

# Network Controller 900 MHz Canopy

Wireless network for efficient, economic  
communications in high-density service areas



The NC-9000 Turbo Network Controller establishes a long range 902-928 MHz radio canopy that supports Tantalus' complete smart grid solution set for advanced metering, demand response and distribution automation. It delivers superior connectivity by combining industry leading budget links with Tantalus' deep hierarchical networking capability, which allows up to 15 hops between endpoints. TUNet® –Tantalus Utility Network – is a rapid, secure and highly scalable communications backbone built to support escalating data transmissions. It is a future-friendly platform for multiple applications including high resolution outage management, near real-time monitoring and control of distribution equipment, and interactive energy efficiency programs. The NC-9000 can function as a standalone backbone network or be used in conjunction with Tantalus' ultra-long range 220 MHz canopy (NC-2200) or other IP-based networks such as fiber. The combination of the 900 MHz canopy and the 220 MHz overlay canopy forms a best-in class redundant network that provides high performance data communications even in the most extreme and dense of terrains and the most challenging operating environments.

## TANTALUS ADVANTAGES

- Establishes wide area coverage throughout urban and rural service areas and enables a utility to deploy endpoints anywhere within radio range
- Provides two-way communication for advanced smart grid applications such as remote disconnect, outage management, and demand response for both singlephase & polyphase metering
- Low operating costs; serves as the utility's private network and does not incur ongoing public network service fees
- Expandable capacity; each NC 9000 can support up to 392 channels and up to 200,000 endpoints
- Mix & match communications options; interoperable with other IP-based wired and wireless systems including TUNet 220, WiMAX, and IP based cellular services
- Communications infrastructure can be used for electric, water and gas metering

### Radio

- Frequency range: 902-928 MHz
- Available vectored channels: 64,000
- Capacity: scales to 392 channels
- Max endpoints per channel: 512
- Data rate: 10-300 kbps
- Transmit power: +30 dBm (1 watt)
- Receiver sensitivity: -118 dBm

### Power

- 120 VAC 20A, 60Hz
- Integrated UPS

### Physical

- Dimensions of rack mounted cabinet:  
32.5" W x 77" H x 23" D
- 82.5 W x 195.5 H x 58.4 D cm

### Environmental

- Operating temperature range:  
32° to +104° F / -20° to +65° C
- Operating humidity range:  
20% to 80% non-condensing

### Approvals / Standards

- FCC for CFR Title 47 Part 15b

The NC-9000 features TruPush™ technology, which delivers instant field driven event notifications. Whenever a problem arises – outage, swell, sag – a high priority alert is automatically issued which enables the utility to take immediate action. TruPush also supports mass field event control strategies such as those used in system-scale DR and DA applications. This confirms that an action was successfully performed. There's no need to query each endpoint. TruPush keeps network latency low by eliminating round-trip device polling. As a result, TUNet maintains split-second responsiveness even during the most data intensive smart grid operations, and no matter how big the network ultimately grows.

The NC-9000 provides point-to-multipoint communication with meters, load control switches, capacitor banks and other TUNet-enabled devices. Each NC-9000 can access the entire 64,000 vector channel space and support up to 392 channels. Capacity is there when its needed. The range and robustness of the Tantalus 900 MHz canopy allows a utility to accelerate ROI by surgically deploying Tantalus devices to customers of greatest need or highest return, anywhere with the broadcast area, whether it's a sparsely populated rural area, a high-density urban environment or an industrial sector with exacting reliability and power quality requirements.

TUNet provides end-to-end communications from data collection through delivery to a central control and integration point. It is a multi-application network that enables a utility to achieve a high level of command and control over its distribution network and an unprecedented level of operational efficiency. TUNet allows a utility to introduce advanced functionality all at once...or one step at a time. Because the network is already in place, follow-on applications require little or no additional infrastructure, minimizing capital costs for subsequent endpoint deployments, feature enhancements, or capacity increases.

