High performing P25 and Analog base stations for mission critical networks.

The Tait TB9400 base station is the flexible second generation platform for both P25 digital and Tait analog simulcast solutions with IP connectivity.

It provides multi-mode capabilities: analog conventional in 12.5 kHz channel spacing, P25 conventional, and P25 Phase 1 FDMA and 6.25 kHz equivalent P25 Phase 2 TDMA trunked operations.

The TB9400 offers a spectrally efficient solution, enabling migration path between modes, with greater capacity and thus future proof your investment. It delivers operational efficiency through features such as internal voter capability, Linear Simulcast Modulation (LSM) and remote network management.

KEY FEATURES

- Multi-mode platform supporting Analog Conventional, P25 Conventional and P25 Trunking modes
- Simple change of mode through the web interface or dual mode automatic switching between Analog and P25 conventional
- P25 and analog conventional simplex and DFSI support for ease of migration
- Adherence to P25 standards Phase1 and Phase2 (ultra-narrowband 6.25 kHz) for interoperability
- Simulcast and Voting in analog and P25 networks
- Linear Simulcast Modulation (LSM) to increase P25 coverage efficiency
- Migration capability from Tait analog simulcast to P25 conventional and to P25 trunked networks
- Analog line support in analog conventional mode
- 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**

**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
- Robust design provides mission-critical voice communications
- P25 Voice over IP (VoIP) support
- Cornerstone of a Tait P25 software-upgradable system
- Quality of Service (QoS) assignments for voice and signalling to allow optimal network packet routing
- Simulcast and Voting solutions with receive only configuration for fill-in site (to allow downlink enhanced coverage)
- Built-in optional central voting facility selects the best quality signal for transmission
- LSM support means digital P25 simulcast networks require fewer sites
- C4FM simulcast operation
- Multi-DFSI support with full control or audio connectivity only in P25 and analog conventional modes
- Simplex support with antenna relay management in P25 and analog conventional modes
- Analog line support in analog conventional mode for console and system connectivity as well as relay and RF linking configurations
- Built-in Continuous Wave Identification (CWI) generation meets FCC call-sign requirements
- 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 macro diversity
- Integrated Web https secured application to remotely 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
- Rugged construction with efficient heatsinks and front-to-rear fan-forced cooling
- Meets relevant MIL-STD-810G test methods

**Designed to support effective deployment**
- Compact modular design to minimize rack space and improve serviceability
- Migration paths between analog/P25 conventional/ P25 trunked networks with extensive re-use
- Front panel user interface to set device IP address, where required

**Delivers on Public Safety**
- Benefit from the spectral efficiency, multi-vendor interoperability, security, migration and data capability demanded by P25 standards
- 6.25 kHz equivalent P25 Phase 2 TDMA operation
- Ongoing communications during an outage with failsoft
- Tested using the CAP certification program, 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 1000 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 analog/P25 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>UHF</td>
<td>378-420MHz</td>
<td>HH</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>470-520MHz</td>
<td>H3</td>
<td>50W &amp; 100W</td>
</tr>
<tr>
<td></td>
<td>700/800MHz</td>
<td>K4</td>
<td>50W &amp; 100W</td>
</tr>
</tbody>
</table>

* The actual VHF frequency coverage in this band is 762-766MHz, and 850-870MHz.

### Regulatory

- **USA** (CFR 47)
- **Canada** (RSS-119)
- **Europe** (EN300-118, EN300-086, EN301-488)
- **Australia/New Zealand** (AS/NZ/9476.8)

**P25, Analog FM**

- B2, B3, HH, H1, H2, H3, K4
- B2, B3, HH, H1, H2, H3, K4
- B2, B3, H1, H2
- B2, B3, H1, H2

### General

- **Radio specifications**
  - Frequency stability: ±0.5 ppm
  - Channels: 1000
  - Channel spacing: 12.5 kHz in analog
  - Frequency increment/channel step: VHF 2.5 kHz/3125 kHz, UHF 5 kHz/6.25 kHz, 700/800 MHz 5 kHz/6.25 kHz
  - External frequency reference: 10 MHz/10.2 MHz (auto detect)
  - Packet data: Repeated on P25 Phase 1 channels

- **Physical specifications**
  - Dimensions (HxWxD): 7 x 19 x 15.8 in (177 x 483 x 400 mm)
  - Weight: 4U rack space
  - Single 100 W: 46.5 lb (211 kg)
  - Dual 50 W: 54.7 lb (24.8 kg)
  - Single 50 W: 4.3 lb (196 kg)

- **Operating temperature:** -22°F to +140°F (-30°C to +60°C)

### Power specifications

- **Power Supply**
  - DC: 12V, 24V, 48V, PMU (+ve or -ve earth)
  - AC: 88-264V (with Power Factor Correction)

- **Power consumption** (UHF)
  - Standby (Single 50 and 100 W): 0.370A, 30W
  - Tx @ 50W Single: 1.9A, 235W
  - Tx @ 100W: 3.3A, 395W

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

### MILITARY STANDARDS 810G

<table>
<thead>
<tr>
<th>Applicable MIL-STD</th>
<th>Method</th>
<th>Procedure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low pressure (Altitude 15000ft (4572m))</td>
<td>500.5</td>
<td>2</td>
</tr>
<tr>
<td>Humidity</td>
<td>507.5</td>
<td>2</td>
</tr>
<tr>
<td>Vibration</td>
<td>514.6</td>
<td>1</td>
</tr>
<tr>
<td>Shock</td>
<td>516.6</td>
<td>1</td>
</tr>
</tbody>
</table>

### Analog Line

<table>
<thead>
<tr>
<th>Input</th>
<th>Output</th>
</tr>
</thead>
<tbody>
<tr>
<td>Audio interfaces</td>
<td>600Ω Balanced</td>
</tr>
<tr>
<td>Audio interface level</td>
<td>-3dBm to 0dBm nominal (300Hz to 2550Hz)</td>
</tr>
<tr>
<td>Frequency response</td>
<td>+0.5 / -2dB rel. 1% (300Hz to 3000Hz)</td>
</tr>
<tr>
<td>Passband ripple</td>
<td>-3 &lt; 1dB</td>
</tr>
<tr>
<td>Audio distortion</td>
<td>&lt;3% typical (line to RF)</td>
</tr>
</tbody>
</table>

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## TB9400 Specifications

### Transmitter

<table>
<thead>
<tr>
<th>Feature</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Modulation types</td>
<td>FM, C4FM, L5M, H-DQPSK</td>
</tr>
<tr>
<td>P25 Modulation fidelity (TIA-102)</td>
<td>&lt;2%</td>
</tr>
<tr>
<td>Adjacent channel power</td>
<td>-60dBc (ETS0) and -67dBc (TIA-102)</td>
</tr>
<tr>
<td>Conducted spurious emissions</td>
<td>-36dBm to 9kHz and -30dBm to 1GHz to 4GHz</td>
</tr>
<tr>
<td>VHF</td>
<td>-36dBm 30kHz to 1GHz and -30dBm 1GHz to 4GHz</td>
</tr>
<tr>
<td>LHF</td>
<td>-20dBm to 9GHz</td>
</tr>
<tr>
<td>700/800/900MHz</td>
<td>Programmable 5-50W</td>
</tr>
<tr>
<td>Output power</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>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Modulation types</td>
<td>C4FM, H-CPM, Analog FM</td>
</tr>
<tr>
<td>Radiated spurious emissions</td>
<td>&lt;57dBm EIRP to 1GHz</td>
</tr>
<tr>
<td>Conducted spurious emissions</td>
<td>&lt;90 dBm to 1GHz</td>
</tr>
<tr>
<td>P25 (TIA102)</td>
<td>0.22μV (-120 dBm) @ 5% BER</td>
</tr>
<tr>
<td>Intermodulation response attenuation</td>
<td>85dB</td>
</tr>
<tr>
<td>Adjacent channel rejection</td>
<td>60dB</td>
</tr>
<tr>
<td>Co-channel rejection</td>
<td>9dB</td>
</tr>
<tr>
<td>Analog</td>
<td>-119dB @ 12dB SINAD (0.25SpV)</td>
</tr>
<tr>
<td>Selectivity (CEA-603)</td>
<td>85dB (VHF &amp; UHF), 79dB (700/800MHz)</td>
</tr>
<tr>
<td>Intermodulation</td>
<td>80dB</td>
</tr>
<tr>
<td>Spurious response attenuation</td>
<td>≥100dB (ANSI/TIA) and ≥90dB (ETS0)</td>
</tr>
<tr>
<td>FM hum and noise</td>
<td>45dB (ANSI/TIA), 50dB (ETS0)</td>
</tr>
<tr>
<td>VHF/UHF</td>
<td>43dB (ANSI/TIA)</td>
</tr>
</tbody>
</table>

### Front Panel

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

## Tait P25 Solution

Backed up by our proven radio network expertise, the TB9400 is part of our larger P25 offering. The Tait P25 solution consists of subscriber units, infrastructure, applications, services and integration with third party interfaces to ensure that your organization can reap all the benefits of the 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.


Tait International Limited facilities are certified for ISO 9001:2015 (Quality Management System), ISO 14001:2015 (Environmental Management System) and OHSAS 18001:2007 (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.

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