K50 Pro Devices with PICK-IQ™

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Datasheet

50 mm Multicolor RGB Devices (Indicator, Touch Button, Push Button, Optical Sensor, and Beacon)

This datasheet contains limited information on K50 Pro Devices with PICK-IQ™. For complete information on configuration, performance, troubleshooting, dimensions, and accessories, please refer to the PICK-IQ™ Devices Instruction Manual. Go to www.bannerengineering.com and search 206185 to view the PICK-IQ™ Devices Instruction Manual or 209995 to view the Device Register Map. Use of this document assumes familiarity with pertinent industry standards and practices.
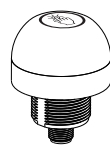
- PICK-IQ gives full access to color, flashing, rotating, and dimming settings as well as advanced animations such as dynamic sequence mode and LED control
- Output settings, including on and off delays, output function, and output state are also available with PICK-IQ
- PICK-IQ brings faster response speed and simplified programming to Modbus RTU communication
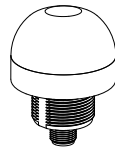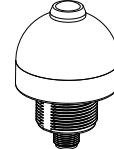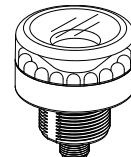
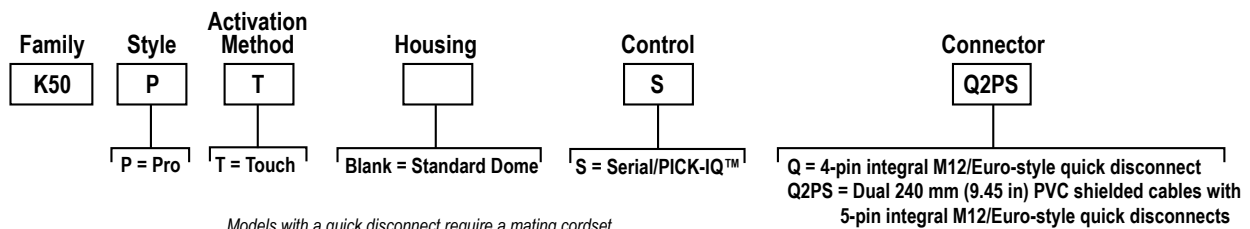| Indicator	Optical Sensor	Touch Button	Push Button	Beacon

⚠️ **WARNING:**
- **Do not use this device for personnel protection**
- Using this device for personnel protection could result in serious injury or death.
- This device does not include the self-checking redundant circuitry necessary to allow its use in personnel safety applications. A device failure or malfunction can cause either an energized (on) or de-energized (off) output condition.

Models

Touch Button Models

- Excellent immunity to false triggering by water spray, oils, and other foreign materials
- Rated IEC IP67 and IP69K per DIN 40050-9
- Can be actuated with bare hands or gloves; adjustable sensitivity

Family	Style	Activation Method	Housing	Control	Connector
K50	P	T		S	Q2PS
	P = Pro	T = Touch	Blank = Standard Dome	S = Serial/PICK-IQ™	Q = 4-pin integral M12/Euro-style quick disconnect Q2PS = Dual 240 mm (9.45 in) PVC shielded cables with 5-pin integral M12/Euro-style quick disconnects

Models with a quick disconnect require a mating cordset

Push Button and Optical Sensor Models

- Optical sensor models are immune to ambient light, EMI and RFI interference
- Optical sensor models rated IEC IP67 and IP69K per DIN 40050-9
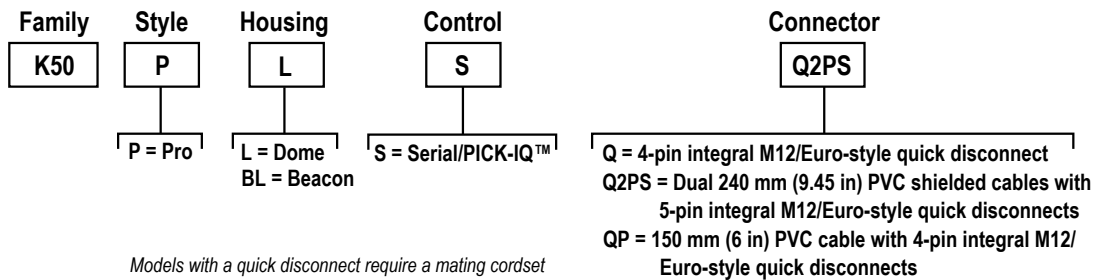- Push Button models rated IEC IP65

Family	Style	Activation Method	Control	Connector
K50	P	FF50	S	Q

P = Pro

FF50 = 50 mm Fixed Field*
FF100 = 100 mm Fixed Field*
FF200 = 200 mm Fixed Field*
PB = Push Button

S = Serial/PICK-IQ™

Q = 4-pin integral M12/Euro-style quick disconnect
Q2PS = Dual 240 mm (9.45 in) PVC shielded cables with 5-pin integral M12/Euro-style quick disconnects
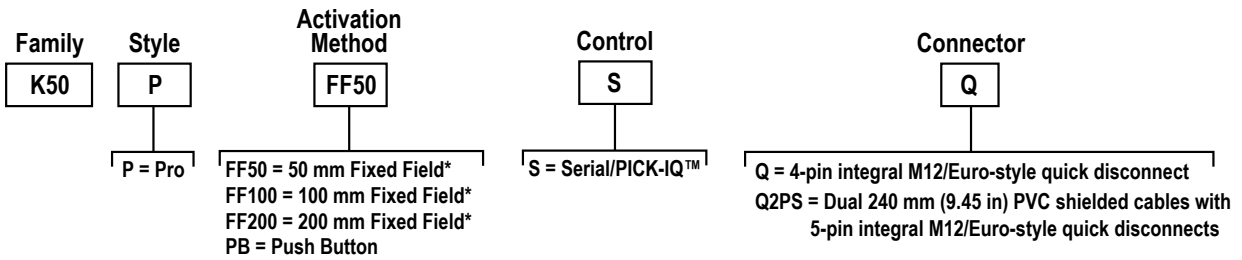
Cutoff distance will vary from specified range based on target and tolerances

Models with a quick disconnect require a mating cordset

Indicator Models

- Bright, uniform indicator light
- Rated IEC IP67 and IP69K per DIN 40050-9

Family	Style	Housing	Control	Connector
K50	P	L	S	Q2PS

P = Pro

L = Dome
BL = Beacon

S = Serial/PICK-IQ™

Q = 4-pin integral M12/Euro-style quick disconnect
Q2PS = Dual 240 mm (9.45 in) PVC shielded cables with 5-pin integral M12/Euro-style quick disconnects
QP = 150 mm (6 in) PVC cable with 4-pin integral M12/Euro-style quick disconnects

Models with a quick disconnect require a mating cordset

Wiring

Compatible cordsets can be found in the PICK-IQ™ Devices Instruction Manual (206185).

Wiring for the Q Models				
4-pin M12/Euro-style Male	4-pin M12/Euro-style Female	Pin	Wire Color	Connection
		1	brown	10 V DC to 30 V DC
		3	blue	DC common
		4	black	RS-485 (-)
		2	white	RS-485 (+)

Wiring for the Q2PS Models				
5-pin M12/Euro-style Male	5-pin M12/Euro-style Female	Pin	Wire Color	Connection
		1	brown	10 V DC to 30 V DC
		3	blue	DC common
		4	black	RS-485 (-)
		2	white	RS-485 (+)
		5	gray	Shield

Specifications

Supply Voltage
10 V DC to 30 V DC

Supply Current
210 mA maximum current at 10 V DC
Touch Models: 55 mA typical at 24 V DC
Optical Models: 70 mA typical at 24 V DC
Push Button/Indicator Models: 55 mA typical at 24 V DC

Supply Protection Circuitry
Protected against reverse polarity and transient voltages

Touch Dwell Time
If touch dwells for longer than 60 seconds, the output will revert to the untouched state

Touch Response Time
Input Response: 5 ms minimum
Touch Response: 300 ms maximum (Standard Sensitivity touch response)

Optical Sensor Emitter LED
Infrared 870 nm

Operating Conditions
−40 °C to +50 °C (−40 °F to +122 °F)
Humidity: 90% at +50 °C maximum relative humidity (non-condensing)
Storage: −40 °C to +70 °C (−40 °F to +158 °F)

Environmental Rating
Beacon, Touch, Indicator, and Optical Models: IEC IP67, IP69K per DIN 40050-9 [1]
Push Button Models: IEC IP65

Certifications

CE   c(UL)us LISTED

Mounting
M30 × 1.5 threaded base, maximum torque 4.5 N·m (40 in·lbf)

Construction
Base, Dome, and Nut: Polycarbonate
Push Button: Thermoplastic

Vibration and Mechanical Shock
Meets IEC 60068-2-6 requirements (Vibration: 10 Hz to 55 Hz, 1.0 mm amplitude, 5 minutes sweep, 30 minutes dwell)
Meets IEC 60068-2-27 requirements (Shock: 30G 11 ms duration, half sine wave)

Connections
Integral 4-pin M12/Euro-style quick disconnect or dual 240 mm (9.4 in), shielded PVC cables with 5-pin M12/Euro-style quick disconnects, depending on model
Models with a quick disconnect require a mating cordset

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

Default Indicator Characteristics

Color	Dominant Wavelength (nm) or Color Temperature (CCT)	Color Coordinates [2]		Lumen Output (Typical at 25 °C)		
		x	y	Touch Button Models [3]	Indicator Models	Beacon Models
Green	522	0.154	0.700	16.5	23	15.3
Red	620	0.689	0.309	8.3	7.2	6.8
Yellow	576	0.477	0.493	23.8	18	17.2
Blue	466	0.140	0.054	4.6	5.2	3.3
White	5700K	0.328	0.337	25.1	21.7	20.9
Cyan	493	0.170	0.340	18.4	26.2	17.0
Magenta	–	0.379	0.172	11.1	9.3	8.6
Amber	589	0.556	0.420	15.7	13	12.6
Rose	–	0.515	0.220	9.1	7.9	7.7
Lime Green	562	0.388	0.561	21.4	27.9	20.4
Sky Blue	486	0.155	0.247	19.5	28	17.9
Orange	599	0.616	0.370	12.1	10.2	12.6
Violet	–	0.217	0.089	9.7	10.7	6.7
Spring Green	508	0.177	0.536	17	24.1	15.8

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[1] Q2PS models must be installed to protect the cable and cable entrance from high-pressure spray to meet IP69K.
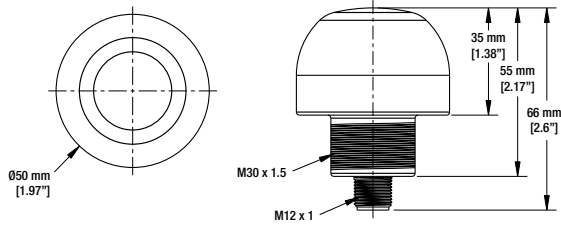[2] Refer to the CIE 1931 (x,y) Chromaticity Diagram to show equivalent color with indicated color coordinates. Actual coordinates may differ ± 5%.
[3] Values shown apply to touch dome models only. Lumen output for optical sensor models is 14% lower and push button models is 10% lower.
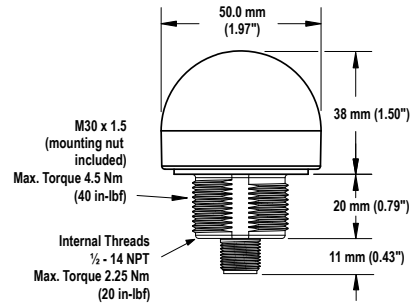
Dimensions

All measurements are listed in millimeters [inches], unless noted otherwise. Compatible brackets can be found in the PICK-IQ™ Devices Instruction Manual (206185).
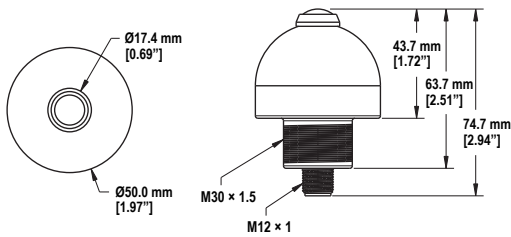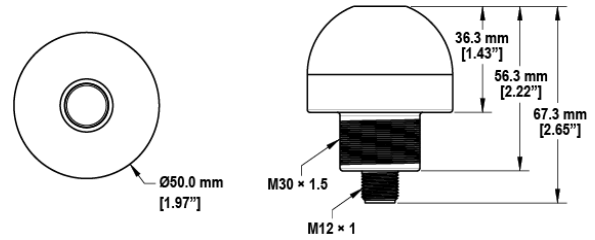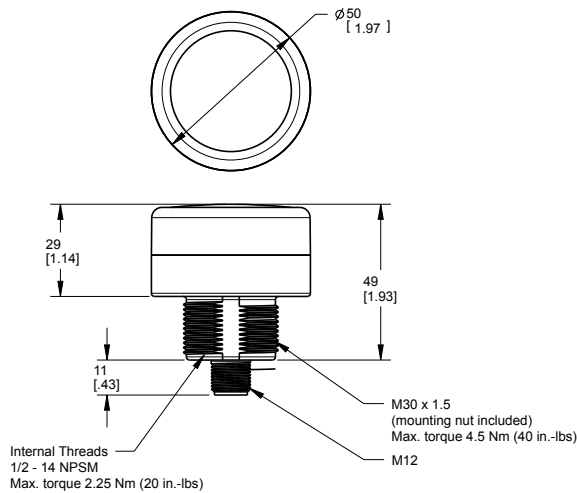
Touch Button

Indicator

Ø50 mm [1.97"]
35 mm [1.38"]
55 mm [2.17"]
66 mm [2.6"]
M30 x 1.5
M12 x 1

50.0 mm (1.97")
38 mm (1.50")
20 mm (0.79")
11 mm (0.43")
M30 x 1.5 (mounting nut included) Max. Torque 4.5 Nm (40 in-lbf)
Internal Threads ½ - 14 NPT Max. Torque 2.25 Nm (20 in-lbf)

Push Button

Optical Sensor

Ø17.4 mm [0.69"]
Ø50.0 mm [1.97"]
43.7 mm [1.72"]
63.7 mm [2.51"]
74.7 mm [2.94"]
M30 × 1.5
M12 × 1

Ø50.0 mm [1.97"]
36.3 mm [1.43"]
56.3 mm [2.22"]
67.3 mm [2.65"]
M30 × 1.5
M12 × 1

Beacon

Dual M12/Euro-style Cable

Ø50 [1.97]
29 [1.14]
49 [1.93]
11 [.43]
Internal Threads 1/2 - 14 NPSM Max. torque 2.25 Nm (20 in.-lbs)
M30 x 1.5 (mounting nut included) Max. torque 4.5 Nm (40 in.-lbs)
M12

M12 x 1
240.0 [9.45]
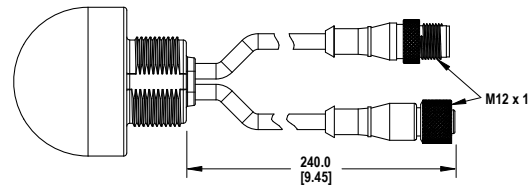
Note: The splitter cordset dimensions are functionally identical for all K50 devices; the K50 Indicator is shown.

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For patent information, see www.bannerengineering.com/patents.

FCC Part 15 and CAN ICES-3 (B)/NMB-3(B)

This device complies with part 15 of the FCC Rules and CAN ICES-3 (B)/NMB-3(B). Operation is subject to the following two conditions:

1. This device may not cause harmful interference, and
2. This device must accept any interference received, including interference that may cause undesired operation.

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules and CAN ICES-3 (B)/NMB-3(B). These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the manufacturer.

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K30APPBGREQP K30APT2FGRYF2QP K30LGRXPPB2Q K30LGRYPPB2Q K30APT2RGF2 K30APTXRF2 K30APTXWF2
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K50LGXXPPB2Q K50LGRXPPB2Q K50LBXXPPB2Q K50LGYXPPB2Q K50PBLSQ K50PBLRGB7Q K50PFF100AMGRY3Q
K50PTAMGRY3 K50PTAMGRY3AQP K50PTKAQ K50PTAMGRY3AQ K50PTAMRGB7AQ K50PTCAMGRY3AQ
K50PTCAMGRY3Q-812166 K50PTCAMGRY3Q