Intuicom®

EB6 PLUS™

HIGH-SPEED IP/ETHERNET DATALINK

Installation Guide

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1 Overview

This installation guide covers the FIP1-900N2B-HE model of the Intuicom 900 MHz High-Speed IP/Ethernet DataLink sold under FCC ID KNY-820181531119.

All transceiver models sold under FCC ID KNY-820181531119 must be installed professionally. This transceiver is only approved for use when installed in devices produced by Intuicom or third party OEMs approved by Intuicom. The antenna(s) to be used must be installed to provide a separation distance of at least 23cm from all persons and must not be co-located or operating in conjunction with any other antenna or transmitter. This transceiver must be installed in a NEMA enclosure.

2 FCC Notification

This device complies with part 15 of the FCC rules. 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. This device must be operated as supplied by Intuicom, Inc. Any changes or modifications made to the device without the express written approval of Intuicom, Inc. may void the user's authority to operate the device.

CAUTION: The model number FIP1-900N2B-HE has a maximum transmitted output power of 871mW. It is recommended that the transmit antenna be kept at least 23 cm away from nearby persons to satisfy FCC RF exposure requirements.

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.

Note: Whenever any Intuicom, Inc. module is placed inside an enclosure a label must be placed on the outside of that enclosure which includes the module's FCC ID.

3 UL Notification

Class 1, Division 2 UL approval is pending for model FIP1-900N2B-HE.

4 Transceiver Installation Steps

To install the Intuicom FIP1-900N2B-HE DataLink, follow these steps:

1. Mount the transceiver to the flat, stable surface using mounting holes in the corners of the transceiver. Transceiver models sold under FCC ID KNY-820181531119 are to be installed professionally in NEMA enclosures.

2. Install the antenna and connect the antenna feedline to the transceiver. If you are installing a directional antenna, preset the antenna's direction appropriately. The antenna must be professionally installed on fixed-mounted permanent outdoor structures for satisfying RF exposure requirements.

3. Connect a computer to the transceiver's RJ45 port or to an Ethernet connection on the same network segment as the transceiver (please refer to the EB6 Plus User Guide for additional information). This computer will be used to set the radio configuration.

4. Install the power for the radio.

5. Connect to the unit's Web page and set the radio configuration according to the system topology and data terminal equipment requirements. Default transceiver settings allow users to do a quick installation without major changes in transceiver's configuration. However, there is one parameter that ***must be considered for a new installation – the transceiver's power output setting. ("Transmit Power". Wireless Setup > Transmission Settings.)***

The transceiver output power level must be set according to the tables given below to satisfy FCC maximum EIRP requirement. Per FCC regulations, any antenna used with Intuicom transceivers must either be one of the approved antennas shown below or an antenna with comparable performance parameters approved by Intuicom.. Intuicom offers a variety of omni-directional and directional external antennas, with both bracket and magnetic mounts. The complete list of antennas available from Intuicom including antenna gains, antenna manufacturer's information and antenna's characteristics is provided below:

The following antennas are approved for use with Intuicom FIP1-900N2B-HE model transceivers:

900MHz Directional Antennas

Gain	Manufacturer	Manufacturer Model Number	Intuicom Model Number
6dBd/8dBi	Larsen	YA6-900-W	EAN0906YA

NOTE: Use of this antenna requires a cable equivalent to Intuicom part # CAB0302NN. This is a 30' LMR-240 cable and will provide ~2.3dB of attenuation, allowing the transceiver to run at full power.

900MHz Omni-directional Antennas

Gain	Manufacturer	Manufacturer Model Number	Intuicom Model Number
5dBd	Antenex Maxrad	EB8965C BMEFC8985HD	EAN0905WC
3dBd	Maxrad	MAX-9053	EAN0900WC
0dBd	JEMA	JA900SS	EAN0900WR
0dBd	Mobile Mark	PSTG0-915FW	EAN0900RQ
0dBd	Mobile Mark	PSTN3-915S	EAN0900SH
0dBd	Mobile Mark	PSTG0-915SE	EAN0900SQ
0dBd	Mobile Mark	PSTN3-915N	EAN0900NH

WARNING: Any antennas placed outdoors must be properly grounded. Use extreme caution when installing antennas and follow all instructions included with the antennas.

Contact Intuicom for information about other compatible antennas.

NOTE: It is the installer's responsibility to ensure that the FCC emission limits are not exceeded.

		Cable Loss			
		1dB	2dB	3dB	4dB
Antenna Gain	10dBd	7	8	9	10
	6dBd	10	10	10	10

Table 1: Maximum Xmit Power with 10dBd Yagi

		Cable Loss			
		1dB	2dB	3dB	4dB
RF Xmit Power	10	38.40	37.40	36.40	35.40
	9	37.40	36.40	35.40	34.40
	8	36.39	35.39	34.39	33.39
	7	35.24	34.24	33.24	32.24
	6	33.90	32.90	31.90	30.90

Table 2: Resulting ERP for 10dBd yagi - Transmit Power vs Cable Loss

Shaded area in Table 2 indicates combinations where ERP limitations exceed FCC regulations and the wireless Transmit Power must be reduced.

		Cable Loss			
		1dB	2dB	3dB	4dB
RF Xmit Power	10	34.40	33.40	32.40	31.40
	9	33.40	32.40	31.40	30.40
	8	32.39	31.39	30.39	29.39
	7	31.24	30.24	29.24	28.24
	6	29.90	28.90	27.90	26.90

Table 3: Resulting ERP, 6dBd yagi – Transmit Power vs Cable Loss

Follow the steps below to configure the Power Output Level:

1. Connect to the transceiver's Web page (See the EB6 Plus User Manual for further instructions).

2. Click the "Wireless Setup" Link.

3. Choose an appropriate setting in "Transmit Power", as defined from the previous tables.

4. Click the "Save Changes" button. After the page refreshes, click the "Reboot" button and wait for the transceiver to restart.

5. Repeat the steps above for each transceiver in the network.

NOTE: Please, be advised that antennas other than listed in this section can potentially be used with the transceiver provided that:

- The antennas are of a similar type to the listed above;
- The antenna gain does not exceed 5 dBd for omni-directional and 10 dBd for directional antenna;
- The overall system EIRP does not exceed 36 dBm.

WARNING: Any antenna other than listed in this section needs to be approved by Intuicom before its use to assure that the transceiver in combination with the new antenna meets FCC requirements.

