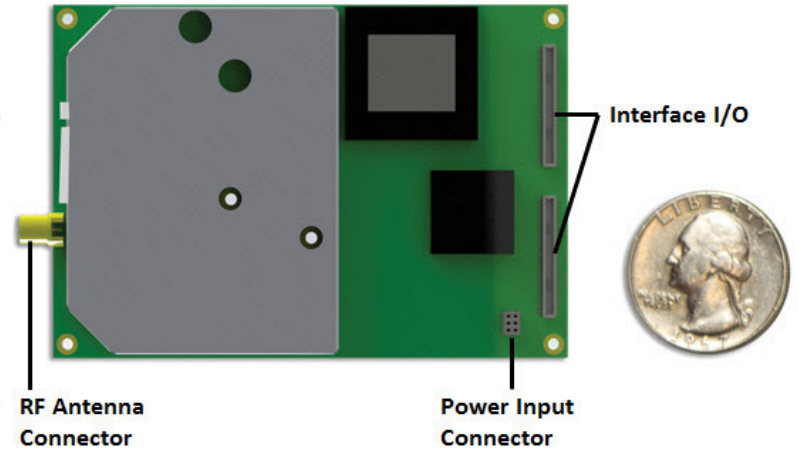


# TW-650 TSM SHADOW™ MODULE



## EMBEDDED INTEGRATION

The TW-650 TSM Shadow Module is a software defined radio (SDR) architected for embedment into a wide range of systems, including tactical communications platforms, network devices, and unmanned systems. The radio module provides reliable connectivity for tactical mobile ad-hoc networking using TrellisWare's TSM™ waveform. The TW-650 is designed for optimal size, weight, and power consumption, allowing for embedment into small to large platforms.

To embed the TW-650 TSM Shadow Module successfully into a custom platform, integrators will have access to interface control documents, reference designs, and a full set of APIs.

## EXTENSIVE FEATURE SET

The TW-650 provides a full feature set that includes built-in AES security, built-in video encoding, full software API for status and control of the radio through an IP interface, and a set of Web-apps hosted on the radio for end-user configuration and monitoring of the TSM network.

## TSM™ WAVEFORM RELEASE 6

The TSM waveform supports simultaneous voice, Position Location Information (PLI), and data messaging for up to 250 users all on a single RF channel. With more than double the throughput of previous generations, the TSM waveform supports up to 16 Mbps of user throughput for single hop traffic, and up to 7.5 Mbps of multi-hop multi-cast traffic.

## RF SPECTRUM FLEXIBILITY

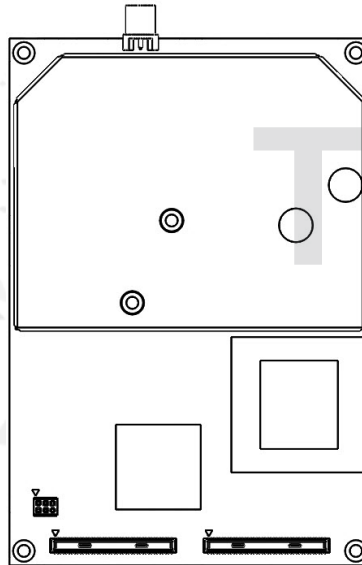
Combined with the TW-650 extended frequency coverage that includes UHF, L-band, and S-band spectrum, the TSM waveform is also configurable to support bandwidths ranging from 1.2 to 40 MHz.

## INTEROPERABILITY

Running TrellisWare's TSM waveform Release 6, the TW-650 is fully interoperable with the TrellisWare® family of radios, as well as other radios and devices that run the TSM-X™ waveform (that interface to NSA-certified [Type-1] security architectures).

[www.trellisware.com](http://www.trellisware.com)

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# TW-650

## TSM SHADOW MODULE SPECS

<b>Size:</b>	2.920" (H) x 2.0" (W) x 0.108" (D)
<b>Weight:</b>	1.12 oz (core board with shielding)
<b>Frequency Range:</b>	L-UHF: 225–450 MHz U-UHF: 698–970 MHz, L/S Bands: 1250–2600 MHz
<b>Configurable Bandwidth:</b>	1.2, 4, 10, 20, 40 MHz
<b>Transmit Power:</b>	0.1–2 W
<b>Input Power:</b>	3.0–4.0 V DC, 9.8 W max
<b>Connectors:</b>	Board Mount, Power and Control, PTT Audio, USB 2.0 Ports (USB-OTG, USB-H1), Serial UARTs, I2C, RF Antenna (SMP jack), GPS
<b>Data Rate:</b>	Pt. to Pt., up to 16 Mbps (1-hop)
<b>Audio Encoding:</b>	AMR 5.9, MELPe
<b>Video Encoding:</b>	H.264, HDMI, NTSC, PAL
<b>Security:</b>	Built in AES-256 COMSEC and TRANSEC
<b>Waveform:</b>	TSM Release 6

**Contact TrellisWare today!**

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**858.753.1600**

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