACH procedure, if the luminescence signal is very weak, the sensor will increase its sensitivity by reducing its output response frequency from 2000 Hz to 500 Hz. The green LED blinks two times at the end of the TEACH procedure to indicate this has occurred.

5. If the TEACH procedure was not accepted, the Power LED flashes and the Output LED is OFF. If the Power LED continues to flash, the TEACH procedure failed because of a low signal. Manually return the sensor to Run mode.

Method	Action	Result
TEACH Button	Press and hold the TEACH button until the flashing Power LED turns solid green.	The sensor returns to Run mode. Power LED is ON.
Remote Input Line	Hold the remote input line high (to + V dc) until the flashing Power LED turns solid green.	

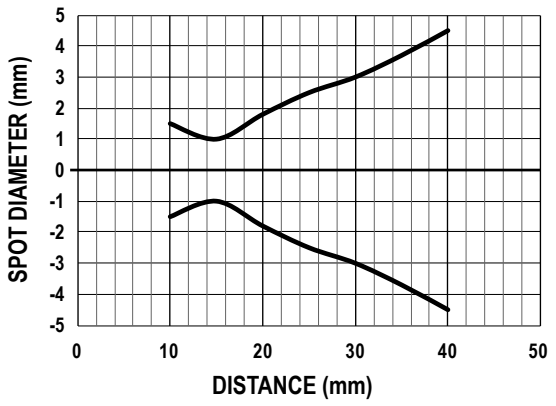
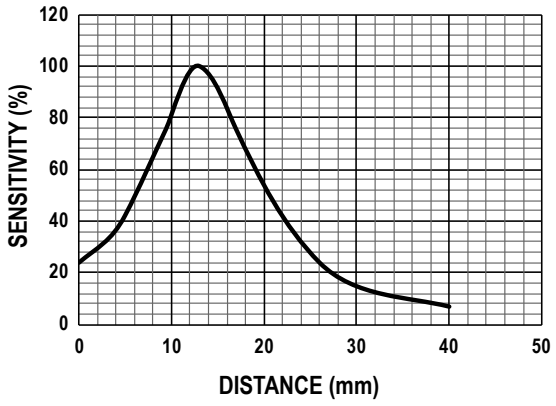
As an alternative, try teaching the sensor using a different target.

Dark SET

1. Sets the switching threshold for maximum sensitivity and a response speed of 2000 Hz. The sensor can be aligned at any target for this procedure.

Method	Action	Result
TEACH Button	Press and hold the TEACH button until the Power LED goes OFF, then ON (at 3 seconds) and continue holding for at least 5 seconds until the Power LED turns OFF again.	Power LED: ON Output LED: depends on LO/DO selection and target.
Remote Input Line	Hold the remote input line high (to + V dc) until the Power LED goes OFF, then ON (at 3 seconds) and continue holding for at least 5 seconds until the Power LED turns OFF again.	

Performance Curves

Spot Diameter	Sensitivity
	

Specifications

Supply Voltage and Current
12 to 30 V dc (2 Vpp maximum ripple)
Supply Current (exclusive of load current): 30 mA

Supply Protection Circuitry
Protected against reverse polarity and transient voltages

Sensing Range
10 to 30 mm

Output Configuration
NPN or PNP

Output Rating
100 mA maximum (exclusive of load)
ON-state saturation voltage: less than 2 V

Output Protection Circuitry
Overload or short-circuit protection

Emitter LED Wavelength
LED UV 375 nm

Emitter Beam Diameter
2 mm at 15 mm

Environmental Rating
IEC IP67

Operating Conditions
−10 °C to +55 °C (+14 °F to +131 °F)

Storage Temperature
−20 °C to +70 °C (−4 °F to +158 °F)

Vibration and Shock
EN60068-2-6
EN60068-2-27

Certifications

Output Response Time
250 µs or 1 ms (based on sensitivity)

Output Switching Frequency
2 kHz or 500 Hz (based on sensitivity)

Indicators
Green on: Power ON
Amber on: Output conducting

Adjustments
LO/DO switch
TEACH button
Remote wire TEACH

Construction
ABS plastic housing; glass window; polycarbonate lens

Connection
4-pin M12/Euro-style quick disconnect fitting on a 150 mm (6 in) PVC cable jacket

Mounting
Maximum torque 0.8 Nm (7 in. lbs.)

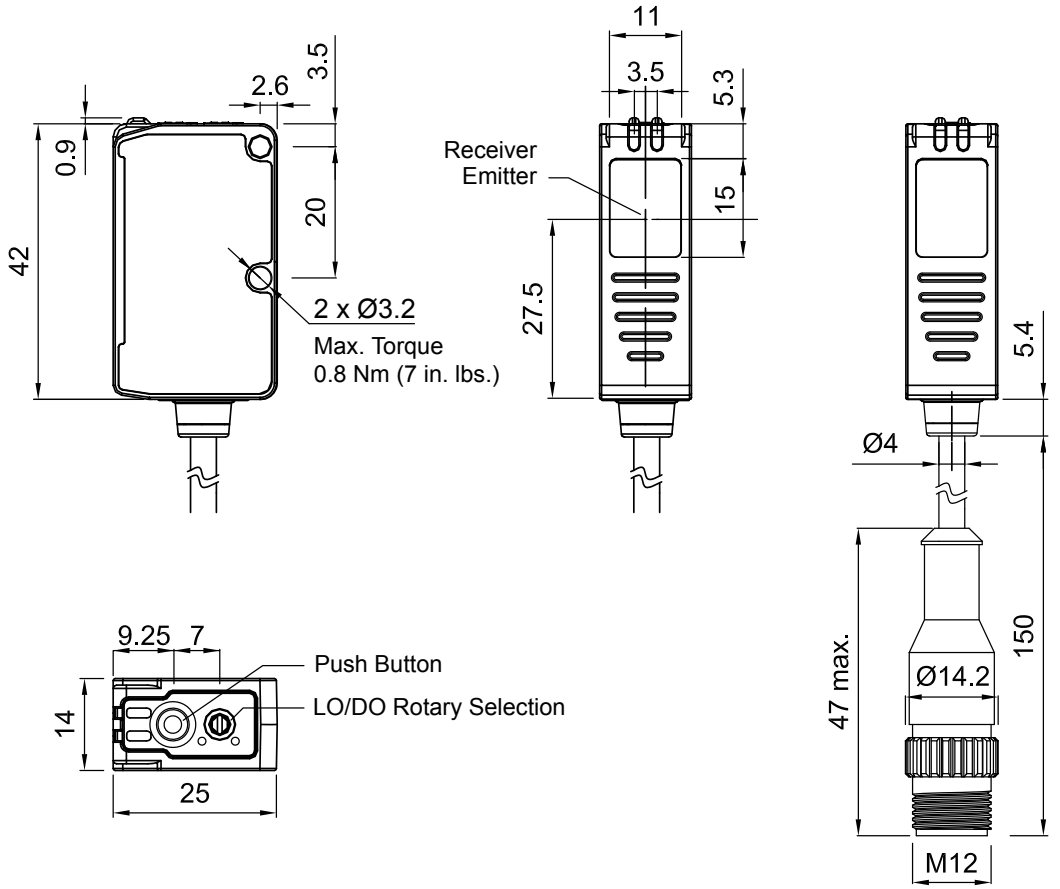
Required Overcurrent Protection

WARNING: Electrical connections must be made by qualified personnel in accordance with local and national electrical codes and regulations.

Overcurrent protection is required to be provided by end product application per the supplied table.
Overcurrent protection may be provided with external fusing or via Current Limiting, Class 2 Power Supply.
Supply wiring leads < 24 AWG shall not be spliced.
For additional product support, go to *http://www.bannerengineering.com*.

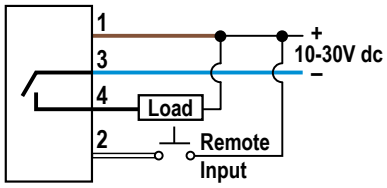
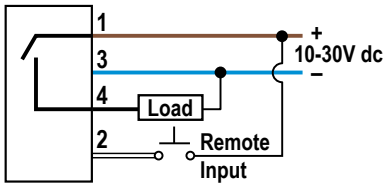
Supply Wiring (AWG)	Required Overcurrent Protection (Amps)
20	5.0
22	3.0
24	2.0
26	1.0
28	0.8
30	0.5

Dimensions



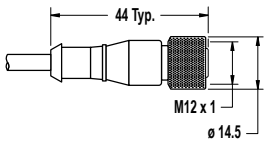
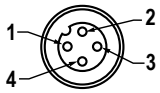
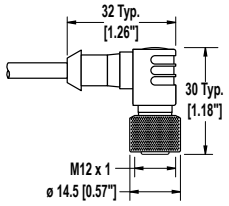
All measurements are listed in millimeters (inches), unless noted otherwise.

Wiring

NPN	PNP	Key
		1 = brown 2 = white 3 = blue 4 = black

Accessories

Cordsets

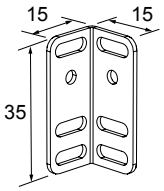
4-Pin Threaded M12/Euro-Style Cordsets				
Model	Length	Style	Dimensions	Pinout (Female)
MQDC-406	1.83 m (6 ft)	Straight		 1 = Brown 2 = White 3 = Blue 4 = Black
MQDC-415	4.57 m (15 ft)			
MQDC-430	9.14 m (30 ft)			
MQDC-450	15.2 m (50 ft)			
MQDC-406RA	1.83 m (6 ft)	Right-Angle		
MQDC-415RA	4.57 m (15 ft)			
MQDC-430RA	9.14 m (30 ft)			
MQDC-450RA	15.2 m (50 ft)			

Brackets

All measurements are listed in millimeters, unless noted otherwise.

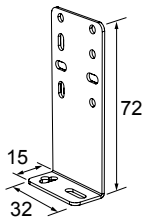
SMBLSTDLQ26

- Adjustable right-angle metal bracket
- 304 stainless steel



SMBLSTQ26

- Right-angle bracket
- 304 stainless steel



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