

# Trio MR450

Licensed Serial Data Radio



## Product at a glance

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 DNP3, Modbus™, IEC870-5-101, etc., and powerful remote diagnostics.

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

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### Specifications – MR450

#### Radio

Frequency Range	395...470 MHz (M-Band) or 450...520 MHz (H-Band)
Frequency Splits	Various Tx/Rx frequency splits - configurable
Channel Selection	6.25 kHz channel step
Channel Spacing	12.5 and 25 kHz
Frequency Accuracy	$\pm 1$ ppm, -30...+60 °C (-22...140 °F) ambient
Aging	$\leq 1$ ppm/annum
Radio Modes	Simplex and Half duplex
Configuration	All configuration via Windows®-based software

#### Transmitter

Tx Power	0.1...5 W (+20...+37 dBm) +/- 1 dB configurable with over-temperature protection
Modulation	Configurable narrow band digitally filtered binary GMSK
Timeout Timer	Configurable 0...255 seconds
Tx Spurious	$\leq -37$ dBm
PTT Control	Auto (Data) / RTS line

#### Receiver

Sensitivity	-116 dBm for 12 dB SINAD
Selectivity	Better than 60 dB
Intermodulation	Better than 65 dB
Spurious Response	Better than 70 dB
Mute	Configurable digital mute

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### Specifications – MR450 – continued

#### Connections

Serial Data Port	RS232 DB9 female DCE. 300...38,400 bps 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 19,200 bps (Shared on Data Port), for configuration and diagnostics. Y-Cable supplied for separating 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 <sup>1</sup>	<ul style="list-style-type: none"> <li>Radio Model 003 : FCC (IC) 9600 bps (12.5 kHz) North America</li> <li>Radio Model 004 : ETSI R&amp;TTED 1995/5/EC 4800 bps (12.5 kHz)</li> <li>Radio Model 001 : ACMA 2400 bps (12.5 kHz) / 4800 bps (25 kHz) Australia</li> <li>Radio Model 002 : ACMA 4800 bps (12.5 kHz) / 9600 bps (25 kHz) Australia</li> </ul>
Typical Bit Error Rate <sup>1</sup>	< 1x10 <sup>-6</sup> @ -117 dBm (2400 bps), < 1x10 <sup>-6</sup> @ -116 dBm (4800 bps), < 1x10 <sup>-6</sup> @ -107 dBm (9600 bps)
Operating Modes	Base, remote, repeater or store and forward
Data Buffer	8 kbyte 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	<ul style="list-style-type: none"> <li>TVIEW+™ configuration, network management and diagnostic Windows®-based GUI software</li> <li>Network-wide operation from any remote terminal</li> <li>Non intrusive protocol – runs simultaneously with the application</li> <li>Over-the-air re-configuration of user parameters.</li> <li>Storage of data error and channel occupancy statistics</li> <li>In-built Error Rate testing capabilities</li> <li>Diagnostics parameters available             <ul style="list-style-type: none"> <li>Transmitter Power</li> <li>Received Signal Strength</li> <li>DC Supply Voltage</li> <li>Radio Temperature</li> </ul> </li> </ul>
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### Specifications – MR450 – continued

#### General

Operating Temperature Range	-30...+60 °C (-22...+140 °F)
Power Supply	13.8 Vdc nominal (10...16 Vdc)
Transmit Current	600 mA nominal @ 1 W, 1500 mA nominal @ 5 W
Receive Current	<170 mA nominal @ 13.8 Vdc
Housing & Dimensions	Rugged die-cast, 154 mm wide x 102 mm high x 29 mm deep (6.1 in. x 4.1 in. x 1.2 in.)
Mounting	Integral mounting feet (standard) or DIN Rail mounting (requires DIN mounting kit, see Trio accessories datasheet for more information)
Weight	0.32 kg (0.71 lbs)

#### Approvals and Certifications

Europe (ETSI)	ETSI R&TTED 1995/5/EC, 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

**Footnotes:** [Note](#). Export restrictions may apply. [1](#). Local radio regulatory requirements may dictate the actual RF channel data rate and Bit Error Rates available. Contact your local representative for more details on these issues.

Note: Accessories sold separately.

# Trio MR450

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### Model Code

TBURMR450-abbcbcode 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	395...520 MHz

Code	Select: Frequency (400 MHz bands)
M	395...470 MHz (Tx & Rx)
H	450...520 MHz (Tx & Rx)

Code	Select: RF Channel Data Rate & Bandwidth (Internal Modem)
001	ACMA 2400 bps 12.5 KHz / 4800 bps 25 KHz (Australia)
002	ACMA 4800 bps 12.5 KHz / 9600 bps 25 KHz (Australia)
003	FCC (IC) 9600 bps 12.5 KHz (North America)
004	ETSI R&TTED 1995/5/EC 4800 bps 12.5 KHz

Code	Select: Diagnostics
D	Diagnostics Only

# Trio MR450

## Licensed Serial Data Radio

### Model Code - continued

TBURMR450-aabbbcde represents the part number matrix

Code	Select: Hazardous Area Approvals
H	Hazardous Environment Class I Div2

Code	Select: Reserved For Future Use
O	Reserved for future use

**Example:** TBURMR450-M003DH0 specifies: Trio M-Series, Remote Station, Generic 450 MHz band with a specific frequency range of 395 to 470 MHz, a 9600 bps modem with a bandwidth of 12.5 kHz, Diagnostics, Class1 Div2.

#### Communications Standards:

FCC – Federal Communications Commission (USA)

IC – Industry Canada

ETSI – European Telecommunication Standards Institute

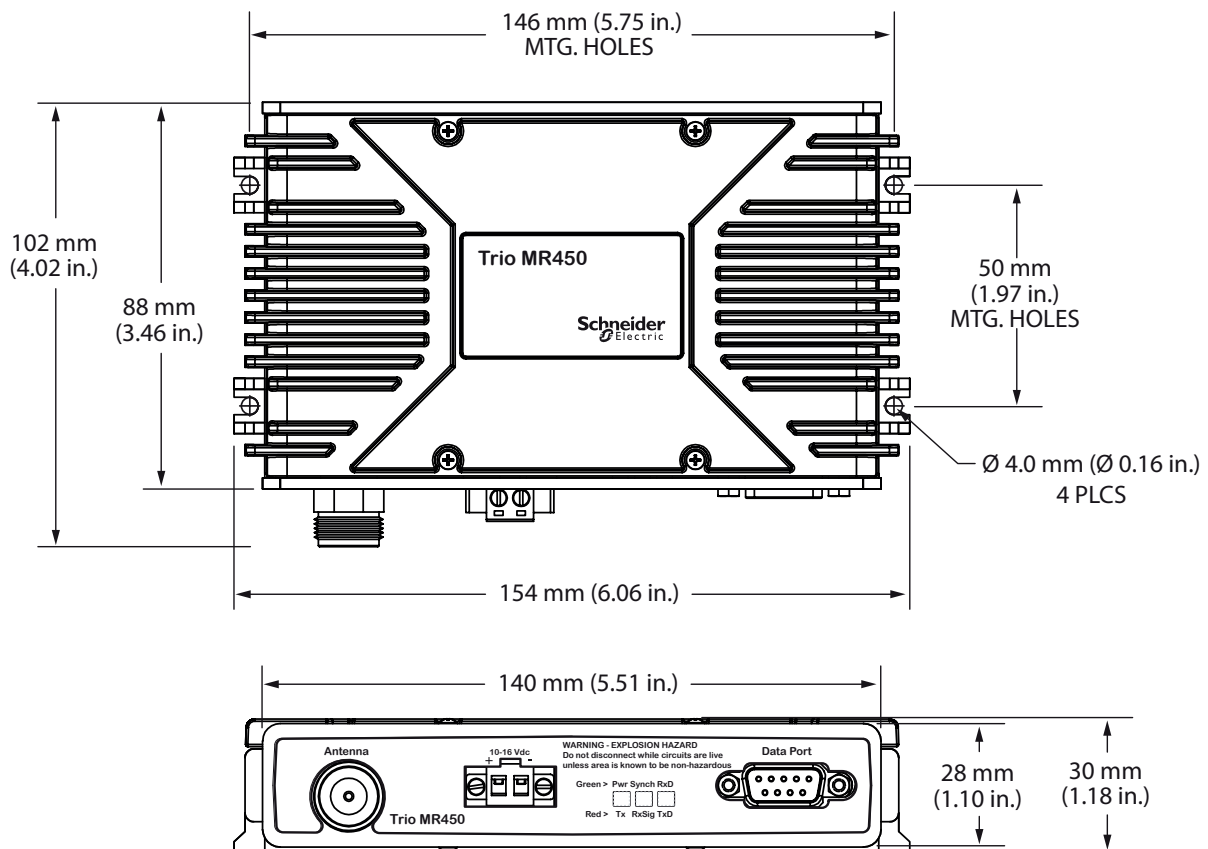
ACMA – Australian Communications and Media Authority

Contact your local sales office for accessories.

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## Dimensions – MR450



Footnote: This product is not RoHS-compliant. Accessories sold separately.

Disclaimer: Not all product features are available in every mode of operation. Schneider Electric reserves the right to change product specifications. For more information visit [www.se.com](http://www.se.com).

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