

MCT244

2.4GHz MODULAR TRANSCEIVER

OEM INSTALLATION AND OPERATION MANUAL

NOTE: THIS MODULE IS LIMITED TO OEM INSTALLATION ONLY

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HK

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DESCRIPTION

The MCT244 is a direct sequence spread spectrum transceiver module designed to free use in the 2.4 GHz ISM band.

The MCT244 transceiver is only integrated into Kar-Tech remote control products by Kar-Tech, at Kar-Tech. There are no user serviceable parts on the MCT244 transceiver.

The MCT244 is not designed for multiple antenna applications and should not be used to transmit simultaneously with any other transmitter.

OPERATION

The MCT244 is a radio transceiver module for the 2.4 GHz ISM bands. The transceiver microcontroller includes a CPU, GPI/O, a fully integrated frequency synthesizer, a power

amplifier, a modulator and a receiver unit. The MCT244 microcontroller serial port is connected to the host via protection circuits. The data is sent through a serial port to RF processor and then to RF circuit to the antenna and the data received from antenna is sent to the serial port and to the host. The microcontroller is responsible for the control of the entire communication. The MCT244 transceiver contains a DC regulator which generates a constant 1.8 VDC for the digital circuitry. The RF section runs on the 3.3V supply.

The MCT244 is Direct Sequence Spread Spectrum that can use one of 16 channels, where Channel 1 is 2.405GHZ and Channel 16 is 2.480 GHZ.

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The receivers are matched to the transmitters to use the same channel as the transmitter's signals.

INSTALLATION

- 1) Solder the MCT244 transceiver directly to the host's compatible connector.
- 2) Print and attach the label as requirement.
- 3) Connect the appropriate antenna.

Application Requirements:

- A) Power the MCT244 Transceiver with 3.3VDC nominal voltage, with peak current draw of 150mA.
- B) Do not remove the shield on the MCT244.
- C) The antenna should be mounted at least 20cm from all persons, and must not transmit

simultaneously with any other antenna or transmitter, except in accordance with FCC multi transmitter product procedures.

- D) The MCT244 is to be installed only in mobile applications. Do not operate the MCT244 without an antenna.
- E) Documentations: In the host's User Manual include the following:
 - a. That there are no user serviceable parts in the radio modules. They should not remove or install radio modules.
 - b. The "Instructions To The User" section.
 - c. The "Industry Canada Statement".
 - d. Include in the manual, "This device is granted

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for use in Mobile only configurations in which the antennas used for this transmitter must be installed to provide a separation distance of at least 20cm from all person and not be co-located with any other transmitters except in accordance with FCC and Industry Canada multi-transmitter product procedures."

BEFORE APPLYING POWER!

- Check power and ground for proper polarity.
- Read the rest of this manual.

TROUBLESHOOTING

There are no user serviceable

parts in the MCT244 Transceiver. Contact your KAR-TECH representative for further instructions or servicing.

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There are no user-serviceable parts inside the transmitter or the receiver. Return the units for service.

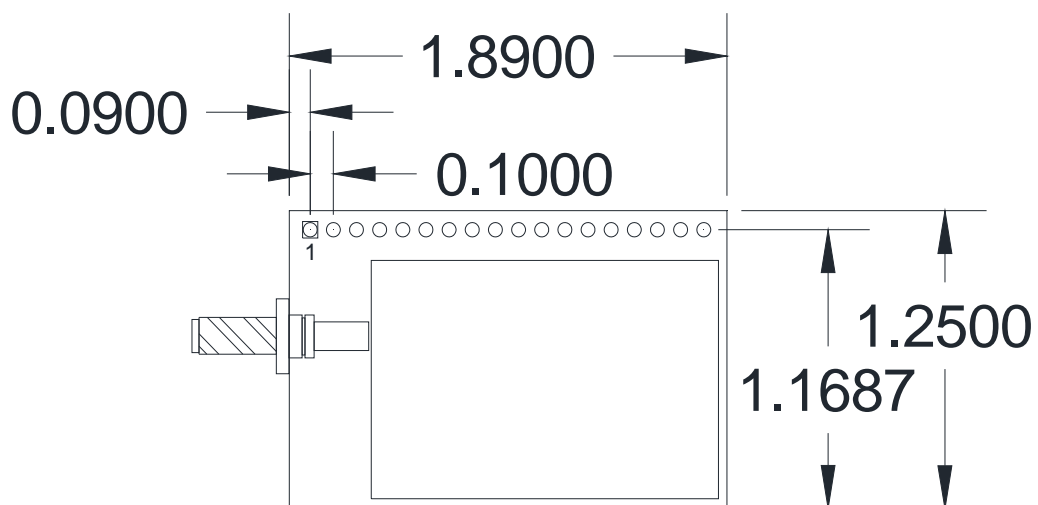
PARTS LIST

<i>PART NUMBER</i>	<i>DESCRIPTION</i>
021531A	MCT244 RADIO TRANSCEIVER – WIRE ANTENNA
021532A	MCT244 RADIO TRANSCEIVER – RPSMA ANTENNA

There are no user-serviceable parts inside the transmitter or the receiver. Return the units for service.

The information, specifications, and illustrations in this manual are those in effect at the time of printing. We reserve the right to change specifications or design at any time without notice.

TRANSCEIVER PICTORIAL



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Pinout

Pin	Function	Pin	Function	Pin	Function
1	GND	7	NC	13	NC
2	Not Used	8	Not Used	14	NC
3	GND	9	Not Used	15	NC
4	Not Used	10	NC	16	NC
5	Not Used	11	RXD	17	VIN 3.3V
6	NC	12	TXD	18	GND

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Power supply	3.3VDC
Operating temperature - Radio.....	-20 °C to +55 °C
Storage temperature	-40 °C to +100 °C
RF Frequency	2.405-2.48 GHz
Antenna Manufacturer	Kar-Tech, Inc.
Antenna Model.....	MCT244
Antenna Gain.....	1.1dBi

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INSTRUCTION TO THE USER

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.

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 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.

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

FCC Radiation Exposure Statement

The modular can be installed or integrated in mobile or fix devices only. This modular cannot be installed in any portable device, for example, USB dongle like transmitters is forbidden.

This modular complies with FCC RF radiation exposure limits set forth for an uncontrolled environment. This transmitter must not

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be co-located or operating in conjunction with any other antenna or transmitter. This modular must be installed and operated with a minimum distance of 20 cm between the radiator and user body.

If the FCC identification number 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: P4U-MCT244

when the module is installed inside another device, the user manual of this device must contain below warning statements;

1. 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.

(2) This device must accept any interference received, including interference that may cause undesired operation.

2. Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

The devices must be installed and used in strict accordance with the manufacturer's instructions as described in the user documentation that comes with the product

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INDUSTRY CANADA STATEMENTS

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.

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.

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OEM Responsibilities to comply with FCC and Industry Canada Regulations

This device complies with Industry Canada's licence-exempt RSSs. 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.

Cet appareil est conforme aux CNR exemptes de licence d'Industrie Canada . Son fonctionnement est soumis aux deux conditions suivantes :

- (1) Ce dispositif ne peut causer d'interférences ; et
- (2) Ce dispositif doit accepter toute interférence , y compris les interférences qui peuvent causer un mauvais fonctionnement de l'appareil.

IC Radiation Exposure Statement

The modular can be installed or integrated in mobile or fix devices only. This modular cannot be installed in any portable device, for example, USB dongle like transmitters is forbidden.

This modular complies with IC 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 modular must be installed and operated with a minimum distance of 20 cm between the radiator and user body. Cette modulaire doit être installé et utilisé à une distance minimum de 20 cm entre le radiateur et le corps de l'utilisateur.

If the IC number 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 IC: 4534A-MCT244”

when the module is installed inside another device, the user manual of this device must contain below warning statements;

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1. This device complies with Industry Canada's licence-exempt RSSs. 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.

2. Cet appareil est conforme aux CNR exemptes de licence d'Industrie Canada . Son fonctionnement est soumis aux deux conditions suivantes :

(1) Ce dispositif ne peut causer d'interférences ; et

(2) Ce dispositif doit accepter toute interférence , y compris les interférences qui peuvent causer un mauvais fonctionnement de l'appareil.

The devices must be installed and used in strict accordance with the manufacturer's instructions as described in the user documentation that comes with the product.