



RF Battery Monitor

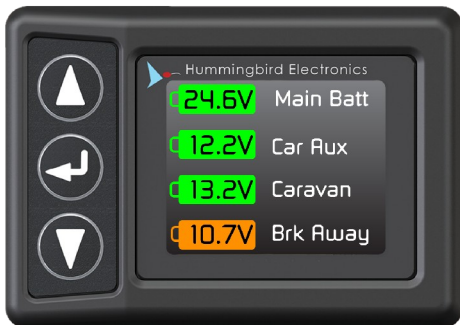
Monitor up to 4 batteries without wires

Hummingbird Electronics' RF Battery Monitor allows the user to monitor a remote battery without having to run wires to it.

No costly installation needed to monitor caravan, boat, fridge, solar and many other batteries.

Powerful Performance

The RF Battery Monitor measures battery voltage of up to four remote batteries and displays it on a remote colour screen. Alarm levels can be set such that the unit warns the user with a screen colour change and an optional buzzer. Both minimum and maximum alarm voltages can be set by using the keypad in conjunction with an on-screen menu. Batteries can be given names that are relevant to the application.



Installation is as simple as attaching the red and black terminals on the transmitter to the battery that needs to be monitored and plugging the receiver into a cigarette lighter socket. The receiver can also be permanently powered if desired.

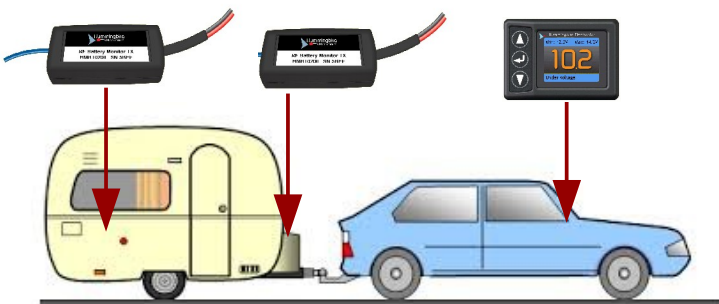
The receiver is mounted with a flexible windscreen-mount, but can also be attached using any standard camera mount including those available from RAM.



Extra transmitters are available (HMRF0020)

The RF Battery Monitor uses a long range RF technology meaning that communication is reliable in all configuration of car and trailer. Ultra-low power voltage transmitters are able to be left permanently connected to batteries and do not need to be switched off when not in use.

Both 12V and 24V batteries can be monitored.



Features

- Uses RF technology to transmit voltages
- Optional buzzer for under or over voltage
- Changes colour for under or over voltage
- User adjustable limits per battery
- Optional local battery monitoring
- Multi voltage – simply plug into your cigarette lighter plug
- Cigarette lighter connection
- Precision 100mV measurement
- Ultra-low power transmitter can be left connected to batteries

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Mounting

The RF Battery Monitor receiver will, in idea conditions, receive battery voltage at up to 100m from the transmitter.

Mounting the transmitter in metal enclosures or behind metal will limit the useful range. Try as far as is practically possible to mount the transmitter in plastic or fibreglass (non metallic) enclosures.

In the unlikely event that RF connection is erratic, try changing the orientation and position of the transmitter antenna (blue). Very small changes in position and orientation can vastly affect RF performance.



Optional Extras

The RF Battery Monitor measures battery voltage and displays it on a remote



Various RAM Mounts are available for permanent mounting



Wire the transmitters directly to the batteries to be monitored

Technical Specifications and Ordering Information

Part number	HMRF2000 – includes receiver, mount and 1 voltage transmitter HMRF0020 – spare voltage transmitter
Mounting system	Windscreen suction (supplied) or other camera mount
Input voltage	Minimum 9V; maximum 36V
Power consumption (W)	Screen: Typical 0.2W (10mA @ 12V; 7mA @ 24V) Transmitter: Typical 0.05mA (50 microamps)
Dimensions (mm)	70mm (width), 50mm (height), 18mm (depth)
Acquisition time, power-up	30 seconds to acquire RF devices
Resolution	100mV
RF Frequency	433MHz
Range	100m line of sight
Cable length	Power cable provided with 1.5m cable
Operating temperature	-20°C to 55°C; 5% to 95% relative humidity



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Configuration

The RF Battery Monitor can be configured using the three buttons on the keypad.



Up - press up to go to the previous battery when on the main screen or to increment a value when in configuration screens

Enter - press enter to access the configuration menu.

Down - press down to go to the next battery when on main screen or to decrement a value when in the configuration screens

Configuration menu

Once the configuration menu has been accessed by pressing the **enter** button, a list of menu items will be shown. Press **down** to access the next menu option or **up** to access the previous one. Press **enter** to select an option. To exit the menu, select the exit icon and press **enter**.



Exit

Select Exit to return to the battery monitoring screen.



Display

Select Display to change the screen brightness or to change between single battery and summary mode displays.

To change the brightness, select Brightness and use the **up** and **down** arrows to change the value. Press **enter** to accept the value and return to the display menu.

To change between single and summary modes, select Disp. Mode and use the **up** and **down** arrows to select the preferred mode. Press **enter** to return to the Display menu.

Select Back to return to the main menu.



Devices

Select "Devices" to scan for new Voltage Transmitters or to change parameters associated with existing ones.

To find new Voltage Transmitters, select "Scan for devices". The scan process takes approximately 30 seconds during which a scan icon will be visible. Once scanning is complete, devices that have been found can be added.

To add the battery from which the unit is powered, select "Add CIG Voltage". To add Voltage Transmitters, select from the list of transmitters found. When a transmitter is added. You will be asked to enter a name for the device. Use the **up** and **down** keys to choose a character and the **enter** key to select a character.

Device parameters such as name, min/max voltage, buzzer characteristics and device statistics can be viewed and changed by selecting the devices from the list shown. The statistics option is useful in determining the quality of the RF link to each device. The "Good" packets indicator goes up each time a quality RF transmission is received. It should increment approximately once every 5 seconds. The "Bad" packet indicator goes up each time a poor quality packet is received. Bad packets could be received if the distance to the transmitter is too far or the transmitter is surrounded by too much metal.



PIN

Use this function to prevent changes being made to settings. If you select "ON", you will be prompted to enter a new PIN code. Once you have done this, you will need to enter then PI in order to access the menu. **PLEASE BE CAREFUL WHEN USING THIS FUNCTION AS IT WILL LOCK OUT THE MENU UNLESS YOU KNOW THE PIN!**