SALES KIT, MINI PROP WI-FI 2.4 SYSTEM
INCLUDING:
1   TRANSMITTER
1   RECEIVER

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.

Only use approved chargers
WALL CHARGER/ 110-240VAC
CAR CHARGER/ 12-24VDC

0.58"
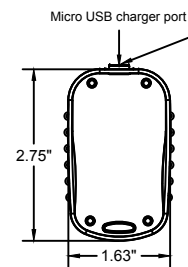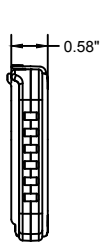
Micro USB charger port
Check orientation before inserting
Micro USB charger plug. Do not
insert with more than 5 lb. of force.

Micro USB charger port.

2.75"

TRANSMITTER ERROR CODE CHART

ERROR CODE	PROBABLE CAUSE
1	LOW BATTERY

ERROR CODE NUMBER IS THE NUMBER OF RED LIGHT BLINKS BETWEEN EVERY PAUSE.

1.63"

TRANSMITTER, MICRO, 6 BUTTON, VFD

4.51"

REMOVABLE ANTENNA

RECEIVER ERROR CODE CHART
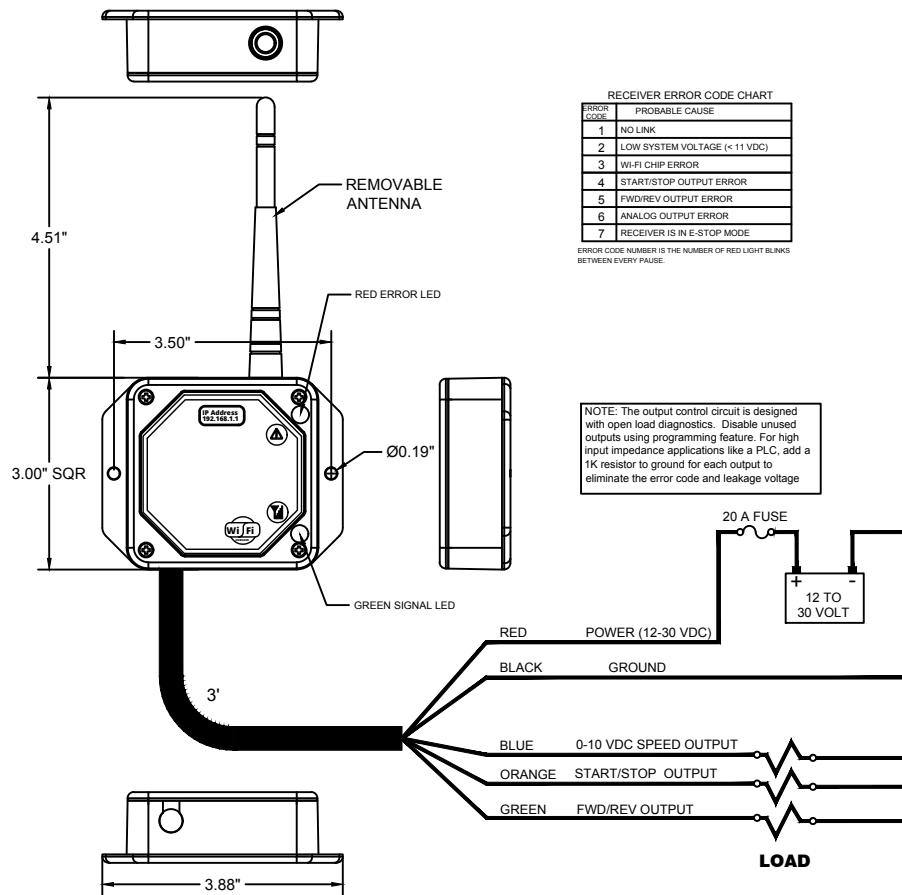
ERROR CODE	PROBABLE CAUSE
1	NO LINK
2	LOW SYSTEM VOLTAGE (< 11 VDC)
3	WI-FI CHIP ERROR
4	START/STOP OUTPUT ERROR
5	FWD/REV OUTPUT ERROR
6	ANALOG OUTPUT ERROR
7	RECEIVER IS IN E-STOP MODE

ERROR CODE NUMBER IS THE NUMBER OF RED LIGHT BLINKS BETWEEN EVERY PAUSE.

RED ERROR LED

3.50"

3.00" SQR

Ø0.19"

NOTE: The output control circuit is designed with open load diagnostics. Disable unused outputs using programming feature. 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

GREEN SIGNAL LED

3'

20 A FUSE

+ 12 TO 30 VOLT

RED	POWER (12-30 VDC)
BLACK	GROUND
BLUE	0-10 VDC SPEED OUTPUT
ORANGE	START/STOP OUTPUT
GREEN	FWD/REV OUTPUT

LOAD

3.88"

RECEIVER, MINI, 2 ON/OFF OUT, 0-10V OUT, SMA, VFD

OUTPUTS OUT OF RANGE LOGIC SETTINGS:
- Factory Default: Every output stays ON by default if the transmitter is out of range.
- To have all outputs turn OFF when the radio link is lost:
    a. Turn ON the transmitter and turn OFF the receiver
    b. Press and hold the FWD, REV, and START/STOP buttons.
    c. Turn ON the receiver while continuing to hold the above buttons
    d. Wait approximately 2 seconds for settings to save, then release the buttons.
- To return to all outputs staying ON is the radio link is lost:
    a. Turn ON the transmitter and turn OFF the receiver
    b. Press and hold the SPEED INC, SPEED DEC, and START/STOP buttons.
    c. Turn ON the receiver while continuing to hold the above buttons.
    d. Wait approximately 2 seconds for settings to save, then release the buttons.

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 if no buttons are pressed for a period of time. This time is programmable, see SLEEP TIME below, and set to 15 minutes at default factory setting.
- 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 that the intensity of the red LED should be the same as the green.
- The transmitter's red LED blinks 1 time per second if the battery is low and needs charging
- All outputs are latching by default.
- The REV button latches the FWD/REV output on; the FWD button turns the FWD/REV output off.
- The SPEED output varies based on operator input from the min to max setting. The default values are 0 & 10 VDC respectively.
    - System voltage should be at least 12 VDC to have the complete 0-10 VDC range.
    - Each press of the INCREASE or DECREASE button increases or decreases the SPEED output voltage by 1vdc. This can be adjusted by calibrating the Step size.
    - If the INCREASE or DECREASE button is held for 3 seconds, the SPEED output ramps to max or min respectively over 1 second. ACCELERATION DELAY and ACCELERATION TIME are configurable parameters.
- Latching outputs stay on if transmitter goes out of range by default. This is also configurable.

SYNCHRONIZING TRANSMITTER AND RECEIVER
Each transmitter and receiver pair is synchronized together at the factory. If a new transmitter is needed, synchronizing is required:
1. Make sure both the transmitter and receiver are off. No LED's should be blinking.
2. Press and hold the POWER button on the transmitter until the red and green LED's begin blinking together (10s), then release.
3. Apply power to the receiver and wait a few seconds until only the green LED begins to blink on the transmitter
4. Teach complete
5. NOTE: If a transmitter has been switched between the receivers, the previous receiver will remember that transmitter's ID. It's good practice to follow the change ID procedure below prior to teaching if the transmitter being replaced still exists. There is potential for a single transmitter to control multiple receivers otherwise.

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 irrespective of receiver status (on or off). To change the time the transmitter waits before going to sleep, use the following procedure:
1. With the transmitter and receiver off, press and hold the SPEED INCREASE, SPEED DECREASE, START/STOP, and then the POWER buttons.
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. REV = 15 minutes
     B. FWD = 30 minutes
     C. SPEED DECREASE = 60 minutes
     D. SPEED INCREASE = 120 minutes
     E. START/STOP = 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 FWD, REV, and POWER buttons simultaneously until both LEDs start to blink
4. Wait for few seconds until the green LED starts to blink together for 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 can be changed using the following Change ID procedure:
     1. Make sure the transmitter is off.
     2. Press and hold the FWD, SPEED DECREASE, and START/STOP buttons, and then POWER.
     3. Release all buttons when the green and red LEDs started toggling.
     4. Press any button and release. The green LED should be blinking rapidly.
     5. ID change Sequence complete.

SPECIFICATIONS:
- RF: 2.4GHz, 100mW
- Temperature: Receiver: -40 to +85ºC Transmitter: -20 to 60ºC
- Outputs : 5A, Sourcing, 20A system max
- Transmitter Power : Custom lithium polymer battery
- Battery life: 30-40 hours continuous operation
- Receiver current: 46 to 53 mA @ 12 VDC without load, Wi-Fi Linked.

CALIBRATING & TROUBLESHOOTING USING INTERNAL 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, tablets or personal computers. It supports standards-compliant web browsers and allows the user to configure, diagnose and troubleshoot the system. For best compatibility, please use Chrome, Firefox, Edge, or Safari.

ACCESSING THE CONTROL PANEL

   Turn on the power to the receiver.

2. Use your device and look for the available WiFi networks. After a moment, a network under the name of "KARTECH3A511" will be available. Connect to the network using the password 3A5113B1. If the GATE is not used for 5 minutes after power up it will automatically turn off until the receiver is power cycled.

3. Once the connection is established, open a web browser on your device and enter 192.168.1.1 in the address bar.
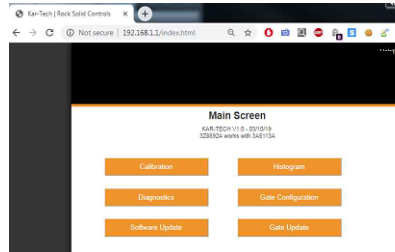
Main Screen

CALIBRATION:

- To change the configuration of the unit, tap the Calibration icon.
- The password to gain access to the calibration page is 1262.
- The start/stop output and the forward/reverse output can be set to momentary or maintained action using the checkboxes.
- If "Outputs off - RANGE" is checked, all outputs will be turned off when the transmitter is out of range of the receiver for a brief period. They DO/DO NOT turn back on when the transmitter is back in range.
- If "Outputs off - E-STOP" is checked, pressing the transmitter's E-Stop will require a receiver power cycle to re-activate outputs for additional safety.
- Tap the SAVE button after any change to save the setting to memory.
- Tap the Factory Settings button to return all outputs to standard values. Tap HOME to quit calibration and return to the main menu.
- Tap on the respective HELP icons for more information of the controls.
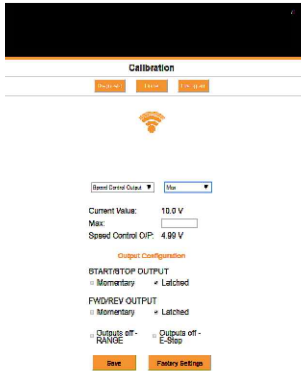
SPEED CONTROL OUTPUT 0-10 VDC:

MIN, MAX & increment values can be adjusted for the speed output. Speed output voltage increases or decreases by the step size for respective button press. The step is calculated as shown below..

$$\text{STEP SIZE} = \frac{\text{MAX - MIN}}{\text{INCREMENTS}}$$

Default MIN, MAX & INCREMENT values are 0 VDC, 10 VDC & 10 respectively. (NOTE: The minimum step size is 200 mV, maximum setting can be 10 VDC).
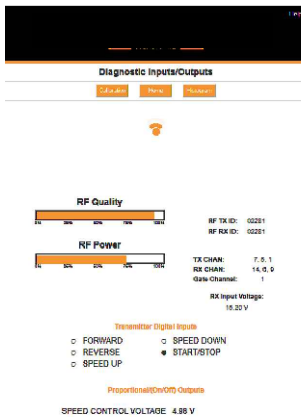
ACCELERATION DELAY:

This value determines how long the increase or decrease button must be held before ramping to max or min. The default value is 3sec. Values range from 0 to 5 sec in the order of milliseconds.
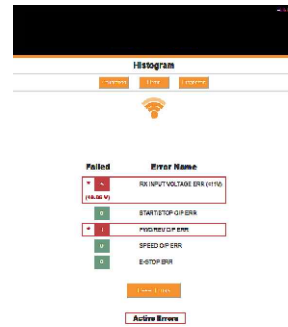
ACCELERATION TIME:

This value determines how long the SPEED output takes to increase or decrease each increment if SPEED buttons are to be held continuously. The default value is 100 milliseconds. Values range from 100 milliseconds to 1000 milliseconds.

Calibration

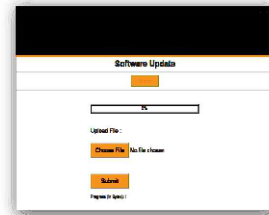*Diagnostics*

DIAGNOSTICS:

- Tap the Diagnostic button to see the diagnostic page, 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.
- It shows the info of the speed output, transmitter battery level, receiver operating voltage and some other wireless parameters.
- It also shows the information of the current transmitter and receiver ID and their respective channels they both are currently communicating.
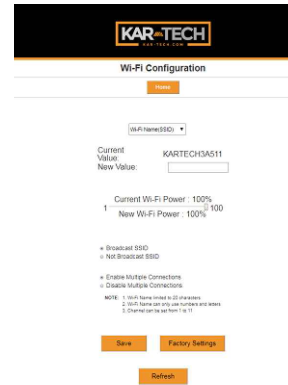

Histogram

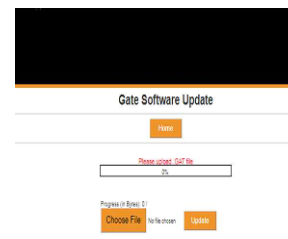**HISTOGRAM:**

- Tap the Histogram icon to see which error codes are active and how many times the specific error code has been active historically.
- This feature can be used to troubleshoot machine wiring and other intermittent 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 in showing currently active status and error counts.

Receiver Software Update

SOFTWARE UPDATE: (Make sure .KAR file is available to start this process)

- The password to gain access to the software update page is 1262.
- Click on UPDATE to delete the old software and disconnect and re-connect to the Wi-Fi. Then click on HOME and select SOFTWARE UPDATE.
- 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 SUBMIT button to upload the file. (NOTE: Pop-up messages will guide user for the proper step by step procedure.)

Note: Due to restrictions by Apple, at the time of print, this feature does not work on Apple phones, tablets or other IOS mobile phones.
Note: Do not turn the receiver off during the upload process.

WI-FI Configuration Page

Wi-Fi 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 simultaneously. If Single connection is enabled, only one device can be connected to the GATE.

There is a bar for adjusting the Wi-Fi power (default is 100%). This is useful when multiple GATEs are being used in close proximity.

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 "Not Broadcast SSID" option is selected. Forgetting the Wi-Fi name after selecting this option will require the receiver to be sent to KAR-TECH for factory reprogramming.

GATE Software Update

GATE SOFTWARE UPDATE: (Make sure .GAT file is available to start this process)

- This page was designed to upload software that changes the product that the GATE interface works with.
- The password to gain access to this page is 1262.
- Using Choose File select the proper .GAT file and press UPDATE button.
- Once the UPDATE button is pressed the application the GATE will be deleted and new file will be uploaded. A "Booting!" message will display when complete.
- Press HOME button and screen will redirect to MAIN SCREEN.
- Update Complete.