



- **Packaged Network Routers for Vertical Mounting**
- **Compatible with RFM miniMESH™ Network Protocol**
- **3 V, Very Low Current Operation**
- **Ready-to-Use OEM Module**

The DM1800-916MR-PAV and DM1800-916MR-PBV are 916.5 MHz packaged router modules designed for indoor vertical mounting. The modules are part of the DM1800 family of RF transceivers. The DM1800 family is designed for adding wireless mesh connectivity to a wide range of monitoring and control systems. These modules are compatible with RFM's miniMESH™ network protocol, which provides "plug-and-play" multicast mesh network routing. Radio communications range in an "open field" environment is typically 200 meters/hop. The modules combine RFM's very low current ASH radio technology with low power microcontroller technology to achieve long battery life. The DM1800-916MR-PAV and DM1800-916MR-PBV contain a DM1800-916MR router, which is module certified for operation under FCC 15.249 regulations.

#### Absolute Maximum Ratings

| Rating                                  | Value        | Units |
|---|--------------|-------|
| All Input/Output Pins Except VIN        | -0.3 to +3.3 | V     |
| Non-Operating Ambient Temperature Range | -40 to +70   | °C    |

## DM1800-916MR-PAV DM1800-916MR-PBV

### 916.50 MHz Transceiver Modules



#### Electrical Characteristics

| Characteristic  | Sym             | Notes | Minimum | Typical | Maximum | Units             |
|---|-----------------|-------|---------|---------|---------|-------------------|
| Operating Frequency   | f <sub>o</sub>  |       | 916.30  |         | 916.70  | MHz               |
| Modulation Type   |                 |       | OOK     |         |         |                   |
| RF Encoded Data Transmission Rate                             |                 |       |         | 4.8     |         | kb/s              |
| Average Receiver Input Current, No External Power Supply Load | I <sub>R</sub>  |       |         | 4       |         | mA                |
| Receiver Input Signal for 10 <sup>-3</sup> BER, 25 °C         |                 |       |         | -98     |         | dBm               |
| Peak Transmitter Input Current, No External Power Supply Load | I <sub>TP</sub> |       |         |         | 13.5    | mA                |
| Peak Transmitter Output Power                                 | P <sub>O</sub>  |       |         | 1       |         | mW                |
| Bind Input Logic High   |                 |       | 2.4     |         |         | V                 |
| Bind Input Logic Low  |                 |       |         |         | .45     | V                 |
| Average Sleep Input Current, No External Power Supply Load    | I <sub>SA</sub> |       |         | 90      |         | μA                |
| Power Supply Input Voltage Range                              | VIN             |       | 2.6     |         | 10      | V                 |
| Regulated Power Supply Output Voltage, VIN 3.1 to 10 V        | VOUT            |       |         | 3.0     |         | Vdc               |
| Regulated Power Supply Voltage Ripple                         |                 |       |         |         | 10      | mV <sub>P-P</sub> |
| Operating Temperature Range                                   |                 |       | 0       |         | 70      | °C                |
| Relative Humidity Range, Non-Condensing                       | RH              |       | 10      |         | 90      | %                 |

## DM1800-916MR-PAV and DM1800-916MR-PBV Block Diagram

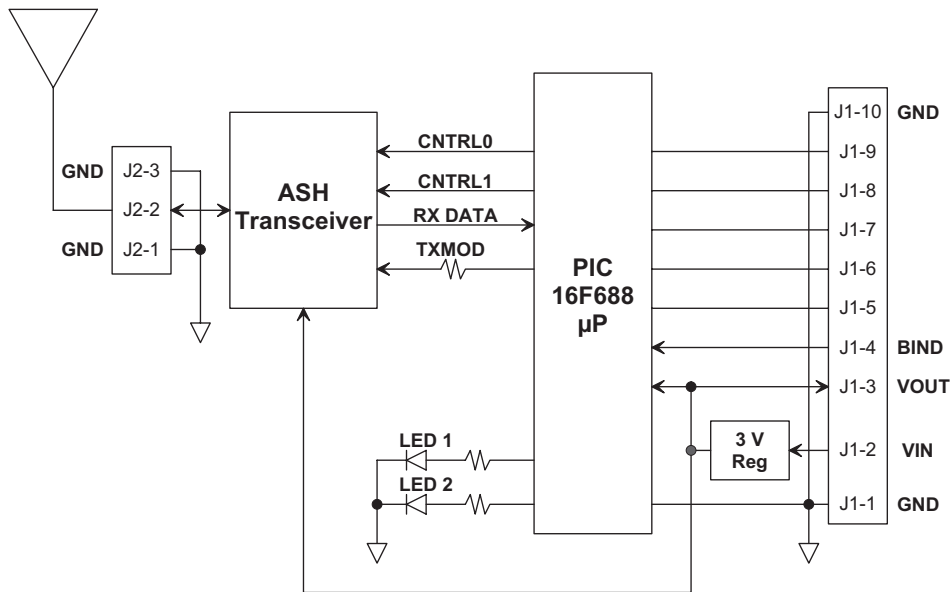


Figure 1

### Theory of Operation

The DM1800-916MR-PAV and DM1800-916MR-PBV are packaged versions of the DM1800-916MR router. The major components in these modules include an RFM TR1000 ASH transceiver and a Microchip PIC16F688 microcontroller. The TR1000 operates on a frequency of 916.50 MHz, at a nominal output power of 1 mW. Two LEDs, visible through a view port, indicate the router's operating mode.

The DM1800-916MR-PAV and DM1800-916MR-PBV are compatible with RFM's miniMESH™ network protocol, which provides add-on “plug-and-play” mesh network routing to improve communication range and robustness.

The DM1800-916MR-PAV includes a wall plug transformer power supply.

The DM1800-916MR-PAV includes a battery pack power supply.

### FCC Certification

The DM1800-916MR-PAV and DM1800-916MR-PBV hardware have been certified for operation under FCC Part 15 Rules, Section 15.249.

### FCC Notices and Labels

*This device complies with Part 15 of the FCC rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.*

A clearly visible label is required on the outside of the user's (OEM) enclosure stating that this product contains a DM1800-916MR-PAV or DM1800-916MR-PBV transceiver assembly, FCC ID: TE6-DM1800.

**WARNING:** This device operates under Part 15 of the FCC rules. Any modification to this device, not expressly authorized by RFM, may void the user's authority to operate this device.

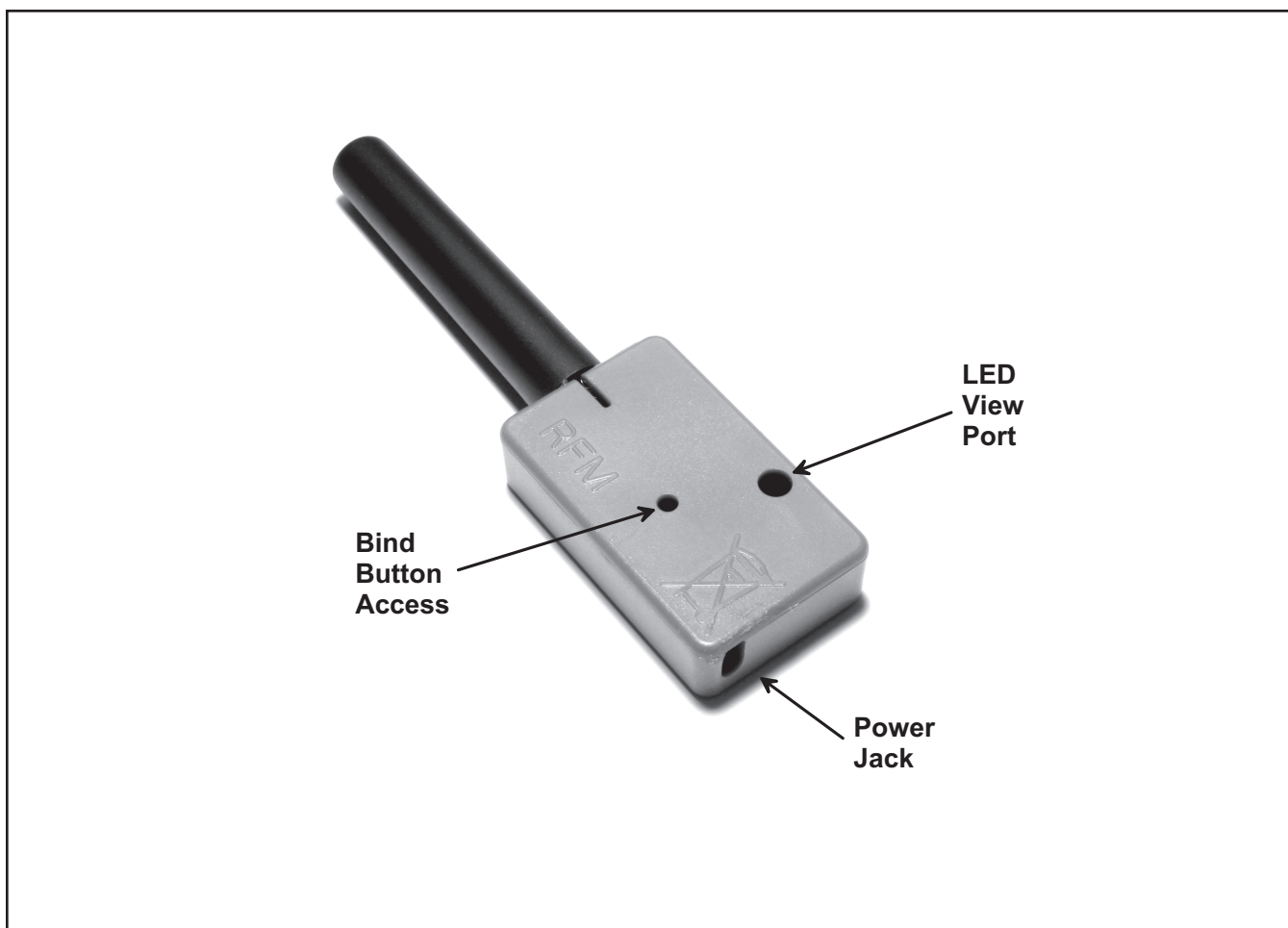
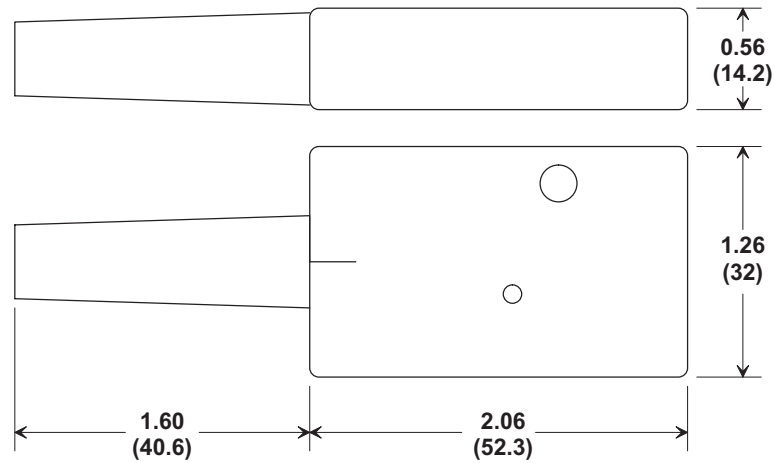


Figure 2

## DM1800-916MR-PAV and DM1800-916MR-PBV Outline Drawing



Dimensions in  
inches and (mm)

Figure 3

Note: Specifications subject to change without notice.

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