

## Datasheet

The DXM1000-B1 Wireless Controller is an industrial wireless controller that facilitates Industrial Internet of Things (IIoT) applications. As a communications gateway, it interfaces local serial ports, local I/O ports, and local ISM radio devices to the Internet using a cellular connection or wired Ethernet network connection.

- **High Performance Wireless Communication**—Uses Sure Cross® DX80 Wireless Gateway or MultiHop radio with 900 MHz or 2.4 GHz ISM bands available for long range communication
- **Flexible and Customizable**—Expanded internal logic controller with action rules and ScriptBasic programming capable of developing simple or complex solutions to process, log, and control data to/from multiple wireless radios and sensors
- **Improved Speed and Memory**—Upgraded internal processor to use 2850 32-bit integer registers, 2000 floating-point registers, and 1050 non-volatile 32-bit integer registers; expanded ScriptBasic programming capability for faster script processing and ability to build more complex solutions with scripts
- **External Communications**—Cellular modem Internet connectivity
- **Industry Compatibility**—Automation protocols include Modbus/TCP, Modbus RTU, and EtherNet/IP™ for communications between PLCs, HMIs, or other local hosts.
- **Customizable Alerts**—Secure email for alarms and alerts



- Data logged to a removable SD card or sent via email
- Interactive programmable user interface with LCD and LED indicators
- Industry standard RS-485, Ethernet, and USB communication ports
- Universal inputs, including NPN/PNP discrete, 4–20 mA analog, 0–10 V analog, counter, and temperature via a 10 kOhm thermistor
- Synchronous counters with a 10 ms clock rate
- Switched power outputs and courtesy power outputs for powering external devices
- Discrete outputs (NMOS), Analog Outputs, 0–20 mA or 0–10 V DC
- Solar Controller
- For video tutorials on this product, search for "DXM Tutorial" at [youtube.com/bannerengineering](https://www.youtube.com/bannerengineering).



**Important:** Please download the complete DXM1000-B1 Wireless Controller technical documentation, available in multiple languages, from [www.bannerengineering.com](http://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](http://www.bannerengineering.com) toda la documentación técnica de los DXM1000-B1 Wireless Controller, 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 DXM1000-B1 Wireless Controller sur notre site [www.bannerengineering.com](http://www.bannerengineering.com) pour les détails sur leur utilisation correcte, les applications, les notes de sécurité et les instructions de montage.



**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:**

- **Never operate a 1 Watt radio without connecting an antenna**
- Operating 1 Watt 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 (1 Watt) radio without an antenna connected.

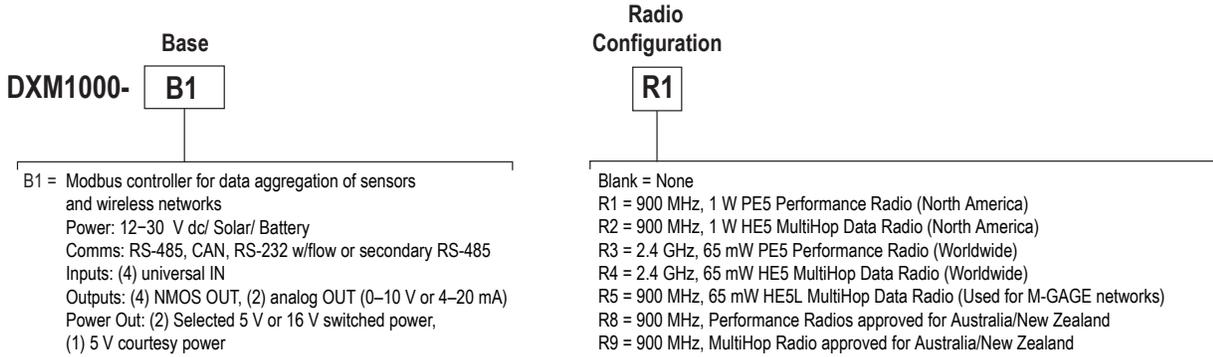




**Important:**

- **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.

## Model Key for the DXM1000-B1 Models



Some example models include, but are not limited to, the following:

Models	Description
<b>DXM1000-B1R1</b>	DXM1000-B1 Wireless Controller with DX80 ISM 900 MHz radio
<b>DXM1000-B1R2</b>	DXM1000-B1 Wireless Controller with DX80 ISM 900 MHz MultiHop radio
<b>DXM1000-B1R3</b>	DXM1000-B1 Wireless Controller with DX80 ISM 2.4 GHz radio
<b>DXM1000-B1R4</b>	DXM1000-B1 Wireless Controller with DX80 ISM 2.4 GHz MultiHop radio

**Cellular Communication**—Controllers accept Banner GSM and LTE modems only. Cellular modems are ordered separately as accessories under the following part numbers:

- GSM/3G (HSPA): **SXI-GSM-001**
- LTE-Verizon: **SXI-LTE-001**

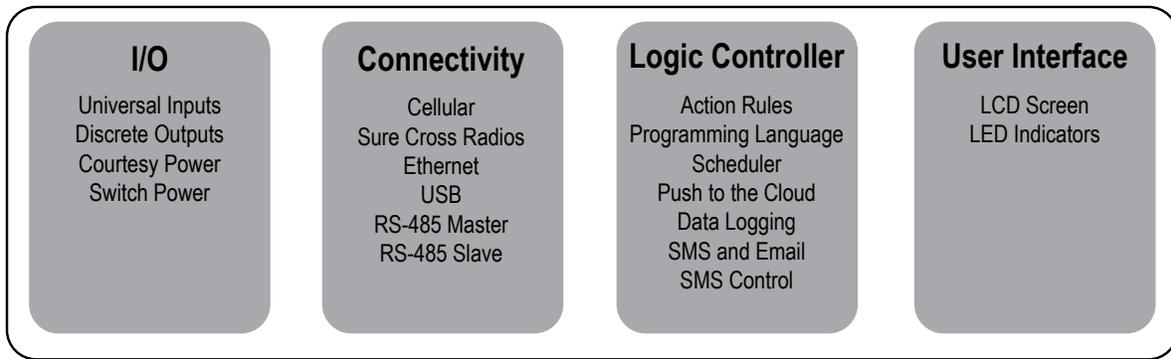
## DXM1000 Documentation

- DXM Wireless Controller Sell Sheet, p/n [194063](#)
- DXM1000-B1 Wireless Controller Datasheet, p/n [210852](#)
- DXM100 and 1000-Bx Wireless Controller Instruction Manual, p/n [190037](#)
- DXM ScriptBasic Instruction Manual, p/n [191745](#)
- DXM Controller Configuration Quick Start, p/n [191247](#)
- DXM Configuration Software (p/n [b\\_4447978](#))
- DXM Configuration Software Instruction Manual, p/n [158447](#)
- DXM EDS [Configuration file](#) for Allen-Bradley PLCs
- EIP Configuration File for DXM 1xx-BxR1 and R3 models (p/n [194730](#))
- Activating a Cellular Modem (p/n [b\\_4419353](#))
- Video tutorials: search "DXM Tutorial" at [youtube.com/bannerengineering](https://www.youtube.com/bannerengineering).
- Additional technical notes

For more information about the DXM1000 family of products, including technical notes, configuration examples, and ScriptBasic program examples, please refer to the Banner website: [www.bannerengineering.com](http://www.bannerengineering.com).

## DXM1000-B1 System Overview

Banner's DXM Logic Controller integrates Banner's wireless radio, cellular connectivity, and local I/O to provide a platform for the Industrial Internet of Things (IIoT).



Modbus Registers for Internal Local Registers (Modbus Slave ID 199)		
Local Registers	Type	Description
1-845	32-bit integer	Local data registers
846-849	32-bit integer	Reset, Constant, Timer
851-900	32-bit non-volatile integer	Data flash, non-volatile
901-1000		Reserved for internal use
1001-5000	Floating point	Floating point registers, local data registers
5001-7000	32-bit integer	Local data registers
7001-8000	32-bit non-volatile integer	Data flash, non-volatile
> 10000		Read only virtual registers, system-level data

**Inputs/Outputs**—On-board universal and programmable I/O ports connect to local sensors, indicators, and control equipment.

- Universal Inputs
- Discrete outputs
- Courtesy power
- Switch power
- Battery backup
- Solar controller

**Connectivity**—The DXM1000's wired and wireless connectivity options make it easy to share data between local and remote equipment. The cellular modem option eliminates the need for IT infrastructures to connect remote equipment for sensing and control. The integrated Sure Cross® wireless radio enables Modbus connectivity to remote sensors, indicators, and control equipment.

**Wired Connectivity**

Ethernet: Modbus TCP or Ethernet/IP  
 Field Bus: Modbus RS-485 Master/Slave or Controller  
 Area Network (CAN)

**Wireless Connectivity**

Sure Cross Wireless Radio: DX80 900 MHz, DX80 2.4 GHz, MultiHop 900 MHz, or MultiHop 2.4 GHz  
 Cellular modem: CDMA (Verizon) or GSM

**Logic Controller**—Program the DXM1000's logic controller using action rules and/or ScriptBasic language, which can execute concurrently. The control functions allow freedom when creating custom sensing and control sequences. The logic controller supports the Modbus protocol standards for data management, ensuring seamless integration with existing automation systems. File and LCD password protection is an option.

**Register Mapping**

- Cyclical Read rules from wireless devices or local wired Modbus devices that include optional scaling, error conditions, and the ability to activate a read rule
- Cyclical or Change of State Write rules to wireless devices or local wired Modbus devices with scaling
- Modbus/TCP Master Read or Write rules for external devices on the network

**Action Rules**

- Thresholds (IF/THEN/ELSE) with timers, minimum on/off time, and logging options
- Math/Logic Rules (arithmetic and bitwise operators)
- Control Logic (logical operators and SR/T/D/JK flip flops)
- Trending (multiple averaging filters)
- Tracking (counts, on/off times)
- Email and SMS text notifications
- Push data on conditions

**Scheduler**

- Time/calendar-based events
- Holiday skips
- One-time events
- Dynamic scheduler updating
- Astronomical clock

**Optional Text Programming Language**

- ScriptBasic to create variables, arrays, functions, loops, IF/THEN/ELSE, logical and arithmetic operators, API commands, register access, string functions and operators, time commands

**Data Logging**

- Cyclic data/event logging
- Email log files

**SMS Commanding**

- Read/Write Local Registers
- Force a push to the cloud
- Reboot the controller

**User Interface**—A simple user interface consists of an LCD screen and four LED indicators. Use the LCD to access system status and setup, view user selectable events or data, and to bind and perform site surveys for Sure Cross radios. Configure the user programmable LEDs to indicate the status of the DXM1000, processes, or equipment.

**User programmable LCD**

Binding Sure Cross radios  
 Conducting a Site Survey  
 Viewing sensor information  
 Viewing the system's status

**User Defined LED indicators**

## Applications Overview

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The DXM1000-B1 Wireless Controller is ideal for smart factory and facilities applications, including:

- Productivity solutions, such as
  - Call for parts, service, or maintenance
  - Pick-to-light
  - Tank level monitoring
- Predictive maintenance and continuous monitoring using
  - Vibration and temperature monitoring
  - Non-contact temperature monitoring
- Environmental monitoring and control, such as
  - Temperature and humidity monitoring

The DXM1000-B1 Wireless Controller can provide visual indication using indicator lights, send text or email alerts, collect data, and interface with automation systems.

## Specifications

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### Performance Radio Specifications

#### Radio Range<sup>1</sup>

900 MHz, 1 Watt: Up to 9.6 km (6 miles)  
2.4 GHz, 65 mW: Up to 3.2 km (2 miles)

#### Antenna Minimum Separation Distance

900 MHz, 1 Watt: 4.57 m (15 ft)  
2.4 GHz, 65 mW: 0.3 m (1 ft)

#### Radio Transmit Power

900 MHz, 1 Watt: 30 dBm (1 W) conducted (up to 36 dBm EIRP)  
2.4 GHz, 65 mW: 18 dBm (65 mW) conducted, less than or equal to 20 dBm (100 mW) EIRP

#### Spread Spectrum Technology

FHSS (Frequency Hopping Spread Spectrum)

#### 900 MHz Compliance (1 Watt)

FCC ID UE3RM1809: FCC Part 15, Subpart C, 15.247  
IC: 7044A-RM1809  
IFT: RCPBARM13-2283

#### 2.4 GHz Compliance

FCC ID UE300DX80-2400: FCC Part 15, Subpart C, 15.247  
Radio Equipment Directive (RED) 2014/53/EU  
IC: 7044A-DX8024

#### Antenna Connection

Ext. Reverse Polarity SMA, 50 Ohms  
Max Tightening Torque: 0.45 N-m (4 lbf-in)

#### Link Timeout

Gateway: Configurable via User Configuration Software  
Node: Defined by Gateway

### MultiHop Radio Specifications

#### Radio Range<sup>2</sup>

900 MHz, 1 Watt: Up to 9.6 km (6 miles)  
2.4 GHz, 65 mW: Up to 3.2 km (2 miles)

#### Antenna Minimum Separation Distance

900 MHz, 150 mW and 250 mW: 2 m (6 ft)  
900 MHz, 1 Watt: 4.57 m (15 ft)  
2.4 GHz, 65 mW: 0.3 m (1 ft)

#### Radio Transmit Power

900 MHz, 1 Watt: 30 dBm (1 W) conducted (up to 36 dBm EIRP)  
2.4 GHz, 65 mW: 18 dBm (65 mW) conducted, less than or equal to 20 dBm (100 mW) EIRP

#### Spread Spectrum Technology

FHSS (Frequency Hopping Spread Spectrum)

#### 900 MHz Compliance (1 Watt)

FCC ID UE3RM1809: FCC Part 15, Subpart C, 15.247  
IC: 7044A-RM1809  
IFT: RCPBARM13-2283

#### 2.4 GHz Compliance (MultiHop)

FCC ID UE300DX80-2400: FCC Part 15, Subpart C, 15.247  
Radio Equipment Directive (RED) 2014/53/EU  
IC: 7044A-DX8024

#### Antenna Connection

Ext. Reverse Polarity SMA, 50 Ohms  
Max Tightening Torque: 0.45 N-m (4 lbf-in)

#### Radio Packet Size (MultiHop)

900 MHz: 175 bytes (85 Modbus registers)  
2.4 GHz: 75 bytes (37 Modbus registers)

### RS-485 Communication Specifications

#### Communication Hardware (MultiHop RS-485)

Interface: 2-wire half-duplex RS-485  
Baud rates: 9.6k, 19.2k (default), or 38.4k via DIP switches; 1200 and 2400 via the MultiHop Configuration Software  
Data format: 8 data bits, no parity, 1 stop bit

### RS-232 Communication Specifications

#### Communication Hardware (MultiHop RS-232)

Interface: 2-wire RS-232  
Baud rates: 9.6k, 19.2k (default), or 38.4k via DIP switches; 1200 and 2400 via the MultiHop Configuration Software  
Data format: 8 data bits, no parity, 1 stop bit

### Power and I/O Specifications

#### Supply Voltage

12 to 30 V DC (use only with a suitable Class 2 power supply (UL) or a SELV (CE) power supply) or  
12 V DC solar panel and 12 V sealed lead acid battery

#### Courtesy Power Out

One output at 5 Volts, 500 mA maximum  
No short circuit protection

#### Power Consumption

35 mA average at 12 Volts (exclusive of load)

#### Solar Power

12 V sealed lead acid battery  
2 A maximum charge current  
12 V, 20 W maximum solar panel

#### Solar Power Battery Charging

1 A maximum with 20 Watt solar panel

#### Switched Power Out

Two selectable 5 V or 16 V outputs  
5 V: 400 mA maximum  
16 V: 125 mA maximum

<sup>1</sup> Radio range is with the 2 dB antenna that ships with the product. High-gain antennas are available, but the range depends on the environment and line of sight. Always verify your wireless network's range by performing a Site Survey.

<sup>2</sup> Radio range is with the 2 dB antenna that ships with the product. High-gain antennas are available, but the range depends on the environment and line of sight. Always verify your wireless network's range by performing a Site Survey.

**Communication Protocols**

Modbus RTU Master/Slave, Modbus/TCP, and Ethernet/IP

**Counters, Synchronous**

32-bits unsigned  
10 ms clock rate minimum

**Universal Inputs**

Sinking/Sourcing discrete, 4–20 mA analog, 0–10 V analog, counter, and temperature 10 kOhm thermistor

**Analog Outputs (DAC)**

0 to 20 mA or 0 to 10 V DC output  
Accuracy: 0.1% of full scale +0.01% per °C  
Resolution: 12-bit

**Security Protocols**

VPN, SSL, and HTTPS

**Construction**

Polycarbonate; DIN rail mount option

**Logging**

8 GB maximum; removable Micro SD card format

**Discrete Output Rating (NMOS)**

Less than 1 A max current at 30 V DC  
ON-State Saturation: Less than 0.7 V at 20 mA  
ON Condition: Less than 0.7 V  
OFF Condition: Open

Environmental Specifications

**Operating Conditions<sup>3</sup>**

-20 °C to +60 °C (-4 °F to +140 °F)  
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: 15G 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 Rating**

IEC IP20

**Certifications**



(CE approval only applies to 2.4 GHz models)



(NOM approval only applies to 900 MHz models)

**Required Overcurrent Protection**



**WARNING:** Electrical connections must be made by qualified personnel in accordance with local and national electrical codes and regulations.

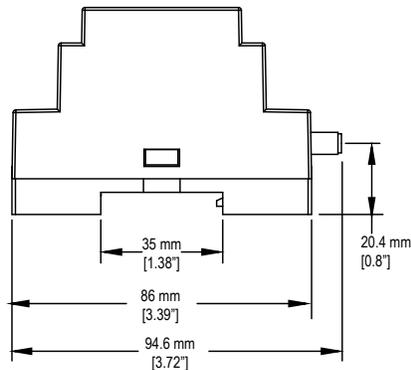
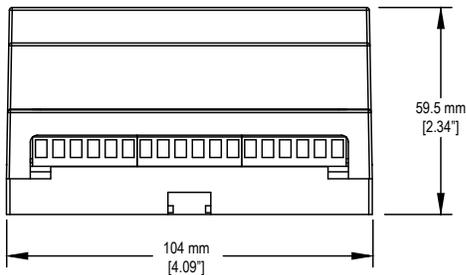
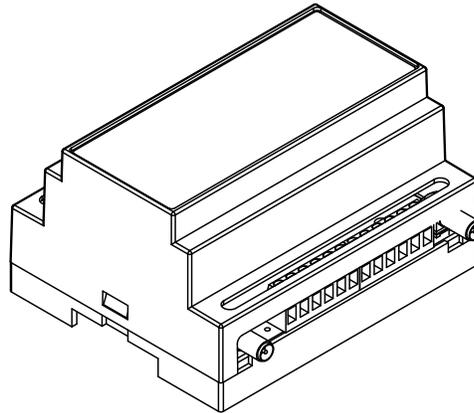
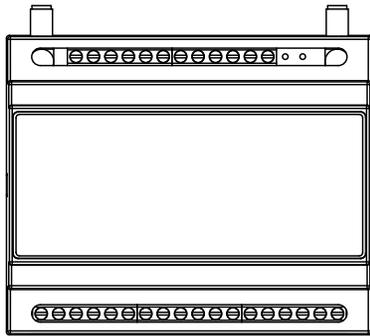
Overcurrent protection is required to be provided by end product application per the supplied table.  
Overcurrent protection may be provided with external fusing or via Current Limiting, Class 2 Power Supply.  
Supply wiring leads < 24 AWG shall not be spliced.  
For additional product support, go to [www.bannerengineering.com](http://www.bannerengineering.com).

Supply Wiring (AWG)	Required Overcurrent Protection (Amps)
20	5.0
22	3.0
24	2.0
26	1.0
28	0.8
30	0.5

<sup>3</sup> Operating the devices at the maximum operating conditions for extended periods can shorten the life of the device.

## DXM100 and DXM1000 Dimensions

All measurements are listed in millimeters, unless noted otherwise.



## Accessories

For a complete list of all the accessories for the Sure Cross wireless product line, please download the Accessories List (p/n [b\\_3147091](#)).

### Cordsets

- MQDC1-506—5-pin M12/Euro-style, straight, single ended, 6 ft
- MQDC1-530—5-pin M12/Euro-style, straight, single ended, 30 ft
- MQDC1-506RA—5-pin M12/Euro-style, right-angle, single ended, 6 ft
- MQDC1-530RA—5-pin M12/Euro-style, right-angle, single ended, 30 ft

### Static and Surge Suppressor

- BWC-LFNBMN-DC—Surge Suppressor, bulkhead, N-Type, dc Blocking, N-Type Female, N-Type Male

### Short-Range Omni Antennas

- BWA-2O2-D—Antenna, Dome, 2.4 GHz, 2 dBi, RP-SMA Box Mount
- BWA-9O2-D—Antenna, Dome, 900 MHz, 2 dBi, RP-SMA Box Mount
- BWA-9O2-RA—Antenna, Rubber Fixed Right Angle, 900 MHz, 2 dBi, RP-SMA Male Connector

### Medium-Range Omni Antennas

- BWA-9O5-C—Antenna, Rubber Swivel, 900 MHz 5 dBi, RP-SMA Male Connector
- BWA-2O5-C—Antenna, Rubber Swivel, 2.4 GHz 5 dBi, RP-SMA Male Connector

### Misc Accessories

- BWA-CG.5-3X5.6-10—Cable Gland Pack: 1/2-inch NPT, Cordgrip for 3 holes of 2.8 to 5.6 mm diam, 10 pack
- BWA-HW-052—Cable Gland and Vent Plug Pack: includes 1/2-inch NPT gland, 1/2-inch NPT multi-cable gland, and 1/2-inch NPT vent plug, one each

### Antenna Cables

- BWC-1MRSMN05—LMR200 RP-SMA to N-Type Male, 0.5 m
- BWC-2MRSFRS6—LMR200, RP-SMA Male to RP-SMA Female Bulkhead, 6 m
- BWC-4MNFN6—LMR400 N-Type Male to N-Type Female, 6 m

### Long-Range Omni Antennas

- BWA-9O8-AS—Antenna, Fiberglass, 3/4 Wave, 900 MHz, 8 dBi, N-Type Female Connector
- BWA-2O8-A—Antenna, Fiberglass, 2.4 GHz, 8 dBi, N-Type Female Connector

### Long-Range Yagi Antennas

- BWA-9Y10-A—Antenna, 900 MHz, 10 dBd, N-Type Female Connector

### Cellular Antenna

- BWA-CELLA-002—Cellular multiband, 2 dBi, RP-SMA male connection, 6.3 inch blade style. Datasheet: [b\\_4475176](#)

**Enclosures and DIN Rail Kits**

- BWA-AH864**—Enclosure, Polycarbonate, with Opaque Cover, 8 × 6 × 4
- BWA-AH1084**—Enclosure, Polycarbonate, with Opaque Cover, 10 × 8 × 4
- BWA-AH12106**—Enclosure, Polycarbonate, with Opaque Cover, 12 × 10 × 6
- BWA-AH8DR**—DIN Rail Kit, 8", 2 trilobular/self-threading screws
- BWA-AH10DR**—DIN Rail Kit, 10", 2 trilobular/self-threading screws
- BWA-AH12DR**—DIN Rail Kit, 12", 2 trilobular/self-threading screws

**Power Supplies**

- PSD-24-4**—DC Power Supply, Desktop style, 3.9 A, 24 V dc, Class 2, 4-pin M12/Euro-style quick disconnect (QD)
- PSDINP-24-13** —DC power supply, 1.3 Amps, 24 V DC, with DIN Rail Mount, Class I Division 2 (Groups A, B, C, D) Rated
- PSDINP-24-25** — DC power supply, 2.5 Amps, 24 V DC, with DIN Rail Mount, Class I Division 2 (Groups A, B, C, D) Rated
- BWA-SOLAR PANEL 20W**—Solar Panel, 12 V, 20 W, Multicrystalline, 573 × 357 × 30, "L" style mounting bracket included (does not include controller)

**Warnings**

**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.

**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.**

This Warranty is exclusive and limited to repair or, at the discretion of Banner Engineering Corp., replacement. **IN NO EVENT SHALL BANNER ENGINEERING CORP. BE LIABLE TO BUYER OR ANY OTHER PERSON OR ENTITY FOR ANY EXTRA COSTS, EXPENSES, LOSSES, LOSS OF PROFITS, OR ANY INCIDENTAL, CONSEQUENTIAL OR SPECIAL DAMAGES RESULTING FROM ANY PRODUCT DEFECT OR FROM THE USE OR INABILITY TO USE THE PRODUCT, WHETHER ARISING IN CONTRACT OR WARRANTY, STATUTE, TORT, STRICT LIABILITY, NEGLIGENCE, OR OTHERWISE.**

Banner Engineering Corp. reserves the right to change, modify or improve the design of the product without assuming any obligations or liabilities relating to any product previously manufactured by Banner Engineering Corp. Any misuse, abuse, or improper application or installation of this product or use of the product for personal protection applications when the product is identified as not intended for such purposes will void the product warranty. Any modifications to this product without prior express approval by Banner Engineering Corp will void the product warranties. All specifications published in this document are subject to change; Banner reserves the right to modify product specifications or update documentation at any time. Specifications and product information in English supersede that which is provided in any other language. For the most recent version of any documentation, refer to: [www.bannerengineering.com](http://www.bannerengineering.com).

For patent information, see [www.bannerengineering.com/patents](http://www.bannerengineering.com/patents).

**Notas Adicionales**

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."

Antenas SMA	Modelo	Antenas Tipo-N	Modelo
Antena, Omni 902-928 MHz, 2 dBd, junta de caucho, RP-SMA Macho	<b>BWA-902-C</b>	Antena, Omni 902-928 MHz, 6 dBd, fibra de vidrio, 1800mm, N Hembra	<b>BWA-906-A</b>
Antena, Omni 902-928 MHz, 5 dBd, junta de caucho, RP-SMA Macho	<b>BWA-905-C</b>	Antena, Yagi, 900 MHz, 10 dBd, N Hembra	<b>BWA-9Y10-A</b>

**Mexican Importer**

Banner Engineering de México, S. de R.L. de C.V.  
 David Alfaro Siqueiros 103 Piso 2 Valle oriente  
 San Pedro Garza García Nuevo León, C. P. 66269  
 81 8363.2714

