

TB7300 Transportable Repeater

SPECIFICATIONS



Tough transportable repeater easy to deploy in mission critical situations.

Whether you're dealing with natural disasters, crime scenes, firegrounds, or tactical missions when safety or security is threatened, this transportable repeater allows you to have a reliable communications system deployed rapidly.

Extend your current network coverage or set up a dedicated communications network at the scene.

The Tait TB7300 Base station is a multi-mode platform: Analog conventional, DMR and P25 Phase 1. For DMR the TB7300 provides a 6.25kHz equivalent operation in digital mode and is fully compliant with DMR Tier 2 and Tier 3 standards.



KEY FEATURES

- Multi-mode platform supporting Analog Conventional, AS-IP (Analog Simulcast over IP), DMR Conventional and Trunking (TDMA) and P25 Conventional and Trunking (Phase 1 FDMA)
- Simple change of mode through the web interface
- Ultra-narrowband 6.25kHz equivalent technology for DMR modes (2 x TDMA channels in one 12.5kHz channel)
- Adherence to the DMR and P25 standards
- Easy and rapid deployment of single repeater operation
- Tait DMR Access and Express solution compatible
- DMR fallback into single site operation
- 12.5kHz analog repeater operation offers single site repeat
- Efficient system infrastructure scalability based on IP network connectivity
- Extensive range of remote management and monitoring capabilities with a security focus
- Built-in spectrum analyzer provides on-site diagnostics
- Design inside a rugged waterproof Pelican case
- AC/DC power supply inputs
- Internal SLA battery for rapid field deployment
- Options and accessories for better operational efficiency



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FEATURES AND BENEFITS

Delivering on operational needs

- Easy and rapid deployment of transportable repeater as a single conventional RF channel
- To better manage a temporary site with RF resources constraints, this equipment can be used as a single trunked site with a control channel and a traffic channel or more with another connected transportable units
- Also available as a trunked or linked conventional base station for a quick expansion of a private network
 - Flexible network design through IP connectivity and linking
 - Transfer data and voice across a packet-switched infrastructure using standard IP communications
 - P25/DMR Voice over IP (VoIP) support
 - Quality of Service (QoS) assignments for voice and signalling to allow optimal network packet routing
 - Remote software downloads with no impact to operations•

Integrated solution component

- The TB7300 is compatible with TB9300 (DMR only) and TB9400 bases in analog, DMR, and P25 Phase 1.
- Part of the Tait DMR Express & Access solution with the TN9300 Node controller for DMR trunking networks

Designed to support effective deployment

- When pre-configured, just plug the repeater on site to start operating
- Compatible with analog, DMR and P25 networks

Developed for transportable operations

- Designed in a rugged Pelican case
- Compact base station easy to transport and deploy
- Output power selection from 2W to the maximum transmit power 25W/30W depending on the frequency band
- Power supply per default configuration: AC and DC plus an internal battery with built in charging capability
- Duplexer integrated into the Pelican case
- Optional extra battery pack

Delivers on the benefits of the DMR standards

- Designed and tested with the DMR Tier 2 Conventional and Tier 3 Trunking and P25 open industry standards to provide customers with choice of vendor and equipment
- DMR voice and data spectral efficiency 2-slot TDMA channels (6.25kHz equivalent)
- Tested using the IOP certification program developed by the DMR Association, providing confidence of multi-vendor interoperability
- Tested and compliant to the P25 Compliance Assessment Programme (CAP)

Resiliency to manage risk and enhance safety in challenging environments

- Dual software image support for fast rollback
- Integrated Web https secured application to monitor, diagnose and configure

Efficient management with a focus on security

- Remote network management utilizing built-in secure https web server and SNMP V3 support
- Detailed alarm monitoring and reporting of critical base station/repeater parameters
- Inbuilt diagnostics to allow technicians to remotely confirm optimal operation and identify network faults
- Enhanced security through password protection and access level control on web server
- Multiple user accounts
- System logs to provide audit records
- Ability to configure 4,000 channels to allow single configuration across sites

Future-proofed to protect your investment

- Software configurable, including feature upgrades through software licenses
- Software upgradeable to add new features and functionality to ensure that your DMR solution is maintained and updated with the ever-changing needs of your market and environment

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FREQUENCY BANDS

Frequency	Range	Tait Band	Configuration
VHF	136-174MHz	B1	Factory set to 15W (Max 30W* typical)
UHF	400-470MHz	H5	Factory set to 15W (Max 25W* typical)
700/800MHZ	762-870MHz	K4	Factory set to 15W (Max 25W* typical)

* The output power of the transportable unit is reduced due to the duplexer loss. This improves the battery shift life. If the unit is operated in a high duty cycle environment, for example the trunking control channel, output power should be limited to 15W.

REGULATORY

USA (CFR 47)	B1, H5, K4
Canada (RSS-119)	B1, H5, K4
Europe (EN300-113, EN300-086, EN301-489)	B1, H5
Australia/New Zealand (AS/NZS4768)	B1, H5
Safety (EN60950, EN62368)	B1, H5 (K4 compliance pending)

INTERFACE STANDARDS

Digital Protocol (DMR)	ETSI TS 102 361-1 V2.6.1, ETSI TS 102 361-2 V2.5.1, ETSI TS 102 361-3 V1.3.1, ETSI TS 102 361-4 V1.12.1
General System Design	ETSI TR102 398 V1.5.1

GENERAL

Radio specifications

Frequency stability	+/- 0.5 ppm
Channels	4,000
Channel spacing	12.5kHz and 25kHz** in analog 12.5kHz provides 1 FDMA voice or data channel in P25 Phase 1 mode 12.5kHz provides 2 TDMA voice or data channels (6.25kHz equivalent) in DMR mode
Frequency increment/channel step	VHF 2.5/3.125kHz (or multiples of), UHF 5/6.25kHz
External frequency reference	10MHz/12.8MHz (auto detect)
Packet data	1/2 Rate, 3/4 Rate, Full rate, Single Slot

Physical specifications

Dimensions (HxWxD)	Pelican case 1550 440 x 530 x 215 mm
Weight	Less than 23kg (50.7lb), or less than 19kg without battery assembly (41.9lb)
Operating temperature	-22°F to +140°F (-30°C to +60°C) : with External DC and AC inputs, Battery Isolated -22°F to +122°F (-30°C to +50°C) : with Internal Battery connected
ESD rating	+/-4kV contact discharge and +/-8kV air discharge

Power specifications

Power Supply	AC Mains (100-240V AC) and DC 11-15V
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Battery specification

Internal battery	12V Panasonic 15Ah/12Ah SLA battery with built in charging capability (the charging works when AC supply is connected). Recommend maximum temperature is 50C. Whenever the temperature is above 50C, then we recommend the unit is powered from an external DC source. For example, a car auxiliary power source. When the power is set to 15W or the duty cycle is set to 5%, then the shift life may reach 8 hours
Standalone battery life	4.3 Kg (9.5lb)

Connectors

Antenna N type female (both Rx and Tx connected to duplexer)
Network Ethernet Port
AC Mains input
External DC input

Accessories

Supplied with the unit	Schurter waterproof AC Mains socket to make up an external AC Mains cable (must be wired by an registered electrician) External DC Input Cable with Red and Black clamps (clips) Removable 12V SLA battery (fitted inside)
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Spares

Not supplied with the unit	219-03353-00: CBL Battery Eliminator with 15A Fuse & Switch & ACC Plug (Battery DC cable with car acc plug - cigarette lighter port) TA2700-03: KIT Spares x2 Battery Pack Transpb TA2700 (Two spare batteries)
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TRANSMITTER

Modulation types	4FSK, FM, C4FM
P25 Modulation fidelity (TIA-102)	<2%
Adjacent channel power 12.5kHz static	60dB, complies with EN 300 113 v2.2.1 (DMR)
Conducted spurious emissions	
VHF	<-36dBm 9kHz to 1GHz and <-30dBm 1GHz to 4GHz
UHF	<-36dBm 30MHz to 1GHz and <-30dBm 1GHz to 4GHz/12.75GHz
Output power	
VHF	Programmable 2-15W recommended (30W max)
UHF	Programmable 2-15W recommended (25W max)
Duty Cycle	100%

RECEIVER

Modulation types	4FSK, FM, C4FM
Radiated spurious emissions EIA-603-D	<-57dBm EIRP to 1GHz
Conducted spurious emissions	<-90dBm to 2GHz

P25 (TIA102)

Sensitivity	0.22 μ V (-120 dBm) @ 5% BER
Intermodulation response attenuation	85dB
Adjacent channel rejection	60dB
Co-channel rejection	9dB

DMR

Unfaded sensitivity ETS 300 113	
Typical	-122dBm (0.18 μ V) @ 1% BER
Guaranteed	-120dBm (0.22 μ V) @ 1% BER
Selectivity ETS 300 113	
@ 1% BER	\geq 82dB (VHF), \geq 79dB (UHF)
Intermodulation response attenuation	\geq 78dB @ 1% BER unfaded
Blocking rejection	
> 1MHz	100dB @ 1% BER

Analog

Sensitivity	<-119dBm (0.25 μ V) (12dB SINAD, centre of switching range) at 25°C (de-emphasized response)
Selectivity (EIA-603)	85dB (VHF & UHF)
Intermodulation	80dB (ETSI)
Spurious response attenuation	\geq 100dB (ANSI/TIA) and \geq 90dB (ETSI)
FM hum and noise	
VHF/UHF	45dB (ANSI/TIA), 50dB (ETSI)

TAIT NETWORK SOLUTIONS

Backed up by our proven radio network expertise, the TB7300 is part of our larger network offering. The Tait network solution consists of radio units, infrastructure, applications, services and integration with third party interfaces to ensure that your organization can reap all the benefits of the DMR or P25 standard in a mission critical environment.

Tait has taken every care in compiling this specification sheet, but we're always innovating and therefore changes to our models, designs, technical specification, visuals and other information included in this specification sheet could occur. For the most up-to-date information and for a copy of our terms and conditions please visit our website www.taitradio.com.

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