



2.4 GHz Communications Option Board Installation Guide



TABLE OF CONTENTS

1. OVERVIEW.....	3
1.1. Document Purpose	3
1.2. FCC Information to the User	3
1.2.1. Product Information	3
1.2.2. General Information.....	3
1.2.3. Labeling	4
1.2.4. RF Exposure.....	4
1.2.5. Co-Located Transmitters	4
1.2.6. Additional Testing	4
2. INSTALLATION.....	5
2.1. Internal Use.....	5
2.2. External use	5
2.3. Clearance	5
3. 2.4 GHZ COMMUNICATIONS OPTION BOARD DESCRIPTION.....	6
4. ELECTRONIC ASSEMBLY DESCRIPTION	6
4.1. Specifications	6
4.2. Host Connector	7
5. REVISION HISTORY	8

1. OVERVIEW

1.1. DOCUMENT PURPOSE

This document describes the requirements for installation and use of the 2.4 GHz Communications Option Board functions as required for FCC Certification.

1.2. FCC INFORMATION TO THE USER

1.2.1. Product Information

Model ZOB FCC ID G8J ZGB1 IC: 4557C ZGB1

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

1.2.2. General Information

Changes or modifications to the equipment not expressly approved by Elster could void the user's authority to operate this 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 instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does 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:

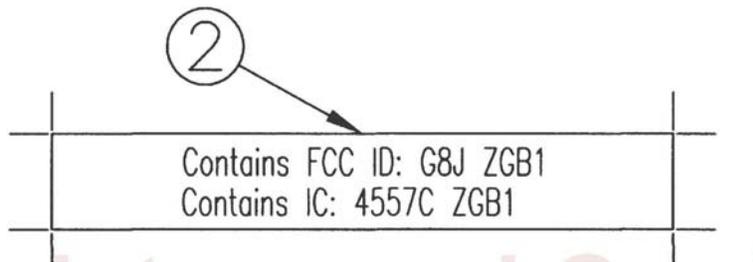
- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/ TV technician for help.

A separation distance of at least 8 inches (20 cm) is to be maintained between the antenna and the human body and must not be co-located or operated in conjunction with any other transmitter or antenna.

The Term "IC" before the certification/registration number only signifies that the Industry Canada technical specifications were met.

1.2.3. Labeling

If the FCC ID is not visible when the module is installed inside another device, then the outside of the device into which the module is installed must also display a label referring to the enclosed module. This exterior label can use wording such as the following: “Contains Transmitter Module FCC ID: G8J ZGB1” or “Contains FCC ID: G8J ZGB1.” Any similar wording that expresses the same meaning may be used. The Grantee may either provide such a label, an example of which must be included in the application for equipment authorization, or, must provide adequate instructions along with the module which explain this requirement. In the latter case, a copy of these instructions must be included in the application for equipment authorization.



1.2.4. RF Exposure

A separation distance of at least 20cm from the end user is required.

1.2.5. Co-Located Transmitters

Provisions have been provided on the Interface Connector such that this device will be disabled if another co-located transmitter is required to transmit.

This device “may not” be operated as a co-located transmitter with other transmitting devices unless certification is obtained as a new end product.

1.2.6. Additional Testing

Users incorporating this device into their product must test the complete system, with radio module installed, against the appropriate standard for the host device.

While the applicant for a device into which an authorized module is installed is not required to obtain a new authorization for the module, this does not preclude the possibility that some other form of authorization or testing may be required for the device.

2. INSTALLATION

This device is intended to be used as part of an automated utilities meter reading network and uses proprietary communications and data to communicate with another host device.

2.1. INTERNAL USE

This device was designed to fit into The Elster Electricity LLC REX2 series of utilities electric meters. Provisions in the case mechanics have been provided to accept the device as an insert-able option card. The interface connector is designed to mate directly with the main board in the electric meter. This device is installed when the electric meter is manufactured at the factory.

All additional required FCC testing and control for proper operation to meet FCC requirements as a final product have been met.

2.2. EXTERNAL USE

This device is not for sale to the general public.

Sale of this device outside of the company will be strictly controlled to ensure its compliance.

2.3. CLEARANCE

The device should be installed in a manner such that a clearance distance of 8mm will be maintained from the front and back of the device to prevent adversely affecting the antenna incorporated onto the Circuit Board.

Antenna testing in the intended host device did not show any significant deterioration in performance caused by close proximity of wiring or case mechanics. Good engineering practice dictates that the antenna be kept clear of obstacles to ensure maximum performance.



3. 2.4 GHZ COMMUNICATIONS OPTION BOARD DESCRIPTION

The 2.4 GHz Communications Option Board is part of a demand response system that communicates with home thermostats and other devices that are part of the utilities industry.

When installed into an electric utilities meter, the 2.4 GHz Communications Option Board is capable of communicating in an automated meter reading (AMR) system via the interface connector.

4. ELECTRONIC ASSEMBLY DESCRIPTION

4.1. SPECIFICATIONS

The 2.4 GHz Communications Option Board is an intentional radiator and is classified as a Part 15.247 device. The critical specifications of the 2.4 GHz Communications Option Board are listed in the following table:

Frequency Band	2405 – 2465 MHz
Classification	DSS
Maximum Output Power	0.080W (+19 dBm)
Channel Spacing	5 MHz
Channel 6 dB Bandwidth	1.5 MHz
Number of Channels	13
Modulation	O-QPSK
Power Supply	18VDC Nom.
Current Draw	40mA@18V

4.2. HOST CONNECTOR

Host Connector pins

1,2	Unregulated 18VDC Power Source.
4	Enables the 3.3V regulator. Will power down Board fully.
5	Control to indicate that another device wishes to transmit. Will cause the device to immediately cease all transmission. Used for co-located transmitter applications.
6	Host can signal an upcoming loss of power to provide time for storage of critical data.
7	Places the board into a low power mode, so the host can have access to full power from its power supply.
9	Processor digital data communications.(TX)
9	Processor digital data communications.(TBL Write)
10	Processor digital data communications.(RX)
3,11,12,13,14	NC
15,16	GND



5. REVISION HISTORY

Author	Date	Modification	Telephone Number
John Casaer	Nov. 25, 2008	Initial Draft	919-250-5440

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