EZ-LIGHT® K30 Series Pick-to-Light Sensors

BANNER®
more sensors, more solutions

Datasheet

Compact, Single-Point Devices for Error Proofing of Bin-Picking Operations
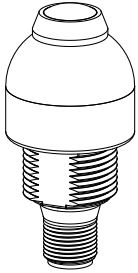
- Rugged, cost-effective and easy-to-install multicolor indicator light with pushbutton
- Illuminated dome provides an easy-to-see green job light; some models also light red for alternate operation
- Waterproof IP65 construction for washdown environments
- Compact devices are self-contained — no controller needed
- Immune to EMI and RFI interference
- 12 V dc to 30 V dc operation
- Cabled and quick disconnect models available

⚠️ **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	Function	Output	Connection[1]	Job Light
K30APPBGXDQ	• Job light is ON at all times while job input is active. • Pressing push button activates output.	PNP, NO	Integral 4-pin M12/Euro-style quick disconnect	Green
K30ANPBGXDQ		NPN, NO		
K30APPBGRCQ	• Job light is green while job input is active, until push button is pushed. • Pressing push button activates output and overrides job light (it turns Red) for visual verification that action was sensed.	PNP, NO		Green (Red)
K30ANPBGRCQ		NPN, NO		
K30APPBGREQ	• Job light is ON at all times while job input is active. • Pressing push button activates output. • Pressing push button while job input is inactive causes unit to light Red, providing visual indication that sensor is functioning properly.	PNP, NO		Green (Red)
K30ANPBGREQ		NPN, NO		

Overview

The solid-state output interfaces to a system controller, which is pre-programmed for a specific sequence of tasks. Mounted in or near each bin in an assembler's work station, the sensor job light signals the assembler:

- Which bins contain items to be picked in a given operation; and
- In what order they should be picked.

As the assembler takes a part in sequence and pushes the button, the sensor senses that the part was removed and sends an output signal to the controller. The controller verifies if the correct part was taken and may respond by turning that job light OFF, activating the job light of the next bin in the sequence.

If multiple parts are to be removed from one bin, the job light may remain ON until the appropriate number of signals is returned to the controller. If an incorrect part is selected, the control system may be wired to signal an alarm for the assembler and/or a supervisor, or it may be programmed to interpret the action as a call for parts.

[1] Integral quick disconnect models are listed.
- To order the 2 m (6.5 ft) PVC cable model, omit the suffix "Q" in the model number. For example, K30APPBGXD.
- Models with a quick disconnect require a mating cordset.

Installation

Install the K30 sensor at such a height and in a location that will be easy for the user and/or supervisor to see the indicator and comfortable for the user to press the push-button.

Wiring


```
1
      +
      12-30V dc
3
      −
4   Load
2
      Job Light
      Enable ≥ 8V dc
```
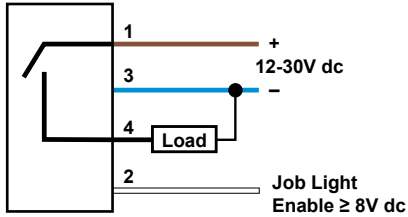
1 = brown
2 = white
3 = blue
4 = black

Specifications

Supply Voltage and Current
  12 V dc to 30 V dc (10% max. ripple) at 50 mA maximum

Supply/Output Protection Circuitry
  Protected against reverse polarity and transient voltages

Output Rating
  Max. load: 150 mA
  ON-state saturation voltage: < 0.5 V at 10 mA dc; < 1.0 V at 150 mA dc
  OFF-state leakage current: < 10 µA at 30 V dc

Output Protection
  Protected against false pulse on power-up and continuous overload or short circuit of output.

Output Response Time
  1 millisecond On and Off

Indicators
  Job ("Pick") Indicator: Green
  Pick Sensed Indicator: Red or OFF, depending on model

Connections
  Integral 4-pin M12/Euro-style quick disconnect fitting, PVC-jacketed 2 m (6.5 ft) or 9 m (30 ft) cable, depending on model.

Operating Conditions
  −40 °C to +50 °C (−40 °F to +122 °F)
  90% at +50 °C maximum relative humidity (non-condensing)

Storage Temperature
  −40 °C to +70 °C (−40 °F to +158 °F)

Certifications

CE   c(UL)us LISTED

Job Light Enable
  Input Impedance: 10 KOhms
  Input high > 8.0 V

Environmental Rating
  IEC IP65
  Enclosure Type 13

Construction
  Base: polycarbonate
  Translucent dome: polycarbonate
  Push button: thermoplastic

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 *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

M12 X 1 -6g

M22 X 1.5 -6g

Ø30
[1.18]

Ø17,6
[.69]

62,8
[2.47]

15
[.59]

18
[.71]
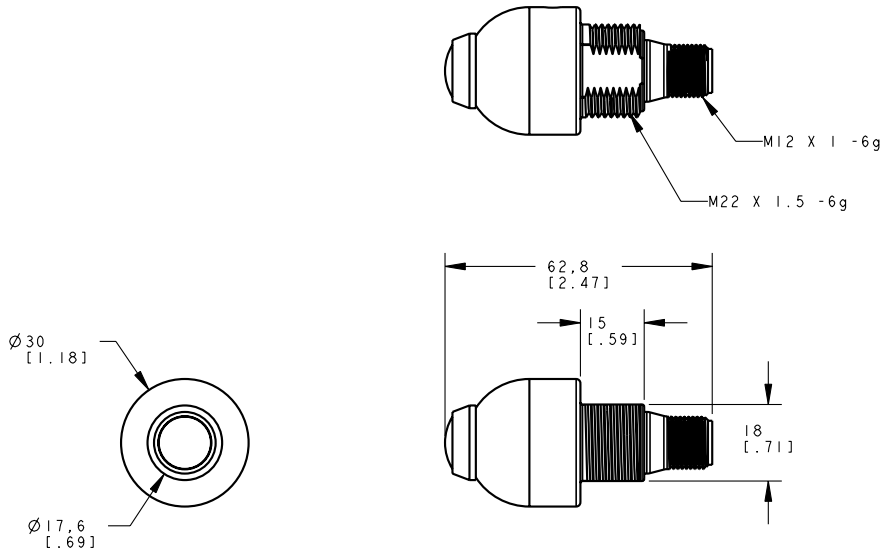
All measurements are listed in millimeters [inches], unless noted otherwise.

Accessories

Cordsets

4-Pin Threaded M12/Euro-Style Cordsets				
Model	Length	Style	Dimensions	Pinout (Female)
MQDC-406	1.83 m (6 ft)	Straight	44 Typ. M12 x 1 ø 14.5	
MQDC-415	4.57 m (15 ft)			
MQDC-430	9.14 m (30 ft)			
MQDC-450	15.2 m (50 ft)			1 = Brown 2 = White 3 = Blue 4 = Black
MQDC-406RA	1.83 m (6 ft)	Right-Angle	32 Typ. [1.26"] 30 Typ. [1.18"] M12 x 1 ø 14.5 [0.57"]	
MQDC-415RA	4.57 m (15 ft)			
MQDC-430RA	9.14 m (30 ft)			
MQDC-450RA	15.2 m (50 ft)			

Brackets

SMB22A
- Right-angle bracket with curved slot for versatile orientation
- 12-ga. stainless steel
- Mounting hole for 22 mm sensor

32

41

46

C

B

A
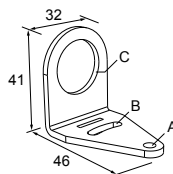
Hole center spacing: A to B = 26.0
Hole size: A = ø 4.6, B = 4.6 x 16.9, C = 22.2

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