TAIT 9900 SERIES MULTIBAND MULTIPROTOCOL SOLUTIONS

TOGETHER FOR *A SAFER WORLD*



FLEXIBLE, RELIABLE MULTIAGENCY COOPERATION

With P25 and DMR open standard capabilities, significantly improve community safety with enhanced multiagency interoperability.

tait communications



KEEPING YOU SAFE AND ON-MISSION

Unleash your team's potential with fit-for-purpose, critical communications solutions from Tait Communications.



For more than 50 years, Tait Communications has been designing, delivering and supporting critical communications networks for public safety, transportation and utility customers around the world.

Tait Communications helps you stay safe and on mission when the heat is on. From comprehensive radio networks with advanced data capabilities to support and managed services, you can trust Tait. Built with kiwi ingenuity in Christchurch, New Zealand, we put your safety at the top of our agenda day in, day out.

We believe we can make the world a safer, better and more efficient place and we're always looking for new ways to improve the lives of our customers and the communities they serve. The 9900 series is testament to our commitment to innovating within open standards, providing unmatched interoperability and better safety outcomes.

Tait solutions are customizable, versatile, flexible and built for every challenge. We uphold the principles of our founder, Sir Angus Tait:

“ IF IT CAN SAVE A LIFE, MAKE IT TOUGH ENOUGH TO SURVIVE ANYTHING.

TAIT 9900 SERIES

ENABLING SAFER COMMUNITIES

SEAMLESS MULTIBAND PERFORMANCE

Tait 9900 series radios are configurable to operate on any combination of VHF, UHF And 7/800MHz and 900MHz bands, ensuring continuity in communications across agencies using different bands. Bands are not locked and can be reconfigured over the air at any time.

PROVEN P25 & DMR OPEN STANDARD INTEROPERABILITY

Designed to meet the TIA-102 P25 Compliance Assessment Program and the DMR ETSI standards for interoperability, Tait 9900 series radios offer the ability to switch between P25 and DMR networks just by changing the channel.

This level of interoperability has been proven to reduce incident response time with more effective, immediate communication between first responders and other public sector organizations.

MAXIMUM CONNECTIVITY

Connect to the full range of networks in current operations or future technology migrations including:

- Conventional Analog
- P25 Conventional Digital
- P25 Trunking Phase 1 and 2
- DMR Tier 2 and 3

A range of location services software options are supported by Tait 9900 series radios. GNSS hardware is standard in TP9900 and optional for TM9900.

Bluetooth® audio and Wi-Fi® OTAP (Over The Air Programming) are supported by TP9900 portables. TM9900 mobiles will support Bluetooth®, Wi-Fi® and 4G LTE options in a future release. Tait 9900 series radios also support OTAP via P25 or DMR Trunked networks. OTAP via Wi-Fi®, P25 or DMR requires Tait EnableFleet.

Analog signaling includes Two Tone decode, MDC1200, PL (CTCSS), DPL (DCS), and Selcall.



TAIT 9900 SERIES

ENHANCED WORKER SAFETY

All Tait 9900 units are equipped with inactivity timers (Lone Worker) to send automated safety alerts and a programmable emergency key for manual safety alerts while the TP9900 also has sensors to detect falls (Man Down). Combined with optional location services, dispatchers are better equipped to guide an effective response. Optional Tait Geofencing software also enables location-based workflow automation.

Eyes Up operation mode also comes standard, with voice annunciation of radio settings and battery levels so responders can stay focused on the job at hand.

TM9900 with TCH4 and TCH6 Control Heads also feature a built-in covert microphone for automatic transmission during an emergency.

FULLY SECURE END-TO-END ENCRYPTION

Ensure only authorized personnel can hear your communications with highly secure end-to-end encryption management options, including:

- FIPS 140-3 Level 3 certified module
- AES, DES and ARC4 algorithms
- Tait EnableProtect Advanced System Key
- Tait EnableProtect Key Fill Device
- Tait EnableProtect Key Management Facility
- Over The Air Rekeying (OTAR)

EXTENSIVE VOICE & DATA CAPABILITIES

- 4,000 channels/100 zones shared between P25 and DMR modes
- 1000 P25 talk groups, supporting up to 2,000 members
- 300 scan groups with up to 80 members each and a maximum of 3,600 members
- Pre-set status messages
- Supports conventional and trunked IP data and P25 data such as GNSS location



TP9900 PORTABLE

BEST IN CLASS FOR SIZE, WEIGHT, & SHIFT LIFE

Experience the lightest P25 and DMR multiband portable radio on the market with high-capacity battery and compact design – all built for TAIT TOUGH reliability. The TP9900 features an enhanced ergonomic radio grip and controls for easy operation with or without gloves.

RUGGED, LIGHTWEIGHT & BUILT TO LAST

Experience the most compact multiprotocol, multiband portable radio on the market with up to 19 hours shift life in TDMA mode and a highly reliable Tait Tough design built to withstand rough treatment in harsh environments.

EASY TO USE IN EMERGENCY SITUATIONS

Easy to hold casing design and user-friendly control allow radio operation with or without gloves. With four programmable function keys and a three-way selector, workers have everything they need at their fingertips.



HEAR & BE HEARD IN ANY ENVIRONMENT

Dual microphone active noise cancellation removes background noise in both analog and digital modes and a powerful 3W speaker provides clear communication in loud environments.



COLOR OPTIONS FOR EASY IDENTIFICATION IN THE FIELD

Black, red, yellow, orange, and hi-visibility green color options.

AVAILABLE COLORS:



COMPATIBLE BATTERIES & ACCESSORIES

The TP9900 is fully compatible with the existing range of TP9000 series batteries, chargers and audio accessories, giving you plenty of options to set up the perfect system for your teams.



TSM4 RSM



C-C550
Fire RSM



Nighthawk
Bluetooth Mic



TH3 Headsets

TM9900 MOBILE

CHOICE OF INSTALLATION OPTIONS

With the biggest range of control head options in its class, the TM9900 enables customers to choose the user interface best suited for the role and installation requirements.

All TM9900 control head options are designed to make vehicle installation easier, reducing the overall cost of a fleet upgrade. Options include local dash mount and remote kits, built-in 4W speaker or optional 15W Rugged External Speaker, built-in keypad or optional keypad microphone.

TCH SERIES: HIGH-RESOLUTION, EASY-TO-READ COLOR DISPLAYS



1. **TCH3** Local dash mount with built-in 4W speaker
2. **TCH4** Remote mount with built-in 4W speaker and single or dual head options
3. **TCH6** Remote mount with built-in keypad and single or dual head options
4. **TCH8** Remote/Dash mount options, extra controls and single or dual head options – for use with 15W Rugged External Speaker

HHCH HANDHELD CONTROL HEAD

with built-in keypad and option of single or dual head



STANDARD OR KEYPAD MICROPHONES



SPEAKERS

- Built in 4W speaker for TCH3, TCH4
- Rugged External Speaker required for TCH6, TCH8 and HHCH and recommended for use with any TM9000 mobile and control head configuration for best audio in noisy environments



ADDITIONAL OPTIONS

TU2000-M3 option (future release) enables:

- Wi-Fi® OTAP
- Bluetooth®
- Last Over Repeat
- On-board Voice recording
- All calls can be recorded on board including off network simplex/direct mode calls

TU2000-Mx LTE Data option (future release) enables:

- All TU2000-M3 features as well as 4G LTE, Tait PTToX and Wi-Fi® hotspot vehicle area network

TP9900 TECHNICAL SPECIFICATIONS

GENERAL	
Frequency stability	±0.5ppm (-22°F to +140°F/-30°C to +60°C)
Channels/zones	4,000 channels/100 zones shared between P25 and DMR modes
P25 talk groups	1000 talk groups, up to 2,000 members total
Scan groups (P25 & DMR)	300 with up to 80 members each, maximum of 3,600 members total
DMR Tier 2 conventional mode	Supports 26 networks
DMR Tier 3 trunked mode	Supports 4 networks, 512 talk group lists, 1,000 zones and 1,000 work groups
Voice annunciation	510 recordable voice files
Bluetooth®	Supported
P25 encryption (via Key-Fill Device or OTAR)	FIPS 140-3 Level 3 certified for AES, DES, ARC4 (optional)
DMR encryption (via programming application)	ARC4, DES, AES (DMR Tier 2 and Tier 3)
OTAP	Supported (P25 Trunking, DMR Tier 3 Trunking, 2.4 GHz Wi-Fi®) – requires Tait EnableFleet
Dimensions (with High Capacity battery)	1.77 x 2.56 x 5.7in / 45 x 65 x 145mm (D x W x H excluding knobs and antenna)
Weight (with High Capacity battery)	13.42oz / 382g (without antenna)
Supported languages	English, German, French, Spanish, Portuguese, Czech, Polish, Bulgarian
Channel spacing	6.25/12.5/15/20/25/30kHz[2]
Frequency increment	2.5/3.125/5/6.25kHz
Radio operating temperature	-22°F to +140°F(-30°C to +60°C)
Vocoder type	AMBE +2™
Audio output	3W
Signaling options (analog)	MDC1200 encode and decode, Two Tone decode, PL (CTCSS), DPL (DCS), Selcall
Water and dust protection	IP68 & IP65
Tait infrastructure and terminals are designed to these DMR specifications	ETSI TR 102 398 V1.5.1, ETSI TS 102 361-1 V2.6.1, ETSI TS 102 361-2 V2.5.1, ETSI TS 102 361-3 V1.3.1, ETSI TS 102 361-4 V1.12.1

MILITARY STANDARDS 810H[6]

Applicable MIL-STD Method	Method	Procedure	Applicable MIL-STD Method	Method	Procedure
Low pressure	500.5	2	Humidity	507.5	2
High temperature	501.5	1, 2	Salt fog	509.5	1
Low temperature	502.5	1, 2	Sand & dust	510.5	1, 2
Temperature shock	503.5	1	Immersion	512.5	1
Solar radiation	505.5	1	Vibration	514.6	1
Rain	506.5	1, 3	Shock	516.6	1, 4, 5, 6

SHIFT LIFE (5/5/90)[3] WITH HIGH CAPACITY BATTERY	6W VHF TRANSMIT[1]	5W VHF OR UHF TRANSMIT
P25 Phase 2 / DMR / TDMA Mode	17 hours	19 hours
Analog and P25 Phase 1 / FDMA Mode	13 hours	14 hours

CHARGER	
Charger options (Li-Ion)	Fast desktop single charger, 6-way multi-charger, vehicle charger and battery-only vehicle charger
REGULATORY DATA	USA (FCC), Canada (ISED), Europe/UK (CE), Australia/New Zealand (AS/NZ) compliance for all stated bands except 900MHz compliance for FCC and ISED only.

TRANSMITTER	VHF	UHF	700/800MHZ	900MHZ
(Note: Radio can be configured to operate on any combination of the supported bands)				
Frequency range	136–174MHz	378–520MHz	757–870MHz	896–941MHz
Output power (nom)	6W[1], 5W, 3W, 2W, 1W	5W[1], 4W, 2.5W, 2W, 1W	3W, 2.5W, 2W, 1W	3W, 2.5W, 2W, 1W
Modulation limiting				
12.5/15kHz channel	±2.5kHz	±2.5kHz	±2.5kHz	±2.5kHz
25/30kHz channel[2]	±5kHz	±5kHz	±5kHz	±5kHz
FM hum and noise				
12.5kHz channel	-45dB	-45dB	-40dB	-40dB
25kHz channel[2]	-48dB	-48dB	-45dB	-45dB
Radiated and conducted emissions	-75dBc	-72dBc	-75dBc	-75dBc
Audio response (analog)	+1/-3dB	+1/-3dB	+1/-3dB	+1/-3dB
Audio distortion (analog@1kHz, 60% mod)[5]	2%	2%	2%	2%

RECEIVER	VHF	UHF	700/800MHZ	900MHZ
(Note: Radio can be configured to operate on any combination of the supported bands)				
Frequency range	136–174MHz	378–520MHz	757-776MHz, 851-870MHz	935–941MHz
Sensitivity				
Analog 12dB SINAD (TIA-603)	0.22uV (-120dBm)	0.22uV (-120dBm)	0.22uV (-120dBm)	0.22uV (-120dBm)
DMR 1% BER (ETS300-113)	0.25uV (-199dBm)	0.25uV (-199dBm)	0.25uV (-199dBm)	0.25uV (-199dBm)
DMR 5% BER	0.16uV (-123dBm)	0.16uV (-123dBm)	0.16uV (-123dBm)	0.16uV (-123dBm)
P25 5% BER	0.2 uV (-121dBm)	0.2 uV (-121dBm)	0.2 uV (-121dBm)	0.2 uV (-121dBm)
Intermodulation rejection (analog TIA-603E & P25 TIA-102)	75dB	75dB	70dB	70dB
Intermodulation rejection (DMR)	65dB	65dB	65dB	65dB
Adjacent channel rejection				
12.5kHz (P25) TIA-102	60dB	60dB	60dB	60dB
25kHz TIA-603 (2-tone)[2]	70dB	70dB	70dB	70dB
Spurious response rejection (P25) TIA-102	75dB	80dB	70dB	70dB
Residual audio noise ratio (P25) TIA-102	45dB	45dB	45dB	45dB
Audio distortion (rated audio)	1.5%	1.5%	1.5%	1.5%
FM hum and noise				
12.5kHz channel	-50dB	-50dB	-45dB	-40dB

NOTE:

1. Very high power only available in USA/Canada.
2. Wideband operation is not available in the USA in some bands.
3. Battery performance is dependent on frequency, temperature, and operational configuration.
4. The UHF band radios are approved for use in Citizen Band in Australia and New Zealand when programmed to meet the requirements of AS/NZS4365.
5. Rated audio (for performance testing) 0.5W.
6. Designed to meet MIL Standards. Compliance pending.

TM9900 TECHNICAL SPECIFICATIONS

GENERAL			
Frequency stability	±0.5ppm (-22°F to +140°F/-30°C to +60°C)		
Channels/zones	4,000 channels shared between P25 and DMR, 100 zones		
Scan groups (P25 & DMR)	300 with up to 80 members each, maximum of 3,600 members total		
P25 encryption/ trunked networks	100 networks supported	**DMR Tier 2 conventional mode**	Supports 26 networks
DMR Tier 3 trunked mode	Supports 4 networks, 512 talk group lists, 1,000 zones and 1,000 work groups		
Voice annunciation	510 recordable voice files		
OTAP	Via P25 or DMR trunked network, or Wi-Fi® (option)[1]		
Bluetooth®	5.0 for audio accessories (option)[1]		
GNSS	Internal option with external antenna		
P25 Encryption (via Key Fill Device or OTAR)	FIPS 140-3 Level 3 certified for AES256. Legacy DES and ARC4 for interoperability (optional)		
DMR encryption (via programming application)	ARC4, DES, AES (DMR Tier 2 and Tier 3)		
Power supply	10.8-16VDC	**Active standby current**	0.15A
Channel spacing	12.5/15/20/25/30kHz[3]	**Frequency increment**	2.5/3.125/5/6.25
Dimensions (D x W x H) Control head (TCH4/TCH6)[2] Radio body	 2.8 x 7.0 x 2.0in (72 x 178 x 52mm) 7.7 x 6.3 x 2.1in (195 x 160 x 52mm)	**Weight** Control head (TCH4/TCH6)[2] Radio body	 0.621b (0.28kg) 3.11b (1.4kg)
Supported languages	Bulgarian, Czech, English, French, German, Polish, Portuguese, Spanish		
Operating temperature	-22° F to +140° F (-30°C to +60°C)	**Water and dust protection**	IP54
RF connector	50-ohm BNC or mini-UHF		
Interface connectors	3 programmable interface connectors providing serial ports and GPIO lines for radio and accessory control, and audio connectivity		
Signaling options (analog)	MDC1200 encode and decode, Two Tone decode, PL (CTCSS), DPL (DCS), Selcall		
Audio distortion (3W rated audio)	1.5% at 1kHz 60% modulation	**Optional external speaker output**	15W (into 8ohms)

MILITARY STANDARDS 810C, D, E, F, & G[4]					
Applicable MIL-STD Method	**Method**	**Procedure**	**Applicable MIL-STD Method**	**Method**	**Procedure**
Low pressure	500.5	2	Humidity	507.5	2
High temperature	501.5	1, 2	Salt fog	509.5	1
Low temperature	502.5	1, 2	Sand & dust	510.5	1, 2
Temperature shock	503.5	1	Immersion	512.5	1
Solar radiation	505.5	1	Vibration	514.6	1
Rain	506.5	1, 3	Shock	516.6	1, 5, 6

REGULATORY DATA	USA (FCC), Canada (ISED)

TRANSMITTER	VHF	UHF	700/800MHZ	900MHZ
(Note: Radio can be configured to operate on any combination of the supported bands)				
Frequency range	136–174MHz	378–520MHz[3]	762–870MHz	896–941MHz
Transmit power	50W, 25W, 15W, 10W	40W, 20W, 15W, 10W	≤806MHz: 30W, 25W, 10W, 2W >806MHz: 35W, 25W, 10W, 2W	30W, 15W, 5W, 2W
Transmit current	<10A	<10.5A	<9A	<7.5A
Modulation limiting 12.5/15kHz channel 25/30kHz channel[3]	 ±2.5kHz ±5kHz	 ±2.5kHz ±5kHz	 ±2.5kHz ±5kHz	 ±2.5kHz ±5kHz
FM hum and noise 12.5kHz channel 25kHz channel[3]	 -54dB -54dB	 -54dB -54dB	 -52dB -54dB	 -52dB -54dB
Radiated and conducted emissions	-80dBc	-80dBc	-80dBc	-80dBc
Audio response (analog)	+1/-3dB	+1/-3dB	+1/-3dB	+1/-3dB
Audio distortion (analog)	1.5% @ 1kHz, 60% deviation			
Duty cycle	25W: 2minTx, 4minRx for 8 hrs @+140°F (+60°C), 35/50W: 1minTx, 4minRx for 8 hrs @+140°F (+60°C)			
RECEIVER	VHF	UHF	700/800MHZ	900MHZ
(Note: Radio can be configured to operate on any combination of the supported bands)				
Frequency range	136–174MHz	378–520MHz	762–870MHz	896–941MHz
Sensitivity (analog) 12dB SINAD	 0.22uV (-120dBm)	 0.22uV (-120dBm)	 0.22uV (-120dBm)	 0.22uV (-120dBm)
Sensitivity (P25) 5% BER	 0.22uV (-120dBm)	 0.22uV (-120dBm)	 0.22uV (-120dBm)	 0.22uV (-120dBm)
Intermodulation rejection (P25 TIA-102)	 78dB	 76dB	 73dB	 73dB
Selectivity (TIA-603 1-tone) 12.5kHz channel 25kHz channel[3]	 80dB 85dB	 75dB 80dB	 72dB 74dB	 72dB 74dB
Spurious response rejection (P25) TIA-102	80dB	80dB	75dB	75dB
Residual audio noise ratio (P25) TIA-102	-45dB	-45dB	-45dB	-45dB
FM hum and noise 12.5kHz channel 25kHz channel[3]	 -60dB -62dB	 -60dB -62dB	 -60dB -62dB	 -60dB -62dB

NOTE:
Not all features are supported in all models or modes of operation. Contact your local Tait representative for more information.

1. Requires TU2000M3 option board to be fitted - please refer to TAIT AXIOM Mobile documentation for more information.
2. Please refer to the Mobile Control Heads brochure for more information.
3. Wideband operation is not available in the USA in some bands.
4. Designed to meet MIL Standards. Compliance pending.

WE GO BEYOND FOR A SAFER WORLD.

CONTACT YOUR LOCAL DEALER FOR MORE INFORMATION
TAITCOMMUNICATIONS.COM/CONTACT

Tait has taken every care in compiling this brochure, but we're always innovating and therefore changes to our models, designs, technical specifications, visuals and other information included in this brochure could occur. For the most up-to-date information and for a copy of our terms and conditions please visit our website.

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Quality Management ISO 9001

Environment Management ISO 14001:2015

Occupational Health & Safety Management ISO 45001:2018

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