WTE Wireless Technologies

DATASHEET

DMReX

Telemetry & messaging **radio** solutions

DMReX Secure Telemetry And Messaging Transceiver Module

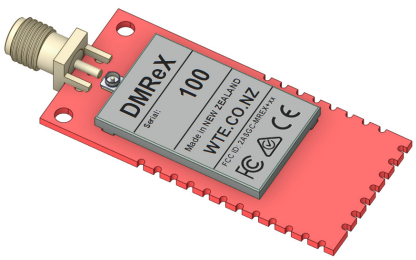
The WTE DMReX is a high-sensitivity, multi-band transceiver module designed for secure messaging, remote I/O control, and telemetry applications. With built-in AES encryption, wide frequency support, and flexible input/output capabilities, the MReX-Plus provides a robust solution for point-to-point or broadcast wireless systems.

Suitable for a number of monitoring and control applications in sectors such as industry, agriculture, farming, retail, hospitality, security and emergency services.

Single modular type approval means that the module can be incorporated into other products, in some cases with no required testing for FCC and CE compliance. This can result in a very short time to market for products.

Applications:

- Transmit and receives DMR Messages.
- Transmit and receive POCSAG paging messages for use with legacy belt pager type systems.
- Transmit and receive serial and telemetry data at high data rates.
- Repeat and forwarding telemetry and paging messages in poor coverage areas.
- Remotely control outputs or monitor inputs.



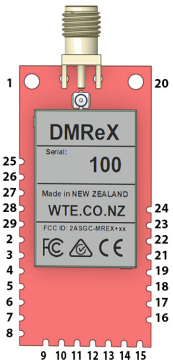
Features:

- Frequency Bands:
  Transmit: 137–174 MHz, 860–870 MHz, 902–928 MHz
  Receive: 137–174 MHz, 420–480 MHz, 860–870 MHz, 902–928 MHz
- Data Rates: 512 baud to 128k baud, including frequency hopping
- High stability 0.5ppm reference oscillator.
- Output power up 100mW.
- High sensitivity receiver (-131dBm at 512 baud).
- Protocols Supported:
  - POCSAG (512, 1200, 2400 baud)
  - DMR Tier I, II, III and P25 (it does it all)
  - WTE WT/RAW protocols for serial data links
- Military-grade AES-128 / AES-256 encryption with secure key management and time-stamped duplicate rejection for enhanced RF security.
- Sends and receives 512, 1200baud POCSAG paging messages.
- Store & Forward Operation: Configurable repeater functionality with duplicate reject function for poor coverage areas.
- Supports transparent wireless point-to-point serial communication for replacing physical links
- Periodic and triggered messaging support
- Configured inputs can be programmed to send POCSAG and DMR messages simultaneously when triggered.
- Configured outputs can be controlled via paging message.
- Periodic message support to ensure link integrity.
- Operation through external power supply (5-9Vdc) or 3V battery pack.
- Autonomous operation without the need for any host processor.
- Compliant as mobile and base station transceiver meaning that the user can select a suitable antenna for best performance.
- Wide range of approved channel spacings of from 6.25kHz to 500kHz depending on selected frequencies.
- Battery warning message and programmable input message support

DMR Messaging Support

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

DMReX Pinout



Pin Number	Description
1 & 2	GND
3	Input/Output – Digital 5
4	Input/Output – Digital 4
5	Input/Output – Digital 3
6	Input/Output – Digital 2
7	Input/Output – Digital 1
8	Output – Digital 1 (open drain)
9	TX Serial TTL (out 3.3V)
10	RX Serial TTL (in 3.3V)
11	GND
12	Power IN + (5-9Vdc, 150mA)
13 & 14	GND
15	LED 2. (open drain). Red Transmit.
16	LED 1. (open drain). Green Status.
17	GND
18	Power IN + Battery (3V)
19 & 20	GND
21 - 29	Reserved-Future GPIO expansion

Customisation

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

DMReX

Specifications:

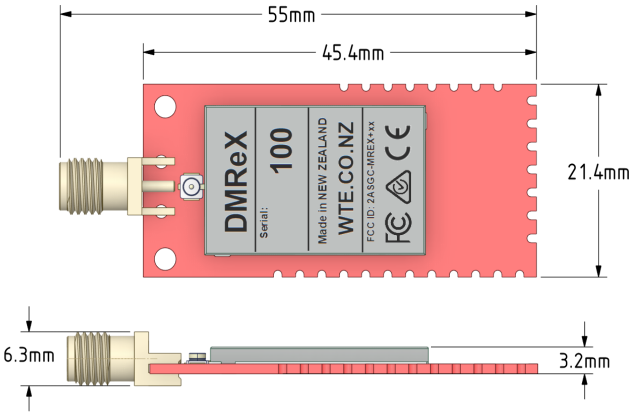
Frequency Range Receiver:137-174MHz, 420-480MHz, 860-928MHz
..... Transmitter: 142-174MHz, 860-870 MHz, 902-928MHz
Tx Power ..... Up to 100mW (+20dBm)
Receiver Sensitivity ..... 512 BAUD -131 dBm
1200 BAUD -127 dBm
Maximum RX Input Power .....13 dBm
Tx/Rx Frequency Accuracy 0.5ppm

External supply voltage ..... Nominal 5V. Min 4. Max 9V.
OR Battery .....3V.
Operating Current:
Receiving: 11mA
Transmitting: 100mA
Standby: .....<300nA in transmit only standby

Digital Inputs 5
Analog Inputs (optional) .....5(0-3V)
Digital Outputs ..... 5 (1 Open Drain)
Indicator Outputs ..... 2 Open Drain; TX and status
Interfaces .....Serial TTL (3V) 9600:8-N-1 baud
Antenna Connector ..... SMA female u.FL male

Mechanical:

Weight: ..... 10 Grams
Mounting: .....SMD or Through-hole



Environmental

Operating Temperature ..... -20 to +70 ºC
Humidity ..... Maximum 95% non-condensing

DMR Support:

Encode ..... Partial ETSI TS 102 361-1 (Tier 1 direct mode).
Short Message Type, unconfirmed.
Max Message Length 50 characters.
Decode ..... Short Message Type

POCSAG Support:

Encode and Decode BAUD RATES 512, 1200, 2400, 4800bps, 9600bps
Supported modes .....Alphanumeric and numeric, singular or batched
for 25KHz, 12.5KHz and 6.25KHz channel spacing
Adjustable preamble from 64 to 5000 bit

Modulations Support:

500KHZ CHANNEL WIDTH ..... 128K (GFSK)
200KHZ CHANNEL WIDTH ..... 64K (GFSK)
50KHZ CHANNEL WIDTH ..... 16K (GFSK)
25KHZ CHANNEL WIDTH ..... 1200 (FSK), 4800 (GFSK), 9600 (RRC)
12.5KHZ CHANNEL WIDTH .....512 BAUD (FSK), 1200 (FSK), 4800 (GFSK)
6.25KHZ CHANNEL WIDTH 4800 (4GFSK)

Regulatory Compliance

FCC .....FCC Part 90.217
EN ..... VHF EN 300 224
EN ..... UHF EN 300 220
EN ..... EN 50385
AS/NZ..... AS/NZ 4769.1:2000
EMC..... EN 301 489
SAFETY ..... EN 62368
RoHS (Restriction of Hazardous Substances)..... Compliant
WEEE (Waste Electrical and Electronic Equipment) ..... Compliant[1]
FCC ID .....2ASGC-MREX+XX

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

For latest information and specifications please visit wte.co.nz

Contact your local WTE authorized distribution partner for more information

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