TN9400 CORE NETWORK

P25 TRUNKING PHASE 1/PHASE 2

MORE EFFICIENT NETWORKS. MORE POSSIBILITIES.

The Harris TN9400 is an IP-based digital system, delivering mission-critical communications over wide geographic areas. This P25 Core Network is extremely resilient, with multiple levels of redundancy built in for secure, reliable information flow. It also features multiple operating modes including P25 trunking Phase 1 and Phase 2.

TN9400 technologies support efficient calls for the entire radio fleet. Leveraging this system's open-standards compliance, users can easily connect with other P25 networks and equipment. Continuity of operations is ensured through high-availability server clusters, site trunking and failsoft. Workers can also communicate when and how they need to, including multiple call types, status updates and text messaging.

The Harris TN9400 is IP based for cost-efficient network design and flexibility to meet future needs. The web-based user interface supports easy remote configuration and management of network system elements and workforce. This P25 Core Network can scale to meet different traffic loads at each site and maximizes spectrum use through trunking and simulcast capabilities.

KEY FEATURES

- Supports multiple operating modes—P25 trunking Phase 1 and Phase 2
- Compliance with P25 standards enhances interoperability and user choice
- Cost-effective, scalable and flexible IP-based design
- More efficient operations with remote configuration, fleet and workforce management

FEATURES AND BENEFITS

The heart of a Harris P25 trunked network

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

A single-sourced P25 trunked network reduces the risk of network elements not interoperating, and also provides one point of contact for network service and support.

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

Supports 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
- Ongoing P25 Compliance Assessment Program (P25 CAP) testing for interoperability and mutual aid

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

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

- Phase 1 ISSI (Inter-RF Subsystem Interface) for connection to four P25 systems
- Phase 1 and Phase 2 CSSI (Console Subsystem Interface) for connecting the TN9400 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) redundancy
- Site controller redundancy
- Isolated site operation with failsoft repeaters

High-availability server clusters are constantly mirrored and will changeover within 5 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. Failsoft is designed to ensure operation in the event of a site servers 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 support 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

Secure, reliable communications

- 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 interface allows 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 talkgroups
- Set call priority
- Software upgrades so your network runs in an optimal manner
- System/network configuration changes
- IP packet data
- Operating System SNMP
- Auditing capabilities, such as: Phase 1 group—system and emergency, announcement group, unit-to-unit, PSTN and Data Calls Phase 2 group—system and emergency calls

Improved worker safety with voice and data

Workers can communicate when and how they need using 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. And Phase 2 group, system and emergency calls
- Standard P25 radio services, including: call alert, radio check, status updates and queries
- A standards-based IP data pipe (EnableIP) allows application data to be sent over the system
- Short messages (text messaging)
- Unit monitor

SPECIFICATIONS FOR: **TN9400 CORE NETWORK – P25 TRUNKING PHASE 1/PHASE 2**

GENERAL

	Phase 1	Phase 2
Voice Call Types	Group, individual, all call, broadcast, emergency, PSTN	Group, all call, broadcast, emergency, Intersite, console, pre-emption of Phase 2 (and other soon to be released)
Non-Voice Calls	All standardized P25 supplementary services—status, radio check, monitor, inhibit/uninhibit	All standardized P25 supplementary services—status, radio check, monitor, inhibit/uninhibit
Modes of Operation	P25 Phase 1, P25 Phase 1 trunked simulcast, P25 Phase 1 trunked LSM	P25 Phase 2 trunked, P25 Phase 2 simulcast
Channel Frequencies	Channel addressing supports the use of noncontinuous frequency allocations	Channel addressing supports the use of noncontinuous frequency allocations
Channels per Site	23 traffic channels, plus control channel	23 traffic channels, plus control channel
Number of Sites	Supports up to 28 physical sites distributed over up to 20 logical sites	Supports up to 28 physical sites distributed over up to 20 logical sites
Number of Talkgroups	600	600
Number of Radios Supported	10,000	10,000
Repeaters Supported	P25 TB9100, P25 TB9400	P25 TB9100 (Control Channel), P25 TB9400
Supported Server	Dell	Dell
Environmental Specification of Server	+50 F to +95 F (+10 C to +35 C) operation	+50 F to +95 F (+10 C to +35 C) operation
Maximum Radios Registered at a Site	10,000 radios	10,000 radios
Encryption Support	Passes encrypted transmission - AES, DES	Passes encrypted transmission - AES, DES
Talkgroup Scanning	Supported	Supported
Interfaces Supported	CSSI, ISSI, Trunked Analog Gateway (TAG)	CSSI
Integrated Console and Voice Recorder	Supported	Supported
PSTN	Supported	Not Supported
Redundancy	RFSS site	RFSS site
P25 Cap Tested	Passed	Phase 2 standard not yet available
Late Entry to Group Calls	Supported	Supported
Queued Calls	Supported	Supported

RF SYSTEMS SUPPORTED

	Phase 1	Phase 2
Simulcast	●	●
Rx Voting	●	—

INTERFACES

	Phase 1	Phase 2
ISSI	●	—
PSTN	●	—
CSSI	●	●

SUBSCRIBER MANAGEMENT

	Phase 1	Phase 2
Add/Remove Single Subscriber	●	●
Add/Remove Multiple Subscribers	●	●
Customize Call Type Permissions	●	●
Add/Remove Multiple Talkgroups	●	●
Add an Announcement Call Group	●	●
Add a System Call Group	●	●

RFSS

	Phase 1	Phase 2
Transmission Trunking + Quasi Message Trunking	●	●
Subscriber Unit (Re-)Affiliation with Talkgroup	●	●
Subscriber Unit Registration/De-registration	●	●
Group Call	●	●
Talkgroup ID	●	●
Group Call Late Entry	●	●
Announcement Group Call	●	●
Encrypted Group Call	●	●
Emergency Group Call	●	●
Call Queuing	●	●
Call Priority	●	●
Unit-to-Unit Call	●	—
Call Alert	●	●
Short Message	●	●
Priority Talk Group Scanning	●	—
Radio Check	●	●

PSTN GATEWAY

	Phase 1	Phase 2
Unit-to-PSTN Call	●	—
PSTN-to-Unit Call	●	—
PSTN-to-Group Call	●	—

FAULT TOLERANCE

	Phase 1	Phase 2
High Availability Failover from Primary to Secondary Server (Hardware Failure)	●	●
High Availability Failover from Primary to Secondary Server (Network Failure)	●	●
High Availability Failover from Primary to Secondary Server (Software Failure)	●	●
Disaster Recovery Node Handover (Manual Activation)	●	●
Isolated Site (Network Failure) and Switch to Single Site Trunking at that Site	●	●
Backup Control Channel (Base Station Failure) with Control Channel Allocated to a Different Base Station	●	●

CSSI

	Phase 1	Phase 2
Group Call	●	●
Unit-To-Unit Call Initiate	●	●
Unit-To-Unit Call Receive	●	●
Emergency Group Call	●	●

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.

About Harris Corporation: Harris Corporation is a leading technology innovator that creates mission-critical solutions that connect, inform and protect the world. The company's advanced technology provides information and insight to customers operating in demanding environments—from ocean to orbit and everywhere in between. Harris has approximately $7.5 billion in annualized revenue and supports customers in more than 100 countries through four customer-focused business segments: Critical Networks, Space and Intelligence Systems, Electronic Systems and Communication Systems.

Non-Export Controlled Information

Tait Limited facilities are certified for ISO9001:2008 (Quality Management System), ISO14001:2004 (Environmental Management System) and ISO18001:2007 (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 ISO9001:2008.