

Model A4MGK4A PCBA manual

General

The Model A4MGK4A Network Interface Card (NIC) printed circuit board assembly (PCBA) contains a frequency hopping spread spectrum radio operating in the 902.4-927.6 MHz ISM frequency band plus a LTE Cat-M1 radio. It connects to the Alpha 4 (A4) electricity metering platform. When the A4MGK4A module is installed in an A4 meter it can be used as a “gatekeeper” for mesh radio enabled meters. Installations of multiple mesh radio meters comprise part of an Advanced Metering Infrastructure (AMI) system that utilizes a proprietary network architecture and protocol devised by Honeywell.

Device specifications

Table 1: 900MHz Radio Specifications for 25-Channel 250mW EA Operation

Classification	Frequency Hopping Spread Spectrum	
Maximum Output Power	250mW	
Operating Frequency Band	902.4 – 927.6MHz	
Number of Channels	25	
Channel Spacing	400kHz	
Mode	EA LAN1	EA LAN2
Data Rate	35.56kbps	142.22kbps
Occupied Bandwidth – 20 dB	250kHz < BW < 400kHz	250kHz < BW < 400kHz
Occupied Bandwidth – 99%	250kHz < BW < 400kHz	250kHz < BW < 400kHz
Channel Dwell Time	< 0.4 seconds within a 10 second period	

Table 2: 900MHz Radio Specifications for 50-Channel 0.63W SynergyNet Operation

Classification	Frequency Hopping Spread Spectrum
Maximum Output Power	0.63W (28dBm)
Operating Frequency Band	902.4 – 927.6MHz
Number of Channels	50
Channel Spacing	400kHz
Mode	SynergyNet
Data Rate	50, 150, 200kbps
FSK Occupied Bandwidth – 20 dB	100kHz < BW < 400kHz for 50/150/200kbps data rates
FSK Occupied Bandwidth – 99%	100kHz < BW < 400kHz for 50/150/200kbps data rates
Channel Dwell Time	< 0.4 seconds within a 20 second period for 50kbps data rate < 0.4 seconds within a 10 second period for 150/200kbps data rates

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Table 3: LTE Radio Specifications

Classification	LTE Modem
Maximum Output Power	200 mW
LTE Bands	2, 4, 12, 13
Data Rate	250 kbps

FCC and Industry Canada Compliance

The radio module is manufactured as an option card which connects to the meter main circuit board, and the module is inserted into the electronic housing of the meter at manufacture. It has no user-serviceable parts.

USER INFORMATION (PART 15.105)

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 the 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

If you experience trouble with this equipment, please use the Return Material Authorization (RMA) feature available at the Online Customer Services at www.elstersolutions.com. Do not attempt to repair this equipment yourself unless you are replacing the entire module.

COMPLIANCE STATEMENT (FCC PART 15.19 AND INDUSTRY CANADA)

This device complies with part 15 of the FCC Rules and with Industry Canada licence-exempt RSS standard(s). 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 of the device.

ÉNONCÉ DE CONFORMITÉ

Cet appareil est conforme à la Partie 15 des règles de la FCC et aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'utilisation de cet appareil est soumise aux deux conditions suivantes : (1) Cet appareil ne doit pas provoquer d'interférences nocives et (2) cet appareil doit accepter toutes les interférences reçues notamment celles pouvant provoquer un fonctionnement intempestif de l'appareil.

ANTENNA COMPLIANCE

Under Industry Canada regulations, this radio transmitter may only operate using an antenna of a type and maximum (or lesser) gain approved for the transmitter by Industry Canada. To reduce potential radio interference to other users, the antenna type and its gain should be so chosen that the equivalent isotropically radiated power (e.i.r.p.) is not more than that necessary for successful communication.

Conformément à la réglementation d'Industrie Canada, le présent émetteur radio peut fonctionner avec une antenne d'un type et d'un gain maximal (ou inférieur) approuvé pour l'émetteur par Industrie Canada. Dans le but de réduire les risques de brouillage radioélectrique à l'intention des autres utilisateurs, il faut choisir le type d'antenne et son gain de sorte que la puissance isotrope rayonnée équivalente (p.i.r.e.) ne dépasse pas l'intensité nécessaire à l'établissement d'une communication satisfaisante.

A4MGK4A NIC: This radio transmitter has been approved by Industry Canada to operate with the antenna types listed below with the maximum permissible gain and required antenna impedance for each antenna type indicated. Antenna types not included in this list, having a gain greater than the maximum gain indicated for that type, are strictly prohibited for use with this device.

A4MGK4A NIC: Le présent émetteur radio a été approuvé par Industrie Canada pour fonctionner avec les types d'antenne énumérés ci-dessous et ayant un gain admissible maximal et l'impédance requise pour chaque type d'antenne. Les types d'antenne non inclus dans cette liste, ou dont le gain est supérieur au gain maximal indiqué, sont strictement interdits pour l'exploitation de l'émetteur.

- Internal 900 MHz flex Antenna: 3.4 dBi
- Internal LTE Antenna: 1.3 dBi from 699-915MHz, 2.3 dBi from 1710-1910MHz.

WARNING (PART 15.21)

Changes or modifications not expressly approved by Elster could void the user's authority to operate the equipment.

RF RADIATION SAFETY GUIDELINES

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated to provide a separation distance of at least 26 cm from all persons.

DIRECTIVES DE SÉCURITÉ DE RADIOFRÉQUENCE

Cet équipement est conforme aux limites d'exposition aux radiations définies par la Commission Fédéral des Communications (FCC) pour un environnement non contrôlé. Cet équipement doit être installé et utilisé à une distance d'au moins 26 cm de séparation de toutes personnes

COLLOCATION STATEMENT

This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

DÉCLARATION DE CO-LOCALISATION

Cet émetteur ne doit pas être co-localisé ou opérant en conjonction avec aucune autre antenne ou transmetteur.