# TB**9100**
SPECIFICATIONS

**tait** communications

# Intelligence, flexibility and high performance.



**The TB9100 base station is intelligent and flexible, offering dual mode to ease migration with seamless FM or P25 switching.**

**The modular design combined with intuitive programming software make the Tait P25 TB9100 base station an ideal solution for conventional, trunked and simulcast.**

**KEY FEATURES**

- Ideal for P25 trunked, simulcast and conventional networks
- Tested in a Department of Homeland Security-recognized P25 Compliance Assessment Program lab
- Supports P25 open standard DES and AES encryption
- Dual mode operation for ease of analog-to-digital migration
- Remote programming and software licenses reduce the need for site visits and hardware upgrades
- Smart AC/DC switching to ensure continuity of service
- Built-in test equipment provides self-monitoring with local and remote logging of alarms
- Digital console interfaces are provided for IP-connected consoles (DFSI for P25 conventional and CSSI for P25 trunked)
- An analog line interface (4-wire E&M or/and Tone remote) allows connection to legacy analog consoles
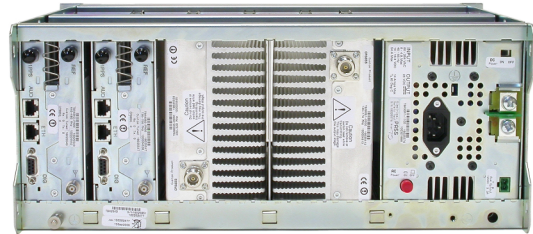
Above: Dual 50W systems with AC/DC Power Management Unit.

## FEATURES AND BENEFITS

### Interoperability and versatile

Fully P25-compliant, the TB9100 can be configured as a repeater or as a base station in a digital P25, analog FM or mixed-mode radio network.

### Totally flexible Task Manager

Routines and code can be written quickly and easily allowing fast development and delivery of value-adding custom applications.

### Convenient Windows-based software programming

Change over 150 parameters with intuitive drop downs, tick boxes and other easy-to-master software commands. Tait Customer Service Software makes the TB9100 easy to configure and upgrade.

### IP connection for ease of diagnostics

No special equipment will be needed to ensure total control of your base station. Connect and configure alerts and alarms, monitor performance and administer the site remotely.

### Integrated VoIP networking with voting

Network you TB9100s using VoIP with built-in centralized voting while eliminating hardware.

### Clean back panel design with industry-standard interface enables easy connectivity to the rest of the system and third party vendors.

Front-loading modules slip into the 4U subrack, making building the system, replacing a module or accessing a system interface board fast and simple. TB9100 modules include:

- Reciter - contains the receiver and exciter
- Power Amplifier - available as 5W, 50W and 100W modules
- Power Management Unit - can be AC and/or DC powered, and includes an auxiliary power supply
- Network Board - provides access to multiple interfaces
- Subrack, front panel and control panel

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## GENERAL

| | VHF | UHF | 700/800MHz |
|---|---|---|---|
| Operational frequency+ | 136-156MHz | 380-520MHz, 400-440MHz, | 762-870MHz |
| | 148-174MHz | 440-480MHz, 470-520MHz | |

| | |
|---|---|
| Electronic switching range | ≥2% of the center frequency (e.g. 10MHz @ 500MHz) |
| Channel/network capacity | 255 |
| Channel spacing | 12.5kHz, 20kHz, 25kHz |
| Channel increment | 0.125kHz |
| Dimensions | |
|   HxWxD (subrack only) | 7in (177.8mm) x 19in (482.6mm) x 15.2in (386mm) |
|   HxWxD (including font panel) | 7in (177.8mm) x 19in (482.6mm) x 16.1in (409mm) |
| Weight (with AC and DC PMU) | |
|   5/50W base station system (single channel) | 47.0lb (21.5kg) |
|   100W base station system | 50.2lb (22.8kg) |
| Operational temperature | -22°F to 140°F (-30°C to 60°C) |
| Description | Modular base station/Repeater/Receiver |
| Frequency stability | ±0.5ppm (-22°F to 140°F/-30°C to 60°C) |
| External Reference | 10MHz or 12.8MHz |

| Power Consumption | 12V Pa | 12V PMu | 24V PMu | 48V PMu | 110VaC | 240Vac |
|---|---|---|---|---|---|---|
|   Standby Tx @ 5W | 0.81A | 1.2A | 0.63A | 0.3A | - | - |
|   Tx @ 50W | 2.2A | 2.7A | 1.4A | 0.65A | 49VA | 118VA |
|   Tx @ 100W | 9.2A | 10.0A | 5.4A | 2.6A | 138VA | 177VA |
| | - | 19.2A | 10.3A | 4.9A | 239VA | 262VA |

| | |
|---|---|
| Supply Requirements | |
|   Mains | 88 to 264V (PFC Power Factor Correction) |
|   DC | 12V, 24V, 48V (Nominal +ve or -ve earth) |
| Adjacent Channel Power | |
|   Analog 20/25kHz | <-70dB (EIA) |
|   Analog 12.5kHz | <-60dB (EIA) |
|   Digital 12.5kHz | <-60dB (IS-102) |
| Environment Standards | Applicable MIL-STD-810 C, D, E and F tests |

## ANALOG LINE

| | Input | Output |
|---|---|---|
| Audio Interfaces | 600Ω Balanced | 600Ω Balanced |
| | Microphone | Monitor Speaker |
| Audio Interface Level | -20dBm to 0dBm nominal (300 to 3,400Hz) | -20dBm to 6dBm nominal (300 to 3,400Hz) |
| | -20dBm to -14dBm nominal (67 to 300Hz) | -20dBm to -14dBm nominal (67 to 300Hz) |
| Frequency Response | +0.5/-2.0dB rel. 1kHz (300 to 3,000Hz) | |
| Audio Distortion | <3% typical | |

## RECEIVER

| | | |
|---|---|---|
| Analog sensitivity (12dB SINAD) | <0.25uV (-119.0dBm) | |
| Digital sensitivity (TIA/EIA-102) | 0.21uV (-120.5dBm) @ 5% BER | |

| | Radiated | Conducted |
|---|---|---|
| Spurious Emissions | | |
| | <-57dBm EIRP to 1GHz | <-90dBm to 1GHz |
| | <-47dBm EIRP above 1GHz | <-70dBm above 1GHz |
| Spurious Response | ≥100dB [ANSI/TIA] | |
| Intermodulation | 80dB [ETSI] | |
| | 85dB [ANSI/TIA] | |

| | VHF/UHF | 700/800MHz |
|---|---|---|
| Selectivity (EIA 603) | 85dB (NB), 90dB (WB) | 79dB (NB), 84dB (WB) |
| Digital Adjacent Channel Rejection | 60dB TIA 102A + ETSI 300 -113 (across all bands) | |

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## TRANSMITTER

| | |
|---|---|
| Modulation Limiting | |
|    12.5kHz channel | ±2.5kHz |
|    20kHz channel | ±4kHz |
|    25kHz | ±5kHz |
| Modulation Fidelity | <3% (TIA/102A) |
| Transmit Rise Time | ≤2.5ms |
| Transmitter Power Rating | Single 1/5W Base Station System |
| | Single 5/50W Base Station System |
| | Single 10/100W Base Station System |
| FM Hum and Noise | |
|    12.5kHz and 20kHz channels | -49.0dB (300Hz–3kHz [ANSI/TIA]) |
|    25kHz channel | 51.5dB (300Hz–3kHz [ANSI/TIA]) |

| Conducted/Radiated Emissions | VHF/UHF | 700/800MHz |
|---|---|---|
| | <-36dBm 9KHz to 1GHz | <-20dBm to 9GHz <-30dBm 1GHz |

| | |
|---|---|
| Emissions Designator | 11K0F3E, 16K0F3E, 6K60F2D, 9K60F2D |
| | 8K10F1E, 10K10F1E, 8K10F7E, 10K0F7E, |
| | 8K10F1D, 10K10F1D, 8K10F7D, 10K0F7D |

## REGULATORY

For complete regulatory information please refer to the TB9100 Specifications Manual.

Specifications are subject to change without notice and shall not form part of any contract. They are issued for guidance purposes only. All specifications shown are typical.

*Contact your local Tait representative for more information.

For further information please check with your nearest Tait office or authorized dealer.

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