



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

Simple Wire Replacement **page 648**

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DX80 Performance Series Gateways, Boards, Nodes, 10-30V DC

Create point to multi point networks that distribute I/O over large areas. Input and output types include discrete (dry contact, PNP/NPN), analog (0 to 10 V dc, 0 to 20 mA), temperature (thermocouple and RTD), and pulse counter.

- Enhanced gateways and nodes offer increased range in the 900 MHz frequency band
- High density I/O capacity provides up to 12 discrete inputs or outputs or a mix of discrete and analog I/O
- Universal analog inputs allow current or voltage to be selected in the field

DX80 Performance Gateways, 10-30 V DC

I/O	Frequency	Housing	Models*
N/A	900 MHz	Low Profile	DX80G9M2S-P
	2.4 GHz		DX80G2M2S-P
Inputs: Four selectable discrete, two 0–20 mA or 0–10 V analog Outputs: Four sourcing discrete, two 0–20mA analog	900 MHz	IP67	DX80G9M6S-P2
	2.4 GHz		DX80G2M6S-P2
Inputs/Outputs: Up to 12 NPN inputs or up to 12 NMOS outputs, or a mix of inputs and outputs not exceeding 12 I/O points	900 MHz	IP67	DX80G9M2S-P7
	2.4 GHz		DX80G2M2S-P7
Inputs/Outputs: Up to 12 PNP inputs or up to 12 PNP outputs, or a mix of inputs and outputs not exceeding 12 I/O points	900 MHz	IP67	DX80G9M6S-P8
	2.4 GHz		DX80G2M6S-P8

* Must be used with 2.4 GHz Gateway

DX80 Performance Gateways, board only models, 10-30 V DC

I/O	Frequency	Housing	Models*
Inputs: Two sourcing discrete, two 0-20 mA analog Outputs: Two sourcing discrete, two 0-20 mA analog	900 MHz	Low Profile	DX80G9M6S-PB2
	2.4 GHz		DX80G2M6S-PB2

* Must be used with 2.4 GHz Gateway

DX80 Performance nodes, board only models, 10-30 V DC

I/O	Frequency	Housing	Models*
Inputs: Two NPN discrete, two 0-20 mA analog Outputs: Two NMOS discrete Switch Power: Two	900 MHz		DX80N9X2S-PB1
	2.4 GHz		DX80N2X2S-PB1
Inputs: Two PNP discrete, two 0-20 mA analog Outputs: Two PNP discrete, two 0-20 mA analog	900 MHz		DX80N9X6S-PB2
	2.4 GHz		DX80N2X6S-PB2

* Must be used with 2.4 GHz Gateway

DX80 Performance nodes, 10-30 V DC

I/O	Frequency	Models*
Discrete Mode Inputs: Two selectable discrete and two thermistor Outputs: Two NMOS discrete Switch Power: Two	900 MHz	DX80N9X2S-P1
	2.4 GHz	DX80N2X2S-P1
Analog Mode Inputs: Two selectable discrete, two analog (0-20 mA or 0-10 V), and two thermistor Outputs: Two NMOS discrete Switch Power: One	900 MHz	DX80N9X1S-P1E
	2.4 GHz	DX80N2X1S-P1E
Inputs: Four selectable discrete, two 0-20 mA or 0-10 V (universal) analog Outputs: Four PNP discrete, two 0-20mA analog	900 MHz	DX80N9X6S-P2
	2.4 GHz	DX80N2X6S-P2
Inputs: Two selectable discrete, four thermocouple, one thermistor for CJC Outputs: One NMOS discrete	900 MHz	DX80N9X2S-P3
	2.4 GHz	DX80N2X2S-P3
	900 MHz	DX80N9X1S-P3E
	2.4 GHz	DX80N2X1S-P3E
Inputs: Four 3-wire RTDs	900 MHz	DX80N9X2S-P4
	2.4 GHz	DX80N9X1S-P4E
Inputs: Two NPN discrete, four selectable analog (0-20 mA or 0-10 V) Outputs: Two NMOS discrete Switch Power: Two	900 MHz	DX80N9X2S-P5
	2.4 GHz	DX80N2X2S-P5
Inputs: 1-Wire serial interface for one serial sensing device	900 MHz	DX80N9X1S-P6
	2.4 GHz	DX80N2X1S-P6
Inputs/Outputs: Up to 12 NPN inputs or up to 12 NMOS outputs, or a mix of inputs and outputs not exceeding 12 I/O points	900 MHz	DX80N9X2S-P7
	2.4 GHz	DX80N2X2S-P7
Inputs/Outputs: Up to 12 PNP inputs or up to 12 PNP outputs, or a mix of inputs and outputs not exceeding 12 I/O points	900 MHz	DX80N9X6S-P8
	2.4 GHz	DX80N2X6S-P8
Inputs: Two selectable discrete Outputs for DC Latch: DC Latch	900 MHz	DX80N9X2S-DCLATCHE
	2.4 GHz	DX80N2X2S-DCLATCHE

* Must be used with 2.4 GHz Gateway

10 to 30 V dc, solar, or battery power sources



DX80 Performance Series 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 for more detailed specifications.



Mulithop Modbus Modbus Radios and Boards with I/O

MultiHop Modbus data radios extend the range of Modbus or other Serial communication networks. Each radio may be set to act as either a master, repeater or slave. Models are available with built in discrete and analog I/O, which can be accessed using the Modbus protocol.

- Self-healing, auto routing RF network with multiple hops extends the network's range
- Flexible: dip switch selectable to be a master, repeater or slave
- User selectable communication between RS-485 and RS-232

MultiHop Modbus radios with I/O

I/O	Frequency	Housing	Models*
Inputs: Four discrete, two 0-20 mA analog, one thermistor, one counter Outputs: Two NMOS discrete Switch Power: Two Serial interface: RS-485	900 MHz	IP67	DX80DR9M-H1
		IP54	DX80DR9M-H1E
	2.4 GHz	IP67	DX80DR2M-H1
		IP54	DX80DR2M-H1E
Inputs: Four discrete, two 0-20 mA analog Outputs: Four sourcing discrete, two 0-20 mA analog Serial interface: RS-485	900 MHz	IP67	DX80DR9M-H2
	2.4 GHz	IP67	DX80DR2M-H2
Inputs: Two discrete, four thermocouple, one thermistor (internal) Outputs: Two NMOS discrete Serial interface: RS-232	900 MHz	IP67	DX80DR9M-H3
	2.4 GHz	IP54	DX80DR9M-H3E
	900 MHz	IP67	DX80DR2M-H3
	2.4 GHz	IP54	DX80DR2M-H3E
Inputs: Four 3-wire Pt100 RTD Serial interface: RS-232	900 MHz	IP67	DX80DR9M-H4
	2.4 GHz	IP54	DX80DR9M-H4E
	900 MHz	IP67	DX80DR2M-H4
Inputs: Four sinking discrete, four 0-20 mA analog Outputs: Two NMOS discrete Switch Power: Two Serial Interface: RS-485	900 MHz	IP67	DX80DR9M-H5
	2.4 GHz		DX80DR2M-H5
	900 MHz	IP67	DX80DR9M-H6
2.4 GHz	DX80DR2M-H6		
Inputs: Two discrete, two 0-20 mA analog, one thermistor, one SDI-12 or counter Outputs: Two NMOS discrete Switch Power: Two Serial interface: RS-485	900 MHz	IP67	DX80DR9M-H12
	2.4 GHz		DX80DR2M-H12
Inputs: Two sinking discrete Outputs for DC Latch: DC Latch	900 MHz	IP54	DX80DR9M-DCLATCHE
	2.4 GHz		DX80DR2M-DCLATCHE

* Must be used with 2.4 GHz Gateway

Board level MultiHop Modbus Data Radios with I/O

I/O	Frequency	Models*
Inputs: Two NPN discrete, two 0 to 20 mA analog Outputs: Two NMOS discrete Switch Power Outputs: Two	900 MHz	DX80DR9M-HB1
	2.4 GHz	DX80DR2M-HB1
Inputs: Two PNP discrete, two 0 to 20 mA analog Outputs: Two PNP discrete, two 0 to 20 mA analog	900 MHz	DX80DR9M-HB2
	2.4 GHz	DX80DR2M-HB2

* Must be used with 2.4 GHz Gateway



MultiHop Modbus Specifications

Range	900 MHz: Up to 6 miles
Antenna	Ext. Reverse Polarity SMA, 50 Ohms Max Tightening Torque: 0.45 N m (4 in lbf)
Transmit Power	900 MHz: 30 dBm Conducted (up to 36 dBm EIRP)
Power	10 to 30 V dc (For European applications: 12 to 24 V dc, +/- 10%)
Environmental Rating	M-Hx Models: IEC IP67; NEMA 6

See Bannerengineering.com for more detailed specifications.



Intrinsically Safe Star I/O Network Nodes SureCross® DX99

- Both 900 MHz 150 mW and 2.4 GHz 63 mW models are available
- Networks formed using DX80 Performance Gateways installed beyond the hazardous area and one or more Nodes operating in the same frequency band
- The DX99 is a state-of-the-art combination of wireless communication, battery technology and intrinsically safe electronics
- All models are certified for operation in Class I, Division 1 and ATEX Zone 0 locations



DX99 Nodes, FlexPower™—Class I, Div 1 and Zone 0 (Metal Housing)

I/O	Frequency	Boost Power	Models*
Discrete: Two inputs Analog: Two inputs (0-20 mA)	900 MHz	10 V	DX99N9X1S2N0M2X0D1
		18 V	DX99N9X1S2N0M2X0D2
Discrete: Two inputs Analog: Two inputs (0-10 V)	900 MHz	10 V	DX99N9X1S2N0V2X0D1
		18 V	DX99N9X1S2N0V2X0D2
Discrete: Two inputs Analog: Two inputs (0-20 mA)	2.4 GHz	10 V	DX99N2X1S2N0M2X0D1
		18 V	DX99N2X1S2N0M2X0D2
Discrete: Two inputs Analog: Two inputs (0-10 V)	2.4 GHz	10 V	DX99N2X1S2N0V2X0D1
		18 V	DX99N2X1S2N0V2X0D2
Thermocouple: Three inputs, one thermistor input Discrete: Two (NPN) inputs	900 MHz	n/a	DX99N9X1S2N0T4X0D0
	2.4 GHz		DX99N2X1S2N0T4X0D0
RTD: Four inputs	900 MHz	n/a	DX99N9X1S0N0R4X0D0
	2.4 GHz		DX99N2X1S0N0R4X0D0
Bridge: Two inputs Discrete: Two inputs	900 MHz	n/a	DX99N9X1S2N0B2X0D0
	2.4 GHz		DX99N2X1S2N0B2X0D0
Inputs (Modbus Mode): One RS-485 Inputs (Voltage Mode): Two analog, one discrete	900 MHz	13V	DX99N9X1S1S0V2X0D4
	2.4 GHz		DX99N2X1S1S0V2X0D4
Inputs: One analog input with a 29 second warm-up time; one sinking discrete Additional Input Configurations: One 3-wire 100-Ohm Platinum RTD, one sinking discrete, and two analog (0-20 mA)	900 MHz	19V	DX99N9X1S1N0M3X0D5
	2.4 GHz		DX99N2X1S1N0M3X0D5

* Must be used with 2.4 GHz Gateway

Metal housing models are only available with external antennas and are powered by a 3.6V D cell lithium battery integrated into the housing. Mounting and intrinsically safe antenna installation accessories are available for the metal housing models.

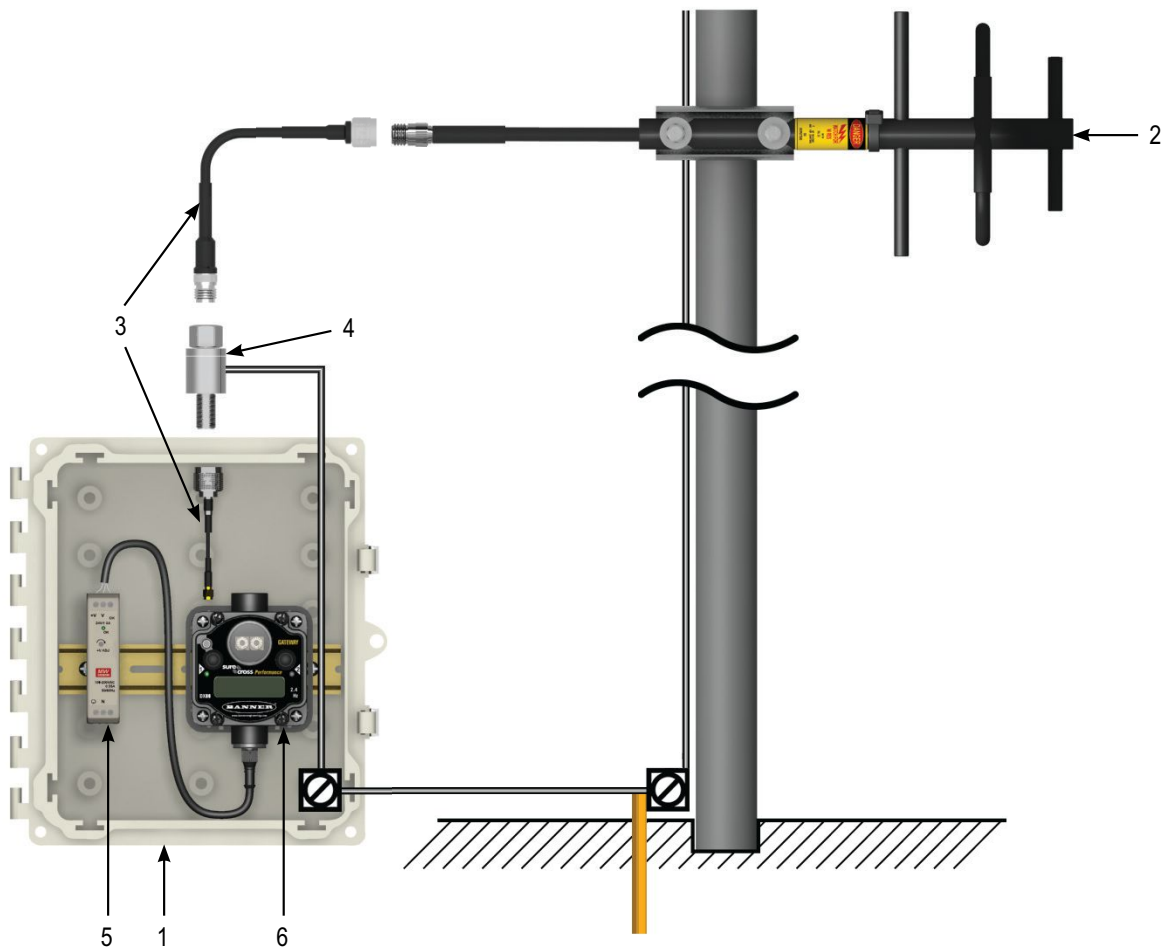
SureCross® DX99 Specifications

Range	900 MHz: Up to 4.8 kilometers (3 miles) 2.4 GHz: Up to 3.2 kilometers (2 miles)	
Transmit Power	900 MHz: 150 mW (21 dBm Conducted) 2.4 GHz: 65 mW (18 dBm Conducted)	
Network Size	One Gateway and up to 47 remotely located Nodes (SureCross Performance or SureCross DX80 Gateway required)	
I/O	Discrete, Analog, Temperature, Bridge	
Gateway Communications	SureCross Performance or SureCross DX80 Gateway required	
Power	3.6V low power option from an internal battery	
Power Consumption	Application Dependent	
Environmental Rating	IEC IP68	
Certifications	DX99, Intrinsically Safe, Metal Housing	
	Class I, Division 1, Groups A, B, C, D; Class II, Division 1, Groups E, F, G; Class III, Division 1 Ex ia IIC T4 AEx ia IIC T4	 Certificate 2008243(LR 41887)
	LCIE/ATEX Zone 0 (Group IIC) and Zone 20 (Group II) II 1 GD Ex ia IIC T4 Ex iaD 20 IP68 T82°C	 Certificate LCIE 08 ATEX 6098X

See Bannerengineering.com for more detailed specifications.

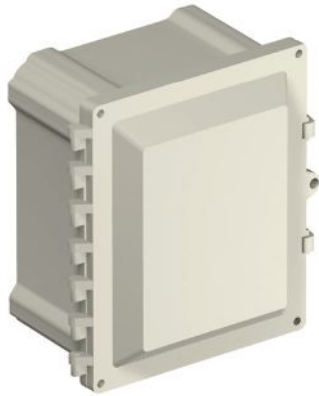


Accessories



NOTE: The Surecross® radio installation shown includes wireless accessories available from Banner. It is for illustration purposes only. Installations may vary.

(1) Enclosures



Description	Model
Enclosure, Polycarbonate, with Opaque Cover, 6 × 6 × 4 in.	BWA-AH664
Enclosure, Polycarbonate, with Opaque Cover, 8 × 6 × 4 in.	BWA-AH864
Enclosure, Polycarbonate, with Opaque Cover, 10 × 8 × 4 in.	BWA-AH1084
Enclosure, Polycarbonate, with Opaque Cover, 12 × 10 × 6 in.	BWA-AH12106
Enclosure, Polycarbonate, with Opaque Cover, 14 × 12 × 6 in.	BWA-AH14126
Enclosure, Polycarbonate, with Opaque Cover, 16 × 14 × 8 in.	BWA-AH16148
Enclosure, Polycarbonate, with Opaque Cover, 18 × 16 × 10 in.	BWA-AH181610
Enclosure, Polycarbonate, with Clear Cover, 6 × 6 × 4 in.	BWA-AH664C
Enclosure, Polycarbonate, with Clear Cover, 8 × 6 × 4 in.	BWA-AH864C
Enclosure, Polycarbonate, with Clear Cover, 10 × 8 × 4 in.	BWA-AH1084C
Enclosure, Polycarbonate, with Clear Cover, 12 × 10 × 6 in.	BWA-AH12106C
Enclosure, Polycarbonate, with Clear Cover, 14 × 12 × 6 in.	BWA-AH14126C
Enclosure, Polycarbonate, with Clear Cover, 16 × 14 × 8 in.	BWA-AH16148C
Enclosure, Polycarbonate, with Clear Cover, 18 × 16 × 10 in.	BWA-AH181610C

Swing Panel Kits

Description	Model
Swing Panel Kit, 6 × 6, Includes Mounts, Screws, and Panel	BWA-AH66SPK
Swing Panel Kit, 8 × 6, Includes Mounts, Screws, and Panel	BWA-AH86SPK
Swing Panel Kit, 8 × 10, Includes Mounts, Screws, and Panel	BWA-AH108SPK
Swing Panel Kit, 12 × 10, Includes Mounts, Screws, and Panel	BWA-AH1210SPK
Swing Panel Kit, 14 × 12, Includes Mounts, Screws, and Panel	BWA-AH1412SPK
Swing Panel Kit, 16 × 14, Includes Mounts, Screws, and Panel	BWA-AH1614SPK
Swing Panel Kit, 18 × 16, Includes Mounts, Screws, and Panel	BWA-AH1816SPK

Mounting Accessories

Description	Model
Slot Nut Kit, Includes 2 Nuts and 2 Screws	BWA-AHSNK
Swing Panel Mounts (4 per Kit)	BWA-AHSPM
Latch Kit, 2 Latches per Kit, Replacement Only	BWA-AHLK
Accessory Kit, Includes all screws, inserts, and mounting feet (Replacement Only)	BWA-AHAK
Screw 10-32 X .375 Phl Ph Zinc Self Threading	BWA-AHTBS

DIN Rail Kits

Description	Model
DIN Rail Kit, 6", Includes 2 Nuts, 2 Screws, and DIN Rail	BWA-AH6DRK
DIN Rail Kit, 8", Includes 2 Nuts, 2 Screws, and DIN Rail	BWA-AH8DRK
DIN Rail Kit, 10", Includes 2 Nuts, 2 Screws, and DIN Rail	BWA-AH10DRK
DIN Rail Kit, 12", Includes 2 Nuts, 2 Screws, and DIN Rail	BWA-AH12DRK
DIN Rail Kit, 14", Includes 2 Nuts, 2 Screws, and DIN Rail	BWA-AH14DRK
DIN Rail Kit, 16", Includes 2 Nuts, 2 Screws, and DIN Rail	BWA-AH16DRK
DIN Rail Kit, 18", Includes 2 Nuts, 2 Screws, and DIN Rail	BWA-AH18DRK


DIN Rail Kits

Description	Model
Din Rail Kit 6" (Includes 2 Tribolar Screws and DIN Rail)	BWA-AH6DR
Din Rail Kit 8" (Includes 2 Tribolar Screws and DIN Rail)	BWA-AH8DR
Din Rail Kit 10" (Includes 2 Tribolar Screws and DIN Rail)	BWA-AH10DR
Din Rail Kit 12" (Includes 2 Tribolar Screws and DIN Rail)	BWA-AH12DR
Din Rail Kit 14" (Includes 2 Tribolar Screws and DIN Rail)	BWA-AH14DR
Din Rail Kit 16" (Includes 2 Tribolar Screws and DIN Rail)	BWA-AH16DR
Din Rail Kit 18" (Includes 2 Tribolar Screws and DIN Rail)	BWA-AH18DR

(2) Antennas


Omni-Directional Antennas with RP-SMA Male Connections

Model

	900 MHz	2 dBi, Rubber swivel (ships with 900 MHz radios)	BWA-902-C
		5 dBi, Rubber swivel	BWA-905-C
	2.4 GHz	2 dBi, Rubber swivel, 3 1/4 inches (ships with 2.4 GHz radios)	BWA-202-C
		5 dBi, Rubber swivel, 6 1/2 inches	BWA-205-C
		7 dBi, Rubber swivel, 9 1/4 inches	BWA-207-C


Omni-Directional Dome Antennas

Model

	900 MHz	2 dBi, 18-inch cable	RP-SMA Box Mount	BWA-902-D
	2.4 GHz	2 dBi, 18-inch cable	RP-SMA Box Mount	BWA-202-D

Omni-Directional Magnetic Whip Antenna

Model

	2.4 GHz	5 dBi, Magnetic whip antenna, 12 ft cable	RP-SMA Male	BWA-205-M
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Omni-Directional Fiberglass Antennas with N-Type Female Connections



			Model
900 MHz	6 dBd, Fiberglass, 71.5 inches		BWA-906-A
	6 dBi, Fiberglass, 23.6 inches (1.3 inch dia.)		BWA-906-AS
	8 dBi, Fiberglass, 63 inches (1.5 inch dia.)		BWA-908-AS
2.4 GHz	8.5 dBi, Fiberglass, 24 inches		BWA-208-A
	6 dBi, Fiberglass, 16 inches (shown)		BWA-206-A

Directional (Yagi) Antennas with N-Type Female Connection




			Model
900 MHz	6.5 dBd, 6.8 × 13 inches Outdoor		BWA-9Y6-A
900 MHz	10 dBd, 6.8 × 24 inches Outdoor		BWA-9Y10-A


Solar Panels




			Model
12V 5W Multicrystalline	270 mm x 222 mm x 17 mm	Bracket mounting 5W solar panel wall / poll clamp style	BWA Solar Panel 5W-002
12V 20W Multicrystalline	573 mm x 357 mm x 30 mm	Bracket mounting 20W solar panel "L" style	BWA Solar Panel 20W-003



(3) Antenna Cables

Antenna Cables: RP-SMA to RP-SMA		Model
	RG58, RP-SMA Male to RP-SMA Female Bulkhead, 0.2 m	BWC-1MRSFRSB0.2
	RG58, RP-SMA Male to RP-SMA Female Bulkhead, 1 m	BWC-1MRSFRSB1
	RG58, RP-SMA Male to RP-SMA Female Bulkhead, 2 m	BWC-1MRSFRSB2
	RG58, RP-SMA Male to RP-SMA Female Bulkhead, 2 m	BWC-1MRSFRSB4
	LMR200, RP-SMA Male to RP-SMA Female, 3 m	BWC-2MRSFRS3
	LMR200, RP-SMA Male to RP-SMA Female, 6 m	BWC-2MRSFRS6
	LMR200, RP-SMA Male to RP-SMA Female, 9 m	BWC-2MRSFRS9
	LMR200, RP-SMA Male to RP-SMA Female, 12 m	BWC-2MRSFRS12



Antenna Cables: RP-SMA to N-Type		Model
	LMR100 RP-SMA to N-Type Male, 0.5 m	BWC-1MRSMN05

Antenna Cables: N-Type		Model
	LMR400 N-Type Male to N-Type Female, 3 m	BWC-4MNFN3
	LMR400 N-Type Male to N-Type Female, 6 m	BWC-4MNFN6
	LMR400 N-Type Male to N-Type Female, 15 m	BWC-4MNFN15
	LMR400 N-Type Male to N-Type Female, 30 m	BWC-4MNFN30


(4) Surge Suppressors

	Description	Model
	Surge Suppressor, bulkhead, N-Type Female, N-Type Male , dc Blocking	BWC-LFNBMN-DC
	Surge Suppressor, bulkhead, RPSMA to RP-SMA	BCW-LMRSFRPB



(5) Power Supplies

		Model
	DC Power Supply, 500 mA, 24 V dc, Demo kit power supply	PS24W
	DC Power Supply, 0.4 Amps, 24 V dc, with DIN Rail Mount	PSDINM-24-04
	DC Power Supply, 1.0 Amps, 24 V dc, with DIN Rail Mount	PSDINM-24-10
	DC Power Supply, 1.7 Amps, 24 V dc, with DIN Rail Mount	PSDINM-24-17
	DC Power Supply, 2.5 Amps, 24 V dc, with DIN Rail Mount	PSDINM-24-25

Relays

		Model
	Interface Relay Box, 18 to 26 V dc inputs, isolated relay outputs (not shown)	IB6RP
	Relay, Blade Style with Base, 12 V	BWA-RELAY-12V
	Relay, Blade Style with Base, 24 V	BWA-RELAY-24V
	Relay, Blade Style, No Base, 12 V (replacement part)	BWA-RH1B-UDC12V
	Relay, Blade Style, No Base, 24 V (replacement part)	BWA-RH1B-UDC24V
	Relay Base Only (replacement part)	BWA-SH1B-05

(6) Brackets

	Description	Model
	Black reinforced thermoplastic Bracket for mounting on a 35 mm DIN rail	SMBDX80DIN
	<ul style="list-style-type: none"> • DIN rail clip, black plastic • Used with the M-HBx MultiHop and -PBx Performance board modules 	BWA-HW-034

Mounting Kit

Description	Model
Screw, M5-0.8 x 25 mm, SS (4) Screw, M5-0.8 x 16 mm, SS (4) Hex nut, M5-0.8 mm, SS (4) Bolt, #8-32 x 3/4", SS (4)	BWA-HW-001

LOOKING FOR MORE



Q45 Wireless

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SureCross Wireless Q45 Sensors combine the best of Banner's flexible Q45 sensor family with its reliable, field-proven, SureCross wireless architecture.