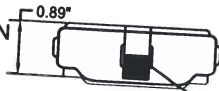


P/N 3A4159A  
 KITS KIT, MACRO, PROGRAMMABLE, 4 BUTTON  
 INCLUDING:  
 1 EA 3A4156A TRANSMITTER  
 1 EA 3A414DA RECEIVER

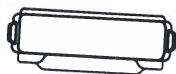
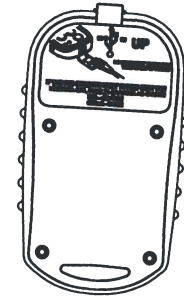
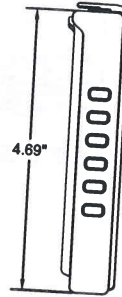
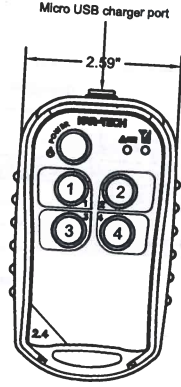
Only use approved chargers  
 WALL CHARGER/ 110-240VAC (B20172A)  
 CAR CHARGER/ 12-24VDC (B20173A)



Micro USB charger port.  
 Check orientation before inserting  
 Micro USB charger plug. Do not insert  
 with more than 5 lb. of force.

TRANSMITTER ERROR CODE CHART	
ERROR CODE	PROBABLE CAUSE
1	LOW BATTERY

ERROR CODE NUMBER IS THE NUMBER OF RED LIGHT FLASHES BETWEEN EVERY PULSE.



P/N: 3A4156A  
 TRANSMITTER, MACRO, 4 BUTTON

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. Changes or modifications not expressly approved by Kar-Tech will void the user's authority to operate the equipment.

RECEIVER ERROR CODE CHART	
ERROR CODE	PROBABLE CAUSE
1	RF COMMUNICATION PROBLEM
2	LOW BATTERY
3	TRANSMITTER NOT IN NEUTRAL MODE*
4	OUTPUT 1 ERROR
5	OUTPUT 2 ERROR
6	OUTPUT 3 ERROR
7	OUTPUT 4 ERROR
8	OUTPUT 5 ERROR
9	OUTPUT 6 ERROR

ERROR CODE NUMBER IS THE NUMBER OF RED LIGHT FLASHES BETWEEN EVERY PULSE.  
 \*TRANSMITTER SWITCH ACTIVE WHEN RECEIVER TURNED ON.

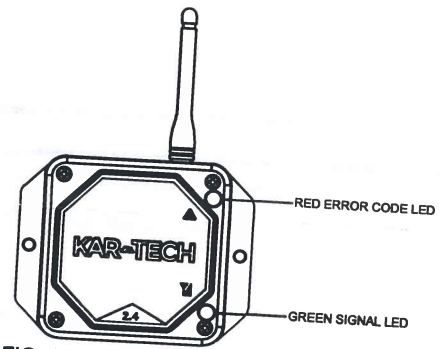
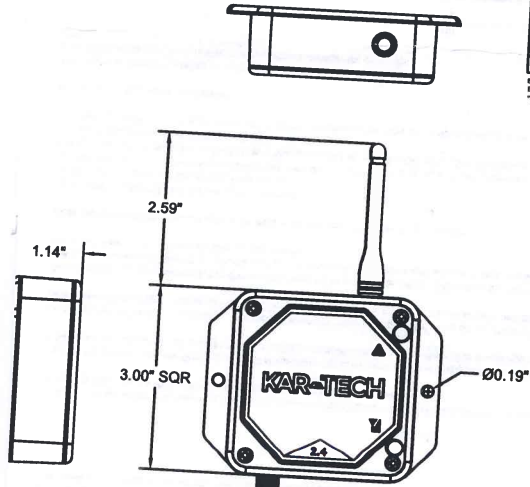
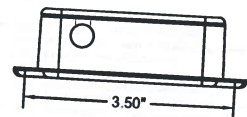
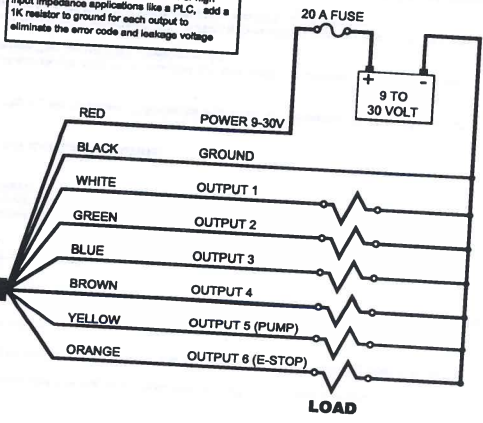


FIG. 1: RECEIVER FRONT



NOTE: The output control circuit is designed with open load diagnostics. Disable unused outputs using programming features. For high input impedance applications like a PLC, add a 1K resistor to ground for each output to eliminate the error code and leakage voltage



P/N: 3A414DA  
 RECEIVER, 6 OUTPUT, PROGRAMMABLE

3A4156A  
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.

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

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 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 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.

**FCC Radiation Exposure Statement**

The module 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 module 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 module 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-MCT242"

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.

**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 off 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'attention des autres utilisateurs, il faut choisir le type d'antenne et son gain de sorte que la puissance isotropique rayonnée équivalente (p.i.r.e.) ne dépasse pas l'intensité nécessaire à l'établissement d'une communication satisfaisante.

**OEM Responsibilities to comply with FCC and Industry Canada Regulations**

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 exempts 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 module 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 module 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 module must be installed and operated with a minimum distance of 20 cm between the radiator and user body. Cette moduleaire doit être installée et utilisée 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: 4634A-MCT242"

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

1. This device complies with Industry Canada's license-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 exempts 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.

**EUROPE**

**CE NOTICE**

This device has been tested and certified for use in the European Union. See the Declaration of Conformity (DOC) for specifics.

If this device is used in a product, the OEM has the responsibility to verify compliance of the final product to the EU standards. A declaration of Conformity must be issued and kept on file as described in the Radio and Telecommunications Terminal Equipment (RATTE) Directive.

The 'CE' mark must be placed on the OEM product per the labeling requirements on the Directive.

**Declaration of Conformity (DOC)**

This DOC can be downloaded from the [www.hsr-tech.com](http://www.hsr-tech.com).  
The device complies with RF specifications when the device used at your body.  
Caution: Must use the original antenna. Other antennas are not allowed to be used.  
The device according to the regulation in Directive 1999/5/EC and complies with standards as follow:

EMC (Article 3.1b)	ETSI EN 301 489-1 V 1.9.2	Report No.: CTL1512313913-WE
	ETSI EN 301 489-17 V2.2.1 (2012-09)	
Radio (Article 3.2)	ETSI EN 300 328 V1.8.1	Report No.: CTL1512313913-WR
Safety (Article 3.1a)	EN 60950-1:2006+A11:2009+A12:2011+A2:2013	Report No.: CTL1512313913-WS
Health (Article 3.1a)	EN 62479:2010	Report No.: CTL1512313913-WH
[Titles, dates of publication of documents mentioned]		

**CE0700**

## OPERATION

- To turn on the transmitter, press and hold the POWER button for at least 2 seconds and release
- To turn the transmitter off, press and hold the POWER button until the LEDs turn off
- The transmitter is designed with a power saving feature which turns the transmitter off after 15 minutes if no buttons are pressed.
- There are red and green LEDs both on the keypad of the transmitter and inside the receiver case. The green LED will blink rapidly when the transmitter and receiver are communicating. It will blink slowly if there is no communication (i.e. - no power to the receiver)
- The red LED on the receiver will blink if there is a shorted or open output. Refer to the ERROR CODE CHART tables and count the number of blinks to determine the output with the fault (NOTE: the receivers with CAN do not have output error codes).
- The transmitter's red LED blinks 1 time per second if the battery is low and needs to be charged.
- The red LED will stay on while charging and when the charge is completed the green LED will stay on.
- It will take longer to charge if the transmitter is on during charging.

## SYNCHRONIZING TRANSMITTER AND RECEIVER

Each transmitter and receiver pair is synchronized together at the factory. If a new transmitter is needed, synchronizing is required. Use the following procedure:

1. Make sure both the transmitter and receiver are off.
2. Press and hold the POWER button on the transmitter for more than 10 seconds. The red and green LED will start to blink.
3. Apply power to the receiver
4. Wait for a few seconds until only the green LED begins to blink on the transmitter
5. Teach complete

## PROGRAMMING

The user can determine output functionality (momentary or maintained action) and program the system to respond as desired. This is determined by the following procedure:

1. Turn the receiver off. Turn the transmitter on (press and hold POWER until both LEDs turn on, then release)
2. Press and hold 1, 3, and 4 and release. Red LED should be blinking on the transmitter
3. Turn the receiver on, make sure green LED is blinking before proceeding to the next step. Be sure all outputs are connected to a load and that there are no error codes present (NOTE: outputs may cycle on and off while programming)
4. Are any outputs to be latched (push on/push off)? If yes continue. If no, skip to step 9 for outputs to be momentary.
5. Press button 1-4 corresponding to output 1-4 that is to be latched, until green LED goes on, then off
6. Press button that corresponds to OFF until green LED goes on, then off. This can be the same button that turns the output on. In this case, pressing the button alternates the output between ON and OFF.
7. If latched output should turn OFF for transmitter out of range condition press the button defined in step 6. If latched output should stay ON for transmitter out of range condition press any button other than button defined in step 6.
8. Repeat steps 5, 6, and 7 for any more outputs that are to be latched
9. Press POWER briefly. The receiver's red LED should blink, indicating that this step is accepted and complete. The red LED on the transmitter should also start to blink at a different rate.
10. Are any outputs to be disabled (no output and no error code)? If yes, continue, if no, skip to step 12
11. One at a time, press and hold each button 1-4 corresponding to output 1-4 that is to be disabled, until the green LED goes on, then off
12. Press POWER briefly. The receiver's red LED should blink, indicating that this step is accepted and complete. The red LED on the transmitter should also start to blink at a different rate.
13. Is it desired to use the pump functionality (see description below)? If yes, continue, if no, skip to step 15
14. One at a time, press and hold each button 1-4 corresponding to output 1-4 that is to be associated with the pump output, until the green LED goes on, then off
15. Press POWER briefly. The receiver's red LED should blink, indicating that this step is accepted and complete. The red LED on the transmitter should also start to blink at a different rate.
16. Is it desired to use the e-stop functionality (see description below)? If yes, continue, if no, skip to step 18
17. To engage the e-stop functionality, press button 2 until the green LED goes on, then off
18. If no error code is desired for the E-STOP output press button 3 to disable otherwise go to step 19 to keep error code enabled
19. If the E-STOP output should turn OFF for transmitter out of range condition press button 4 otherwise go to step 20 to keep the output ON for transmitter out of range condition
20. If no error code is desired for the PUMP output press button 1 to disable otherwise go to step 21 to keep error code enabled
21. Press POWER briefly. The receiver's red LED should blink, indicating that this step is accepted and complete.
22. One at a time, press and hold each button 1-4 that the corresponding output error code needs to be disabled, until the green LED goes on, then off
23. Press POWER briefly. The receiver's red LED should blink, indicating that this step is accepted and complete.
24. Programming complete

## NOTES:

- Pump functionality: output 5 will turn on with any outputs that have been associated with it
- E-stop functionality: output 6 will be on as long as the transmitter is on. If the transmitter is turned off or POWER is pressed output 6 will go off along with all latched outputs. To reset, turn the transmitter back on or re-cycle power to the receiver and re-engage the outputs as before
- If the receiver does not blink the red LED after each sequence or the transmitter's red LED does not blink at a different rate as described above, the programming was not accepted for that section. Start from the beginning and go slowly. Keep a distance of 2-3 feet from the receiver when programming.
- The factory settings are: 4 momentary outputs, no pump output, and no e-stop output

## SLEEP TIME

All transmitters have the ability to change the sleep time from the default to user's preference. The transmitter is factory set to turn off (sleep) after 15 minutes. To change the time the transmitter waits before going to sleep, use the following procedure:

1. With the transmitter off, press and hold POWER and buttons 1, 2, and 4
2. Release the buttons. At this point, both lights will blink once per second
3. On the transmitter, press one of the following buttons to adjust the sleep time:
  - a. 1=15 minutes
  - b. 2=30 minutes
  - c. 3=1 hour
  - d. 4=sleep disabled
4. Sleep time programming complete

## CLONING TRANSMITTERS

**WARNING!** - This feature can pose a safety hazard for operators if both transmitters are used simultaneously- use with CAUTION!  
Occasionally, it is desirable to have more than one transmitter work with a single receiver. This is accomplished by a process called cloning. Cloning allows an additional transmitter (B) to have the same ID code as the original transmitter (A). If this feature is desired, use the following procedure:

1. Make sure both transmitters and the receiver are off
2. On Transmitter A, press and hold the POWER button for 10 seconds until LEDs blink, then release. Green and red LEDs will blink together at this point
3. On Transmitter B, press and hold buttons 1, 2, and POWER simultaneously until both LEDs start to blink
4. Wait for few seconds until the green LED starts to blink on both transmitter A and transmitter B.
5. Turn both the transmitters off
6. Synchronize one of the transmitters to the receiver using SYNCHRONIZING TRANSMITTER AND RECEIVER instructions above

If the cloning feature has been invoked and is no longer desired, the ID code of one of the transmitters needs to be changed. This will unclone the transmitters. If this is desired, use the following procedure:

1. Make sure the receiver and transmitter are OFF
2. Press and hold buttons 2, 3, 4 and POWER buttons simultaneously until both LEDs start toggling then release
3. Press any button again to select a new ID
4. Uncloning complete
5. Follow the SYNCHRONIZING TRANSMITTER AND RECEIVER procedure above to link the uncloned transmitter to a new receiver

## CHANNEL SELECT

This feature allows the user to choose a fixed RF channel the transmitter and receiver communicate on, instead of the transmitter using quiet search. Warning! - make sure systems in close proximity have different channels selected, use with caution!

1. Make sure both transmitter and the receiver are off
2. Press and hold buttons 3, 4, and POWER for greater than 5 seconds. The green LED will turn on solid.
3. Press button 2 to increase the channel number (channels 1-14) or button 1 to decrease. The number of red LED blinks shows the current channel number. No red LED blinks is quiet search.
4. When on desired channel, press and hold buttons 3 and 4 for 5 seconds. Green LED will return to blinking.
5. Follow the SYNCHRONIZING TRANSMITTER AND RECEIVER procedure above to link the transmitter to the receiver

## SPECIFICATIONS:

### Electrical:

- RF Transmit power (EIRP): 100 mW, RF Frequency: 2.4GHz
- Transmitter Power: Rechargeable 3.7V Lithium Polymer battery, Operation time with full charge: 30 to 40 hours continuous
- Receiver Power: 9 to 30 Volts DC, Outputs: 5A max each (20A system max)
- Environmental: Transmitter: -20°C to +60°C, Receiver: -40°C to +85°C

KAR-TECH		Delafield, WI 53018	
DATE	REV	BY	CHK
PROGRAMMABLE, 4 FUNCTION, MACRO			
KAR-TECH			
CND CHANGES DO NOT REVISE MANUALLY			
DATE	BY	DATE	BY
FULL	BK	02-22-14	
APPROVED		REVISED BY	
		5A-415-9-A-3A	



3A414DA  
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.

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

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 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.

**FCC Radiation Exposure Statement**

The module 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 module 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 module 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-MCT24S"

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

**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.

**OEM Responsibilities to comply with FCC and Industry Canada Regulations**

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 exempts 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 module 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-MCT24S"

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

1. This device complies with Industry Canada's license-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 exempts 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.

**EUROPE**

**CE NOTICE**

This device has been tested and certified for use in the European Union. See the Declaration of Conformity (DOC) for specifics.

If this device is used in a product, the OEM has the responsibility to verify compliance of the final product to the EU standards. A declaration of Conformity must be issued and kept on file as described in the Radio and Telecommunications Terminal Equipment (R&TTE) Directive.

The 'CE' mark must be placed on the OEM product per the labeling requirements on the Directive.

**Declaration of Conformity (DOC)**

This DOC can be downloaded from the [www.kar-tech.com](http://www.kar-tech.com).  
The device complies with RF specifications when the device used at your body.  
Caution: Must use the original antenna. Other antennas are not allowed to be used.  
The device according to the regulation in Directive 1999/5/EC and complies with standards as follow:

EMC (Article 3.1b)	ETSI EN 301 489-1 V 1.9.2 ETSI EN 301 489-17 V2.2.1 (2012-09)	Report No.: CTL1512313913-WE
Radio (Article 3.2)	ETSI EN 300 328 V1.8.1	Report No.: CTL1512313913-WR
Safety (Article 3.1a)	EN 60950-1:2006+A11:2009+A12:2011+A2:2013	Report No.: CTL1512313913-WS
Health (Article 3.1a)	EN 62479:2010	Report No.: CTL1512313913-WH
	[Titles, dates of publication of documents mentioned]	

**CE0700**