

## **Zigbee Pro Module Operational description**

The Zigbee module is a daughter board module which is installed onto a Viconics thermostat to provide a Zigbee communicating network. This network is a 2.4GHz ISM band RF signal to provide the thermostat(s) a means of communicating to a BAS (Building Automation System) and also provide communication of various data between thermostats.

Below is a small description of the various blocks within the Zigbee Module.

### **1. SPI Communication interface**

The SPI communications interface is used to provide data exchange between the thermostat and the Zigbee module. This SPI interface is a bi-directional interface which provide all required information from the thermostat to be transmitted via RF to other thermostats or systems.

### **2. Antenna**

The antenna is design for a 2.4GHz RF signal to be transmitted and received to and from other thermostats or systems.

### **3. CPU & RF Transceiver**

This sections contains the STM32W108 SoC device with it's supporting electronic components. The crystal used for the CPU is 24MHz. The MCU and the transceiver are on the same chip. The CPU communicates via the SPI interface to and from the thermostat (see SPI Communications Interface above). Power fro the SoC is received from a 3.3 LDO regulator within the power supply block.

### **4. Power Supply**

The input to the regulator is approximately 6.2Vdc provided by the thermostat power supply. The output of the power supply block basically consists of the 3.3V LDO regulator which is used to power the circuits and the Soc (MCU and Transceiver).