DX80DR9M-H1

BANNER ENGINEERING MULTI-HOP DATA RADIO

Specifications

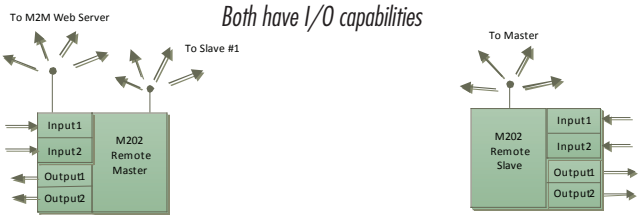
Part Number	DX80DR9M-H1
Output Power	Selectable: 0.25 Watt or 1 Watt
Frequency	900 MHz
Line of Site Range	≤1 mile with 1 W transmit power
Typical Orchard Range	≤.50 mile with 1 W transmit power
Operating Temperature	-22° to 158° F/-30° to 70°C

This Multi-Hop Data Radio from Banner Engineering serves two key purposes in the M2M wireless network, as a WIRELESS SLAVE device and as a REPEATER.

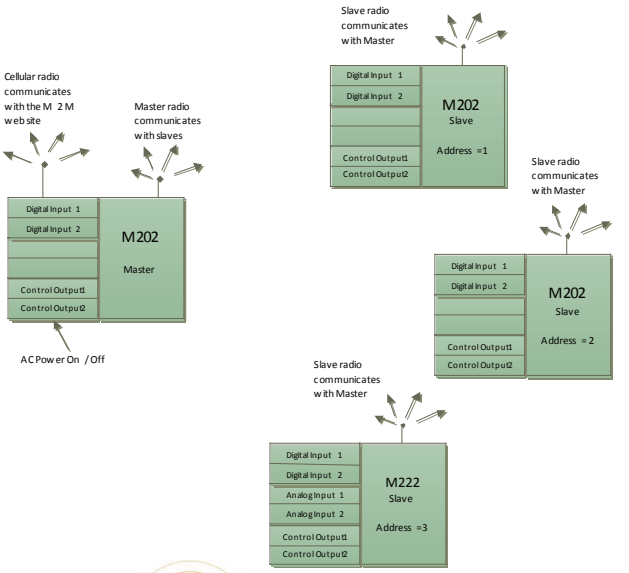
Features

A WIRELESS SLAVE device is used to connect remote sensors and other devices to the M2M master device. Sensors and other devices connect to the radio. The radio collects the data and wirelessly transmits it to the M2M master device. It can also be used to control remote equipment through both digital and analog outputs.

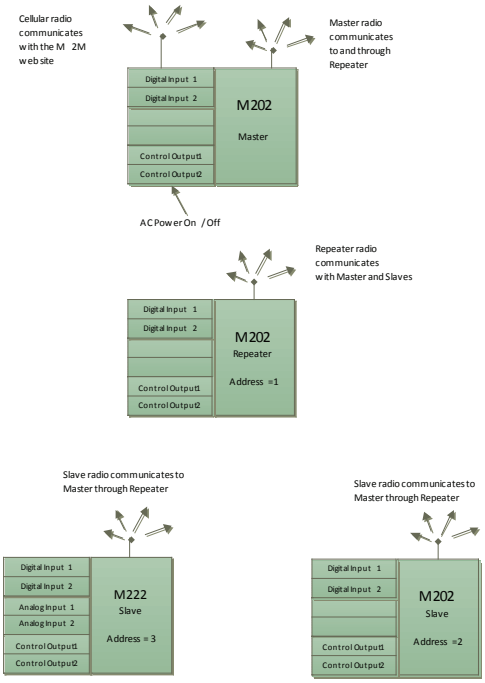
One Master and One Slave
Both have I/O capabilities



One Master and Three Slaves
All have I/O capabilities



As a REPEATER, the radio is used to extend (double) the range of remote sensors by passing data between the Master and distant slaves. A repeater can also serve as a slave with its own sensors and controls.



Each radio includes multiple inputs and outputs for monitoring and controlling:

- Four digital inputs
- Four digital outputs
- Two analog inputs (0 to 20 mA)
- Two analog outputs (0 to 20 mA)

The radio can be powered in several ways:

1. With a external power supply of 10 to 30VDC
2. With a solar system such as the BWA-Solar-001 Solar Supply
3. With a external 3.6V D cell lithium battery, such as the DX81 Battery System
   Option 3 is suitable for the slave mode only. In the repeater mode, the radio is on continually and cannot be operated from the stand-alone battery system.

Additional Features

- Compatible with a large variety of M2M approved sensors and transmitters
- Self Forming and Healing Auto Routing Network Communications
- Frequency Hopping Spread Spectrum (FHSS) technology and Time Division Multiple Access (TDMA) control architecture
- Two-way communication between the master and the radio, including fully acknowledged data transmission

M2M communications

DX81

STAND-ALONE WIRELESS BATTERY SUPPLY MODULE

Specifications

Part Number	DX81
Replaceable Battery	BWA-BATT-001
Battery Type	Lithium D Cell/included
Battery Capacity	16 Ah
Operating Temperature	-40° to 185°F/-40° to 85°C
Sealed Enclosure	IP67

Features

A stand-alone solution for powering a remote data radio and sensor.

This unique power management system can power a Multi-Hop Data Radio and a connected device for up to five years, depending upon the power requirements of the device(s).

The Battery Supply Module allows a true wireless solution as the radio and sensors can be located in areas where no AC power is available. The actual battery life is application specific.

To be used with a DX80DR9M-H1-13261 Multi-Hop Data Radio

DX80DR9M-HE1

EMBEDDED MULTI-HOP GATEWAY TRANSCEIVER

Specifications

Part Number	DX80DR9M-HE1
Output Power	1 Watt
Frequency	900 MHz
Line of Site Range	≤1 mile
Typical Orchard Range	≤.50 mile
Operating Temperature	-22° to 158° F/-30° to 70°C

Features

FOR INTERNAL USE ONLY- This transceiver is mounted inside the M2M model M222 and Lodestar master devices.

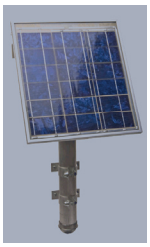
The Multi-Hop Gateway board is the wireless network master device that is used to control the wireless network timing, schedule communication traffic, and hold the configuration for the entire I/O sensor network. The gateway acts as a portal between the M2M Master device and the wireless sensor network.

- Self Forming and Healing Auto Routing Network Communications
- Frequency Hopping Spread Spectrum (FHSS) technology and Time Division Multiple Access (TDMA) control architecture
- Provides two-way communication between the Master device and remote wireless nodes, including fully acknowledged data transmissions

M2M communications

BWA-SOLAR-001

INDEPENDENTLY POWERED RECHARGABLE SOLAR SUPPLY



Specifications

Part Number	BWA-SOLAR-001
Output Power	13.5 watts
Output Voltage	9 VDC
Battery Type	NiMH/included
Battery Voltage	6 VDC
Battery Capacity	17.5 Ah
Operating Temperature	Recommended: 14° to 133°F/-10° to 45°C
Operating Temperature	Maximum: -22° to 122°F/-30° to 50°C

Features

Direct sunlight required.

The Solar Supply provides independent power for continuous wireless sensing and monitoring applications in a compact, plug-and-play power solution.

The Solar Supply with a rechargeable battery pack provides reliable power (nominal 5.0V dc) for applications with higher power demands than a stand alone battery can supply.

The Solar Supply includes the panel, charge controller, rechargeable battery pack, AC wall charger, and mounting hardware with a weather resistant environmental enclosure.

M2M communications