GIGA AND MICRO

RADIO REMOTE CONTROL SYSTEM

-PRELIMINARY-

INSTALLATION AND OPERATION MANUAL

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INDEX

DESCRIPTION

The GIGA AND MICRO REMOTE is a state of the art microprocessor based Radio Frequency (RF) control system. They will provide the operator the ability to wirelessly operate equipment. The operator is required to follow all OSHA www.osha.gov and other applicable safety standards when operating the equipment. Do not use high power radio devices in close proximity of this product.

The remote control system consists of: the Giga radio transmitter, the Micro radio transmitter, receiver module, and associated optional equipment such as wiring harnesses.

The Giga and Micro transmitters are equipped with pushbuttons and proportional pushbuttons for the various functions. These units run on a 3.7V rechargeable battery.

The system's radio receiver has both current-regulated proportional outputs and PWM proportional outputs to accommodate the functions available on the transmitter. All outputs are current-sourcing. It also includes on board Wi-Fi communication for system diagnostics.

OPERATION

Power must be applied to the receiver module for the system to work.

Pressing the POWER button until the red and green LEDs appear

will turn on the transmitter. Pressing and holding the POWER button until the LEDs stop toggling will turn off the transmitter. Pressing the POWER button will turn off all outputs as a safety feature. If the transmitter goes out of range for more than 2 seconds, all outputs will turn off as a safety feature except for those turned on by the Micro transmitter.

To save battery life, the Giga transmitter will turn off after 5 minutes or 10 minutes if Micro if no buttons are pressed. The user must press POWER at this point to restore transmitter operation. To change the sleep time, use the following procedure:

For the Giga transmitter:

1. With the transmitter and receiver off, press and hold POWER and buttons ENABLE and NOZZLE ROTATE RIGHT
2. Keep holding until the green and red LEDs start blinking together slowly. Release buttons
3. Press one of the following buttons for desired sleep time:
    a. ROTATE BOOM RIGHT - 5 minutes
    b. SECTION A DOWN – 15 minutes
    c. SECTION B IN - 60 minutes
    d. SECTION C IN - 120 minutes
    e. ENABLE – sleep time disabled

For the Micro transmitter:

1. With the transmitter and receiver off, press and hold POWER and buttons LOAD, and AGITATE
2. Keep holding until the

green and red LEDs start blinking together slowly. Release buttons

3. Press one of the following buttons for desired sleep time:
    a. STOP - 2 minutes
    b. AGITATE – 3 minutes
    c. ENABLE - 5 minutes
    d. LOAD - 10 minutes

The Micro transmitter will also turn off automatically after 15 seconds when the receiver is off or there is no communication.

INDICATOR LEDs

The transmitter has two indicators, the red BATTERY indicator and the green TRANSMIT indicator. The green TRANSMIT indicator blinks rapidly whenever there is communication between the transmitter and the receiver. It will double-blink when no functions are used.

The red BATTERY indicator starts blinking once every second when the battery voltage is low and requires charging. Plug in the transmitter as soon as possible after seeing the low battery indicator. See BATTERY CHARGING below.

The receiver module can identify problems with the system in the form of an error code. Check the red indicator or display window on the receiver to diagnose system problems. Then, refer to the ERROR CODE CHART in this manual for explanation of the error codes. The green LED indicator will blink on the receiver during active operation and will turn on solid when Wi-Fi is connected.

TRANSMITTER AND RECEIVER SYNCHRONIZATION

Each radio remote system is designed to operate with a unique radio ID code and RF channel sequence. Each receiver is programmed to respond *only* to the transmitter with the correct ID code/RF channel sequence for which it is set. This feature allows multiple systems to work in close proximity to one another without interference.

In the event that a transmitter becomes damaged and a new one is needed, the receiver can be reprogrammed to respond to the new transmitter. To teach the ID code to the receiver, use the following procedure. ***Please note that if this procedure is interrupted before it has completed, the system may have intermittent operation:**

1. Turn the transmitter and receiver off
2. Press and hold the POWER button for more than 10 seconds on the transmitter. LEDs should blink at this point
3. Apply power to the receiver. Only the green LED should start blinking on the transmitter
4. Teach complete

CLONING

Warning! Only one transmitter can be on at a time, they cannot be 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:

For the Giga transmitter:

1. Make sure transmitters and receiver are off
2. On transmitter A, press and hold POWER button for more than 10 seconds. LEDs should blink at this point. Release POWER button
3. On transmitter B, press and hold buttons BOOM ROTATE LEFT, BOOM ROTATE RIGHT, and POWER until the LEDs start to blink. Release buttons
4. Wait for a few seconds until the green LED only starts to blink on transmitter A and transmitter B.
5. Turn off both transmitters
6. Synchronize one of the transmitters to the receiver

For the Micro transmitter:

1. Make sure transmitters and receivers are off
2. On transmitter A, press and hold POWER button for more than 10 seconds. LEDs should blink at this point. Release POWER button
3. On transmitter B, press and hold buttons STOP, AGITATE, and POWER until the LEDs start to blink. Release buttons
4. Wait for a few seconds until the green LED only starts to blink on transmitter A and transmitter B.
5. Turn off both transmitters
6. Synchronize one of the transmitters to the receiver

If 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:

For the Giga transmitter:

1. Make sure the receiver and transmitters are OFF
2. Press and hold buttons BOOM ROTATE LEFT, SECTION A UP, SECTION B OUT, and POWER until the LEDs start to toggle. Release buttons
3. Press any button again to select a new ID
4. Uncloning complete
5. Use transmitter and receiver synchronization procedure above to link the uncloned transmitter to new receivers

For the Micro transmitter:

1. Make sure the receiver and transmitters are OFF
2. Press and hold buttons AGITATE, LOAD, ENABLE, and POWER until the LEDs start to toggle. Release buttons
3. Press any button again to select a new ID
4. Uncloning complete
5. Use transmitter and receiver synchronization procedure above to link the uncloned transmitter to new receivers

BATTERY CHARGING

The battery can be charged by plugging the AC wall charger or DC cigarette charger into the USB or magnetic USB port. Red and green LED indicators near the charging port of the transmitter indicate the status of the charger: A red LED indicates that the battery is charging and

a green LED indicates that the battery is fully charged.

IMPORTANT BATTERY INFO

When the battery is new, the run-time of the transmitter will be shorter until it has gone through the drain/charge cycle several times. After this point, the unit's current drain should allow at least 20 hours of run-time before a recharge is needed.

The temperature that the transmitter battery is exposed to affects performance and useful life. It is strongly recommended you keep within the following limits:

A. Charging: -4 to +86°F
B. Operating: -20 to +122°F
C. Storing: -4 to +86°F (lower is better)

OUTPUTS

Each of the outputs from the receiver module is designed with built-in short circuit and overload protection. The outputs can also detect a no-load or broken wire condition.

These error conditions are evident by the red LED indicator on the receiver module *or* the HISTOGRAM page on the on-board Gate.

The ON/OFF outputs will indicate an error under no load or broken wire status if NOT activated, and will detect a short IF activated. The current regulated proportional outputs will detect a no-load or short condition WHEN activated.

INPUTS

One digital input is available for CLOG signaling. It will function up to battery voltage levels. There are also two analog inputs available for AGITATE SPEED and PUMP OUT signaling. These work from 0-5V.

INSTALLATION

Refer to the WIRING CHART in this manual for hookup of the harness.

To install the receiver module, use the two mounting holes provided on the enclosure to attach it in a vertical manner with the connectors facing down. Please take extra caution not to damage internal components while installing. For high vibration applications, use shock absorbing mounts. It is advised to mount the unit as high as possible, keeping clear of metal obstructions around the antenna which might affect RF performance. Antenna extension cables are available from Kar-Tech to aid in this, if needed.

The main power to the receiver should be connected through a switched, fused line capable of a minimum of 20 amps. For best results, connect power (+) to the receiver via an auxiliary terminal of the ignition switch, PTO switch, or ignition relay. Be sure that the ground (-) is connected securely to the chassis or battery with a star washer which digs into the base metal to insure good contact.

All connections must be properly insulated to protect against shorts.

Seal all connections with a non-

conductive silicone grease to prevent corrosion.

BEFORE APPLYING POWER!

- Check power and ground for proper polarity.

- Check the wiring harness for possible shorts before connecting to output devices (i.e., valves and relays) by checking each mating pin terminal.

- Verify that the transmitter battery is fully charged.

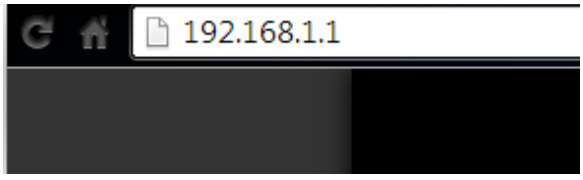
- Read the rest of this manual.

SYSTEM TROUBLESHOOTING USING ON BOARD GATE:

The GATE creates a Wi-Fi access point which allows you to connect to any device with Wi-Fi and web browser such as smart phones, pads, or personal computers. It supports Google Chrome, Internet Explorer, Firefox, and IOS Safari and allows user to configure, diagnose, and troubleshoot the system. The receiver's green LED will turn on solid when Wi-Fi is connected to a device. The Wi-Fi will turn off after five minutes of no use. To turn it back on, recycle power to the receiver.

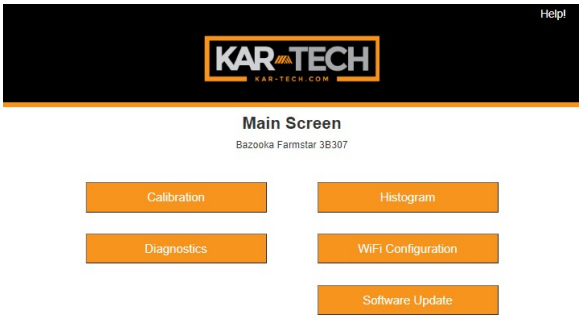
ACCESSING THE CONTROL PANEL

1. Turn on the power to the receiver.
2. Use your device and look for the available Wi-Fi networks. A network under the name of "BAZOOKAFARMSTAR3B 307" should be available at this point. Connect to the network, the password is 3B3073X1.
3. Once the connection is established, open a web browser on your device. Kar-Tech recommends using Chrome browser.
4. Enter the address http://192.168.1.1 in the address bar



Address Bar

5. The following options are available from the main screen.

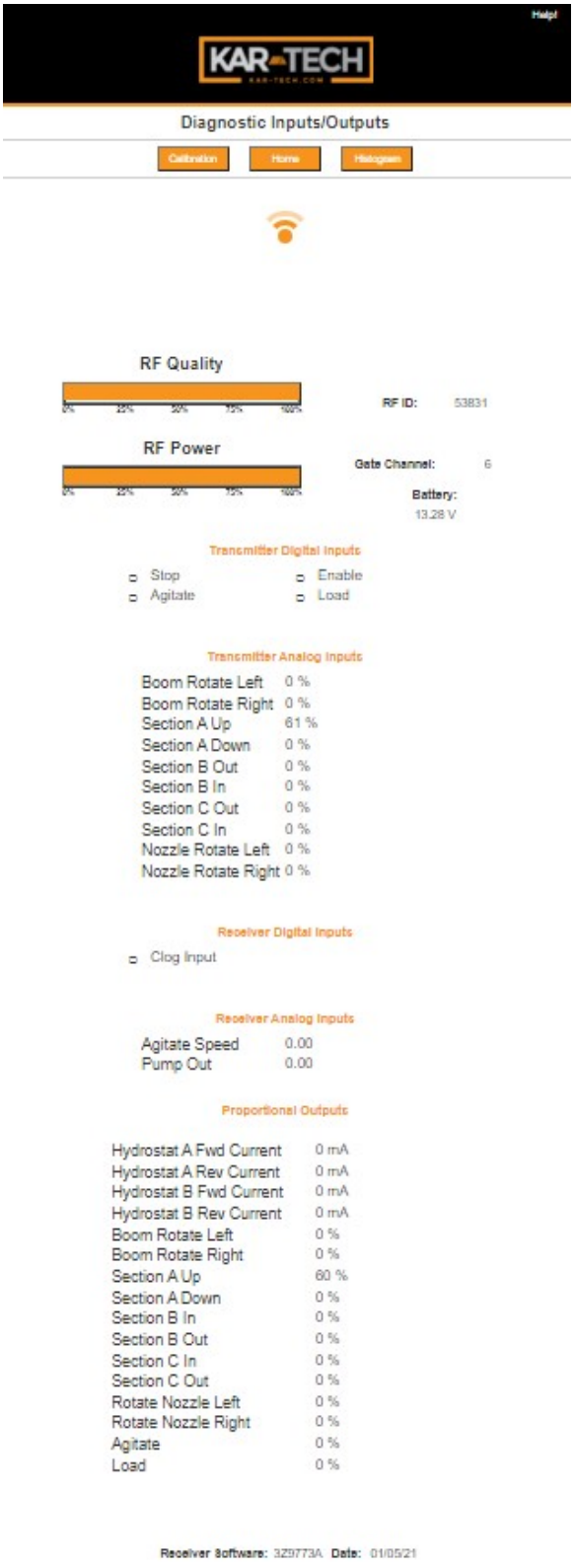


Main Page

DIAGNOSTICS

Tap the `Diagnostic` button to see the diagnostic screens, which shows the present state of remote communications, and system I/O.

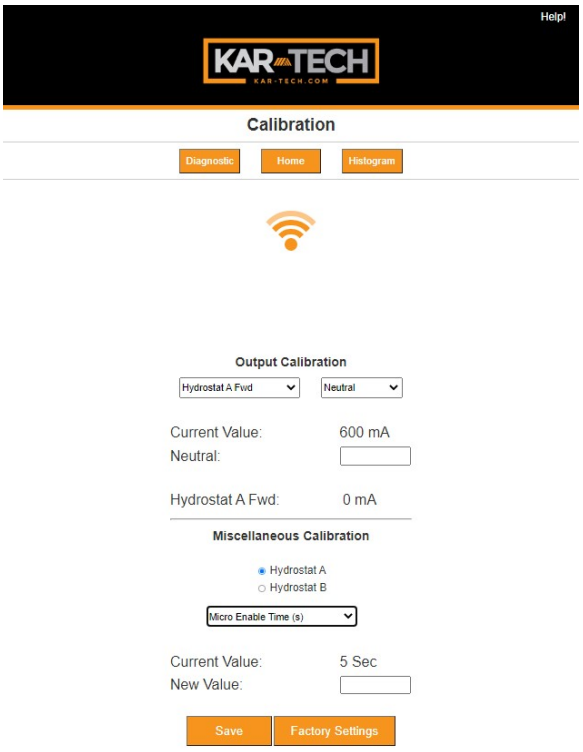
When the round circle next to a label is dark, the corresponding ON/OFF input or output is sensed to be active or ON.



Diagnostics Page

CALIBRATION

To change the configuration of the unit, tap the Calibration icon.



Calibration Page

The password to gain access to the calibration page is 1262.

To adjust a proportional output's configuration, use the following procedure:

1. Select the output to change from the first drop-down menu
   a. HYDROSTAT A FWD – Select to adjust Hydrostat A FWD output
   b. HYDROSTAT A REV– Select to adjust Hydrostat A REV output
   c. HYDROSTAT B FWD – Select to adjust Hydrostat B FWD output
   d. HYDROSTAT B REV – Select to adjust Hydrostat B REV output
   e. BOOM ROTATE LEFT – Select to adjust Boom Rotate Left output
   f. BOOM ROTATE RIGHT – Select to adjust Boom

Rotate Right output

g. SECTION A UP – Select to adjust Section A Up output

h. SECTION A DOWN – Select to adjust Section A Down output

i. SECTION B IN – Select to adjust Section B In output

j. SECTION B OUT – Select to adjust Section B Out output

k. SECTION C IN – Select to adjust Section C In output

l. SECTION C OUT – Select to adjust Section C Out output

m. ROTATE LEFT NOZZLE – Select to adjust Rotate Left Nozzle output

n. ROTATE RIGHT NOZZLE – Select to adjust Rotate Right Nozzle output

o. AGITATE – Select to adjust Agitate output

p. LOAD – Select to adjust Load output

2. Select the parameter of the output to change from the second drop-down menu

   a. Neutral – current to valve in mA when at neutral position

   b. Min – Minimum amount of current to valve in mA or percent %

c. `Max` – Maximum amount of current to valve in mA or percent %
d. `Ramp Up` – Time in seconds to go from Min to Max current
e. `Ramp Down` – Time in seconds to go from Max current to no current
f. `Frequency` – Dither frequency to valves in Hz (Change affects all outputs)

3. Enter the new value in the new value box
4. Tap the `Save` button to send the setting to memory

In the miscellaneous calibration area there are also these parameters available to change:

1. `Hydrostat A or B` – Use the two checkboxes to choose which Hydrostat outputs to use.
2. `Micro Enable Time (s)` – This is the time in seconds the user has to operate a button after the enable button has been pressed.
3. `Giga Enable Time (s)` – This is the time in seconds the user has to operate a button after the enable button has been pressed.
4. `Agitate Run Time (s)` – This is the time in seconds the AGITATE output will turn on after the agitate button has been pressed.
5. `Load Run Time (s)` – This is the time in seconds the LOAD output will turn on after the load

button has been pressed.

6. Clog speed (%) – This is the percentage of the hydrostat rev output that will turn on when the clog input is high.
7. Prop Button Deadband (%) – This is the percent of the proportional buttons that must be pressed before the output turns on.
8. Enter the new value in the new value box
9. Tap the Save button to send the setting to memory

The lines to the right of the parameter indicate the present value of the output (if active).

Tap the Factory Settings button to return all outputs to standard values. Tap HOME to quit calibration and return to the main menu.

HISTOGRAM

Tap the Histogram icon to see a set of screens that show which error codes are active and how many times the specific error code has been active.

This feature can be used to troubleshoot machine wiring and other problems. Tapping the Reset button resets the error code counts. The password to reset error codes is 1262. Tap the Home button to return to the main menu.

Note: the GATE is not a precision measurement instrument. There may be delays.

Histogram Page

SOFTWARE UPDATE

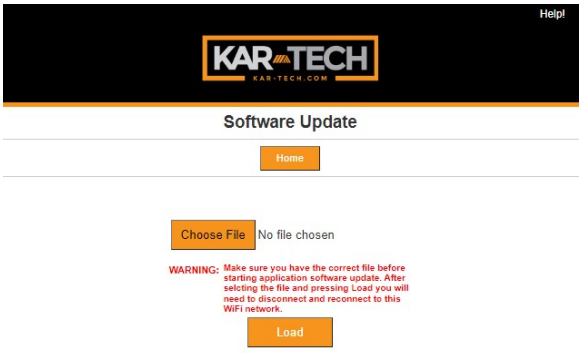
The password to gain access to the software update page is 1262.

Use the `Choose File` button to select new software on your device with which to program the receiver. Kar-Tech will have provided software in the .kar format. Once the file is selected, press the LOAD button to upload the file. (NOTE: Pop-up messages will guide user for the proper step by step procedure). Disconnect then reconnect to the network and go to software update. Then choose the correct .kar file. Press submit to load the file. Once complete, disconnect then reconnect to the network and press HOME.

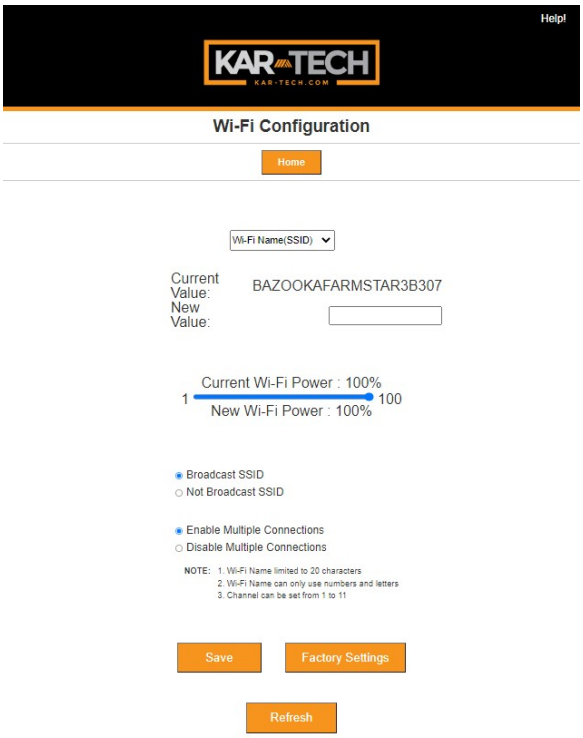
Note: This feature does not work on Apple mobile or tablet products.

Note: Do not turn the receiver or the GATE off during the

upload process.



Software Update Page



Gate Configuration Page

GATE CONFIGURATION

The password to gain access to the gate configuration page is 1262.

This page allows you to change the name (SSID) of the Wi-Fi network you are connecting to. Factory settings will rename the Wi-Fi to its original name.

If Broadcast SSID option is selected, the Wi-Fi name (SSID) is public and it will be visible to any other Wi-Fi devices. Otherwise, the Wi-Fi name (SSID) is hidden and it would require manual connection to the network.

If Enable Multiple Connections is selected, multiple connections up to 4 devices could be connected to the GATE. However, only one of the connected devices can use the GATE. If Single connection is enabled, only one device

can be connected to the GATE.

NOTE: A reconnect to the new Wi-Fi connection is needed after each change. It is advised to keep a note of the Wi-Fi name in case if Not Broadcast SSID option is selected. Forgetting the Wi-Fi name after selecting this option will require the GATE to be sent to KAR-TECH for RESET.

WIRING

CABLE, 24 COND 18 AWG POLY, BLACK, P/N: 020-050-2418	
COLOR	DESCRIPTION
RED	POWER (9-30V)
BLACK	GROUND
BLUE	BOOM ROTATE LEFT PWM OUTPUT
ORANGE	BOOM ROTATE RIGHT PWM OUTPUT
YELLOW	BOOM SECTION A UP PWM OUTPUT
BROWN	BOOM SECTION A DOWN PWM OUTPUT
RED/BLACK	BOOM SECTION B IN PWM OUTPUT
BLUE/BLACK	BOOM SECTION B OUT PWM OUTPUT
ORANGE/BLACK	BOOM SECTION C IN PWM OUTPUT
YELLOW/BLACK	BOOM SECTION C OUT PWM OUTPUT
BROWN/BLACK	ROTATE NOZZLE LEFT PWM OUTPUT
BLACK/RED	ROTATE NOZZLE RIGHT PWM OUTPUT
BLUE/RED	AGITATE (6A) PWM OUTPUT
ORANGE/RED	LOAD (6B) PWM OUTPUT
YELLOW/RED	HYDROSTAT A FWD CR OUTPUT
BROWN/RED	HYDROSTAT A REV CR OUTPUT
BLACK/BLUE	HYDROSTAT B FWD LOW CR OUTPUT
RED/BLUE	HYDROSTAT B REV LOW CR OUTPUT
ORANGE/BLUE	CLOG N.O. DIGITAL INPUT
YELLOW/BLUE	AGITATE SPEED 0-5V ANALOG INPUT
BROWN/BLUE	PUMP OUT 0-5V ANALOG INPUT

ROUTINE MAINTENANCE

Clean transmitters regularly with a damp cloth and mild detergent.

Inspect electrical wiring for wear points or other damage. Repair as required.

Inspect all connections for looseness or corrosion. Tighten and/or "seal" as necessary.

MAINTENANCE PRECAUTIONS

When performing any inspection or maintenance work on the remote system, always exercise care to prevent injury to yourself and others or damage to the equipment. The following are general precautions, which should be closely followed in carrying out any maintenance work.

Do not have hydraulic power available to the valves when performing electrical tests.

Never operate or test any function if any person is in an area where they could be hurt by being hit or squeezed by the hydraulic equipment.

Turn power off before connecting or disconnecting valve coils or other electrical loads.

TROUBLESHOOTING

This next section provides basic operator level troubleshooting for the GIGA AND MICRO REMOTE system. If, after following these instructions, the system still does not function, contact your KAR-TECH representative for further instructions or servicing.

TROUBLESHOOTING CHART

PROBLEM	***SOLUTION***
No functions work	1. Verify transmitter power source – battery, CAN cable, external supply, etc 2. Verify that receiver control module power source is present at its input connector 3. Check for proper system ground 4. Check the receiver or control module LED status display for functionality or errors 5. Check the hydraulic system
Certain functions do not work	1. Check the wiring and connections from the receiver control module to the control module to the valve coil for the particular function that does not work 2. Check the receiver control module LED status display for possible fault or error indication 3. Check the hydraulic system 4. Check the electrical system
Functions operate intermittently	1. Check for loose connections at the valve coil 2. Check the receiver control module LED status display for functionality or errors 3. Check the receiver antenna for damage and possible obstructions 4. Check the hydraulic system

ERROR CODES

ERROR	PROBABLE CAUSE
1	RF COMMUNICATION PROBLEM
2	LOW SYSTEM VOLTAGE, LESS THAN 11V
3	HYDROSTAT A FWD OUTPUT ERROR
4	HYDROSTAT A REV OUTPUT ERROR
5	HYDROSTAT B FWD OUTPUT ERROR
6	HYDROSTAT B REV OUTPUT ERROR
7	BOOM ROTATE LEFT OUTPUT ERROR
8	BOOM ROTATE RIGHT OUTPUT ERROR
9	BOOM SECTION A UP OUTPUT ERROR
10	BOOM SECTION A DOWN OUTPUT ERROR
11	BOOM SECTION B IN OUTPUT ERROR
12	BOOM SECTION B OUT OUTPUT ERROR
13	BOOM SECTION C IN OUTPUT ERROR
14	BOOM SECTION C OUT OUTPUT ERROR
15	NOZZLE ROTATE LEFT OUTPUT ERROR
16	NOZZLE ROTATE RIGHT OUTPUT ERROR
17	AGITATE OUTPUT ERROR
18	LOAD OUTPUT ERROR
19	BOOM ROTATE LEFT BUTTON ERROR
20	BOOM ROTATE RIGHT BUTTON ERROR
21	BOOM SECTION A UP BUTTON ERROR
22	BOOM SECTION A DOWN BUTTON ERROR
23	BOOM SECTION B IN BUTTON ERROR
24	BOOM SECTION B OUT BUTTON ERROR
25	BOOM SECTION C IN BUTTON ERROR
26	BOOM SECTION C OUT BUTTON ERROR
27	NOZZLE ROTATE LEFT BUTTON ERROR
28	NOZZLE ROTATE RIGHT BUTTON ERROR
29	AGITATE SPEED INPUT ERROR
30	LOAD SPEED INPUT ERROR
31	WI-FI CHIP ERROR

Error code explanations:

1	Transmitter is off Transmitter went to sleep mode Interference in RF communication link
2	System voltage is below 11V (12V system)
3-18	Short or open load/coil on output
19-28	No voltage present on button in transmitter
29-30	Input is over 5.4V and therefore in error
31	Wi-Fi chip has been damaged and wi-fi will not work

PARTS LIST

PART NUMBER	*DESCRIPTION*
3B3072A	MICRO RADIO TRANSMITTER
3B3074A	GIGA RADIO TRANSMITTER
3B3073A	RADIO RECEIVER
B20172A	MICRO WALL CHARGER
B20173A	MICRO CIGARETTE CHARGER
B20178A	GIGA MAGNETIC USB CHARGER

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

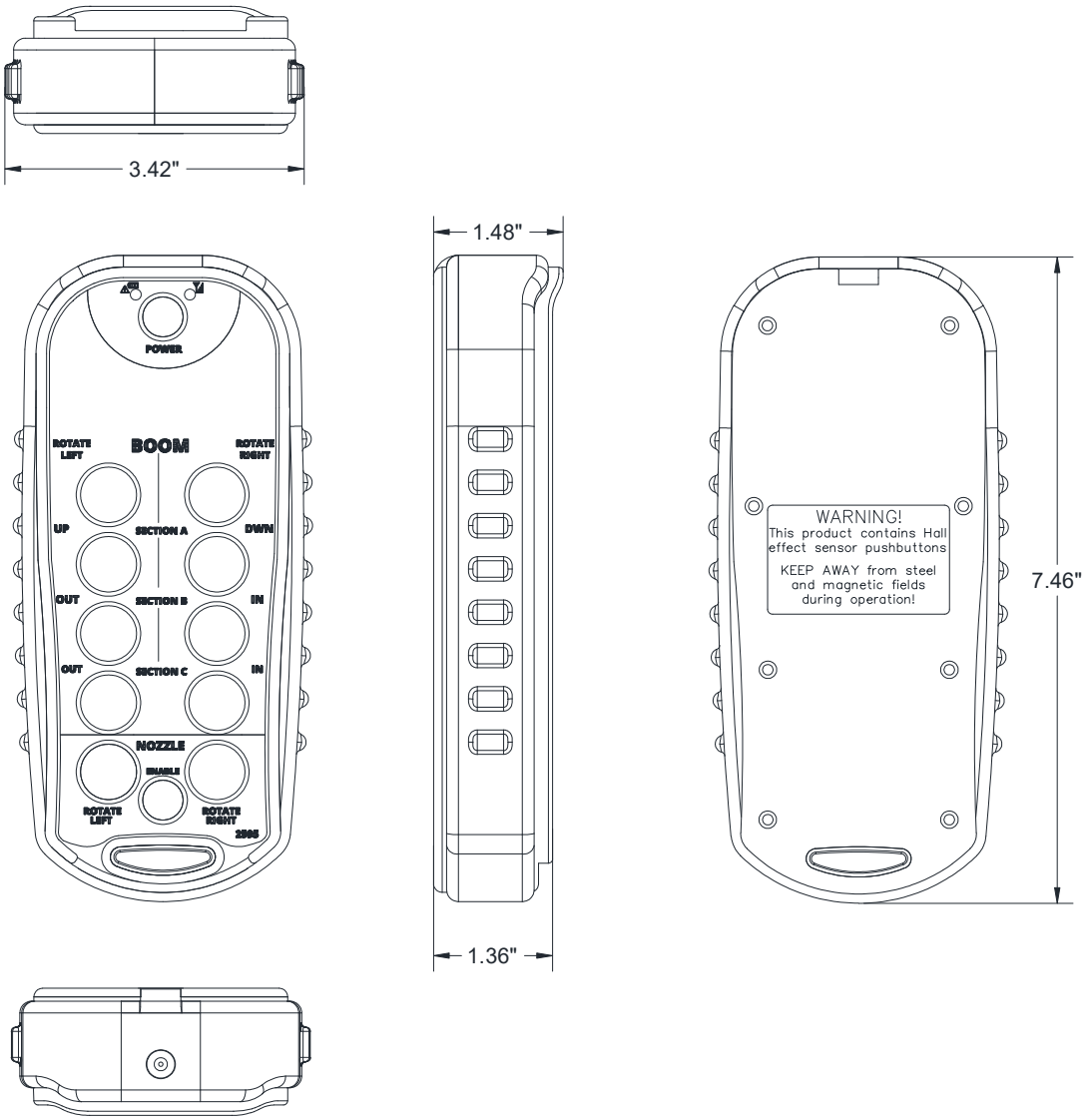
Note: For operation with negative ground systems only.

WARNING:

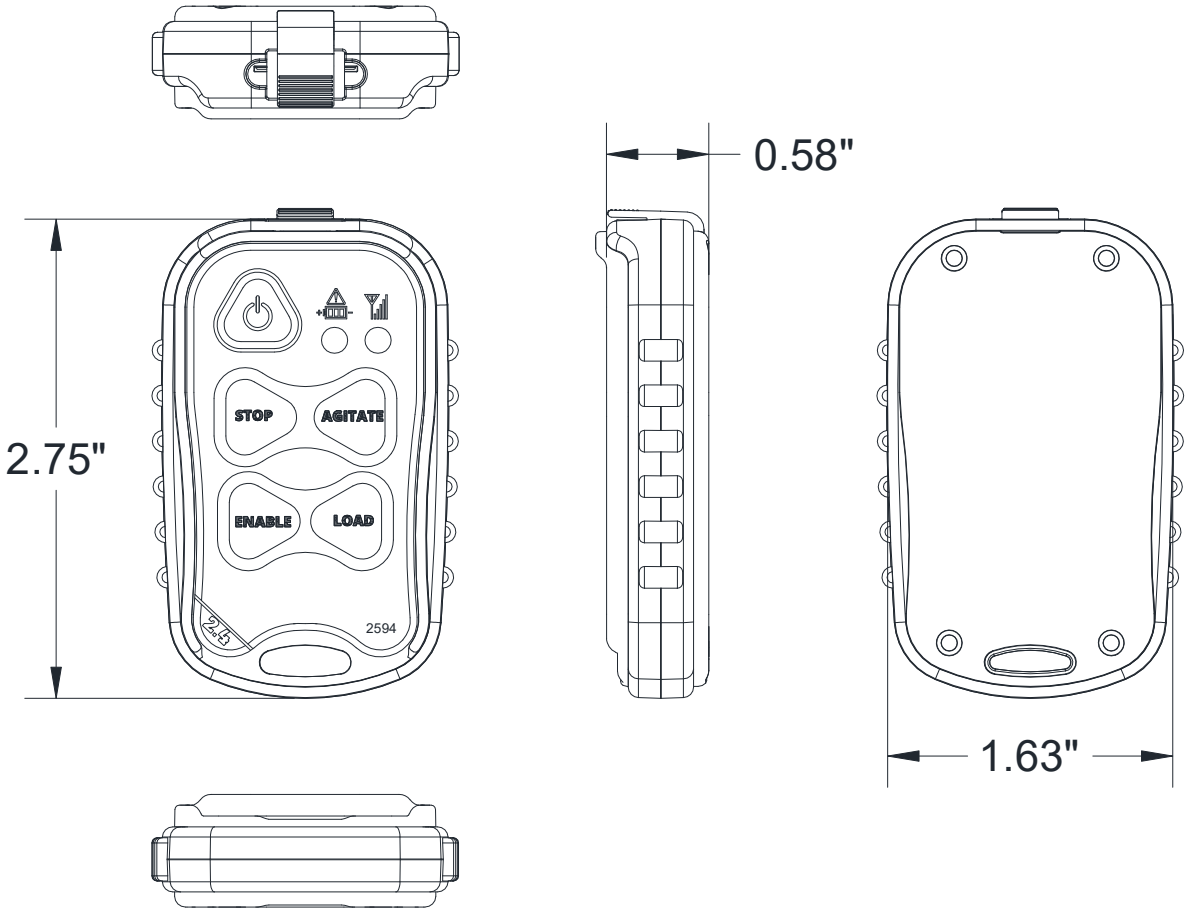
The GIGA AND MICRO REMOTES must be operated in compliance with all applicable safety regulations, rules, and practices. Failure to follow required safety practices may result in death or serious injury.

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.

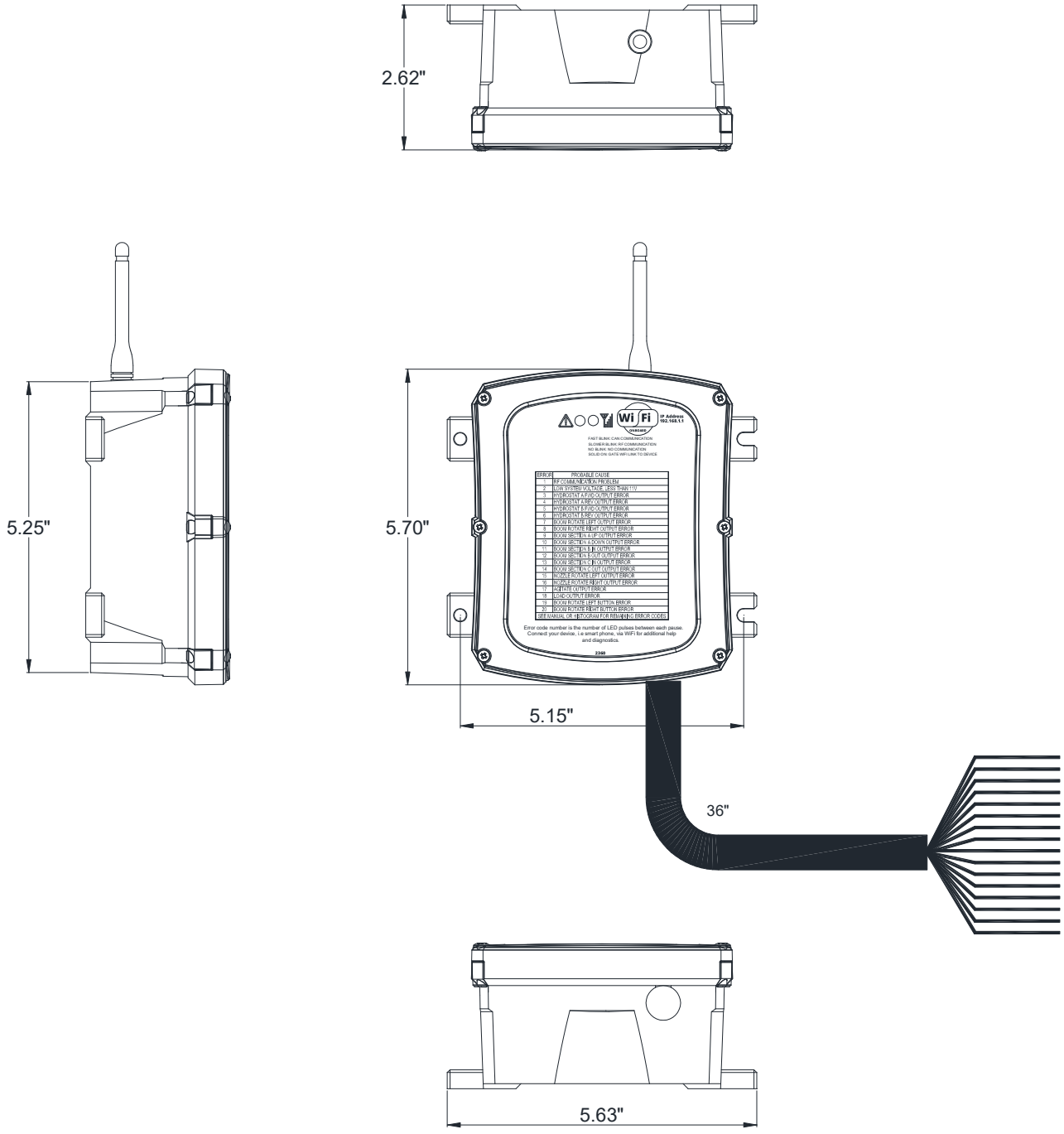
GIGA TRANSMITTER PICTORIAL



MICRO TRANSMITTER PICTORIAL



RECEIVER PICTORIAL



SPECIFICATIONS

TRANSMITTER

Equipment Class ..... Part 15 Spread Spectrum Transmitter
FCC ID ..... P4U-MCT247 OR P4U-MCT241
ICC (Industry Canada Certification) ID ... 4534A-MCT247 OR 4534A-MCT241
Power supply ..... 3.7V Rechargeable Battery
Fast charger temperature range ..... +5˚C to +60˚C
Operating temperature - Radio ..... -40˚C to +85˚C
Storage temperature ..... -40˚C to +100˚C
RF Frequency 2.4GHz
RF Transmit power (EIRP) ..... 100 mW
LCD display operating range (if equipped) ..... -20˚C to +70˚C
Vibration ..... 3G to 200Hz
Shock 50G
NEMA 12

RECEIVER

Power supply voltage 9-30VDC
Operating temperature ..... -40˚C to +85˚C
Storage temperature ..... -40˚C to +100˚C
Outputs 5.0A max each for momentary, 3.0A max each for latched, sourcing
System ..... 20A system max
Digital Inputs (when equipped) ..... supply voltage
Analog Inputs (when equipped) 0-5VDC
RF Frequency 2.4GHz
Vibration ..... 3G to 200Hz
Shock 100G
NEMA 4X

INSTRUCTION TO THE USER (GIGA AND RECEIVER)

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 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.

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.

FCC CAUTION: Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

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 quivalente (p.i.r.e.) ne dépassepas l'intensité nécessaire à l'établissement d'une communication satisfaisante.

OEM Responsibilities to comply with FCC and Industry Canada Regulations

GIGA AND MICRO REMOTE

The MCT247 Transceiver has been certified for integration into products only by the OEM integrators under the following conditions:

This device is granted for use in Mobile and Portable configurations per Part 2.1091(b) in which the antennas used must be installed to provide a separation distance of at least 3.6cm from all person and not be co-located with any other transmitters except in accordance with FCC and Industry Canada multi-transmitter product procedures.

As long as the two conditions above are met, further transmitter testing will not be required. However the OEM integrator is still responsible for testing their end product for any additional compliance requirements required with this module installed.

If the above conditions are not met, then the FCC and Industry Canada authorizations are no longer valid and the FCC ID and IC Certification Number cannot be used on the final product. In these cases the OEM integrator is responsible for re-evaluating the end product and obtaining a separate FCC and Industry Canada authorization.

Recertification is also needed for all other operating configurations, including portable configurations with respect to part 2.1093 and different antenna configurations.

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.

INSTRUCTION TO THE USER (MICRO)

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-MCT241”

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 quivalente (p.i.r.e.) ne dépassepas 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 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- MCT241”

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 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.

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)
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.: CTL1603030544-WE**
Radio (Article 3.2)	**ETSI EN 300 328 V1.8.1**	**Report No.: CTL1603030544-WR**
Safety (Article 3.1a)	**EN 60950-1:2006+A11:2009+A1:2010+A12:2011+A2:2013**	**Report No.: CTL1603030544-WS**
Health (Article 3.1a)	**EN 62209-2:2010** **EN 50566:2013**	**Report No.: CTL1603030544-SAR**
	[Titles, dates of publication of documents mentioned]	

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