Tough and efficient P25 trunked Phase 1 and Phase 2 system for Public Safety mission critical networks.

The Tait TN9400 core network is the heart of Tait P25 trunked solutions, rich in features and interfaces. Tait TN9400 trunked networks are digital systems specifically designed to provide Public Safety mission-critical communications.

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

- Improved worker safety and efficiency with flexible voice and data management
- Scalable and flexible for efficient and cost-effective network design, from single site single agency systems to nationwide multiagency systems
- Efficient infrastructure scalability based on IP network connectivity to P25 RFSS and site controller equipment
- P25 Simulcast option for maximum spectrum efficiency over wide areas
- Robust design provides multiples levels of redundancy for reliable communications
- P25 Standard compliance enables interoperability, greater choice of partner solutions and network expansion capabilities
- Encryption ensures secure communications
- Reporting of general statistics for visibility of system health
- Multi-layer architecture for improved performance
- Integrated into a Tait data management services
- Remote management for greater operation efficiency
- Customization possible for fulfilling particular use cases

FEATURES AND BENEFITS

The heart of a Tait P25 trunked network

A complete Tait P25 trunked communications system includes mobile/portable radios, base station/repeaters, and a trunked core network. It is designed, built, and tested by Tait to the highest standards for quality.

Genuine commitment to P25 open standards ensures opportunities for multi-vendor solutions with standardized interfaces.

For additional features beyond the P25 standard and network solution applications, a Tait single-sourced provider improves possible network synergies and also provides one point of contact for enhanced global Services.

Future-proof system supporting multiple operating modes

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

- P25 Phase 1 trunked and trunked simulcast operation

- P25 Phase 2 trunking operation, allowing 2 TDMA traffic channels on a 12.5kHz channel

- P25 Phase 1 trunking operation, upgradeable to Phase 2

- P25 trunked simulcast operation

- On-going P25 Compliance Assessment Program (P25 CAP) testing for interoperability and mutual aid.

Compliance with P25 standards enables interoperability, greater choice and network expansion

The TN9400 makes it easy to connect to other P25 networks and equipment:

- The Tait TN9400 supports P25 Phase 1 and Phase 2 intra ISSI connections to other Tait P25 systems (same WACN/System ID between RFSS)

- It also supports P25 Phase 1 and Phase 2 CSSI (Console Subsystem Interface) for connections to multiple console and voice recorder vendors

- The Tait TN9400 supports P25 Phase 1 and Phase 2 inter ISSI connections to other non-Tait P25 systems (different WACN/System ID between RFSS).

Robust design provides high availability for reliable communications

The TN9400 has multiple levels of redundancy to ensure continuity of operation in the event of server failure, including:

- RFSS (Radio Frequency Subsystem) and/or site controller redundancies

- Equipment redundancies are at its utmost when using the high level server with dual power supply and RAID option.

Highly available server clusters are constantly mirrored and will change in less than thirty seconds in the event of a hardware or software failure.

Site trunking ensures that operation continues even if a site is disconnected from the network. Optional failsoft mode can be used for isolated site operation in the event of a site server/s failing.

Scalable and flexible for efficient and cost-effective network design

TN9400 systems ensure efficient network design and scaling with IP connectivity. The TN9400 is scalable to cater for the different traffic load demands at each site, and provides:

- Maximum spectrum use with trunking and simulcast

- Maximum site spacing with Linear Simulcast Modulation (LSM) and Phase 2 Simulcast (H-DQPSK)

- PSTN gateway supports Phase 1 and 2

- A flexible network design with IP connectivity.

Secure communications

Security and privacy are delivered with:

- Centralized authentication to rapidly revoke network access

- Access levels and control to modify network settings

- Network access logs for history of changes, if required

- End-to-end encryption

- OTAR capability (TIA standard).

Efficient operations with remote configuration and fleet management

The web-based user interfaces allow easy remote configuration and management of system elements, including:

- Channel management

- Control channel authorization

- Fleet management for greater control of resources

- Create, modify and delete talk groups

- Set call priority

- Software upgrades ensure your network runs in an optimal manner

- System/network configuration changes

- IP Packet Data

- SNMP

- Auditing capabilities, such as log files - with selectable logging levels, audit trail to identify system changes.

Improved worker safety with voice and data

The TN9400 system ensures that workers can communicate when and how they need with both voice and data.

The TN9400 supports:

- Multiple call types, including: Phase 1/2 group, system and emergency, announcement group and unit-to-unit calls, PSTN and data calls.

- Standard P25 radio services, including: call alert, radio check, status updates and queries

- A standard based IP data pipe to enable application data to be sent over the system

- Short Messages (text messaging)

- Unit Monitor

- Confirmed Group Calls

- Dynamic regrouping (group based).

TN**9400**
SPECIFICATIONS

RF SYSTEMS SUPPORTED	PHASE 1	PHASE 2
Simulcast	Yes	Yes
Rx voting	Yes	Yes

INTERFACES	PHASE 1	PHASE 2
CSSI	Yes	Yes
PSTN	Yes	(*)
Intra-ISSI (RFSS with same WACN/SystemID)	Yes	Yes
Inter-ISSI (RFSS with different WACN/SystemID)	Yes	Yes

SUBSCRIBER MANAGEMENT	PHASE 1	PHASE 2
Add/remove single subscriber	Yes	Yes
Add/remove multiple subscribers (import capability available)	Yes	Yes
Customize call type permissions	Yes	Yes
Add/remove multiple talk groups (import capability available)	Yes	Yes
Add an announcement call group	Yes	Yes
Add a system call group	Yes	Yes
Multi-agency support (agency partitioning)	Yes	Yes

RFSS	PHASE 1	PHASE 2
Transmission trunking + quasi message trunking	Yes	Yes
Subscriber unit (re-)affiliation with talk group	Yes	Yes
Subscriber unit registration/deregistration	Yes	Yes
Group call	Yes	Yes
Talk group ID	Yes	Yes
Group call late entry	Yes	Yes
Announcement group call	Yes	Yes
Encrypted group call	Yes	Yes
Emergency group call	Yes	Yes
Call queuing	Yes	Yes
Call priority	Yes	Yes
Unit-to-unit call	Yes	Yes
Priority talk group scanning	Yes	Yes
Data calls	Yes	(*)
Supplementary services on the control channel:		
Call alert	Yes	n/a
Short message	Yes	n/a
Radio check	Yes	n/a
Dynamic group regrouping	Yes	Yes

PSTN GATEWAY	PHASE 1	PHASE 2
Unit to PSTN call	Yes	(*)
PSTN to unit call	Yes	(*)
PSTN to group call	Yes	(*)

FAULT TOLERANCE	PHASE 1	PHASE 2
High availability failover from primary to secondary server (hardware failure)	Yes	Yes
High availability failover from primary to secondary server (network failure)	Yes	Yes
High availability failover from primary to secondary server (software failure)	Yes	Yes
Disaster recovery node handover - manual activation	Yes	Yes
Isolated site (network failure). Switch to single site trunking at that site	Yes	Yes
Backup control channel (base station failure). Control channel allocated to a different base station	Yes	Yes

CSSI	PHASE 1	PHASE 2
Group call	Yes	Yes
Unit-to-unit call initiate	Yes	Yes
Unit-to-unit call receive	Yes	Yes
Emergency group call	Yes	Yes

(*) Please ask your Tait representative for this feature availability

TN9400

SPECIFICATIONS

GENERAL

Features

Non-voice calls	All standardized P25 supplementary services - status, radio check, monitor, inhibit/uninhibit
Channel frequencies	Channel addressing supports the use of non-continuous frequency allocations
Number of sites	Supports up to 250 sites
Supported servers*	High level (Kontron CG2300), Mid level (Dell R230), Low level (Sintrone)
Environmental specification of server	+50°F to +95°F (+10°C to +35°C) operation
Number of talk groups	60,000
Number of radios supported and registered	200,000 (Maximum 10,000 per site)
Encryption support	Passes encrypted transmission AES, DES
Talk group scanning	Supported
Interfaces supported	CSSI (up to 32 connections for dispatch, up to 3 connections for oice recorders), up to 12 Intra-ISSI, up to 4 Inter-ISSI
Tait Partner Console and Voice Recorder**	Supported
Monitoring protocols	SNMP
Redundancy	RFSS site
Late entry to group calls	Supported
Queued calls	Supported

Features per mode	**Phase 1**	**Phase 2**
Voice call types	Group, individual, all call, broadcast, emergency, PSTN	Group, individual, all call, broadcast, emergency, inter-site, console pre-emption of Phase 2
Modes of operation	P25 Phase 1, P25 Phase 1 trunked simulcast, P25 Phase 1 trunked LSM	P25 Phase 2 trunked, P25 Phase 2 simulcast
Channels per site	Up to 25 physical (24 traffic, plus 1 control channel)	Up to 13 physical (12 traffic channels plus 1 control channel)
Tait repeaters supported	P25 TB9400 recommended (or P25 TB9100 and P25 TB7300)	P25 TB9400
PSTN	Supported	Supported
P25 CAP tested	Passed	Phase 2 standard

* Server equipment options are dependent on system dimensioning
** Please see our P25 trunked Tait Partner solution portfolio

CAPACITY

SYSTEM TYPE:	Full		Express6		Access
PLATFORM:	**RFSS Controller**	**Site Controller**	**RFSS**[1]	**Site Controller**	**RFSS & Site Controller**
Server Type	High/Mid	High/Mid/Low	High/Mid/Low	High/Mid/Low	High/Mid/Low
High Availability supported	Optional	Optional	Mandatory	Mandatory	Mandatory
Quantity per Network	12 Intra-ISSI 4 Inter-ISSI	Unlimited[2]	1	5	1

General capacity for all system types

Physical Channels per Site	P25 Phase 2: 12 traffic channel +1 control channel
	P25 Phase 1: 24 traffic channel +1 control channel
Concurrent Audio Connections per Network	1,000
Number of base stations supported	Unlimited[2]
Base Station Channel Group size	Up to 14 Physical sites per logical site for Phase 1, 28 for Phase 2 on Series 2 hardware

[1] First site controller is hosted on the RFSS server

[2] No system imposed limit on number of sites or total base stations, within the maximum concurrent audio connections

NOTE: High: Kontron, Mid: Dell, Low: Sintrones

Authorized Partners

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.taitcommunications.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.

Quality Management ISO 9001

Environment Management ISO 14001:2015

Occupational Health & Safety Management ISO 45001:2018