



**Bittium Tough Comnode™** is a robust IP communication device designed for tactical networks. The device can be used for several purposes, for example as SIP phone, router, and SHDSL modem, which makes it highly versatile for various field/tactical communication needs.

Bittium Tough VoIP Service™ can be run on the device to provide telephony and SIP server functionalities to other VoIP devices for accessing the VoIP network.

The device can run various services, such as messaging service and dynamic routing. The device can also be used as a platform for third-party services.

FOR MORE INFORMATION, PLEASE CONTACT:

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## Benefits

- › The same device acts as a terminal, switch and router
- › Small and rugged form factor – easy to install anywhere and truly portable in the field
- › Extensive connectivity with e.g. CNR interface, field wire, LAN, USB, Wi-Fi, BT
- › Full military grade IP communications with distributed VoIP service and wide range of codecs
- › Dynamic routing capabilities improving network reliability

## Use case examples

- › Rugged VoIP phone in military vehicles or in the field
- › Rugged field phone with SHDSL modem, Bittium Tough VoIP Service™ supported
- › Blue force tracking application for legacy CNR radio
- › Gateway between CNR radio network and VoIP service
- › SHDSL network access point
- › Fully independent tactical IP network using SHDSL and Ethernet connections

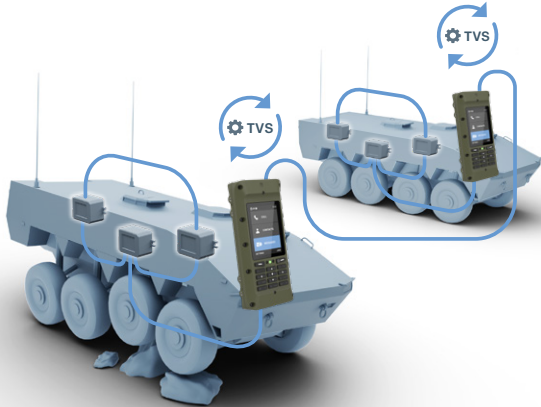
# Bittium Tough Comnode™

## Use case examples

**Rugged VoIP Phone** in the field for wired (field wire/ETH) and wireless (Wi-Fi) connections



**Intercom usage** together with Bittium Tough VoIP Service™



**Blue force tracking** application for legacy CNR radio





### Gateway between CNR radio network and VoIP service



### SHDSL network access point



### Fully independent tactical IP network and interoperability with tactical IP networks



# Bittium Tough Comnode™

## Specifications

### Features

- › Supports all Bittium Tough VoIP Service™ functions either by direct dialing codes or from the graphical user interface
- › Custom OLSR in tactical networks
- › OSPF/BGP for external connections
- › Automatic IP address configuration
- › QoS: traffic classifying and priority queues
- › Supports connectivity to 3rd party SIP servers.
- › LDAP phonebook, either directly loaded to device memory, or used remotely over selected network
- › Linux firewall and Linux user management system, all users can have their own user ID's
- › Push-to-talk (PTT)
- › No service requiring parts such as battery inside the unit
- › On/off-hook detection

### Device management

- › Web user interface for device configuration
- › Easy and quick setup of multiple devices via configuration file
- › Remote SW update  
Software upgrade through web-based management
- › Remote management support via Bittium Tactical Network Management™
- › Representational State Transfer over https (REST-API)

### Physical interfaces

- › **Power**  
12 – 32Vdc
- › **Audio/serial**  
Audio interface for connecting handset/headset/CNR, incl. two serial ports and push-to-talk signals
- › **LAN**  
Two 10BASE-T/100BASE-TX interfaces with PoE 802.3af input

- › **USB**  
USBv2.0 host port and USB power input
- › **SHDSL**  
Two ITU-T G991.2 (G.SHDSL) interfaces, push-and-release connector for field wire

### Wireless interfaces

- › GPS
- › WLAN 802.11 bgn
- › BT 3.0 for headset (Hands-Free Profile)

### Device interfaces

- › **Status LED**
- › **Display**  
Large, TFT LCD full color display  
Size: 3.5 inches diagonal  
Resolution: 320 x 240 pixels
- › **Keypad**  
2 function keys below the display,  
12 number keys
- › **Buzzer**  
Buzzer for ringtone

### Technical specifications

- › **Signalling protocols**  
SIP (RFC 3261) over UDP/TCP/TCP-TLS  
SDP (RFC 4566)  
Presence event package (RFC 3856)
- › **Voice signaling**  
RTP/RTCP (RFC 3550)  
Telephone events (RFC 2833)
- › **Phonebook**  
LDAP (RFC 451)
- › **Audio codecs**  
G.711, G.729AB, GSM, Speex,  
MELPe 2400
- › **Environmental and EMC standards**  
MIL-STD-810G  
MIL-STD-461F  
MIL-STD-1275E
- › **Power supply**  
Power consumption 7W (device),  
max. 7.5W USB power feed  
Power input 12 – 32 VDC, alternative  
power inputs are LAN (PoE) and USB
- › **Operating temperature range**  
-40 °C / +55 °C

- › **Ingress protection class**  
IP67, also for open connectors

- › **Dimensions**  
183 x 90 x 30 mm,  
without handset and handset holder

- › **Weight**  
580g, without handset  
and handset holder

- › **Material**  
Surface treated aluminum alloy/plastic

- › **Declaration of conformity**  
CE

### Accessories

- › 9400088 Bittium Tough Comnode Audio Extension™
- › Bittium Tactical Power Pack™
  - › 9305310 Adapter Power Pack
  - › 9304758 Battery SDR HH
  - › 5501070 Comnode Power Pack interface cable
- › 9304639 Handset
- › 9304602 Handset Holder
- › 9100658 Headset
- › 9304911 Mounting Plate (wall/table)
- › 9304967 Mounting Plate (wall/table) with audio extension
- › 9101670 Equipment Bag
- › Cables

Comnode product code: 9404092