# TRIMMARK 3 Radio Modem

*Small, rugged and versatile multichannel radio modem*

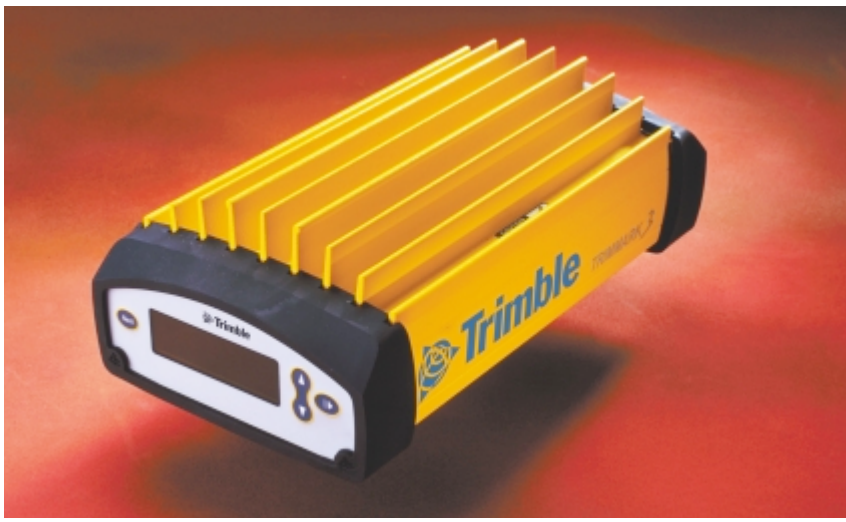
## Key features and benefits

- **Versatile: use as base, repeater or rover**
- **Flexible: 2, 10, or 25W power output**
- **Channel spacing programmable at 12.5 or 25 kHz**
- **Easy to use and configure**
- **Built-in channel selector and monitor**
- **Rugged and weatherproof**

Trimble

The TRIMMARK™ 3 radio modem provides a convenient, versatile means of establishing a robust wireless data broadcast network for real-time, high-precision GPS survey and telemetry applications. It's a quality accessory for the Trimble Toolbox of Integrated Surveying™ Solutions.

The rugged, compact TRIMMARK 3 radio modem is designed for use in tough environments and in a variety of situations. The single unit is usable as a base station, repeater station, or rover receiver for maximum versatility. However you use it, you'll appreciate its simplicity and famous Trimble reliability and quality.




*The TRIMMARK 3 radio modem provides exceptional performance and flexibility for use in virtually any real-time, high-precision GPS survey and telemetry application.*

## Select the power you need

The TRIMMARK 3 radio modem provides selectable power outputs of 2, 10, or 25 Watts to support both short- and long-range operations, conserve battery life and minimize risk of interference with other systems.

A 25W base unit broadcasts up to 15 km (8 miles) line-of-sight, under optimal conditions. Path obstructions and terrain can reduce the typical effective range to 10 to 12 km (6 to 7 miles). One or two additional units can be networked as repeater stations to extend range, minimize base station moves, and provide seamless coverage around local obstacles such as large buildings or hills. The typical range of a 2W repeater is 5 to 8 km (3 to 5 miles).

A TRIMMARK 3 radio modem broadcasts or repeats data to Trimble survey-grade GPS receivers, such as the Trimble 4700 or 4800, that either contain an internal radio modem or are being used with a TRIMMARK rover. The TRIMMARK 3 is fully backward compatible with the TRIMMARK IIe radio modem, so it can be used in both new and existing systems.

## Configure it to your needs

The TRIMMARK 3 radio modem can be configured completely and easily in the office by using the supplied WinFLASH utility on your computer. Many functions also can be configured in the field from the front panel or from the Trimble Survey Controller™ software used with your GPS survey receivers. The serial port communication settings are easily set to match the default settings on the GPS receiver.

You can configure each broadcast network to operate on one of up to 20 programmed channels via a built-in channel selector. Channel spacing of either 12.5 or 25 kHz is programmable at the factory or by a service provider.

To reduce the risk of interference in a congested RF environment, you can use the built-in audio speaker to monitor activity on the selected channel. The unit also can automatically monitor the channel using its software-selectable carrier detect function to detect other users on the channel before transmitting.

The TRIMMARK 3 radio modem is available as a stand-alone product as well as in convenient base and repeater equipment sets. Available in three frequency bands, the TRIMMARK 3 radio modem is designed to meet the licensing requirements of many countries around the world.

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## STANDARD FEATURES

- Selectable 20-channel capacity
- Rugged weatherproof construction
- Configurable from front panel, survey controller, or from supplied WinFLASH utility on your computer
- Up to 15 km line-of-sight range
- Same unit can function as base station, repeater station, or rover receiver
- Selectable power outputs of 2W, 10W, or 25W
- Programmable channel spacing of 12.5 kHz or 25 kHz
- Built-in channel selector
- Supports up to two repeaters in a network
- 9600 baud data rate output
- Retrievable/storable radio diagnostic information

## TRIMMARK 3 BASE/REPEATER

*Physical*

**Size:** 12.5cm W x 22.9cm D x 7.9cm H (4.9" W x 9.0" D x 3.1" H)

**Weight:** 1.59 kg (3.5 lbs.)

*Electrical*

**Power:** Input: 12 to 16 VDC, nominal

**Connectors:**

**Power:** 2-pin LEMO (+VDC, GND)

**Data:** 7-pin female LEMO (supports RXD, TXD and SGND)

**Antenna:** TNC female

*Environmental*

**Temperature**

**Operating:** –40° to +65° C (–40° to +149° F)

**Storage:** –55° to +75° C (–67° to +167° F)

**Humidity** 100%, fully sealed, weatherproof

## TECHNICAL SPECIFICATIONS

**Transmit Power (A)** 2W, 10W, 25W

**Wireless Data Rate** 4800, 9600 bps

**Frequency Bands** 410–420 MHz, 430–450 MHz, or 450–470 MHz. (Only one band per radio modem)

**Channel Spacing** 12.5 kHz or 25 kHz. (Only one spacing per radio modem)

**Number of Channels** Can be ordered with up to 20 programmed frequencies, internally stored. (B)

**RF Modulation Format** Gaussian Minimum Shift Keying (GMSK)

**Range (typical)(C)**

**25-Watt Base:** 10 to 12 km (6–7 miles)

**2-Watt Repeater:** 5–8 km (3–5 miles)

| **Power Consumption (D)** | Voltage | Current | Nominal Load |
|---|---|---|---|
| **2-Watt Mode:** | 12.6 | 0.8 Amp | ~10 Watts |
| **10-Watt Mode:** | 12.6 | 3.6 Amps | ~45 Watts |
| **25-Watt Mode:** | 12.6 | 6.0 Amps | ~75 Watts |

**Serial Port** One set of RS-232 signals available. Data is 8 bits with selectable parity and 1 stop bit. Supported data rates are 9600, 19200 and 38400 bps (E).

A. Radios are configured as 25-W units at the factory.

B. Use the same frequency for all radio modems in the same wireless data network.

C. Varies with terrain and operational conditions. Up to 2 repeaters can be used to extend range.

D. Power consumption and battery life depend on the broadcast information content and wireless data rate (e.g., CMR versus RTCM SC-104 Ver 2.x packets at 1-Hz epoch rates).

E. Communications rate between the radio and GPS receiver; not wireless rate.

| **Antenna Physical Specifications** | **Length (typical)** | **Weight** |
|---|---|---|
| *Standard antenna* | | |
| 0 dB UHF omni whip | 47 cm (18.5 in.) | 0.5 kg (1.0 lb.) |
| 5 dB UHF omni whip | 99 cm (39 in.) | 0.5 kg (1.1 lbs.) |
| *Optional antenna* | | |
| 0 dB UHF omni base station | 70 cm (28 in.) | 0.5 kg (1.1 lbs.) |
| 9 dB UHF directional | 84 cm (33 in.) | 0.9 kg (2.0 lbs.) |
| 12 dB UHF directional | 183 cm (72 in.) | 2.3 kg (5.0 lbs.) |



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