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, or program complex operations with TaskBuilder
- 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
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 basestations. 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
- Control, customize, and enhance base station operations with TaskBuilder, by creating rules that extend the functionality of the base station. Rules can control channel changes, digital outputs, timers, and alarms, based on events and external signals

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 heat sinks 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 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 V1.31 DMR data protocol.
  - ETSI TS 102 361-4 V19.2 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
### Frequency Bands

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

### Regulatory

- **USA (CFR 47)**
- **Canada (RSS-119)**
- **Europe (EN300-173, EN300-087, EN301-489)**
- **Australia/New Zealand (AS/NZS4768)**

**DMR, Analog, MPT**
- B3, C3, H1, H2, K8, L2

**DMR, Analog**
- B3, C3, H1, H2, L2

### General

- **Radio specifications**
  - **Frequency stability:** ±0.5 ppm
  - **Channels:** 1000
  - **Channel spacing:** 12.5kHz in Analog, 2 channels of TDMA 6.25kHz equivalent in DMR
  - **Frequency increment/channel step:** VHF: 2.5/3/8/12.5/25kHz (or multiples of), UHF: 5/6.25/12.5kHz
  - **External frequency reference:** TDM+V/F: 12.8kHz (Auto detect)
  - **Packet data:** DMR: ¼ Rate, ¼ Rate, Full rate, Single Slot
  - **Air interface standard:** DMR: ETSI TS 102 361-1, -2, -3, -4
  - **General design standard:** ETS 102 398 V1.0

- **Physical specifications**
  - **Dimensions:** 19 x 18 x 15.8in (177 x 483 x 400)
  - **Weight (lb):** Single 50W: 4.7lb (21.5kg), Single 100W: 5.3lb (24.8kg), Dual 50W: 6.3lb (28.6kg), Dual 100W: 7.3lb (34.6kg)
  - **Operating temperature:** -22°F to 140°F (-30°C to 60°C)

- **Power specifications**
  - **Power Supply:** 12V, 24V, 48V (+ve or -ve earth)
  - **ESD rating:** +/-4KV contact discharge and +/-1KV air discharge

- **Power consumption**

<table>
<thead>
<tr>
<th>(UHF)</th>
<th>120VAC</th>
<th>230VAC</th>
<th>12VDC</th>
<th>24VDC</th>
<th>48VDC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Standby</td>
<td>0.35A</td>
<td>0.4A</td>
<td>0.5A</td>
<td>0.91A</td>
<td>0.438A</td>
</tr>
<tr>
<td>Tx @ 50W Single</td>
<td>1A</td>
<td>1.6A</td>
<td>1.8A</td>
<td>2.17A</td>
<td>1.33A</td>
</tr>
<tr>
<td>Tx @ 100W</td>
<td>2.8A</td>
<td>3.4A</td>
<td>3.6A</td>
<td>6.17A</td>
<td>3.417A</td>
</tr>
</tbody>
</table>

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

### MILITARY STANDARDS 810G

- **Applicable MIL-STD**
  - Low pressure (Altitude 15,000ft or 4,572m)
  - Vibration
  - Shock

### Analog Line

- **Input**
  - Audio interfaces: 600Ω Balanced
  - Audio interface level: -30dBm to 0dBm nominal (300Hz to 2,550Hz)
  - Frequency response: +0.5/-2.0db rel. kHz (300Hz to 3,000kHz)
  - Passband rpp/eq: -3 to +6db
  - Audio distortion: <+3% typical (RF to line)
  - Rx Gate: -
  - Tx Key: Logic state active low

- **Output**
  - Audio interfaces: 600Ω Balanced
  - Audio interface level: -30dBm to 0dBm nominal (300Hz to 2,550Hz)
  - Frequency response: +0.5/-2.0db rel. kHz (300Hz to 3,000kHz)
  - Passband rpp/eq: -3 to +6db
  - Audio distortion: <+3% typical (RF to line)
  - Rx Gate: -
  - Tx Key: Logic state active low
# TB9300 SPECIFICATIONS

## TRANSMITTER

<table>
<thead>
<tr>
<th>Feature</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Modulation types</td>
<td>4FSK, FM</td>
</tr>
<tr>
<td>Adjacent channel power 12.5kHz static</td>
<td>&lt;= -60dBc, complies with EN 300 113 v2.2.1 (DMR)</td>
</tr>
<tr>
<td>Conducted spurious emissions VHF</td>
<td>&lt;= -36dBm 9kHz to 1GHz and &lt;= -30dBm 10GHz to 4GHz</td>
</tr>
<tr>
<td>UHF</td>
<td>&lt;= -36dBm 30MHz to 1GHz and &lt;= -30dBm 10GHz to 4GHz/12.75GHz</td>
</tr>
<tr>
<td>Output power SDW</td>
<td>Programmable 5-SOW</td>
</tr>
<tr>
<td></td>
<td>Programmable 10-100W</td>
</tr>
<tr>
<td>Duty cycle</td>
<td>100%</td>
</tr>
</tbody>
</table>

## RECEIVER

<table>
<thead>
<tr>
<th>Feature</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Modulation types</td>
<td>4FSK, FM</td>
</tr>
<tr>
<td>Radiated spurious emissions</td>
<td>&lt;= -76dBm EIRP to 1GHz</td>
</tr>
<tr>
<td>Conducted spurious emissions</td>
<td>&lt;= -90dBm to 2GHz</td>
</tr>
<tr>
<td>DMR</td>
<td></td>
</tr>
<tr>
<td>Unfaded sensitivity ETS 300 113</td>
<td></td>
</tr>
<tr>
<td>Typical</td>
<td>-122dBm (0.18µV) @ 5% BER</td>
</tr>
<tr>
<td>Guaranteed</td>
<td>-120dBm (0.22µV) @ 5% BER</td>
</tr>
<tr>
<td>Selectivity ETS 300 113</td>
<td></td>
</tr>
<tr>
<td>@ 1% BER</td>
<td>±87dB (VHF &amp; UHF), ±77dB (700/800/900MHz)</td>
</tr>
<tr>
<td>Intermodulation response</td>
<td>±78dB @ 1% BER unfaded</td>
</tr>
<tr>
<td>attenuation</td>
<td>100dB @ 1% BER</td>
</tr>
<tr>
<td>Blocking interference</td>
<td></td>
</tr>
<tr>
<td>&gt; 1MHz</td>
<td></td>
</tr>
<tr>
<td>Analog</td>
<td></td>
</tr>
<tr>
<td>Sensitivity</td>
<td>&lt;= -119dBm (0.25µV) (12dB SINAD; centre of switching range) at 25°C (de-emphasized response)</td>
</tr>
<tr>
<td>Selectivity (CEA-603)</td>
<td>85dB (VHF &amp; UHF), 79dB (700/800/900MHz)</td>
</tr>
<tr>
<td>Intermodulation</td>
<td>80dB (ETSI)</td>
</tr>
<tr>
<td>Spurious response attenuation</td>
<td>±100dB (ANSI/TIA) and ±90dB (ETSI)</td>
</tr>
<tr>
<td>FM hum and raise</td>
<td>45dB (ANSI/TIA), 50dB (ETSI)</td>
</tr>
<tr>
<td>VHF/UHF 700/800/900MHz</td>
<td>43dB (ANSI/TIA)</td>
</tr>
</tbody>
</table>

*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 specially-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.

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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 central equipment, systems and services. In addition, all our Regional Head Offices are certified to ISO 9001.

Authorized Partners

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