



Excellence in Compliance Testing

Certification Exhibit

**FCC ID: SDBZIGMOD10
IC: 2220A-ZIGMOD10**

**FCC Rule Part: 15.247
IC Radio Standards Specification: RSS-210**

ACS Report Number: 10-0020.W06.11.A

**Manufacturer: Sensus Metering Systems, Inc.
Model: ZIGMOD10**

Manual



The Measure of the Future

Inline Zigbee Module – User Manual

[FCC ID: SDBZIGMOD10, IC: 2220A-ZIGMOD10]

Revision 2.1, 20 September, 2010

Sensus USA

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REVISION SUMMARY

Date	Author	Change Description
August 14, 2009	BG	Baseline
September 15, 2009	JAS	Corrected Label information and added label Placement
September 14, 2010	JAS	Corrected antenna gain stipulation from 2 to 0dBi.
September 20, 2010	JAS	Corrected Label Information and Front Page

1.0 Introduction

This document details the installation and usage of the “Sensus In-Line Zigbee Module”. At present the module is designed to work in the Sensus iConA and iConAS electric meters although in future it may work with other electric meter designs.

The module is designed to sit between the sensor board and the display board within the electric meter. When a Zigbee module is not installed a ribbon cable connects the sensor and display. In the case when the module is installed the module is connected between the sensor and display, to give the electric meter Zigbee functionality.

2.0 Installation of the module within an electric meter

First remove the meter outer cover.

Carefully remove the meter inner cover.

Disconnect the ribbon cable from the sensor pcb.

Insert the Zigbee board into the connector that the display ribbon has been disconnected from.

Insert the free end of the ribbon cable into the connector on the Zigbee module as shown in Figure 1.

Add the jumper (short) to position J202 on the sensor board, as shown in Figure 2.

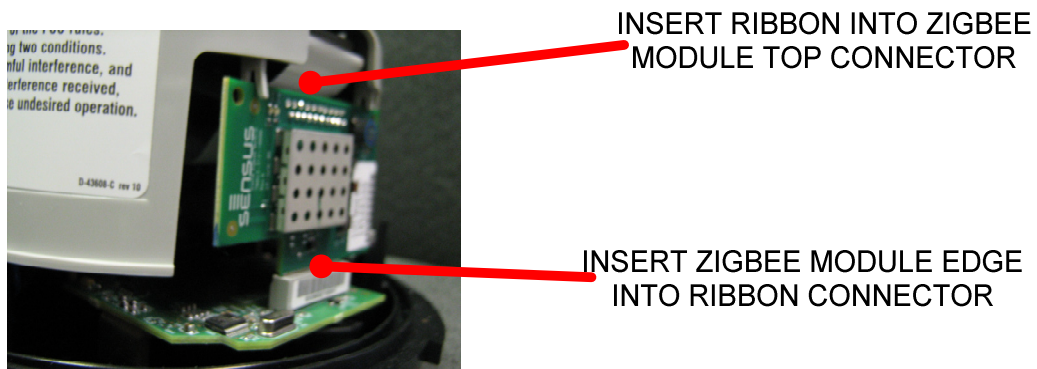
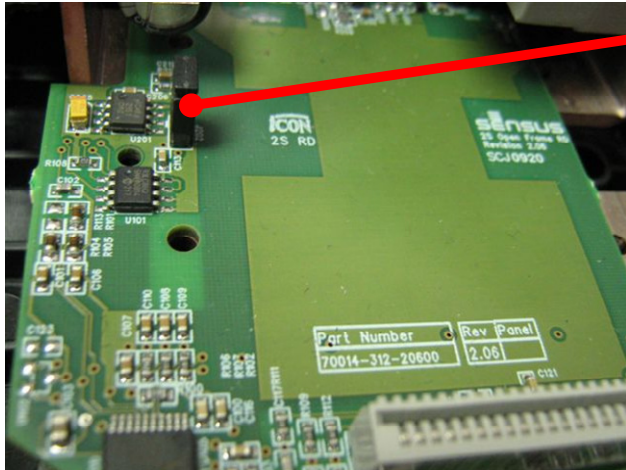


Figure 1 – Zigbee module installed in a meter



JUMPER J202

Figure 2 – Jumper must be fitted

3.0 Module pin-out description

Pin Number	Ribbon Connector	Board Edge Connector	Description
1	MAINS_SENSE	MAINS_SENSE	Pass through
2	RELAY_TRIGGER	RELAY_TRIGGER	Pass through
3	RELAY_SWITCH_SENSE	RELAY_SWITCH_SENSE	Pass through
4	GROUND	EXTRA_CS	Ribbon is grounded. Board edge is a 5V active high interrupt line to the Zigbee module.
5	GROUND	GROUND	Power (Pass through)
6	GROUND	GROUND	Power (Pass through)
7	GROUND	GROUND	Power (Pass through)
8	GROUND	GROUND	Power (Pass through)
9	26V_12S	26V_12S	26V from 12S base (pass through)
10	26V_2S	26V_2S	26V from 2S base (pass through)
11	5V0	5V0	5V supply to the sensor
12	GROUND	GROUND	Power (Pass through)
13	7759_CF	7759_CF	Sensor board
14	ZIGBEE IRQ	ZIGBEE IRQ	Zigbee module IRQ
15	SPI_DATA_OUT	SPI_DATA_OUT	Sensor SPI Data Bus

16	7759_ZX	7759_ZX	Sensory Zero Crossing Indicator
17	NOT USED	NOT USED	
18	NOT USED	NOT USED	
19	SPI_CLOCK	SPI_CLOCK	Sensor SPI Clock
20	SPI_DATA_IN	SPI_DATA_IN	Sensor SPI Data

Appendix A General Statements

Warning: Changes or modifications to this device not expressly approved by Sensus USA could void the user's authority to operate the equipment.

NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction, may cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna
- Increase the separation between the equipment and receiver
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Appendix B RF Energy Health Hazard

Please pay attention to the following warnings:



When servicing equipment and selecting a location for the In-Line ZigbeeModule, it is important to note that a minimum distance of 20 cm (7.9 inches) is required between personnel and ZigBee Antenna to comply with a radio-frequency exposure limit of $1.0\text{mW}/\text{cm}^2$.

Professional installation required. The radio equipment described in this guide uses radio frequency transmitters. Although the power level is low, the concentrated energy from a directional antenna may pose a health hazard. The ZigBee Module integrated antenna is rated at a maximum of 0dBi.

Appendix C Industry Canada Specific Statements:

The term “IC:” before the radio certification number only signifies that industry Canada technical specifications were met.

This Class B apparatus meets all the requirements of the Canadian Interference Causing Equipment Regulations. Operation is subject to the following two conditions: (1) the device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Cet appareil numérique de la classe B répond à toutes les exigences de l’interférence canadienne causant des règlements d’équipement. L’opération est sujette aux deux conditions suivantes: (1) ce dispositif peut ne pas causer l’interférences nocive, et (2) ce dispositif doit accepter n’importe quelle interférence reçue, y compris l’interférence qui peut causer l’opération peu désirée.

Appendix D Compliance Label and Placement:

The ZigBee host shall display the following label to indicate use of the ZigBee module within the unit.

Sensus Raleigh, NC 27615
 Contains Mod No. ZIGMOD10
 Contains FCC ID: SDBZIGMOD10
 IC: 2220A-ZIGMOD10

This device complies with Part 15 of the FCC Rules and Industry Canada Requirements. Operation is subject to the following two conditions; (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Sensus ZigBee Label location on Host Device.

