



SureCross™ DX80K Wireless Configured Kit

Discrete I/O between an M-GAGE™ Gateway and M-GAGE Node



Features

The SureCross™ DX80 is a radio frequency network system built around a Gateway and one or more Nodes. Configured kits are packaged in a box with the preset Gateway, Node(s), accessories, and hardware to get up and running quickly.

- Gateway input-to-output mapping provides an input on the Gateway mapped to the baseline function on the M-GAGE™ Node
- Kit is defined as one Gateway and one Node; up to five M-GAGE Nodes can be expanded to the kit
- M-GAGE input is mapped to the Gateway's output
- +10 to 30V dc powered Gateway and FlexPower™ M-GAGE Nodes
- Proprietary radio optimized for effective power management
- Frequency Hopping Spread Spectrum (FHSS) technology and Time Division Multiple Access (TDMA) control architecture combine to ensure reliable data delivery within the unlicensed Industrial, Scientific, and Medical (ISM) bands
- Transceivers provide two-way communication between the Gateway and Node, including fully acknowledged data transmission
- Site Survey analyzes the network's signal strength and reliability

For additional information and a complete list of accessories, including FCC approved antennas, please refer to Banner Engineering's website, www.bannerengineering.com/surecross.

Models

Model	Power	Frequency	I/O
DX80K9M6VE1	+10 to 30V dc (Gateway)	900 MHz ISM Band	Discrete Inputs: Six Sourcing (Gateway), M-GAGE (Node) Discrete Outputs: Six Sourcing (Gateway)
DX80K2M6VE1	3.6V dc Battery (Node)	2.4 GHz ISM Band	

WARNING . . . Not To Be Used for Personnel Protection

Never use these products as sensing devices for personnel protection. Doing so could lead to serious injury or death.

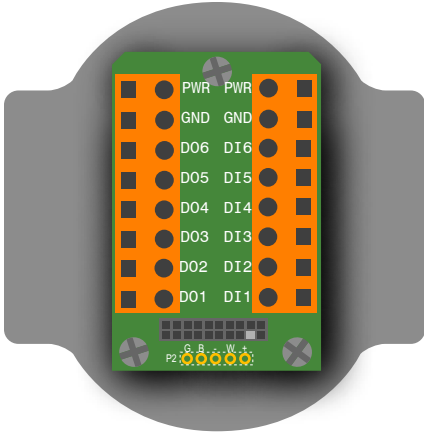
These sensors do NOT include the self-checking redundant circuitry necessary to allow their use in personnel safety applications. A sensor failure or malfunction can cause either an energized or de-energized sensor output condition. Consult your current Banner Safety Products catalog for safety products which meet OSHA, ANSI and IEC standards for personnel protection.



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Hookup Diagrams

Extended I/O Terminal Block



Configured input/output mapping

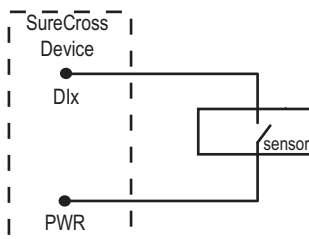
I/O Point	Terminal Block Label	DX80 Gateway	DX80 Node	Terminal Block Label	I/O Point	
1	DI1	Discrete IN 1	Baseline Command		14	Node 1
2	DI2	Discrete IN 2	Baseline Command		14	Node 2
3	DI3	Discrete IN 3	Baseline Command		14	Node 3
4	DI4	Discrete IN 4	Baseline Command		14	Node 4
5	DI5	Discrete IN 5	Baseline Command		14	Node 5
6	DI6	Discrete IN 6	Baseline Command		14	Node 6
9	DO1	Discrete OUT 1	M-GAGE IN 1	DI1	1	Node 1
10	DO2	Discrete OUT 2	M-GAGE IN 1	DI1	1	Node 2
11	DO3	Discrete OUT 3	M-GAGE IN 1	DI1	1	Node 3
12	DO4	Discrete OUT 4	M-GAGE IN 1	DI1	1	Node 4
13	DO5	Discrete OUT 5	M-GAGE IN 1	DI1	1	Node 5
14	DO6	Discrete OUT 6	M-GAGE IN 1	DI1	1	Node 6

5-pin M12 Euro Hookup

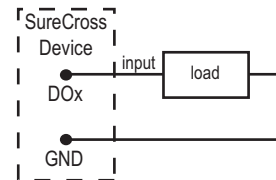


1	Brown	10 to 30V dc Input
2	White	RS485 / D1 / B / +
3	Blue	dc common (GND)
4	Black	RS485 / D0 / A / -
5	Gray	Comms Gnd

Sourcing Input Wiring



Sourcing Output Wiring



For additional information, including installation and setup, weatherproofing, device menu maps, troubleshooting, and a list of accessories, please refer to the SureCross™ DX80 Wireless I/O Network product manual, Banner p/n 132607.

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Specifications

Many of the DX80 parameters are configurable. The values in the tables represent factory defaults unless otherwise noted.

General

Power*	Gateway: +10 to 30V dc (For European applications: +10 to 24V dc, $\pm 10\%$) Node: Internal battery
Power Consumption	Less than 1.4 W (60 mA) at 24V dc
Mounting	#10 or M5 (M5 hardware included)
M5 fasteners – Max. Tightening Torque	0.56 N•m (5 in•lbf)
Case Material	Polycarbonate
Weight	0.26 kg (0.57 lb.)
Indicators	Two LED, bi-color
Switches	Two Push Buttons
Display	Six Character LCD
External Cable Glands	Four PG-7 type, One 1/2 NPT type
Cable Glands, Max Tightening Torque	0.56 N•m (5 in•lbf)

* For European applications, power the DX80 from a Limited Power Source as defined in EN 60950-1.

Radio

	900 MHz	2.4 GHz
Range, with standard 2 dB antenna*	Up to 4.8 kilometers (3 miles)	Up to 3.2 kilometers (2 miles)
Frequency	902 to 928 MHz ISM band	2.4 to 2.4835 GHz ISM Band
Transmit Power	21 dBm Conducted	18 dBm Conducted, ≤ 20 dBm EIRP
Spread Spectrum Technology	FHSS (Frequency Hopping Spread Spectrum)	FHSS (Frequency Hopping Spread Spectrum)
Antenna Connector	Ext. Reverse Polarity SMA - 50 Ohms	Ext. Reverse Polarity SMA - 50 Ohms
Antenna - Max Tightening Torque	0.45 N•m (4 in•lbf)	0.45 N•m (4 in•lbf)
Link Timeout	Configurable, up to 2 minutes	Configurable, up to 2 minutes

* The range depends on the environment and line of sight. High-gain antennas are available to increase the range.

Inputs

Discrete Inputs	Six Sourcing (Gateway)
Discrete Input Rating	3 mA max current at 30V dc
Discrete Input Sample Rate	62.5 milliseconds
Discrete Input Report Rate	On Change of State
Discrete Input ON Condition	Greater than 8V
Discrete Input OFF Condition	Less than 5V

Outputs

Discrete Outputs	Six Sourcing (Gateway)
Discrete Output Rating	100 mA max current at 30V dc, ON-State Saturation: Less than 2V at 100 mA, OFF-state Leakage: Less than 10 μ A
Discrete Output Update Rate	62.5 milliseconds
Discrete Output ON Condition	Supply minus 2V
Discrete Output OFF Condition	Less than 2V
Discrete Output State Following Timeout	De-energized (OFF)

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Specifications, continued



Environmental

Environmental Rating*	IEC IP67; NEMA 6
Operating Temperature**	-40 to +85° C (Electronics); -20 to +80° C (LCD)
Operating Humidity	95% max. relative (non-condensing)
Radiated Immunity	10 V/m, 80-2700 MHz (EN61000-6-2)
Shock and Vibration	IEC 68-2-6 and IEC 68-2-7 Shock: 30g, 11 millisecond half sine wave, 18 shocks Vibration: 0.5 mm p-p, 10-60 Hz

* Please refer to the SureCross™ DX80 Wireless I/O Network product manual, Banner p/n 132607, for installation and waterproofing instructions.


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

Compliance

900 MHz Models	FCC ID TGUDX80: This device complies with FCC Part 15, Subpart C, 15.247 IC: 7044A-DX8009 
2.4 GHz Models	FCC ID UE300DX80-2400: This device complies with FCC Part 15, Subpart C, 15.247 ETSI/EN: In accordance with EN 300 328: V1.7.1 (2006-05) IC: 7044A-DX8024 

It is Banner Engineering's 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 that the device is approved in the destination country. A list of approved countries appears in the SureCross DX80 Wireless Product Manual, in the Agency Certifications section. Consult with Banner Engineering if the destination country is not on this list.

The manufacturer does not take responsibility for the violation of any warning listed in this document.



CAUTION . . .
 Make no modifications to this product.

Any modifications to this product not expressly approved by Banner Engineering could void the user's authority to operate the product. Contact the Factory for more information.

Always use lightning arrestors/surge protection with all remote antenna systems to avoid invalidating the Banner Engineering Corp. warranty. No surge protector can absorb all lightning strikes. Do not touch the SureCross device or any equipment connected to the SureCross device during a thunderstorm.

WARRANTY: Banner Engineering Corp. warrants its products to be free from defects for one year. Banner Engineering Corp. will repair or replace, free of charge, any product of its manufacture found to be defective at the time it is returned to the factory during the warranty period. This warranty does not cover damage or liability for the improper application of Banner products. This warranty is in lieu of any other warranty either expressed or implied.

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