Trio Q-Series

Licensed Ethernet and Serial Data Radios

QR450

Schneider Electric

Trio Q-Series advanced high speed licensed digital data radio provides both Ethernet and serial communications for the most complex and demanding applications in Point-to-Point and Point-to-Multipoint (Multiple Address Radio) Telemetry and remote SCADA systems.

Features such as ChannelShare™, MultiStream™, web-based user configuration, together with powerful remote diagnostics and Network Management, make the Q-Series the complete licensed radio solution that works with all leading host systems and remote equipment.

Combining both Ethernet and serial connectivity, the Trio Q-Series is suitable for use with the latest SCADA technology as well as providing a smooth transition from serial-based infrastructure to IP/Ethernet.

Product Data Sheet Trio QR450
Specifications

>	Trio QR450
Radio	
Frequency Range	400-450MHz (M-Band) or 450-520MHz (H-Band)
Frequency Splits	Various Tx/Rx frequency splits - configurable
Channel Selection	3.125kHz channel steps
Channel Spacing	12.5 and 25kHz (software selectable)
Frequency Accuracy	±0.5ppm, -40 to +70°C (-40 to 158°F) ambient
Aging	<= 1ppm/annum
Radio Modes	Simplex and Half duplex
Configuration	Configuration via embedded HTTP, HTTPS web interface & or Telnet/SSH/Serial console
Transmitter	
Tx Power	0.05 to 10W (+17 to +40dBm) +/- 0.1dB configurable with over-temperature and high VSWR protection
Modulation	Configurable narrow band digitally filtered binary GMSK, 4, 8 and 16 level FSK
Tx Keyup Time	<1ms
Timeout Timer	Configurable 0 to 255 seconds
Tx Spurious	<= -37dBm
PTT Control	Auto (Data) / RTS line on Data Port
Receiver	
AFC Tracking	Digital receiver frequency tracking
Mute	Configurable digital mute
Connections	
Serial Data Port	1 x RS232 DB9 female connector providing 2 x RS-232 3-wire serial ports (shared connector). 300-38,400 bps asynchronous
Serial Data Port Flow Control	Configurable hardware / software / 3-wire interface
Serial Data Port DCD Control	Configurable DCD operation : activated on RF carrier or from user data output
Ethernet Port	2 x RJ45: 10/100 Mbps (auto-MDIX sensing) compliant with IEEE 802.3
Antenna	1 x TNC female bulkhead
Power	2-pin locking, mating connector supplied
USB port	Firmware Upgrade, Configuration & Diagnostics logs (Future release)
LED Display	Multimode Indicators for Pwr, Tx, Rx, Sync, TxD and RxD data LEDs and LAN LEDs
Ethernet	
Ethernet Protocols	Ethernet/IP (including UDP, TCP, DHCP, ARP, ICMP, STP, IGMP, SNTP & TFPT)
Ethernet Repeating	Automatic and Self Learning Peer to Peer repeating
IP Modes	Layer-2 Ethernet Bridge / Layer-3 IP Gateway
Ethernet Traffic Filtering	Configurable: No Filtering / Unicast Traffic & ARP Only / Unicast Traffic Only
Compression	Automatic Ethernet data compression
Terminal Server	Legacy RS-232 serial support via embedded terminal server (UDP/TCP)
DHCP Modes	Auto and Manual
SNMP	SNMP V1,V2c, RFC 1213-compliant & radio diagnostics parameters (with traps)
Modbus Gateway	Configurable MODBUS/TCP to MODBUS/RTU Gateway

Specifications continue on the next page

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Specifications

	Trio QR450			
Modem				
RF Channel Data Rate #	Region	Bandwidth (KHz)	Speed (Kbps)	RF Sens (1x10E-6 BER)
	FCC	12.5	8 16 24 32	-116 -111 -105 -97
		25	16 32 48 64	-114 -109 -103 -96
	ACMA/ETSI	12.5	7 14 21 28	-117 -112 -106 -99
		25	14 28 42 56	-114 -109 -103 -96
Dynamic Speed Selection	QoS/RSSI based Automatic Speed Selection or Fixed speed mode			
Operating Modes	Base, remote, repeater or store n' forward			
Channelshare™	Trio's unique supervisory collision avoidance system			
Data Turnaround Time	<10mS			
Backward Compatability	Fully backward compatible with Trio E-Series radios (future)			
Firmware	Local and over-the-air flash-based firmware upgradeable patches with support for broadcast updates			
Security				
Encryption*	256-bit AES			
Password Protection	Password protected configuration sessions			
Diagnostics				

Diagnostics Overview	• Network management and diagnostic Windows GUI software
	• Network-wide operation from any remote terminal
	• Non intrusive protocol – runs simultaneously with the application
	• Over-the-air re-configuration of user parameters.
	• Storage of data error and channel occupancy statistics
	• In-built Error Rate testing capabilities
	• Diagnostics parameters available
	  • Transmitter Power
	  • Received Signal Strength
	  • DC Supply Voltage
	  • Received Frequency Error
	  • Radio Temperature
	  • VSWR			

General				
Operating Temperature Range	-40 to +70°C (-40 to 158°F) ambient			
Power Supply	13.8Vdc nominal (10-30Vdc)			
Transmit Current	1.2A nominal @ 1W			
Receive Current	<290mA nominal @ 13.8Vdc			
Housing & Dimensions	Rugged die-cast, 110 x 34 x 175mm			
Mounting	Integrated Mounting Holes or DIN Rail mounting (optional)			
Weight	0.5kg (1.1lbs.)			
Warranty	3 years on parts and labor			
Approvals and Certifications				
Europe (ETSI)	ETSI EN300113, EN301489, EN60950			
FCC	FCC PART 15, PART 90			
Industry Canada	IC RS119, ICES-001			
Australia	ACMA AS4295-1995 (Data)			
Hazardous Locations	CSA Class I, Division II, Groups (A,B,C,D) for Hazardous Locations ANSI/UL equivalent)			

Product Data Sheet Trio QR450
Model Code

	TBURQR4ab-cccdeef represents the part number matrix
Model	**Trio Radio QR450**
TBURQ	Q-Series
Code	**Select: Unit Type**
R	Remote Station with full enclosure
Code	**Select: Generic Frequency Band**
4	450MHz UHF Frequency Band
Code	**Select: Sub Band - UHF**
L	Low Band : 400 to 450MHz
H	High Band : 450 to 520MHz
Code	**Select: Hazardous Area Approvals**
H	Hazardous Environment Class 1 Div 2 Groups A, B, C & D
N	No Approval
Code	**Select: Modulation**
000	For use in all regions
Code	**Select: Encryption (subject to country of use)**
E	128 bit AES encryption*
N	DES 56 bit encryption only
Code	**Select: Licensed Feature**
LS	Serial Data Only (Two Serial Ports)
LE	Ethernet & Serial (Two Ethernet & two Serial Ports)
Code	**Select: Power Supply**
0	10-30V DC Standard

Example: TBURQR4LH-000ELE0 specifies: Trio QR450 remote station, 400 to 450MHz, hazardous area approved, modulation for all regions, 128 bit Encryption enabled, two Ethernet & two Serial Ports, 10-30V DC power supply

Communications Standards:
FCC – Federal Communications Commission (USA)
IC – Industry Canada
ETSI – European Telecommunication Standards Institute
ACMA – Australian Communications and Media Authority

* Export restrictions may apply. Contact your local representative for more details.

Note: Not all product features are available in every mode of operation.

Note: Some radio models may not be available in your country. Local and regulatory conditions may determine the performance and suitability of the radio in different countries. It is the responsibility of the buyer to ensure the radio model meets the regulatory conditions required. Contact your local Schneider Electric sales office for more details.