



Document: Operational Description

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Product: XW-110/XW-111 wireless temperature and status alerting device

FCC ID: 2AE4Z-XWD001



1.1 Introduction

The XW110/XW111 is a wireless sensor device manufactured by Xytronix Research & Design Inc. The sensor employs a single chip CC3200 wireless device manufactured by Texas Instruments. The CC3200 is an ARM Cortex M4 micro controller together with an on-chip 802.11bgn Wi-Fi Network Processor. The ARM Cortex M4 micro controller is available for application development and therefore allows a single chip embedded Wi-Fi solution.

The ARM Cortex M4 executes application code which makes sensor measurements and processes data. The M4 processor issues high level commands and associated data to the on-chip 802.11bgn Wi-Fi Network processor. The on-chip 802.11bgn Wi-Fi Network processor will then translate the commands and data into the associated 802.11bgn Wi-Fi protocol and transmit them using an on board antenna. The on board antenna is an integral chip antenna with nominal directional gain of 1.9 dBi. The user cannot change or remove the on board antenna.

The XW110/XW111 is powered from either two internal AA batteries or an optional 5-volt wall transformer. If the wall adapter is connected, no power is drawn from the batteries. If the external power fails the module automatically switches to the internal batteries. A three position terminal strip is provided for the user to connect a temperature sensor or up to two switch closure sensors. No other cables or interfaces are used.

The XW110/XW111 supports an internal web server which allows users to customize operation of the XW110/XW111. Users can select the measurement data rate, access port and other parameters. Users cannot change the application code stored in the on board flash memory or change or alter commands to the on-chip 802.11bgn Wi-Fi Network processor.

To facilitate provisioning, two user accessible push-button switches allow the end user to active either the access-point mode or the WPS mode.

The XW110/XW111 is available in two versions. The XW-110 makes temperature measurements, the XW-111 monitors two switch closure (alarm) inputs. The same printed circuit board, schematics and design are used for both applications. During manufacturing several components are selectively populated to configure the connector for one of the two sensor modes. The CC3200, its power supply and the PCB mounted antenna are identical in all aspects for both versions.