Wide Area, Unified Mission Critical Data

Designed for telemetry and data communications, Tait DMR offers a secure and reliable M2M data terminal based on the DMR Tier 3 trunking standard.

The TD9300 terminal has multiple data interfaces and the intelligence to simplify wide area DMR based connectivity, integrate quickly and transparently support data communications.

HIGHLIGHTS

- Designed for M2M SCADA communications
- Engineered for use in demanding environments
- Full adherence to DMR standards, providing choice and interoperability
- Native (SCADA protocol aware) or Transparent IP data services
- Flexible interfacing. Wide input voltage range, adjustable high power RF output, serial and Ethernet interfaces

The TD9300, in conjunction with a SCADA Gateway and DMR tier III network, offers advanced data communications services for wireless networks

FEATURES AND BENEFITS

Improve efficiency
- Monitor and control devices via long range DMR, reduce travel & site visits
- Centralised, standards based network management
- Design, manage and maintain a single voice & data radio network

Designed to perform in demanding environments
- Tough die-cast metal chassis protects in demanding environmental conditions
- Protection and fold back mechanisms limit hardware failures, automatically restore service after fault cleared
- Flexible mounting systems, DIN rail in both vertical and horizontal, on a 19 inch rack tray or wall mounted

Security
- AES-256 bit data encryption
- Key management via web page configuration
- Terminals must both register and be authenticated to access the network
- Stun and revive to disable devices

Remote site monitoring
- Extensive outstation diagnostics:
    - Temperature
    - Signal (RSSI & BER and MER)
    - Antenna fault
    - Input voltage
    - Telemetry equipment status
    - Digital I/O
- Over The Air (OTA) configuration of SCADA interface parameters

Standards based interface protocols
- Industry standard protocols:
    - DNP3 over IP/serial
    - IEC60870-5-101 and -104
    - MODBUS
- Network Time Protocol (NTP)
- Internet Control Message Protocol (ICMP)
- Eliminates costly proprietary protocol integration and support

Applications
- SCADA for distribution utilities
- SCADA for oil & gas utilities
- SCADA for control of irrigators

Data services
- Packet data over traffic channels for telemetry, SCADA and customer specific applications
- Native and Transparent IP data interface operation
- Control channel short data messages, location, status and text

Flexible interfaces
- Two RS232 / RS485 serial interfaces for legacy equipment connection
- 10/100 Mbps Ethernet connection
- 2 digital input and 2 digital outputs to monitor and control surrounding environment, fully isolated.

Backed up by our proven radio network expertise, the TD9300 is part of the Tait DMR solution portfolio that consists of terminals, infrastructure, applications, services and integration with third party interfaces to ensure that your organization can reap all the benefits of the spectrally-efficient DMR standard in a mission critical environment.

GENERAL

Input voltage	9-36VDC
Power consumption (@ 24VDC)	
Tx current (peak)	3.1A for 25W RF power, 1.0A / 1.6A for 1W / 5W RF power
Tx power consumption (average, single slot)	40W for 25W RF power, 15W / 22W for 1W / 5W RF power
Standby (average)	5.3W
Dimensions	180mm (w) x 156mm (D) x 61mm (H)
Operating temperature	-22°F to 140°F (-30°C to 60°C)
Water and dust protection	IP40 in all orientations or IP41 with connectors facing down
Frequency stability	±0.5ppm (-22°F to 140°F/-30°C to 60°C)
Channel spacing	12.5kHz spacing 2.5 / 3.125 / 5 / 6.25kHz increment per channel step
Weight lb (kg)	4.2 lb (1.9kg)
Mounting	DIN rail clip or panel mount bracket
ESD rating	+/-4kV contact discharge and +/-8kV air discharge
Air interface standard	DMR: ETSI TS 102 361
Indicators	5 status LEDs: PWR, RTU, DMR, 1, 2
Packet Data	½ Rate, ¾ Rate, Full rate
General Purpose digital I/O	Input: Opto-isolated, 18VDC max Output: Isolated, 170mA@18VDC

TRANSMITTER

	VHF (136-174MHz, 174-225MHz)	UHF (400-470MHz)
Output power (configurable)	25W: 25W, 10W, 5W, 1W	25W: 25W, 10W, 5W, 1W
FM Hum and noise (TIA-603-D)	12.5kHz: 40dB	12.5kHz: 40dB
Adjacent channel power ratio (DMR, ETS 300-113)	12.5kHz: 60dBc	12.5kHz: 60dBc
Conducted Emissions	25W: -36dBm	25W: -36dBm
Duty Cycle	5W: 80% @ 25°C 25% @ 60ºC	
	12W: 75% @ 25°C 20% @ 60ºC	
	25W: 65% @ 25°C 15% @ 60ºC	

RECEIVER

	VHF (136-174MHz, 174-225MHz)	UHF (400-470MHz)
Sensitivity (DMR) 5% BER	-119dBm (0.25µV)	-120dBm (0.25µV)
Intermodulation rejection (EIA603D)	81dB	76dB
Intermodulation rejection (ETS 300)	72dB	66dB
Spurious response rejection (DMR) (ETS 300-113)	72dB	76dB
FM hum and noise (TIA-603-D)	12.5kHz: 45dB	12.5kHz: 45dB
Conducted spurious emissions	-57dBm	-57dBm
Adjacent Channel Selectivity (TIA/EIA one tone)	65dB	64dB
Adjacent Channel Selectivity (DMR, EN 300 113)	60dB (136-174MHz), 62dB (174-225MHz)	61dB

REGULATORY DATA

	USA	Canada	Europe	Australia/New Zealand
VHF (136-174MHz)	CFR 47	RSS-119	EN300-113, EN301-489, EN60950	AS/NZS4768
VHF (174-225MHz)	CFR 47			
UHF (400-470MHz)	CFR 47	RSS-119	EN300-113, EN301-489, EN60950	AS/NZS4768
Safety	EN 60950-1, ANSI/UL 60950-1, CAN/CSA-C22 60950-1-07			

OTHER STANDARDS

Environmental	Low Pressure (Altitude):	MIL-STD-810G 500.5, Proc 2	Humidity:	MIL-STD-810G 507.5, Proc 2
	High Temperature:	MIL-STD-810G 501.5, Proc 1,2	Vibration:	MIL-STD-810G 514.6, Proc 1
	Low Temperature:	MIL-STD-810G 502.5, Proc 1,2	Shock:	MIL-STD-810G 516.6, Proc 1
	Temperature Shock:	MIL-STD-810G 503.5, Proc 1		

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