

Intelligent • High Performance • Flexible

TB9100 P25 base station/repeater

Complete, affordable, high quality radio communications systems are the cornerstone of Tait's reputation. The new 9000 series P25 range of products continues this tradition with industry leading digital voice quality, rugged design specifications and intuitive user interfaces. Dedicated to bringing you value, Tait offers a new class of P25 compliant radio solutions to meet the demanding needs of the public safety and public service sectors.

- Fully APCO Project 25 Compliant
- Digital, Analog and Dual Mode Capable
- Robust Modular Design
- Integrated IP-based Digital Voice & Data
- Configure, Control and Upgrade Software
- Intuitive PC-based Programming
- Complete Remote Network Management
- Self-Monitoring



The Tait TB9100 P25 base station/repeater is a robust state-of-the-art digital fixed station. It combines Tait's proven strengths in reliability, high performance and modular design with software-based configurability and operation, digital signal processing and voice over IP technology.

TB9100 P25 base station/repeater

Designed with the functionality required for public safety and public service organizations, the TB9100 can be configured as a repeater or as a base station in a conventional, simulcast, or trunked Project 25 radio network.

P25 systems designed with the TB9100 are scalable in both size and functionality. Scalability includes the ability to interoperate in both analog FM and digital P25 modes, to integrate voice and data in a system, to link stations using standard Internet Protocol communications, and to add features such as encryption through software options.



Features

Full Project 25 Compliance

The TB9100 is fully compliant with Project 25 standards and will interoperate with similarly compliant radios. Comprehensive analog and digital features ensure interoperability with either technology. Tait's commitment to open standards means that your P25 system will not include proprietary encryption or signaling options that make inter-agency communications difficult.

Digital, Analog and Dual Mode Capable

Simplify communications with the programmable mode selection available in the Tait TB9100 P25 base station/repeater. Dual Mode operation enables the TB9100 to switch seamlessly between analog FM and digital P25 communication on a per call basis.

Robust Modular Design

Built to exceed the very demanding MIL-STD 810 C,D,E & F specifications, the TB9100 base station will excel in your most demanding work conditions. The TB9100's unique modular design and software upgrades allow:

- Easy installation, customization and maintenance
- Upgradeable functions and features without major hardware changes
- Smooth transition from existing analog system.

Integrated IP-based Digital Voice & Data

Tait systems are simpler, more flexible and offer more options for connectivity without sacrificing reliability or performance. Modern high performance telecommunications systems transfer voice signals across their networks as Internet-style packets. The TB9100 employs the same proven technology to enable the design of P25 radio systems that can transfer voice or data across a packet-switched infrastructure using standard IP communications techniques and equipment.

Smart Network Board

The built-in Network Board drives the Tait P25 system and allows:

- Intelligent control of digital communications in the TB9100
- Complete access to the TaitNet P25 digital network
- Conventional, trunked* and simulcast* operation, either separately or mixed
- Access to multiple interfaces including line audio, digital inputs and outputs, and a range of external interfaces.

Complete Remote Network Management

The TB9100 can be completely managed remotely from a PC or workstation. Remote operation allows a range of options including:

- Over-the-air programming and reconfiguration
- Alarm monitoring and management
- Remote fault diagnosis
- Programmable operation
- Remote software download.

Built-in Intelligent Voting Capability

In a P25 network, the TB9100 base station uses a built-in distributed voting facility to compare the received signals, selecting the best quality signal for transmission through the system. No external voter is required.

Standard Features

- Suitable as talk-through repeater or line-connected base station
- Project 25 Common Air Interface
- Digital, Analog and Dual Mode capable
- Digital voice and data integrated on system
- Packet data
- Analog and digital* interfaces to third-party dispatch systems
- Analog operation with CTCSS/DCS
- DTMF* or MDC1200@ ANI
- Integrated built-in voting facility
- Digital (voice over IP) line interface
- Built-in 4-wire analog line and air interfaces (industry standard)

Options

- Encryption (Project 25 standard DES, AES)
- OTAR* (over-the-air re-keying)
- Simulcast operation*
- Trunked operation*
- PSTN/PABX interconnection*
- Analog line interface
- RF linking capability for connecting to other systems or remote site*
- Power Saving*

* Future release





TB9100 Specifications

General

Frequency Ranges	VHF	136–174MHz
	UHF	400–520MHz
		762–870MHz
Channel Spacing		12.5/20/25kHz
Frequency Stability		±0.5ppm (-22 to +140°F/-30 to +60°C)
Environmental Standards		Applicable MIL-STD 810 C,D E & F tests

Transmitter

Modulation Limiting		
12.5kHz channel		±2.5kHz
20kHz channel		±4kHz
25kHz channel		±5kHz
Adjacent Channel Power		
Analog 20/25kHz channel		<-70dB (EIA)
Analog 12.5kHz channel		<-60dB (EIA)
Digital 12.5kHz channel		<-60dB (IS-102)

FM Hum & Noise

12.5kHz channel	-50dB (300Hz-3kHz [ANSI/TIA])
20kHz channel	-54dB (300Hz-3kHz [ANSI/TIA])
25kHz channel	-55dB (300Hz-3kHz [ANSI/TIA])

Transmitter Power Rating

Single 1/5W Base Station System
Single 5/50W Base Station System
Single 10/100W Base Station System

Radiated and Conducted Emissions

<-36dBm to 1GHz
<-30dBm above 1GHz

Modulation Fidelity

Emission Designators	<3% (TIA-102A)
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11K0F3E, 16K0F3E, 6K60F2D, 9K60F2D
8K10F1E, 10K0F1E, 8K10F7E, 10K0F7E
8K10F1D, 10K0F1D, 8K10F7D, 10K0F7D
Within +1/-3dB of output level at 1kHz (EIA)
<3% typical

Audio Response

Audio Distortion	<3% typical
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Receiver

Analog Sensitivity	12dB SINAD	<0.25µV (-119.5dBm) at 77°F de-emphasized response at center of switching range
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Digital Sensitivity	5%BER (TIA/EIA-102)	0.21µV (-120.5dBm) at 77°F at center of switching range
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Intermodulation Rejection

	80dB [ETSI]
	85dB [ANSI/TIA]

Adjacent Channel Selectivity

12.5kHz channel	85dB [ANSI/EIA-603]	TIA/EIA 603-B	
25kHz channel	90dB [ANSI/EIA-603]	VHF	UHF
	>100dB [ANSI/TIA]	50dB	46dB
		87dB	82dB

Spurious Response Rejection

FM Hum & Noise	
12.5kHz channel	50dB
20kHz channel	50dB
25kHz channel	55dB

Audio Response	Within +1/-3dB of output level at 1kHz (EIA)
Audio Distortion	<3%

Spurious Emissions

Radiated	<-57dBm EIRP to 1GHz
	<-47dBm EIRP above 1GHz
Conducted	<-90dBm to 2GHz
	<-70dBm above 2GHz

Dimensions and Weight

Height	7in (176.8mm)
Width	19in (482.6mm)
Length	
Subrack Only	15.2in (385mm)
Including Front Panel	16.1in (410mm)

Weight*

*with AC and DC PMU	45.4lb (20.6kg) to 47.4lb (21.5kg)
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Regulatory Data

USA	FCC CFR47, Part 20, 90 Part 15 Class B
Canada	RSS-119 ISS-6
Australia/New Zealand	AS4295/NZS4295, SIA
Europe	EN 301 489-5

PSTN Line Isolation

USA	FCC CFR47 Part 68
Canada	Industrie Canada CS-03

USA Type Approval

VHF	FCC Identifier CASTBAB1
UHF	FCC Identifier CASTBA-H0

Canada Type Approval

VHF	Industrie Canada Certification 737A-TBAB1
UHF	Industrie Canada Certification 737A-TBAH0

Authorized Dealer



Unless indicated, specifications are typical performance measurements per TIA/EIA-603-A standards.

Specifications are subject to change without notice and shall not form part of any contract. They are issued for guidance purposes only. For further information please check with your nearest Tait office or authorized dealer.

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