The "CORE" Of All TrellisWare Radios Available For Embedded Integration
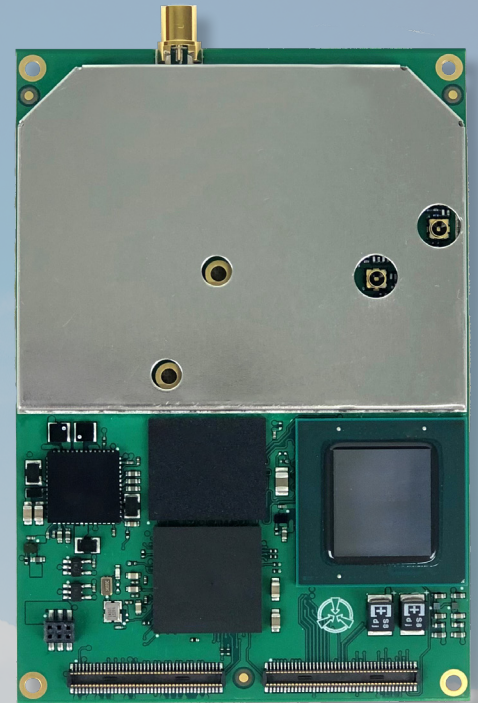
Skydio X10 image courtesy of Skydio, Inc.

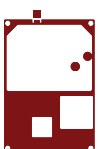# TW SHADOW 650 CORE BOARD MODULE

EMBEDDED INTEGRATION

The TW Shadow 650 Core Board Module is a Software-Defined Radio (SDR) specifically designed to be embedded into a wide range of systems, including tactical communications platforms, network devices, and uncrewed systems.

KEY FEATURES

- Advanced SDR architecture designed for optimal size, weight, and power consumption (SWaP), allowing for embedment into a wide range of small to large platforms
- Seamless interoperability with TrellisWare radios
- Full software application programming interface (API) for status and control of the radio through an Internet Protocol (IP) interface
- Single antenna solution minimizes complexity and SWaP-C
- Radio frequency (RF) performance spanning from 225MHz to 2600MHz range
- Flexible channel bandwidth from 1.2MHz to 40MHz
- Capable of supporting multiple TrellisWare and partner waveforms

TRELLISWARE WAVEFORMS

TrellisWare's Barrage Relay technology provides proven network scalability and performance without compromising quality of service. The TSM waveform is a highly scalable and robust MANET waveform that supports over 800 nodes with simultaneous voice, data, video, and PLI operating in a single radio frequency channel. The optional Katana waveform combines resilient narrowband fast frequency hopping with tactical MANET, operating in highly contested radio frequency (RF) communication environments.
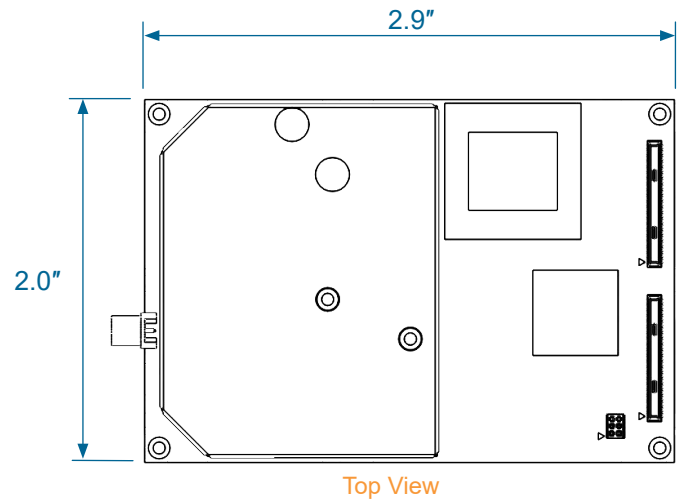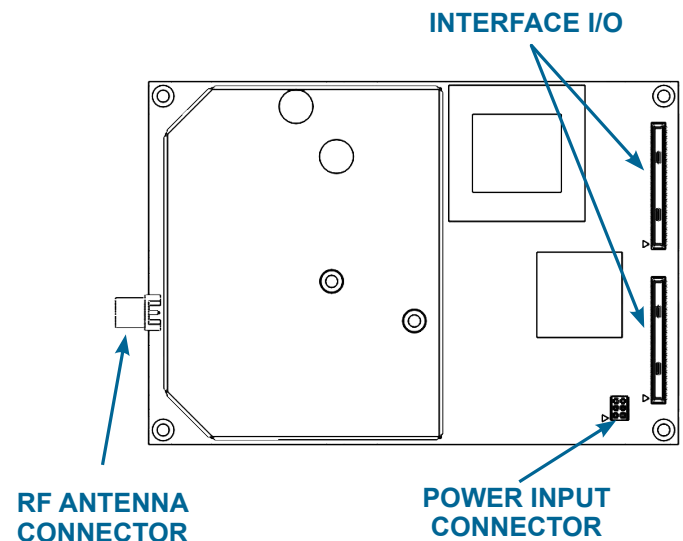
SCAN ME

TRELLISWARE.COM

SPECIFICATIONS

Physical	
Overall Size	2.9 L x 2.0 W x 0.1 H in (74 x 51 x 3 mm)
Weight	0.1 lbs (34 g) (core board with shielding)
Frequency Range	• LUHF: 225–450 MHz • U-UHF: 698–970 MHz • L/S Bands: 1250–2600 MHz
Bandwidth/Channel Spacing	Wideband: 1.2, 3.6, 10, 20 MHz Narrowband: 6.25, 8.33, 12.5, 20, 25, 50 kHz
Transmit Power	.001 mW, .01 mW, .1 mW, 10 mW, 100 mW, 250 mW, 500 mW, 1W, 2W
Input Power	3.4–4.2 VDC
Interfaces	• Board Mount • Power and Control • Ethernet • USB 2.0 Ports (USB-OTG, USB-H1) • Serial to IP • I2C • RF Antenna (SMP jack)
Operating Temperature Range	-20°C to +55°C (-4°F to +131°F)
Audio Encoding	AMR 5.9, MELPe
Waveform	• TSM • NB LOS • Katana (optional)

Networking Capabilities	
Network Coverage	• Barrage Relay • Multi-hop – Up to 8 Hops • 800 Nodes in a Single RF Channel • Robust in Harsh RF Environments • Up to 32 Mbps
Communication Services	• Simultaneous Voice, Data, and PLI • Up to 32 Voice Talk Groups • Built-in or External GPS • IP Support – IPv4, IPv6; Unicast, Multicast, Broadcast; TCP, UDP
Security	• AES-256 (FIPS 197)
Application Support	• Built-in Web Applications • Over the Air Remote Control • TW Connect • ATAK support • APIs for 3rd Party Integration

Specifications subject to change without notice.

Top View

COMPONENTS

INTERFACE I/O

RF ANTENNA CONNECTOR

POWER INPUT CONNECTOR

When Nothing Else Works

TRELLISWARE.COM

To place an order, please contact your account manager.
For more information, email sales@trellisware.com

Please access the most recent digital version of this datasheet on the TrellisWare Customer Support Site (site registration required).

This TrellisWare product is under the jurisdiction of the Department of Commerce and is subject to Export Administration Regulations (EAR)