

Telegesis (UK) Limited		ETRX2 Pinout and Layout	1
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1. ETRX2 Pinout

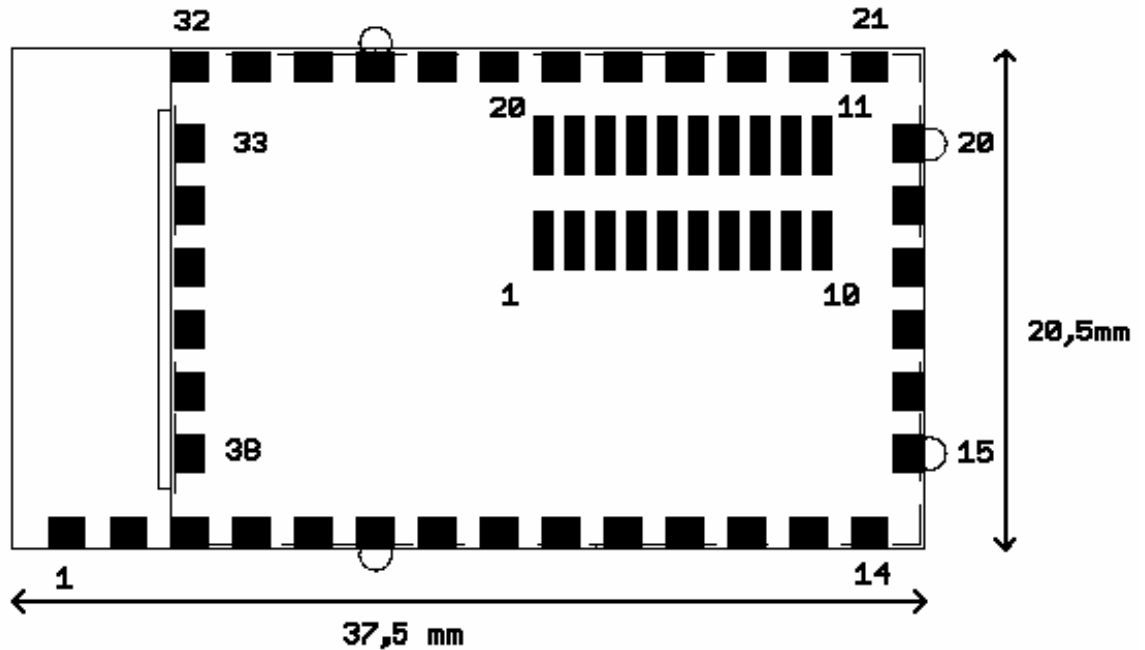


Figure 1: Pinout of the ETRX2

The pinout of the ETRX2 has been designed to be backwards compatible to the ETRX1, so an ETRX2 will fit onto a board designed to carry the ETRX1 and the ETRX1 can also be fitted onto a board designed to carry the ETRX2.

The ETRX2 has additional pins which offer new functionality as displayed in table 1. It is recommended that you use the layout shown below for the ETRX2 for all new designs as this can support both ETRX1 and ETRX2 and also allows connectivity to the additional pins when using the ETRX2.

Note: Are you using hardware handshaking on the module's serial port? We have moved the CTS input from I/O3 on the ETRX1 to I/O2 on the ETRX2. Unfortunately this could not be avoided as the handshaking is generated in software on the ETRX1, and generated in hardware on the ETRX2 and therefore collided with the optional PWM output which is also on I/O3.

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ETRX2 Pad Nr	ETRX1 Pad Nr.	Function	ETRX1 Harwin Pin	ETRX2 Harwin Pin
1		GND		
2		RF		
3		GND		
4		I/O9		1
5		Vreg		2
6	1	GND	1	3
7	2	Vcc	8	10
8	3	GND	1	3
9	4	A/D1	2	4
10	5	A/D2	3	5
11	6	I/O7	4	6
12	7	I/O6	5	7
13	8	I/O5	6	8
14	9	I/O4 (RTS)	7	9
15		GND		
16		SIF CLK		
17		SIF MISO		
18		SIF MOSI		
19		SIF LOADB		
20		GND		
21	10	I/O8	9	11
22	11	I/O2 (CTS)	10	12
23	12	I/O3	11	13
24	13	Reset	12	14
25	14	I/O1	13	15
26	15	I/O0	14	16
27	16	TXD	16	18
28	17	RXD	15	17
29	18	GND	1	3
30		I/O10		19
31		I/O11		20
32		GND		
33		RXTXSW		
34		GND		
35		GND		
36		GND		
37		GND		
38		N/C		

Table 1: Pinout of the ETRX2

If we compare the pin-out of the ETRX2 with the ETRX1 it firstly becomes obvious that there are additional ground pins for improved RF grounding. Secondly pads 16-19 at the backside of the module connect to the SIF interface of the EM250 Single Chip ZigBee™ solution. The SIF interface can be used to program the EM250. Upgrading the firmware of the ETRX2 will also be possible via the serial bootloader or over the air in the same way as it is done on the ETRX1.

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There are 4 additional I/Os and the Vreg pin can be used to draw or supply regulated power from/to the ETRX2. Please refer to the product manual for more information on this pin.

There are three versions of ETRX2, the RF output connected to either the on board antenna, the Hirose U.FL coaxial connector or to pad 2. Please refer to the product manual for individual part numbers. Finally the RXTXSW pin allows you to drive an external RX/TX switch in case an external PA is used.

2. Dimensions

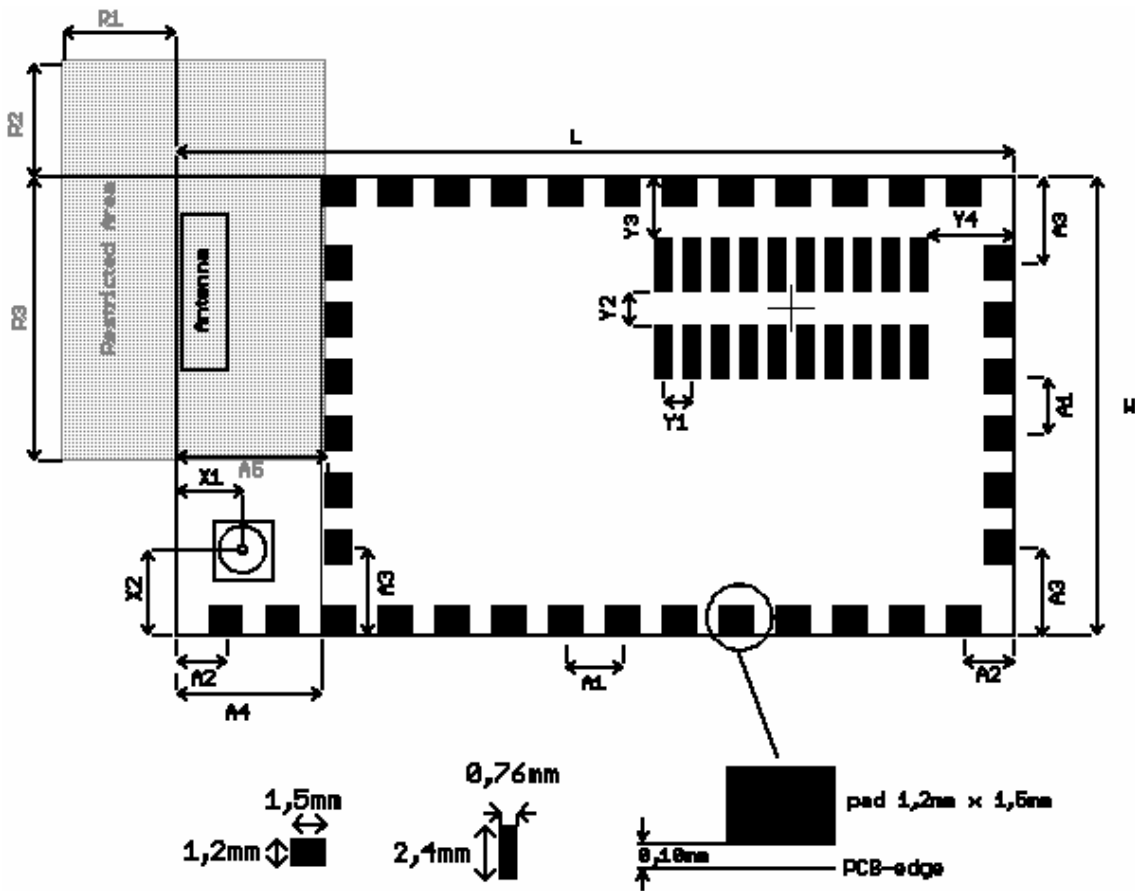


Figure 2: Dimensions

Symbol	Explanation	Distance
L	Length of the module	37.5 mm
W	Width of the module	20.5 mm
A1	Pitch	2.54 mm
A2	Distance centre of pad PCB edge	2.24 mm
A3	Distance centre of pad PCB edge	3.9 mm
A4	Distance PCB edge metal can	6.5mm
A5	Distance PCB edge start of pad	6.7mm
R1	Keepout Zone from corner of PCB	5mm
R2	Keepout Zone from corner of PCB	5mm
R3	Width of Keepout Zone adjacent to PCB	12.7mm
X1	Distance centre of antenna connector PCB edge	3mm
X2	Distance centre of antenna connector PCB edge	3.8mm
Y1	Pitch	1.27mm
Y2	Distance between rows of pads	1.5mm
Y3	Distance between edge of PCB and pad	2.75mm
Y4	Distance between edge of PCB and pad	3.8mm

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3. Recommended Footprint

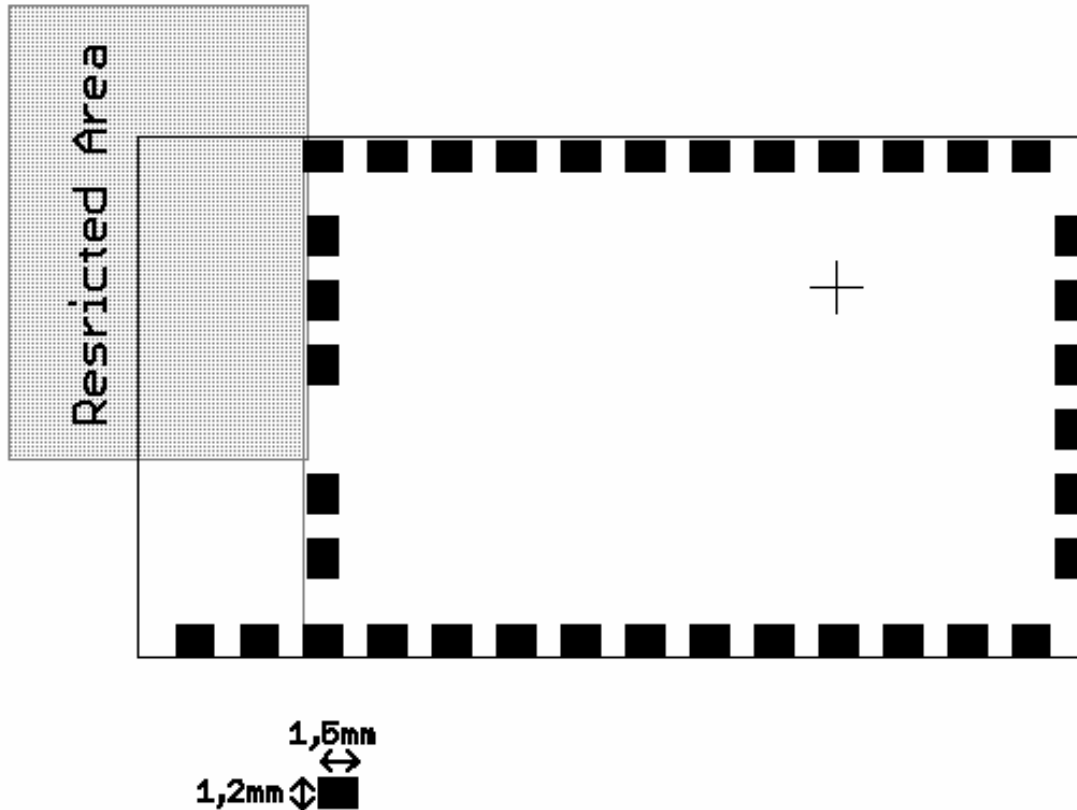


Figure 3: Recommended Footprint

The land pattern dimensions above can serve as guidance, but this information is given without any legal responsibility.

Note: There should be no copper tracks or planes in the restricted area and you must ensure that there are no exposed vias, tracks or copper planes underneath the footprint of the Harwin connector (shown in figure 2). Ideally the siting of vias, tracks or copper planes should be avoided underneath the ETRX2 to reduce the risk of short circuits. The ETRX2 multilayer pcb contains an inner rf shielding plane, therefore no pcb shielding plane is needed below the module.

When prototyping and where hand soldering may be required it is recommended that you extend the width of the pads from 1.2mm to 2mm, so that solder can be applied using a standard soldering iron. We recommend that you use of the same pad dimensions for the solder paste screen as you use for the copper pads. Variations in the sizes and shapes of the solder paste screen cut-outs may vary depending on your soldering process, for example with solder paste screen thickness. The solder screen thickness depends on your production standard, we recommend 120µm to 150µm.