Sure Cross® Wireless Models Key

**DXM100 Models**

**B1**
- **Modbus controller for data aggregation of sensors and wireless networks**
- **Power**: 12–30 V dc/Solar/Battery
- **Comms**: RS-485, CAN, RS-232 w/flow or secondary RS-485
- **Inputs**: (4) universal IN
- **Outputs**: (4) NMOS OUT, (2) analog OUT (0–10 V or 4–20 mA)
- **Power Out**: (2) Selected 5 V or 16 V switched power, (1) 5 V courtesy power

**B2**
- **Smart valve control, SDI-12 data collection**
- **Power**: 12–30 V dc/Solar/Battery
- **Comms**: RS-485, (1) SDI-12 sensor interface
- **Inputs**: (4) universal IN
- **Outputs**: (4) NMOS OUT, (2) 0–10 V analog, (2) DC Latching
- **Power Out**: (2) Adjustable 5 V to 24 V switched power, (1) SDI switched power, and (1) 5 V courtesy power

**S1**
- **Modbus slave I/O device for MultiHop wireless networks or wired networks**
- **Power**: 12–30 V dc/Solar/Battery
- **Comms**: RS-485
- **Inputs**: (4) Universal IN
- **Outputs**: (4) NMOS OUT, (2) Analog OUT (0–10 V or 4–20 mA)
- **Power Out**: (2) Selectable 5 V or 16 V switched power, (1) 5 V courtesy power

**S2**
- **Modbus slave device for valve control, SDI-12 data collection for MultiHop wireless networks or wired networks**
- **Power**: 12–30 V dc/Solar/Battery
- **Comms**: RS-485, (1) SDI-12 sensor interface
- **Inputs**: (4) universal IN
- **Outputs**: (4) NMOS OUT, (2) 0–10 V analog, (2) DC Latching
- **Power Out**: (2) Adjustable 5 V to 24 V switched power, (1) SDI switched power, and (1) 5 V courtesy power

**Radio Configuration**
- **Blank** = None
- **R1**
  - **900 MHz, 1 W PE5 Performance Radio (North America)**
  - **900 MHz, 1 W HE5 MultiHop Data Radio (North America)**
  - **2.4 GHz, 65 mW PE5 Performance Radio (Worldwide)**
  - **2.4 GHz, 65 mW HE5 MultiHop Data Radio (Worldwide)**
  - **900 MHz, 65 mW HE5L MultiHop Data Radio (Used for M-GAGE networks)**
  - **900 MHz, Performance Radios approved for Australia/New Zealand**

For S1 and S2 models, only order the R2, R4, R5, and R9 radio configurations.

**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
**DXM150 Models**

**Base**

**DXM150-**

**B1** = Modbus controller designed for applications with high I/O count, isolated inputs or integrated relays
- Power: 12–30 V dc/Solar/Battery
- Comms: RS-485 and RS-232 / CAN or secondary RS-485
- Inputs: (2) Isolated discrete, (8) Universal
- Outputs: (2) Relay, (4) NMOS, (2) Analog
- Power Out: (2) Jumper selectable between 2.7 V or battery, 4.2 V or incoming power

**Radio Configuration**

**R1**

Blank = None
- R1 = 900 MHz, 1 W PE5 Performance Radio (North America)
- R2 = 900 MHz, 1W HE5 MultiHop Data Radio (North America)
- R3 = 2.4 GHz, 65 mW PE5 Performance Radio (Worldwide)
- R4 = 2.4 GHz, 65 mW HE5 MultiHop Data Radio (Worldwide)
- R5 = 900 MHz, 65 mW HE5L MultiHop Data Radio (Used for M-GAGE networks)
- R8 = 900 MHz, Performance Radios approved for Australia/New Zealand
- R9 = 900 MHz, MultiHop Radio approved for Australia/New Zealand

**B2** = Modbus controller for high I/O count applications
- Power: 12–30 V dc/Solar/Battery
- Comms: RS-485 and RS-232 w/flow control or secondary RS-485
- Inputs: (2) Isolated discrete, (8) Universal
- Outputs: (8) PNP/NPN Selectable, (2) Analog
- Power Out: (2) Courtesy power out; (2) jumper selectable between 2.7 V or battery, 4.2 V or incoming power

**S1** = Modbus slave with high I/O count for MultiHop wireless networks or wired networks
- Power: 12–30 V dc/Solar/Battery
- Comms: RS-485
- Inputs: (2) Isolated discrete, 8 Universal
- Outputs: (2) Relay, (4) NMOS Discrete, (2) Analog
- Power Out: (2) Jumper selectable between 2.7 V or battery, 4.2 V or incoming power

**S2** = Modbus slave with high I/O count for MultiHop wireless networks or wired networks
- Power: 12–30 V dc/Solar/Battery
- Comms: RS-485
- Inputs: (2) Isolated discrete, (8) Universal
- Outputs: (8) PNP/NPN Selectable, (2) Analog
- Power Out: (2) Courtesy power out; (2) jumper selectable between 2.7 V or battery, 4.2 V or incoming power

For S1 and S2 models, only order the R2, R4, R5, and R9 radio configurations.

**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
Sure Cross® Wireless Models Key

Wireless Q45 Node Models

<table>
<thead>
<tr>
<th>Radio</th>
<th>Device Type</th>
<th>Input Options</th>
<th>Special 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>DX80N</td>
<td>Q45</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2 – 2.4 GHz</td>
<td>9 – 900 MHz</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- **Photoelectrics**
  - CV – Convergent (2.4 GHz only)
  - D – Diffuse
  - E – Emitter (2.4 GHz only)
  - F – Fiber Optic
  - LP – Retroreflective
  - R – Receiver (2.4 GHz only)

- **Other Models**
  - B – Single Button
  - RD – Remote Discrete
  - TH – Temperature/Humidity
  - U – Universal
  - VT – Vibration/Temperature

For TH, U, and VT models, the sensor must be ordered separately.

E and R Photoelectrics (Emitter and Receiver) are normally specified in pairs.

Example Models

- DX80N2Q45LP – 2.4 GHz Q45 with a retroreflective photoelectric sensor
- DX80N9Q45RD – 900 MHz Q45 with a remote discrete input
- DX80N9Q45TH – 900 MHz Q45 temperature and relative humidity sensor
### DX99 Models

**Sure Cross® Wireless Models Key**

<table>
<thead>
<tr>
<th>Family</th>
<th>Device</th>
<th>Radio</th>
<th>Comms</th>
<th>Power</th>
<th>Antenna</th>
<th>Discrete</th>
<th>Analog</th>
<th>Housing</th>
<th>Boost</th>
<th>Custom</th>
</tr>
</thead>
<tbody>
<tr>
<td>DX99</td>
<td>N</td>
<td>9</td>
<td>X</td>
<td>2</td>
<td>S</td>
<td>0</td>
<td>0</td>
<td>D</td>
<td>X</td>
<td>X</td>
</tr>
</tbody>
</table>

- **DR = Data Radio**
- **9 = 900 MHz FHSS**
- **2 = 2.4 GHz FHSS**

- **G = Gateway**
- **N = Node**
- **C = Custom**
- **X = None**

- **9 = 900 MHz FHSS**
- **2 = 2.4 GHz FHSS**

- **9 = 900 MHz FHSS**
- **2 = 2.4 GHz FHSS**

- **DX99 Models**

**Physical Layer**

- **DR = Data Radio**
- **S = External**

- **M = Serial**

- **D = Single Chamber Metal**

**Type**

- **21 = 1 RTD, 1 Discrete, 2 0−20 mA Analog**
- **22 = 1 RTD, 1 Discrete, 2 0−10 V Analog**
- **23 = 1 RS-485, 1 Discrete, 2 0−20 mA Analog**
- **24 = 1 RS-485, 1 Discrete, 2 0−10 V Analog**
- **25 = 1 HART, 1 Discrete, 2 0−20 mA Analog**
- **26 = 1 HART, 1 Discrete, 2 0−10 V Analog**

- **H = MultiHop**

- **Blank = Standard**
- **X = Special**

**Boost**

- **0 = No boost (3.6 V)**
- **1 = 10 V**
- **2 = 18 V**
- **3 = 20 V**
- **4 = 13 V**
- **5 = 19 V**
- **6 = 13 V HART**
- **7 = 19 V HART**
## Sure Cross® Wireless Models Key

### Performance Models

<table>
<thead>
<tr>
<th>Device</th>
<th>Radio</th>
<th>Host Comms</th>
<th>Power</th>
<th>Antenna</th>
<th>I/O</th>
<th>Housing/Options</th>
<th>Specials</th>
</tr>
</thead>
<tbody>
<tr>
<td>DX80</td>
<td>G</td>
<td>M</td>
<td>6</td>
<td>S</td>
<td>P2</td>
<td>Blank</td>
<td>NB – no battery included</td>
</tr>
</tbody>
</table>

- **G** – Gateway
- **N** – Node
- **M** – Modbus (Gateway only)
- **X** – None
- **1** – Internal battery
- **2** – FlexPower
- **6** – 10 to 30 V dc
- **7** – 100 to 277 V ac
- **9** – 2.4 GHz
- **9 – 900 MHz**
- **S** – External
- **W** – Internal
- **X** – No antenna
- **G** – Gateway
- **M** – Node
- **9** – 2.4 GHz
- **M** – Modbus (Gateway only)
- **6** – 10 to 30 V dc
- **S** – External
- **P2** – Specials

**Models listed with an L (Housing/Option) are basic units that may not include all listed options in the I/O column.**
MultiHop Models

<table>
<thead>
<tr>
<th>Device</th>
<th>ISM Band</th>
<th>Host Comms</th>
<th>I/O</th>
<th>Housing/Options</th>
<th>Specials</th>
</tr>
</thead>
<tbody>
<tr>
<td>DX80</td>
<td>2 – 2.4 GHz</td>
<td>M</td>
<td>H2</td>
<td>Blank – IP67</td>
<td></td>
</tr>
<tr>
<td></td>
<td>9 – 900 MHz</td>
<td></td>
<td></td>
<td>C – IP20 housing (external wiring access)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>E – Environmental housing with internal battery</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>L – No LCD, no rotary dials</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>D – 10 to 30 V dc power</td>
<td></td>
</tr>
</tbody>
</table>

- H – No I/O
- H1 – FlexPower, 4 Disc IN, 2 Disc OUT, 4 Analog IN, 1 thermistor IN, 1 Counter IN
- H2 – 4 Disc IN, 4 Disc OUT, 2 Analog IN, 2 Analog OUT
- H3 – FlexPower, Thermocouple
- H4 – FlexPower, RTD
- H5 – FlexPower, 4 Disc IN, 2 Disc OUT, 4 Analog IN
- H6 – Serial interface
- H7 – FlexPower 12 NPN Discrete I/O
- H8 – 12 PNP Discrete I/O
- H12 – FlexPower, SDI-12, Bridge, Counter, Disc, Analog
- H14 – 1 Configurable Disc IN, 1 Configurable Analog IN, 1 Thermistor, 1 SDI-12, 1 Async Counter, 1 SP
- H15 – 2 PNP Disc IN, 2 0–20 mA Analog IN, 2 AC/DC Relay (SPDT), 2 PNP Disc OUT, 2 0–10V Analog OUT
- HB1 – FlexPower board module, 2 Disc IN, 2 Disc OUT, 2 Analog IN
- HB2 – Board module, 2 Disc IN, 2 Disc OUT, 2 Analog IN, 2 Analog OUT
- DCLATCH – 2 Disc IN, 2 Event Counters, 1 DC Latching (H-Bridge) OUT

Not all model combinations are available.

Models listed with an L under Housing/Options are basic models that may not include all I/O options.

NB – No battery included
KR – Korean approvals
AN – Australia/New Zealand approvals
Sure Cross® Wireless Models Key

Accessories

DX85 Modbus Remote I/O Devices

- **P2** – 10–30 V dc; 4 Discrete IN, 4 Discrete OUT, 2 Analog IN, 2 Analog OUT
- **P7** – FlexPower, 12 NPN Discrete IO
- **P8** – 10–30 V dc; 12 PNP Discrete IO

**DX85**
- **M** – Modbus
- **C** – Custom software

**I/O Housing**
- **Blank** – IP67
- **C** – IP20 housing with external wiring access

**Battery Supply Modules**

- **DX81**
  - **LITH** – Lithium batteries
  - **P6** – 6-pack housing

- **H** – For the DX99

© Banner Engineering Corp. All rights reserved

Banner Engineering Corp., 9714 Tenth Ave. No., Minneapolis, MN USA 55441 • Phone: 763.544.3164 • www.bannerengineering.com • Email: sensors@bannerengineering.com