Communication Board Manual
ENG-SPEC-MNL-1040R1

Rev	By	Date	Description
1	TK	5/12/11	Initial Release

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1 Purpose

This document serves as the manual for the EnergyHub daughtercard to be used only in EnergyHub devices as specified by this document.

2 Introduction

Each EnergyHub peripheral device contains a comm board. This board serves as the communication interface for the EnergyHub system. Each device within the EnergyHub network uses one of these devices to communicate with the Home Base which gathers information about the use of energy in a user's home.

3 Electrical Connector Interface

Connectors P3 and P4 are the main connection from the EH Communications board. The power and signals between the EH communication board and the host interface are carried through this connection. The connectors on the Comm Board are 2mm pitch, 2 row 16 pin receptacle connectors. The Dashboard interface has two 16 pin headers. Figure 3 shows a picture of the connections on the bottom of the communication board.

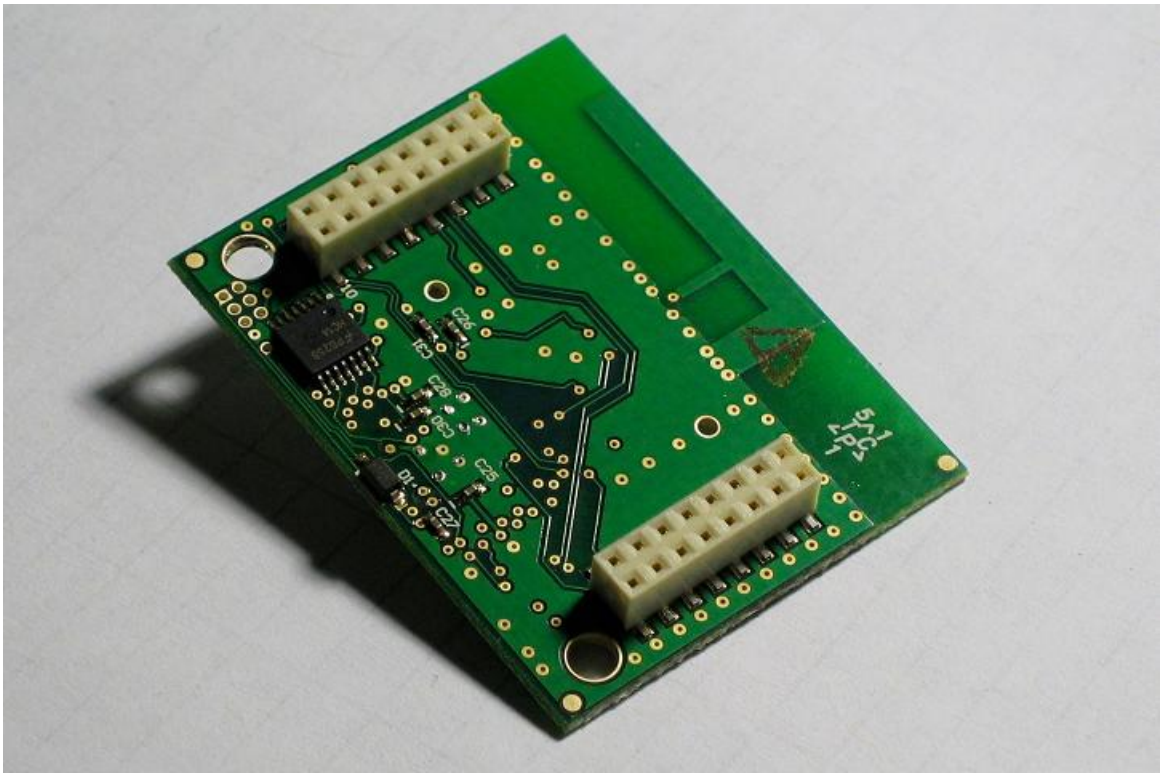

Figure 1- Connectors on the bottom of Communication Module

3.1 Connector Pinout

P4

1	CLK_OUT	PTD4/PULSE1	2
3	DGND	P3V3	4
5	PTA0	PTA1	6
7	PTC6/MISO	PTC7/SS	8
9	PTC4/SCK	PTC5/MOSI	10
11	PTC2/SDA	PTC3/SCL	12
13	PTC0/TX2	PTC1/RX2	14
15	RESETB	PTD5/PULSE2	16

P3

1	CTS2	RTS2	2
3	PTB1/ADC1	PTB0/ADC0	4
5	PTB3/ADC3	PTB2/ADC2	6
7	PTB5/ADC5	PTB4/ADC4	8
9	PTB7/ADC7/RTCK	PTB6/ADC6	10
11	PTD2	RTS1	12
13	TX1	PTA3	14
15	RX1	PTD7	16

Communication
Digital/Timing
Power
Digital/Timing

Table 1 - Connector Pinout

3.1 Power

- The P3V3 is a 3.3V power supply to the board.
- The maximum available current draw to the daughtercard board is 200mA.

3.2 Serial Communications Interface

3.2.1 UART1

- The UART logic high voltage is 3.3V
- Pin P3-13 for the TX1 pin has a 10K pullup on the host interface
- Pin P3-16 for the RX1 pin has a 10K pulldown on the host interface
- The default baud rate is 38400. It can be modified in firmware to adapt to the host module.

3.2.2 UART2

- The UART logic high voltage is 3.3V

- Pin P4-13 for the TX2 pin has a 10K pullup on the host interface
- Pin P4-14 for the RX2 pin has a 10K pulldown on the host interface
- CTS2 and RTS2 are active low.
- The default baud rate is 38400. It can be modified in firmware to adapt to the host module.

3.2.3 I2C

- The I2C voltage is 3.3V
- The I2C requires 4.7k Ohm pullups on the host board.

3.2.4 SPI

- SPI logic voltage is 3.3v
- Daughter card shall be configured as the slave device.

4 Industry Compliance

4.1 FCC Compliance Statement

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. See instructions if interference to radio or television reception is suspected.

Radio and Television Interference

This equipment has been tested and found to comply with the limits for a Class B digital device in accordance with the specifications in Part 15 of FCC rules. These specifications are designed to provide reasonable protection against such interference in a residential installation. However, there is no guarantee that interference will not occur in a particular installation. You can determine whether your equipment is causing interference by turning it off. If the interference stops, it was probably caused by the equipment. If your equipment does cause interference to radio or television reception, try to correct the interference by using one or more of the following measures:

- Change the position of the television or radio antenna until the interference stops.
- Move the equipment to one side or the other of the television or radio.
- Move the equipment farther away from the television or radio.
- Plug the equipment into an outlet that is on a different circuit from the television or radio. (That is, make certain the computer and the television or radio are on circuits controlled by different circuit breakers or fuses.)

If necessary, consult an experienced radio or television technician for help.

Important: Unauthorized changes or modifications to this product could negate your authority to operate the device.

4.2 IC Compliance Statement

Complies with the Canadian ICES-003 Class B specifications.

This device complies with Industry Canada license-exempt RSS standard(s). Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes: (1) l'appareil ne doit pas produire de brouillage, et (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.