RFM®

DM1810-434MR-PAH DM1810-434MR-PBH

433.92 MHz Transceiver Modules

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



The DM1810-434MR-PAH and DM1810-434MR-PBH are 434.92 MHz packaged router modules designed for indoor horizontal mounting. The modules are part of the DM1810 family of RF transceivers. The DM1810 family is designed for adding wireless mesh connectivity to a wide range of monitoring and control systems. These modules are also compatible with Cirronet's miniMESH™ network protocol, which provides add-on "plug- and-play" multicast mesh network routing. Radio communications range in an "open field" environment is typically 600 meters/hop. The modules combine RFM's very low current ASH radio technology with low power microcontroller technology to achieve long battery life. The DM1810-434MR-PAH and DM1810-434MR-PBH contain a DM1810-434MR router. The DM1810-434MR is certified for operation under ETSI I-ETS 300 220 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

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 Receive Input Current, No External Power Supply Load	I_R			5.5		mA
Receiver Input Signal for 10^{-3} BER, 25 °C				-101.5		dBm
Average Transmit Input Current, No External Power Supply Load	I_{TA}			15.75		mA
Peak Transmit Input Current, No External Power Supply Load	I_{TP}				28.5	mA
Peak Transmitter Output Power	P_O			10		mW
Bind Input Logic High			2.4			V
Bind Input Logic Low					0.45	V
Average Sleep Input Current, No External Power Supply Load	I_{SA}			60		µA
Power Supply Input Voltage Range, -40 to +70 °C	VIN		3.1		10	V
Power Supply Input Voltage Range, 0 to +70 °C	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}
Relative Humidity Range, Non-Condensing	RH		10		90	%

DM1810-434MR-PAH and DM1810-434MR-PBH Block Diagram

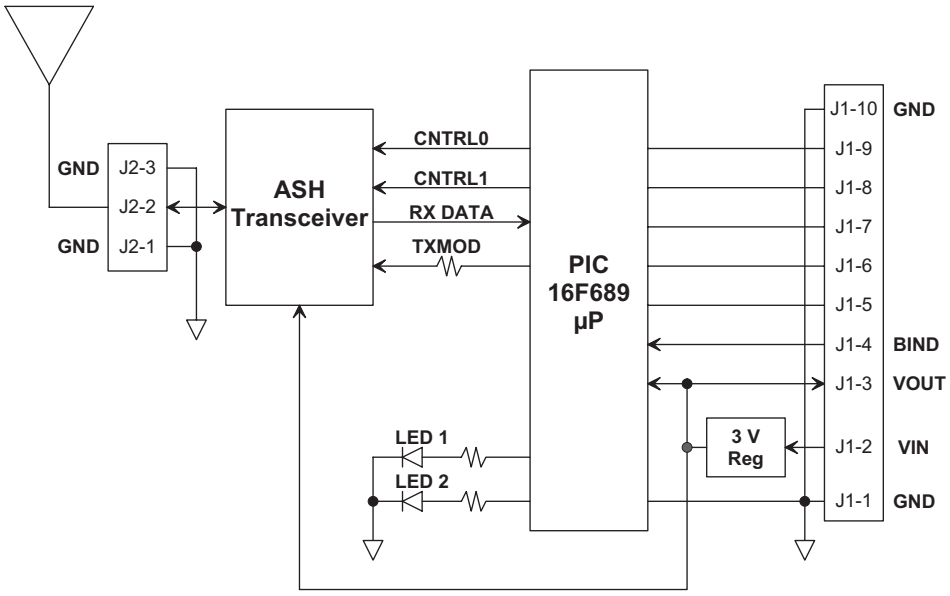


Figure 1

Theory of Operation

The DM1810-434MR-PAV and DM1810-434MR-PBV are packaged versions of the DM1810-434MR router. The major components in these modules include an RFM TR7000 ASH transceiver and a Microchip PIC16F689 microcontroller. The TR7000 operates on a frequency of 433.92 MHz, at a nominal output power of 10 mW. The DM1810-434MR includes two LEDs that indicate the module's operating mode.

The DM1810-434MR firmware is based on Cirronet's miniMESH network protocol, which utilizes time-synchronized redundant routing to provide robust, deterministic packet delivery though a network with up to 15 routers. Network configuration and maintenance features 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 *DM1810 User's Guide* and the *AN1810 series Application Notes* for installation and application programming information. See Cirronet's web site at www.Cirronet.com.

The DM1810-434MR-PAV includes a wall plug transformer power supply.

The DM1810-434MR-PBV includes a battery pack power supply.

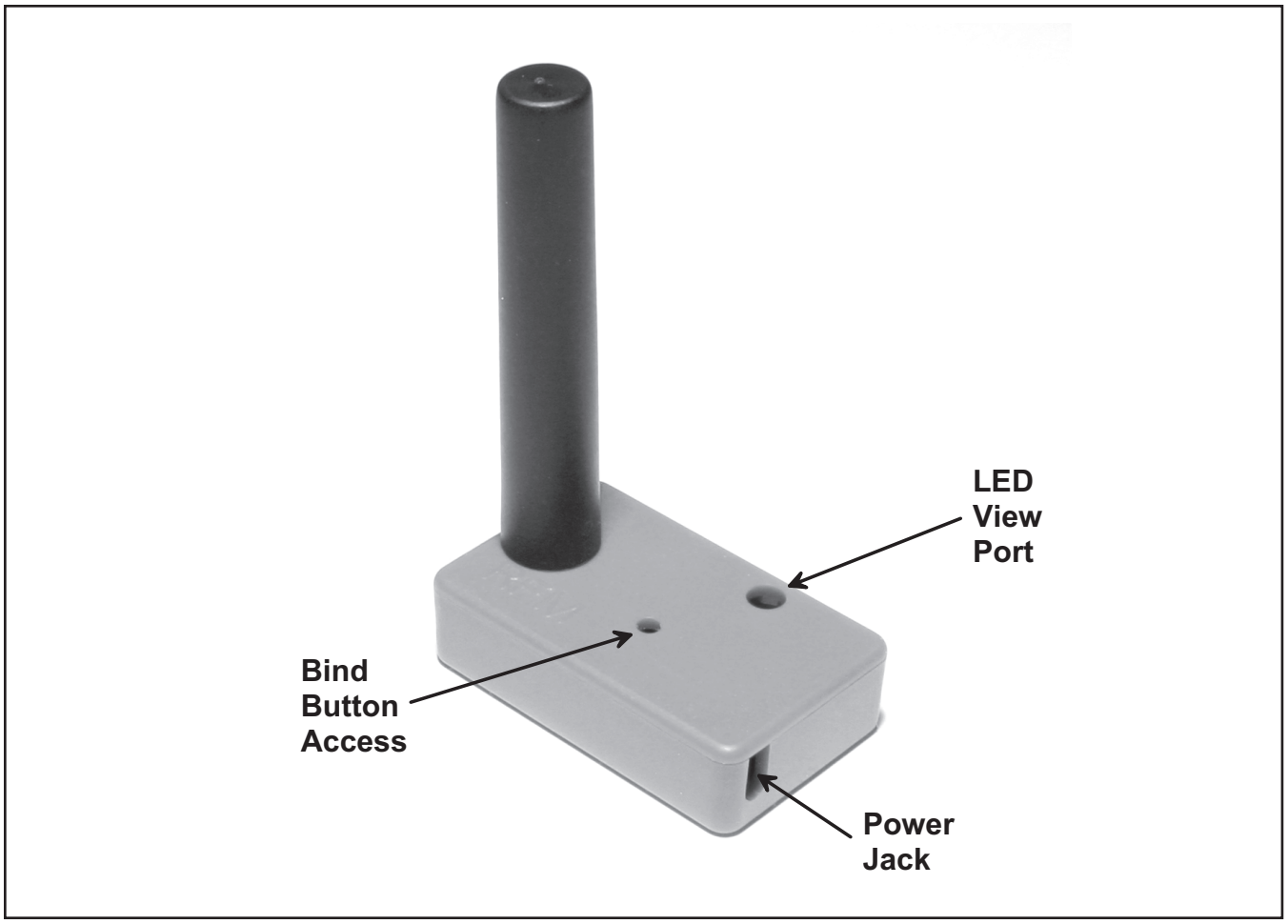
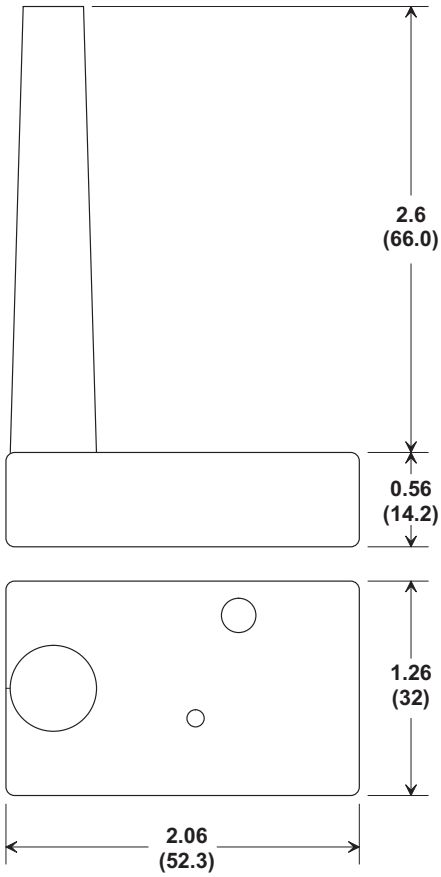


Figure 2

DM1810-434MR-PAH and DM1810-434MR-PBH
Outline Drawing



Dimensions in
inches and (mm)

Figure 3

Note: Specifications subject to change without notice.

file: dm1810-434mr-ph06.vp, 2007.06.22 rev