TB**9300**
SPECIFICATIONS

High performing, tough and resilient base stations for mission critical networks.

The Tait TB9300 Base station is a multi-mode platform: Analog conventional, MPT and DMR.

The TB9300 provides a 6.25kHz equivalent operation in digital mode and is fully compliant with DMR Tier 2 and Tier 3 standards.

The TB9300 offers a spectrally efficient solution, allowing you to gain greater capacity, and future-proof your investment. It also provides operational efficiencies through capabilities such as remote network management and IP connectivity.

KEY FEATURES

- Multi-mode platform supporting Analog Conventional, MPT, DMR Conventional and DMR Trunking modes
- 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 Tier 2 & Tier 3 standards
- Simulcast and Voting in DMR networks
- DMR fallback into single site operation
- Migration capability from Tait MPT to DMR Tier 3 trunked network
- MPT fallback into MPT single site operation or Analog conventional channel
- 12.5kHz analog repeater operation offers single site repeat
- Analog line (supporting 4 wire E&M) in analog mode for RF linking connection and local console support
- Efficient system infrastructure scalability based on IP network connectivity
- Extensive range of remote management and monitoring capabilities with a security focus
- Built-in basic spectrum analyzer provides on-site diagnostics
- Modular structure offers variety of build options to satisfy serviceability or space constraints
- Designed to military standard MIL-STD-810G

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FEATURES AND BENEFITS

Designed to support effective deployment

- Compact modular design to minimize rack space and improve serviceability
- Analog line supporting RF linking, relay between repeater sites and local console connection
- Migration paths from analog/ MPT networks to DMR with extensive re-use
- Front panel user interface to set device IP address, where required
- In a DMR network, the TB9300 is compatible with TB7300 bases. Also, a TB7300 Transportable version is available for incident management

Delivering on operational needs

- Flexible network design through IP connectivity and linking
- Transfer data and voice across a packet-switched infrastructure using standard IP communications
- DMR Voice over IP (VoIP) support
- Quality of Service (QoS) assignments for voice and signalling to allow optimal network packet routing
- Simulcast and Voting solutions for DMR Tier 2 and Tier 3 systems with receive only configuration for fill-in site (to allow downlink enhanced coverage)
- Remote software downloads with no impact to operations
- Built-in basic spectrum analyzer provides on-site diagnostics, by way of plotting signal level

Resiliency to manage risk and enhance safety in challenging environments

- Dual software image support for fast rollback
- Dual diversity not required due to Simulcast and automatic voting efficiency
- Integrated Web https secured application to monitor, diagnose and configure
- Tait smart power supply with auto change from AC to DC for easy battery back-up
- Rated for continuous full output power
- Superior analog static sensitivity: -119 dBm @ 12 dB SINAD
- Rugged construction with efficient heatsinks and front-to-rear fan-forced cooling
- Meets relevant MIL-STD-810G test methods

Delivers on the benefits of the DMR standards

- Designed and tested with the DMR Tier 2 Conventional and Tier 3 Trunking standards to provide customers with choice of vendor and equipment:
  - ETSI TR 102 398 V1.4.1 General System Design.
  - ETSI TS 102 361-1 V2.5.1 DMR Air Interface (AI) protocol.
  - ETSI TS 102 361-2 V2.4.1 DMR voice and generic services and facilities
  - ETSI TS 102 361-3 V1.3.1 DMR data protocol.
  - ETSI TS 102 361-4 V1.9.2 DMR trunking protocol
- 6.25kHz equivalent 2-slot TDMA for both voice and data offers spectral efficiency
- Tested using the IOP certification program developed by the DMR Association, providing confidence of multi-vendor interoperability

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
- 12 digital inputs to monitor external equipment
- 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 1,000 channels to allow single configuration across sites

Future-proofed to protect your investment

- Software configurable, including mode and feature upgrades through software licenses as required
- 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

Wide range of configuration options available

- Configurable as a single channel 100W or 50W unit, or a dual channel 50W unit, with a range of DC and AC power supply options

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FREQUENCY BANDS

Frequency	Range	Tait Band	Configuration
VHF	136-156MHz	B2	50W & 100W
	148-174MHz	B3	50W & 100W
	174-193MHz	C1	50W only
	216-225MHz	C3	100W only
UHF	330-380MHz	G4	50W only
	380-420MHz	H4	50W & 100W
	400-440MHz	H1	50W & 100W
	440-480MHz	H2	50W & 100W
	Tx: 440-480MHz, Rx: 400-440MHz	HC	50W only
	400-470MHz	H5	50W only
	470-520MHz	H3	50W & 100W
700/800MHz	Tx: 762-870MHz, Rx: 794-824MHz	K4	50W & 100W
	Tx: 757-758MHz, Rx: 787-788MHz	K8	100W only
900MHz	Tx: 927-941MHz, Rx: 896-902MHz	L2	100W only

REGULATORY

	DMR, Analog, MPT	DMR, Analog
USA (CFR 47)	B3, C3, H1, H2, K8, L2	K4
Canada (RSS-119)	B3, C3, H1, H2, L2	K4
Europe (EN300-113, EN300-086, EN301-489)	B2, B3, H1, H2, H3	C1, G4, H4, HC, H5
Australia/New Zealand (AS/NZS4768)	B2, B3, H1, H2, H3	HC

GENERAL

Radio specifications

Frequency stability	±0.5ppm
Channels	1,000
Channel spacing	12.5kHz in Analog, 2 channels of TDMA 6.25kHz equivalent in DMR
Frequency increment/channel step	VHF 2.5/3.125kHz (or multiples of) , UHF 5/6.25kHz , 700/800/900MHz 5/6.25kHz
External frequency reference	10MHz/12.8MHz (auto detect)
Packet data	DMR: ½ Rate, ¾ Rate, Full rate, Single Slot
Air interface standard	DMR: ETSI TS 102 361-1, -2, -3, -4
General design standard	ETSI TR 102 398 V1.4.1

Physical specifications

Dimensions (HxWxD)	7 x 19 x 15.8in (177 x 483 x 400) 4U rack space	
Weight lb (kg)	Single 50W: 47.4lb (21.5kg) Single 100W: 50.3lb (22.8kg) Dual 50W: 63.1lb (28.6kg)	Single Rx only: 37.5lb (17.0kg) Dual Rx only: 43.2lb (19.6kg)
Operating temperature	-22°F to 140°F (-30°C to 60°C)	

Power specifications

Power Supply	
DC	12V, 24V, 48V (+ve or –ve earth)
AC	from 88V to 264V (with power factor correction)
ESD rating	+/-4kV contact discharge and +/-8kV air discharge

Power consumption* (UHF)	120VAC	230VAC	12VDC	24VDC	48VDC
Standby (Single 50 and 100 W)	0.355A, 27W	0.5A, 28W	1.8A, 22W	0.91A, 22W	0.438A, 21W
Tx @ 50W Single	1.6A, 187W	0.95A, 179W	14.5A, 174W	7.1A, 171W	3.5A, 168W
Tx @ 100W	2.8A, 341W	1.6A, 336W	28.5A, 342W	13.3A, 319W	6.6A, 315W

* Note Transmitter: These figures are specific to UHF, for other bands consult the product specification manual.

MILITARY STANDARDS 810G

Applicable MIL-STD	Method	Procedure
Low pressure (Altitude 15,000ft (4572m))	500.5	2
Vibration	514.6	1
Shock	516.6	1

ANALOG LINE

	Input	Output
Audio interfaces	600Ω Balanced	600Ω Balanced
Audio interface level	-30dBm to 0dBm nominal (300Hz to 2,550Hz)	-30dBm to 0dBm nominal (300 to 2,550Hz)
Frequency response	+0.5/-2.0dB rel. 1kHz (300Hz to 3,000Hz)	
Passband ripple	-3 to +1dB	-3 to +1dB
Audio distortion	<3% typical (line to RF)	<3% typical (RF to line)
Rx Gate	-	Logic state: active low
Tx Key	Logic state: active low	-

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TRANSMITTER

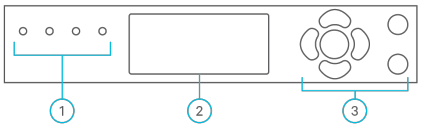
Modulation types	4FSK, FM
Adjacent channel power 12.5kHz static	<-60dBc, complies with EN 300 113 v2.2.1 (DMR)
Conducted spurious emissions	
VHF	<-36dBm 9kHz to 1GHz and <-30dBm 1GHz to 4GHz
UHF	<-36dBm 30MHz to 1GHz and <-30dBm 1GHz to 4GHz/12.75GHz
700/800/900MHz	<-20dBm to 9GHz
Output power	
50W	Programmable 5-50W
100W	Programmable 10-100W
Duty cycle	100%

RECEIVER

Modulation types	4FSK, FM
Radiated spurious emissions	<-57dBm EIRP to 1GHz
Conducted spurious emissions	<-90dBm to 2GHz
DMR	
Unfaded sensitivity ETS 300 113	
Typical	-122dBm (0.18µV) @ 5% BER
Guaranteed	-120dBm (0.22µV) @ 5% BER
Selectivity ETS 300 113	
@ 1% BER	≥82dB (VHF & UHF)*, ≥77dB (700/800/900MHz)
Intermodulation response attenuation	≥78dB @ 1% BER unfaded
Blocking rejection	
> 1MHz	100dB @ 1% BER
Analog	
Sensitivity	<–119dBm (0.25µV) (12dB SINAD, centre of switching range) at 25°C (de-emphasized response)
Selectivity (EIA-603)	85dB (VHF & UHF), 79dB (700/800/900MHz)
Intermodulation	80dB (ETSI)
Spurious response attenuation	≥100dB (ANSI/TIA) and ≥90dB (ETSI)
FM hum and noise	
VHF/UHF	45dB (ANSI/TIA), 50dB (ETSI)
700/800/900MHz	43dB (ANSI/TIA)

* Note Receiver: For specific bands consult the product specification manual.

FRONT PANEL



1. Status LEDs
2. 20-character 4-row LCD Display
3. Keypad
4. Flow through ventilation fans x 3 (not pictured)

TAIT DMR SOLUTION

Backed up by our proven radio network expertise, the TB9300 is part of our larger DMR offering. The Tait DMR 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 spectrally-efficient DMR 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.

Tait International Limited facilities are certified for ISO 9001:2015 (Quality Management System), ISO 14001:2015 (Environmental Management System) and ISO 45001:2018 (Occupational Health and Safety Management System) for aspects associated with the design, manufacture and distribution of radio communications and control equipment, systems and services. In addition, all our Regional Head Offices are certified to ISO 9001.

Authorized Partners

Quality Management ISO 9001

Environment Management ISO 14001:2015

Occupational Health & Safety Management ISO 45001:2018

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