



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

The DM1800-434MR-PAV and DM1800-434MR-PBV are 434.92 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 also 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 DM1800-434MR-PAV and DM1800-434MR-PBV contain a DM1800-434MR router. The DM1800-434MR is certified for operation under ETSI I-ETS 300 220.

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 |

DM1800-434MR-PAV
DM1800-434MR-PBV

433.92 MHz
Transceiver
Modules



Electrical Characteristics

| Characteristic | Sym | Notes | Minimum | Typical | Maximum | Units |
|---------------------------------------------------------------|-----------------|-------|---------|---------|---------|-------------------|
| Operating Frequency | f _O | | 433.72 | | 434.12 | MHz |
| Modulation Type | | | OOK | | | |
| RF Encoded Data Transmission Rate | | | | 4.8 | | kb/s |
| Average Receiver Input Current, No External Power Supply Load | I _R | | | 4 | | mA |
| Receiver Input Signal for 10 ⁻³ BER, 25 °C | | | | -100 | | dBm |
| Peak Transmitter Input Current, No External Power Supply Load | I _{TP} | | | | 13.5 | mA |
| Peak Transmitter Output Power | P _O | | | 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 _{SA} | | | 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 _{P-P} |
| Operating Temperature Range | | | 0 | | 70 | °C |
| Relative Humidity Range, Non-Condensing | RH | | 10 | | 90 | % |

DM1800-434MR-PAV and DM1800-434MR-PBV Block Diagram

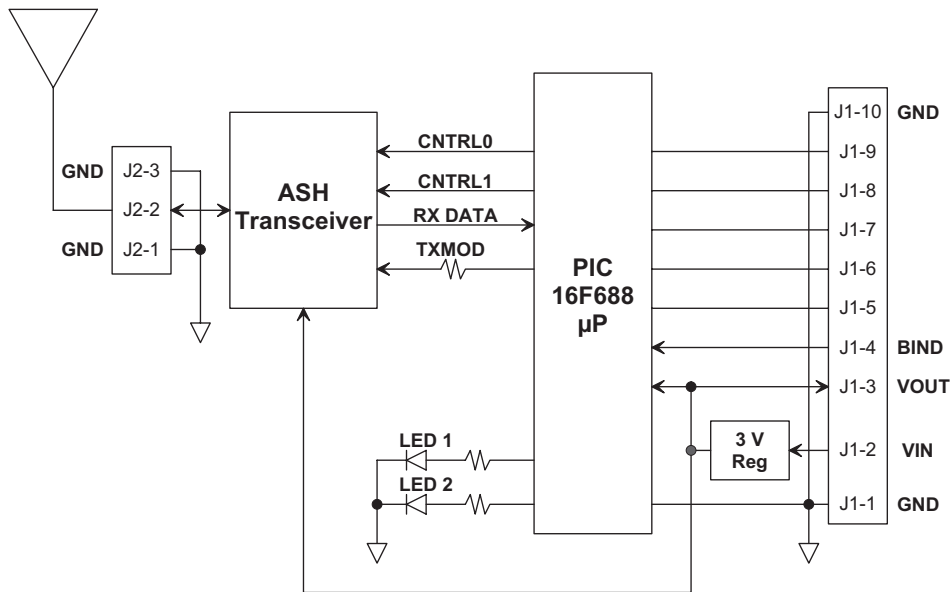


Figure 1

Theory of Operation

The DM1800-434MR-PAV and DM1800-434MR-PBV are packaged versions of the DM1800-434MR router. The major components in these modules include an RFM TR3000 ASH transceiver and a Microchip PIC16F688 microcontroller. The TR3000 operates on a frequency of 433.92 MHz, at a nominal output power of 1 mW. The DM1800-434MR includes two LEDs that indicate the module's operating mode.

The DM1800-434MR firmware is based on RFM's miniMESH network protocol, which utilizes time-synchronized redundant routing to provide robust, deterministic packet delivery through a network with up to 7 routers. Network configuration and maintenance fea-

tures are built into the miniMESH protocol, simplifying commissioning and operating logistics. The firmware also includes several sleep cycling methods for extended battery life operation.

Please refer to the *DM1800 User's Guide* and the *AN1800 series Application Notes* for installation and application programming information. See the RFM web site at www.RFM.com.

The DM1800-434MR-PAV includes a wall plug transformer power supply.

The DM1800-434MR-PBV includes a battery pack power supply.

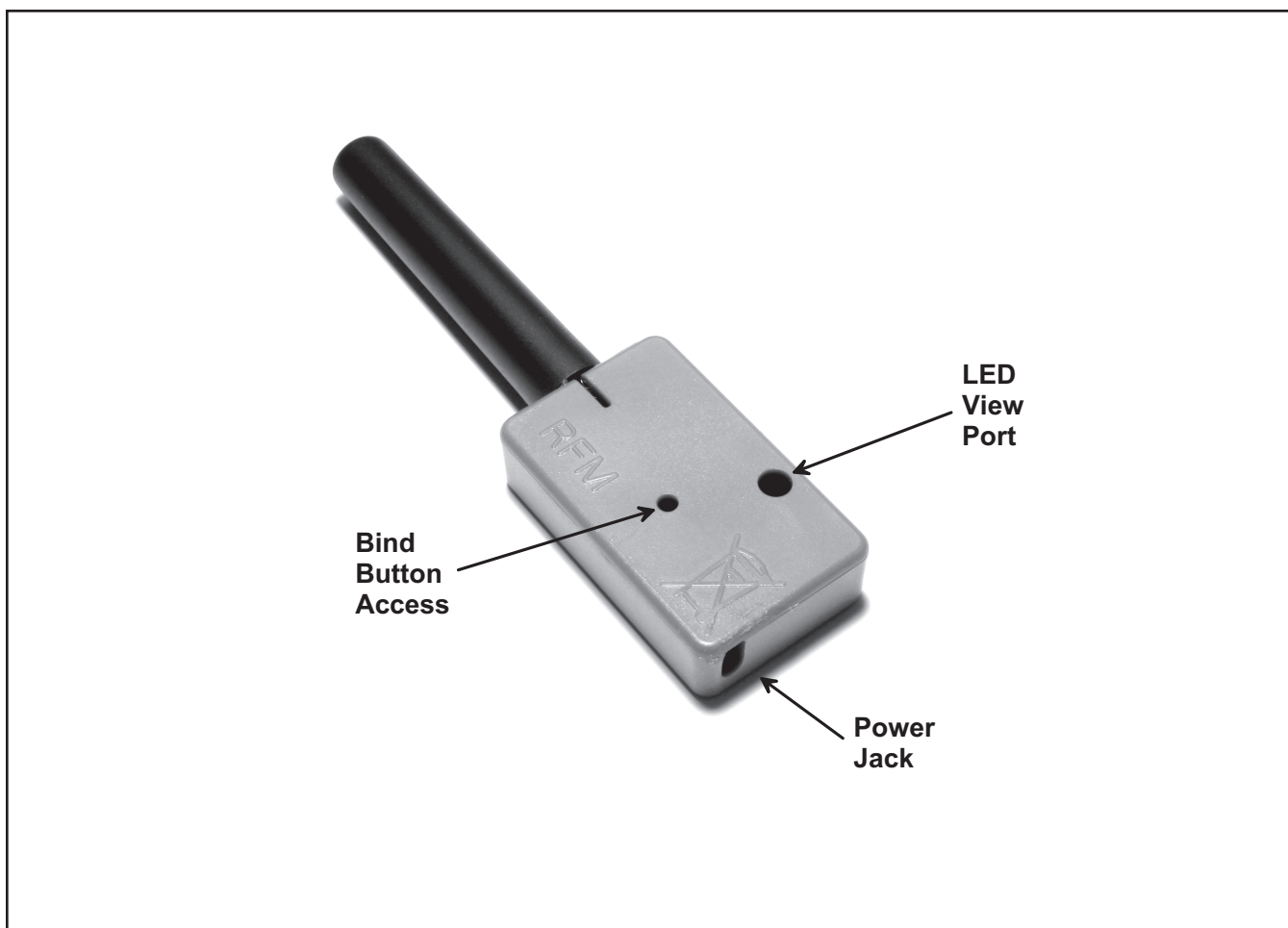
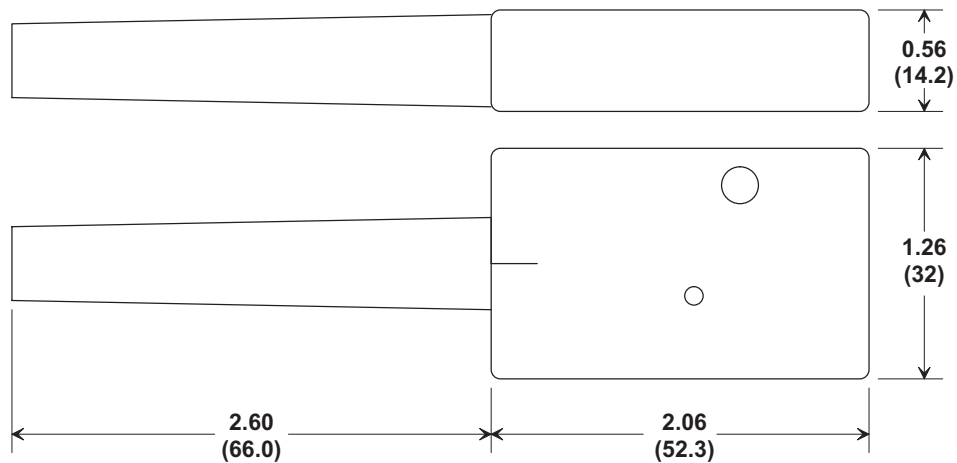


Figure 2

DM1800-434MR-PAV and DM1800-434MR-PBV Outline Drawing



Dimensions in
inches and (mm)

Figure 3

Note: Specifications subject to change without notice.

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