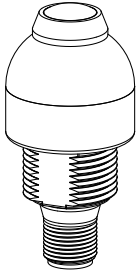


EZ-LIGHT® K30 Series Pick-to-Light Sensors



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	<ul style="list-style-type: none"> • 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
K30ANPBGXQD		NPN, NO		
K30APPBGRQ	<ul style="list-style-type: none"> • 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)
K30ANPBGRQ		NPN, NO		
K30APPBGREQ	<ul style="list-style-type: none"> • 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)
K30ANPBREQ		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.

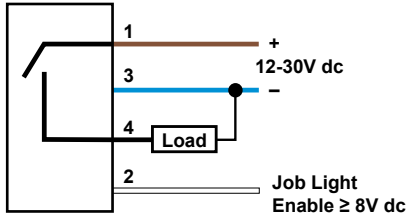
- To order the 2 m (6.5 ft) PVC cable model, omit the suffix "Q" in the model number. For example, K30APPBGXD.
- Models with a quick disconnect require a mating cordset.



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 = 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



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

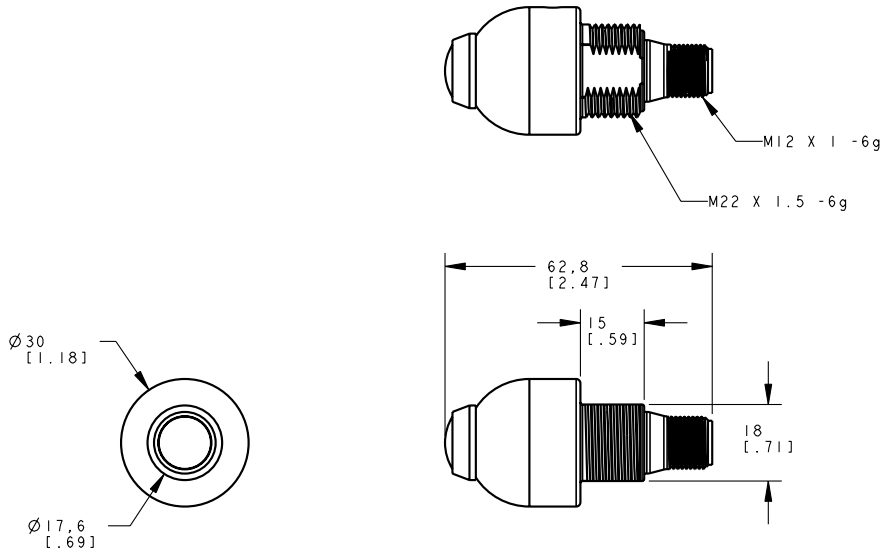


WARNING: Electrical connections must be made by qualified personnel in accordance with local and national electrical codes and regulations.

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



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

Accessories

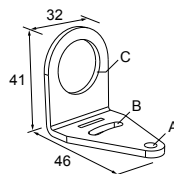
Cordsets

4-Pin Threaded M12/Euro-Style Cordsets				
Model	Length	Style	Dimensions	Pinout (Female)
MQDC-406	1.83 m (6 ft)	Straight		<p>1 = Brown 2 = White 3 = Blue 4 = Black</p>
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

SMB22A

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



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

Banner Engineering Corp. Limited Warranty

Banner Engineering Corp. warrants its products to be free from defects in material and workmanship for one year following the date of shipment. Banner Engineering Corp. will repair or replace, free of charge, any product of its manufacture which, at the time it is returned to the factory, is found to have been defective during the warranty period. This warranty does not cover damage or liability for misuse, abuse, or the improper application or installation of the Banner product.

THIS LIMITED WARRANTY IS EXCLUSIVE AND IN LIEU OF ALL OTHER WARRANTIES WHETHER EXPRESS OR IMPLIED (INCLUDING, WITHOUT LIMITATION, ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE), AND WHETHER ARISING UNDER COURSE OF PERFORMANCE, COURSE OF DEALING OR TRADE USAGE.

This Warranty is exclusive and limited to repair or, at the discretion of Banner Engineering Corp., replacement. IN NO EVENT SHALL BANNER ENGINEERING CORP. BE LIABLE TO BUYER OR ANY OTHER PERSON OR ENTITY FOR ANY EXTRA COSTS, EXPENSES, LOSSES, LOSS OF PROFITS, OR ANY INCIDENTAL, CONSEQUENTIAL OR SPECIAL DAMAGES RESULTING FROM ANY PRODUCT DEFECT OR FROM THE USE OR INABILITY TO USE THE PRODUCT, WHETHER ARISING IN CONTRACT OR WARRANTY, STATUTE, TORT, STRICT LIABILITY, NEGLIGENCE, OR OTHERWISE.

Banner Engineering Corp. reserves the right to change, modify or improve the design of the product without assuming any obligations or liabilities relating to any product previously manufactured by Banner Engineering Corp. Any misuse, abuse, or improper application or installation of this product or use of the product for personal protection applications when the product is identified as not intended for such purposes will void the product warranty. Any modifications to this product without prior express approval by Banner Engineering Corp will void the product warranties. All specifications published in this document are subject to change; Banner reserves the right to modify product specifications or update documentation at any time. Specifications and product information in English supersede that which is provided in any other language. For the most recent version of any documentation, refer to: www.bannerengineering.com.