Performance P15E Node

Features

The Sure Cross® wireless system is a radio frequency network with integrated I/O that operates in most environments to eliminate the need for wiring runs.

The Performance Series P15E Node can wirelessly control any AC-powered devices, including lights (including dimming levels), fan speed, and motors. For higher amperage applications, relays can be used to control contactors. By using a current transducer and its analog inputs you can monitor energy/power levels for connected devices.

Benefits

- **Remotely control**—Lights, fans, and motors; use in conjunction with equipment health monitoring sensors to shut down motors remotely when potential issues are detected
- **Eliminate control wires**—The Sure Cross wireless system is a radio frequency network with integrated I/O that removes the need for control wires.
- **Reduce complexity**—Facility or machine reconfiguration made easier; great for retrofit applications
- **Deploy easily**—The relays and wireless radio are housed in a single device, simplifying installation on existing equipment and enabling deployments in remote and hard-to-access locations where implementing a wired solution would be difficult, impractical, or not cost-effective
- Wireless industrial I/O device with two AC/DC relay outputs, two discrete PNP outputs, two 0–10 V DC analog outputs, two discrete NPN or PNP (selectable) inputs, and two 0–10 V DC analog inputs
- Supply voltage of 100–277 V AC at 50/60 Hz
- Courtesy power output of 25 W (24 V DC)
- AC power field wireable through a 1/2-inch NPSM port using 1/2-inch conduit, cable gland, or quick-disconnect connector
- Selectable transmit power levels of 250 mW or 500 mW for 900 MHz models and 65 mW for 2.4 GHz models
- DIP switches for user configuration
- Frequency Hopping Spread Spectrum (FHSS) technology ensures reliable data delivery
- Transceivers provide bidirectional communication between the Gateway and Node, including fully acknowledged data transmission
- Lost RF links are detected and relevant outputs set to user-defined conditions



For additional information, updated documentation, and a list of accessories, refer to Banner Engineering's website, www.bannerengineering.com.

WARNING:

- **Risk of Electric Shock**
- Disconnect or turn off the power before installing, removing, or servicing the P15E Node.
- Install and connect the P15E Node in accordance with the National Electrical Code (NEC) and any applicable local code requirements and supply the P15E Node with an appropriate fuse box or circuit breaker (see Supply Voltage rating in the Specifications).
- Install the P15E Node at the end of a conduit run.

Models

Models	Frequency	I/O
DX80N9X7S-P15E	900 MHz ISM Band	Inputs: Two selectable discrete, two 0 to 10 V analog Outputs: Two AC/DC relay (SPDT), two PNP discrete, two 0 to 10 V analog
DX80N2X7S-P15E	2.4 GHz ISM Band	

Configuration Instructions

Setting Up Your Wireless Network

To set up and install your wireless network, follow these steps.

For complete instructions, including binding, configuration, installation, weatherproofing, device menu maps, troubleshooting, and a list of accessories, refer to Sure Cross® Wireless I/O Network Instruction Manual (p/n 132607)

1. Disconnect the power from your Sure Cross® devices.
2. Configure the DIP switches of all devices. DIP switch configurations are always listed in the product's datasheet.
3. If your device has I/O, connect the sensors to the Sure Cross devices. Available I/O is always listed in the product's datasheet. If your device does not have I/O, skip this step.
4. Refer to the wiring diagrams to apply power to all devices.

Original Instructions
02-Oct-24

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197408
p/n: 197408 Rev. G

ПРОМЭЛЕКТРОНИКА/ sales@prom-elec.com

- For housed models, the Gateway's LED 1 is solid green and the Node's LED 2 flashes red to indicate there is no radio link to the Gateway.
- For board-level models, the Gateway's LED is solid green and the Node's LED flashes red to indicate there is no radio link to the Gateway.

5. Form the wireless network by binding the Nodes to the Gateway.
6. Observe the LED behavior to verify the devices are communicating with each other.
   - For housed models, the Gateway's LED 1 is solid green and the Node's LED 1 flashes green to indicate it is communicating with the Gateway.
   - For board-level models, the Gateway's LED is solid green and the Node's LED flashes green to indicate it is communicating with the Gateway.
7. Configure any I/O points to use the sensors connected to the Sure Cross devices.
8. Conduct a site survey between the Gateway and Nodes.
9. Install your wireless sensor network components.

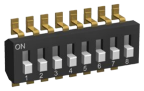
Configure the DIP Switches

Before changing DIP switch positions, disconnect the power.[1]

Any changes made to the DIP switches are not recognized until after power is cycled to the device. For parameters not set using the DIP switches, use the configuration software to make configuration changes. For parameters set using the DIP switches, the DIP switch positions override any changes made using the configuration software.

Access the Internal DIP Switches

Follow these steps to access the internal DIP switches.



1. Unscrew the four screws that mount the cover to the bottom housing.
2. Remove the cover from the housing without damaging the ribbon cable or the pins the cable plugs into.
3. Gently unplug the ribbon cable from the board mounted into the bottom housing. Skip this step if there is no ribbon cable (integrated battery models) or the ribbon cable is glued down (for C housing models).
4. Remove the black cover plate from the bottom of the device's cover.
   The DIP switches are located behind the rotary dials.
5. Make the necessary changes to the DIP switches.
6. Place the black cover plate back into position and gently push into place.
7. If necessary, plug the ribbon cable in after verifying that the blocked hole lines up with the missing pin.
8. Mount the cover back onto the housing.

DIP Switch Settings

	Switches				
Device Settings	**1**	**2**	**3**	**4**	**5**
900 MHz transmit power level: 500 mW (27 dBm)	OFF*				
900 MHz transmit power level: 250 mW (24 dBm), DX80 compatibility mode	ON				
Modbus or software configured (overrides DIP switches 3-8)		OFF*			
DIP switch configured		ON			
Inputs sourcing (PNP)			OFF*		
Inputs sinking (NPN)			ON		
Link loss output: zero				OFF*	OFF*
Link loss output: one				OFF	ON
Link loss output: hold last state				ON	OFF
Link loss output: user configuration				ON	ON

* Default configuration

Discrete Input Type

Select the type of discrete input sensors to use with this device: sourcing (PNP) sensors or sinking (NPN) sensors.

[1] For devices powered by batteries integrated into the housing, triple-click button 2, then double-click button 2 to reset the device without removing the battery.

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Link Loss Outputs

The Sure Cross® wireless devices use a deterministic radio link time-out method to address RF link interruption or failure. When a radio link fails, all pertinent wired outputs are set to defined states until the link is recovered, ensuring that disruptions in the communications link result in predictable system behavior.

Following a radio link time-out, all outputs linked to the Node in question are set to de-energize (discrete outputs to zero, analog outputs to 0 mA or 4 mA), energize (discrete outputs to one, analog outputs to 20 mA), or hold the last stable state/value. Use the DIP switches to select the link loss output state.

Modbus/Software or DIP Switch Configured

In Modbus/Software Configured mode, use the DX80 Performance Configuration Software or a Modbus command to change the device parameters. DIP switch positions 3 through 8 are ignored. In DIP Switch Configured mode, use the DIP switches to configure the parameters listed in the table.

Transmit Power Levels

The 900 MHz radios have a high output option that will transmit at 500 mW (27 dBm). The low output option transmits at 250 mW (24 dBm). The 250 mW mode reduces the radio's range but improves the battery life in short-range applications. For 2.4 GHz models, this DIP switch is disabled. The transmit power for 2.4 GHz is fixed at about 65 mW EIRP (18 dBm).

Mixing Performance and Non-Performance (150 mW) Radios in the Same Network

To comply with federal regulations, the 150 mW radios and 500 mW radios communicate differently. All Performance models offer the ability to select between 250 mW and 500 mW operation using the DIP switches.

To mix Performance radios with non-Performance radios, refer to the product datasheet and:

- Operate Performance radios in 250 mW mode, not 500 mW mode
- Set non-Performance (150 mW) radios to use Extended Address Mode

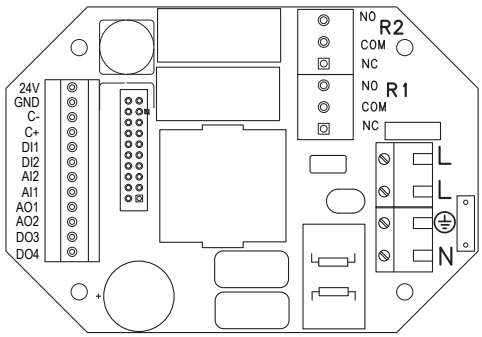
The 150 mW, 250 mW, 500 mW, and 1 W networks operate when collocated, but verify the antenna separation distance between a Gateway and Node or between two Gateways is at least 10 feet apart. For more detailed instructions about setting up your wireless network, refer to the following documents:

- DX80 Performance Quick Start Guide (p/n 128185)
- DX80 Performance Wireless I/O Network Instruction Manual (p/n 132607)
- DXM Quick Start Guide (p/n 191247)
- DXM Instruction Manuals (DXM100-Bx: 190037 and DXM150-Bx: 190038)

Wire Your Sure Cross Device

Use the following wiring diagrams to first wire the sensors and then apply power to the Sure Cross® devices.

Wiring for Power and IO for the P15E Node



24V. 24 V courtesy power output
GND. Gound/dc common connection
C+. Serial communication line for the Gateway; no connection for the Nodes
C–. Serial communication line for the Gateway; no connection for the Nodes
Com. Common
. AC Earth
DI1. Discrete IN 1
DI2. Discrete IN 2

AI1. Analog IN 1
AI2. Analog IN 2
AO1. Analog OUT 1
AO2. Analog OUT 2
DO3. Discrete OUT 3
DO4. Discrete OUT 4
L. AC line
N. AC neutral
NC. Normally Closed
NO. Normally Open
R1. Relay 1
R2. Relay 2

Connecting power to the communication pins will cause permanent damage. Do not exceed analog input ratings for analog inputs. Only connect sensor outputs to analog inputs.

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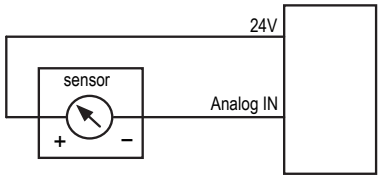
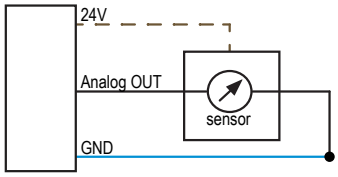
Analog input wiring (24 V DC courtesy power)

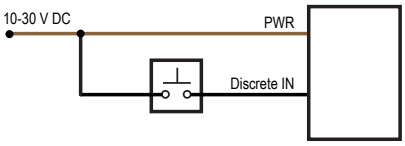


Analog output wiring (24 V DC courtesy power)

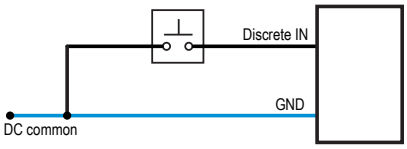


PWR for the discrete sensors may be 10 V DC to 30 V DC, or it may be wired to the 24 V DC (24V) courtesy power supplied by the device.

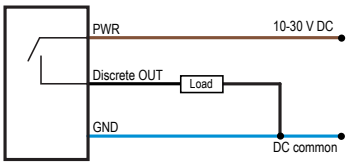
Discrete input wiring for PNP sensors



Discrete input wiring for NPN sensors

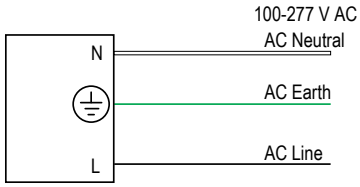


Discrete output wiring (PNP)

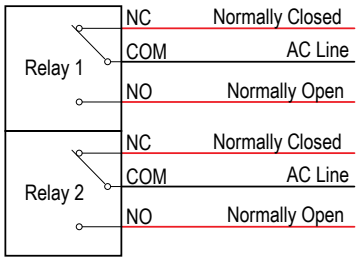


Wiring for AC Power for P15E and H15E Models

Wiring for power only

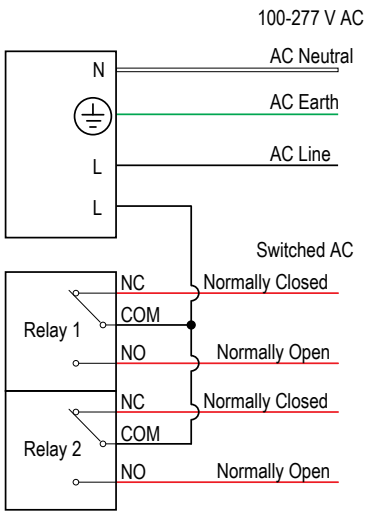


Wiring for switched AC relays



Nominal current per relay not to exceed 10 A.

Wiring for power and switched AC relays



Total nominal current not to exceed 10 A.

Connecting AC or DC power to the communication pins will cause permanent damage. Use the access hole with a 1/2-inch conduit fitting, cable gland, or quick-disconnect (QD) connector at the bottom of the housing to field-wire AC power and AC circuits.

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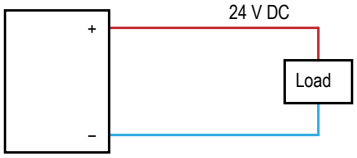
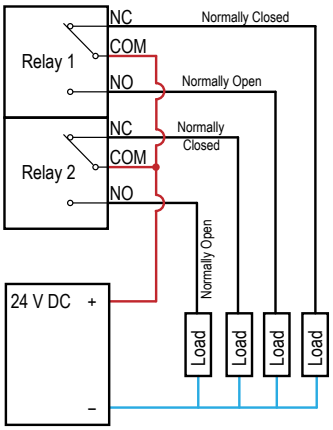
Wiring for 24 DC Courtesy Power Out for P15E and H15E Models

Wiring for 24 V DC courtesy power out



Wiring for switched 24 V DC power out



Use the access hole with the watertight gland or M12 quick-disconnect (QD) connector at the top of the housing to field-wire courtesy power to external field instruments.

LED Behavior for the Gateways and Nodes

Verify all devices are communicating properly. Nodes do not sample inputs until they are communicating with the Gateway. The radios and antennas must be a minimum distance apart to function properly. Recommended minimum distances are:

900 MHz radios transmitting at ≤ 250 mW: 6 feet
900 MHz radios transmitting at ≥ 500 mW: 15 feet
2.4 GHz radios (transmitting at 65 mW): 1 foot

LED behavior

Devices with Two LEDs		Devices with One LED	Gateway Status	Node Status
LED 1	LED 2			
Green		Green	Power is on	N/A
Flashing green			N/A	Radio link is okay
Flashing red	Flashing red	Flashing red	Device error	Device error
	Flashing amber	Green and red flash (amber) together	Modbus communication active	N/A
	Flashing red	Flashing red	Modbus communication error	No radio link (flashes once every 3 s)
Flashing red (alternately)	Flashing red (alternately)	Green and red flash alternately	Device is in binding mode	Device is in binding mode
		Red	Gateway is trying to conduct a Site Survey with a Node that doesn't exist	
		Green and red solid (amber) together	No radio communication detected	
Red (for 4 seconds)	Red (for 4 seconds)	Green/red solid (amber) for 4 seconds, then flash 4 times		Binding mode is complete

For Gateway systems, the Modbus communication LEDs refer to the communication between the Gateway and its host system (if applicable).

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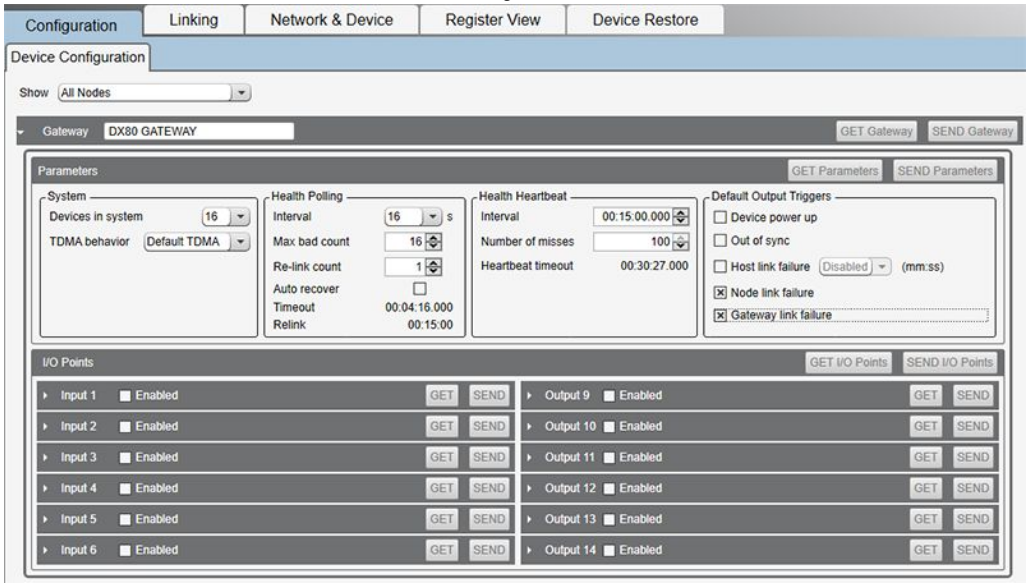
DX80 Performance Configuration Software

The configuration software offers an easy way to link I/O points in your wireless network, view I/O register values, and set system communication parameters when a host system is not part of the wireless network. The software runs on any computer with the Windows Vista, Windows 7, Windows 8, or Windows 10 operating system.

Device Configuration screen



Use a USB to RS-485 adapter cable to connect a standalone DX80 Gateway to the computer. For DXM Controllers with an internal DX80 radio, connect a computer to the DXM Controller using the supplied USB or Ethernet connection. Download the most recent revisions of the configuration software from Banner Engineering's website: https://www.bannerengineering.com/us/en/products/wireless-sensor-networks/reference-library/software.html.

The USB to RS-485 adapter cable is not required for the DXM Controller. For standalone DX80 Gateway devices use:

- USB to RS-485 adapter cable model **BWA-UCT-900** for 1 Watt radios
- USB to RS-485 adapter cable model **BWA-HW-006** for all other radios

Holding Registers

Modbus Holding Register		EIP Registers		I/O Type	I/O Range		Holding Register Representation (Dec)	
Gateway	Node	Node			Min.	Max.	Min.	Max.
1	1 + (Node# × 16)	0 + (Node# × 8)	Instance 100 / N7	Discrete IN 1	0	1	0	1
2	2 + (Node# × 16)	1 + (Node# × 8)		Discrete IN 2	0	1	0	1
3	3 + (Node# × 16)	2 + (Node# × 8)		Analog IN 1 (V)	0.0	10.0	0	65535
4	4 + (Node# × 16)	3 + (Node# × 8)		Analog IN 2 (V)	0.0	10.0	0	65535
5	5 + (Node# × 16)	4 + (Node# × 8)						
6	6 + (Node# × 16)	5 + (Node# × 8)						
7	7 + (Node# × 16)	6 + (Node# × 8)		Reserved				
8	8 + (Node# × 16)	7 + (Node# × 8)		Device Message				
9	9 + (Node# × 16)	0 + (Node# × 8)	Instance 112 / N14	Relay OUT 1	0 *	1 *	0	1
10	10 + (Node# × 16)	1 + (Node# × 8)		Relay OUT 2	0 *	1 *	0	1
11	11 + (Node# × 16)	2 + (Node# × 8)		Discrete OUT 3	0	1	0	1
12	12 + (Node# × 16)	3 + (Node# × 8)		Discrete OUT 4	0	1	0	1
13	13 + (Node# × 16)	4 + (Node# × 8)		Analog OUT 1 (V)	0.0	10.0	0	65535
14	14 + (Node# × 16)	5 + (Node# × 8)		Analog OUT 2 (V)	0.0	10.0	0	65535
15	15 + (Node# × 16)	6 + (Node# × 8)		Control Message				
16	16 + (Node# × 16)	7 + (Node# × 8)		Reserved				

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** Relay output truth table*

Relay Connection	I/O Value	
	0 (OFF)	1 (ON)
Normally Closed	Closed	Open
Normally Open	Open	Closed

Installing Your Sure Cross® Radios

Please refer to one of these instruction manuals to install your wireless network components.

- DX80 Performance Wireless I/O Network Instruction Manual: 132607
- MultiHop Data Radio Instruction Manual: 151317

Specifications

Radio Specifications for Performance Models

Radio Transmit Power (900 MHz, 500 mW radios)

Conducted: 27 dBm (500 mW)

EIRP with the supplied antenna: < 36 dBm

Radio Transmit Power (2.4 GHz radios)

Conducted: < 18 dBm (65 mW)

EIRP with the supplied antenna: < 20 dBm (100 mW)

Radio Range

A 2 dB antenna ships with this device.

Transmit power and range are subject to many factors, including antenna gain, installation methods, characteristics of the application, and environmental conditions.

Please refer to the following documents for installation instructions and high-gain antenna options.

Installing Your Sure Cross® Radios (151514)
Conducting a Site Survey (133602)
Sure Cross® Antenna Basics (132113)

Antenna Minimum Separation Distance

900 MHz radios transmitting at ≥ 500 mW: 4.57 m (15 ft) with the supplied antenna

2.4 GHz radios transmitting at 65 mW: 0.3 m (1 ft) with the supplied antenna

Link Timeout (Performance)

Gateway: Configurable via User Configuration Software

Node: Defined by Gateway

Spread Spectrum Technology

FHSS (Frequency Hopping Spread Spectrum)

Antenna Connection

Ext. Reverse Polarity SMA, 50 Ohms

Max Tightening Torque: 0.45 N·m (4 lbf·in)

900 MHz Compliance (SX7023EXT Radio Module)

Radio module is indicated by the product label marking

Contains FCC ID: UE3SX7023EXT

Contains IC: 7044A-SX7023EXT

2.4 GHz Compliance (SX243 Radio Module)

Radio module is indicated by the product label marking

Contains FCC ID: UE3SX243

Radio Equipment Directive (RED) 2014/53/EU

Contains IC: 7044A-SX243

FCC Part 15 Class A for Intentional Radiators

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

(Part 15.21) Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

Industry Canada Statement for Intentional Radiators

This device contains licence-exempt transmitters(s)/receiver(s) that comply with Innovation, Science and Economic Development Canada's licence-exempt RSS(s). Operation is subject to the following two conditions:

1. This device may not cause interference.
2. This device must accept any interference, including interference that may cause undesired operation of the device.

Cet appareil contient des émetteurs/récepteurs exemptés de licence conformes à la norme Innovation, Sciences, et Développement économique Canada. L'exploitation est autorisée aux deux conditions suivantes:

1. L'appareil ne doit pas produire de brouillage.
2. L'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

P15E Node Specifications

Supply Voltage and Current

Nominal voltage: 120–277 V AC at 60 Hz in North America

Nominal voltage: 100–277 V AC at 50/60 Hz outside North America

Maximum supply current: 0.37 A

Maximum power consumption: 25 W

Analog Input

0 to 10 V

Input Rating: 10 V

Impedance: Approximately 220 Ohms

Sample Rate: 62.5 milliseconds

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Report Rate: 1 second or On Change of State (1% change in value)

Accuracy: 0.2% of full scale +0.01% per °C

Resolution: 12-bit

Relay Outputs

SPDT (Form C) relay

277 V AC, 10 A

Minimum Mechanical Life: 10,000,000

Surge breakdown voltage (Wave is standard shock voltage of ±1.2 × 50 µs according to JEC-212-1981) (Between contacts and coil) (Initial): 10,000 V

Output State Following Timeout

De-energized (OFF)

Analog Output

0 to 10 V

Update Rate: 125 milliseconds

Accuracy: 1.0% of full scale +0. 01% per °C

Resolution: 12-bit

Housing

Polycarbonate housing and rotary dial cover; polyester labels; EDPM rubber cover gasket; nitrile rubber, non-sulphur cured button covers

Weight: 0.51 kg (1.13 lbs)

Mounting: 1/4-inch or M7

Max. Tightening Torque: 0.56 N·m (5 lbf·in)

Wiring Access

Two 1/2-inch NPSM ports, 14 threads/inch (1/2-14 NPSM)

Interface

Two bi-color LED indicators, Two buttons, Six character LCD

Certifications

CE/UKCA approval only applies to 2.4 GHz models

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Blenheim Court
Wickford, Essex SS11 8YT
GREAT BRITAIN

03737-22-04042

ANATEL

Este equipamento não tem direito à proteção contra interferência prejudicial e não pode causar interferência em sistemas devidamente autorizados. Para maiores informações, consulte o site da ANATEL www.gov.br/anatel/pt-br/

Environmental Specifications for the E Housing

Operating Conditions

–40 °C to +85 °C (–40 °F to +185 °F) (Electronics); –20 °C to +80 °C (–4 °F to +176 °F) (LCD)

95% maximum relative humidity (non-condensing)

Radiated Immunity: 10 V/m (EN 61000-4-3)

Shock and Vibration

All models meet IEC 60068-2-6 and IEC 60068-2-27 testing criteria

Shock: 30G 11 ms duration, half sine wave per IEC 60068-2-27

Vibration: 10 Hz to 55 Hz, 0.5 mm peak-to-peak amplitude per IEC 60068-2-6

Environmental Ratings

IP65

Refer to the Sure Cross® DX80 Performance (p/n 132607) or the Sure Cross® MultiHop (p/n 151317) instruction manual for installation and waterproofing instructions.

Operating the devices at the maximum operating conditions for extended periods can shorten the life of the device.

Accessories

Included with 15E Model

The following items ship with the DX80 radios.

- **BWA-HW-059**—Access Hardware Kit for "E" Housing Models, containing one 1/2-inch vented plug and one 1/2-inch gland
- **BWA-HW-003**—PTFE tape
- **BWA-9O2-C** (900 MHz) or **BWA-2O2-C** (2.4 GHz)—Antenna, 2 dBd Omni, Rubber Swivel RP-SMA Male. (Not included with Internal antenna models)
- Quick Start Guide (128185 for DX80 Gateways or 152653 for MultiHop models)

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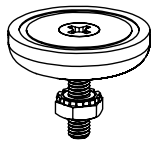
Mounting Brackets

BWA-BK-020
- Includes two 80-lb pull rare-earth magnet mounts and two #10-32 × 1 inch screw mounts
- Used on multiple mounting brackets
- 31.75 mm (1.25 inch) diameter



Warnings

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.

IMPORTANT: Please download the complete Performance P15E Node technical documentation, available in multiple languages, from www.bannerengineering.com for details on the proper use, applications, Warnings, and installation instructions of this device.

IMPORTANT: Por favor descargue desde www.bannerengineering.com toda la documentación técnica de los Performance P15E Node, disponibles en múltiples idiomas, para detalles del uso adecuado, aplicaciones, advertencias, y las instrucciones de instalación de estos dispositivos.

IMPORTANT: Veuillez télécharger la documentation technique complète des Performance P15E Node sur notre site www.bannerengineering.com pour les détails sur leur utilisation correcte, les applications, les notes de sécurité et les instructions de montage.

Install and properly ground a qualified surge suppressor when installing a remote antenna system. Remote antenna configurations installed without surge suppressors invalidate the manufacturer's warranty. Keep the ground wire as short as possible and make all ground connections to a single-point ground system to ensure no ground loops are created. No surge suppressor can absorb all lightning strikes; do not touch the Sure Cross® device or any equipment connected to the Sure Cross® device during a thunderstorm.

Exporting Sure Cross® Radios. It is our intent to fully comply with all national and regional regulations regarding radio frequency emissions. **Customers who want to re-export this product to a country other than that to which it was sold must ensure the device is approved in the destination country.** The Sure Cross wireless products were certified for use in these countries using the antenna that ships with the product. When using other antennas, verify you are not exceeding the transmit power levels allowed by local governing agencies. This device has been designed to operate with the antennas listed on Banner Engineering's website and having a maximum gain of 9 dBm. Antennas not included in this list or having a gain greater than 9 dBm are strictly prohibited for use with this device. The required antenna impedance is 50 ohms. To reduce potential radio interference to other users, the antenna type and its gain should be so chosen such that the equivalent isotropically radiated power (EIRP) is not more than that permitted for successful communication. Consult with Banner Engineering Corp. if the destination country is not on this list.

IMPORTANT:
- **Never operate a radio without connecting an antenna**
- Operating radios without an antenna connected will damage the radio circuitry.
- To avoid damaging the radio circuitry, never apply power to a Sure Cross® Performance or Sure Cross® MultiHop radio without an antenna connected.

IMPORTANT:
- **Electrostatic discharge (ESD) sensitive device**
- ESD can damage the device. Damage from inappropriate handling is not covered by warranty.
- Use proper handling procedures to prevent ESD damage. Proper handling procedures include leaving devices in their anti-static packaging until ready for use; wearing anti-static wrist straps; and assembling units on a grounded, static-dissipative surface.

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.

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

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Notas Adicionales (con Antena)

Información México: La operación de este equipo está sujeta a las siguientes dos condiciones: 1) es posible que este equipo o dispositivo no cause interferencia perjudicial y 2) este equipo debe aceptar cualquier interferencia, incluyendo la que pueda causar su operación no deseada.

Banner es una marca registrada de Banner Engineering Corp. y podrán ser utilizadas de manera indistinta para referirse al fabricante. "Este equipo ha sido diseñado para operar con las antenas tipo Omnidireccional para una ganancia máxima de antena de 6 dBd y Yagi para una ganancia máxima de antena 10 dBd que en seguida se enlistan. También se incluyen aquellas con aprobación ATEX tipo Omnidireccional siempre que no excedan una ganancia máxima de antena de 6dBd. El uso con este equipo de antenas no incluidas en esta lista o que tengan una ganancia mayor que 6 dBd en tipo omnidireccional y 10 dBd en tipo Yagi, quedan prohibidas. La impedancia requerida de la antena es de 50 ohms."

Approved Antennas

BWA-9O2-C--Antena, Omni 902-928 MHz, 2 dBd, junta de caucho, RP-SMA Macho
BWA-9O5-C--Antena, Omni 902-928 MHz, 5 dBd, junta de caucho, RP-SMA Macho
BWA-9O6-A--Antena, Omni 902-928 MHz, 6 dBd, fibra de vidrio, 1800mm, N Hembra
BWA-9Y10-A--Antena, Yagi, 900 MHz, 10 dBd, N Hembra

Mexican Importer

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