



Sensors, Lighting and Indicators

Wireless sensors, lighting, and indicators allow you to remotely monitor and diagnose systems quickly, which reduces downtime, increases productivity, and provides data to optimize your operation. They are easy to install and set up, eliminate expensive cable runs, and can integrate machines that were not previously network capable.



Temperature and Humidity Sensor



M12FTH4Q and M12FT4Q

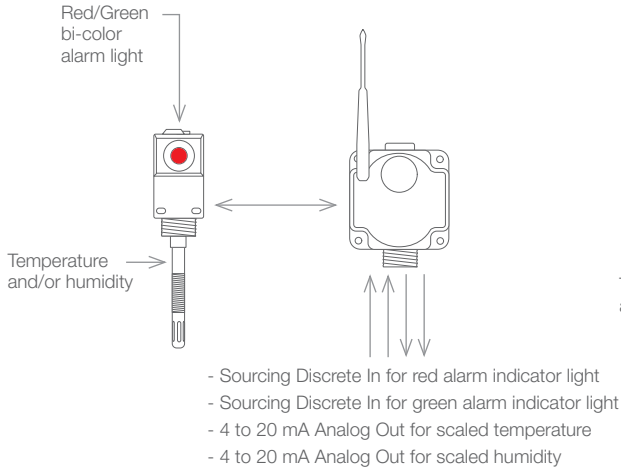


A simple way to verify conditions in locations that were once too difficult to access via traditional monitoring methods. With no software required, you can replace cables and extend the range of temperature and humidity signals with minimal effort.

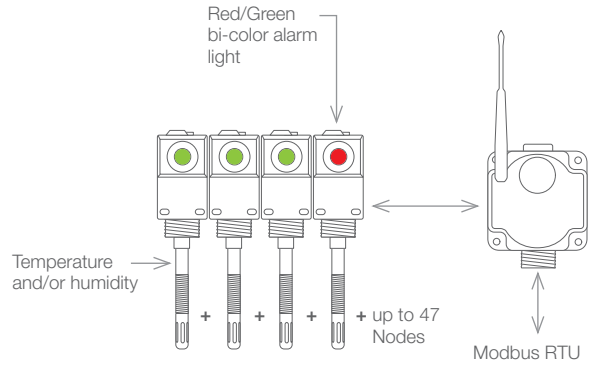
Key Features:

- Achieves temperature accuracy of ± 0.3 °C and humidity accuracy of $\pm 2\%$ relative humidity
- Temperature and relative humidity sensing elements housed in a robust metal housing
- Traceable to NIST standards
- Temperature and Humidity or Temperature-only Sensor to choose from
- Each sensor comes with a Certificate of Factory Calibration
- Reduces labor costs by obviating manual checks and reducing error

Simple Wire Replacement



Host Controlled via Modbus RTU (up to 47 Nodes)



Models	Description
M12FTH4Q	Temperature and relative humidity via a 1-wire Serial Interface
M12FT4Q	Temperature via a 1-wire Serial Interface

Use with	
DX80N9Q45TH	Q45 Temperature/Humidity Node with integrated batteries
DX80N2Q45TH	
DX80N9Q45U	Q45 Universal Node with integrated batteries
DX80N2Q45U	
DX80N9X1S-P6	1-wire Serial Performance Node with integrated battery
DX80N2X1S-P6	
DX80N9X6S-P6	1-wire Serial Performance Node
DX80N2X6S-P6	
DX80DR9M-H6	1-wire Serial Modbus MultiHop Slave with integrated battery
DX80DR2M-H6	

see page 16

see page 50

see page 58

M12FTH4Q and M12FT4 Specifications

Supply Voltage	3.6 to 5.5 V dc
Current	Default sensing: 28 μ Amps Disabled sensing: 15 μ Amps Active comms: 4.7 mA
Mounting Threads	M12 x 1
Indicators	Green flashing: Power ON Red flicker: Serial Tx
Communication Hardware	Interface: 1-wire Serial Interface Baud rates: 9.6k, 19.2k (default), or 38.4k Data format: 8 data bits, no parity (default), 1 stop bit (even or odd parity available)
Communication Protocol	Sure Cross® DX80 Sensor Node 1-wire Serial Interface
Communications Line	Level Receive ON: Greater than 2 V Level Receive OFF: Less than 0.7 V Level Transmit ON: 2.7 to 3 V Level Transmit OFF: 0 V (pulldown resistor of 10 kOhm)
Humidity	Measuring Range: 0 to 100% relative humidity Resolution: 0.1% relative humidity Accuracy: $\pm 2\%$ relative humidity at 25 °C NOTE: Humidity measurements are only available with the M12FTH4Q model. The M12FT4Q model does not include the humidity sensor.
Temperature	Measuring Range: -40 to +85 °C (-40 to +185 °F) ² Resolution: 0.1 °C Accuracy: ± 0.3 °C at 25 °C
Environmental Rating	NEMA 6, IEC IP67
Operating Conditions	-40 to 85 °C (-40 to 185 °F)
Shock and Vibration	IEC 68-2-6 and IEC 68-2-27 Shock: 30g, 11 millisecond half sine wave, 18 shocks Vibration: 0.5 mm p-p, 10 to 60 Hz

Temperature and Humidity Sensor



M12FTH3Q and M12FT3Q

This temperature and humidity solution works in a variety of environments to wirelessly provide temperature and humidity measurements via Modbus RTU, RS-485.

Key Features:

- Achieves humidity accuracy of $\pm 2\%$ relative humidity and temperature accuracy of $\pm 0.3\text{ }^{\circ}\text{C}$
- Manufactured with a robust metal housing
- Traceable to NIST standards
- Functions as a Modbus slave device via RS-485

Models	Description
M12FTH3Q	Temperature and humidity sensor with Modbus RTU, RS-485 Interface
M12FT3Q	Temperature sensor with Modbus RTU, RS-485 Interface

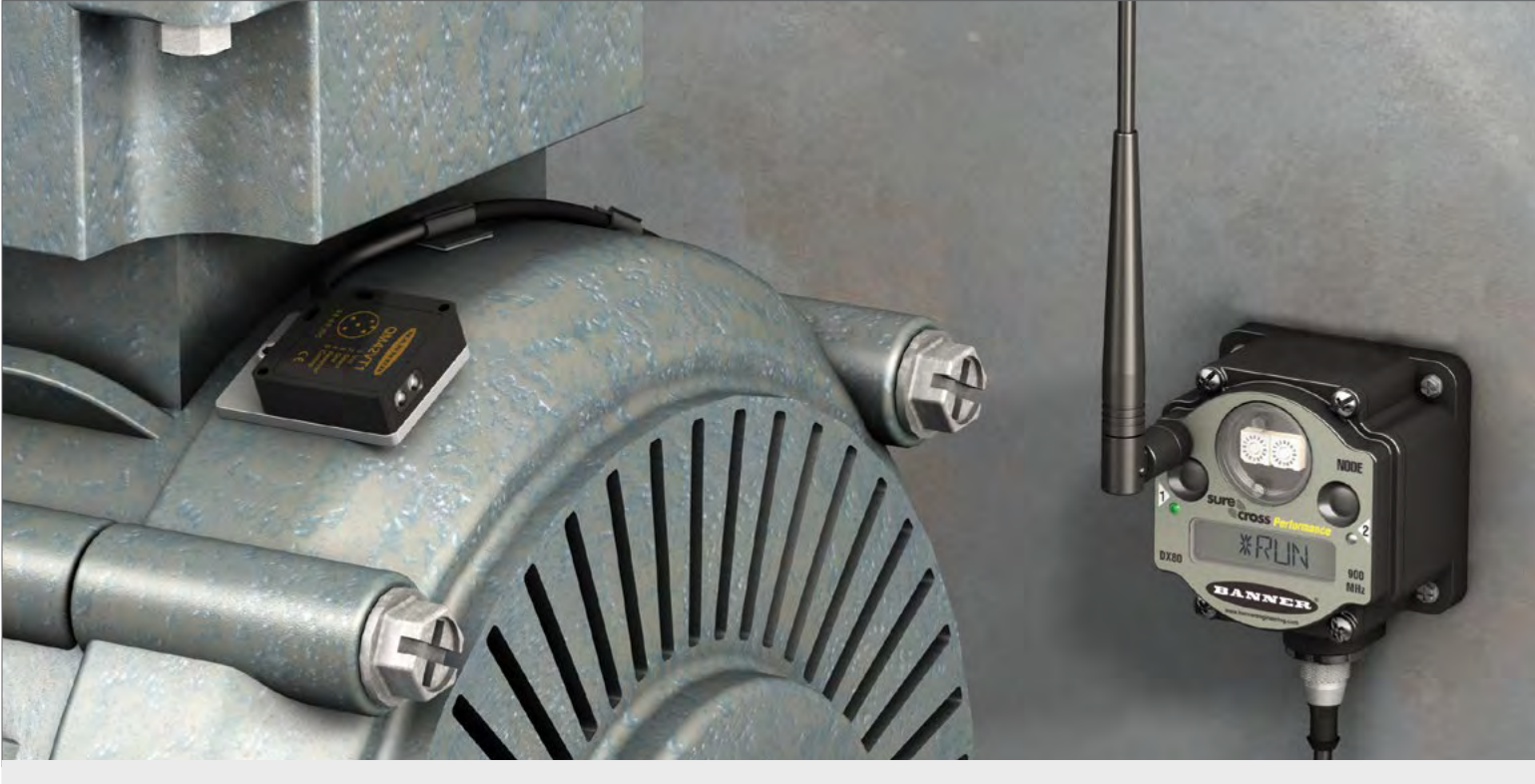
Used with

DX80DR9M-H1	Inputs: Four discrete, two 0 – 20 mA analog, one thermistor, one counter Outputs: Two NMOS discrete Switch Power Outputs: Two Serial Interface: RS-485	see page 58
DX80DR2M-H1		
DX80DR9M-H1E		
DX80DR2M-H1E		
DX80DR9M-H2	Inputs: Four discrete, two 0-20 mA analog Outputs: Four sourcing discrete, two 0-20 mA analog Serial Interface: RS-485	
DX80DR2M-H2		
DX80DR9M-HB1	Inputs: Two NPN discrete, two 0-20 mA analog Outputs: Two NMOS discrete Switch Power Outputs: Two	
DX80DR2M-HB1		
DX80DR9M-HB2	Inputs: Two PNP discrete, two 0-20 mA analog Outputs: Two PNP discrete, two 0-20 mA analog	
DX80DR2M-HB2		
DX80SR9M-H	Serial Interface: RS-232, RS-485	
DX80SR2M-H		

M12FTH3Q and M12FT3Q Sensors Specifications

Supply Voltage	12 to 24 V dc or 3.6 to 5.5 V dc low power option	
Current	Default sensing: 45 μ Amps Disabled sensing: 32 μ Amps Active comms: 4 mA	
Mounting Threads	M12 x 1	
Indicators	Green flashing: Power ON	Red flicker: Serial Tx
Communication Hardware	Interface: RS-485 Serial Baud rates: 9.6k, 19.2k (default), or 38.4k	Data format: 8 data bits, no parity (default), 1 stop bit (even or odd parity available)
Communication Protocol	Modbus RTU	
Humidity	Measuring Range: 0 to 100% relative humidity Resolution: 0.1% relative humidity Accuracy: $\pm 2\%$ relative humidity at 25 °C NOTE: Humidity measurements are only available with the M12FTH3Q model. The M12FT3Q model does not include the humidity sensor.	
Temperature	Measuring Range: -40 to +85 °C (-40 to +185 °F) ² Resolution: 0.1 °C Accuracy: ± 0.3 °C at 25 °C	
Environmental Rating	NEMA 6, IEC IP67	
Operating Conditions	-40 to 85 °C (-40 to 185 °F)	
Shock and Vibration	IEC 68-2-6 and IEC 68-2-27 Shock: 30g, 11 millisecond half sine wave, 18 shocks Vibration: 0.5 mm p-p, 10 to 60 Hz	

Vibration and Temperature Sensor



QM42VT

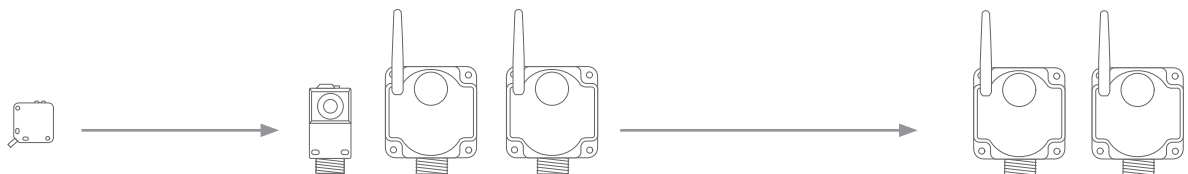


The QM42VT Vibration and Temperature Sensor makes it easy to monitor a machine's health. It measures RMS velocity (among other vibration characteristics) and temperature so that problems can be detected before they become too severe and cause additional damage or result in unplanned downtime. Paired with a Banner wireless Node, it can provide local indication, wirelessly send the signal to a central location, and send the vibration and temperature data to the Gateway for collection and trending.

Key Features:

- Easily monitor machine health by sending info wirelessly to wherever you need it
- Avoid machine failures and delays by detecting problems early
- Reduce downtime and plan maintenance more efficiently
- Monitor a variety of machines to suit your needs

- | | | |
|----------|-----------|---------------|
| - Motors | - Pumps | - Compressors |
| - Fans | - Blowers | - Gear Boxes |



Model	Description
QM42VT1	Vibration and temperature via a 1-wire Serial Interface
QM42VT2	Vibration and temperature that functions as a modbus slave device via RS-485
QM42VT1 — Use with	
DX80N9Q45VT	Q45 Vibration/Temperature Node with integrated batteries
DX80N2Q45VT	
DX80N9Q45U	Q45 Universal Node with integrated batteries
DX80N2Q45U	
DX80N9X1S-P6	1-wire Serial Performance Node with integrated battery
DX80N2X1S-P6	
DX80N9X6S-P6	1-wire Serial Performance Node
DX80N2X6S-P6	
DX80DR9M-H6	1-wire Serial Modbus MultiHop Slave with integrated battery
DX80DR2M-H6	
QM42VT2 — Use with	
DX80DR9M-H1	Inputs: Four discrete, two 0 – 20 mA analog, one thermistor, one counter Outputs: Two NMOS discrete Switch Power Outputs: Two Serial Interface: RS-485
DX80DR2M-H1	
DX80DR9M-H1E	
DX80DR2M-H1E	
DX80DR9M-H2	Inputs: Four discrete, two 0-20 mA analog Outputs: Four sourcing discrete, two 0-20 mA analog Serial Interface: RS-485
DX80DR2M-H2	
DX80DR9M-HB1	Inputs: Two NPN discrete, two 0-20 mA analog Outputs: Two NMOS discrete Switch Power Outputs: Two
DX80DR2M-HB1	
DX80DR9M-HB2	Inputs: Two PNP discrete, two 0-20 mA analog Outputs: Two PNP discrete, two 0-20 mA analog
DX80DR2M-HB2	
DX80SR9M-H	Serial Interface: RS-232, RS-485
DX80SR2M-H	

QM42VT Vibration and Temperature Sensor Specifications

Supply Voltage	3.6 to 5.5 V dc	
Current	Active comms: 11.9 mA at 5.5 V dc	
Communication Hardware	Interface: 1-wire Serial Interface Baud rates: 9.6k, 19.2k (default), or 38.4k Data format: 8 data bits, no parity (default), 1 stop bit (even or odd parity available)	
Communication Protocol	QM42VT2: Modbus RTU	QM42VT1: 1-wire Serial Interface
Communications Line	Level Receive ON: Greater than 2 V Level Receive OFF: Less than 0.7 V	Level Transmit ON: 2.7 to 3 V Level Transmit OFF: 0 V (pulldown resistor of 10 kOhm)
Vibration Sensor	Mounted base resonance: 5.5 kHz nominal Measuring Range: 0–65 mm/sec or 0–6.5 in/sec RMS	Frequency Range: 10–1000 Hz Accuracy: ±10% and 25 °C
Connector	3 m cable with 5-pin M12 fitting	
Indicators	Green flashing: Power ON	Amber flicker: Serial Tx
Temperature Sensor	Measuring Range: –40 °C to +105 °C (–40 °F to +221 °F)	Resolution: 0.1 °C Accuracy: ± 3 °C
Environmental Rating	NEMA 6P, IEC IP67	
Operating Conditions	–40 to 85 °C (–40 to 185 °F)	
Shock and Vibration	400G	

Wireless Ultrasonic Sensor



K50U



The Sure Cross® U-GAGE® K50U Ultrasonic Sensor works in a variety of environments to provide a measurement of the distance between the target and the sensor. It is designed for plug-and-play use with the Q45U wireless node, creating a cost-effective and easy-to-use solution for monitoring mobile or remote tanks and totes.

Key Features:

- Provides a distance measurement from the target to the sensor
- Three meter sensing range with a 300 mm dead zone
- Built-in temperature compensation
- Rugged design for demanding sensing environments; rated IEC IP67, NEMA 6P
- Two sensor models available; one with a 1-wire Serial Interface and one that functions as a Modbus slave via RS-485



Model	Description
K50UX1RA	Ultrasonic sensor with 1-wire Serial Interface
K50UX2RA	Ultrasonic sensor that functions as a modbus slave device via RS-485

K50UX1RA—Used with

DX80N9Q45U	Q45 Wireless Node with integrated battery	see page 16
DX80N2Q45U		
DX80N9X1S-P6	1-wire Serial Performance Node with integrated battery	see page 50
DX80N2X1S-P6		
DX80N9X6S-P6	1-wire Serial Performance Node	
DX80N2X6S-P6		
DX80DR9M-H6	1-wire Serial Modbus MultiHop Slave with integrated battery	see page 58
DX80DR2M-H6		

K50UX2RA—Used with

DX80DR9M-H1	Inputs: Four discrete, two 0 – 20 mA analog, one thermistor, one counter Outputs: Two NMOS discrete Switch Power Outputs: Two Serial Interface: RS-485	
DX80DR2M-H1		
DX80DR9M-H1E		
DX80DR2M-H1E		
DX80DR9M-H2	Inputs: Four discrete, two 0-20 mA analog Outputs: Four sourcing discrete, two 0-20 mA analog Serial Interface: RS-485	see page 58
DX80DR2M-H2		
DX80DR9M-HB1	Inputs: Two NPN discrete, two 0-20 mA analog Outputs: Two NMOS discrete Switch Power Outputs: Two	
DX80DR2M-HB1		
DX80DR9M-HB2	Inputs: Two PNP discrete, two 0-20 mA analog Outputs: Two PNP discrete, two 0-20 mA analog	
DX80DR2M-HB2		
DX80SR9M-H	Serial Interface: RS-232, RS-485	
DX80SR2M-H		

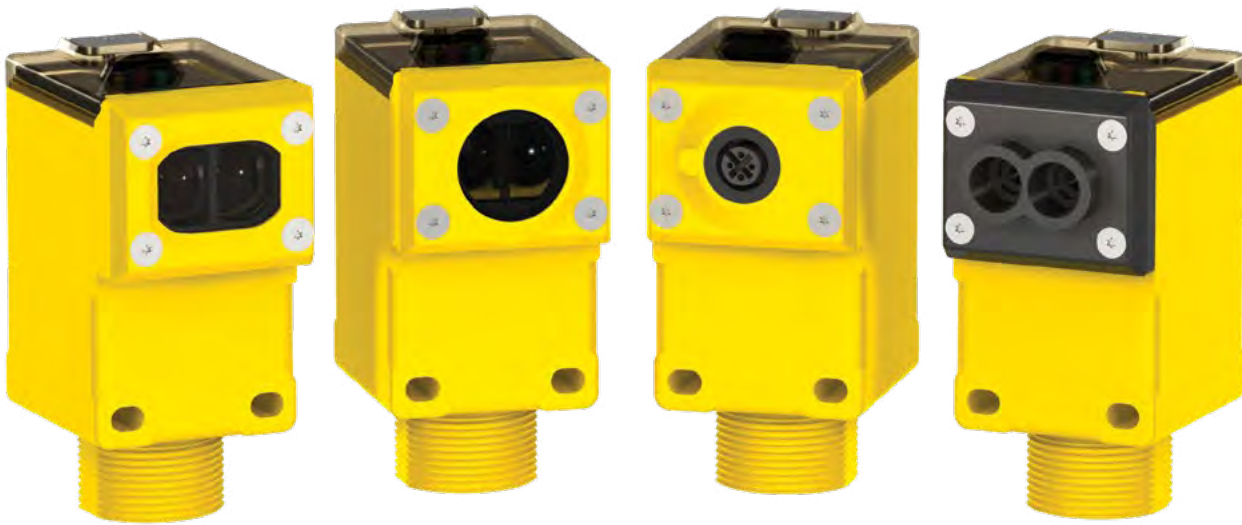
K50U Specifications

Supply Voltage	3.6 to 5.5 V dc or 10 to 30 V dc	
Current	K50UX2RA: Active comms~11.3 mA at 30 V dc	K50UX1RA: Default sensing~180 µA Disabled sensing~40 µA Active comms~3.3 mA
Indicators	Green flashing: Power ON	Amber flicker: Serial Tx
Performance	Sensing range: 300 mm to 3 m (11.8 in to 118 in) Ultrasonic frequency: 114 kHz Temperature effect: 0.02% of distance/°C Resolution: 0.1% of distance (1.5 mm minimum)	
Discrete Inputs	One Sinking Rating: 3 mA max current at 30 V dc ON Condition: Less than 0.7 V OFF Condition: Greater than 2 V or open	
Communication Protocol	K50UX2RA: Modbus RTU	K50UX1RA: 1-wire Serial Interface
Environmental Rating	NEMA 6, IEC IP67	
Operating Conditions	-40 to 70 °C (-40 to 158 °F)	
Construction	Housing: PBT polyester Transducer: epoxy/ceramic composite	
Connector	Integral 5-pin M12/Euro-style male quick disconnect (QD)	
Communication Hardware	K50UX2RA: RS-485 Serial K50UX1RA: 1-Wire Serial Interface Baud Rates: 9.6k, 19.2k (default), or 38.4k Data Format: 8 data bits, No parity (default), even parity, or odd parity 1 stop bit Do not use a termination resistor.	
Communications Line	Level Receive ON: Greater than 2 V Level Receive OFF: Less than 0.7 V	Level Transmit ON: 2.7 to 3 V Level Transmit OFF: 0 V (pulldown resistor of 10 kOhm)
Shock and Vibration	All models meet Mil Std. 202F requirements. Method 201A (vibration: 10 Hz to 60 Hz max., double amplitude 0.06 inch, maximum acceleration 10G). Also meets IEC 947-5-2 requirements: 30G 11 ms duration, half sine wave	

Certifications



Photoelectric Q45 Sensors

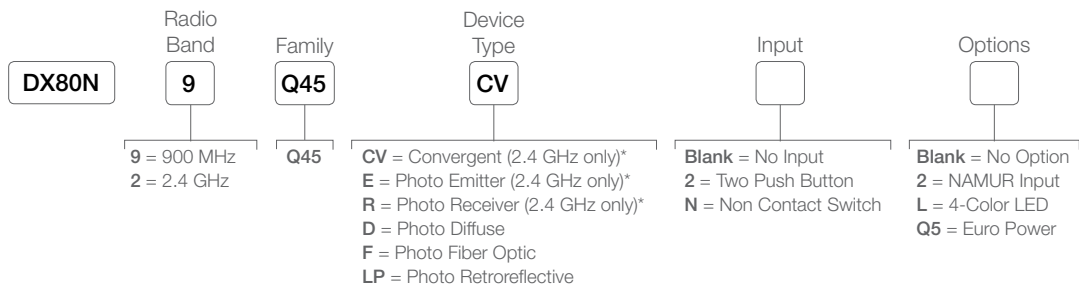


Q45 Sensors

The Sure Cross® Q45 is the first self-contained wireless standard photoelectric solution for the most challenging control and monitoring needs. Easily add a scalable wireless sensor network to improve efficiency by monitoring and coordinating multiple machines and processes without pulling cables.

Key Features:

- True self-contained wireless with no cables, cordsets or external power
- 1 km line-of-sight
- Built-in antenna
- Retroreflective and Diffuse models are preconfigured to count up to 960 parts per minute

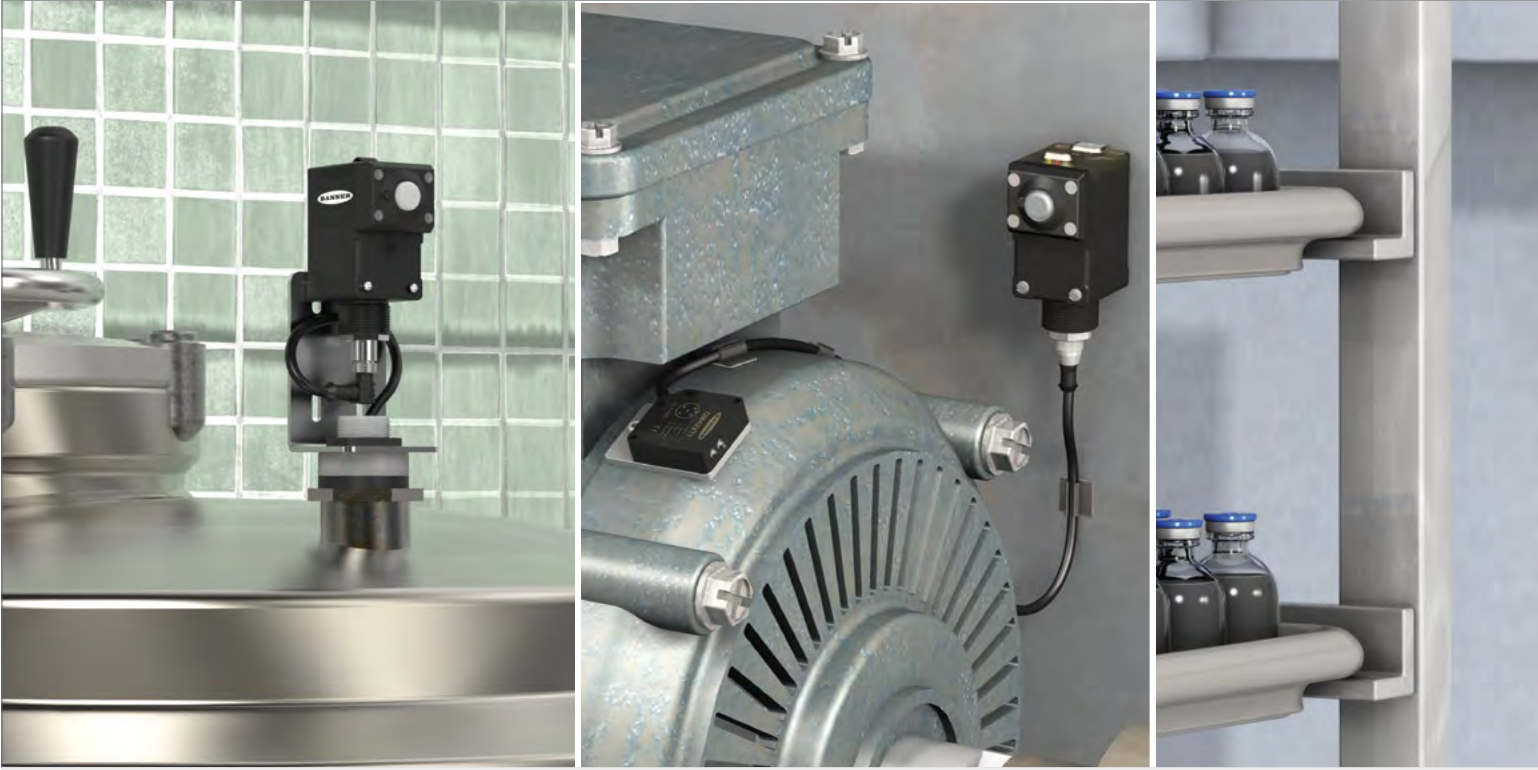


* Emitter and Receiver (E/R) are normally specified in pairs

Photoelectric Q45 Sensor Specifications

Radio (2.4 GHz)	Range: Up to 1000 m (3280 ft) with line of sight Transmit Power: 65 mW EIRP
2.4 GHz Compliance	FCC ID UE300DX80-2400 - This device complies with FCC Part 15, Subpart C, 15.247 ETSI/EN: In accordance with EN 300 328: V1.8.1 (2012-04) IC: 7044A-DX8024
Spread Spectrum Technology	FHSS (Frequency Hopping Spread Spectrum)
Construction	Molded reinforced thermoplastic polyester housing, oring-sealed transparent Lexan® cover, molded acrylic lenses, and stainless steel hardware. Q45s are designed to withstand 1200 psi washdown.
Typical Battery Life	Up to 2 years, typical A typical battery life assumes an average of 10 seconds between sensor changes of state and the default 62.5 millisecond sample rate. Battery life is reduced to 1 year with an average of 1 second between changes of state.
Default Sensing Interval	62.5 milliseconds
Adjustments	Multi-turn sensitivity control (allows precise sensitivity setting - turn clockwise to increase gain.
Sensing Range	Retroreflective: 0.15 m to 6 m (6 in to 20 ft) Diffuse: 101 mm to 300 mm (4 in to 12 in) Opposed: Up to 30 m (100 ft) depending on Excess Gain requirements Glass Fiber Optic: 1½-in focal point
Report Rate	On Change of State
Indicators	Red and green LEDs (radio function); amber LED (only for alignment mode)
Environmental Rating	NEMA 6P, IEC IP67
Operating Conditions	-40 °C to 70 °C (-40 °F to 158 °F); 90% relative humidity at 50 °C (non-condensing)

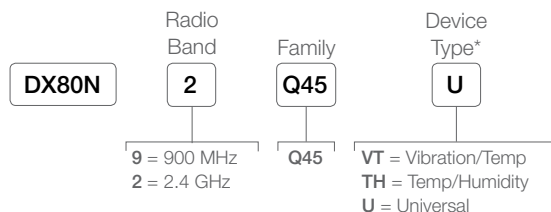
Q45 1-Wire Serial Models



Q45U, Q45VT and Q45TH

The Q45 1-wire serial nodes are designed to pair with Banner 1-wire serial sensors. The compact size, integrated lithium batteries, and built-in LED indicator light make remote monitoring easy to do.

- The Q45U is a universal 1-wire serial node that reads any Banner 1-wire serial sensor and determines an efficient power setting accordingly. It includes a red/green/yellow/blue LED to provide local indication.
- The Q45VT is designed to pair with the QM42VT1 vibration and temperature sensor; vibration thresholds can be set using dip switches and a built-in LED is pre-mapped to illuminate when a threshold has been exceeded.
- The Q45TH connects directly to the M12FTH4Q temperature and humidity sensor; sample rates can be set using DIP switches, and a red/green LED can be used to provide local indication.



* Sensor units must be ordered separately

Q45VT, Q45TH, Q45U Specifications

	900 MHz	2.4 GHz
Radio Range	Up to 3.2 Km (2 miles) with line of sight	Up to 1000 m (3280 ft) with line of sight
Minimum Separation Distance	4.57 m (15 ft)	0.3 m (1 ft)
Transmit Power	1W (25 dBm)	65 mW
Compliance	FCC ID UE3RM1809 - This device complies with FCC Part 15, Subpart C, 15.247 ETSI EN 300 328 V1.8.1 IC: 7044A-RM1809	FCC ID UE300DX80-2400 - This device complies with FCC Part 15, Subpart C, 15.247 ETSI EN 300 328 V1.8.1 (2012-06) IC: 7044A-DX8024
Spread Spectrum Technology	FHSS (Frequency Hopping Spread Spectrum)	
Default Sensing Interval	Q45VT: 5 minutes Q45TH: 64 seconds Q45U: 5 minutes	
Temperature Sensor	Measuring Range: -40 °C to +85 °C (-40 °F to +185 °F) Resolution: 0.1 °C Accuracy: ±0.3 °C	
Humidity Sensor	Measuring Range: 0% to 100% relative humidity Resolution: 0.1% relative humidity Accuracy: ±2% relative humidity at 23 °C	
Indicators	Red and green LEDs (radio function)	
Connection	One 5-pin threaded M12/Euro-style female quick-disconnect	
Construction	Molded reinforced thermoplastic polyester housing, oring-sealed transparent Lexan® cover, molded acrylic lenses, and stainless steel hardware. Q45s are designed to withstand 1200 psi washdown.	
Typical Battery Life at Default Sensing Interval	Q45VT: Up to 2.5 years Q45TH: Up to 1.5 years Q45U: 2+ years	Q45VT: Up to 3 years Q45TH: Up to 2 years Q45U: 3+ years
Environmental Rating	NEMA 6P, IEC IP67	
Operating Conditions	-40 °C to 70 °C (-40 °F to 158 °F); 90% relative humidity at 50 °C (non-condensing)	

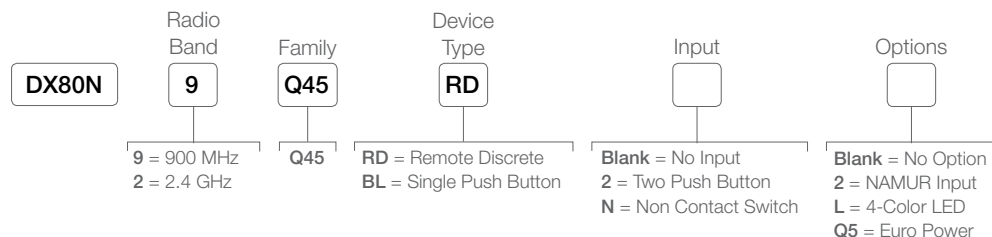
Q45 Switches and Pushbuttons




Q45RD and Q45BL

This Q45 family of products is designed to accept remote dry contact, NAMUR and discrete non-contact switch inputs to be used in many factory automation, remote monitoring and IIoT applications.

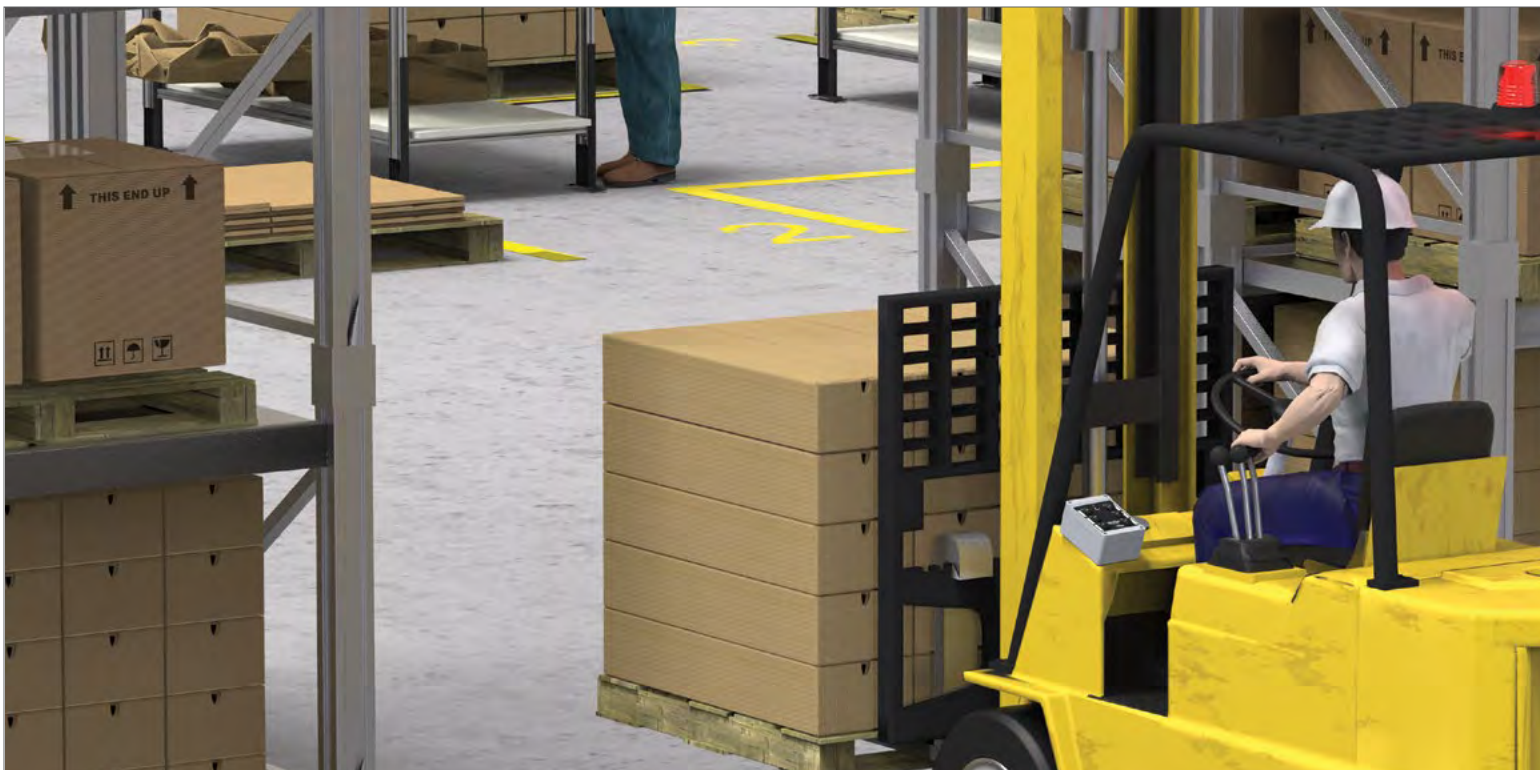
- Remote device models are designed to interface with isolated dry contact inputs or NAMUR inductive proximity sensors.
- Button and light models have independently controlled push button inputs and a multi-color LED indicator light.
- Remote discrete non-contact switch models use a magnet to sense the position of mechanical devices, such as doors, levers, valves, and other actuators.



Q45RD and Q45BL Specifications

	900 MHz	2.4 GHz
Radio Range	Up to 3.2 Km (2 miles) with line of sight	Up to 1000 m (3280 ft) with line of sight
Minimum Separation Distance	1W: 4.57 m (15 ft) 150/250 mW: 2 m (6 ft)	0.3 m (1 ft)
Transmit Power	1W (25 dBm)	65 mW EIRP
Compliance	FCC ID UE3RM1809 - This device complies with FCC Part 15, Subpart C, 15.247 ETSI EN 300 328 V1.8.1 IC: 7044A-RM1809	FCC ID UE300DX80-2400 - This device complies with FCC Part 15, Subpart C, 15.247 ETSI/EN: In accordance with EN 300 328: V1.8.1 (2012-06) IC: 7044A-DX8024
Spread Spectrum Technology	FHSS (Frequency Hopping Spread Spectrum)	
Externally Powered Sourcing Sensors (Q45RD models)	ON Condition: 2 V to 5 V OFF Condition: Less than 1 V	
Button Input (Q45BL models)	Sample Rate: 62.5 milliseconds Report Rate: On change of state	ON Condition: Button pressed OFF Condition: Button not pressed
Construction	Molded reinforced thermoplastic polyester housing, oring-sealed transparent Lexan® cover, molded acrylic lenses, and stainless steel hardware. Q45s are designed to withstand 1200 psi washdown.	
Indicators	Red and green LEDs (radio function); amber LED indicates when input 1 is active	
Environmental Rating	NEMA 6P, IEC IP67	
Battery Life	See Datasheet	
Default Sample Rate	62.5 milliseconds (dry contact) or 125 milliseconds (NAMUR)	
Report Rate	On Change of State	
Operating Conditions	-40 °C to 70 °C (-40 °F to 158 °F); 90% relative humidity at 50 °C (non-condensing)	
Certifications		

6-Button Pendant



Q120

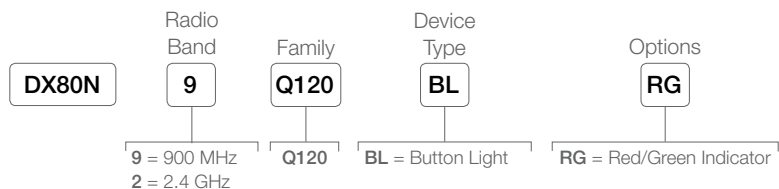
The Sure Cross® Wireless Q120 button and light pendant is an autonomous wireless Node that enables two-way communication between an operator and up to six remote and/or mobile devices. Six independently controlled push-button inputs allow operators to wirelessly send status updates, acknowledgements, initiate processes, and actuate devices.

Key Features:

- DIP switch configurable
- Six push-button inputs with momentary or toggle operation
- Six sets of red and green LED indicator lights with solid or flashing operation
- Reliable, field-proven wireless architecture operates in the globally accepted 2.4 GHz frequency band or the long-range 900 Mhz frequency band, depending upon model

Applications:

- Call for parts, service, or pick up
- Motor, fan, pump control and status indication
- Light control



Q120 Specifications

	900 MHz	2.4 GHz
Radio Range	Up to 3.2 Km (2 miles)	Up to 1000 m (3280 ft)
Minimum Separation Distance	4.57 m (15 ft)	0.3 m (1 ft)
Compliance	FCC ID UE3RM1809: This device complies with FCC Part 15, Subpart C, 15.247 IC: 7044A-RM1809	FCC ID UE300DX80-2400 - This device complies with FCC Part 15, Subpart C, 15.247 ETSI EN 300 328 V1.8.1 (2012-06) IC: 7044A-DX8024
Spread Spectrum Technology	FHSS (Frequency Hopping Spread Spectrum)	
Construction	Polycarbonate housing; polyester labels; EDPM rubber cover gasket; nylon buttons Weight: 0.39 kg (0.85 lbs) Maximum Tightening Torque: 0.56 N·m (5 lbf·in)	
Indicators	Red and green LEDs (radio function)	
Environmental Rating	NEMA 6, IEC IP67	
Battery Life	See Datasheet	
Operating Conditions	-40 °C to 70 °C (-40 °F to 158 °F); 90% relative humidity at 50 °C (non-condensing)	

Wireless Tower Light

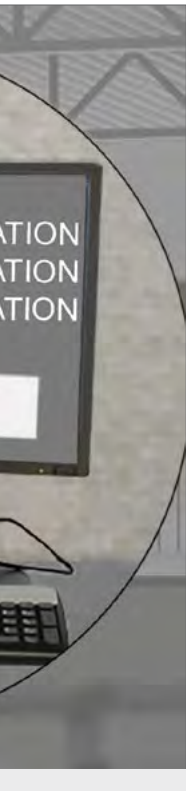


TL70

Easily add wireless communication and networking capabilities to your tower lights by using Banner's Wireless Base or Wireless Communication Segment.

Key Features:

- Easily add IIoT remote monitoring capabilities
- Enable Overall Equipment Effectiveness (OEE) data collection to optimize your operation
- Receive timely status information and remote notifications of problems
- Simplify installation by not having to run control wires
- Rugged, water-resistant IP65 housing with UV-stabilized material allows for use in harsh environments



Two options to add wireless communication to tower lights



Wireless Base

The Wireless Base provides full bi-directional communication, plus event counter inputs. It can be configured into preassembled tower lights,

Buy this if:

- You want to buy a preassembled tower light with wireless connectivity
- You can supply constant power to the light
- Your machines have PNP outputs to the tower light
- Your sole intent is to control light segments via the wireless radio

Wireless Communication Segment

The Communication segment adds wireless communication and networking capabilities to any standard TL70 Base, without requiring constant power or expensive wiring.

Buy this if:

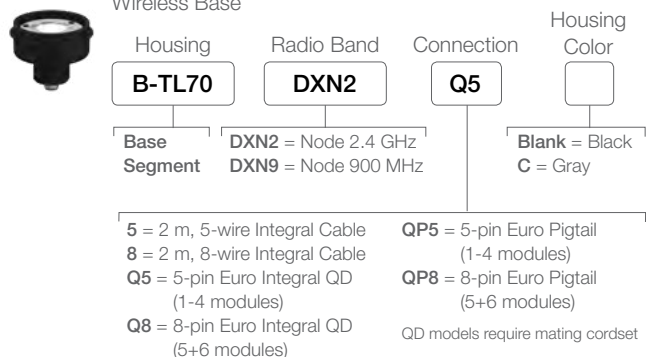
- You want to add wireless connectivity to an existing TL70 Tower Light
- You can not supply constant power to the light
- Your machines have both NPN and PNP inputs
- You have a TL70 ac base



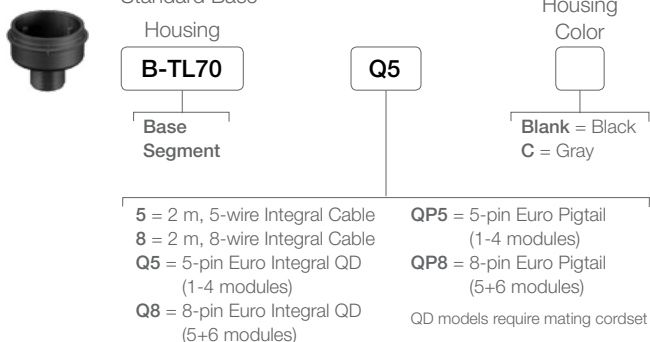
	Segment	Base
Requires Constant Power	—	√
PNP Inputs	√	√
NPN Inputs	√	—
AC Power Capable	√	—
900 MHz and 2.4 GHz	√	√
Event Counting Input	√	√
Bidirectional Communication	√	√
Remote Control of Light Segments	√*	√
* Requires constant power		

Build your Own

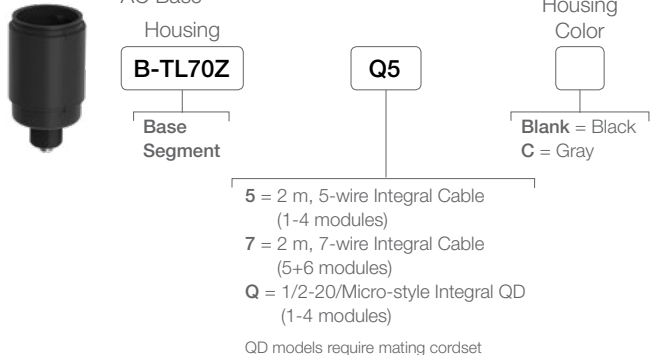
Wireless Base



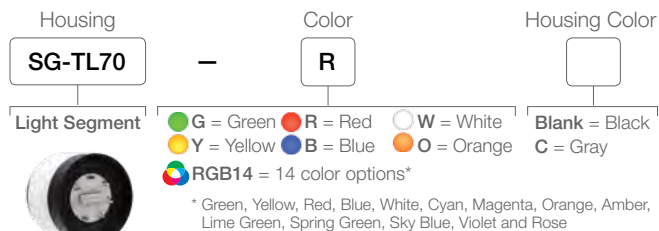
Standard Base



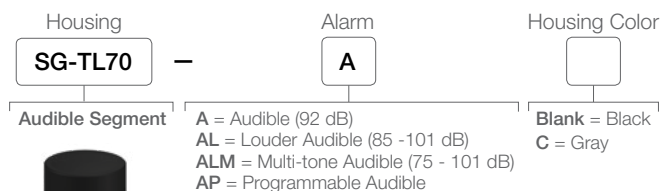
AC Base



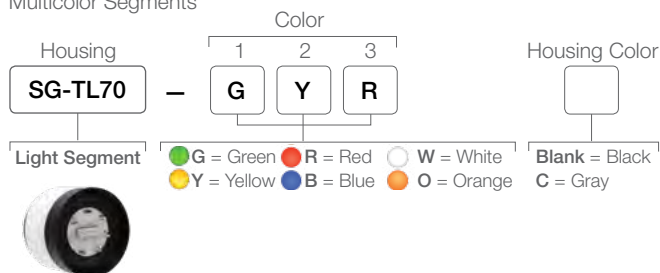
Single Color Segments



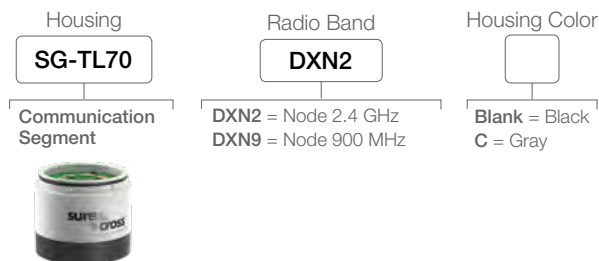
Audible Segments



Multicolor Segments

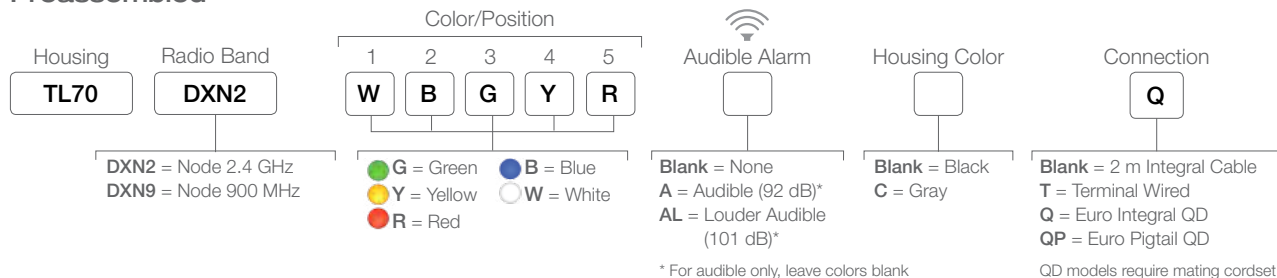


Communication Segment





Preassembled



TL70 Wireless Tower Light Specifications

Supply Voltage	12 to 30 V dc (Outside the USA: 12 to 24 V dc, $\pm 10\%$)	
Supply Protection Circuitry	Protected against transient voltages	
Indicator Response Time	OFF Response: 150 μ s (maximum) at 12 to 30 V dc ON Response: 180 ms (maximum) at 12 V dc; 50 ms (maximum) at 30 V dc	
Audible Alarm	2.6 KHz \pm 250 Hz oscillation frequency; maximum intensity 92 dB (Audible) and 101dB (Louder Audible) at 1 m (3.3 ft) (typical)	
Indicators	1 to 5 colors depending on model: Green, Red, Yellow, Blue, and White Flash rates: 1.5 Hz \pm 10% and 3 Hz \pm 10% LEDs are independently selected	
Construction	Bases, segments, covers: polycarbonate	
Operating Conditions	-40 $^{\circ}$ C to +50 $^{\circ}$ C (-40 $^{\circ}$ F to +122 $^{\circ}$ F) 95% at +50 $^{\circ}$ C maximum relative humidity (non-condensing)	
Environmental Rating	IEC IP65	
Vibration and Mechanical Shock	Vibration 10 to 55 Hz 0.5 mm p-p amplitude per IEC60068-2-6 Shock 15G 11 ms duration, half sine wave per IEC60068-2-27	
Radio Range	900 MHz, 1 W: Up to 9.6 km (6 miles)	2.4 GHz, 65 mW: Up to 3.2 km (2 miles)
Minimum Separation Distance	900 MHz 1 W: 4.57 m (15 ft)	2.4 GHz 65 mW: 0.3 m (1 ft)
Radio Transmit Power	900 MHz, 1 W: 30 dBm (1 W) conducted (up to 36 dBm EIRP)	2.4 GHz, 65 mW: 18 dBm (65 mW) conducted, ≤ 20 dBm (100 mW) EIRP
Compliance	900 MHz Compliance (1 Watt) FCC ID UE3RM1809: This device complies with FCC Part 15, Subpart C, 15.247 IC: 7044A-RM1809	2.4 GHz Compliance FCC ID UE300DX80-2400 - This device complies with FCC Part 15, Subpart C, 15.247 ETSI EN 300 328 V1.8.1 (2012-06) IC: 7044A-DX8024
Radiated Immunity HF	10 V/m (EN 61000-4-3)	
Spread Spectrum Technology	FHSS (Frequency Hopping Spread Spectrum)	
Link Timeout	Gateway: Configurable via User Configuration Tool (UCT) software	Node: Defined by Gateway
Certifications	 	

Wireless Indicator



K70

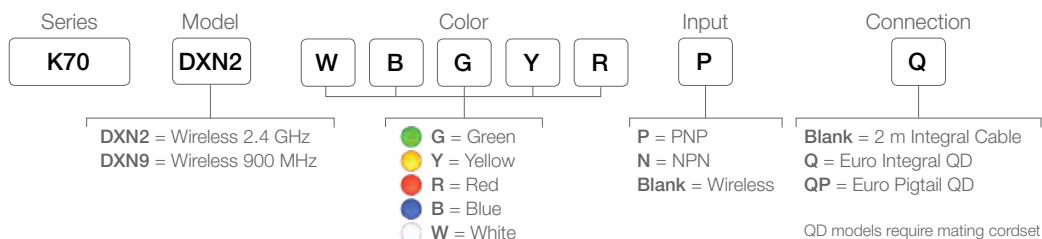
Wireless K70 Indicators are bright, 70 mm multicolored indicators offering increased communication possibilities and greater versatility in deployment.

Key Features:



- Models are available with up to five colors in one device
- Rugged, water-resistant IP65 housing
- SureCross wireless node built into the base
- 900 MHz and 2.4 GHz wireless options
- Input wires can be configured as auxiliary sourcing inputs from external devices or as a 20 Hz, 32-bit event counter

Applications:

- Clean room status indication
- Loading dock status
- High traffic forklift crossing status



K70 Wireless Indicator Light Specifications

Supply Voltage	12 to 30 V dc (Outside the USA: 12 to 24 V dc, ± 10%)	
Supply Protection Circuitry	Protected against transient voltages	
Indicator Response Time	OFF Response: 150 µs (maximum) at 12 to 30 V dc ON Response: 180 ms (maximum) at 12 V dc; 50 ms (maximum) at 30 V dc	
Audible Alarm	2.6 KHz ± 250 Hz oscillation frequency; maximum intensity 92 dB (Audible) and 101dB (Louder Audible) at 1 m (3.3 ft) (typical)	
Indicators	OFF Response: 150 µs (maximum) at 12 to 30 V dc ON Response: 180 ms (maximum) at 12 V dc; 50 ms (maximum) at 30 V dc	
Construction	Bases and cover: polycarbonate	
Operating Conditions	-40 °C to +50 °C (-40 °F to +122 °F) 95% at +50 °C maximum relative humidity (non-condensing)	
Environmental Rating	IEC IP65	
Vibration and Mechanical Shock	Vibration 10 to 55 Hz 0.5 mm p-p amplitude per IEC60068-2-6 Shock 15G 11 ms duration, half sine wave per IEC60068-2-27	
Radio Range	900 MHz, 1 W: Up to 3.2 km (2 miles)	2.4 GHz, 65 mW: Up to 1000 m (3280 ft)
Minimum Separation Distance	900 MHz 1 W: 4.57 m (15 ft)	2.4 GHz 65 mW: 0.3 m (1 ft)
Compliance	FCC ID UE3RM1809: This device complies with FCC Part 15, Subpart C, 15.247 IC: 7044A-RM1809	
	FCC ID UE300DX80-2400 - This device complies with FCC Part 15, Subpart C, 15.247 ETSI EN 300 328 V1.8.1 (2012-06) IC: 7044A-DX8024	
Radiated Immunity HF	10 V/m (EN 61000-4-3)	
Spread Spectrum Technology	FHSS (Frequency Hopping Spread Spectrum)	
Link Timeout	Gateway: Configurable via User Configuration Tool (UCT) software	Node: Defined by Gateway
Certifications	 	

Wireless Touch Button



K70

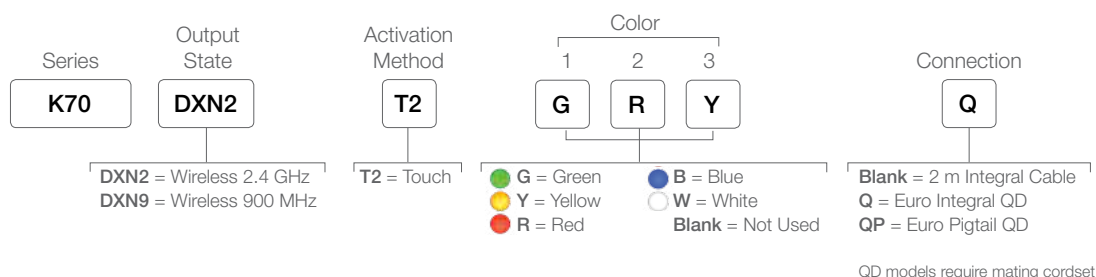
The K70 Wireless Touch Button is an ergonomic solid-state switch with integrated multicolor indication functions and a wireless Node. Bidirectional wireless communication provides a simple operator interface for many industrial applications.

Key Features:

- Bidirectional wireless communication
- Ergonomically designed to eliminate hand, wrist, and arm stresses associated with repeated switch operation; requires no physical force to operate
- Can be actuated with bare hands or in gloves
- Up to three colors in one touch button; momentary and latching versions available
- Excellent immunity to false triggering by water spray, detergents, oils, and other foreign materials

Applications:

- Pick-to-light
- Call button
- General industrial applications



K70 Wireless Touch Button Specifications

Supply Voltage	12 to 30 V dc (Outside the USA: 12 to 24 V dc, $\pm 10\%$)	
Supply Current	< 220 mA maximum current at 12 V dc < 110 mA maximum current at 30 V dc	
Supply Protection Circuitry	Protected against transient voltages	
Indicators	1 to 3 colors depending on model: Green, Red, Yellow, Blue, and White LEDs are independently selected	
Indicator Response Time	OFF Response: 150 μ s (maximum) at 12 to 30 V dc ON Response: 180 ms (maximum) at 12 V dc; 50 ms (maximum) at 30 V dc	
Construction	Bases and cover: polycarbonate	
Operating Conditions	-40 °C to +50 °C (-40 °F to +122 °F) 95% at +50 °C maximum relative humidity (non-condensing)	
Environmental Rating	IEC IP65	
Vibration and Mechanical Shock	Vibration 10 to 55 Hz 0.5 mm p-p amplitude per IEC60068-2-6 Shock 15G 11 ms duration, half sine wave per IEC60068-2-27	
Radio Range	900 MHz, 1 W: Up to 3.2 km (2 miles)	2.4 GHz, 65 mW: Up to 1000 m (3280 ft)
Minimum Separation Distance	900 MHz 1 W: 4.57 m (15 ft)	2.4 GHz 65 mW: 0.3 m (1 ft)
Compliance	FCC ID UE3RM1809: This device complies with FCC Part 15, Subpart C, 15.247 IC: 7044A-RM1809	FCC ID UE300DX80-2400 - This device complies with FCC Part 15, Subpart C, 15.247 ETSI EN 300 328 V1.8.1 (2012-06) IC: 7044A-DX8024
Radiated Immunity HF	10 V/m (EN 61000-4-3)	
Spread Spectrum Technology	FHSS (Frequency Hopping Spread Spectrum)	
Link Timeout	Gateway: Configurable via User Configuration Tool (UCT) software	Node: Defined by Gateway
Certifications	 	