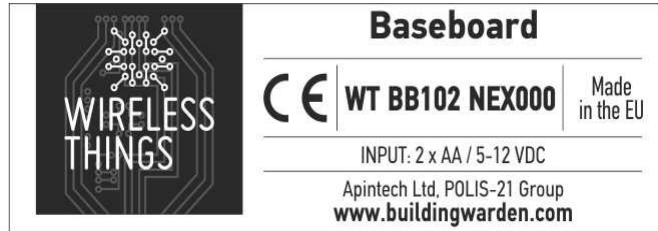


# Baseboard



## Description

The Baseboard module allows the connection of WT extension boards and/or a range of external sensors that produce an output of the following types:

- Digital (pulse)
- Analog (volt, mA)
- UART

The module samples the sensors and transmits the data to the network gateway connected to a PC, on which the management software is running and then to the internet WT dashboard application. If the distance between the module and the gateway is big, the module will automatically seek other, closer modules to send its data. If they are not available, in between relaying modules will be necessary.

## Features

The module includes a 802.15.4 transceiver on 868MHz and a Msp430 microprocessor. The microprocessor runs a firmware for sensor data sampling, data routing as well as control operations. The module configuration options (e.g. sampling frequency) are done from the management software and transferred wirelessly to the module. The firmware of the module can be updated either through a USB connection or Over-The-Air (AirFlash).

The module may be combined with any standard WT extension board and/or external sensors. Both on board and external sensors can be combined and data can be all transmitted via the same wireless transceiver. The module can work on batteries (depending on the external sensors/extension board connected) or with external power supply. The exact pin connectivity for the external sensors is shown below (see Connections).

Specifications

<b>Name of the Product</b>	Baseboard
<b>Brief Description</b>	Wireless device for external sensors measurement
<b>Rated Supply voltage (V, Hz, A)</b>	2xAA/9V Battery OR external power supply 5-12VDC, 500mA
<b>Weight</b>	12gr (without batteries or extension board)
<b>Size (H x L x W)</b>	31mm X 113.82mm X 63.32mm
<b>Connections</b>	VDB, GND, 4xAIN, 3xAUX, 3xDIO
<b>Data transmission distance</b>	500m (open air) – up to 20m (within buildings)
<b>Standards</b>	LVD EN 50491-3 & EMC/ RTTE (ETSI 301 489-3, ETSI 301 481-1, EN 50491-5-2)
<b>Operating Temperature</b>	+/- 40 Celsius
<b>Operating Humidity</b>	10- 90%
<b>Enclosure</b>	plastic available in three colors; transparent blue, gray, black

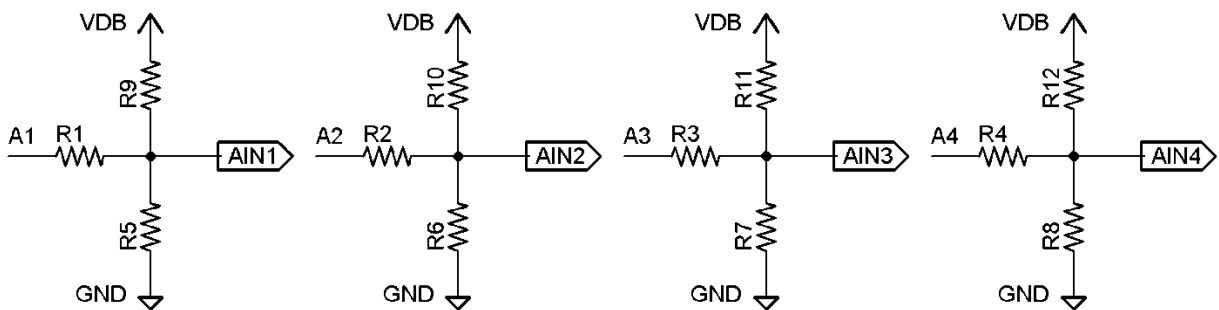
Connections

a. Extension Board: connection of standard WT extension boards

b. External Sensors: pins for the connection of external sensors are as follows

- GND: connection to GROUND
- A1, A2, A3, A4: analog inputs (with custom resistor dividers) [1]
- XS: configurable connection (see Jumpers Configuration)
- X2, X3: direct connection to the extension board
- D1: Digital I/O – UART Rx
- D2: Digital I/O – UART Tx
- D3: Digital I/O
- VDB: Voltage output [2]

[1]: Each analog input pass through a resistor divider network depending on the needs of the sensor connected. The resistors should be defined by the user and are not included on the board.



## Baseboard-Product datasheet

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[2]: When 2xAA batteries are installed (2xAA variant), voltage output is connected directly to the batteries providing a voltage that depends on the state of charge of the batteries (2.5-3V). When a 9V battery is installed (9V variant) or external power supply is connected, voltage output is provided through the on-board regulator (3.3V, max 150mA).

External power supply must be 5-12VDC, min 500mA with 2.1mm diameter pin.

## Variants

Two variants of the module are available according to the type of batteries that can be installed: 2xAA or 9V.

**2xAA variant:** The module accepts 2xAA batteries. The voltage of the batteries is provided to the VDB pin of the external connector.

**9V variant:** The module accepts a 9V battery. The voltage of the battery is provided to the XS pin of the external connector (see Jumpers Configuration).

Both variants can be connected to an external power supply. The selection of batteries or power supply depends on the nature of the extension boards and external sensors. The data sheets of the extension boards provide information on this point.

Batteries will last several months; their lifetime is affected by the sampling frequency and the nature of the extension board or external sensor.

## Jumpers Configuration

On-board jumpers configure various aspects of connections and voltage provided.

**JA6 on:** firmware controls external power supply/9V connection to XS pin of external connector (when **JXS12 on**) and/or to extension board (when **JVX on**)

**JSI on:** external power supply/9V directly connected to XS pin of external connector (when **JXS12 on**) and/or to extension board (when **JVX on**)

**JXS12 on:** connects external power supply/9V to XS pin of external connector (when **JSI on** OR when **JA6 on** through firmware control)

**JXS23 on:** XS pin of external connector is connected directly to the extension board

**JVX on:** connects external power supply/9V to extension board (when **JSI on** OR when **JA6 on** through firmware control)

**JA7 on:** allows firmware to measure the voltage level of external power supply/9V (when **JSI on** OR when **JA6 on** through firmware control)

Coding

Baseboard modules are coded as **WT BBxxx yyyzzz**

where:

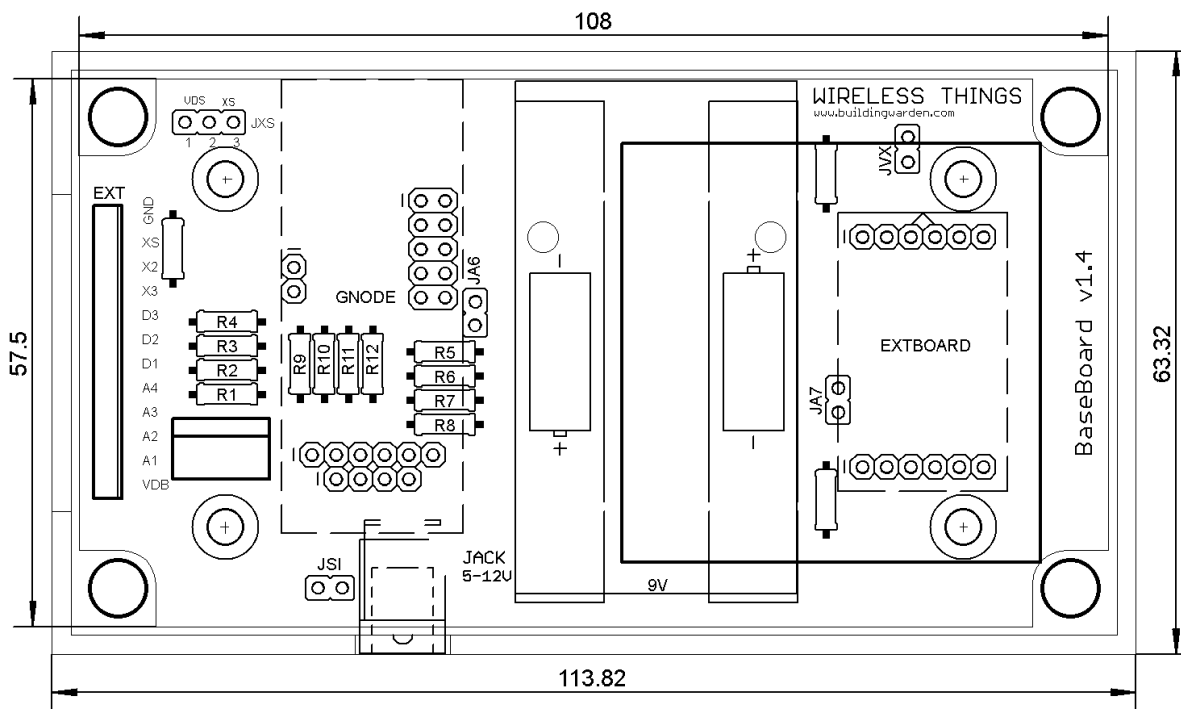
xxx = version of BaseBoard

yyy = type of extension board installed or NEX (no extension board)

zzz = version of extension board or 000 (no extension board)

See relevant extension board datasheet for more information.

Layout



Dimensions in mm.