TrellisWare TECHNOLOGIES

2023
Product Catalog

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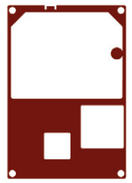
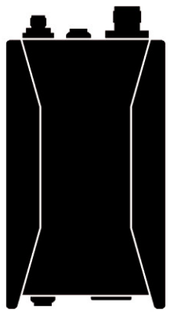


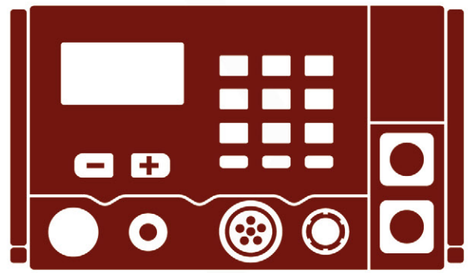
JOIN THE TRELLIS // SPHERE



TrellisWare Product Catalog Table of Contents

About TrellisWare 05
TrellisWare Waveforms 07
Products 08
- TW-950 TSM Shadow Radio 10
- TW-900 TSM Shadow Radio 10
- TW-950/900 TSM Shadow Radio Kit Options 14
- TW-950/900 TSM Shadow Radio Antenna Guide 16
- TW-135 TSM Shadow HPR Radio 18
- TW-860 TSM Spirit Radio 22
- TW-860 TSM Spirit Radio Kit Options 26
- TW-875 TSM Ghost Radio 28
- TW-875 TSM Ghost Radio Kit Options 31
- TW-870 TSM Ghost Radio 32
- TW-880 TSM Ghost Embedded Module 34
- TW-650 TSM Shadow Module 36

Accessories 38
- Antennas 40
- Audio Solutions 46
- Data Adapters 51
- Power Adapters 55
- Mount Adapters 61



About TrellisWare

TrellisWare was founded in 2000 by four innovators in the areas of signal processing and advanced communications. The co-founders spun-off the company from ViaSat, Inc. to pursue terrestrial applications of technology that combined foundations in signal processing innovation with the ability to productize these ideas for the real-world in the commercial sector. Trellisware is a worldwide leader in highly advanced algorithms, waveforms, and communications systems that range from small form factor radio products to fully integrated solutions.

TrellisWare's technology facilitates mission critical voice and data delivery in the most severe conditions. The result is an exceptionally robust, flat network that provides unprecedented scalability and supports hundreds of nodes while using less spectrum than any other Mobile Ad Hoc Networking (MANET) technology. The TrellisWare TSM™ waveform is incorporated into a wide range of systems, including TrellisWare® radios and trusted industry partner radios, as well as multiple government and commercial solutions. TrellisWare's next-generation Katana™ waveform is the newest resilient narrowband waveform designed to operate in highly contested radio frequency (RF) communication environments.

TrellisWare transforms cutting-edge theory to practice, exploring the boundaries of time, frequency and space through advanced architectures, sophisticated processing, efficient protocols, and real-time environmental awareness to create powerful wireless networks. These include Software Defined Heterogeneous Networking (SOHN), Cognitive Networking, Distributed Signal Processing, and Dynamic Spectrum Access, to name a few.

TrellisWare Waveforms

TrellisWare Technologies is the industry leader in the development and deployment of Mobile Ad Hoc Networks (MANET) with the TSM and Katana waveforms. TrellisWare's TSM waveform is a highly scalable and robust MANET waveform that was designed from the ground up to support over 800 nodes with simultaneous voice, data, video, and Position Location Information (PLI) operating in a single radio frequency channel. TrellisWare's Katana waveform combines resilient narrowband fast frequency hopping with tactical MANET, operating in highly contested radio frequency (RF) communication environments.

TSM

The TSM waveform is used worldwide in highly challenging tactical environments, supporting military, commercial, and public safety missions.

Unlike many competing commercial MANET solutions that overlay Internet-driven routing protocols over commercial technologies such as Wi-Fi (802.11n), TSM is a true Software Defined Radio (SDR) waveform that includes all network layers and is offered in different variants to support various mission profiles. It has been ported to many third-party SDR products, including eight Program of Record (POR) tactical radios for the US military.

The TSM waveform offers robust, reliable communications with simplified network management, and has been validated in real, critical missions with diverse use cases ranging from Intelligence, Surveillance & Reconnaissance (ISR) to Command & Control (C2) applications in some of the most challenging environments.

Katana

The Katana waveform is a Software Defined Radio (SDR)-based solution that facilitates communications in near-peer threat environments and provides broad spectrum allocation options for global deployment. Used together with TrellisWare's TSM waveform, the Katana waveform can provide for the Primary, Alternate, Contingency, and Emergency (PACE) capability for operation in both congested and contested environments.

The Katana waveform represents the modernization of resilient long-range narrowband communication while being interoperable with the Warrior Robust Enhanced Networking Narrowband (WREN NB) waveform at the Sensitive But Unclassified (SBU) security level.

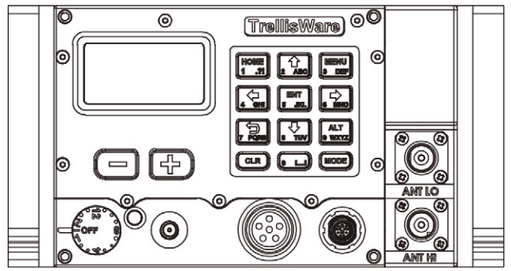
Products

Each radio in the Trellisware family of TSM-enabled products runs with the robust TSM waveform. The TSM Shadow radios are available as full-featured handhelds or in vehicular configurations, while the TSM Ghost radios are small form factor and simplified. Both product lines are Software Defined Radios (SDR) that support a wide frequency range. TSM-enabled products interoperate with each other over the TSM network and are easy to integrate into larger systems for complete coverage, security, and service.

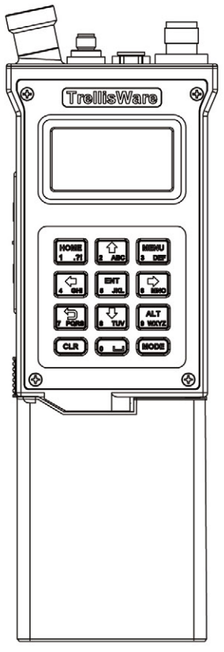
TrellisWare Technologies is proud to provide our emergency management professionals with TSM-enabled radios which are Federal Communications Commission (FCC) Part-15 certified. These certifications provide emergency management organizations the flexibility to operate freely in an unlicensed spectrum. Please review our family of handheld and wearable radios for the latest FCC spectrum supported products, along with approved accessories.

If your agency has further questions regarding TrellisWare's family of radios and capabilities, please reach out to info@trellisware.com.

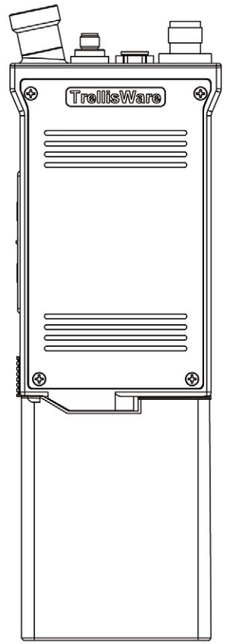
TSM Shadow Product Line



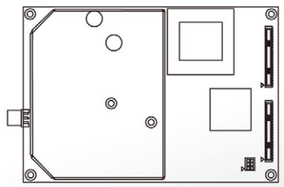
TW-135
TSM Shadow HPR



TW-950
TSM Shadow Radio

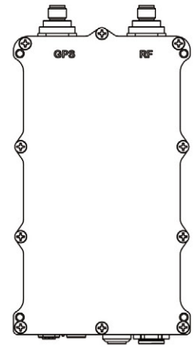


TW-900
TSM Shadow Radio

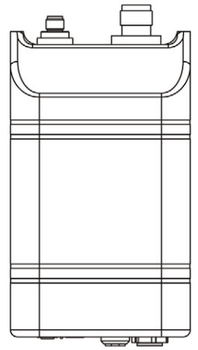


TW-650
TSM Shadow Module

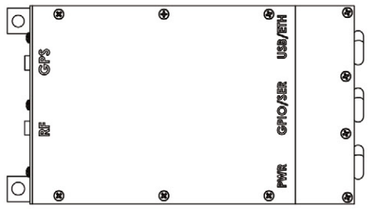
TSM Ghost Product Line



TW-870
TSM Ghost Radio



TW-875
TSM Ghost Radio



TW-880
TSM Ghost Embedded Module

TSM Spirit Product Line

TW-860
TSM Spirit Radio

TW-950 TSM Shadow Radio

Highlights

- Industry-leading size, weight, and power (SWaP) among tactical networking radios
- Supports simultaneous voice talk groups, rapid PLI reporting, Internet Protocol (IP) data, and video streaming all in a compact form factor
- Built-in Multi-Net Bridge (MNB) capability
- Accessory offering enables a wide range of use cases with multiple power options, data interfaces, and audio ancillaries
- FCC/IC-certified configuration available

SPECIFICATIONS

Physical	
Overall Size	4.54 L x 2.76 W x 0.87 D in (115.32 x 70.10 x 22.10 mm)
Weight (R/T only)	11.3 oz (320 g)
Frequency Range	• L-UHF: 225–450 MHz • U-UHF: 698–970 MHz • L/S Bands: 1250–2600 MHz
Configurable Bandwidth	1.2, 3.6, 10, 20, 40 MHz
Spectrum Pipelining Bandwidth	20 MHz and 40 MHz
Transmit Power	100mW, 250mW, 500mW, 1W, 2W
Battery Life	8 Hours with 32 Wh Rechargeable Battery
Input Power	3.0 – 4.0 V DC, 31 W max.
Connectors	• ODU data/audio, TNC RF, SMA GPS • 36-pin side connector
Data Rate	Pt. to Pt., up to 32 Mbps (1-hop)
Environmental	MIL-STD-810G
Operating Temperature Range	-20°C to +55°C (-4°F to +131°F)
Water Resistant	IP68
IP Support	IPv4, IPv6; Unicast, Multicast, Broadcast; TCP, UDP
Audio Encoding	AMR 5.9, MELPe, AAC Audio
Video Encoding	SD and HD H.264
Net Entry Time	< 1 Second
Waveform	TSM 6, (Katana Optional)

Networking	
Network Coverage	• Mobile Ad Hoc Networking • Multi-hop – Up to 8 Hops • 800 Nodes in a Single RF Channel • Robust in Harsh RF Environments
Communication Services	• Simultaneous Voice, Data, and PLI • Up to 32 Voice Talk Groups • Built-in GPS chip AFAIK • IP Support – IPv4, IPv6; Unicast, Multicast, Broadcast; TCP, UDP
Security	• AES-256
Application Support	• Built-in Web Applications • Over the Air Remote Control • APIs for 3rd Party Integration • PLI with CoT, KML, and JSON • Integration with Android™

Frequency range, Waveform limited for FCC/IC as shown below:	
FCC/IC Frequency Range	2400–2483.5 MHz
Waveform	TSM Only
FCC/IC Transmit Power	100mW, 250mW, 500mW, 1W

Specifications subject to change without notice.

Note: For Military and Public Safety/Security Use. Please contact TrellisWare Customer Support at **support@trellisware.com** for FCC/IC radio options, or EU and UK declarations.

UK CA | CE

TW-900 TSM Shadow Radio

Highlights

- Industry-leading size, weight, and power (SWaP) among tactical networking radios
- Supports simultaneous voice talk groups, rapid PLI reporting, Internet Protocol (IP) data, and video streaming all in a compact form factor
- Built-in Multi-Net Bridge (MNB) capability
- Accessory offering enables a wide range of use cases with multiple power options, data interfaces, and audio ancillaries
- FCC/IC-certified configuration available

SPECIFICATIONS

Physical	
Overall Size	4.54 L x 2.76 W x 0.87 D in (115.32 x 70.10 x 22.10 mm)
Weight (R/T only)	11.3 oz (320 g)
Frequency Range	• L-UHF: 225–450 MHz • U-UHF: 698–970 MHz • L/S Bands: 1250–2600 MHz
Configurable Bandwidth	1.2, 3.6, 10, 20 MHz
Spectrum Pipelining Bandwidth	20 MHz and 40 MHz
Transmit Power	100mW, 250mW, 500mW, 1W, 2W
Battery Life	8 Hours with 32 Wh Rechargeable Battery
Input Power	3.0 – 4.0 V DC, 31 W max.
Connectors	• ODU data/audio, TNC RF, SMA GPS • 36-pin side connector
Data Rate	Pt. to Pt., up to 32 Mbps (1-hop)
Environmental	MIL-STD-810G
Operating Temperature Range	-20°C to +55°C (-4°F to +131°F)
Water Resistant	IP68
IP Support	IPv4, IPv6; Unicast, Multicast, Broadcast; TCP, UDP
Audio Encoding	AMR 5.9, MELPe, AAC Audio
Video Encoding	SD and HD H.264
Net Entry Time	< 1 Second
Waveform	TSM 6, (Katana Optional)

Networking	
Network Coverage	• Mobile Ad Hoc Networking • Multi-hop – Up to 8 Hops • 800 Nodes in a Single RF Channel • Robust in Harsh RF Environments
Communication Services	• Simultaneous Voice, Data, and PLI • Up to 32 Voice Talk Groups • Built-in GPS chip AFAIK • IP Support – IPv4, IPv6; Unicast, Multicast, Broadcast; TCP, UDP
Security	• AES-256
Application Support	• Built-in Web Applications • Over the Air Remote Control • APIs for 3rd Party Integration • PLI with CoT, KML, and JSON • Integration with Android™

Frequency range, Waveform limited for FCC/IC as shown below:	
FCC/IC Frequency Range	2400–2483.5 MHz
Waveform	TSM Only
FCC/IC Transmit Power	100mW, 250mW, 500mW, 1W

Specifications subject to change without notice.

Note: For Military and Public Safety/Security Use. Please contact TrellisWare Customer Support at **support@trellisware.com** for FCC/IC radio options, or EU and UK declarations.

UK CA | CE

Note: Product model TW-900 provides TSM Shadow capabilities without the front panel screen or keypad

PHOTOS BY: MASTER SGT. MATT HECHT(SILHOUETTE) AND SPC. MONIQUE O'NEILL U.S. SPECIAL OPERATIONS COMMAND EUROPE PUBLIC AFFAIRS(SOLDIERS)

TW-950 TSM Shadow Radio Accessories

Antenna Options

GPS Antennas

TW-1110
GPS Stub Antenna

TW-1115
GPS Patch Antenna

L/S Band Antennas

TW-1143
4dBi Dual-Band Antenna

TW-1144
Narrowband Antenna

TW-1145
Narrowband Antenna

TW-1147
1250-2700 MHz L/S Band Antenna

TW-1146
Narrowband Antenna

TW-1148
L/S Dual Band Antenna

Vehicle Antennas

TW-1141
Magnetic Mount

TW-1180
Vehicular GPS Antenna

Multi-Band Antennas

TW-1160
Handheld U/L/S Multi-Band Antenna

TW-1161
Body-Worn Antenna

TW-1165
Tri-Band Antenna

UHF Antennas

TW-1150
LUHF Antenna

TW-1151
LUHF Antenna

TW-1152
LUHF Manpack Antenna

Power Options

TW-1450
32 WHr Rechargeable Battery

TW-1400 + **TW-1406**
6–18 V Power Adapter
BA-5590 Power Cable

TW-1451
BB-2590 Battery

TW-1400 + **TW-1408**
6–18 V Power Adapter
Glenair Binder Power Cable

Solopack

Conformal

TW-1402
High Capacity Battery Adapter

16 Hrs

TW-1400 + **TW-1390**
6–18 V Power Adapter
Power Adapter

TW-1400 + **TW-1407**
6–18 V Power Adapter
Tajimi Binder Power Cable

6-18VDC Input Power

TW-1400 + **TW-1401**
6–18 V Power Adapter
Power Pigtail

6-18VDC Input Power

TW-1460
Single Battery Charger

TW-1465
6–Bay Battery Charger

Data Adapters Options

TW-1230
USB Host Dongle

TW-1255
Ethernet Video Dongle

TW-1265
USB 6-Pin Dongle

TW-1710
Compact Ethernet Dongle

TW-1712
Ethernet Pigtail Dongle

TW-1725
HD Video Dongle

TW-1750
Multi-Sensor Dongle

TW-1760
Wi-Fi Dongle

Audio Options

TW-3021
Atlantic Signal Comtac V Headset
Dual TG

TW-3020
VIPER 2 PUSH-TO-TALK

TW-1607
Atlantic Signal Audio/Data Cable

TW-1617
Atlantic Signal Audio Cable

TW-3011
Falcom OTE2000 PTT
Dual TG

TW-3010
Falcom MFC1000 PTT

TW-1606
FalCom PTT and Glenair USB

TW-1616
Falcom Audio Cable

TW-3031
Invisio T5 Headset
Dual TG

TW-3030
Invisio V20 PTT

TW-1608
Invisio PTT and Glenair USB

TW-1618
ADP to Invisio PTT Cable

TW-1435
Audio Headset

TW-1605
V Cable 6-Pin Audio and NW USB

TW-1615
6-Pin Audio Adapter

TW-1630
3.5 mm PTT

Dual TG

TW-1625
STORM™ Speaker Microphone
Dual TG

TW Connect Android PTT Audio

SCAN ME

TW-950 Low-Profile Radio Kit

3.5 mm Headphones

TW-1630
3.5mm PTT

End User Device

TW-1760
WiFi Dongle

TW-1450
32 WHr
Rechargeable
Battery

TW-950 Soldier Radio Kit Options

OTE Headset Options

Dual TG PTT

Audio/Data

End User Device

TW-1402
High Capacity Battery
Adapter

MBITR/Harris 152 Battery

TW-950 TSM Shadow Radio Antenna Guide

GPS Antennas

TW-1110
GPS Stub Antenna

TW-1115
GPS Patch Antenna

Muti-Band Antennas

TW-1165
Tri-Band Antenna

TW-1160
Handheld U/L/S Multi-Band Antenna

TW-1161
Body-Worn Antenna

UHF Antennas

TW-1150
LUHF Antenna

TW-1151
LUHF Antenna

TW-1153
LUHF Antenna

L/S Band Antennas

TW-1143
4dBi Dual-Band Antenna

TW-1144
Narrowband Antenna

TW-1145
Narrowband Antenna

TW-1146
Narrowband Antenna

TW-1147
1250-2700 MHz L/S Band Antenna

TW-1148
L/S Dual Band Antenna

Antenna Specs				UHF	UUHF	L-Band
TW Part Number	Gain	Length	Input W	225 MHz-450 MHz	698 MHz - 970 MHz	1250 MHz
TW-1110	None	NA	NA			
TW-1115	Amplified	NA	NA			
TW-1143	+4 dBi	12 in	20 W			
TW-1144	+4 dBi	15.9 in	20 W			1250-1450 MHz
TW-1145	+4 dBi	13.25 in	20 W			
TW-1146	+4 dBi	12 in	20 W			
TW-1147	+5 dBi	15.5 in	20 W			1250-2000 MHz
TW-1148	+7 dBi	21.25 in	20 W			
TW-1150	-2 to +3 dBi	10 in	8 W			
TW-1151	-5 to +2 dBi	10.25 in	10 W			
TW-1152	+1 dBi	22 in	20 W			
TW-1153	-5 to +2 dBi	10 in	10 W			
TW-1160	-1 to +2 dBi	11.4 in	20 W		675 MHz - 970 MHz	1250-2000 MHz
TW-1161	-1 to +2 dBi	6 in	20 W		675 MHz - 970 MHz	1250-2000 MHz
TW-1165	-3 to +1 dBi	11 in	10 W			
TW-1170	+1 to +2 dBi	32 in	20 W			
TW-1175	+3 to +5 dBi	28.8 in	50 W		675 MHz - 970 MHz	
TW-1180	Amplified	NA	NA			
TW-1190	2 dBi	39 in	10 W			
TW-1199, Antenna Kit	Various	Various	Various		675 MHz - 970 MHz	1250-2000 MHz

L-Band							S-Band						
1350 MHz	1450 MHz	1550 MHz	1650 MHz	1750 MHz	1850 MHz	1950 MHz	2050 MHz	2150 MHz	2250 MHz	2350 MHz	2450 MHz	2550 MHz	2600 MHz
				1755-1815 MHz				2200-2270 MHz					
				1750-1850 MHz									
								2200-2350 MHz					
1250-2000 MHz							2000-2600 MHz						
				1755-1850 MHz				2200-2270 MHz					
1250-2000 MHz							2000-2600 MHz						
1250-2000 MHz							2000-2600 MHz						
1250-2000 MHz							2000-2600 MHz						
1250-2000 MHz													
1250-2000 MHz							2000-2600 MHz						
				1755-1850 MHz				2200-2270 MHz					
1250-2000 MHz							2000-2600 MHz						

TW-135 TSM Shadow High Power Radio (HPR)

Highlights

- Contains all of the features of the TW-950 radio
- Delivers up to 20 watts of transmit power in UHF, L-band, and S-band to extend and strengthen MANET networks
- Versatile form factor that supports vehicular, airborne, fixed-site, or manpack configurations
- Shares common accessories with the TW-900/950 handheld radio to maximize flexibility and save life cycle cost

SPECIFICATIONS

Physical	
Size (R/T Only)	7.98 L x 6.45 W x 3.4 H in (202.69 x 163.83 x 86.36 mm)
(Without Handles)	7.46 L x 5.25 W x 3.4H in (189.48 x 133.35 x 86.36 mm)
Weight (R/T only)	6.40 lbs (181.44 g)
Frequency Range	• L-UHF: 225–450 MHz • U-UHF: 698–970 MHz • L/S Bands: 1250–2600 MHz
Configurable Bandwidth	1.2, 3.6, 10, 20, 40 MHz
Transmit Power	100mW, 2W, 5W, 10W, 20W
Spectrum Pipelining Bandwidth	20 MHz and 40 MHz
Operating Temperature	-20°C to +55°C (-4°F to +131°F)
Environmental	MIL-STD-810G
Water Resistant	IP67
Connectors	ODU Data/Audio, 6-Pin Audio, TNC RF, SMA GPS, 36-pin top connector
Data Rate	Pt. to Pt., up to 32 Mbps (1-hop)
IP Support	IPv4, IPv6; Unicast, Multicast, Broadcast; TCP, UDP
Audio Encoding	AMR 5.9, MELPe, AAC Audio
Video Encoding	SD and HD H.264
Net Entry Time	< 1 Second
Waveform	TSM 6, (Katana Optional)

Networking	
Network Coverage	• Mobile Ad Hoc Networking • Multi-hop – Up to 8 Hops • 800 Nodes in a Single RF Channel • Robust in Harsh RF Environments
Communication Services	• Simultaneous Voice, Data, and PLI • Up to 32 Voice Talk Groups • Built-in GPS chip AFAIK • IP Support – IPv4, IPv6; Unicast, Multicast, Broadcast; TCP, UDP
Security	• AES-256
Application Support	• Built-in Web Applications • Over the Air Remote Control • APIs for 3rd Party Integration • PLI with CoT, KML, and JSON • Integration with Android™

Specifications subject to change without notice.

PHOTOS BY: CPL. SCOTT JENKINS(HUMVEE), THE U.S. AIR FORCE(C-17) AND TOMMIE HORTON(MOBILE UNIT)

TW-135 TSM Shadow High Power Radio (HPR) Accessories

Antenna Options

GPS Antennas

TW-1110 GPS Stub Antenna

TW-1115 GPS Patch Antenna

TW-1180 Vehicular GPS Antenna

L/S Band Antennas

TW-1143 4dBi Dual-Band Antenna

TW-1144 Narrowband Antenna

TW-1145 Narrowband Antenna

TW-1146 Narrowband Antenna

TW-1147 1250-2700 MHz L/S Band Antenna

TW-1148 L/S Dual Band Antenna

Vehicular Antennas

TW-1170 LUHF Vehicular Antenna

TW-1175 UUHF, L, and S Vehicular Antenna

TW-1190 Dual-Band Vehicular Antenna

UHF Antennas

TW-1150 LUHF Antenna

TW-1151 LUHF Antenna

TW-1152 LUHF Manpack Antenna

Multi-Band Antennas

TW-1160 Handheld U/L/S Multi-Band Antenna

MFC Connector

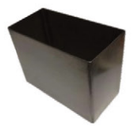
- Ethernet
- USB Host
- HD/Analog Video In
- Pwr out, 5VDC/1A

6 – Pin Audio Adapter

ODU Audio/Data Connector

- 2TG Audio, Simultaneous
- Voice Overide Feature
- Cell Phone Quality AMR Voice Codec
- Up to 32 Talk Groups
- Compatible with most tactical audio vendors
- USB OTG
- Pwr out, 5VDC/1A

Power Options



TW-2220 Battery Canister

TW-1451 BB-2590 Battery

TW-1310 Battery Eliminator

TW-2225 Shock Mount, HPR

DC Power Input

TW-2226 DC Adapter, HPR

TW-1301 HPR Power Pigtail

Data Adapters

TW-1230 USB Host Dongle

TW-1255 Ethernet Video Dongle

TW-1650 ADP to Ethernet Adapter

TW-1665 Glenair USB Adapter

TW-1670 USB Type-A Adapter

TW-1710 Ethernet Pigtail Dongle

TW-1712 Ethernet Pigtail Dongle

TW-1725 HD Video Dongle

TW-1726 HD Video Dongle

TW-1750 Multi-Sensor Dongle

TW-1760 Wi-Fi Dongle

Audio Options

TW-3021 Atlantic Signal Comtac V Headset

TW-3020 VIPER 2 PUSH-TO-TALK

TW-1607 Atlantic Signal Audio/Data Cable

TW-1617 Atlantic Signal Audio Cable

****Dual TG****

TW-3011 Falcom OTE2000 PTT

TW-3010 Falcom MFC1000 PTT

TW-1606 FalCom PTT and Glenair USB

TW-1616 Falcom Audio Cable

****Dual TG****

TW-3031 Invisio T5 Headset

TW-3030 Invisio V20 PTT

TW-1608 Invisio Audio/Data Cable

TW-1618 ADP to Invisio PTT Cable

****Dual TG****

TW-1630 3.5 mm PTT

****Dual TG****

****3.5mm earbud sold separately****

TW-1435 Audio Headset

TW-1605 V Cable 6-Pin Audio and USB

TW-1625 STORM™ Speaker Microphone

****Dual TG****

TW Connect Android App PTT Audio

SCAN ME

TW-860 TSM Spirit Radio Accessories

Highlights

- Designed specifically for body-wearable applications with industry-leading SWaP among body-worn mesh networking radios
- Seamless data connectivity for all body-worn end-user equipment
- Full TSM voice capability with dual push-to-talk (PTT) and up to 32 selectable talk groups
- FCC/IC-certified configuration available

SPECIFICATIONS

Physical	
Overall Size	4.70 L x 2.50 W x 0.74 H in (119.38 x 63.50 x 18.79 mm)
Weight	8.81 oz (249 g)
Frequency Range	• L-UHF: 225–450 MHz • U-UHF: 698–970 MHz • L/S Bands: 1250–2600 MHz
Configurable Bandwidth	1.2, 3.6, 10, 20 MHz
Transmit Power	100mW, 250mW, 500mW, 1W, 2W
Spectrum Pipelining Bandwidth	20 MHz and 40 MHz
Operating Temperature	-20°C to +55°C (-4°F to +131°F)
Environmental	MIL-STD-810G
Water Resistant	IP67 without USB-A cap, IP68 with USB-A cap
MTBF	16,310 hours (MIL-HDBK-217 FN2)
RF Connector	TNC
Commercial GPS Support	SMA connector, U-Blox EVA-7M Module
Headset Audio Port	9-Pin Connector – Supports Dual Push-To-Talk (PTT) and Two Simultaneous Talkgroups
Data/Power Port	12-Pin ODU Connector – Supports USB-C Power Delivery and Data
Secondary USB Port	USB-A Connector – Supports Data, Programming, WiFi, and BlueTooth Accessories
Input Power	5 V to 20 V
Data Rate	Pt. to Pt., up to 32 Mbps (1-hop)
Net Entry Time	< 1 Second
Waveform	TSM 6, (Katana Optional)

Note: For Military and Public Safety/Security Use. Please contact TrellisWare Customer Support at **support@trellisware.com** for FCC/IC radio options, or EU and UK declarations.

Networking	
Network Coverage	• Mobile Ad Hoc Networking • Multi-hop – Up to 8 Hops • 800 Nodes in a Single RF Channel • Robust in Harsh RF Environments • Range – 26 Miles (40 Km) in a Single Hop
Communication Services	• Simultaneous Data and PLI • Up to 32 Voice Talk Groups with Voice Option • Built-in GPS chip AFAIK • IP Support – IPv4, IPv6; Unicast, Multicast, Broadcast; TCP, UDP
Security	• AES-256
Application Support	• Built-in Web Applications • Over the Air Remote Control • APIs for 3rd Party Integration • PLI with CoT, KML, and JSON • Integration with Android™ applications

Frequency range, Waveform limited for FCC/IC as shown below:	
FCC/IC Frequency Range	2400–2483.5 MHz
Waveform	TSM Only, No HDR Support
FCC/IC Transmit Power	100mW, 250mW, 500mW, 1W, 2W

Specifications subject to change without notice.

PHOTO BY: U.S. AIR FORCE- STAFF SGT. JOSHUA KLEINHOLZ(DRONE) AND JOSH DENMARK/CUSTOMS AND BORDER PROTECTION

TW-860 TSM Spirit Radio

Antenna Options

GPS Antennas

TW-1110
GPS Stub Antenna

TW-1115
GPS Patch Antenna

L/S Band Antennas

TW-1143
4dBi Dual-Band Antenna

TW-1144
Narrowband Antenna

TW-1145
Narrowband Antenna

TW-1146
Narrowband Antenna

TW-1147
1250-2700 MHz L/S Band Antenna

TW-1148
L/S Dual Band Antennaa

UHF Antennas

TW-1150
LUHF Antenna

TW-1151
LUHF Antenna

TW-1152
LUHF Manpack Antenna

Multi-Band Antennas

TW-1160
Handheld U/L/S Multi-Band Antenna

TW-1161
Body-Worn Antenna

TW-1165
Tri-Band Antenna

HAP Headset-Audio Port
Audio only, 2TG Capabler

Data/Power ODU Connector

Power Options

TW-1828
Power Adapter, DPP to Conformal

TW-1851
Power Pigtail Cable

TW-1852
Adapter Cable, DPP to USB-C

TW-1853
DPP to USB-C Power and USB-A Data

TW-1854
Pwr-Data DPP to NWPAN Glenair

TW-1822
Power, DPP to High Capacity Battery

MBITR/152 Battery

TW-1851
DPP to Flying Leads

6-18VDC Input Power

Radio EUD

TW-1855
Pwr-Data DPP to NWPAN Glenair

Solopack

Conformal

Data Adapters

TW-1850
DPP to IVAS Puck

TW-1853
DPP to USB-C Power and USB-A Data

TW-1854
Pwr-Data DPP to NWPAN Glenair

TW-2300
USB-A WiFi Adapter

TW-2301
USB-A Ethernet Adapter

Audio Options

atlantic signal

Dual TG

TW-3021
Atlantic Signal Comtac V Headset

TW-3020
VIPER 2 PUSH-TO-TALK

TW-1687
Audio Adapter, HAP to Atlantic Signal PTT

FALCOM GN

Dual TG

TW-3011
Falcom OTE2000 PTT

TW-3010
Falcom MFC1000 PTT

TW-1686
Audio Adapter, HAP to Falcom PTT

INVISIO®

Dual TG

TW-3031
Invisio T5 Headset

TW-3030
Invisio V20 PTT

TW-1688
Audio Adapter, HAP to Invisio PTT

TW-1630
3.5 mm PTT

Dual TG

TW-1635
STORM™ Speaker Microphone

Dual TG

TW-1685
Audio Adapter, HAP to 6-Pin

TW Connect Android App PTT Audio

SCAN ME

TW-860 TSM Spirit Soldier Kit

Headset

Dual PTT

Audio Cable

Antenna Options

TW-1147
1250-2700 MHz
L/S Band Antenna

TW-1151
UHF Antenna

TW-1110
GPS Stub
Antenna

Mount Options

TW-1521
Molle Clip

Power Options

Ultralife
UBBL08-01

OR

Solopack

OR

Conformal

TW-1855
Pwr-Data DPP to
NWPAN Glenair

End User Device

TW-860 TSM Spirit Radio Options

The TrellisWare TW-860 TSM Spirit Radio is designed to meet the multi-domain needs of today's next-generation soldier systems, public safety, and first responder requirements. The TW-860 TSM Spirit offers customizable solutions and purchase options to meet your specific organizational needs.

Reference the below chart to build out your radio by selecting the options that best meet your needs and budget. Options support both voice and PLI-centric use cases, as well as data-centric use cases.

Contact your TrellisWare Business Development Director or Account Manager for more details.

	TW-860-00X	TW-860-0VX	TW-860-0EX	TW-860-0MX
	TW-860 TSM Spirit Base	TW-860 TSM Spirit w/Voice	TW-860 TSM Spirit w/Extended Bandwidth	TW-860 TSM Spirit w/Voice and Extended Bandwidth
	1.2MHZ, 4MHZ	1.2MHz, 4MHz	1.2MHz, 4MHz, 10MHz, 20MHz	1.2MHz, 4MHz, 10MHz, 20MHz
VOICE TRANSMIT		✓		✓
VOICE/DATA/PLI RELAY	✓	✓	✓	✓
HD VIDEO RELAY			✓	✓
TSM HDR			✓	✓
TSM LONG RANGE MODE	✓	✓	✓	✓

TW-875 TSM Ghost Radio

Highlights

- Ideal for network relay when a full-featured radio is not required
- Provides USB On The Go (OTG) data interface for IP data, configuration, and network monitoring
- Shares common antennas and cabling with the TW-900/950 handheld radio to maximize flexibility and save life cycle cost
- FCC/IC-certified configuration available

SPECIFICATIONS

Physical	
Overall Size	4.06 L x 2.50 W x 1.46 H in (103.12 x 63.50 x 37.08 mm)
Weight	16 oz (450 g)
Frequency Range	• L-UHF: 225–450 MHz • U-UHF: 698–970 MHz • L/S Bands: 1250–2600 MHz
Configurable Bandwidth	1.2, 3.6, 10, 20 MHz
Spectrum Pipelining Bandwidth	20 MHz and 40 MHz
Transmit Power	100mW, 250mW, 500mW, 1W, 2W
Input Power	5 V to 20 V
Connectors	• USB On-the-Go • RF TNC • GPS SMA
Data Rate	Pt. to Pt., up to 32 Mbps (1-hop)
Security	• Built-in AES-256 COMSEC • TRANSEC
Environmental	MIL-STD-810G
Water Resistant	IP68
Operating Temperature Range	-20°C to +55°C (-4°F to +131°F)
Net Entry Time	< 1 Second
Waveform	TSM 6, (Katana Optional)

Specifications subject to change without notice.

Note: For Military and Public Safety/Security Use. Please contact TrellisWare Customer Support at **support@trellisware.com** for FCC/IC radio options, or EU and UK declarations.

Networking	
Network Coverage	• Mobile Ad Hoc Networking • Multi-hop – Up to 8 Hops • 800 Nodes in a Single RF Channel • Robust in Harsh RF Environments
Communication Services	• Relay node for all TSM services (Voice, Data, PLI) • Built-in GPS chip AFAIK • IP Support – IPv4, IPv6; Unicast, Multicast, Broadcast; TCP, UDP
Security	• AES-256
Application Support	• Built-in Web Applications • Over the Air Remote Control • APIs for 3rd Party Integration • PLI with CoT, KML, and JSON • Integration with Android™ applications

Frequency range, Waveform limited for FCC/IC as shown below:	
FCC/IC Frequency Range	2400–2483.5 MHz
Waveform	TSM Only
FCC/IC Transmit Power	100mW, 250mW, 500mW, 1W

SCAN ME

TW-875 TSM Ghost Radio Accessories

Antenna Options

L/S Band Antennas

TW-1143
4dBi Dual-Band Antenna

TW-1152
LUHF Manpack Antenna

TW-1150
LUHF Antenna

GPS Antennas

TW-1110
GPS Stub Antenna

TW-1115
GPS Patch Antenna

TW-1141
Magnetic Mount

Multi-Band Antennas

TW-1160
Handheld U/L/S Multi-Band Antenna

TW-1161
Body-Worn Antenna

TW-1165
Tri-Band Antenna

Data Adapters Options

TW-1601
ADP to Flying Leads

TW-1650
ADP to Ethernet Adapter

TW-1665
Glenair USB Adapter

TW-1670
USB Type-A Adapter

Power/Mount Options

TW-1800
Power Cable with Binder

TW-1390
Power Adapter

TW-1800
Power Cable with Binder

TW-1407
Tajimi Binder Power Cable

6-18VDC Input Power

TW-1805
Power Cable w/ USB A Connector

TW-1516
Magnetic Mount for TW-875 TSM Ghost radio

TW-1800
Power Cable with Binder

TW-1408
Glenair Binder Power Cable

Solopack

Conformal

TW-1800
Power Cable with Binder

TW-1406
BA-5590 Power Cable

TW-1451
BB-2590 Battery

TW-1801
Power Pigtail

TW-875 Radio Relay Kit Options

Antenna Options

TW-1147
1250-2700 MHz L/S Band Antenna

TW-1152
LUHF Manpack Antenna

TW-1110
GPS Stub Antenna

Power Options

TW-1800
ODU to Binder

TW-1408
Binder to Glenair

Solopack

OR

Conformal

TW-1800
ODU to Binder

TW-1406
BB2590 Power Cable

TW-1451
BB2590 Battery

TW-870 TSM Ghost Radio

Highlights

- Fully integrated, self-contained radio module for integration into third-party systems with minimal engineering effort
- Accepts outside power, has GPS and RF antenna connectors, and a data interface
- Designed for quick integration into uncrewed systems and other platforms
- Cost-effective option when mission set only requires relay for data transfer and/or network extension
- FCC/IC-certified configuration available

SPECIFICATIONS

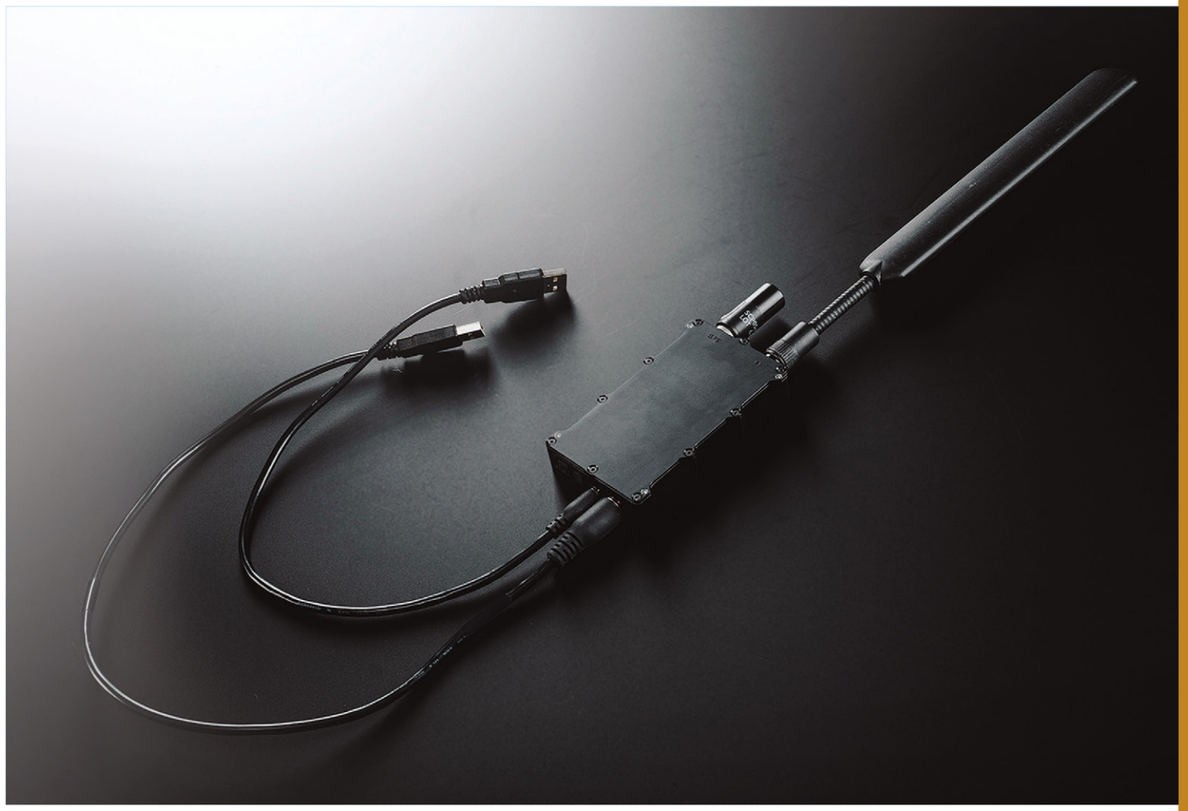
Physical	
Overall Size	4.69 H x 2.46 W x 0.68 D in (11.91 x 6.25 x 1.73 cm)
Weight	8.8 oz (0.24 kg)
Frequency Range	• L-UHF: 225-450 MHz • U-UHF: 698–970 MHz • L/S Bands: 1250–2600 MHz
Configurable Bandwidth	1.2, 3.6, 10, 20 MHz
Transmit Power	100mW, 250mW, 500mW, 1W, 2W
Input Power	8 V to 20 V, 21 W peak, 3A max
Spectrum Pipelining Bandwidth	20 MHz and 40 MHz
Connectors	• USB On-the-Go • RF SMA • GPS SMA • 4-Pin ODU Power
Data Rate	Pt. to Pt., up to 16 Mbps (1-hop)
Security	• Built-in AES-256 COMSEC • TRANSEC
Environmental	MIL-STD-810G
Water Resistant	IP68
Operating Temperature Range	-20°C to +55°C (-4°F to +131°F)
Net Entry Time	< 1 Second
Waveform	TSM 6, (Katana Optional)

Specifications subject to change without notice.

Note: For Military and Public Safety/Security Use. Please contact TrellisWare Customer Support at **support@trellisware.com** for FCC/IC radio options, or EU and UK declarations.

Networking	
Network Coverage	• Mobile Ad-hoc Networking • Multi-hop – Up to 8 Hops • 400+ Nodes in a Single RF Channel • Robust in Harsh RF Environments
Communication Services	• Relay node for all TSM services (Voice, Data, PLI) • Built-in GPS chip AFAIK • IP Support – IPv4, IPv6; Unicast, Multicast, Broadcast; TCP, UDP
Security	• AES-256
Application Support	• Built-in Web Applications • Over the Air Remote Control • APIs for 3rd Party Integration • PLI with CoT, KML, and JSON • Integration with Android™ applications

Frequency range, Waveform limited for FCC/IC as shown below:	
FCC/IC Frequency Range	2400–2483.5 MHz
Waveform	TSM Only
FCC/IC Transmit Power	100mW, 250mW, 500mW, 1W



SCAN ME

TW-880 TSM Ghost Embedded Module

Highlights

- Smallest, lightest, and most capable product for plug and play integration of the TSM waveform
- Requires minimal integration effort

SPECIFICATIONS

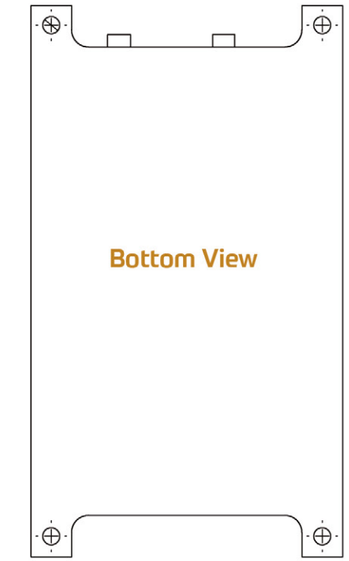
Physical	
Size	4.12 H x 2.30 W x 0.68 D in (104.7 x 58.4 x 17.2 mm)
Weight	4.64 oz (132 g)
Frequency Range	• L-UHF: 225–450 MHz • U-UHF: 698–970 MHz • L/S Bands: 1250–2600 MHz
Configurable Bandwidth	1.2, 3.6, 10, 20, 40 MHz
Spectrum Pipelining Bandwidth	User-selectable spacing with 20 or 40 MHz occupied bandwidth
Transmit Power	100mW, 250mW, 500mW, 1W, 2W
Input Power	8 to 20 VDC
Environmental	MIL-STD-810G Shock & Vibration
Ingress Protection	IP41
Operating Temperature Range	-20°C to +55°C (-4°F to +131°F)
Interfaces	USB On-the-Go, Ethernet, Control Status, Serial Data, RF SMP, GPS SMA
Data Rate	Pt. to Pt., up to 32 Mbps (1-hop)
Net Entry Time	< 1 Second
Waveform	TSM 6

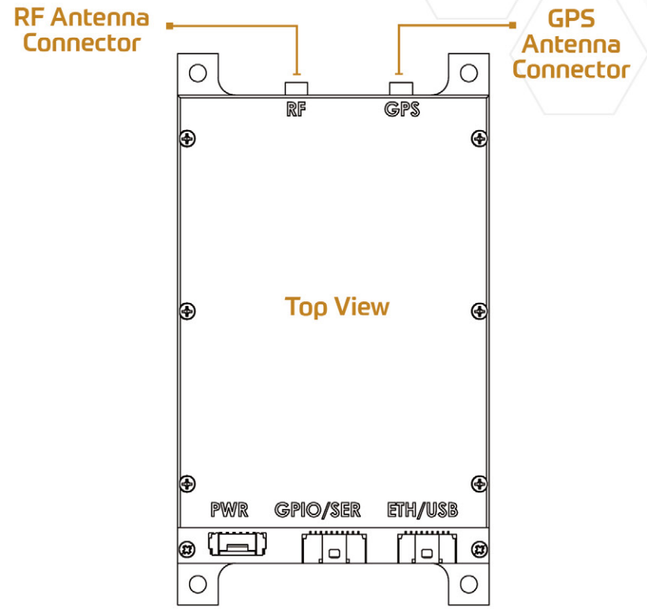
Specifications subject to change without notice.

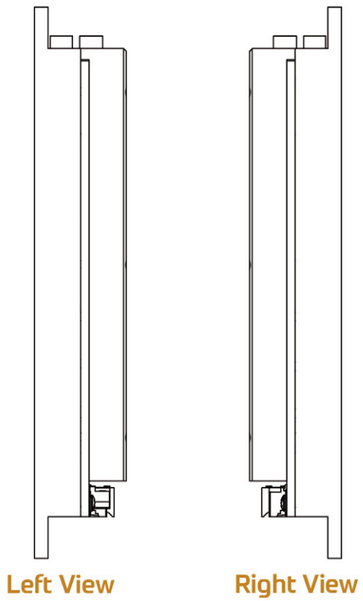
Networking	
Network Coverage	• Mobile Ad Hoc Networking • Multi-hop – Up to 8 Hops • 800 Nodes in a Single RF Channel • Robust in Harsh RF Environments
Communication Services	• Simultaneous Voice, Data, and PLI • Up to 32 Voice Talk Groups • Built-in GPS chip AFAIK • IP Support – IPv4, IPv6; Unicast, Multicast, Broadcast; TCP, UDP
Security	• AES-256
Application Support	• Built-in Web Applications • Over the Air Remote Control • APIs for 3rd Party Integration • PLI with CoT, KML, and JSON • Integration with Android™

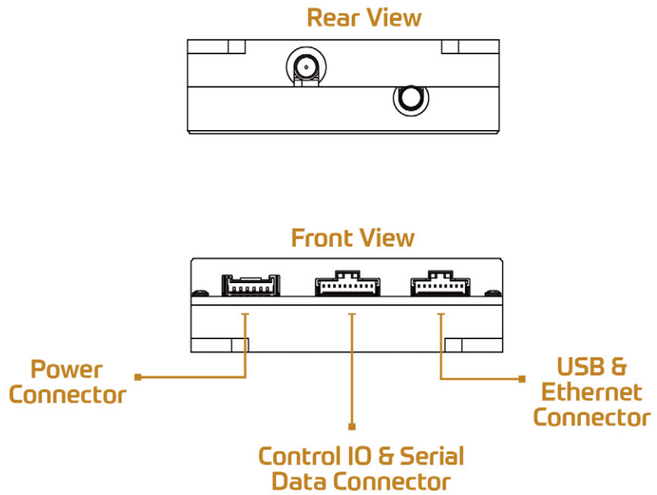
PHOTOS BY: STAFF SGT. JACOB SAWYER

Components



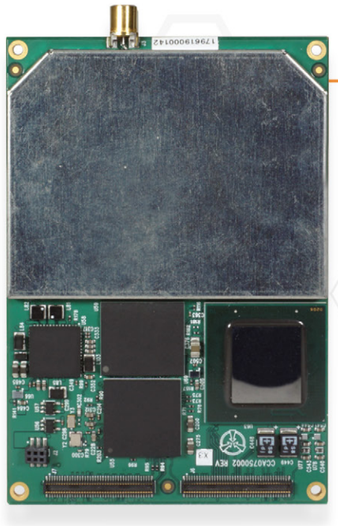






SCAN ME

TW-650 TSM Shadow Core Board Module



Highlights

- Advanced SDR architecture designed for embedment into a wide range of systems
- Designed for optimal SWaP allowing for embedment into small to large platforms
- Full software application programming interface (API) for status and control of the radio through an IP interface

SPECIFICATIONS

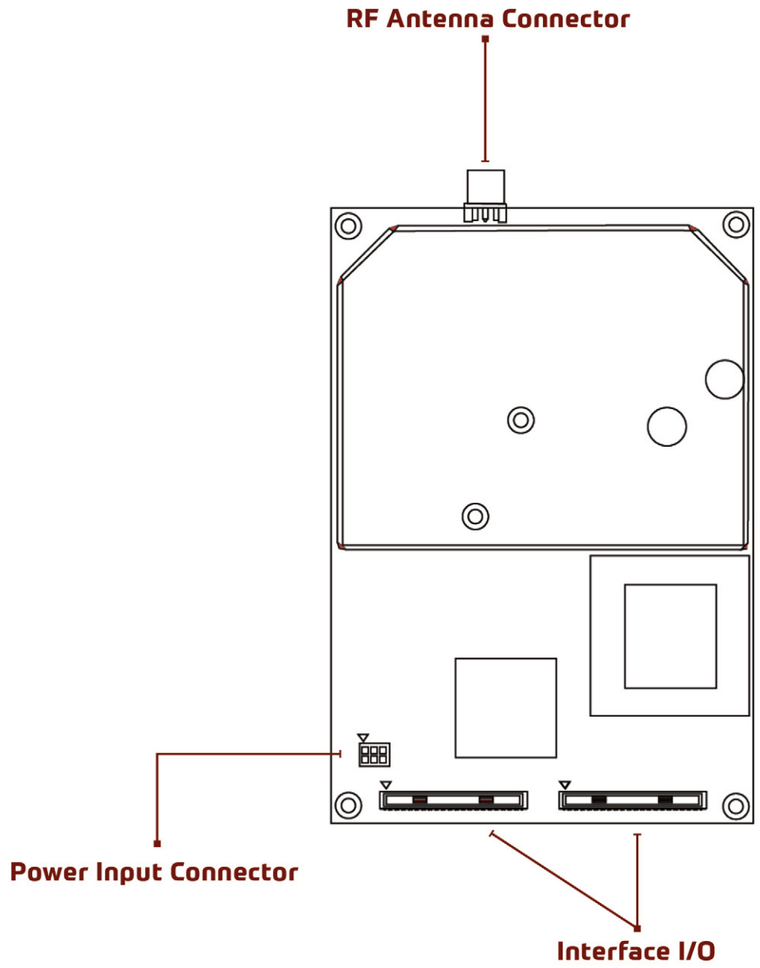
Physical	
Size	2.92 L x 2.0 W x 0.11 H in (74.17 x 50.80 x 2.79 mm)
Weight	1.2 oz (34.09 g) (core board with shielding)
Frequency Range	• L-UHF: 225–450 MHz • U-UHF: 698–970 MHz • L/S Bands: 1250–2600 MHz
Configurable Bandwidth	1.2, 3.6, 10, 20, 40 MHz
Transmit Power	100mW, 250mW, 500mW, 1W, 2W
Input Power	3.0 – 4.0 VDC, 9.8 W max
Spectrum Pipelining Bandwidth	20 MHz and 40 MHz
Security	Built-in AES-256 COMSEC and TRANSEC
Connectors	Board Mount, Power and Control, PTT Audio, USB 2.0 Ports (USB-OTG, USB-H1), Serial UARTs, I2C, RF Antenna (SMP Jack), GPS
Data Rate	Pt. to Pt., Up to 32 Mbps (1-hop)
IP Support	IPv4, IPv6; Unicast, Multicast, Broadcast;TCP, UDP
Audio Encoding	AMR 5.9, MELPe
Video Encoding	H.264, HDMI, NTSC, PAL, MJPEG
Net Entry Time	< 1 Second
Waveform	TSM 6

Specifications subject to change without notice.

Networking	
Network Coverage	• Mobile Ad Hoc Networking • Multi-hop – Up to 8 Hops • 400+ Nodes in a Single RF Channel • Robust in Harsh RF Environments
Communication Services	• Simultaneous Voice, Data, and PLI • Up to 32 Voice Talk Groups • IP Support – IPv4, IPv6; Unicast, Multicast, Broadcast; TCP, UDP
Security	• AES-256
Application Support	• Built-in Web Applications • Over the Air Remote Control • APIs for 3rd Party Integration • PLI with CoT, KML, and JSON • Integration with Android™

PHOTO BY: JOSE MEJIA-BETANCOURTH-CCDC AVMC TECHNOLOGY DEVELOPMENT DIRECTORATE (DRONE)

Components



SCAN ME

Accessories

Customize TrellisWare radios to meet the needs of the network and mission with a full range of hardware accessories

Antennas **40**
Audio Solutions **46**
Data Adapters **51**
Power Adapters **55**
Mount Adapters **61**

PHOTO BY JESSE MANESS, TW FSE

Radio Accessories

Accessory	Catalog Number/ Name	Description	Specifications	Compatible Radio
Antennas				
	TW-1109 850-950 MHz Antenna	• Designed to be used with all TrellisWare radio systems operating in the 850-950 MHz band	**Weight:** 5.36 oz **Size:** 21.25" **Connector:** TNC-M **GPS L1 Band:** 1575.42 MHz	TW-135 TSM Shadow HPR TW-900/950 TSM Shadow
	TW-1110 GPS Stub Antenna	• GPS Stub antenna with a low profile immersion sealed design for GPS reception in disadvantaged areas • Designed for operation with an unpowered SMA port	**Weight:** 0.5 oz **Size:** 1.24" x 0.59" **Connector:** SMA	TW-135 TSM Shadow HPR TW-900/950 TSM Shadow TW-870/875 TSM Ghost TW-860 TSM Spirit
	TW-1115 GPS Patch Antenna	• GPS Patch antenna with 10' cable and a magnetic back, allowing for remote use of a GPS receiver where the GPS signal may be stronger • Designed for operation with a powered SMA port	**Weight:** 2.7 oz **Size:** 1.44" x 0.5" x 0.177" **Cable Length:** 10' **Connector:** SMA	TW-135 TSM Shadow HPR TW-900/950 TSM Shadow TW-870/875 TSM Ghost TW-860 TSM Spirit
	TW-1120 Panel Antenna	• High gain, wideband capabilities • Corrosion-resistant • Higher Spectral Efficiency • Reduced Bit Error Rate (BER)	**Weight:** 2 lbs **Size:** 10.50" x 6" x 3" **Connector:** Type-N Female	TW-135 TSM Shadow HPR TW-900/950 TSM Shadow TW-870/875 TSM Ghost TW-860 TSM Spirit
	TW-1135 +2 dBi Dual-Band Antenna	• Includes a +2 dBi gain and is terminated in SMA • Gooseneck base can bend up to 90°	**Weight:** 1 oz **Size:** 8.5" x 1.13" x 0.5" **Connector:** SMA **Band:** 1755 - 1815 MHz, 2200 - 2270 MHz	TW-870 TSM Ghost

Radio Accessories

Accessory	Catalog Number/ Name	Description	Specifications	Compatible Radio
Antennas				
	TW-1136 Dual-Band Remote Antenna	• Rugged and covert antenna especially designed to reduce the signature when worn remotely on the operator's body • Ships with SMA cable	**Weight:** 0.8 oz **Size:** 5.5" x 1.13" **Connector:** SMA **Band:** 1755 - 1815 MHz, 2200 - 2270 MHz	TW-870 TSM Ghost
	TW-1137 Dual-Band 1400 1800 RF Antenna	• Has a +2 dBi gain and is terminated in SMA • Gooseneck base can bend up to 90°	**Weight:** 1.25 oz **Size:** 9" x 1.5" **Connector:** SMA **Band:** 1410 - 1460 MHz, 1755 - 1815 MHz	TW-870 TSM Ghost
	TW-1138 SMA +4 dBi Antenna	• Includes a +4 dBi gain +/- .5 • Gooseneck base can bend up to 90°	**Weight:** 1.4 oz **Size:** 11.25" **Connector:** SMA **Band:** 1755 - 1815 MHz, 2200 - 2270 MHz	TW-870 TSM Ghost
	TW-1140 1800/2200 Antenna	• Has a +2 dBi gain • Has a TNC connector to connect to the TW-1141 Magnetic Mount • Antenna seperation should be at a 4 ft minimum, with a preferred distance of 8 ft for wideband	**Weight:** 4.6 oz **Size:** 10.25" x 0.90" x 0.74" **Connector:** TNC **Band:** 1775-1815 MHz, 2200-2250 MHz	TW-135 TSM Shadow HPR TW-900/950 TSM Shadow TW-875 TSM Ghost TW-860 TSM Spirit
	TW-1141 Magnetic Mount	• Magnetic antenna mount to hold antennas in a secure location • Includes 3 meters of cable terminated with a male TNC connector	**Weight:** 4.6 or 9.2 oz (depending on cable length) **Size:** 3 Meters or 12' **Connector:** TNC	TW-135 TSM Shadow HPR TW-900/950 TSM Shadow TW-875 TSM Ghost TW-860 TSM Spirit

Contact sales@trellisware.com to place an order

Radio Accessories

Accessory	Catalog Number/ Name	Description	Specifications	Compatible Radio
Antennas				
	TW-1143 4dBi Dual-Band Antenna	• Includes a +4 dBi gain +/- .5 • Gooseneck base can bend up to 90°	**Weight:** 1.4 oz **Size:** 12” **Connector:** TNC **Band:** 1755 - 1815 MHz, 2200 - 2270 MHz	TW-135 TSM Shadow HPR TW-900/950 TSM Shadow TW-875 TSM Ghost TW-860 TSM Spirit
	TW-1144 Narrowband Antenna	• Housed in a thick UV stable radome and constructed from corrosion-resistant material for reliability in the harshest environments, this gooseneck antenna has consistent gain across the band	**Weight:** 4.5 oz **Size:** 15.9” **Connector:** TNC **Band:** 1250 - 1450 MHz	TW-875 TSM Ghost TW-900/950 TSM Shadow TW-860 TSM Spirit
	TW-1145 Narrowband Antenna	• Housed in a thick UV stable radome and constructed from corrosion-resistant material for reliability in the harshest environments, this gooseneck antenna has consistent gain across the band	**Weight:** 4.0 oz **Size:** 13-1/8” **Connector:** TNC **Band:** 1750 - 1850 MHz	TW-875 TSM Ghost TW-900/950 TSM Shadow TW-860 TSM Spirit
	TW-1146 Narrowband Antenna	• Housed in a thick UV stable radome and constructed from corrosion-resistant material for reliability in the harshest environments, this gooseneck antenna has consistent gain across the band	**Weight:** 3.7 oz **Size:** 12” **Connector:** TNC **Band:** 2200 - 2350 MHz	TW-875 TSM Ghost TW-900/950 TSM Shadow TW-860 TSM Spirit
	TW-1147 1250-2700 MHz L/S Band Antenna	• Optimized for the Trellisware TSM waveform and other radios that operate in the 1250-2700 MHz bands	**Weight:** 5.28 oz **Size:** 15.50” **Connector:** TNC-M **Band:** 1250-2700 MHz	TW-135 TSM Shadow HPR TW-875 TSM Ghost TW-900/950 TSM Shadow TW-860 TSM Spirit

Radio Accessories

Accessory	Catalog Number/ Name	Description	Specifications	Compatible Radio
Antennas				
	TW-1148 L/S Dual Band Antenna	• Optimized for the TrellisWare TSM waveform and other radios that operate in the 1755-1850 / 2200-2270 MHz	**Weight:** 5.28 oz **Size:** 21.25” **Connector:** TNC-M **Band:** 1755-1850 / 2200-2270MHz	TW-135 TSM Shadow HPR TW-875 TSM Ghost TW-900/950 TSM Shadow TW-860 TSM Spirit
	TW-1150 LUHF Antenna	• Rugged antenna for UHF operations	**Weight:** 3 oz **Size:** 10” **Connector:** TNC **Band:** 225 - 470 MHz	TW-875 TSM Ghost TW-900/950 TSM Shadow TW-860 TSM Spirit
	TW-1151 LUHF Antenna	• This rugged whip antenna achieves consistent gain across the LUHF band in a compact form	**Weight:** 2 oz **Size:** 10.25” **Connector:** TNC Female **Band:** 225 - 450 MHz	TW-900/950 TSM Shadow TW-875 TSM Ghost TW-860 TSM Spirit
	TW-1152 LUHF Manpack Antenna	• Dipole design • Designed for man-portable radios • Rugged high quality antenna with a durable construction	**Weight:** 9.52 oz **Size:** 22” **Connector:** TNC Female **Band:** 225 - 450 MHz	TW-135 TSM Shadow HPR TW-900/950 TSM Shadow
	TW-1153 Handheld UHF Antenna	• This rugged whip antenna achieves consistent gain across the LUHF band in a compact form • Lightweight • Low Vertical Signature	**Weight:** 1.6 oz **Size:** 10” **Connector:** SMA-M **Band:** 225 - 450 MHz	TW-870 TSM Ghost

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Radio Accessories				
Accessory	**Catalog Number/ Name**	**Description**	**Specifications**	**Compatible Radio**
Antennas				
	TW-1160 Handheld U/L/S Multi-Band Antenna	• Broadband dipole antenna designed for military manpack or commercial mounted applications • 4.5" gooseneck base bends up to 90°	**Weight:** 4.64 oz **Size:** 11.37" **Connector:** TNC **Band:** 698 - 2600 MHz, U-UHF, and L/S bands	TW-135 TSM Shadow HPR TW-900/950 TSM Shadow TW-875 TSM Ghost TW-860 TSM Spirit
	TW-1161 Body-Worn Antenna	• Broadband dipole antenna with 36" cable, designed for body worn applications	**Weight:** 4.64 oz **Size:** 6" **Connector:** TNC **Band:** 698 - 2600 MHz, U-UHF, and L/S bands	TW-135 TSM Shadow HPR TW-900/950 TSM Shadow TW-875 TSM Ghost TW-860 TSM Spirit
	TW-1162 L/S Band Antenna	• Broadband dipole antenna designed for military manpack or commercial mounted applications • 4.5" gooseneck base bends up to 90°	**Weight:** 4.64 oz **Size:** 10.5" **Connector:** SMA **Band:** 698 - 2600 MHz, U-UHF, and L/S bands	TW-870 TSM Ghost
	TW-1163 Body-Worn Antenna	• Broadband dipole antenna with 36" cable, designed for body worn applications	**Weight:** 4.64 oz **Size:** 6" **Connector:** SMA **Band:** 698 - 2600 MHz, upper UHF, and L/S bands	TW-870 TSM Ghost
	TW-1165 Tri-Band Antenna	• -3.0 ~ +1.0 dBi TNC Tri-Band antenna-0	**Weight:** 4.5 oz **Size:** 11" **Connector:** TNC **Band:** 225 - 450 MHz, and 1300 - 2600 MHz bands	TW-875 TSM Ghost TW-900/950 TSM Shadow TW-860 TSM Spirit

Radio Accessories				
Accessory	**Catalog Number/ Name**	**Description**	**Specifications**	**Compatible Radio**
Antennas				
	TW-1170 LUHF Vehicular Antenna	• Rugged vehicular antenna for ground-based communications	**Size:** 32" **Weight:** 4.90 lbs **Connector:** Type N Female **Band:** 225 - 450 MHz	TW-135 TSM Shadow HPR
	TW-1175 UUHF, L, and S Vehicular Antenna	• Rugged vehicular antenna for ground-based communications	**Size:** 28.5" **Weight:** 5.0 lbs **Connector:** Type N Female **Band:** 698-2600 MHz	TW-135 TSM Shadow HPR
	TW-1180 Vehicular GPS Antenna	• Rugged vehicular antenna for ground-based communications	**Size:** 28.5" **Weight:** 1.15 lbs **Connector:** SMA **Band:** GPS L1 Band, 1575.42 MHz	TW-135 TSM Shadow HPR
	TW-1190 Dual-Band Vehicular Antenna	• Rugged vehicular antenna for ground-based communications • Fully "oak beam"-compliant • Has a +2 dBi gain and is terminated in TNC	**Weight:** 5.0 lbs **Size:** 39" **Connector:** TNC **Band:** 1755-1815 MHz, 2200-2270 MHz	TW-135 TSM Shadow HPR TW-900/950 TSM Shadow TW-870/875 TSM Ghost TW-860 TSM Spirit
	TW-1199 Handheld Antenna Kit	• Mix of wideband and high gain, narrowband antennas provide operator flexibility • Optimized performance • Extended range	**Weight:** 1.8 lbs **Size:** 17.5" x 2.5"	

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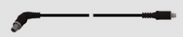
Radio Accessories

Audio Solutions

Accessory	Catalog Number/ Name	Description	Specifications	Compatible Radio
	TW-1435 **Audio Handset**	• Single channel, single PTT	**Weight:** 6.1 oz **Length:** 8.30" x 5.90" x 2.70" **Connector:** 6-Pin	TW-135 TSM Shadow HPR
	TW-1605 **V Cable 6-Pin Audio and USB**	• Connects to top of radio for audio and USB • Other capabilities include secure Wi-Fi and programming • No side dongles are needed	**Weight:** 3.5 oz **Length:** 8" **Connector:** 6-Pin	TW-135 TSM Shadow HPR TW-900/950 TSM Shadow
	TW-1606 **FalCom PTT and Glenair USB**	• Communications interface cable compatible for use with FalCom's range of multi-function control units (MFC)	**Weight:** 1.45 oz **Length:** 35.43" **Connector 1:** Amphenol Terrapin 14-Pin **Connector 2:** ODU HD 12-Pin **Connector 3:** GLENAIR 6-PIN	TW-135 TSM Shadow HPR TW-900/950 TSM Shadow
	TW-1607 **Audio Data Adapter, ADP to Atlantic Signal**	• Y cable connects to the Audio Data Port (ADP) on the radios • Allows operation of the OTG USB with the Glenair connector and provides an interface to the Atlantic Signal Viper 2 PTT	**Weight:** 1 oz **Length:** 30" **Connectors:** 12-Pin	TW-135 TSM Shadow HPR TW-900/950 TSM Shadow
	TW-1608 **Invisio PTT and Glenair USB**	• Splitter cable for connecting an Invisio PTT control unit and an EUD/USB 2.0 to a TrellisWare TW-950 Shadow radio's ADP connector	**Weight:** 3.5 oz **Length:** 31.50" **Connector 1:** CC01 **Connector 2:** 12 Pin ODU **Connector 3:** 6-Pin	TW-135 TSM Shadow HPR TW-900/950 TSM Shadow

Radio Accessories

Audio Solutions

Accessory	Catalog Number/ Name	Description	Specifications	Compatible Radio
	TW-1610 **V Cable 10-Pin Audio and USB**	• Connects to top of radio for audio and USB • Other capabilities include secure Wi-Fi and programming • No side dongles are needed	**Weight:** 3.5 oz **Length:** 8" **Connectors:** 10-Pin	TW-135 TSM Shadow HPR TW-900/950 TSM Shadow
	TW-1615 **6-Pin Audio Adapter**	• ODU to 6-Pin audio connector	**Weight:** 3.3 oz **Length:** 11" **Connectors:** 6-Pin	TW-135 TSM Shadow HPR TW-900/950 TSM Shadow
	TW-1616 **Audio Adapter, ADP to Falcom PTT**	• Audio cable for connecting TW-900/950/135 radios to a Falcom PTT control unit	**Weight:** 1.5 oz **Length:** 35.4 ± 2.0" **Connectors:** **Connector 1:** Amphenol Terrapin 14-Pin **Connector 2:** ODU HD 12-PIN	TW-135 TSM Shadow HPR TW-900/950 TSM Shadow
	**TW-1617** **Audio Adapter, ADP to Atlantic Signal PTT**	• Audio cable for connecting the radios to an Atlantic Signal Viper Dual PTT control unit	**Weight:** 1.0 oz **Length:** 11"	TW-135 TSM Shadow HPR TW-900/950 TSM Shadow
	TW-1618 **ADP to Invisio PTT Cable**	• Audio cable for connecting the radios to an Invisio V60 or V20 2PTT control unit	**Weight:** 1.4 oz **Length:** 31.50"	TW-135 TSM Shadow HPR TW-900/950 TSM Shadow
	TW-1620 **10-Pin Audio Adapter**	• ODU to 10-Pin audio connector	**Weight:** 3.2 oz **Length:** 11" **Connectors:** 10-Pin	TW-135 TSM Shadow HPR TW-900/950 TSM Shadow

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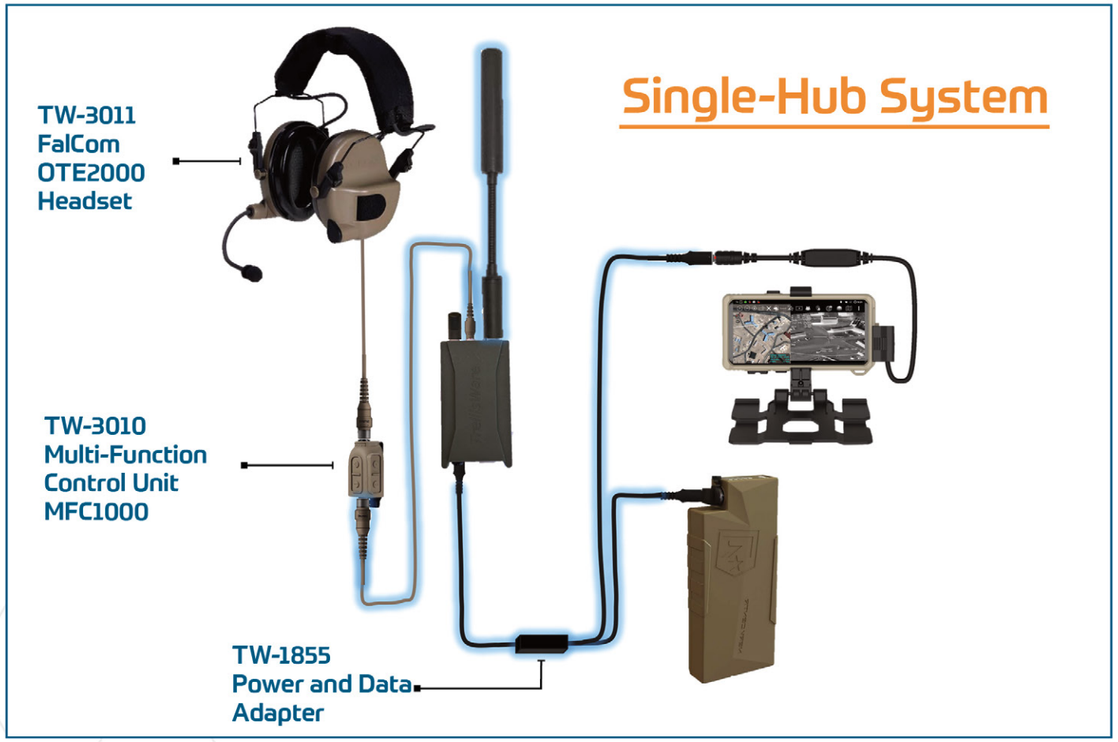
Radio Accessories

Accessory	Catalog Number/ Name	Description	Specifications	Compatible Radio
Audio Solutions				
	TW-1625 Remote Speaker Microphone	• Compatible with a variety of two-way radio models • Omnidirectional microphone reduces ambient noises • Supports dual talk group	**Weight:** 7.2 oz **Length:** 3.04" x 2.43" x 1.13" **Connectors:** ODU 12-pin	TW-135 TSM Shadow HPR TW-900/950 TSM Shadow
	TW-1630 Low-Profile PTT for 3.5 Audio Jack	• Adapter cable to a stereo headset with microphone • Includes two low-profile push-to-talk (PTT) buttons • Headset receptacle is a standard 4-connection 3.5mm (1/8") jack	**Weight:** 1.7 oz **Length:** 25"	TW-135 TSM Shadow HPR TW-900/950 TSM Shadow
	TW-1675 Remote Speaker Microphone	• The remote speaker microphone provides clear communication in hazardous and extreme law enforcement, military, and federal agency environments	**Weight:** 3.5 oz **Length:** 3.04" x 2.43" x 1.13" **Connectors:** 9-Pin	TW-860 TSM Spirit



Radio Accessories

Accessory	Catalog Number/ Name	Description	Specifications	Compatible Radio
Audio Solutions				
	TW-1685 Audio Adapter, HAP to 6-Pin	• This audio adapter has single talk group audio capability with a standard 6-pin audio connector	**Weight:** 3.5 oz **Length:** 8" **Connectors:** 6-pin	TW-860 TSM Spirit
	TW-1686 Audio Adapter, HAP to Falcom PTT	• Provides audio capability with 2 Talk Groups when used with Falcom PTT and headset	**Weight:** 1.52 oz **Length:** 35.43" **Connectors PTT:** Amphenol Terrapin 14-Pin Plug **Radio:** ODU HD 9-Pin Plug	TW-860 TSM Spirit
	TW-1687 Audio Adapter, HAP to Atlantic Signal PTT	• Provides audio capability with 2 Talk Groups when used with Atlantic Signal PTT and headset	**Weight:** 1.0 oz **Length:** 30" **Connectors PTT:** ODU AMC, 14-pin plug **Radio:** Fischer, 9-pin plug	TW-860 TSM Spirit
	TW-1688 Audio Adapter, HAP to Invisio PTT	• Provides audio capability with 2 Talk Groups when used with Invisio PTT and headset	**Weight:** 1.4 oz **Length:** 31.50" **Connector 1:** CC01 **Connector 2:** 9-Pin Raymo	TW-860 TSM Spirit
	TW-1690 10-Pin Audio Adapter	• Connects to the HAP of the TW-860 TSM Spirit radio • ODU to 10-Pin audio connector • Provides PTT audio interface	**Weight:** 3.3 oz **Length:** 11" **Connector:** 10-Pin	TW-860 TSM Spirit

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Radio Accessories

Accessory	Catalog Number/ Name	Description	Specifications	Compatible Radio
Audio Solutions				
	TW-3010 Multi-Function Control Unit MFC1000	• Two PTT buttons • One communication port supporting up to two channels • Designed to MIL-STD- 810 F/G and MIL-STD-461 F	**Weight:** 4.06 oz **Length:** 0.11" x 7.87" x 2.76"" **Connector 1:** CC01 **Connector 2:** 9-Pin Raymo	TW-135 TSM Shadow HPR TW-900/950 TSM Shadow TW-860 TSM Spirit
	TW-3011 FalCom OTE2000 Headset	• Left/right position interchangeable noise-canceling boom mic • Headband, rail mount, and behind neck options available • No onboard batteries/uses system power	**Weight:** 13.05 oz **Length:** 24"	TW-135 TSM Shadow HPR TW-900/950 TSM Shadow TW-860 TSM Spirit
	TW-3020 VIPER 2 PUSH-TO-TALK	• Provides Dual Push-to-Talk, enabling Dual Talk Group capability • Audio Mapping: Map audio channels to one or both ears • Powered by the user's radio	**Weight:** 5.4 oz **Length:** 2.8" x 2.7" x 1.3"	TW-135 TSM Shadow HPR TW-900/950 TSM Shadow TW-860 TSM Spirit
	TW-3021 Atlantic Signal Headset	• Shielded circuitry and wiring to help prevent cross-talk and RF/EMI interference • Noise-canceling, ambidextrous boom microphone • Environmental microphones for enhanced SA • Seamless use with both single and dual comm push-to-talks	**Weight:** 1.5 lbs	TW-135 TSM Shadow HPR TW-900/950 TSM Shadow TW-860 TSM Spirit
	TW-3030 V20, 2-PTT, 1-COM	• Control hear-thru for desired volume • Change received audio from left/right or vice versa • Receive audio in split or both ears	**Weight:** 3.42 oz **Length:** 2.51" x 1.57" x 0.98"	TW-135 TSM Shadow HPR TW-900/950 TSM Shadow TW-860 TSM Spirit
	TW-3031 Invisio Audio Headset	• Over-the-ear headset with hearing protection and full situational awareness when connected to an INVISIO Control Unit	**Weight:** 1.45 oz **Length:** 31.50" **Connector 1:** Invisio CC01 **Connector 2:** 9-Pin (TrellisWare HAP)	TW-135 TSM Shadow HPR TW-900/950 TSM Shadow TW-860 TSM Spirit

Radio Accessories

Accessory	Catalog Number/ Name	Description	Specifications	Compatible Radio
Data Adapters				
	TW-1230 USB Host Dongle	• Simultaneously charge a USB device and connect to the TSM network • Dongle supplies up to 500 mA to USB charging compliant devices	**Weight:** 1.2 oz **Size:** 2.48" x 0.90" x 0.62" **Connector:** USB Type-A	TW-135 TSM Shadow HPR TW-900/950 TSM Shadow
	TW-1255 Ethernet Video Dongle	• Provides Nett Warrior Ethernet connection and BNC analog video input • Glenair Ethernet connector provides 500 mA @ 5 V • 2 M immersible with BNC cover and mating connector attached	**Weight:** 3.4 oz **Size:** 3.34" x 1.12" x 1.13" **Connector:** Nett Warrior Ethernet	TW-135 TSM Shadow HPR TW-900/950 TSM Shadow
	TW-1265 USB 6-Pin Dongle	• Immersible pigtail dongle that provides USB 2.0 connectivity • 6-Pin Glenair connector compatible with rugged military equipment • 1 M cable connects to the radio's multi-functional side connector • Radio acts as host and proves 500mA charging current to compliant devices	**Weight:** 1.9 oz **Length:** 1 M USB 2.0 Compatible **Connector:** 6-Pin USB	TW-135 TSM Shadow HPR TW-900/950 TSM Shadow
	TW-1650 ADP to Ethernet Adapter	• Provides 100 BaseT Ethernet data connectivity • Connects to the Audio Data Port (ADP) on the radio and provides a female RJ 45 jack	**Weight:** 2.4 oz **Length:** 18" **Connector:** Ethernet Adapter	TW-135 TSM Shadow HPR TW-900/950 TSM Shadow TW-870/875 TSM Ghost
	TW-1665 Glenair USB Adapter	• Data only cable • Allows operation of the OTG USB with Glenair USB connection • Enables use of EUD	**Weight:** 1.6 oz **Length:** 24" **Connectors:** Glenair USB	TW-135 TSM Shadow HPR TW-900/950 TSM Shadow TW-870/875 TSM Ghost
	TW-1670 USB Type-A Adapter	• Connects to top of radio for USB, data, and programming • ODU to USB-A Connector	**Weight:** 3.0 oz **Length:** 10" **Connectors:** USB-A	TW-135 TSM Shadow HPR TW-900/950 TSM Shadow TW-870/875 TSM Ghost

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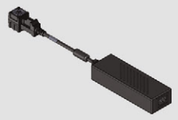
Radio Accessories

Accessory	Catalog Number/ Name	Description	Specifications	Compatible Radio
Data Adapters				
	TW-1710 Ethernet Pigtail Dongle	• Immersible, rugged dongle that provides 100BaseT Ethernet data connectivity • Connects to the radio's multi-functional side connector	**Weight:** 2.4 oz	TW-135 TSM Shadow HPR TW-900/950 TSM Shadow
	TW-1712 Ethernet Pigtail Dongle	• Immersible, rugged dongle that provides 100BaseT Ethernet data connectivity • Connects to the radio's multi-functional side connector and provides a 1 meter pigtail cable that terminates in an RJ-45 connector	**Weight:** 2.4 oz **Cable Length:** 1 M 100 Mbps transfer rates Ethernet Patch Cable	TW-135 TSM Shadow HPR TW-900/950 TSM Shadow
	TW-1725 HD Video Dongle	• Provides a means to High Definition video • Supports analog video input and all trigger functions (same as TW-1750 Multi-Sensor Dongle) • ODU connector exposes necessary signals for analog video input and all trigger I/O functions	**Weight:** 1.7 oz **Size:** 3" x 0.90" x 0.79" **Connectors:** TW-1726 breakout cable and HDMI	TW-135 TSM Shadow HPR TW-900/950 TSM Shadow
	TW-1726 HD Video Dongle	• Intended for use with the TW-1725 HD Video Dongle • The ODU plug on the cable mates with the ODU receptacle on the TW-1725 HD Video Dongle	**Weight:** 0.2 lbs **Size:** 21" Length	1725 HDMI Dongle
	TW-1750 Multi-Sensor Dongle	• Multi-Sensor dongle that provides a 100BaseT Ethernet, sensor connections, and control ports • Hosts two 2.5 mm Trigger In ports to connect directly to sensors, a 2.5 mm Trigger Out port, a 2.5 mm Power Out port, and BNC for analog video input	**Weight:** 1.7 oz **Size:** 3.69" x 0.86" x 0.88"	TW-135 TSM Shadow HPR TW-900/950 TSM Shadow

Radio Accessories

Accessory	Catalog Number/ Name	Description	Specifications	Compatible Radio
Data Adapters				
	TW-1760 Wi-Fi Dongle	• Provides an 802.11b/g access point when installed on TW-950/900 or TW-135 • Enables a connection between the TSM network and other devices such as smart phones or PDAs	**Weight:** 1.7 oz **Size:** 3.40" x 0.90" x 0.8"	TW-135 TSM Shadow HPR TW-900/950 TSM Shadow
	TW-2300 USB-A WiFi Adapter	• Complies with draft IEEE 802.11g standard • Features a hardware WPS (Wi-Fi Protected Setup) button for easy wireless connection	**Weight:** 0.11 oz **Length:** 0.61" x 2.60" x 0.90" **Connectors:** USB-A	TW-860 TSM Spirit
	TW-2301 USB-A Ethernet Adapter	• Connects your laptop to a TSM Spirit radio • Supports true 10/100/1000 Mbps Ethernet network speeds for fast downloads	**Weight:** 0.96 oz **Length:** 1.57" x 0.62" x 0.27" **Connectors:** USB 3.0 A (Male) and RJ45 (Female)	TW-860 TSM Spirit
	TW-1301 HPR Power Pigtail	• Screws onto the back of the TW-135 TSM Shadow HPR • Provides flying leads for custom power integrations	**Weight:** 3.2 oz **Extension Length:** 3'	TW-135 TSM Shadow HPR
	**TW-1310 Battery Eliminator**	• With an output of 24V at 6.3 Amps, this sealed power supply allows full operation of the TW-135 TSM Shadow HPR	**Weight:** 1.75 lbs **Input Voltage:** 85 - 264VAC; 100 - 240VAC Nominal, 50-60Hz **Cable Length:** 6'	TW-135 TSM Shadow HPR

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Radio Accessories

Accessory	Catalog Number/ Name	Description	Specifications	Compatible Radio
Power Adapters				
	TW-1390 Power Adapter	• Enables connection to external AC power • Waterproof power supply with 3-prong plug • Use with accessory TW-1400 and TW-1800	**Weight:** 0.75 lbs **Input Voltage:** 90 - 240 VAC ~.42A, 36W **Cable Length:** 77"	TW-900/950 TSM Shadow TW-870/875 TSM Ghost
	TW-1400 6–18 V Power Adapter	• Enables connection from handheld radios to external DC power for customizable power solutions • Compatible with TW-1390, TW-1401, TW-1406, TW-1407, and TW-1408	**Weight:** 1.8 oz **Input Voltage:** 6–18 V DC **Cable Length:** 16.21"	TW-900/950 TSM Shadow
	TW-1401 Power Pigtail	• Supplies power from a remote power source • Designed to connect to the TW-1400 Power Adapter; leads connect to DC power sources • May be purchased separately • Use with accessory TW-1400 and TW-1800	**Weight:** 2 oz **Input Voltage:** 6–18 V DC **Cable Length:** 2 M	TW-900/950 TSM Shadow
	TW-1402 High Capacity Battery Adapter	• Provides interface to high capacity Thales MBITR and Harris batteries • Includes dual bayonets for connectivity between the radio and battery • Includes locking latches	**Weight:** 3.4 oz **Size:** 2.60" x 1.50" x 1.09" **Input Voltage:** 6–18 V DC **Battery Life:** Up to 20 hours	TW-900/950 TSM Shadow

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Radio Accessories				
Accessory	**Catalog Number/ Name**	**Description**	**Specifications**	**Compatible Radio**
Power Adapters				
	TW-1406 BA-5590 Power Cable	• Binder to BA-5590 Adapter • Enables connection to external power • Use with accessory TW-1400 and TW-1800	**Weight:** 0.20 lbs **Extension Length:** 78.74"	TW-900/950 TSM Shadow TW-870/875 TSM Ghost
	TW-1407 Tajimi Binder Power Cable	• Binder to Tajimi • Enables connection to external power • Use with accessory TW-1400 and TW-1800	**Weight:** 2.4 oz **Input Voltage:** 6–18 V DC **Cable Length:** 78.74"	TW-900/950 TSM Shadow TW-870/875 TSM Ghost
	TW-1408 Glenair Binder Power Cable	• Binder to Glenair adapter • Enables connection from radio to a conformal battery • Use with accessory TW-1400 and TW-1800	**Weight:** 0.8 oz **Input Voltage:** 6–18 V DC **Cable Length:** 10"	TW-900/950 TSM Shadow TW-870/875 TSM Ghost
	TW-1450 32 WHr Rechargeable Battery	• Includes bayonet connector to connect to the radio • Connector locks into position with a latch • Compatible with the TW-1460 Single Battery Charger and TW-1465 6-bay Battery Charger	**Weight:** 6.6 oz **Size:** 3.20" x 2.55" x 0.95" **Battery:** Lithium Ion	TW-900/950 TSM Shadow

Radio Accessories				
Accessory	**Catalog Number/ Name**	**Description**	**Specifications**	**Compatible Radio**
Power Adapters				
	TW-1451 BB-2590 Battery	• SmartCircuit Technology - Implements SMBus v1.1 smart battery technology • Flexible output voltage • State-of-Charge display	**Weight:** 3.1 lbs **Size:** 4.40" x 2.40" x 5" **Battery:** Lithium Ion	TW-135 TSM Shadow HPR
	TW-1460 Single Battery Charger	• Compact portable charger w/ DC power adapter for charging the TW-1450 32 Wh Rechargeable Battery • Low profile, easy to store, and charges a battery to full charge within 4 hours	**Weight:** 1.6 oz **Size:** 3.50" x 1.50" x 0.82"	TW-900/950 TSM Shadow
	TW-1461 UK Single Battery Charger	• Compact portable charger w/ DC power adapter for charging the TW-1450 32 Wh Rechargeable Battery • Low profile, easy to store, and charges a battery to full charge within 4 hours	**Weight:** 1.6 oz **Size:** 3.50" x 1.50" x 0.82	TW-900/950 TSM Shadow
	TW-1465 6-Bay Battery Charger	• Designed as a desktop style battery charger for charging TW-1450 32 Wh Rechargeable Batteries • Low profile, easy to store and operate, and charges a set of 6 batteries to full charge under 4 hours • Includes a DC power adapter	**Weight:** 31.6 oz **Size:** 16" x 4.88" x 3.25"	TW-900/950 TSM Shadow
	TW-1466 UK 6-Bay Battery Charger	• Designed as a desktop style battery charger for charging TW-1450 32 Wh Rechargeable Batteries • Low profile, easy to store and operate, and charges a set of 6 batteries to full charge under 4 hours • Includes a DC power adapter and UK plug	**Weight:** 31.6 oz **Size:** 16" x 4.88" x 3.25"	TW-900/950 TSM Shadow

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Radio Accessories

Accessory	Catalog Number/ Name	Description	Specifications	Compatible Radio
Power Adapters				
	TW-1491 UK Power Cord	• The UK Power Cord is used to plug the TW-1460 and TW-1465 charger into the wall for charging the TW-1450 32 Wh Rechargeable Battery	**Length:** 2.5 Mt **Plug Type:** UK BS 1363A Connector **Type:** C13	TW-400 CUB TW-900/950 TSM Shadow
	TW-1800 Power Cable with Binder	• 4-Pin mates to TSM Ghost power connector • Allows TSM Ghost radios to mate to adapters: TW-1390, TW-1401, TW-1406, TW-1407, TW-1408	**Weight:** 1.5 oz **Length:** 12″ **Connectors:** ODU and Binder	TW-870/875 TSM Ghost
	TW-1801 Power Pigtail	• 4-Pin mates to TSM Ghost power connector • Custom terminate cable to interface of choice • Allows radio to be powered from lab bench supply	**Weight:** 1.5 oz **Length:** 40″ **Connector:** ODU	TW-870/875 TSM Ghost
	TW-1805 Power Cable w/ USB A Connector	• TSM Ghost power cable with USB A connector • TSM Ghost radio can be powered by commercially available USB chargers	**Weight:** 1.5 oz **Length:** 18″ **Connectors:** 4-Pin ODU and USB-A	TW-875 TSM Ghost
	TW-1822 Power Adapter, TSM Spirit High Capacity Battery	• Adapter enables the use of high-capacity power sources with the TW-860 TSM Spirit radio • Adapter has a locking latch for secure battery engagement and easy battery replacement	**Weight:** 3.4 oz **Size:** 2.60″x 1.50″x 1.09″	TW-860 TSM Spirit
	TW-1828 Power Adapter, DPP to NW Battery	• Allows the TSM Spirit radio to operate from any Nett Warrior-compliant battery such as a Conformal or Land Warrior battery	**Weight:** 1.6 oz **Size:** 24″	TW-860 TSM Spirit

Radio Accessories

Accessory	Catalog Number/ Name	Description	Specifications	Compatible Radio
Power Adapters				
	TW-1850 TSM Spirit DPP Power/Data Cable	• Provides power and USB data connectivity to the radio • Suitable for use in networked data radio applications	**Weight:** 1.6 oz **Size:** 40″	TW-860 TSM Spirit
	TW-1851 Power Pigtail Cable	• 12-pin connector mates to the audio data port connector on the TW-860 TSM Spirit radio products • Custom termination of cable to interface of choice • Enables radio to be powered from a lab bench supply	**Weight:** 1.5 oz **Size:** 40″	TW-860 TSM Spirit
	TW-1852 Adapter Cable, DPP to USB-C	• Connects power and data to a USB-C port on a hub for a soldier system, and to a laptop for TSM Spirit radio programming	**Weight:** 1.6 oz **Size:** 74.80″	TW-860 TSM Spirit
	TW-1853 DPP to USB-C Power and USB-A Data	• Powers the TSM Spirit radio from a USB-C power pack while allowing simultaneous USB data access	**Weight:** 1.6 oz **Size:** 40″	TW-860 TSM Spirit
	TW-1854 Cable Adapter DPP to NWPAN	• Connects power and data to a USB-C port on a hub for a soldier system, and to a laptop for TSM Spirit radio programming.	**Weight:** 1.6 oz **Size:** 24″	TW-860 TSM Spirit
	TW-1855 Power and Data Adapter	• Supports power and data connectivity between the Spirit radio, EUD, and battery with a single cable • Utilizes Nett Warrior interconnect interface to connect TW-1855 to EUD and battery	**Weight:** 6.35 oz **Length:** 44″ x 0.90″ x 0.45″ **Connectors:** ODU, Nett Warrior, and 6-Pin Glenair	TW-860 TSM Spirit

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Radio Accessories

Accessory	Catalog Number/ Name	Description	Specifications	Compatible Radio
Mount Adapters				
	TW-2220 Battery Canister, HPR	• Rugged aluminum canister creates a manpack system when used with the TW-135 TSM Shadow High Power Radio	**Weight:** 0.8 lbs (0.36 kg) **Length:** 3" x 6.19" x 5.20" **Battery:** Compatible with BA-5590 and BB-2590 batteries **Water Resistant:** IP-67	TW-135 TSM Shadow HPR
	TW-2225 Shock Mount, HPR	• A Shock/Vibration Rack/Vehicle Mount • Can be used with the TW-135 radio alone or with the TW-2226 12VDC Adapter installed • Can be installed on a SINCGARs shelf	**Weight:** 6 lbs **Length:** 12.54" x 6.90" x 5.43"	TW-135 TSM Shadow HPR
	TW-2226 DC Adapter, HPR	• Eliminates extensive and expensive battery replacement • Conserves batteries for critical missions • Integrates with TW-2225 Shock Mount	**Weight:** 2 lbs **Length:** 5.48" x 5.35" x 2.86"	TW-135 TSM Shadow HPR
	TW-1505 Radio pouch	• Easily attaches to MOLLE-webbed vests, rucksacks, belts, or packs • Extremely durable, lightweight all-weather storage • Side adapter remains accessible for connecting to radio interfaces • Radio securely straps in with elastic buckles	**Weight:** 2.50 oz **Length:** 7.31" x 2.81" x 1.00"	TW-900/950 TSM Shadow
	TW-1516 Magnetic Mount for TW-875 TSM Ghost radio	• Allows the TSM Ghost radio to be mounted on any flat magnetic surfacee • Attach to radio using existing 4-40 screw holes • Includes attachment points for ½"-wide straps	**Weight:** 4.23 oz **Length:** 3.18" x 3.10" x 0.36"	TW-875 TSM Ghost

Contact sales@trellisware.com to place an order

Radio Accessories				
Accessory	**Catalog Number/ Name**	**Description**	**Specifications**	**Compatible Radio**
Mount Adapters				
	TW-1521 **MOLLE Clip**	• Easily and securely attaches to MOLLE-webbed vests, rucksacks, belts, or packs • Clip screws directly into the TSM Spirit radio • Low profile clip allows access to all radio connectors and HMI	**Weight:** 0.08 oz **Length:** 3.19" x 1.28"	TW-860 TSM Spirit
	TW-2210 **In-line Amplifier**	• Dual-band, covers 1800 and 2200 MHz • Slim profile for field vest pockets • Extends network coverage for wearable and portable applications	**Weight:** 1.80 lbs Stand-alone 1.95 lbs With Power Cable **Length:** 7.31" x 2.81" x 1.00"	TW-900/950 TSM Shadow TW-870/875 TSM Ghost TW-860 TSM Spirit

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For a complete set of documents, tips, tricks and helpful hints, visit the TrellisWare Customer Support Center at **support.trellisware.com**

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