Powering Business Worldwide

Con-Tech Mixer

Installation / Configuration Manual

T110C Transmitter

R160 Receiver

April 20, 2017

DM-R160-0636A

Revision 4

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Table of Contents

NOTE: *These instructions are intended only for installing and operating the remote control equipment described here. This is not a complete Operator's Manual. For complete operating instructions, please read the Operator's Manual appropriate for your particular machine.*

Safety Precautions

READ ALL INSTRUCTIONS

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

Failure to follow the SAFETY PRECAUTIONS may result in radio equipment failure and serious personal injury

Installation

PROVIDE A SAFETY CUTOFF SWITCH. If maintenance is required, the radio must be disconnected from power

USE PROPER WIRING. Loose or frayed wires can cause system failure, intermittent operation, machine damage, etc.

DO NOT INSTALL IN HOT AREAS. This apparatus can be damaged by heat in excess of 158° F (70° C)

Personal Safety

MAKE SURE MACHINERY AND SURROUNDING AREA IS CLEAR BEFORE OPERATING. Do not activate the remote system unless it is safe to do so.

TURN OFF THE RECEIVER POWER BEFORE WORKING ON MACHINERY. Always disconnect the remote system before doing any maintenance to prevent accidental operation of the machine

Care

KEEP DRY. Do not clean the transmitter / receiver under high pressure. If water or other liquids get inside the transmitter battery or receiver compartment, immediately dry the unit. Remove the case and let the unit air dry

CLEAN THE UNIT AFTER OPERATION. Remove any mud, dirt, concrete, etc. from the unit to prevent clogging of buttons, switches, etc. by using a damp cloth.

Maintenance / Welding

DISCONNECT THE RADIO RECEIVER BEFORE WELDING on the machine the receiver is connected to. Failure to disconnect will result in the destruction of the radio receiver.

System Overview

The **T110C / R160** is a portable, long range, programmable radio remote control system. Designed as a compact and easy-to-use product, this system puts complete control of your machine where it's needed most, with the operator. It's robust, easy to install and has complete self-diagnostics. This system can be a simple cable replacement or add intelligence to make it a total control package. It's a radio, a PLC and a valve driver all in one.

The **T110C / R160** system uses Frequency Hopping Spread Spectrum (FHSS) technology. FHSS devices concentrate their full power into a very narrow signal that randomly hops from frequency to frequency within a designated band. This transmission pattern, along with CRC-16 error-checking techniques, enables our industrially hardened **FHSS** signals to overcome interference that commonly affects licensed radios

The R160 receiver is designed to be powered from a 12VDC or 24VDC system. It features 19 solid state, high-side driver input / output controls and a reliable E-Stop control.

The T110C comes with 4 to 10 buttons to provide the user flexibility to control the functions they need. The transmitter uses regular alkaline AA batteries and is also iQ ready™. When used with the iQ DOCK™, the T110C can use and recharge NiMH or Lithium rechargeable AA batteries. Each T110C transmitter uses a unique ID code to ensure that no two systems will conflict at a job site.

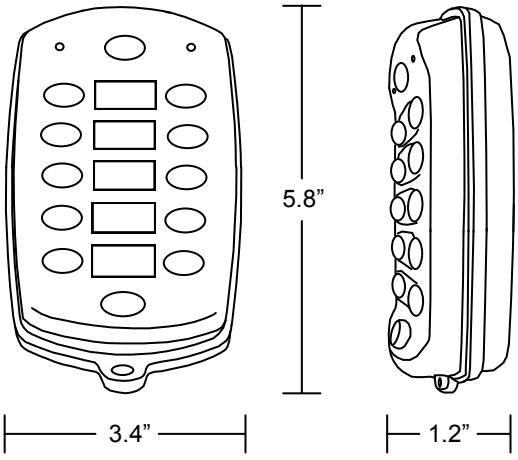
Features

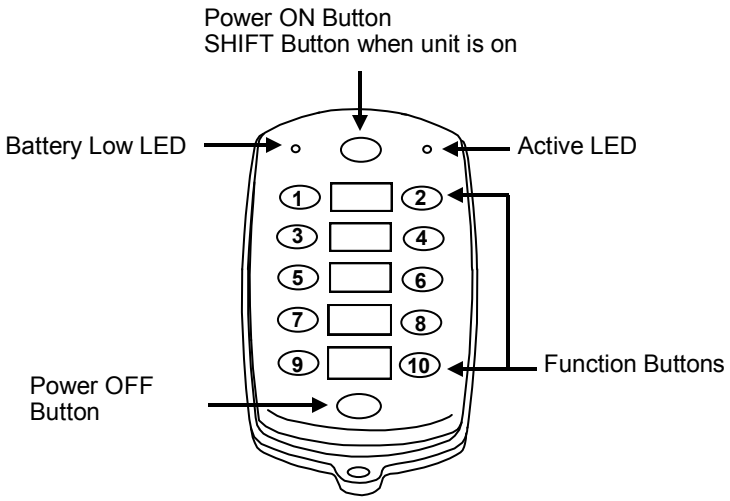
FCC, ISC, CE approved
iQ ready™
License free
1200 foot range @ 900 MHz (900 ft. @ 2.4 GHz)
Hand held / weatherproof / ergonomic
Simple "wire-and-use" installation
Resilient to impact and shock
Available in both 900 MHz and 2.4 GHz
Available with optional E-Stop for ensured operator safety
Factory configurable for all custom applications.

R160 Receiver

T110C Transmitter

T110C Dimensions and Controls

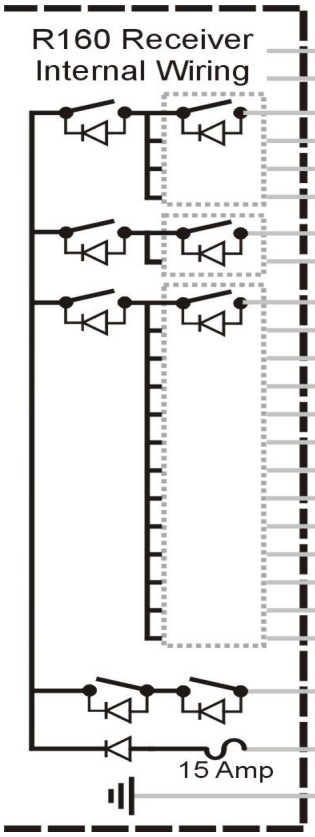




Installing the Receiver

Use the **Wiring Diagram** and the **Connector Diagram** below to connect the receiver pins directly to the appropriate contacts of the machine electronics. R160 Output Cables can be provided with every system to simplify the wiring process. The Wire Color column below only applies to the EATON Output Cable configuration. Tips on mounting, power connections and filtering are also provided under **Installation Considerations**.

Wiring Diagram



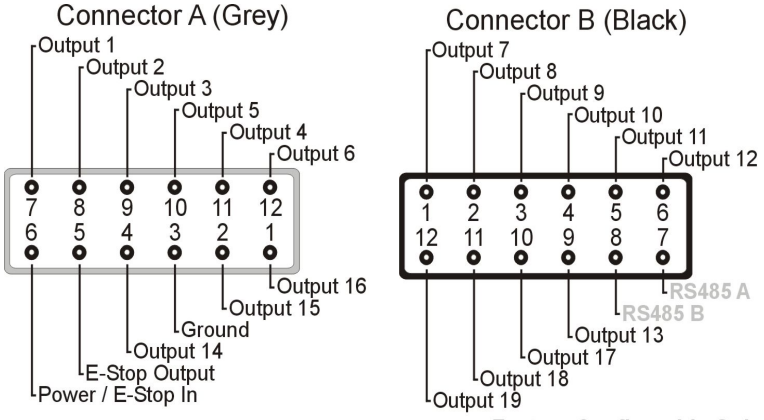
Pin-Output	Wire Colors	Functions	Buttons
B7		Factory Configurable Only	N/A
B8		Factory Configurable Only	N/A
B12 - 19	Black/Red	Drum Start / Stop Input (Note 1)	N/A
B11 - 18	White/Black	Chute Lock / Unlock Input (Note 1)	N/A
B10 - 17	Blue/White	Hopper Up / Down Input (Note 1)	N/A
A1 - 16	Blue/Black	Throttle Voltage Input	N/A
A2 - 15	Black/White	Throttle Dec. Voltage Output (Note 2)	Button 3
A4 - 14	Green/Black	Throttle Inc. Voltage Output (Note 2)	Button 1
B9 - 13	Red/White		N/A
B6 - 12	Orange		N/A
B5 - 11	White		N/A
B4 - 10	Green	Add Water	Button 10
B3 - 9	Green/Black/White	Drum Start / Stop (Latched) (Note 1)	Button 2
B2 - 8	Red/Black/White	Hopper Up / Down (Latched) (Note 1)	Button 9
B1 - 7	White/Red/Black	Chute Lock / Unlock (Latched) (Note 1)	Button 4
A12 - 6	Orange/Red	Chute Down (Momentary)	Button 8
A10 - 5	Orange/Black	Chute Up (Momentary)	Button 6
A11 - 4	Blue/Red	Throttle Decrease (Momentary)	Button 3
A9 - 3	White/Red	Throttle Increase (Momentary)	Button 1
A8 - 2	Red/Green	Drum Discharge (Momentary)	Button 7
A7 - 1	Orange/Green	Drum Mix (Momentary)	Button 5
A5	Black/White/Red	Switches to Power with Link	
A6	Red	Power Input (+9V to 30VDC)	
A3	Black	Ground	

Outputs: 19 solid state, high-side driver outputs, 5A max. per pin and 7A max per bank, total combined current 15A

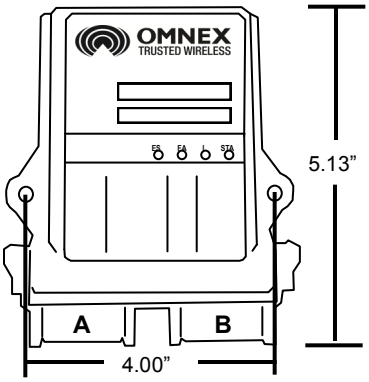
Inputs: All output pins can be factory configured as inputs. Input pins should be connected to a current limiting (fused) source

Connector Pin Assignments

Connectors as seen from under the receiver



R160 Dimensions



Special Functions

NOTE 1—During E-Stop, toggling the input (OFF - ON - OFF) to battery and back off will toggle the state of the latched output. Each cycle of the input will toggle the output state (off to on and on to off). When a link is established pressing the transmitter button or toggling the input will change the state of the output.

The state of the receiver outputs on Hopper Up/Down and Chute Lock/Unlock will be maintained in the event of a remote E-Stop or loss of link. The Drum Start/Stop will be in the STOP (Output ON) state on Power up and after an E-Stop or loss of link.

NOTE 2—The Throttle Voltage Outputs are interlocked momentary outputs that will switch to the voltage level supplied on the Throttle Voltage Input when the corresponding button is pressed.

Installation Considerations

NOTE: *The FCC and ISC require that the antenna be restricted to that supplied by the manufacturer and approved for use with this product. An optional 0dB coax wire antenna may be supplied. For other antenna options, please contact Eaton Wireless*

Mounting and Installation

The receiver can be mounted by fastening two ¼" bolts through the two mounting holes in the unit's enclosure. When mounting, ensure that the receiver is oriented so that the text is reading right and the connector is "down".

When selecting a mounting point for the receiver, it is recommended that the location require only a minimal length of wiring to connect it to the control panel, that it will be in a visible area where it has good exposure to the operator and that it is mounted on a surface that is protected from the weather and sustains minimal vibration. It is also recommended that the receiver have the best possible line of sight with the transmitter for maximum operating range.

Power Connections and Wiring

Whenever a power connection is made to an electronic device, it is a good practice to make both the Power (+) and Ground (-) connections directly to the Battery and avoid connecting the power from the charging side of existing wiring or making use of existing "ACC" or other peripheral connection points.

Make sure that wire of sufficient gauge and insulator type is used when connecting the outputs of the receiver to the control panel. Observe any component manufacturer's instructions and recommendations for proper integration of their product. This includes the power ratings and requirements of such components as relays, valves, solenoids, etc.

Be sure to test each of the outputs with a multi-meter prior to connecting the outputs to your end devices. This will ensure that each output has been programmed to operate in the manner required by each end device.

Filtering and Noise Suppression

Whenever a solenoid or electromagnetic switch is controlled by the receiver, it is a good practice to install a Diode across its terminals to ensure that surges and spikes do not continue back into the circuit. Appropriate 36V Bi-directional Diodes kits can be ordered under the EATON part number "AKIT-2492-01".

Power the Transmitter

1. Install Batteries

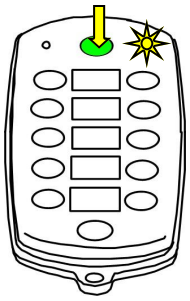
Remove the battery cover on the back of the transmitter using a slotted screwdriver and insert 4 "AA" alkaline batteries. When purchased with the iQ DOCK™, insert either NiCad or NiMH (recommended) rechargeable AA batteries. Orientation of the batteries is embossed inside the battery housing.

T110C Battery Housing

2. Turn on the Transmitter

Refer to the **Light Legend** below for diagram details.

1. Press Power [ON]



NOTE: *Prior to inserting the batteries into the remote, apply grease (provided packet - Dow Corning 111 Valve Lubricant & Sealant) to the battery contacts. Due to the harsh conditions these remotes operate in and the long term use of the rechargeable batteries, the grease protects the batteries and contacts from corrosion.*

WARNING: do not install batteries backwards, charge, put in fire, or mix with other battery types. May explode or leak causing injury. **Replace all batteries at the same time as a complete set and do not mix and match battery types.**

NOTE: *For operation at temperatures below –10° C lithium batteries are recommended. Low temperatures reduce battery performance for both alkaline and lithium types. Refer to the battery manufacturer's specifications for detailed information on low temperature performance.*

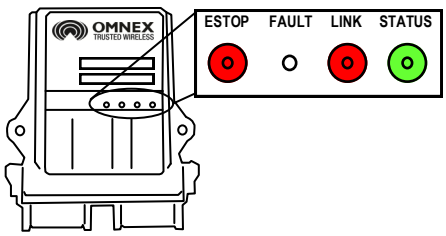
If the transmitter's (Active) light does not flash, check the battery orientation.

To turn off the transmitter, press the Power [OFF] button.

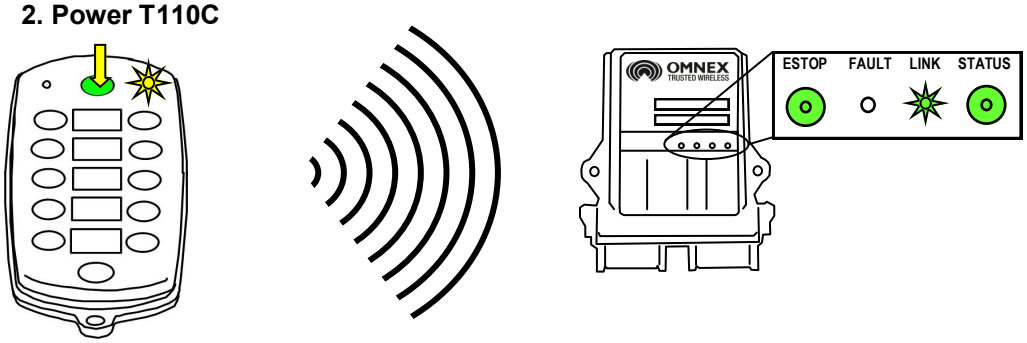
Test the Transmitter / Receiver Link

Follow these steps to ensure that there is a radio link between the transmitter and receiver.
Refer to the **Light Legend** below for diagram details

1. Power R160



2. Power T110C



The System is now ready for use.

If the receiver's (Link) light does not become GREEN follow the steps under **Download ID Code**.

Light Legend	Solid	Slow Flash	Fast Flash	Red Light	Green Light	Yellow Light	Alternating Red & Green Light

Download ID Code (Use in case of Link Test failure)

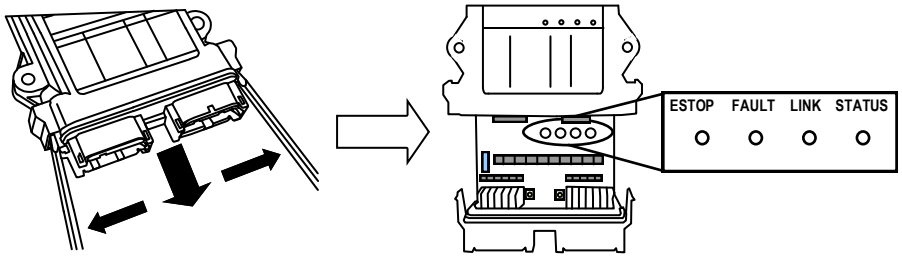
Follow these steps to download the transmitter's unique ID Code into the receiver. This will allow the receiver to establish a radio link with a specific transmitter. Refer to **Troubleshooting Chart #4** for Tips and Considerations

NOTE: *It is necessary to download the ID Code when replacing either the transmitter or the receiver.*

1. Opening the R160 Case

The cap is held on by two plastic tabs at opposing sides, which can be unlatched as shown using a screwdriver. Once the cap is free, the R160 can slide open.

Use a small slotted screwdriver to press the Side Tabs inward.



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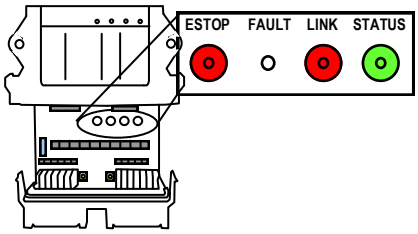
2. Power R160

A. Supply power to the receiver. The (E-Stop) light and the (Link) light will come on RED and the (Status) light will come on GREEN

A.



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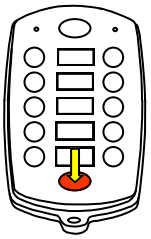
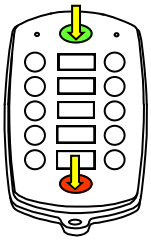
3. Power T110C into Configuration

A. Press and Hold Power [OFF]
B. Press and Hold Power [ON]
C. Release Power [OFF] button
D. Release Power [ON] button

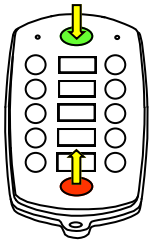
A.



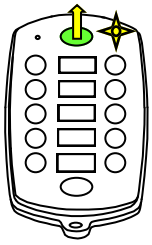
B.



C.



D.



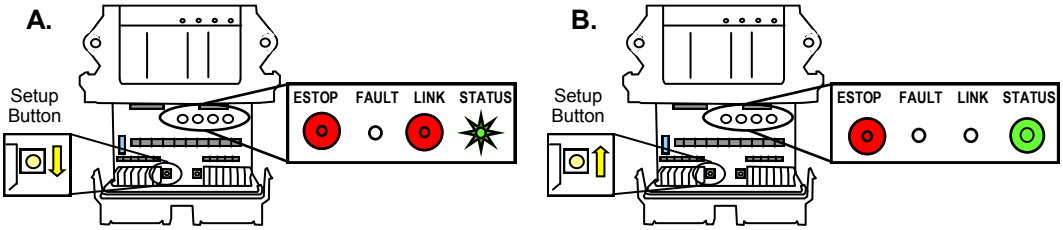
Light Legend	Solid	Slow Flash	Fast Flash	Red Light	Green Light	Yellow Light	Alternating Red & Green Light

Download ID Code (Use in case of Link Test failure)

4. Put R160 into Setup Mode

A. Press & hold [Setup] button until (Status) light goes from slow flash to fast flash

B. Release [Setup] button. (Status) light goes to solid GREEN, (Link) light turns off



NOTE: *If left idle in Setup Mode for over 30 seconds, the receiver will time out. The (Link) light and (Status) light will flash RED rapidly. To return to Setup Mode, repeat step 4.*

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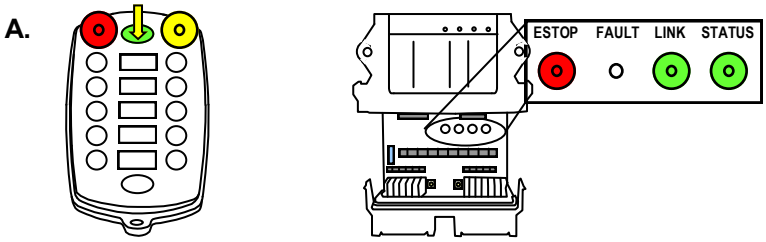
5. Send Code

NOTE: *When downloading a new ID to a receiver, a safety feature requires that the transmitter be in close proximity to the receiver. This will prevent a transmitter from accidentally reprogramming a different receiver in the area.*

A. Press Power [ON] button to send code

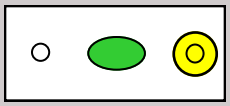
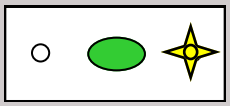
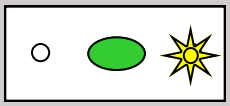
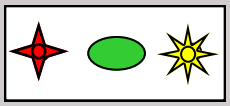
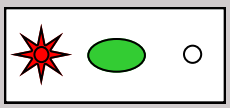
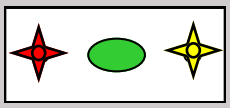
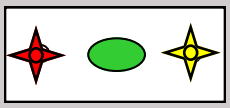
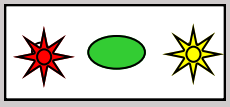
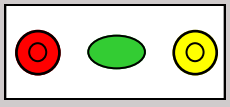


Once the ID Code has been downloaded, the RED (Battery) light and the YELLOW (Active) light on the transmitter will go out. The (Link) light on the receiver will change from GREEN to RED.

NOTE: *When replacing the receiver cover, ensure the cover snaps completely into place to create a weather proof seal around the base of the receiver.*

Light Legend	Solid	Slow Flash	Fast Flash	Red Light	Green Light	Yellow Light	Alternating Red & Green Light

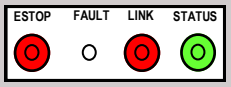
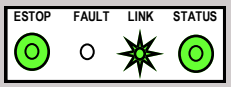
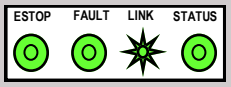
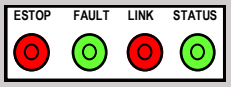
Diagnostics—T110C Transmitter

Indicator Lights	Description	Solution
	Occurs when ever a function is pressed. Will also remain on momentarily on Power Up.	N/A
	Transmitter is in Download mode.	To take it out of Download mode turn transmitter off and turn it back on again.
	Transmitter is in Operating mode.	N/A
	Low Battery.	Change or Recharge Batteries ***Note:*** *Low batteries will last approximately 8 hours once the Low Battery light begins to flash.*
	Fast Flash for approx. 10 seconds indicates T110C failure.	Send the unit in for service.
	Stuck button detected.	Toggle the buttons a few times. Call for service. Send the unit in for service.
	**On Power Down** Unit is still powered, likely due to an on function or stuck button.	Toggle the buttons a few times. Call for service. Send the unit in for service.
	Transmitter is in Configuration mode.	To take it out of Configuration mode turn transmitter off and turn it back on again.
	Transmitter is downloading ID Code.	Wait for approximately 5 seconds. Once the download is complete the transmitter will automatically shut off.

Light Legend	Solid	Slow Flash	Fast Flash	Red Light	Green Light	Yellow Light	Alternating Red & Green Light

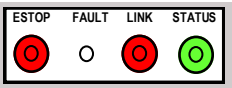
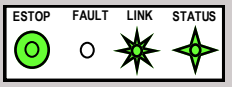
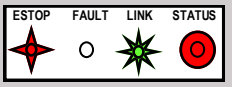
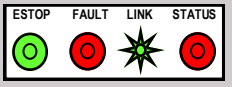
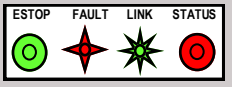
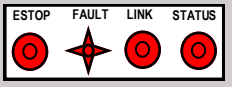
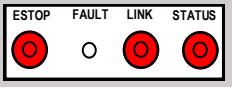
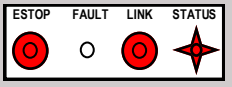
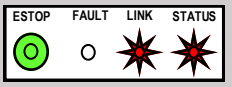
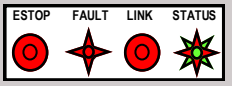
Diagnostics - R160 Receiver

Normal Operation

	Transmitter is OFF If the transmitter is off, the receiver is operating properly.
	Transmitter is ON When the transmitter is turned on, the Link light (fast flashing) and E-Stop (GREEN) indicates the receiver is operating properly
	Transmitter is in Operation When a function is activated on the transmitter, the Fault light will turn on GREEN. This indicates the receiver is operating properly
	Transmitter is OFF When a latched function is activated then the transmitter is turned off, the Fault light will stay on GREEN. If the system was intentionally designed this way, the receiver is operating properly, if not call for service.

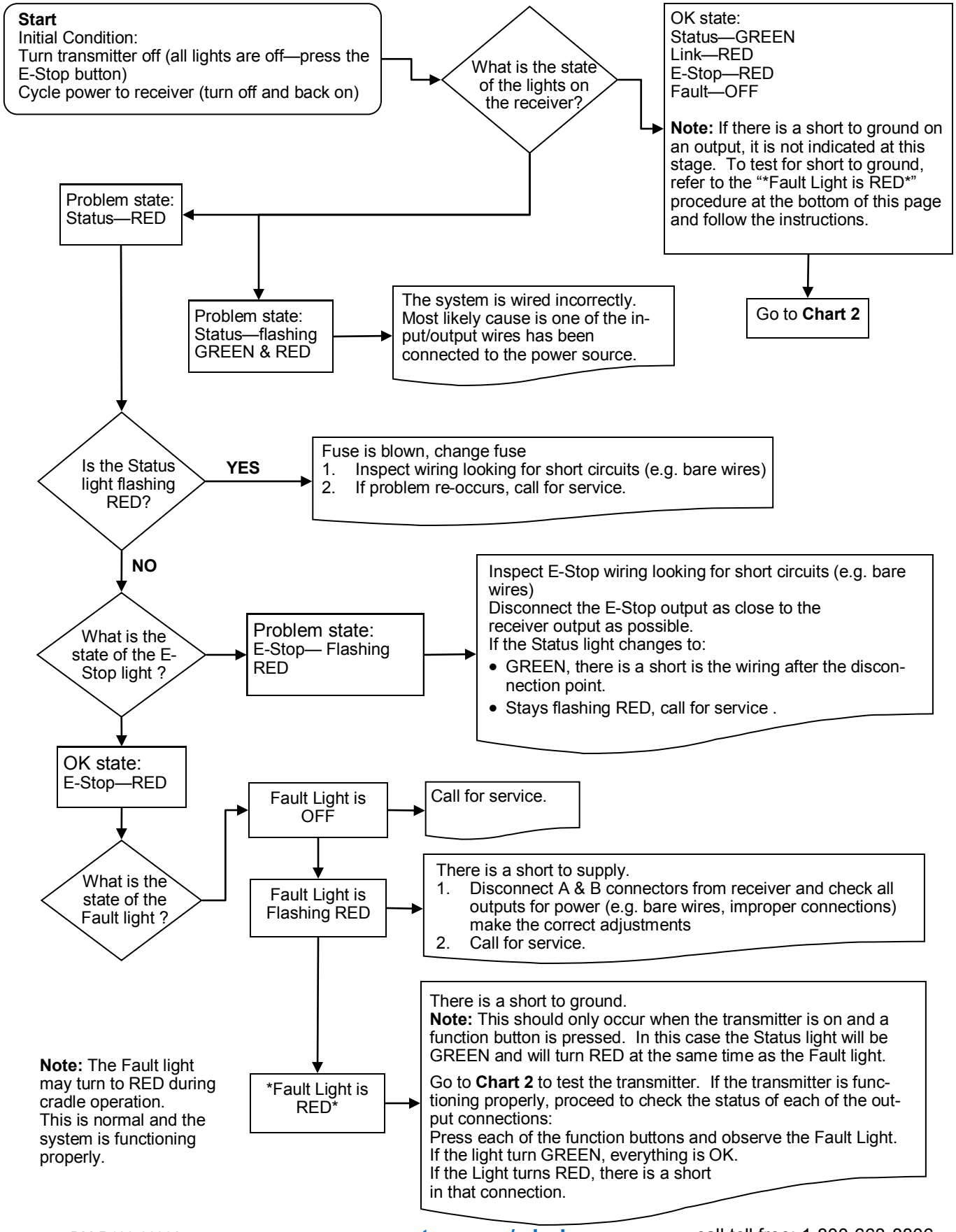
Trouble Indicators

Note: *In some cases, the indicator lights will be different depending on whether the transmitter is on or off. Please note the transmitter status in the "Description" column for each case.*

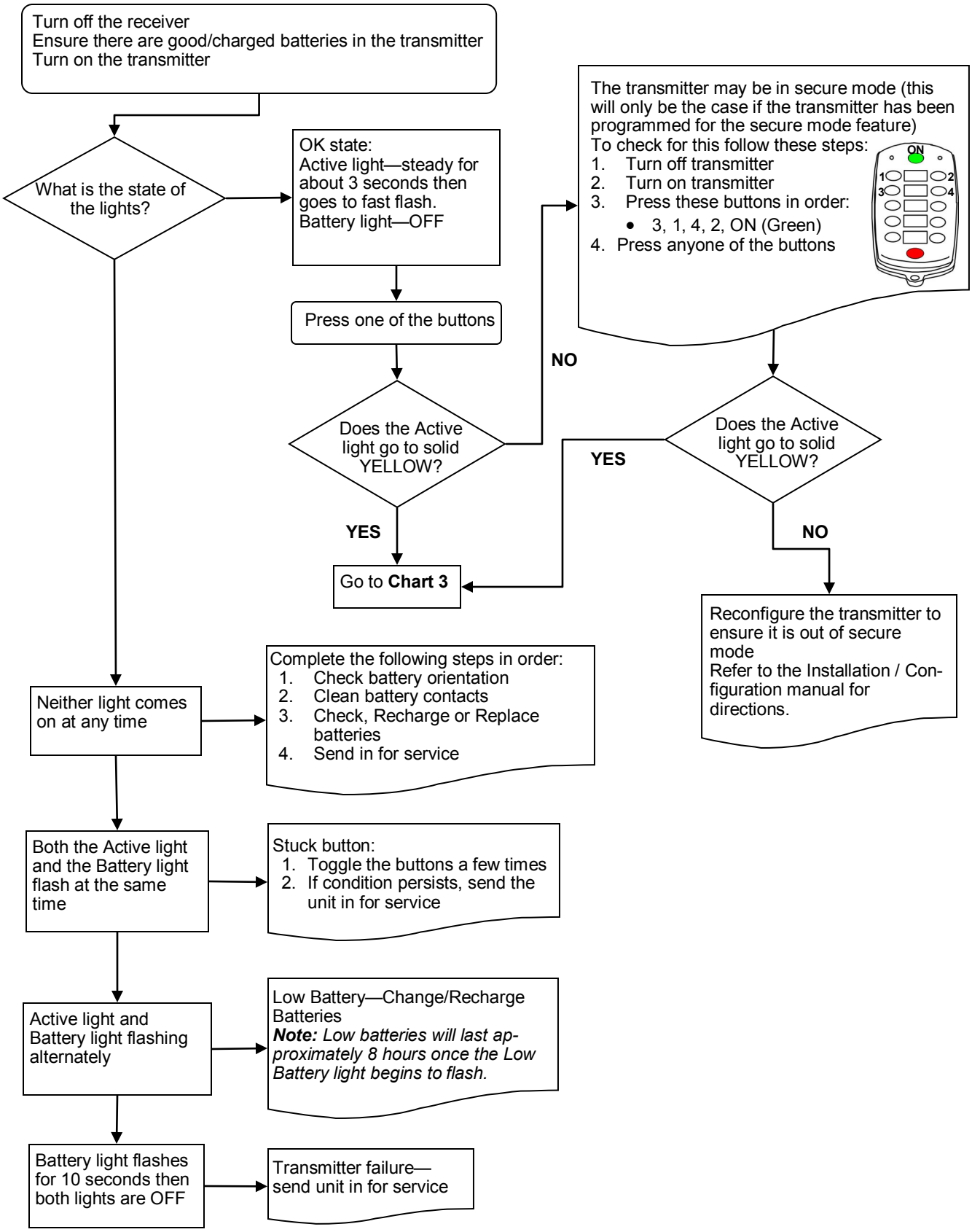
Indicator Lights	Description	Solution
	Transmitter is ON The reason is the transmitter is not communicating with the receiver.	Refer to **Troubleshooting Chart #3** for solutions
	Transmitter is ON A low battery condition has been detected.	To detect intermittent conditions caused by poor or corroded ground or power circuits, the GREEN light will continue to flash for 30 seconds after the condition has been removed.
	Transmitter is ON An internal fault with the E-Stop has been detected.	Inspect E-Stop wiring for short circuit. Disconnect E-Stop wire as close to the receiver output as possible. If the Status light changes to: • GREEN, a short occurs after disconnection point. • Stays flashing RED, send it in for service .
	Transmitter is ON A short to ground or excessive current draw on an output. It is most likely caused by a wiring fault.	Ensure transmitter is functioning properly, check status of each output connection: Press each function button and observe Fault Light. • If GREEN, everything is OK. • If RED, there is a short in that connection.
	Transmitter is ON The E-Stop output has been connected with one of the other outputs	Follow the wire and check for connections with other wires, disconnect to see if condition clears. If not, call for service.
	Transmitter is OFF A wiring short to the battery has been detected.	Refer to **Troubleshooting Chart #1** for solutions
	Transmitter is OFF The receiver has detected an internal fault.	Refer to **Troubleshooting Chart #1** for solutions
	Transmitter is OFF Blown fuse detected.	Refer to **Page 7** for instructions on how to open the receiver case to access fuse. Check wiring for shorts or bare spots. If fuses continue to blow, call for service.
	Transmitter is ON A setup failure has occurred.	Either hold the Setup button for 5 seconds to return to Setup mode or cycle power to return to the normal operating mode.
	Transmitter is OFF The receiver is powered incorrectly.	Most likely cause of this condition is that an output wire or the E-Stop wire has been connected to the power supply while the power wire is disconnected from the power supply.

Light Legend	Solid	Slow Flash	Fast Flash	Red Light	Green Light	Yellow Light	Alternating Red & Green Light

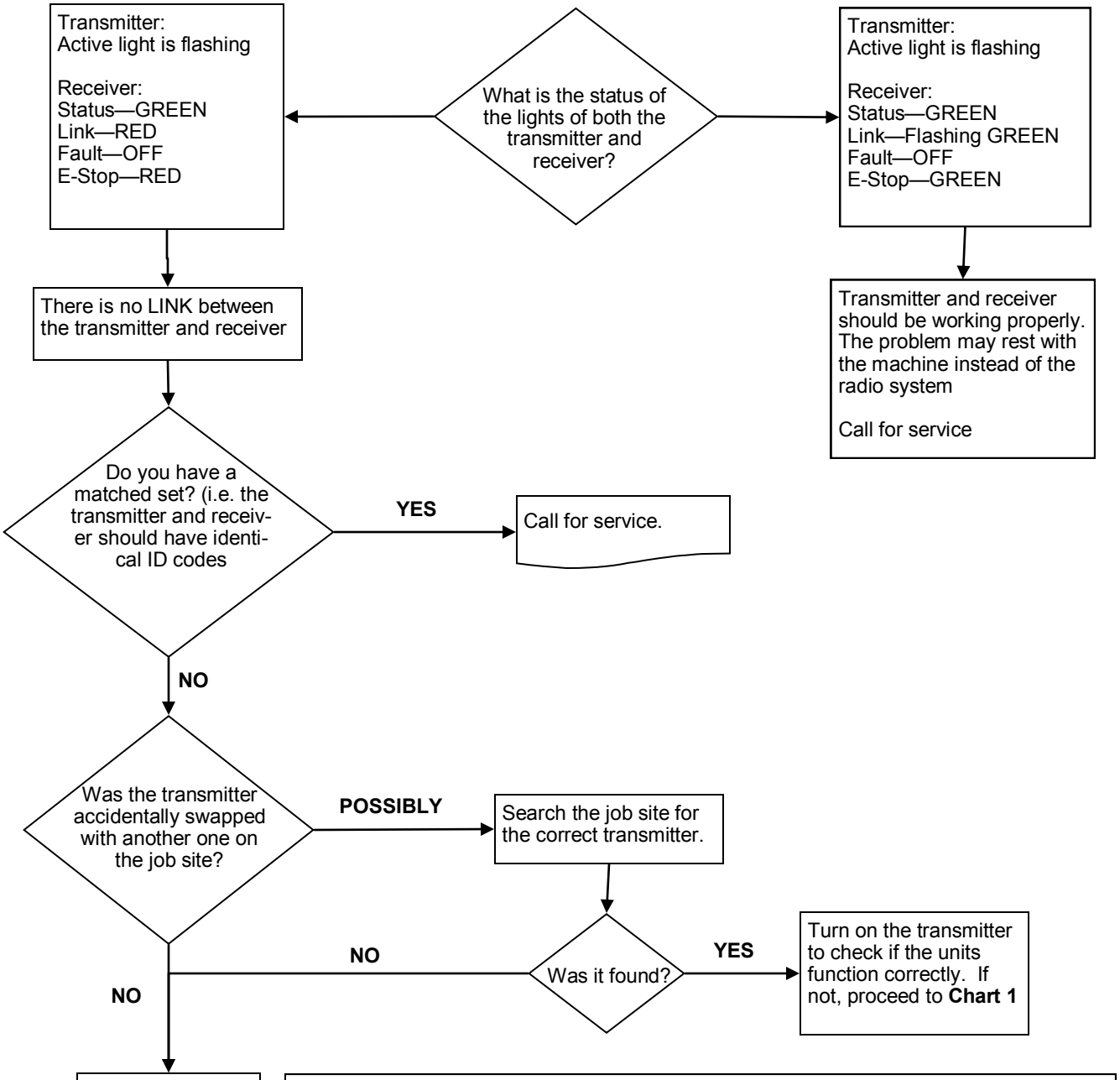
Test the Receiver—R160



Test the Transmitter—T110C



Testing the Transmitter / Receiver Communication



!!Caution!!

Note: Before you proceed with the Download ID procedure located on **Page 7,** great care and caution must be adhered to. Also, refer to **Chart #4** for Tips and Considerations.

If by accident, the transmitters have been switched with another unit, by downloading the ID code to a new receiver, it is possible for the transmitter to operate 2 units at the same time (if the original receiver unit is still on the job site). Therefore it must be certain that the transmitter / receiver pair are the correct set.

Secondly, once the download procedure is completed, ensure all other units on the job site are stopped. Test the operation of the newly configured set to ensure no other machines on the site work with the same transmitter.

Once you are certain that the transmitter / receiver pair are a unique set, continue normal operations.

Considerations when Downloading the ID

Potential downloading issues

If testing of the receiver and transmitter both show the system as working (Chart 1 & 2), then the transmitter and receiver will both go into Download/Configuration mode.

Possible issues could arise during Step 4, the download phase of reprogramming. In this case there are 2 symptoms to look for:

1. The Link light on the receiver will not turn GREEN when the power switch is toggled on the transmitter to download
2. The receiver will "time out" indicating that it didn't receive a signal from the transmitter within the 30 seconds from the time the receiver was put into Setup Mode.

If all indications appear normal during the download phase, test the link by turning on the transmitter (note: the transmitter shuts off after transmitting the ID code in Step 4)

1. If the Link light on the receiver doesn't turn GREEN, the receiver didn't receive all of the information that was sent from the transmitter.

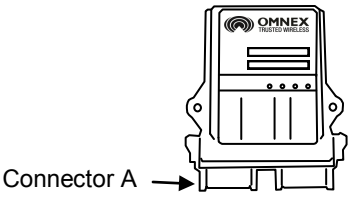
Possible Solutions

1. Try the Downloading steps again
2. If this doesn't correct the problem, send both the transmitter and receiver in for service.

Note: *you could try to determine whether the fault lies with the transmitter or receiver by completing the Reprogramming procedure with a different transmitter. If this step works, then the fault lies with the original transmitter. If not, the fault may lie with the receiver.*

!!Caution!!

Note: Before attempting reprogramming with another transmitter, understand that reprogramming the receiver with another transmitter, could result in two receivers on the job site responding to the one transmitter. If the original transmitter was sent in for repair, disconnect the receiver (disconnect connector A) to continue using the machine without remote capability and without fear of inadvertently operating the machine with the other transmitter.



Reprogramming Tips:

1. Be patient and deliberate when pressing the Power and E-Stop buttons in the correct order during power up in Configuration mode
2. Use a pointy instrument to depress the Setup button on the receiver (i.e. a pen) as the button is relatively small
3. Follow each step as laid out in the procedure
4. Never lay the receiver circuit board down on anything metallic (there are contact points on the back which could contact the metal and damage the receiver)

CC DOCK™ Intelligent Charging System

CC DOCK™ for the T110C

The EATON CC DOCK™ is a new advanced charging accessory for the T110C transmitter. The CC DOCK™ is a reliable battery charging solution that offers:

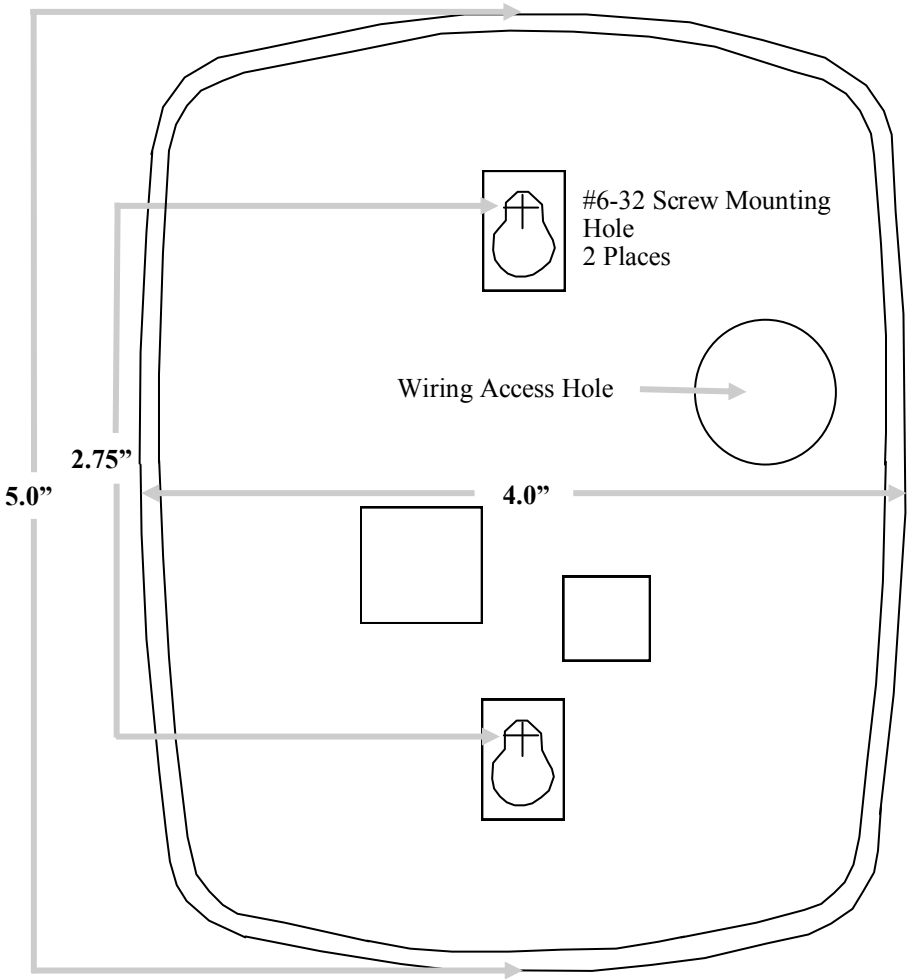
- Elimination of battery contacts and associated contact problems
- Use of NiMH, NiCad or Alkaline batteries
- A 30 minute battery charge, providing enough power for 8 hours of use
- Continued transmitter operation from the CC DOCK™ at times when batteries are not available or have failed
- Convenient storage for the transmitter when it is not in use
- Vehicle battery protection (the CC DOCK™ will switch to low-power mode should the vehicle battery run below 10V)
- Optional alarm indicating when the transmitter is not in the CC DOCK™ & vehicle is set in motion

CC DOCK™ 110

Installing the CC DOCK™

1. Mount the CC DOCK™ in a convenient location that has access to battery and ground connections.
2. The mounting template here shows the location of the mounting and wire access holes. Remove the charger top from the base to get access to the mounting holes and electrical terminals inside the charger. The two Phillips screws in the front of the charger attach the charger top to the base.

NOTE: *It is preferable to mount the CC DOCK™ in a location that is out of direct sunlight. Extreme heat will prevent proper charging capability and impact battery performance. If the temperature of the system passes +50° C (122° F) the CC DOCK™ will stop charging.*



CC DOCK™ Mounting Template

Installing the CC DOCK™ (continued)

CC DOCK™ - Wiring Diagram

POWER-BATTERY: Supply 11-29VDC (fuse with 1.5 - 3 Amp)

GROUND: Negative Supply, Ground

INPUT: Transmitter in Cradle (this input can be used to trigger an action when the transmitter is not in the cradle. i.e. when the vehicle is set in motion and the transmitter is not in the cradle, the horn will sound)

N/C: Relay normally closed (max. current .5 Amp) - **OPTIONAL**

COM: Relay common (max. current .5 Amp) - **OPTIONAL**

N/O: Relay normally open (max. current .5 Amp) - **OPTIONAL**

LED A: Top left LED +5 to 36V active high - **OPTIONAL**

LED B: Middle LED +5 to 36V active high - **OPTIONAL**

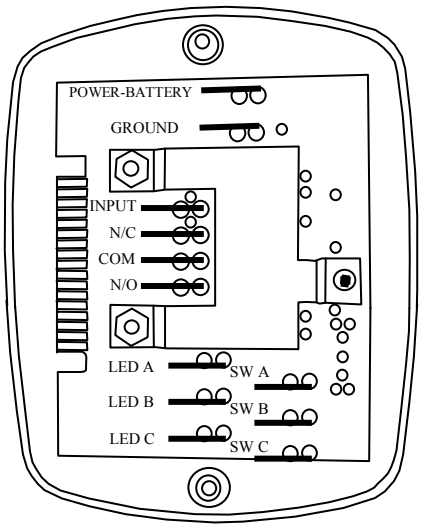
LED C: Bottom left LED +5 to 36V active high - **OPTIONAL**

SW A: Switch output - **OPTIONAL**

SW B: Switch common- **OPTIONAL**

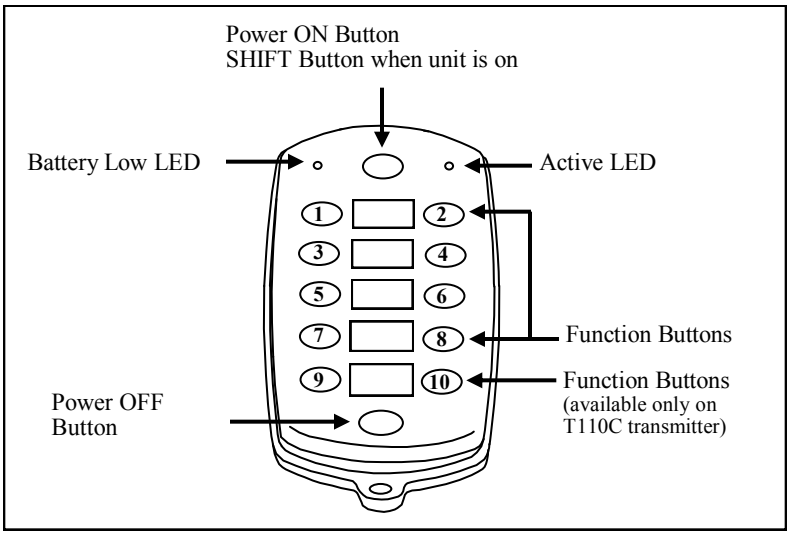
SW C: Switch output - **OPTIONAL**

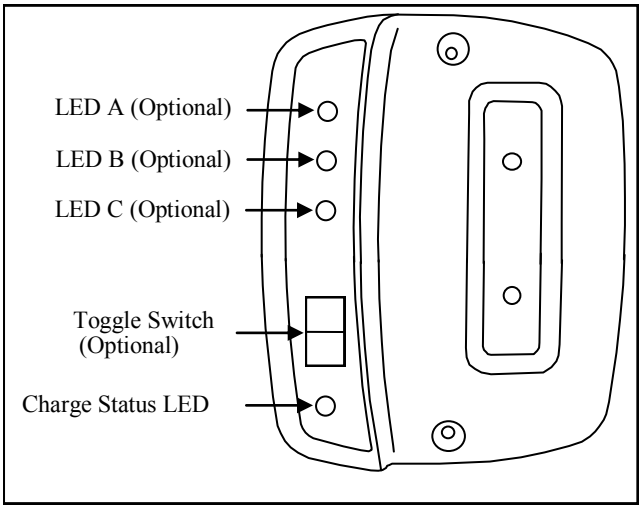
NOTE: *For SW A to C: 0-36V fuse externally if required, max current 3A*



3. Use standard 1/4" spade lug terminals on the end of the wires to make the connection. Once the CC DOCK™ base is mounted and the electrical connections are made, re-attach the charger top.
4. The unit is fused internally with an 1.2 Amp PTC fuse but it is recommended that a secondary 1.5—3 Amp fuse be installed in-line with the Power-Battery wire.

T110C Transmitter & CC DOCK™ Indicators - Controls





Installing & Charging the Batteries

1. Install Batteries

Remove the battery cover on the back of the transmitter using a slotted screwdriver and insert 4 "AA" Nickel Metal Hydride (NiMH) batteries. Orientation of the batteries is embossed inside the battery housing. (The CC DOCK™ can charge NiCad batteries or shut off if Alkalines are inserted)

NOTE: *Prior to inserting the batteries into the remote, apply grease (provided packet - Dow Corning 111 Valve Lubricant & Sealant) to the battery contacts. Due to the harsh conditions these remotes operate in and the long term use of the rechargeable batteries, the grease protects the batteries and contacts from corrosion.*

T110C Battery Housing

Installing & Charging the Batteries (continued)

WARNING: Do not install batteries backwards, put in fire, or mix with other battery types. Batteries may explode or leak causing injury.

Replace all batteries at the same time as a complete set.

2. Charge Batteries

Place the transmitter on the CC DOCK™. The CC DOCK™ should detect the transmitter and start charging. The (Battery) light on the transmitter will slow flash YELLOW. Fully charge the batteries for 8 hours or until the (Battery) light on the transmitter turns solid YELLOW. The charging time may be longer in hot or cold temperature extremes. The (Status) light will be solid GREEN when charging.

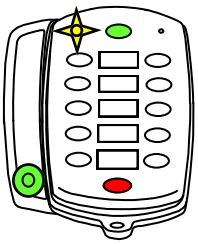
NOTE: *should the batteries need charging during a job, 15 minutes of charging will provide about 3-4 hours of operation, 1 hour of charging should provide approximately 12-16 hours of operation.*

NOTE: *that fully charging discharged batteries will take approximately 4-6 hours (NiMH) or 1-2 hours (NiCad) at 25° C (75° F).*

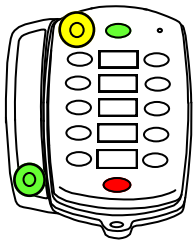
A. CC DOCK™ detects the transmitter and the batteries are charging

B. Batteries are fully charged

A.



B.

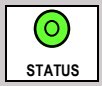


Tips for best performance:

1. The system was designed to work best with NiMH batteries. Regular alkaline batteries and NiCad batteries will work, however, system performance may not meet all specifications. Remember to apply grease to the battery contacts each time a new set of rechargeable batteries are inserted.
2. Remove the transmitter case before placing the transmitter on the CC DOCK™. Leaving the case on, will greatly diminish the charging capability of the CC DOCK™.
3. Charge the batteries at the end of every shift. Temperature extremes (freezing and hot temperatures) will diminish battery performance, therefore, keep the batteries as fully charged as possible at all times to maximize operation time.

CC DOCK™ Diagnostics

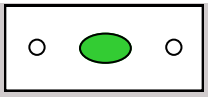
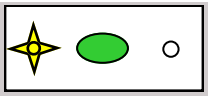
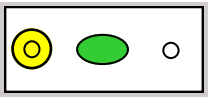
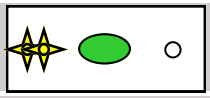
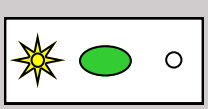
NOTE: *the following indicator lights will be displayed on the CC DOCK™*

Indicator Lights	Description	Solution
	The CC DOCK™ is operating properly and the transmitter has been detected	N/A
	The CC DOCK™ is operating properly and the transmitter has not been detected	N/A
	The voltage to the unit is not within 9—29 VDC	Bring the power supply to within operating parameters
	The internal temperature of the CC DOCK™ is below –50° C (*-58° F).*or above +60° C (*140° F).*	If possible heat up / cool down The CC DOCK™ to within operating temperature range

Light Legend	Solid	Slow Flash 1x / sec	Double Flash	Fast Flash 20x / sec	Red Light	Green Light	Yellow Light

T110C Transmitter Diagnostics

NOTE: *the following indicator lights will be displayed on the transmitter while mounted on the CC DOCK™*

Indicator Lights	Description	Solution
	Transmitter is not set properly in the CC DOCK™ cradle or cradle is not powered	Ensure the transmitter is oriented properly and check power to cradle
	Transmitter is in the powered CC DOCK™, and batteries are charging	N/A
	Transmitter is in the powered CC DOCK™, and batteries are fully charged	N/A
	Transmitter is in the powered CC DOCK™, and attempting to charge but the temperature of the batteries is either above 60° C or below 0° C	Either heat up / cool down the batteries to allow charging to occur
	A problem with the batteries has been detected. (No batteries, no contact to batteries, non-rechargeable batteries, backward batteries, dead batteries) This is a common error if using alkaline batteries or other non-rechargeable batteries.	Check and correct each of the battery conditions. If condition persists, contact service.

NOTE: *The T110C is the transmitter designed to be compatible with the CC DOCK's intelligent charging system. To determine which T110 model you have, refer to the embossed model number located next to the battery cover on the back of the transmitter or look for the CC ready™ logo located on the transmitter.*

Please refer to the system manual for transmitter operation, receiver installation, warnings and caution details.

CC DOCK™ 110 Specifications

Part	Description
Operating Voltage	12 & 24 VDC systems
Rechargeable Batteries	AA Nickel Metal Hydride (NiMH) or AA Nickel Cadmium (NiCad)
Batteries	AA Alkaline
CC DOCK™ Operating Temperature	-40 to +50 Degrees Celsius (-40 to 122 Degree Fahrenheit)
Charging Temperature Range	0 to +50 Degrees Celsius (30 to 122 Degrees Fahrenheit)

Light Legend	Solid	Slow Flash 1x / sec	Double Flash	Fast Flash 20x / sec	Red Light	Green Light	Yellow Light

Parts & Accessories

Part	Eaton Part Number	Description
Batteries	B0014	4 x Nickel-Metal Hydride (NiMH)
Fuse	F0039	36V Bi-directional, Bussman ATC-15
Belt Clip	AKIT-2428-03	Belt clip for the T110C transmitter
Magnets	AKIT-2428-01	see illustration below
Bipolar Diode Kit	AKIT-2492-01	Motorola P6KE36CA
iQ DOCK™	Call Eaton	see illustration below
R160 Output Cable	ACAB-2493-01	Generic Output Cable- see illustration below
Connector Kit	AKIT-2337-01	Includes Deutsch socket connectors, wedges, pins and sealing plugs
Keypad Label T110C	FLBL-1726-25	Generic Line Pump Labels

CC DOCK™

Belt Clip

Magnets

R160 Output Cable

Specifications

	R160 Receiver	T110C Transmitter
Size	5.1” x 4.7” x 1.4” (130mm x 119mm x 36mm)	5.8" x 3.4" x 1.2" (147mm x 86mm x 30mm)
Weight	0.65lbs (0.295kg)	.65 lbs (295g) incl. batteries
Construction	High impact plastic, weatherproof	High impact, low temperature plastic, weatherproof
Input Power	+9V to 30VDC	4 Nickel-Metal Hydride (NiMH)
Battery Life	N/A	160 hours (continuous use)
Operating Temperature Range	-40F to 158F (-40C to 70C)	-22 F to +140 F (-30 to +60 C)
Outputs	3A (max) each (sourcing), 10A (max) each (combined)	N/A
Antenna	Internal	Internal
Approvals	**USA**- FCC part 15.247 **Canada**- ISC RSS 210 Issue 6, Sept. 2005 **Europe**– CE, EN 440 **Australia-** C-Tick	

FCC Rules and Compliance

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 Part 15.247
ISC RSS 210 Issue 6, Sept. 2005

Warranty

EATON, Controls and Power Conversion Division, Wireless Solutions, warrants to the original purchaser that the Eaton Wireless products are free from defects in materials and workmanship under normal use and service for a period of ONE YEAR, parts (EXCLUDING: SWITCHES, CRYSTALS, OR PARTS SUBJECT TO UNAUTHORIZED REPAIR OR MODIFICATION) and labor from the date of delivery as evidenced by a copy of the receipt. EATON entire liability and your exclusive remedy shall be, at EATON's option, either the (a) repair or (b) replacement of the EATON Wireless product which is returned within the warranty period to EATON Wireless freight collect by the EATON APPROVED carrier with a copy of the purchase receipt and with the return authorization of EATON Wireless. If failure has resulted from accident, abuse or misapplication, EATON shall have no responsibility to repair or replace the product under warranty. In no event shall EATON be responsible for incidental or consequential damage caused by defects in its products, whether such damage occurs or is discovered before or after replacement or repair and whether or not such damage is caused by the negligence of EATON.

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