

# 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 the second generation of Tait P25 trunked solution 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

- Scalable and flexible for efficient and cost-effective network design
- P25 Simulcast operation supported to create wide area networks
- Improved worker safety and efficiency with flexible voice and data management
- Efficient infrastructure scalability based on IP network connectivity to P25 RFSS and site controller equipment
- Robust design provides multiples levels of redundancy for reliable communications
- P25 Standard compliance enables interoperability, greater choice of partner solutions and network expansion capabilities
- Customization possible for fulfilling particular use cases
- 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



### 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
- Software upgradable to P25 Phase 2 trunking operation, allowing 2 TDMA traffic channels on a 12.5kHz channel
- 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.

#### 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
- Isolated site operation with failsoft repeaters

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

Site trunking ensures that operation continues even if a site is disconnected from the network. Failsoft is designed to ensure 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)
- A Phase 1 Trunked Analog Gateway (TAG), which enables connection to legacy analog consoles
- A Phase 1 PSTN gateway
- 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 group, system and emergency, announcement group, unit-to-unit, PSTN and data calls; Phase 2 group, system and emergency 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

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)	(*)	(*)

  

SUBSCRIBER MANAGEMENT	PHASE 1	PHASE 2
Add/remove single subscriber	Yes	Yes
Add/remove multiple subscribers	Yes	Yes
Customize call type permissions	Yes	Yes
Add/remove multiple talk groups	Yes	Yes
Add an announcement call group	Yes	Yes
Add a system call group	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	(*)
Priority talk group scanning	Yes	(*)
Data calls	Yes	(*)
<b>Supplementary services on the control channel:</b>		
Call alert	Yes	n/a
Short message	Yes	n/a
Radio check	Yes	n/a

  

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

### 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 28 physical sites distributed over up to 20 logical sites
Supported servers*	High level (Kontron CG2300), Mid level (Dell R230)
Environmental specification of server	+50°F to +95°F (+10°C to +35°C) operation
Number of talk groups	600
Number of radios supported and registered	10,000
Encryption support	Passes encrypted transmission AES, DES
Talk group scanning	Supported
Interfaces supported	CSSI, intra-ISSI, Trunked Analog Gateway (TAG)
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, 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	23 traffic channels, plus control channel	12 traffic channels, with P25 Phase 1 control channel
Tait repeaters supported	P25 TB9400 recommended (or P25 TB9100)	P25 TB9400
PSTN	Supported	n/a
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: PLATFORM:	Full		Express6		Access
	High Level	Mid Level	High Level	High/Mid Level	High/Mid/Low Level
Description	RFSS Controller	Site Controller	RFSS/Site 1 controller	Site Controller	RFSS and Site Controller (same server)
High Availability supported	Optional	Optional	Mandatory	Mandatory	Mandatory
Quantity per Network	4 (Intra-ISSI)	20 per RFSS	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: 23 traffic channel +1 control channel
Concurrent Audio Connections per Network	250
Number of base stations supported	100 (Reciters)

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](http://www.taitradio.com).

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#### Authorized Partners



Quality  
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