TriMark Corporation

Generation 3 EAsk System

FCC general information doc

Contents

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.

Le manuel d'utilisation des appareils radio exempts de licence doit contenir l'énoncé qui suit, ou l'équivalent, à un endroit bien en vue et/ou sur les appareils :

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.

37843- IO Module

Pin Layout

J11 – Baseboard 12-pin

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Pin	Signal Name	Input/ Output
J11.1	VIN	Input
J11.2	PROG_IN_3	Input (+)
J11.3	PROG_OUT_2	Output
J11.4	PROG_OUT_1	Output
J11.5	PROG_IN_1	Input (+)
J11.6	LF_ANT125_OUT_1	Output
J11.7	RELAY_20A_1	Output
J11.8	RELAY_20A_2	Output
J11.9	CANL	In/Out
J11.10	CANH	In/Out
J11.11	GND	
J11.12	LF_ANT125_IN_1	Input

J13 – Baseboard 14-pin

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Pin	Signal Name	Input/ Output
J13.1	PROG_OUT_4	Output
J13.2	PROG_IN_2	Input (+)
J13.3	PROG_OUT_3	Output
J13.4	LF_ANT125_OUT_3	Output
J13.5	LF_ANT125_OUT_2	Output
J13.6		
J13.7		
J13.8	12V_REG	Output
J13.9	PROG_IN_4	Input (+)
J13.10	GND	
J13.11	LF_ANT125_IN_3	Input
J13.12	LF_ANT125_IN_2	Input
J13.13	GND	
J13.14	HF_433MHZ_ANT	Input

J1 – Programmable Inputs & Relay Outputs Group 1

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Pin	Signal Name	Input/ Output
J1.1	PROG_IN_101	Input (-)

J1.2	PROG_IN_102	Input (-)
J1.3	PROG_IN_103	Input (-)
J1.4 & 16	GND	
J1.5 & 17	RELAY_30A_109	Output
J1.6 & 18	RELAY_30A_110	Output
J1.7 & 19	VIN	Input
J1.8	RELAY_20A_111	Output
J1.9	PROG_IN_104	Input (-)
J1.10	PROG_IN_105	Input (-)
J1.11	PROG_IN_106	Input (-)
J1.12	PROG_IN_107	Input (-)
J1.13	PROG_IN_108	Input (-)
J1.14		
J1.15		
J1.20		
J1.21	RELAY_20A_114	Output
J1.22		
J1.23	PROG_IN_109	Input (-)
J1.24	RELAY_20A_113	Output

J2 – Key Switch & Relay Outputs Group 2
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Pin	Signal Name	Input/ Output
J2.1	VIN	Input
J2.2		
J2.3		
J2.4	KEY_SWITCH_1 / P_BRAKE_SWITCH	Input
J2.5		
J2.6	GND	
J2.7	KEY_SWITCH_ COM	
J2.8	KEY_SWITCH_2 / LOCK_SWITCH	Input
J2.9		
J2.10	GND	

J3 – External Relay Drivers
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Pin	Signal Name	Input/ Output
J3.1	12V_REG	Output
J3.2	PROG_OUT_101	Output
J3.3	PROG_OUT_102	Output
J3.4		
J3.5		
J3.6	PROG_OUT_105	Output
J3.7	PROG_OUT_106	Output
J3.8		

J4 – Relay Outputs Group 3
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Pin	Signal Name	Input/Output
J4.1	RELAY_20A_102	Output
J4.2	RELAY_20A_101	Output
J4.3	RELAY_20A_104	Output
J4.4	RELAY_20A_103	Output
J4.5	RELAY_20A_105	Output
J4.6	RELAY_20A_106	Output

J5 – Relay Outputs 4
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Pin	Signal Name	Input/Output
J5.1	GND	Output
J5.2		
J5.3	12V_FUSED	Output
J5.4		

J14 - JTAG Connector
This internal connector is for factory programming and software development.

Pin	Signal	Description
J14.1		(Unused Pin)
J14.2	PIC_PGC	Programmer Clock
J14.3	PIC_PGD	Programmer Data
J14.4	GND	Circuit Ground
J14.5	+3.3V_SC	Internal +3.3V Power
J14.6	PIC_MCLR	Master Clear – reset control

General Specifications

Input Activated	Reaction from Hardware Tests
PROG_IN_1	PROG_OUT_1 activates while PROG_IN_1 is active. The software also searches for a fob near LF antenna 1 and if a fob is found RELAY_20A_1 activates for 500 msec.
PROG_IN_2	PROG_OUT_2 activates while PROG_IN_2 is active.
PROG_IN_3	PROG_OUT_3 activates while PROG_IN_3 is active.
PROG_IN_4	PROG_OUT_4 activates while PROG_IN_4 is active.
Fob Button 1	RELAY_20A_2 activates while fob button 1 stays active.
Fob Button 2	RELAY_20A_1 activates while fob button 2 stays active.
Fob Button 3	PROG_OUT_3 activates while fob button 3 is pressed.
Fob Button 4	PROG_OUT_4 activates while fob button 4 is pressed.

PROG_IN_101	PROG_OUT_101 activates while PROG_IN_101 is active.
PROG_IN_102	PROG_OUT_102 activates while PROG_IN_102 is active.
PROG_IN_103	RELAY_20A_105 activates while PROG_IN_103 is active.
PROG_IN_104	RELAY_20A_106 activates while PROG_IN_104 is active.
PROG_IN_105	PROG_OUT_105 activates while PROG_IN_105 is active.
PROG_IN_106	PROG_OUT_106 activates while PROG_IN_106 is active.
PROG_IN_108	RELAY_20A_101 activates while PROG_IN_108 is active.
PROG_IN_109	RELAY_20A_102 activates while PROG_IN_109 is active.
KEY_SWITCH_1	RELAY_20A_103 activates while KEY_SWITCH_1 is active.
KEY_SWITCH_2	RELAY_20A_104 activates while KEY_SWITCH_2 is active.
PROG_IN_2 & PROG_IN_3	When both PROG_IN_2 and PROG_IN_3 are sensed active at the same time, the factory test software activates each I/O expander relay output for 1 second in the sequence RELAY_20A_101, 102, … 116.

To activate inputs 1-4 are 12V
To activate all other inputs (100-200) are grounds

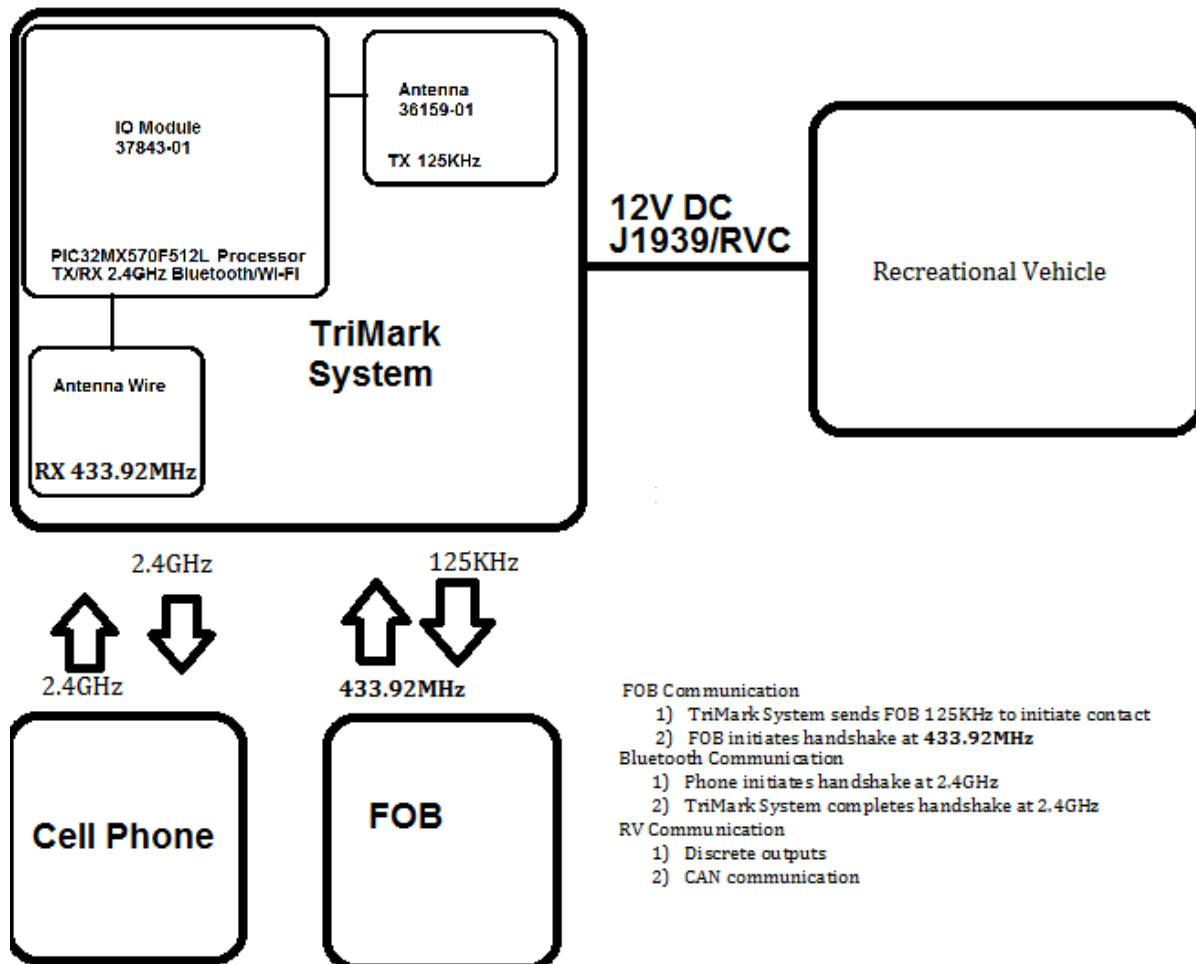Power Supply   6.5V to 16V
    Nominal   12V
Quiescent Current (no load)   311uA
    Nominal (load)   2.5mA
On Board relays (active)   30A
    Normal (Actuator)   5A
All ANT125 are bi-directional.

Operating Principals:

<u>Operating Principle of Wi-Fi/Bluetooth</u>: TriMark believes we will use this for information transfer such as communication on a smart phone. This is a future proofing accessory.

Wi-Fi/Bluetooth with modular certificate , FCC ID:XF6-RS9113SB IC:8407A-RS9113SB

FOB Communication
1) TriMark System sends FOB 125KHz to initiate contact
2) FOB initiates handshake at **433.92MHz**

Bluetooth Communication
1) Phone initiates handshake at 2.4GHz
2) TriMark System completes handshake at 2.4GHz

RV Communication
1) Discrete outputs
2) CAN communication

IO Module FCC version

LF will constantly generate a 125 KHz wave on channel 1 as long as it is plugged in. Do not leave on more than 4 hours at a time. Channels 2 and 3 use the same circuit, but will not be on. Bluetooth will be active during test.

Wiring diagram
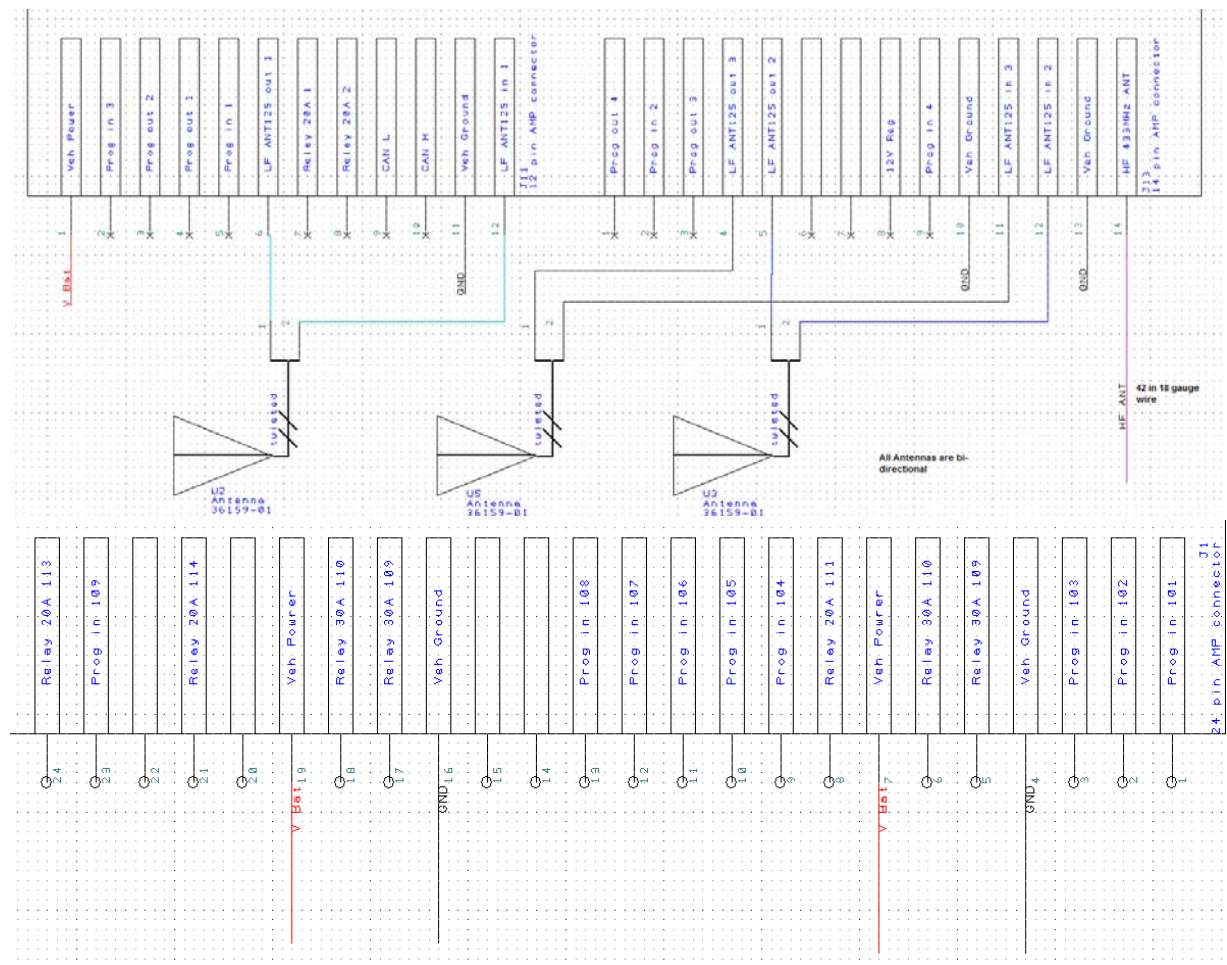
All other IO are not populated.

Federal Communication Commission Interference Statement

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 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.

FCC Caution: To assure continued compliance, any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment. (Example - use only shielded interface cables when connecting to computer or peripheral devices).

FCC Radiation Exposure Statement

This equipment complies with FCC RF radiation exposure limits set forth for an uncontrolled environment.

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

This device complies with part 15 of the FCC Rules and Canada licence-exempt RSS-210 standard. Operation is subject to the following two conditions:

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