Inventek Systems

Embedded Serial-to-Wi-Fi

PSOC EVB Demo Software

ISM4319-M3X Product Specification

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1 GENERAL DESCRIPTION

The Inventek ISM4319-M3x-L44 is an embedded wireless Internet Connectivity device. The Wi-Fi module hardware consists of a host processor, integrated antenna and Broadcom Wi-Fi device all connected. The module provides SPI and UART interfaces enabling connection to an embedded design. The Wi-Fi module requires no operating system and has a complete integrated TCP/IP Stack that only requires a simple AT command set to establish connectivity for your wireless product, minimizing development time, testing routines and certification.

PSoC 3 PSoC 5 Function:

The Psoc will control all Wi-Fi functions through the use of the AT command set. The PSOC will make a UART connection that can be configured from 115K- 2 M baud (Default is 115.2K baud). The PSOC will start the Access Point and wait for a PC program to join it's network via a Direct connection. The PSOC will sample and package all four sensor readings into a small string that can be sent to the PC via Wi-Fi and the 2x 16 character Display. The PSOC will also be available to receive information from the PC turning sensors display will be indicated as on or off and active data will not be sent over Wi-Fi.

Here is a high level overview of what the PSoC application will do:

- Configurable the Host interface: UART from 115K baud – 2 M Baud rate
- Interrupt driven UART with buffer (FIFO)
- Configure the PSOC to Read the Cypress Precision Sensor Board Network (CY8CKIT-025)
- Write an application to :
    - Read RTD, Thermocouple, Thermistor and Diodes
    - Display the Temperature on Line 1 of the character display
    - Display the status of each temp sensor under it's temp (On /Off)
    - If off (do not show a temp on Line 1)
        - Start Temp
            - If TCP Message
                - Sample Temp sensor
                - Send Data to Wi-Fi and Display
                - Wait TCP Message

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2 PROTOCOL

Message from PC App to Cypress PSOC

T1ON
T1OFF
T2ON
T2OFF
T3ON
T3OFF
T4ON
T4OFF
TON (Turns all temp sensors on)
TOFF

PC Request

RT1 (Reads temp sensor 1)
RT2
RT3
RT4
RA (Reads all Temp sensors)

PSOC response to Request

T1<tempdata>
T2<tempdata>
T3<tempdata>
T4<tempdata>

3 DEMO COMMAND and PROTOCOL

- Send the following AT commands:
- Access Point Commands
  - AO (starts the es-Wifi Access Point)
  - Parse response for <OK>
- TCP Client Setup
  - P1=0
  - Parse response for <OK>
  - P4 = 5024 (Starts the server running on port 5024)
  - Parse response for <OK>
  - P3= 192.168.1.1
  - Parse response for <OK>

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- P6=1 (Starts TCP client connecting to Port 5024)
- Parse response for <OK>
- P?= Shows status
- Parse response for <OK>
- P6=0 (Stops TCP Client)
- Parse response for <OK>

- TCP Server Setup
  - P1=0
  - Parse response for <OK>
  - P2 = 5024 (Starts the server running on port 5024)
  - Parse response for <OK>
  - P5=1 (Starts TCP client listening to Port 5024)
  - Parse response for <OK>
  - P?= Shows status
  - Parse response for <OK>
  - P5= 0 (Stops Server)
  - Parse response for <OK>
- Send data over TCP
  - S1= 20 (Data packet size is 20 bytes)
  - Parse response for <OK>
  - S2 = 5000
  - Parse response for <OK>
  - S0 <cr>
  - RT1 (This will read Temp sensors 1)
- Read data over TCP
  - R1= 20 (Data packet size is 20 bytes)
  - Parse response for <OK>
  - R2 = 5000
  - Parse response for <OK>
  - R0 <cr>
  - *Response* = T1<tempdata>

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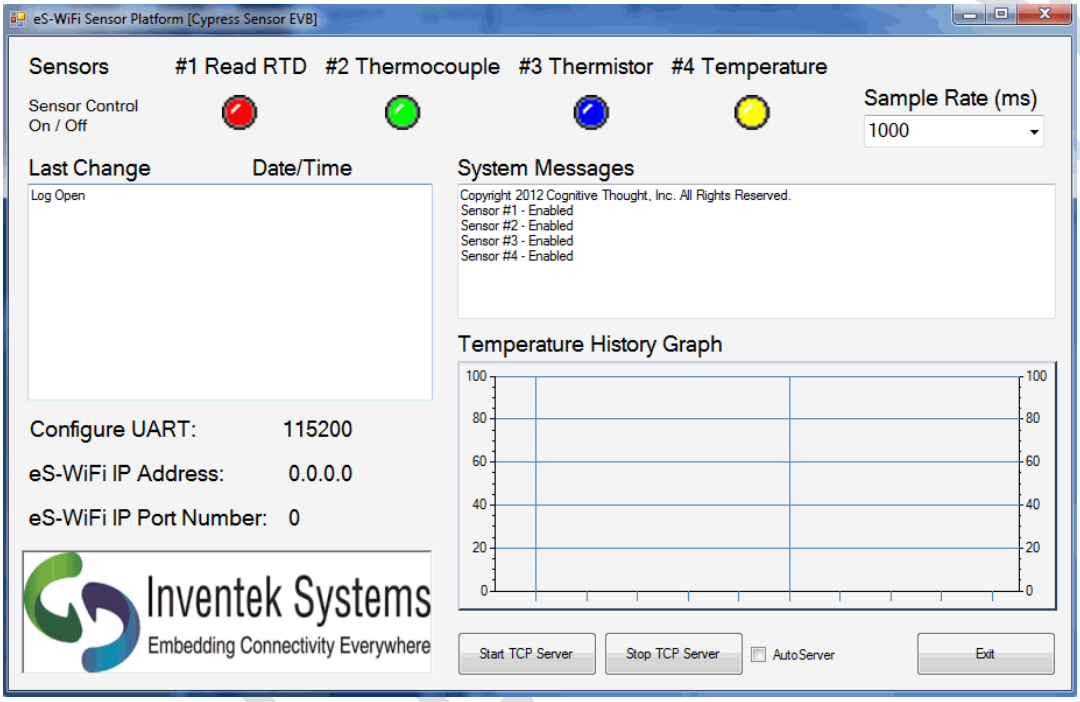
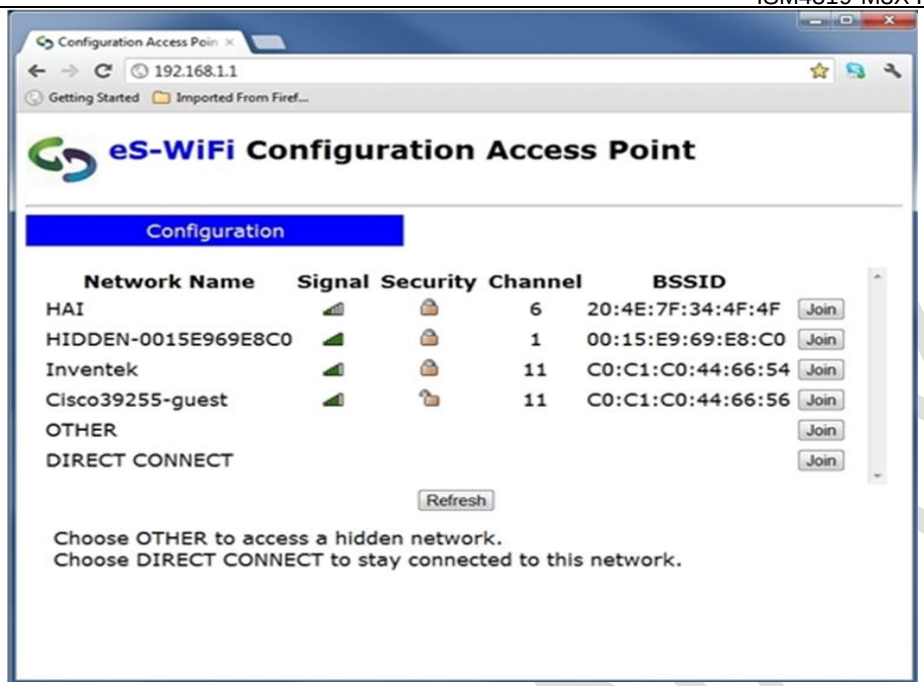
4 PSOC Wireless APPLICATION

1. Purchase the Cypress PSOC development ki with temperature sensorst, the Inventek interposer board with es-Wifi on board

2. Download the Inventek eS-WiFi Sensor application form the Inventek Web site at http://www.inventeksys.com/wp-content/uploads/2013/02/es-WiFi_App.zip, run on your PC.



3. After the PSOC has been flashed and programmed with the PSOC software found on the Inventek website at :



5 REVISION CONTROL

Document : PSCO EVB Wi-Fi	Wi-Fi module
External Release	DOC-DS-20023

Date	Author	Revision	Comment
10/5/12	FMT	1.0	Preliminary
10/11/12	FMT	2.0	Update

6 CONTACT INFORMATION

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