



## Wireless

Banner Engineering's SureCross wire replacement products are designed to be easy to use. The most basic network includes a Gateway and one Node. Many of these simple-to-use models include pre-defined I/O mapping between two devices.

# WIRELESS

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Simple Wire Replacement      **page 648**

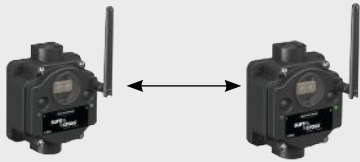
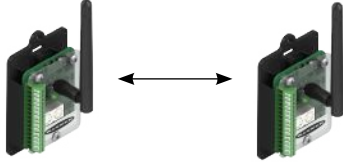
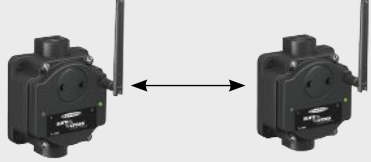
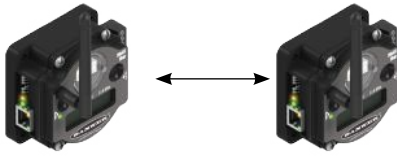

Wireless Sensors                      **page 658**

Network Radios                      **page 664**

# Simple Wire Replacement

Extend your range and eliminate the need for wires for the most common communication signals including discrete, analog, serial and Ethernet.

- Easy to apply, use and support
- Simple yet highly expandable
- Easy to deploy

Model	Inputs/Outputs	Node	Gateway	Inputs/Outputs	Page
PM Series	PM2: 4 selectable discrete/ 2 analog inputs 4 selectable discrete/ 2 analog outputs			PM2: 4 selectable discrete/ 2 analog inputs 4 selectable discrete/ 2 analog outputs	649
	PM8: 6 sourcing discrete inputs 6 sourcing outputs			PM8: 6 sourcing discrete inputs 6 sourcing outputs	650
PB2	2 selectable discrete & 2 analog inputs 2 selectable discrete & 2 analog outputs			2 selectable discrete & 2 analog inputs 2 selectable discrete & 2 analog outputs	652
Serial Radio	RS-232 or RS-485			RS-232 or RS-485	654
Ethernet Radio	Ethernet TCP/IP, RS-232 or RS-485			Ethernet TCP/IP, RS-232 or RS-485	656
DXER9	Ethernet TCP/IP			Ethernet TCP/IP	657



# PM2 Series Digital Wire Replacement

The SureCross® PM Series radios easily replaces Discrete and Analog signal wires, and with no setup software needed, the radios are easy to apply, use and support.

- Simple yet highly expandable
- Eight LCD menu selectable I/O mapping options
- IP67 rated housing for use in demanding environments
- One Gateway can support up to 6 nodes

## PM2 Gateway, 10-30 V DC

I/O	Frequency	Range†	Environmental Rating	Models*
<b>Inputs:</b> Four selectable discrete & Two 0-20 mA analog <b>Outputs:</b> Four sourcing discrete & Two 0-20 mA analog	900 MHz	6 miles	IP67, NEMA 6	<b>DX80G9M6S-PM2</b>
	2.4 GHz	2 miles		<b>DX80G2M6S-PM2</b>

## PM2 Node, 10-30 V DC

I/O	Frequency	Range†	Environmental Rating	Models*
<b>Inputs:</b> Four selectable discrete & Two 0-20 mA analog <b>Outputs:</b> Four sourcing discrete & Two 0-20 mA analog	900 MHz	6 miles	IP67, NEMA 6	<b>DX80N9X6S-PM2</b>
	2.4 GHz	2 miles		<b>DX80N2X6S-PM2</b>

## PM2 Kits, 10-30 V DC

I/O	Frequency	Range†	Environmental Rating	Description	Models*
<b>Inputs:</b> Four selectable discrete & Two 0-20 mA analog <b>Outputs:</b> Four sourcing discrete & Two 0-20 mA analog	900 MHz	6 miles	IP67, NEMA 6	Includes one PM2 Gateway, and one PM2 Node	<b>DX80K9M6</b>
	2.4 GHz	2 miles			<b>DX80K2M6-PM2</b>

For accessories see page 670.

\* Must be used with 900 MHz Node

\*\* Must be used with 2.4 GHz Node

† Line of sight with included 2 dB antenna. High-gain antennas available for increased range. See page 670.



## PM8 Series Digital Wire Replacement

The SureCross® PM Series radios easily replaces Discrete and Analog signal wires, and with no setup software needed, the radios are easy to apply, use and support.

- Simple yet highly expandable
- Eight LCD menu selectable I/O mapping options
- IP67 rated housing for use in demanding environments
- One Gateway can support up to 6 nodes

### PM8 Gateway, 10-30 V DC

I/O	Frequency	Range†	Environmental Rating	LCD Screen	Models
<b>Inputs:</b> Six sourcing discrete	900 MHz	6 miles	IP67, NEMA 6	Yes	<b>DX80N9X6S-PM8</b>
<b>Outputs:</b> Six sourcing discrete	2.4 GHz	2 miles			<b>DX80G2M6S-PM8</b>

### PM8 Node, 10-30 V DC

I/O	Frequency	Range†	Environmental Rating	LCD Screen	Models
<b>Inputs:</b> Six sourcing discrete	900 MHz*	6 miles	IP67, NEMA 6	Yes	<b>DX80N9X6S-PM8</b>
<b>Outputs:</b> Six sourcing discrete	2.4 GHz**	2 miles			<b>DX80N2X6S-PM8</b>

### PM8L Node, 10-30 V DC

I/O	Frequency	Range†	Environmental Rating	LCD Screen	Models
<b>Inputs:</b> Six sourcing discrete	900 MHz*	6 miles	IP67, NEMA 6	No	<b>DX80N9X6S-PM8L</b>
<b>Outputs:</b> Six sourcing discrete	2.4 GHz**	2 miles			<b>DX80N2X6S-PM8L</b>

### PM8 Kits, 10-30 V DC

I/O	Frequency	Range†	Environmental Rating	Description	Models
<b>Inputs:</b> Six sourcing discrete	900 MHz	6 miles	IP67, NEMA 6	Includes one PM8 Gateway, and one PM8 Node	<b>DX80K9M6-PM8</b>
<b>Outputs:</b> Six sourcing discrete	2.4 GHz	2 miles			<b>DX80K2M6-PM8</b>

For accessories see page 670.

\* Must be used with 900 MHz Gateway

\*\* Must be used with 2.4 GHz Gateway

† Line of sight with included 2 dB antenna. High-gain antennas available for increased range. See page 670.

### PM Series Specifications

<b>Power</b>	10 to 30 V dc (For European applications: 12 to 24 V dc, +/- 10%)
<b>Radio Range</b>	<b>900 MHz:</b> Up to 9.6 kilometers (6 miles)* <b>2.4 GHz:</b> Up to 3.2 kilometers (2 miles)* * Line of sight with included 2 dB antenna. High-gain antennas available for increased range. See page 670.
<b>Transmit Power</b>	<b>900 MHz (1 Watt):</b> 30 dBm (1 W) conducted (up to 36 dBm EIRP) <b>2.4 GHz:</b> 18 dBm (65 mW) conducted, less than or equal to 20 dBm (100 mW) EIRP
<b>Network Size</b>	1 Gateway and 1 Node, pre-mapped from factory Other advanced options available. See data sheet for more information.
<b>I/O</b>	Discrete and Analog depending on model
<b>Power Consumption</b>	<b>900 MHz Consumption:</b> Maximum current draw is <100 mA and typical current draw is <50 mA at 24 V dc. 2.4 GHz consumption is less
<b>Environmental Rating</b>	IEC IP67; NEMA 6

See [Bannerengineering.com](http://Bannerengineering.com) for more detailed specifications.





## PB2 Board Module

### Discrete & Analog Wire Replacement

SureCross® Performance embeddable board modules were specifically designed for the needs of industrial users to provide connectivity where traditional wired connections are not possible or cost prohibitive.

- Simple yet highly expandable
- Supports Point to Point and Star network topologies
- One Gateway can support up to 2 nodes

#### PB2 Gateway, 10-30 V DC

I/O	Frequency	Range†	Environmental Rating	Models
<b>Inputs:</b> Two sourcing discrete & Two 0-20 mA analog	900 MHz*	6 miles	IP67, NEMA 6	<b>DX80G9M6S-PB2</b>
<b>Outputs:</b> Two sourcing discrete & Two 0-20 mA analog	2.4 GHz**	2 miles		<b>DX80G2M6S-PB2</b>

#### PB2 Node, 10-30 V DC

I/O	Frequency	Range†	Environmental Rating	Models
<b>Inputs:</b> Two sourcing discrete & Two 0-20 mA analog	900 MHz*	6 miles	IP67, NEMA 6	<b>DX80N9X6S-PB2</b>
<b>Outputs:</b> Two sourcing discrete & Two 0-20 mA analog	2.4 GHz**	2 miles		<b>DX80N2X6S-PB2</b>

For accessories see page 670.

\* Must be used with 900 MHz Gateway

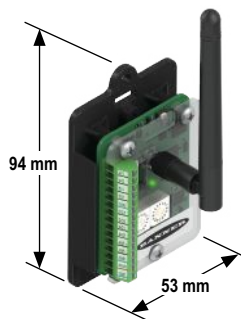
\*\* Must be used with 2.4 GHz Gateway

† Line of sight with included 2 dB antenna. High-gain antennas available for increased range. See page 670.

## PB2 Specifications

<b>Range</b>	<b>900 MHz:</b> Up to 9.6 kilometers (6 miles)* <b>2.4 GHz:</b> Up to 3.2 kilometers (2 miles)* * Line of sight with included 2 dB antenna. High-gain antennas available for increased range. See page 670.
<b>Transmit Power</b>	<b>900 MHz (1 Watt):</b> 30 dBm (1 W) conducted (up to 36 dBm EIRP) <b>2.4 GHz:</b> 18 dBm (65 mW) conducted, less than or equal to 20 dBm (100 mW) EI
<b>Network Size</b>	1 Gateway and 1 Node, pre-mapped from factory Other advanced options available. Contact factory for more information.
<b>I/O</b>	Discrete, Analog
<b>Power</b>	10 to 30 V dc (For European applications: 12 to 24 V dc, +/- 10%)
<b>Power Consumption</b>	<b>900 MHz, 1 Watt:</b> Approx. 30 mA <b>900 MHz, 250 mW:</b> Approx. 25 mA <b>2.4 GHz, 65 mW:</b> Approx. 20 mA

See [Bannerengineering.com](http://Bannerengineering.com) for more detailed specifications.







# Serial Data Radio

## Serial Wire Replacement

SureCross® MultiHop Serial Data Radios are wireless industrial communication devices used to extend the range of serial communication networks.

- DIP switches select operational modes
- FHSS radios operate and synchronize automatically
- Support RS-232 or RS-485

### SR 900 MHz, 10-30 V DC

Environmental Rating	Protocol	Range	Models*
IP67, NEMA 6	RS-232 or RS-45	6 miles**	DX80SR9M-H

\* Must be used with 900 MHz Node

### SR 2.4 GHz, 10-30 V DC

Environmental Rating	Protocol	Range	Models*
IP67, NEMA 6	RS-232 or RS-45	2 miles**	DX80SR2M-H

\* Must be used with 2.4 GHz Node

For accessories see page 670.

\*\* Line of sight with included 2 dB antenna. High-gain antennas available for increased range. See page 670.

### Serial Radio Specifications

<b>Range</b>	<b>900 MHz:</b> Up to 9.6 kilometers (6 miles)* <b>2.4 GHz:</b> Up to 3.2 kilometers (2 miles)* * Line of sight with included 2 dB antenna. High-gain antennas available for increased range. See page 670.
<b>Transmit Power</b>	<b>900 MHz (1 Watt):</b> 30 dBm (1 W) conducted (up to 36 dBm EIRP) <b>2.4 GHz:</b> 18 dBm (65 mW) conducted, less than or equal to 20 dBm (100 mW) EI
<b>Network Size</b>	One Master Radio and multiple Slave radios per network. Other advanced options available. Contact factory for more information.
<b>Power</b>	10 to 30 V dc (For European applications: 12 to 24 V dc, +/- 10%)
<b>Environmental Rating</b>	IEC IP67; NEMA 6

See [Bannerengineering.com](http://Bannerengineering.com) for more detailed specifications.



# Ethernet Data Radio

## Ethernet & Serial Wire Replacement

SureCross® MultiHop Ethernet Data Radios are wireless industrial communication devices used to extend the range of serial communication networks.

- No IP address configuration is required
- Built-in site survey mode enables rapid assessment of a location's RF transmission properties



### ER 900 MHz, 10-30 V DC

Environmental Rating	Protocol	Range	Models*
IP20, NEMA 1	Ethernet	6 miles**	DX80ER9M-H

\* MUST BE USED WITH 900 MHz MODELS

### ER 2.4 GHz, 10-30 V DC

Environmental Rating	Protocol	Range	Models*
IP20, NEMA 1	Ethernet	2 miles**	DX80ER2M-H

\* MUST BE USED WITH 2.4 GHz MODELS

### Ethernet Radio Specifications

<b>Range</b>	<b>900 MHz:</b> Up to 9.6 kilometers (6 miles)* <b>2.4 GHz:</b> Up to 3.2 kilometers (2 miles)* * Line of sight with included 2 dB antenna. High-gain antennas available for increased range. See page 670.
<b>Transmit Power</b>	<b>900 MHz (1 Watt):</b> 30 dBm (1 W) conducted (up to 36 dBm EIRP) <b>2.4 GHz:</b> 18 dBm (65 mW) conducted, less than or equal to 20 dBm (100 mW) EI
<b>Network Size</b>	One Master Radio and multiple Slave radios per network. Other advanced options available. Contact factory for more information.
<b>Power</b>	10 to 30 V dc (For European applications: 12 to 24 V dc, +/- 10%)
<b>Environmental Rating</b>	IEC IP67; NEMA 6

See [Bannerengineering.com](http://Bannerengineering.com) for more detailed specifications.



For accessories see page 670.

\*\* Line of sight with included 2 dB antenna. High-gain antennas available for increased range. See page 670.



# DXER9 Ethernet Data Radio

## Ethernet Wire Replacement

The SureCross® Ethernet radio is an industrial grade, long range, 900 MHz radio used to create point to multipoint configurations of wireless Ethernet networks.

- DIP switches select operational modes
- FHSS radios operate and synchronize automatically

### DXER9 900 MHz, 10-30 V DC

Environmental Rating	Transmit Range	Range	Models*
IP55	125 mW	40 miles LOS with 15 dBi antenna	DXER9

\* Available in 900 MHz frequency only

### DXER9 Specifications

Range	900 MHz: Up to 40 miles* * Line of sight with 15 dBi antenna
Output Power	+21 dBm (4 Watts EIRP used with 15 dBi antenna)
Power Consumption	Transmit: 1.7 Watts Receive: 0.8 Watts
Power	10 to 30 V dc (For European applications: 12 to 24 V dc, +/- 10%)
Environmental Rating	IEC IP55; NEMA 4X

See [Bannerengineering.com](http://Bannerengineering.com) for more detailed specifications.

