Complete, affordable, high quality radio communications
the cornerstone of Tait's reputation. The new
of products continues this tradition
quality, rugged
design specifications and intuitive user interfaces.
bringing you value, Tait offers a new class
solutions to meet the demanding
public service sectors.

Fully Project 25 Compliant •
Digital, Analogue 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 •

TAIT **radio communications**

TB9100

TB9100 P25 base station/repeater

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.

Designed with the functionality required for public safety and public service organisations, 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 analogue 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.
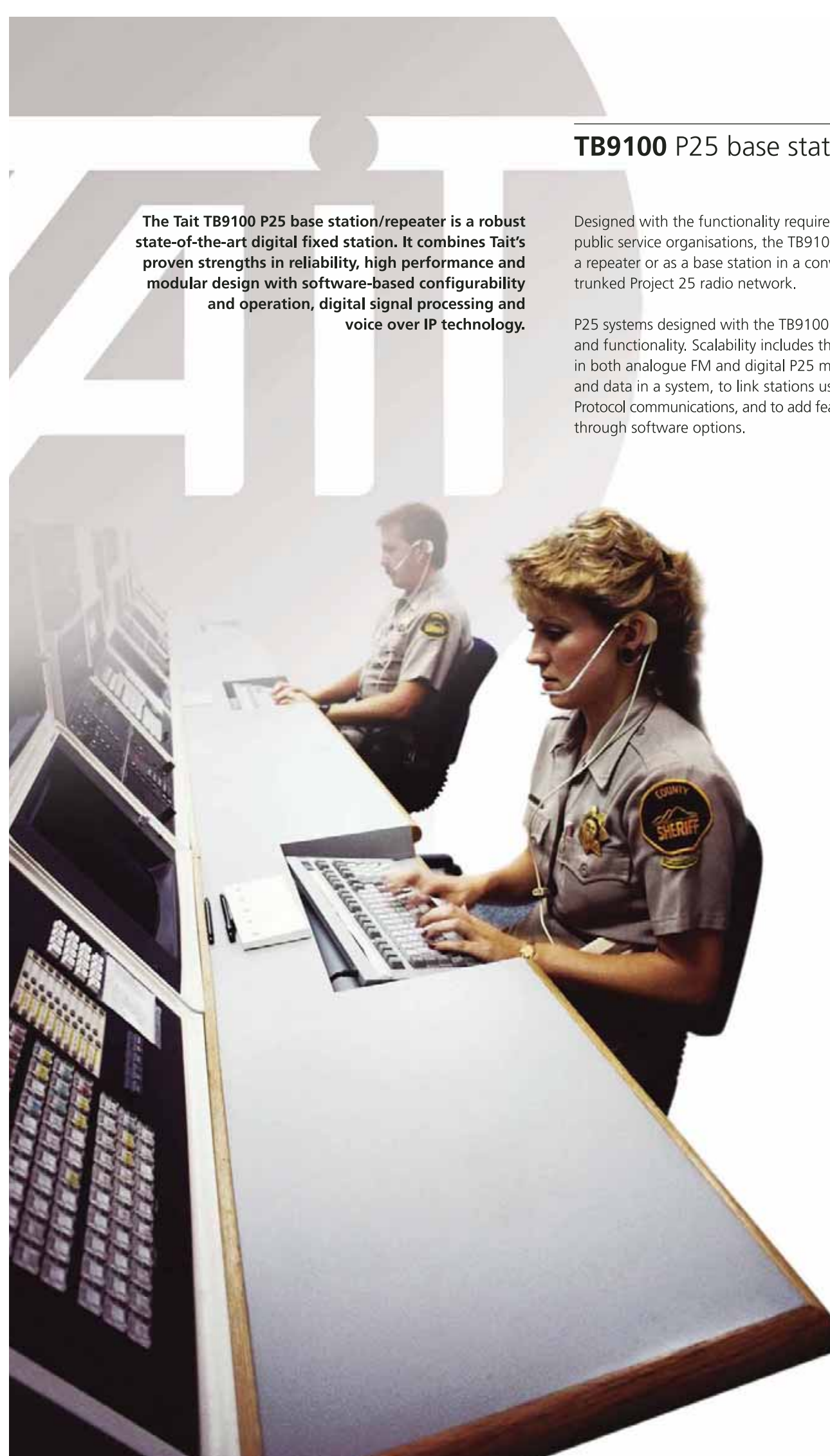
Features

Full Project 25 Compliance
The TB9100 is fully compliant with Project 25 standards and will interoperate with similarly compliant radios. Comprehensive analogue 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 signalling options that make inter-agency communications difficult.

Digital, Analogue 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 analogue 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, customisation and maintenance
• Upgradeable functions and features without major hardware changes
• Smooth transition from existing analogue 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, Analogue and Dual Mode capable
• Digital voice and data integrated on system
• Packet data
• Analogue and digital* interfaces to third-party despatch systems
• Analogue operation with CTCSS/DCS
• DTMF* or MDC1200® ANI
• Integrated built-in voting facility
• Digital (voice over IP) line interface
• Built-in 4-wire analogue line and air interfaces (industry standard)

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

* Future release

![Tait radio communications logo]

TAIT radio communications

TB9100 Specifications

General

Frequency Ranges	VHF	136–174MHz
	UHF	400–520MHz
		762-870MHz
Channel Spacing		12.5/20/25kHz
Frequency Stability		±0.5ppm (-30 to +60°C/-22 to +140°F)
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

Analogue 20/25kHz channel	<-70dB (EIA)
Analogue 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	<3% (TIA-102A)
Emission Designators	11K0F3E,16K0F3E, 6K60F2D, 9K60F2D
	8K10F1E,10K0F1E, 8K10F7E, 10K0F7E
	8K10F1D,10K0F1D, 8K10F7D,10K0F7D
Audio Response	Within +1/-3 dB of output level at 1kHz (EIA)
Audio Distortion	<3% typical

Receiver

Analogue Sensitivity

12dB SINAD	<0.25µV (-119.5dBm) at 25°C de-emphasised response at centre of switching range

Digital Sensitivity

5%BER (TIA/EIA-102)	0.21µV (-120.5dBm) at 25°C at centre of switching range

Intermodulation Rejection

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

Adjacent Channel Selectivity

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

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	176.8mm (7in)
Width	482.6mm (19in)
Length	
Subrack Only	385mm (15.2in)
Including Front Panel	410mm (16.1in)
Weight*	
*with AC and DC PMU	20.6kg (45.4lb) to 21.5kg (47.4lb)

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

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

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