

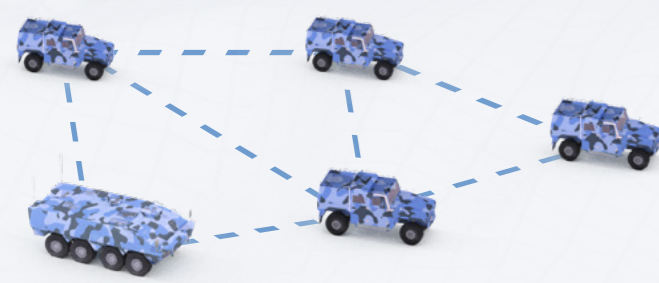
Bittium Tough SDR™ Vehicular and Handheld radios can also use the TAC WIN Waveform to connect with the TAC WIN network. Combat vehicles can be installed with either TAC WIN Radio Heads or Tough SDR Vehicular radios to achieve the best possible solution. The combination of both systems is the perfect solution for connectivity and communications across the battlefield.

Bittium

Bittium
Tactical Wireless
IP Network™
TAC WIN



Bittium TAC WIN MANET



Bittium TAC WIN MANET is the optimal solution for troops who require high data rates and highly mobile tactical network. Bittium TAC WIN MANET network provides a reliable and self-healing platform for voice and messaging applications.

Bittium TAC WIN is a high-data-rate IP network designed for modern tactical communications. Bittium TAC WIN provides outstanding data performance across the battlefield. It is user friendly and easily deployed whenever and wherever. Bittium TAC WIN offers routing capabilities optimized for highly mobile tactical use from 1Gb Ethernet fibers to MANET radios. This unique solution provides seamless interoperability between different networks and easy integration with any existing or upcoming IP network.



Bittium TAC WIN Radio Head I™

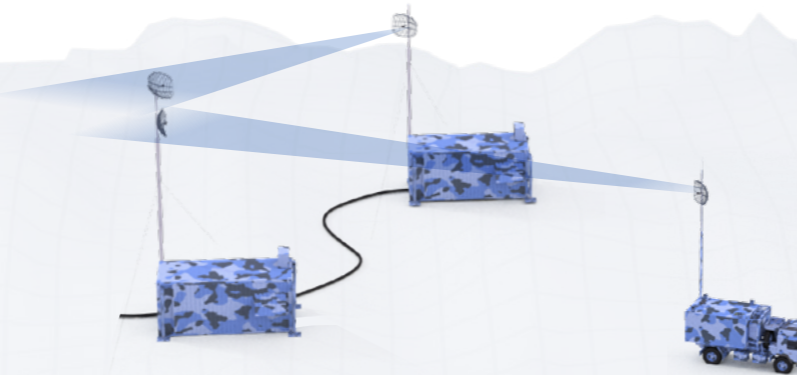
- ▶ Frequency band 225 – 400 MHz
- ▶ Signal bandwidth 5 MHz
- ▶ Data throughput with TAC WIN WF: 12Mbps
- ▶ Supports 2x2 MIMO
- ▶ Channel raster 250 kHz
- ▶ TAC WIN WF Tx power: 2 x 4 W
- ▶ Operating voltage: 10 – 60Vdc
- ▶ Temperature range: -40 – +55 °C (operating), -40 – +70 °C (storage)
- ▶ Ingress protection class: IP67
- ▶ Dimensions: 160 x 256 x 454 mm (h x w x d)
- ▶ Weight: 18 kg
- ▶ Tested with MIL-STD-810G and MIL-STD-461G
- ▶ Passive cooling (no fans)

“Bittium TAC WIN provides outstanding data performance across the battlefield”

FOR MORE INFORMATION, PLEASE CONTACT:

defense@bittium.com

Bittium TAC WIN Point-to-Multipoint



Bittium TAC WIN Point-to-Multipoint network is the ideal solution for access networks to provide service from link network to Bittium TAC WIN MANET. Furthermore, when more performance is needed, Bittium TAC WIN Point-to-Multipoint nodes can be also used in link configuration. Bittium TAC WIN Point-to-Multipoint network utilizes MANET's self-healing characteristics such as optimized routing and link control to provide the best possible reliability.

Bittium TAC WIN routing capabilities can also be used with wired LAN, SHDSL or fiber optic connections.



Bittium TAC WIN Tactical Router™

- ▶ Routing and Waveform processing unit
- ▶ Operating voltage: 10 – 60Vdc
- ▶ Temperature range: -40 – +55 °C (operating), -40 – +70 °C (storage)
- ▶ Ingress protection class: IP67
- ▶ Dimensions: 223 x 356 x 400 mm (h x w x d)
- ▶ Weight: 19,4 kg
- ▶ Tested with MIL-STD-810G and MIL-STD-461G
- ▶ Passive cooling (no fans)

Interfaces

- ▶ 3 x TACWIN Radio units
- ▶ 4 x WAN (2 x RJ45 1000BASE-T / 2 x Fiber 1000BASE-LX)
- ▶ 4 x LAN (1000BASE-T) with PoE (802.3af)
- ▶ 8 x ITU-T G991.2 (GSHDSL)
- ▶ 4 x serial/audio connector

- ▶ 2 x USB
- ▶ GPS in/out
- ▶ ERASE –button and ON/OFF –switch

Routing services

- ▶ Custom OLSR in TACTICAL network
- ▶ Custom multicast in TACTICAL network
- ▶ OSPF / BGP routing for external connections
- ▶ Automatic IP address configuration
- ▶ VLANs and configurable bridges
- ▶ QoS: Traffic classifying and priority queues (8 queues)
- ▶ SNMP v3
- ▶ Radius server support
- ▶ AAA
- ▶ 802.1X port authentication
- ▶ Call admission control

Tactical VoIP service

- ▶ Integrated Bittium Tough VoIP Service™ (see separate datasheet for more information)

Other services

- ▶ Network configuration with single configuration file
- ▶ SNMP interface
- ▶ IPsec tunneling
- ▶ Netflow
- ▶ Firewall
- ▶ 3 different user levels
- ▶ Easy to use local web GUI

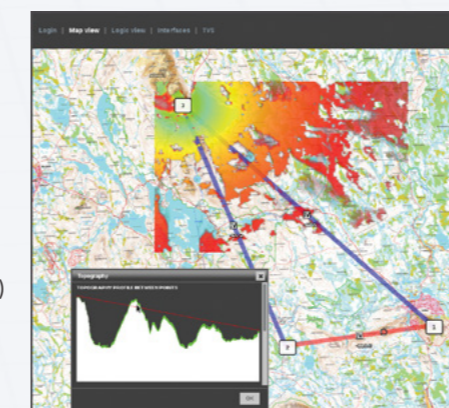


Bittium TAC WIN Radio Head III™

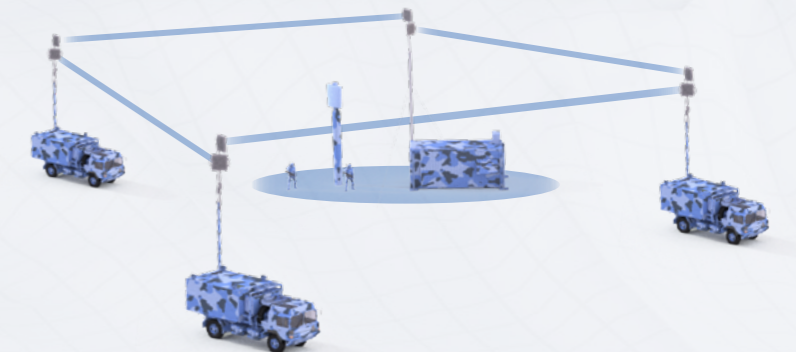
- ▶ Frequency band 1350 – 2400 MHz
- ▶ Signal bandwidth 5 / 10 MHz
- ▶ Data throughput with TAC WIN WF: 26Mbps
- ▶ Channel raster 250 kHz
- ▶ TAC WIN WF Tx power: 4 W
- ▶ Operating voltage: 10 – 60Vdc
- ▶ Temperature range: -40 – +55 °C (operating), -40 – +70 °C (storage)
- ▶ Ingress protection class: IP67
- ▶ Dimensions: 160 x 256 x 454 mm (h x w x d)
- ▶ Weight: 18 kg
- ▶ Tested with MIL-STD-810G and MIL-STD-461G
- ▶ Passive cooling (no fans)

Tactical Network Management

- ▶ Compatible with Bittium Tactical Network Management System™, a network management toolset optimized to be used with Bittium's tactical networks
- ▶ See separate datasheet for more information on map based network planning tool, network manager and network recording tool.



Bittium TAC WIN Point-to-Point



Bittium TAC WIN Radio Head IV™

RH-IV and RH-IV High Gain

- ▶ Frequency band 4400 – 5000 MHz
- ▶ Signal bandwidth 5 / 10 / 20 MHz
- ▶ Data throughput with TAC WIN Waveform WF: 50 Mbps
- ▶ Channel raster 250 kHz
- ▶ TAC WIN WF Tx power: 1250 mW
- ▶ Operating voltage: 16 – 60Vdc
- ▶ Temperature range: -40 – +55 °C (operating), -40 – +70 °C (storage)
- ▶ Ingress protection class: IP67
- ▶ Dimensions: 385 x 520 x 67 mm (h x w x d)
- ▶ Weight: 10 kg
- ▶ Tested with MIL-STD-810G and MIL-STD-461G
- ▶ Passive cooling (no fans)
- ▶ One hybrid cable interface (power and data)

RH-IV variant: Integrated patch antenna with 50° beam steering (gain 19dBi / beamwidth 9° / vertical polarization). Can be used with external antenna.

RH-IV High Gain variant: Integrated fixed beam antenna with 9° beam (gain 23dBi / vertical polarization) and external rotator control interface.

Bittium TAC WIN Waveform™ is a high-data-rate IP network waveform providing the foundation for a high performance network. The waveform supports several services, such as Multicasting and QoS and provides a reliable development platform for upcoming applications.

TAC WIN WF key features

- ▶ Slow/fast frequency hopping
- ▶ Operation without GNSS
- ▶ Network time distribution via Air Interface
- ▶ Optimized interference cancellation algorithms
- ▶ Supported bandwidths: 5 / 10 / 20 MHz
- ▶ QoS based network radio resource management
- ▶ Supports up to 1000 nodes in one network

