

TP9461 Intrinsically Safe

SPECIFICATIONS



Designed for maximum safety in the field and enhanced usability

Intrinsically Safe Tait P25 portables are engineered to operate safely in hazardous environments, keeping your people safe while they get the job done.

With analog, 12.5kHz P25 Phase 1 FDMA conventional/trunked and 6.25kHz equivalent P25 Phase 2 TDMA trunked and LSM (CQPSK) decode capability in a single device, you can transition to a more spectrally efficient solution in a time frame that suits you.

The TP9400 portable enables first responder effectiveness and safety with internal GPS, IP67 protection and AES encryption.



KEY FEATURES

- User safety ensured with globally recognized Intrinsically Safe rating and internationally recognized blue color for intrinsic safety.
- Manage migration risk with a multi-mode portable – analog, P25 Phase 1 conventional/trunked and P25 Phase 2 for enhanced interoperability
- P25 standards compliance for greater choice and interoperability
- AES encryption, voice and data, pre-set status messages and internal GPS for safe and efficient operations
- Engineered for demanding environments with IP67 rating and new water-shedding grille



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FEATURES AND BENEFITS

Delivers on the P25 standards

Benefit from the spectral efficiency, multi-vendor interoperability, security, migration and data capability demanded by the P25 standards.

The TP9400 provides:

- TIA-102 P25 CAP tested providing multi-vendor interoperability.
- 12.5kHz P25 Phase 1 FDMA and 6.25kHz equivalent P25 Phase 2 TDMA capable.
- P25 Phase 2 Product compliances satisfy FCC 2015 and 2017 ultra narrowbanding mandates.

Designed for demanding environments

- Designed with users to ensure effective every-day operation.
- Exceeds relevant MIL-STD-810G.
- IP67 sealing protects to one meter of water for 30 minutes.
- Water shedding grille assists voice clarity and volume in wet environments.
- Shock absorbing impact-protected corners.
- Large four-line LCD with icons to display key parameters.
- Four programmable function keys and three-way selector.

End user safety is ensured with globally recognized Intrinsically Safe ratings systems

The TP9400 portable is designed and tested to meet global IS standards, ensuring safe operation in hazardous environments.

- The battery circuitry is fully encapsulated.
- The radio circuit has a stored energy limitation, which prevents internal sparking or overheating in the unlikely event of a circuit failure.

- Component and conductor spacing and protective coatings prevent short circuits caused by dust or atmospheric contamination.

Internationally recognized IS color

The TP9400 IS model is made in the internationally recognized blue color for Intrinsically Safe portables, ensuring instant recognition in the field.

High-performing voice communications

Robust design delivers clear, mission critical voice communications.

- Analog, P25 Phase 1 conventional/trunked and P25 Phase 2.
- Automatic dual mode between analog and P25 Phase 1 conventional.
- Unique microphone design coupled with AMBE+2 enhanced vocoder reduces background noise in demanding environments.
- Voting ensures priority selection of the channel with optimum receive quality.
- Dynamic regrouping and supergroup operation for mission critical workforce management.
- Increased channel capacity with up to 2000 channels.
- Scanning modes include: priority, dual priority, editable, zone, and background scan.
- Range of analog signaling functionality, i.e MDC1200 encode and decode, Two Tone decode, PL (CTCSS), DPL (DCS), and 5-Tone Selcall.

Improve workforce safety

- Programmable emergency key is easily accessible and highly visible on the radio.
- Man Down and Lone Worker as standard.

- Inbuilt GPS provides location services over a conventional and trunked network.
- Radio inhibit and uninhibit to allow management of misplaced or stolen radios.
- Supports end-to-end encryption, including AES.
- Trunked failsoft reverts to conventional operation during trunked network failure.

Effective operation with voice and data

- Support for a variety of simulcast modes such as LSM and C4FM.
- Pre-set status messaging.
- P25 data such as emergency GPS location.
- Conventional and trunked IP data.
- Location services over a conventional and trunked network.

Efficient, security-focused management

The TP9400 management facilities and applications allow you to efficiently manage your radio fleet.

- Over-the-air Rekeying (OTAR).
- Key Fill Device (KFD) for quick, reliable encryption key programming.
- Tait Advanced System Key (TASK) allows administrators to authorize and restrict subscriber units on their network.

Complete package with accessories portfolio

- Intrinsically Safe audio accessories including speaker- microphones, headsets and earpieces.
- Intrinsically Safe Li-ion battery.
- Intrinsically Safe compatible charger.

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GENERAL

| | |
|---|--|
| Frequency stability | ±0.5ppm (-22°F to 140°F / -30°C to 60°C) |
| Channels/zones | 1,000 – 2,000 channels/50 – 100 zones |
| Talk groups | 50 talk groups, up to 1,000 members total (2,000 members optional enhancement with software license) |
| Scan groups | 300 with up to 50 members each, maximum of 2,000 members total |
| Dimensions (DxWxH) - With Li-Ion 2300 mAh battery | 1.77 x 2.56 x 5.35in (45 x 65 x 136mm) excluding knobs |
| Weight - With Li-Ion 2300 mAh battery | 13.93oz (395g) – no antenna, 15.17oz (430g) with IS battery and antenna |
| Radio Operating temperature range | -20°C to 60°C (-4°F to 140°F) † |
| Water and dust protection | IP67 & IP65 |
| ESD rating | +/- 4kV contact discharge and +/-8kV air discharge |
| Frequency increment/channel step | 2.5/3.125/5/6.25kHz |
| Signalling options (Analog) | MDC1200, encode and decode, Two tone decode, PL (CTCSS), DPL (DCS), Selcall (5 - tone) |
| Vocoder type | AMBE +2™ |
| Packet Data | ½ Rate, ¾ Rate, Full rate, Single Slot |

† Subject to Compliance, Ambient Temperature: T4 -20°C < Ta < +50°C, T3 -20°C < Ta < +60°C

| TRANSMITTER | VHF | UHF | 700/800MHZ |
|----------------------------------|----------------------------|--|--------------|
| Frequency range | 136-174 MHz | 320-380 MHz (G1) 380-470 MHz (HB) 450-520 MHz (H7) | 762-870 MHz |
| Output power (IIA) | 5W, 3W, 2W, 1W | 4W, 2.5W, 2W, 1W | 2.5W, 2W, 1W |
| Output power (IIC) | 1W | 1W | 1W |
| Modulation limiting | | | |
| 12.5/15kHz channel | ±2.5kHz | ±2.5kHz | ±2.5kHz |
| 25/30kHz channel ¹ | ±5kHz | ±5kHz | ±5kHz |
| FM hum and noise (analog) | | | |
| 12.5kHz channel | -45dB | -40dB | -40dB |
| 25kHz channel ¹ | -48dB | -45dB | -45dB |
| Radiated and conducted emissions | -75dBc | -72dBc | -70dBc |
| Audio response (analog) | +1/-3dB | +1/-3dB | +1/-3dB |
| Audio distortion (analog) | 1.5% @ 1kHz, 60% deviation | | |

| RECEIVER | VHF | UHF | 700/800MHZ |
|--|------------------|--|--------------------------|
| Frequency range | 136-174MHz | 320-380 MHz (G1) 380-470 MHz (H5) 450-520 MHz (H7) | 762-776MHz 850-870MHz |
| Analog Sensitivity 12dB SINAD | 0.22µV (-120dBm) | 0.22µV (-120dBm) | 0.22µV (-120dBm) |
| Digital Sensitivity (P25) 5% BER | 0.22µV (-120dBm) | 0.22µV (-120dBm) | 0.22µV (-120dBm) |
| Intermodulation rejection (P25) TIA-102 | 75dB | 75dB | 75dB |
| Adjacent channel rejection | | | |
| 12.5kHz (P25) TIA-102 | 60dB | 60dB | 60dB |
| 25kHz TIA-603 (2-tone) | 73dB | 70dB | 70dB |
| Spurious response rejection (P25) | 75dB | 80dB | 70dB |
| Residual audio noise ratio (P25) TIA-102 | 45dB | 45dB | 45dB |
| Audio distortion (rated audio) | 1.5% | 1.5% | 1.5% |
| FM hum and noise | | | |
| 12.5kHz channel | -45dB | -40dB | -40dB |
| 25kHz channel ¹ | -48dB | -45dB | -45dB |
| Rated audio | 0.5 watt | 0.5 watt | 0.5 watt |

* Wideband operation subject to FCC regulations

¹ Wideband operation is not available in the USA in some bands

CHARGER AND BATTERY

| | |
|---|--|
| Charger options (Li-Ion) | IS compatible desktop and vehicle chargers |
| Battery shift life (P25 Phase 2, standard config) | Li-Ion 2300 mAh 15 hours (5/5/90) |
| Battery shift life (Analog mode, standard config) | Li-Ion 2300 mAh 11.5 hours (5/5/90) |

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MILITARY STANDARDS 810C, D, E, F AND G

| Applicable MIL-STD | Method | Procedure | Applicable MIL-STD | 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 |

REGULATORY DATA

| | USA (FCC) | CANADA (ISED) | EUROPE/UK (CE) | AUSTRALIA/NEW ZEALAND (AS/NZ) |
|------------------|-----------|---------------|----------------|-------------------------------|
| VHF (136-174MHz) | ✓ | ✓ | ✓ | ✓ |
| UHF (320-380MHz) | - | - | ✓ | - |
| UHF (380-470MHz) | ✓ | ✓ | ✓ | ✓ |
| UHF (450-520MHz) | ✓ | - | - | ✓ |
| 800 MHz | ✓ | ✓ | - | - |

IS COMPLIANCE * OUTPUT POWER

| | USA | CANADA | EUROPE/UK | AUSTRALIA/NZ | |
|------------------|---------|--|---|-----------------------------|----------------------|
| VHF (136-174MHz) | 1-5 W | Class I Zone 1, AEx ib IIA T4...T3 Gb Class I Div 2, Group A, B, C, D Class II, Div 2, Group E, F, G Class III, Div 1 | Ex ib IIA T4...T3 Gb Class I Div 2, Group A, B, C, D Class II, Div 2, Group E, F, G Class III, Div 1 | II 2 G Ex ib IIA T4...T3 Gb | Ex ib IIA T4...T3 Gb |
| | 1 W | Class I Zone 1, AEx ib IIC T4...T3 Gb Class I Div 2, Group A, B, C, D Class II, Div 2, Group E, F, G Class III, Div 1 | Ex ib IIC T4...T3 Gb Class I Div 2, Group A, B, C, D Class II, Div 2, Group E, F, G Class III, Div 1 | II 2 G Ex ib IIC T4...T3 Gb | Ex ib IIC T4...T3 Gb |
| UHF (320-380MHz) | 1-4 W | | | II 2 G Ex ib IIA T4...T3 Gb | |
| | 1 W | | | II 2 G Ex ib IIC T4...T3 Gb | |
| UHF (380-470MHz) | 1-4 W | Class I Zone 1, AEx ib IIA T4...T3 Gb Class I Div 2, Group A, B, C, D Class II, Div 2, Group E, F, G Class III, Div 1 | Ex ib IIA T4...T3 Gb Class I Div 2, Group A, B, C, D Class II, Div 2, Group E, F, G Class III, Div 1 | II 2 G Ex ib IIA T4...T3 Gb | Ex ib IIA T4...T3 Gb |
| | 1 W | Class I Zone 1, AEx ib IIC T4...T3 Gb Class I Div 2, Group A, B, C, D Class II, Div 2, Group E, F, G Class III, Div 1 | Ex ib IIC T4...T3 Gb Class I Div 2, Group A, B, C, D Class II, Div 2, Group E, F, G Class III, Div 1 | II 2 G Ex ib IIC T4...T3 Gb | Ex ib IIC T4...T3 Gb |
| UHF (450-520MHz) | 1-4 W | | | | Ex ib IIA T4...T3 |
| | 1 W | | | | Ex ib IIC T4...T3 |
| 800MHz | 1-2.5 W | Class I Zone 1, AEx ib IIA T4...T3 Gb Class I Div 2, Group A, B, C, D Class II, Div 2, Group E, F, G Class III, Div 1 | Ex ib IIA T4...T3 Gb Class I Div 2, Group A, B, C, D Class II, Div 2, Group E, F, G Class III, Div 1 | | Ex ib IIA T4...T3 Gb |
| | 1 W | Class I Zone 1, AEx ib IIC T4...T3 Gb Class I Div 2, Group A, B, C, D Class II, Div 2, Group E, F, G Class III, Div 1 | Ex ib IIC T4...T3 Gb Class I Div 2, Group A, B, C, D Class II, Div 2, Group E, F, G Class III, Div 1 | | Ex ib IIC T4...T3 Gb |

* Ambient Temperature: T4 -20°C < Ta < +50°C, T3 -20°C < Ta < +60°C

TAIT P25 PHASE 2 SOLUTION

Backed up by our proven radio network expertise, the TP9400 portable is part of our larger P25 Phase 2 offering. This 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 spectrally-efficient P25 standard.

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.

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Tait International Limited facilities are certified for ISO 9001:2015 (Quality Management System), ISO 14001:2015 (Environmental Management System) and ISO 45001:2018 (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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