Trio M-Series

Licensed serial data radio

MR450

Schneider Electric

The Trio MR450 professional compact digital data radio provides cost effective and dependable serial communications in Point-to-Point and Point-to-Multipoint (Multiple Address Radio) Telemetry and remote SCADA systems, particularly in demanding water and electricity utility applications.

Easy to configure and use, yet highly versatile, the MR450 has advanced features such as ChannelShare™, MultiStream™, single channel simplex store and forward repeating, compatibility with all leading industrial data protocols such as DNP-3, MODBUS, IEC870-5-101, etc., and powerful remote diagnostics.

Full -30°C to +60°C operational capability and a specialised low power sleep mode option make the MR450 ideally suited to solar powered gas flow metering applications in the harshest environments

The MR450 is supported by the Trio range of full duplex base and repeater stations, including a redundant hot standby version.

Product Data Sheet Trio MR450
Specifications

>	Trio MR450
Radio	
Frequency Range	395-470MHz (M-Band) or 450-520MHz (H-Band)
Frequency Splits	Various Tx/Rx frequency splits - configurable
Channel Selection	6.25kHz channel step
Channel Spacing	12.5 and 25kHz
Frequency Accuracy	±1ppm, -30 to +60°C (-22 to 140°F) ambient
Aging	<=1ppm/annum
Radio Modes	Simplex and Half duplex
Configuration	All configuration via Windows based software
Transmitter	
Tx Power	0.1 to 5W (+20 to +37dBm) +/- 1dB configurable with over-temperature protection
Modulation	Configurable narrow band digitally filtered binary GMSK
Timeout Timer	Configurable 0 to 255 seconds
Tx Spurious	<= -37dBm
PTT Control	Auto (Data) / RTS line
Receiver	
Sensitivity	-116dBm for 12dB SINAD
Selectivity	Better than 60dB
Intermodulation	Better than 65dB
Spurious Response	Better than 70dB
Mute	Configurable digital mute
Connections	
Serial Data Port	RS232 DB9 female DCE. 300-38,400bps asynchronous
Serial Data Interface	3-wire data interface (TxD, RxD & GND)
Serial Data Port DCD Control	Configurable DCD operation : activated on RF carrier or from user data output
System Port	RS232 19,200bps (Shared on Data Port), for configuration and diagnostics. Y-Cable supplied for seperating Serial Data Port & Systems Port
Antenna	1 x N female bulkhead
Power	2-pin locking, mating connector supplied
LED Display	Multimode Indicators for Pwr, Tx, Rx, Sync, TxD and RxD data LEDs
Modem	
RF Channel Data Rate#	• Radio Model 003 : FCC (IC) 9600bps (12.5kHz) North America • Radio Model 004 : ETSI 4800bps (12.5kHz) Europe • Radio Model 001 : ACMA 2400bps (12.5kHz) / 4800bps (25kHz) Australia • Radio Model 002 : ACMA 4800bps (12.5kHz) / 9600bps (25kHz) Australia
Typical Bit Error Rate#	< $1x10^{-6}$ @ -117dBm (2400bps), < $1x10^{-6}$ @ -116dBm (4800bps), < $1x10^{-6}$ @ -107dBm (9600bps)
Operating Modes	Base, remote, repeater or store n' forward
Data Buffer	8kbyte of on-board RAM
Channelshare™	Trio's unique supervisory collision avoidance system
Multistream™	Simultaneous data stream delivery allows for multiple vendor devices/protocols to be transported on the one radio network
Firmware	Local flash-based firmware updates
Diagnostics	

Diagnostics Overview	• TView+ configuration, 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
	  • Radio Temperature

Specifications continue on the next page

Product Data Sheet Trio MR450
Specifications

>	Trio MR450
General	
Operating Temperature Range	-30°C to +60°C (-22°F to +140°F)
Power Supply	13.8Vdc nominal (10-16Vdc)
Transmit Current	600mA nominal @ 1W, 1500mA nominal @ 5W
Receive Current	<170mA nominal @ 13.8Vdc
Sleep Mode	Externally controlled sleep mode (13mA @ 13.8Vdc) with 75mS start up time (available only when sleep mode option board is fitted)
Housing & Dimensions	Rugged die-cast, 154 x 102 x 29mm (6.1 x 4.1 x 1.2in.)
Mounting	Integral mounting feet (standard) or DIN Rail mounting (optional)
Weight	0.32kg (0.71lbs)
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)

* Export restrictions may apply. Contact your local representative for more details.
# Local radio regulatory requirements may dictate the actual RF channel data rate and Bit Error Rates available. Contact your local representative for more details

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

Disclaimer: Schneider Electric reserves the right to change product specifications. For more information visit www.schneider-electric.com.

Product Data Sheet Trio MR450
Model Code

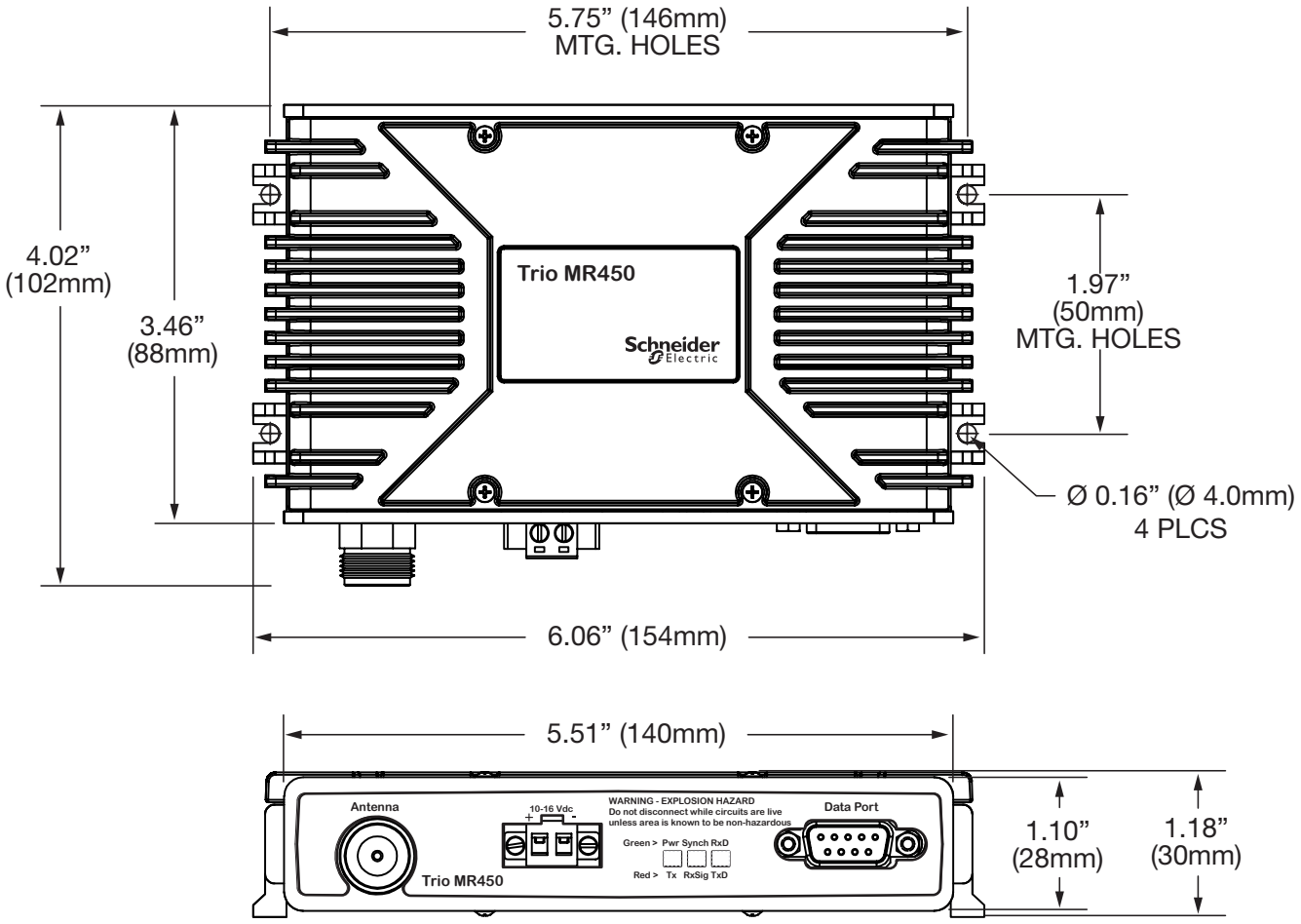
	TBURMR450-aabbbcde represents the part number matrix
Model	**Model Type**
TBURM	M-Series
Code	**Select: Unit Type**
R	Remote Station with full enclosure
Code	**Select: Generic Frequency Band**
450	380 to 520MHz
Code	**Select: Frequency (400MHz bands)**
M	395 to 470MHz (Tx & Rx)
H	450 to 520MHz (Tx & Rx)
Code	**Select: RF Channel Data Rate & Bandwidth (Internal Modem)**
001	ACMA 2400bps 12.5KHz / 4800bps 25KHz (Australia)
002	ACMA 4800bps 12.5KHz / 9600bps 25KHz (Australia)
003	FCC (IC) 9600bps 12.5KHz (North America)
004	ETSI 4800bps 12.5KHz (Europe)
Code	**Select: Diagnostics**
D	Diagnostics Only
L	Sleep Mode Module & Diagnostics
Code	**Select: Hazardous Area Approvals**
H	Hazardous Environment Class1 Div2
Code	**Select: Hot Standby Configurations**
O	None

Example: TBURMR450-M003DH0 specifies: Trio M-Series, Remote Station, Generic 450MHz band with a specific frequency range of 400 to 470MHz, a 9600bps modem with a bandwidth of 12.5kHz, Diagnostics, Class1 Div2.

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

Contact your local sales office for accessories

Product Data Sheet Trio M-Series
Dimensions



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