

TReX - IOT, TELEMETRY AND MESSAGING I/O TRANSCIVER

The WTE TReX is an Ethernet, serial and USB capable transceiver for DMR messaging, paging and general telemetry use.

DMR MESSAGING SUPPORT

The TReX supports the transmission of short Digital Mobile Radio text messages, allowing direct messaging to a variety of DMR radios.

IOT AND SCADA

The TReX feature set reduces the components required in a SCADA system. Features includes: Digital and Analog I/O, Long Range Wireless I/O expansion and Modbus RTU/TCP protocol support

Operate as an IoT gateway allowing control and monitoring from devices supporting the MQTT protocol.

PLC SUPPORT

Optionally the TReX can include a Programmable Logic Controller. Easily automate your own distributed telemetry solution. Setup and monitor with a user-friendly configuration interface.

The TReX PLC allows messaging and output control using timers, counters, inputs and outputs via ladder logic programming.



APPLICATIONS:

- Transmit DMR Messages to a variety of standard DMR radios
- Transmit and receive POCSAG paging messages for use with legacy belt pager type systems
- Monitor and control installations using standard SCADA software
- Autonomously mirror analog and digital I/O to a remote unit
- Transmit and receive serial and telemetry data at high data rates
- Repeat and forwarding of telemetry and paging messages in poor coverage areas
- Inspection of potential site interference using the integrated spectrum analyzer
- Reporting of system and installation errors, such as loss of communications, faults to antennas and battery states

FEATURES:

- Up to 4W power output
- Operates from 421 to 480MHz
- Data transmit rates from 512 baud to 32K baud
- Supported channel spacing of 25kHz, 12.5kHz and 6.25kHz
- Sends and receives POCSAG paging messages
- Transmit DMR tier 1 text messages
- Receives FLEX™ paging messages
- Two-Way paging, with auto acknowledge and request confirmation message
- Paging store and forward repeater operation with configurable duplicate reject
- Variable content macro which allows the TReX to build a periodic message with current system status, IO state and more
- 8 digital inputs and outputs. Outputs can be open drain or relay depending on model
- Two analog outputs 0-10V/4-20mA
- Two analog inputs 0-16V
- Integrated spectrum analyzer (optional)
- Simple to configure back to back mirroring and monitoring of analog and digital IO
- Configurable logging of all transmitted and received messages
- Graphics display shows all transmit and receive activity including I/O state
- Easily mountable from any side or to standard DIN rail

- Multi language capable GUI
- Fully configurable via front panel without the need for an external PC connection
- RS232, RS422 and RS485 support
- USB connection allows downloading of TX and RX logs or direct access to configuration files
- Ethernet support allowing remote configuration and operation via TCP and Web
- Configured inputs can be programmed to send POCSAG and DMR messages simultaneously when triggered
- Configured outputs can be controlled via received messages
- Any output can be assigned to indicate:
 - Channel busy
 - Alert on filtered match of message payload
 - Comms link fail
 - Antenna fault
 - Low output power
 - Low input voltage
 - High temperature
- Periodic message support to ensure radio link integrity
- Antenna mismatch detection
- High sensitivity receiver
- Internal real time clock

CONFIGURABLE

The TReX can be configured and diagnosed completely from the front panel without the need for a remote or direct computer connection.

In addition, the TReX can be configured and/or cloned through serial commands, TCP, USB or via a web browser.

CUSTOMISATION

The TReX has been developed and is maintained "in-house". WTE can work with your team to customize the TReX to meet your system needs. Designed and manufactured in New Zealand.

SPECIFICATIONS:

FREQUENCY RANGE	TReX-460: 421MHZ to 480MHZ
SUPPLY VOLTAGE	Nominal 12V Min 10.8V Max 15.6V
TX POWER	250mW, 500mW, 1W, 2W and 4W
DIGITAL INPUTS	8
ANALOG INPUTS	2 (0-16V)
DIGITAL OUTPUTS8 (Open Drain or relay depending on model)
ANALOG OUTPUTS	2 (0-10V AND 4-20mA)
REAL TIME CLOCK CALENDAR	Super Capacitor backup min 3 days Accuracy 20PPM over full temperature range
ANTENNA CONNECTOR	BNC
INTERFACES	RS232, RS422, RS485 AND ETHERNET (Web/TCP)
RECEIVER SENSITIVITY	460MHZ (512 BAUD) -123 dBm 460MHZ (4800 BAUD) -118 dBm

SPECTRUM ANALYZER (OPTIONAL):

RESOLUTION BANDWIDTH (RBW)	1KHZ OR 25KHZ
SPAN	up to 3MHZ
SWEEP MODE	Continual or peak display
MINIMUM SIGNAL	-120 dBm
MAXIMUM SIGNAL	-10 dBm

MECHANICAL:

LENGTH:	104mm (125mm including BNC connector)
WIDTH:131mm
HEIGHT:41mm
WEIGHT:550 Grams
MOUNTING:	RACK, WALL & DIN RAIL
IP RATING:	IP51

ENVIRONMENTAL:

OPERATING TEMPERATURE	-40 to +70 °C
HUMIDITY	Maximum 95% non-condensing

DMR SUPPORT (OPTIONAL):

ENCODE	Partial ETSI TS 102 361-1 (Tier 1 direct mode) Short Message Type, unconfirmed Max Message Length 70 characters
DECODE	N/A

POCSAG SUPPORT:

ENCODE AND DECODE BAUD RATES	512, 1200, 2400, 4800, 9600
SUPPORTED MODES	Alphanumeric and numeric, singular or batched for 25KHz, 12.5KHz and 6.25KHz channel spacing
FLEX™ PAGING DECODE SUPPORT	1600 BAUD (2 LEVEL ONLY)

COMMUNICATION PROTOCOLS:

SUPPORT:	WTE, MODBUS, TCP Server/Client, MQTT PET/TAP, ESPA 4.4.4, Multi-Tone, Scope, TNPP, TPP, COMP2, Scope, ASCOM, SAL, SOLT, KENTEC, AMPAC and others on request
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SECURITY:

RF Link Security:	AES 128 or AES 256 with cipher block chaining Uniquely identified transmissions with replay attack protection
TRANSPORT LAYER SECURITY:	TLS version 1.2 Max AES key size 128 bits. (256 bit on request)

MODULATIONS:

25KHZ CHANNEL WIDTH	512 BAUD (FSK), 1200 (FSK), 1600 (FSK), 2400 (GFSK), 3200 (4GFSK), 4800 (2GFSK), 9600 (GFSK), 9600 (4GFSK), 16K (4GFSK), 32K (4GFSK)
12.5KHZ CHANNEL WIDTH	512 BAUD (FSK), 1200 (FSK), 2400 (GFSK), 4800 (GFSK), 9600 (GFSK), 9600 (4GFSK), 16K (4GFSK)
6.25KHZ CHANNEL WIDTH	512 BAUD (FSK), 1200 (GFSK), 2400 (GFSK), 4800 (4GFSK)

REGULATORY COMPLIANCE:

FCC	FCC Part 90
EN	EN 300 113
EN	EN 50385
ETSI	ETSI TS 102 361-1 (DMR modulation and TDMA bursts)
AS/NZ	AS/NZ 4769.1:2000
EMC	EN 301 489
SAFETY	EN 60950 + IEC 62368
RoHS (Restriction of Hazardous Substances)	Compliant
WEEE (Waste Electrical and Electronic Equipment)	Compliant ¹

Notes: ¹ Please contact your WTE dealer or WTE directly for further information regarding safely disposing of electronic equipment.



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