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TG-RouterE-PM-01-100

Router-E Wireless Router PRODUCT MANUAL



Telegesis

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1. Introduction

The Router-E wireless mesh networking router consists of a Telegesis ETRX2 module on a carrier board together with power supply circuitry. It is ideally suited if an existing network of ETRX2's needs to be extended in order to bridge a greater distance between nodes and to form a more reliable mesh network by extending the routing backbone.

The on-board SIF interface also allows the ETRX2AP to be used as a platform for firmware development and debugging.

The Router-E also supports the use of Ember's EZSP (Ember ZigBee® Serial Protocol) instead of the Telegesis AT Command interface software.

1.1. Installation Requirements

- 5V-7V Power Supply (supplied separately)
- Mains Socket

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2. Absolute Maximum Ratings

Parameter	Min.	Max.	Units	Condition
Supply Voltage Vdd	-0.3	20 ¹	V	
Storage Temperature range	-40	85	°C	

Table 1: Absolute Maximum Ratings

The absolute maximum ratings given above should under no circumstances be violated. Exceeding one or more of the limiting values may cause permanent damage to the device.

3. Operating Conditions

Typical values at 25°C.

Parameter	Min.	Typ.	Max.	Units	Condition
Supply Voltage, Vdd	4.5	5	7	V	
Supply Current		36		mA	TX +3dBm
Router-E		36		mA	RX
Supply Current		110		mA	TX +17dBm
Router-E-PA		36		mA	RX
Operating ambient temperature range	0	25	70	°C	

Table 2: Operating Conditions

For radio features please refer to the ETRX2 and ETRX2-PA product manuals.

Dimensions: 114mm x 74mm x 25mm

Weight: TBA

¹ Thermal shutdown may occur when exceeding the operating conditions. The unit will become operational again after allowing it to cool down.

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4. Device Installation and Operation

In order to install the device connect the Router-E to a suitable power supply with the positive supply in the centre of the plug.

The embedded ETRX2 is in factory default state therefore it will join the first best network which allows joining. This network can then be used to configure the Router-E over the air as required by the individual application.

For most applications the default settings will be sufficient and the router can be deployed straight out of the box with no additional configuration.

Firmware changes and upgrades

The firmware which is loaded onto the integrated ETRX2 Module can be upgraded over the air or via the serial port, which is accessible using PCB pads after removing the cover.

Please note that level conversion circuitry is required in order to connect the Router-E to a PC's serial Port.

In addition to this, access to the SIF programming interface is possible by removing the cover of the Router-E. You can also use this interface for custom firmware development and real time debugging of your custom firmware.

Finally with the event of EmberZNet3.x it is now possible to download the Ember EZSP (Ember ZigBee® Serial Protocol) as described in section 6 of the EM260 manual to the Router-E. In case you require an Router-E with pre-loaded EZSP firmware please contact zigbeesupport@telegesis.com.

6. Schematics

The schematic of the Router-E is shown on the next page for reference.

It is identical to the schematic of the ETRX2AP, with the only exception that IC3 is not mounted.

LED1 and the beeper are future options, which are not fitted either. The serial port including the handshaking lines as well as the reset and A/D2 lines can be accessed via labelled pads.

X2 is the SIF connector, which allows programming and custom firmware development and real time debugging in conjunction with the Ember InSight Adaptors and the accompanying development toolchain.

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7. Ordering Information

Ordering/Product Code	Description
Router-E	Router based on standard ETRX2 Integrated 2.4GHz Antenna
Router-E-PA	Router based on ETRX2-PA Integrated 2.4GHz Antenna
ETRX2DVKP	Development Kit with: 1 x ETRX2HW Module with Board to Board Connector 1 x ETRX2DV Development Board 2 x ETRX2 Modules soldered to 2 x ETRX2MCB Module Carrier Boards 2 x AA Battery Holders with Leads & Connector Plugs 1 x USB Cable
ETRX2DVKA	Ember Development Kit with: 1 x ETRX2HW Module with Board to Board Connector 1 x ETRX2DV Development Board 1 x ETRX2 Module 1 x USB Cable
ETRX2	Telegesis Wireless Mesh Networking Module with Ember ZigBee® Technology: - Telegesis AT Style Command Interpreter and - Ember's EmberZNet2.x stack - Integrated 2.4GHz Antenna

Notes:

- Customers' PO's must state the Ordering/Product Code.
- There is no "blank" version of the ETRX2 Module available. All Modules carry both the EmberNet Stack and the Telegesis AT style Command Layer. Where customers wish to program custom firmware they can simply overwrite the existing firmware
- Please contact Telegesis if you require additional AT style commands or specific integration assistance.

Table 11. Ordering Information

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11. References

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Ember - www.ember.com

Lantronix - www.lantronix.com