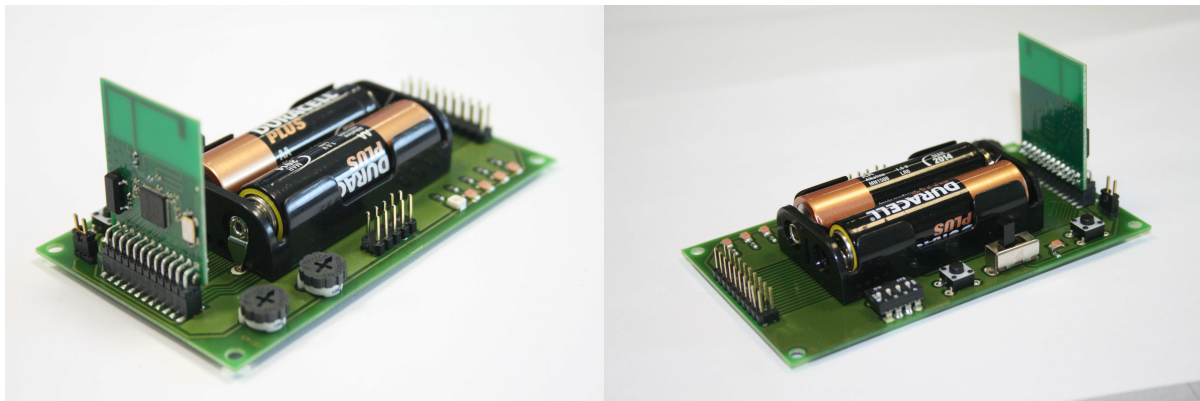


XTR-ZB1 ROUTER DEMO BOARD Use guide



Description

XTR-ZB1 ROUTER DEMO BOARD is available to exercise the AUREL XTR-ZB1 radio modules in their Router/End Device versions.

It provides supply voltage to the radio module, while giving the possibility to verify usability and potential performance of AUREL developed ZigBee system.

XTR-ZB1 radio modules are provided, at connector, of 13 I/O's (digital inputs and outputs, analog inputs, interrupt line), usable via radio commands from Coordinator, with no need of further "intelligence" on the remote node.

On Demo Board, Led's, dip switches, trimmers and push buttons are installed to immediately set or read the module interface lines. Please see following instructions.

Two connectors are available to connect Demo Board to external world.

Start Up Procedure

Two AA type batteries should be set in the battery holder, while shorting up the XTR-ZB1 module Supply 2 pins Jumper (useful for supply current measurements).

Insert XTR-ZB1 radio module into Demo Board socket, assuring that component side of module is looking OUT of Demo Board itself (see pictures at Pag.1).

Two positions switch can be used to turn radio module on and off. When supply voltage is applied to XTR-ZB1 radio module, the red Led will be on.

Technical characteristics could change without prior notice. AUREL S.p.A assumes no liability for damages coming from usage of equipment

Demo Board description and their use

With reference to following Figure 1, on Demo Board, following components can be found:

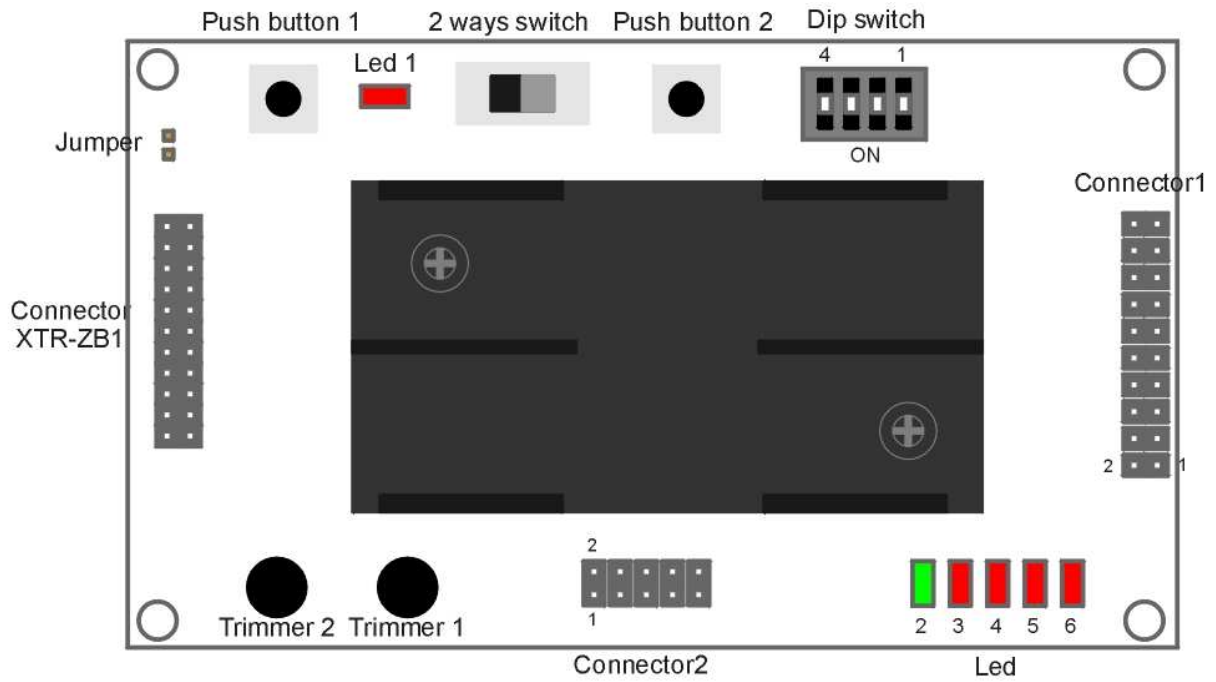


Figure 1

CONNECTOR 1

All XTR-ZB1 module I/O's, plus Supply voltage and GND of Demo Board, are connected to pins of this connector according to following table:

Pin		Description
1	Vcc	Connection to battery
2	Vcc	Connection to battery
3	ADC 1	Radio Module ADC Input
4	Input R.	Hardware reset for radio module (active when Low). This line is normally Up (input pull up) and, when forced Low, a reset is forced, simulating a complete loss of Supply voltage (see note 1)
5	ADC 2	Radio module ADC Input
6	ADC 3	Radio module ADC Input
7	OUT 1	Radio module digital Output
8	ADC 4	Radio module ADC Input
9	OUT 2	Radio module digital Output
10	OUT R.	Radio module digital Output, used to indicate that module is in operation (see note 2)
11	OUT 4	Radio module digital Output
12	OUT 3	Radio module digital Output
13	IN 2	Radio module digital Input (pull up)
14	IN 1	Radio module digital Input (pull up)
15	PWD	End Device module Power Saving control pin. Normally Up. When pin is forced Low, ED module switches from Power Down status to Active status (see note 3)
16	IN 3	Radio module digital Input (pull up)
17	Reset	HALF and FULL Reset of radio module. Normally Up (input pull up). When forced Low, a Reset is performed (see note 4)
18	Interrupt	Radio module Interrupt. Normally Up (input pull up). When forced Low, an Interrupt is generated, forcing radio module to generate a message to Coordinator
19	GND	Connected to GND
20	GND	Connected to GND

NOTE 1: After Hardware Reset, the module maintains the non volatile parameters. If radio module was already included in a net, it will continue to be part of it, with same Short Address, as assigned prior of Reset

NOTE 2: Line is Up if module is fully operational and associated to a net. Line is Low at device start up, after Supply is applied and while the module is trying to associate itself to a net.

NOTE 3: PWD line is not used in Router devices

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PWD line should be used for End Devices, as these types of nodes will be mostly in power down status. When a serial command should be sent to ED, this should be activated, setting the PWD line at Low. With procedure terminated, device should be set again in power down, rising up again the PWD line.

NOTE 4: On router version of XTR-ZB1, if line is kept Low for LESS than 1 second, an HALF reset is performed, while, if line is kept Low for MORE than 3 seconds, a FULL reset is performed.

For ED module version, an HALF RESET is performed, for any length of time of line activation to Low.

FULL RESET: all non volatile parameters of module will be erased. The module will therefore try to associate to any present net.

HALF RESET: All net parameters, except associated net PAN ID (if module was part of a net), are erased. The module, then, will try to associate again with the same net it was previously part of (same PAN ID).

CONNECTOR 2

To this element, following lines are connected: four serial interface lines (TX, RX, CTS e RTS), End Device Power Saving deactivation line, plus Supply voltage and GND of Demo Board, according to following table:

Pin		Description
1	GND	Connection to battery
2	GND	Connection to battery
3	PWD	End Device Power Saving deactivation line. Normally Up. When forced Low, ED goes from Power Down to active status (see note 3).
4	TX	Serial Data Output
5	NC	Not connected
6	RX	Serial Data input
7	RTS	Request to Send
8	CTS	Clear to Send
9	Vcc	Connected to GND
10	Vcc	Connected to GND

XTR-ZB1 module working parameters are:

Baud rate = 38400 bps

Data Bits = 8

Parity = None

Stop Bit = 1

LED's

Led 1: Radio module Supply indicator. On when module is under power.

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Led 2: Connected to module OUT R. line and available to give info on module operation. Led will be On when module operational and connected to a net. Led will be Off during device start up after power on and when module is searching for association to a net.

Led 3: connected to OUT1 output. On when exit line is Low

Led 4: connected to OUT2 output. On when exit line is Low

Led 5: connected to OUT3 output. On when exit line is Low

Led 6: connected to OUT4 output. On when exit line is Low

DIP SWITCH

Dip switch 1: connected IN1 input (input pull up). On when input line is to GND.

Dip switch 2: connected IN2 input (input pull up). On when input line is to GND.

Dip switch 3: connected IN3 input (input pull up). On when input line is to GND.

TRIMMERS

Trimmer 1: connected to radio module ADC1 line and used to supply variable voltage to the line.

Trimmer 2: connected to radio module ADC2 line and used to supply variable voltage to the line.

PUSH BUTTON 1 (Reset)

Connected to radio module Reset line and available to force HALF e FULL Reset (see module pin out table for details).
On router module version of XTR-ZB1, if push button 1 is kept pressed for LESS than 1 second, an HALF Reset is performed, while, if kept pressed for MORE than 3 seconds, a FULL Reset is performed.
For ED module version, an HALF RESET is performed, for any length of time of pressure on push button 1.

PUSH BUTTON 2 (Interrupt)

Connected to radio module INTERRUPT line. An interrupt will be forced to XTR ZB1 when push button is pressed: the radio module, therefore, will send a message to the net coordinator via radio.