

# More efficient networks. More possibilities.

The Tait TN9400 core network is the heart of the second generation Tait P25 trunked solution with IP connectivity. Tait TN9400 trunked networks are digital systems specifically designed to provide mission-critical communications over wide geographic areas. Tait TN9400 trunked networks are extremely resilient, with multiple levels of redundancy for reliable communications you can depend on.

The TN9400 is responsible for establishing calls for the radio fleet. The highly flexible and scalable design of the Tait TN9400 allows your organization to deploy a cost-effective infrastructure to meet your communication and operational needs now and in the future.



## KEY FEATURES

- ▶ Future proof system supporting multiple operating modes – P25 Phase 1 trunked/ trunked simulcast, future upgrade to P25 Phase 2
- ▶ P25 standards compliance for interoperability, greater choice, and network expansion with CSSI and ISSI\* support
- ▶ High Availability for ensured continuity of network operation in the event of server failure
- ▶ Efficient network design and scaling with IP connectivity
- ▶ Secure communications with end-to-end encryption of traffic across the network
- ▶ Efficient operations with remote configuration and fleet management

## FEATURES AND BENEFITS

### The heart of a Tait P25 trunked network

A complete Tait P25 trunked communications system – including mobile and portable radios, base station/repeaters and a trunked core network – is designed, built and tested by Tait to the highest standards for quality you can be assured of.

- ▶ Single-sourced P25 trunked network reduces risk of network elements not interoperating, and also provides one point of call for network service and support
- ▶ Genuine commitment to the P25 open-standards ensures opportunities for multi-vendor solutions via standardized interfaces

### Future proofed with P25 to protect your investment

The TN9400 supports the TIA P25 standards and interfaces for network interoperability and potential network expansion.

- ▶ P25 Phase 1 trunked and trunked simulcast operation
- ▶ Future upgrade to P25 Phase 2
- ▶ On-going P25 Compliance Assessment Program (P25 CAP) testing for interoperability and mutual aid
- ▶ Expansion via open standards
  - ISSI\* (Inter-RF Subsystem Interface) connection to other P25 systems
  - CSSI (Console Subsystem Interface) connects the TN9400 to multiple console vendors

### Remote management for greater operational efficiency

The web-based user interface allows easy remote configuration and management of system elements.

- ▶ Channel management
- ▶ Control channel authorization
- ▶ Fleet management for greater control of resources
  - Add/delete portable and mobile radios
- ▶ Create, modify and delete talk groups
- ▶ Software upgrades ensure your network runs in an optimal manner
- ▶ System/network configuration changes
- ▶ IP address changes
- ▶ Operating System SNMP
- ▶ Auditing capabilities
  - Log files – with selectable logging levels, audit trail to identify system changes

### Robust design provides high availability for reliable communications

- ▶ Multiple levels of redundancy ensure continuity of operation in the event of server failure
  - RFSS (Radio Frequency Subsystem) redundancy
  - Site controller redundancy
  - Isolated site operation
- ▶ Highly available server clusters are constantly mirrored and will changeover within 5 seconds in the event of a hardware or software failure
- ▶ Site trunking which ensures operation continues even if a site is disconnected from the network
- ▶ Failsoft which is designed to ensure operation in the event of a site server(s) failing

### Scalable and flexible for efficient and cost-effective network design

- ▶ Maximize spectrum use with trunking and simulcast
- ▶ Maximum site spacing with Linear Simulcast Modulation (LSM)
- ▶ A Trunked Analog Gateway (TAG) enables connection to legacy analog consoles
- ▶ PSTN gateway\*
- ▶ Flexible network design with IP connectivity
- ▶ Scalable to cater for different traffic load demands at each site

### Secure communications

- ▶ Network and information security ensures private communications.
  - Supports end-to-end encryption
  - Access levels and control to modify network settings
  - User name and password protection for network access
  - Network access logs for history of changes if required

### Improved worker safety with voice and data

- ▶ Multiple call types are supported
  - Group, system and emergency calls, announcement group calls, and unit-to-unit calling
- ▶ Standard P25 radio services
  - Call alert, radio check, status updates and queries
- ▶ Short messages (text messaging)
- ▶ Radio unit monitor

**CAPABILITIES**

**RF SYSTEMS SUPPORTED**

Capability	Details
Simulcast	Yes
Rx voting	Yes

**INTERFACES**

ISSI	Yes*
PSTN	Yes
CSSI	Yes

**SUBSCRIBER MANAGEMENT**

Add/remove single subscriber	Yes
Add/remove multiple subscribers	Yes
Customize call type permissions	Yes
Add/remove multiple talk groups	Yes
Add an announcement call group	Yes
Add a system call group	Yes

**RFSS**

Transmission trunking	Yes
Subscriber unit (re-)affiliation with talk group	Yes
Subscriber unit registration/deregistration	Yes
Group call	Yes
Talk group ID	Yes
Group call late entry	Yes
Announcement group call	Yes
Encrypted group call	Yes
Emergency group call	Yes
Call queuing	Yes
Unit-to-unit call	Yes
Call alert	Yes
Short message	Yes
Priority talk group scanning	Yes
Radio check	Yes

**RFSS cont...**

Capability	Details
Radio inhibit/uninhibit	Yes
Roaming	Yes
Inter-site queuing	Yes
Group location restrictions	Yes
Subscriber location restrictions	Yes

**PSTN GATEWAY**

Unit-to-PSTN call	Yes
PSTN-to-unit call	Yes
PSTN-to-group call	Yes

**FAULT TOLERANCE**

High Availability failover from primary to secondary server (hardware failure)	Yes
High Availability failover from primary to secondary server (network failure)	Yes
High Availability failover from primary to secondary server (software failure)	Yes
Disaster recovery node handover	Yes, manual activation
Isolated site (network failure). Switch to single site trunking at that site.	Yes
Backup control channel. (Base station failure). Control channel allocated to a different base station.	Yes

**CSSI**

Group call	Yes
Unit-to-unit call initiate	Yes
Unit-to-unit call receive	Yes
Emergency group call	Yes



**GENERAL**

<b>Feature</b>	<b>Details</b>
Voice call types	Group, individual, announcement, broadcast, emergency
Non-voice calls	All standardized P25 supplementary services – status, radio check, monitor, call alert, inhibit/uninhibit
Modes of operation	P25 Phase 1, P25 Phase 2*, P25 Phase 1 trunked simulcast, P25 Phase 1 trunked LSM
Channel frequencies	Channel addressing supports the use of non-contiguous frequency allocations
Channels per site	19 traffic channels, plus control channel
Number of sites	Supports up to 28 physical sites distributed over up to 20 logical sites
Number of talk groups	600
Number of radios supported	10,000
Tait repeaters supported	P25 TB9100, P25 TB9400
Supported server	Dell
Environmental specification of server	+50°F to +95°F (+10°C to +35°C) operation
Maximum radios registered at a site	10,000 radios
Encryption support	Passes encrypted transmissions - AES, DES
Talk group scanning	Supported
Interfaces supported	CSSI, ISSI*, Trunked Analog Gateway (TAG)
PSTN	Supported
Redundancy	RFSS, site, geographic
P25 CAP tested	Passed
Late entry to group calls	Supported
Queued calls	Supported

**TAIT P25 PHASE 2 SOLUTION**

Backed up by our proven radio network expertise, the TN9400 network is core to our larger P25 Phase 2 offering. This solution consists of terminals, infrastructure, applications, services and integration with third party interfaces to ensure that your organization takes advantage of the benefits of the spectrally-efficient P25 standard.

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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