EAT•N
Powering Business Worldwide™

Power Systems
Generic 1

Installation / Configuration Manual

TD3100 Transmitter
R260 Receiver

May 07, 2019

DM-R260-0041A

Rev. 1

Table of Contents

CRITICAL: 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 supplied by your equipment manufacturer.

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.

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.

Lithium Battery Handling Precautions, Transportation, Disposal

- Do not disassemble, crush, or puncture a battery.

- Do not short the external contacts on a battery.

- Do not dispose of a battery in fire or water.

- Do not expose a battery to temperatures above 65 °C (149 °F).

- Keep the battery away from children.

- Avoid exposing the battery to excessive shock or vibration.

- Do not use a damaged battery.

- Always check all applicable local, national, and international regulations before transporting a Lithium-Ion battery.

- Transporting an end-of-life, damaged, or recalled battery may, in certain cases, be specifically limited or prohibited.

- Lithium-Ion batteries are subject to disposal and recycling regulations that vary by country and region. Always check and follow your applicable regulations before disposing of any battery. Contact Rechargeable Battery Recycling Corporation (www.rbrc.org) for U.S.A. and Canada, or your local battery recycling organization.

- Many countries prohibit the disposal of waste electronic equipment in standard waste receptacles.

- Place only discharged batteries in a battery collection container. Use electrical tape or other approved covering over the battery connection points to prevent short circuits.

System Overview

The **OMNEX Trusted Wireless™ TD3100 / R260** is a portable, long range, programmable radio remote control system. Designed as a compact and easy-to-use product, this **Trusted Wireless™** system puts complete control of your equipment 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 **OMNEX Trusted Wireless™ TD3100 / R260** 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 sophisticated error-checking techniques, enables our industrially hardened **FHSS** signals to overcome interference that commonly affects licensed radios

The **R260** 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 **TD3100** comes with customizable configuration of buttons, joysticks, paddles, switches, and knobs to provide the user flexibility to control the functions they need. The transmitter uses two battery packs for regular alkaline AA batteries or a self contained rechargeable pack. When used with the battery charger or Contactless Charge Cradle, the TD3100 can use and recharge self contained rechargeable pack. Each TD3100 transmitter uses a unique ID code to ensure that no two systems will conflict at a job site.

Features

FCC, IC approved

License free in USA and Canada

1200 foot range @ 900 MHz (900 ft. @ 2.4 GHz)

Weatherproof / Ergonomic
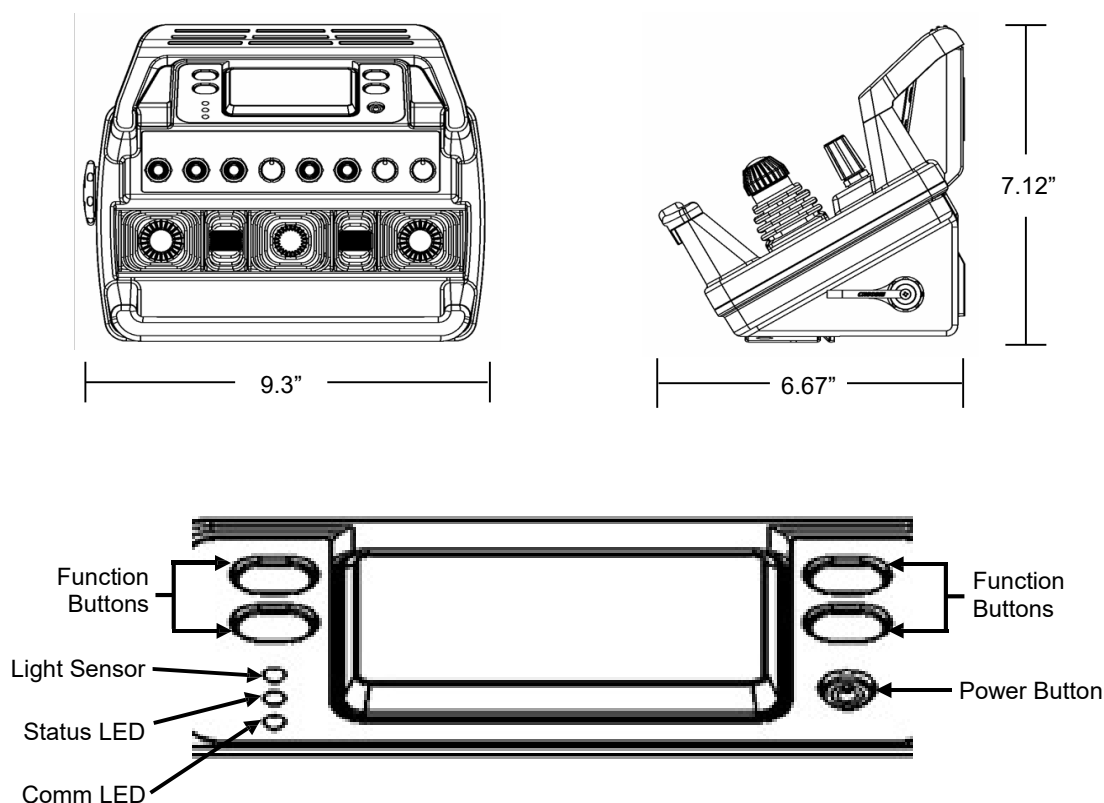
Simple "wire-and-use" installation

Resilient to impact and shock

Available in both 900 MHz and 2.4 GHz

Equipped with E-Stop

Factory configurable for all custom applications.

TD3100 Dimensions and Standard Controls

7.12"

9.3"   6.67"

Function Buttons

Function Buttons

Light Sensor

Status LED

Comm LED

Power Button

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. R260 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

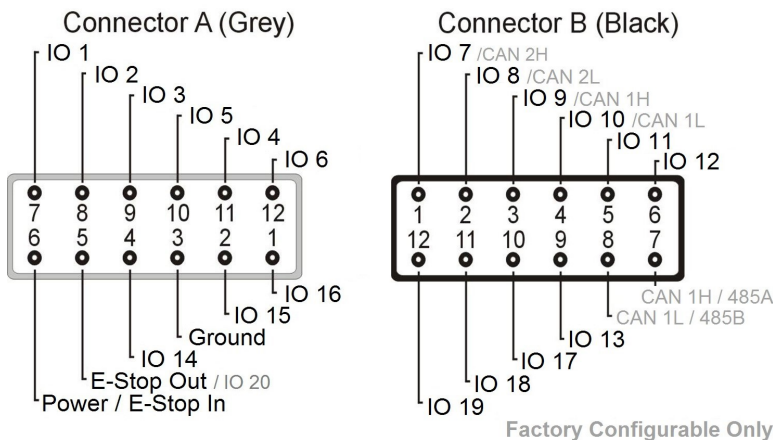| Pin	IO	Wire Colors	Functions	Notes
B7		Blue	Tether connection (CAN 1H)	Factory Configurable Only
B8		Brown	Tether connection (CAN 1L)	Factory Configurable Only
A7	1	Orange/Green	Demo Digital Output	Controlled by Left Joy. Left
A8	2	Red/Green	Demo Digital Output	Controlled by Left Joy. Right
A9	3	White/Red	Demo Digital Output	Controlled by Left Joy. Up
A11	4	Blue/Red	Demo Digital Output	Controlled by Left Joy. Down
A10	5	Orange/Black	Demo Digital Output	Controlled by Left Joy. Knob CCW
A12	6	Orange/Red	Demo Digital Output	Controlled by Left Joy. Knob CW
B1	7	Yellow	CAN 2H	User CAN network
B2	8	Lime	CAN 2L	User CAN network
B3	9	Green	Demo Digital Output	Controlled by Paddle Pos. 3 Up
B4	10	Green/Black/White	Demo Digital Output	Controlled by Paddle Pos. 3 Down
B5	11	White	Demo Digital Output	Latched; controlled by 3PM SW1
B6	12	Orange	Demo Digital Output	Latched; controlled by 3PM SW2
B9	13	Red/White	Demo Digital Output	Latched; controlled by 3PM SW3
A4	14	Green/Black	Demo Digital Output	Latched; controlled by 3PM SW4
A2	15	Black/White	Demo Digital Output	Latched; controlled by 3PM SW5
A1	16	Blue/Black	Demo Digital Output	Latched; controlled by 3PM SW6
B10	17	Blue/White	Demo Digital Output	Latched; controlled by 3PM SW7
B11	18	White/Black	Demo Digital Output	Latched; controlled by 3PM SW8
B12	19	Black/Red	Digital Control Active	Logical OR of IO 1...18 (except 7 & 8)
A5	20	Black/White/Red	Switches to Power with Link	
A6		Red	Power Input (+9V to 30VDC)	
A3		Black	Ground	

R260 Receiver Internal Wiring

Outputs: 19 solid state, high-side driver outputs, 3A max. per pin and 3A max per bank, total combined current 10A
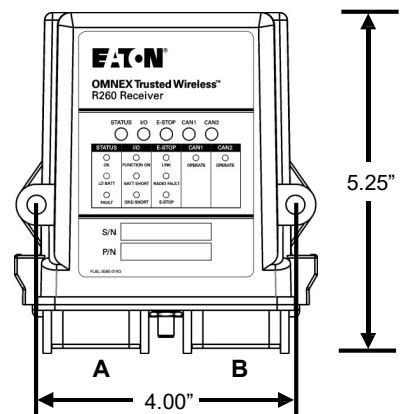
Inputs: All output pins can be factory configured as inputs. Input pins should be connected to a current limiting (fused) source

Connector Pin Assignments

Connectors as seen from under the receiver

Connector A (Grey)

IO 1
IO 2
IO 3
IO 5
IO 4
IO 6

| 7 | 8 | 9 | 10 | 11 | 12 |
| 6 | 5 | 4 | 3 | 2 | 1 |

IO 16
IO 15
Ground
IO 14
E-Stop Out / IO 20
Power / E-Stop In

Connector B (Black)

IO 7 /CAN 2H
IO 8 /CAN 2L
IO 9 /CAN 1H
IO 10 /CAN 1L
IO 11
IO 12

| 1 | 2 | 3 | 4 | 5 | 6 |
| 12 | 11 | 10 | 9 | 8 | 7 |

CAN 1H / 485A
CAN 1L / 485B

IO 13
IO 17
IO 18
IO 19

Factory Configurable Only

R260 Dimensions

FAT•N

OMNEX Trusted Wireless™
R260 Receiver

STATUS   I/O   E-STOP   CAN1   CAN2

S/N
P/N

5.25"

A   B

4.00"

NOTE: The FCC and IC 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 Business Unit.

The antenna(s) used for this transmitter must not be co-located or operating in conjunction with any other transmitter.

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 upright and the connector is pointing "down".

When selecting a mounting point for the receiver, it is recommended that the location

- Use a minimal length of wiring to connect it to the control panel
- Be in a visible area where it has good exposure to the operator
- Be mounted on a surface protected from the weather
- Sustains minimal vibration
- Has best possible line of sight with the transmitter for maximum operational range.

When installing the receiver, it is recommended that a "Drip Loop" is formed with the output cables. By creating a Drip Loop, water from condensation, rain or wet environments, will drip off of the cable instead of running along the wire and into the receiver connections or running along the cables into the machine's electronic controls.

Using approximately 1 foot (30 cm) of cable creates a loop with an approximate radius of 3-4 inches (8-10 cm). Ensure the loop bottom is lower than the receiver connectors.

If connecting an external antenna, a Drip Loop radius of approximately 2-3 inches (5-8 cm) can be formed from approximately 8 inches (20 cm) of cable.

3" - 4 "

Drip Loop
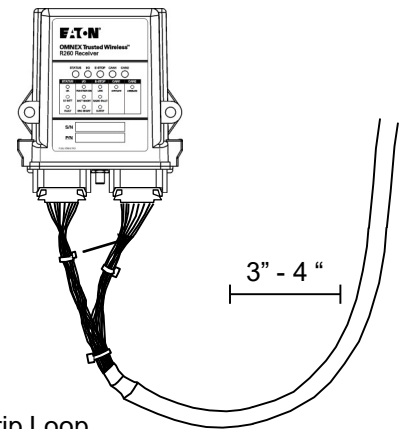
Power Connections and Wiring

Whenever a power connection is made to an electronic device, it is a good practice to make both the Power (+) and Ground (-) connections route 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.

When proportional voltage outputs are used to operate critical equipment it is good practice to use a separate enable signal as part of the control circuit. In some cases an application can be designed using an independent enable output for each proportional output (see wiring diagram). An alternative solution is to use the "Switches to Power with Link" line (see wiring diagram) to explicitly enable each of the functions that are using proportional voltage control. This will ensure that under all fault conditions the equipment will be disabled when the link is disabled (e.g. by hitting E-Stop). **As well, following any instance of a fault condition (e.g. output shorted) it is recommended practice to fully cycle the power to the receiver before restarting the transmitter to ensure that the system is restarted from a known state.**

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 Battery Packs**

   i. Before installing the rechargeable battery pack, assure it is fully charged with the Charger or Contactless Charge Cradle.

   ii. Before installing the non-rechargeable battery pack, assure two Alkaline "AA" batteries are installed in the correct orientation embossed inside the battery pack. To open the "AA" battery pack slide the cover towards the pack tongue, lift and remove.
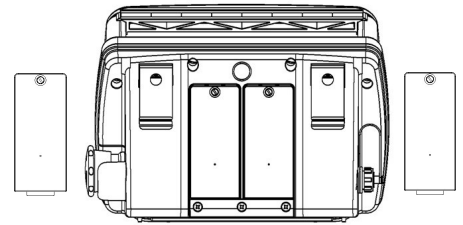

Battery Packs & Compartments

⚠️ **WARNING:** When using "AA" batteries do not install backwards, charge, put in fire, or mix with other battery types. May explode or leak causing injury. Keep the battery compartment dry to prevent corrosion. **Replace all batteries as a complete set and do not mix and match battery types.**

The battery compartments are located on the back of the TD3100. Insert each battery pack tongue first under the retainer at the top of each compartment ❶ then pivot the pack down into the compartment ❷. Using a slotted screwdriver secure each battery pack in the compartment.

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.
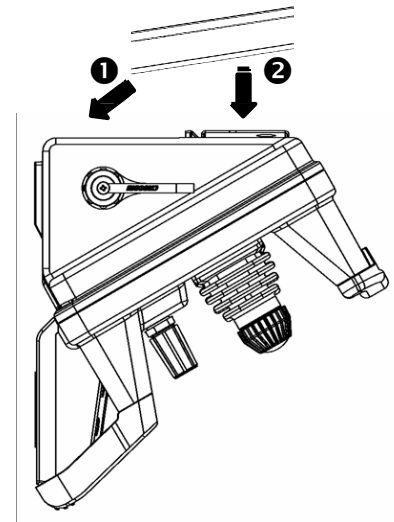
Inserting Battery Packs

2. **Turn on the Transmitter**

   Press the Power button ❶ and hold for 3 seconds.

   The display may briefly show a pre-programmed splash screen (If the transmitter is equipped with an optional E-Stop, the display will take the user through an E-Stop check.). The display will show as a minimum the RF link strength and battery status. Depending on the presence of a powered and paired receiver the display area may have more information and the Active LED may blink yellow.

3. **Turn off the Transmitter**

   Press the Power button and hold for 3 seconds OR press the E-Stop (if equipped).
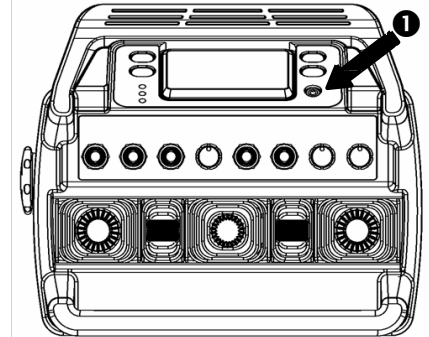
Turn ON Transmitter

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 LED states on the R260 receiver.

1. R260

Apply power to the R260 and confirm the light pattern as shown in the diagram on the right.

If the R260 does not power confirm it was wired correctly. Reference the Wiring Diagram in the section *Installing the Receiver*.
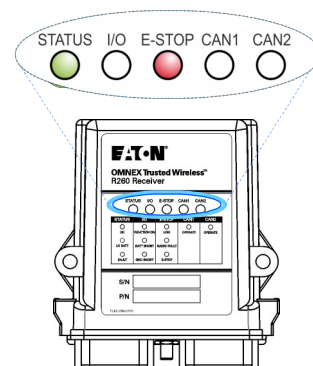
2. Power TD3100

Press and hold the Power ❶ button until the display shows the startup logo then release the Power button.

The transmitter can take from 2-7 seconds to link with the R260.

If the transmitter does not power refer to the previous section *Power the Transmitter*.
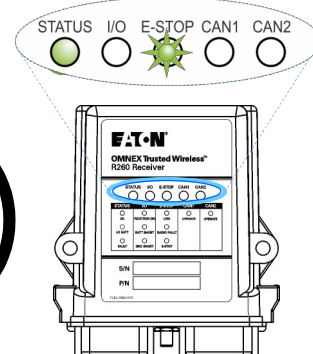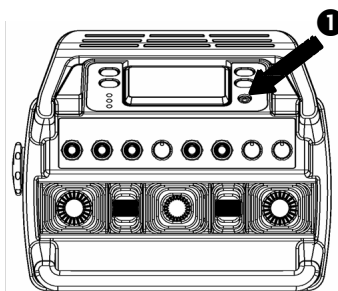
The System is now ready for use.

If the receiver's (E-STOP) light flashes GREEN the system is ready to use.

Follow *Pair a Transmitter* in the *Service Mode* section if

1. The receiver's (E-STOP) light is solid RED
2. The Display shows "Err 06: Not Paired"

NOTE: As a battery saving feature the transmitter may shut itself off (and the receiver will transition all outputs to a safe state) after the configured transmitter timeout inactivity period. The *Transmitter Timeout* feature is configurable within the transmitters *Service Mode* section.

Momentarily operating any button or control on the transmitter, including the [Power] button will restart the timeout monitoring.

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

Special Functions

Application-specific functions, performed by RCU (Transmitter) and Base Station (Receiver), are explained below. Refer also to **Wiring Diagram** in section **Installing the Receiver**.

Switch Operation

Each of the 8 installed switches controls one digital output, latched within the Receiver software. Push a switch up to turn the corresponding output ON; push it down to turn the output OFF. Refer to **Wiring Diagram** for details.

Joystick and Paddle Operation

The transmitter has two joysticks and four paddles. As indicated on the **Wiring Diagram**, the left joystick controls six digital outputs and the left-most (position 3) paddle controls two digital outputs. Push the joystick or the paddle in either direction, or rotate the joystick's knob clockwise or counter-clockwise, to turn the assigned output ON; let go the control to turn the output OFF. Note that the controls' operation is enhanced by a hysteresis algorithm, which will provide a reliable transition from OFF to ON state and back.

The two right-most paddles (positions 5 and 6) can be used to change demo parameters on display (explained below).

Display Operation

The main (demo) display page shows two parameters: Fuel Level and Engine RPM. Engine RPM can be changed by operating the right-most paddle (position 6). The further you push the paddle in one of the two directions, the faster the "engine" will "speed up" or "slow down". The direction of change (or the lack thereof) is indicated by appropriate ISO symbol on the screen. Fuel Level can be changed 1% at a time by pushing paddle 5 up or down. The demo display is available in both Stand-Alone Mode and Paired Mode.

In Paired mode, the Transmitter also allows viewing Output Diagnostics Panel display page. To switch to this page, press <SB3> display button. On this page you can view states of all the digital outputs directly controlled by the transmitter. To change any of the outputs, use the corresponding control listed on **Wiring Diagram**. Depending on situation, the display may also show diagnostic messages, such as "Lost RF Link" or "Lost CAN Bus Signal". To acknowledge any message, or to return to the main page, press <SB4> display button.

Buzzer Demo

Press <SB1> display button to demonstrate the buzzer sound (typically indicates a loss of link).

CAN Communications

Status of the system, including state of the Transmitter controls and state of the Base Station digital outputs, is continuously reported on user CAN network (see **Wiring Diagram**) in accordance with Eaton proprietary CAN protocol specifications. The protocol specifications are provided in a separate document.

Emergency Shutdown

All outputs will be immediately switched OFF in any of the following cases:

- The red E-Stop button is pressed
- Receiver loses link with Transmitter (e.g. Transmitter is out of range or runs out of batteries)
- Transmitter is shut down manually by the Power Button
- Transmitter is shut down on inactivity timeout

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

Service Mode

Service Mode is available on all TD3100 configurations and allows the operator to adjust the transmitters characteristics. For example, the LCD backlight can be adjusted to operate under various lighting conditions.

Once the transmitter is put in to service mode a unique display screen is used to view or modify each option. Navigation and option selection/modification is controlled by four buttons as described by the *Enter Service Mode* and *Navigation*.

The following sections describe each option in detail and how to execute or modify it.

Enter Service Mode

A. Press and Hold Button ❶

B. Press and Hold Power ❷
    Wait for the display splash screen and immediately proceed to next step.

C. Release Button ❶

D. Release Power ❷
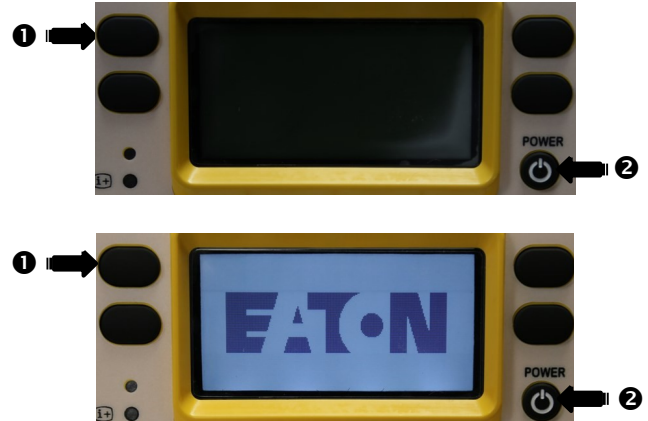
Navigation

Once you have entered service mode you can move through the option menus by using the top left ❶ and right buttons ❷. Where the top left button moves one menu option to the left and top right one menu option to the right. To modify an option follow the screen prompts.

Typically the bottom right button [ENTER] ❸ will allow you to execute, view or modify an option, where bottom left button [EXIT] ❹ will allow you to move to previous menu, and the Power button ❺ will turn off the unit.

If the [EXIT] button is pressed when at the top menu, the unit will exit service mode and power off.

⬅ = [LEFT]   ➡ = [RIGHT]

↰ = [EXIT]   ⏎ = [ENTER]
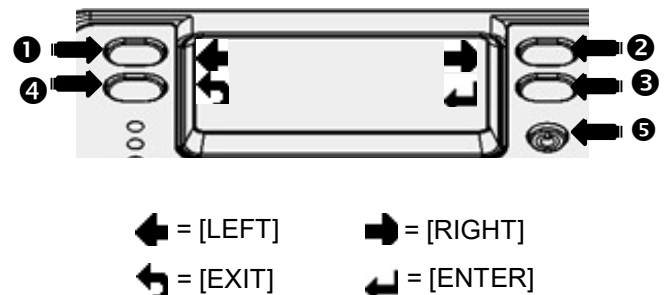
The first screen displayed in service mode is "Pair TD3100". See the diagram below for screen navigation.

| Pair TD3100 | → | Modify Parameters | → | Pair WSO | → | Calibrate Paddles | → | Calibration Mode | → | Run Diagnostics | → | Device Information |
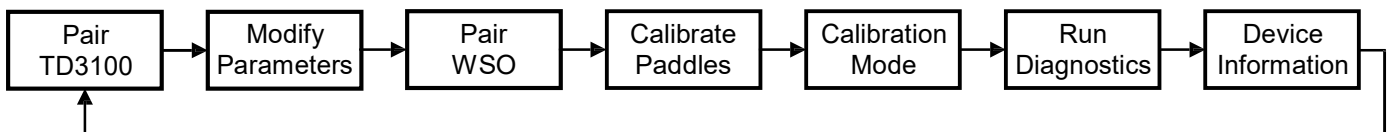
Pairing

This function allows you to pair the TD3100 with a base station.

Pairing is required to teach a transmitter's unique configuration to a base station. Once complete the base station is capable of establishing a two-way radio link with a unique transmitter.

Pairing is a three step process

1. Prepare the TD3100
2. Prepare the R260 base station
3. Start Pairing

The following sections describes the three step process to pair the TD3100 with an R260 base station. Refer to *Troubleshooting Chart #4* for Tips and Considerations.

> **NOTE:** It is necessary to associate the transmitter to base station when replacing either the transmitter or base station.

1. Prepare the TD3100

On the TD3100 navigate to the screen on the right ❶. **Do not** press [ENTER] at this time.

❶
Press ENTER button
to Start Pairing
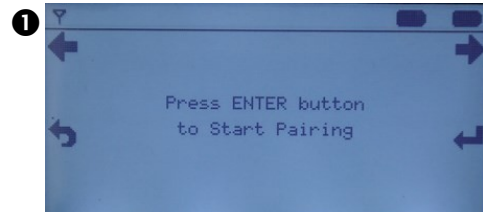
2. Prepare the R260 base station

There are two methods to prepare the R260

A. Using the magnet on the wand (sold separately).

B. Opening the R260 housing and manually initiating the pairing state.

The following section deals with method A. Refer to Appendix A if you need to perform the manual method B then proceed to step *3 Start Pairing*.

2.1. Power R260

Supply power to the base station. The base station is ready when the base station lights

Status: solid green
E-Stop: solid red

STATUS   I/O   E-STOP   CAN1   CAN2
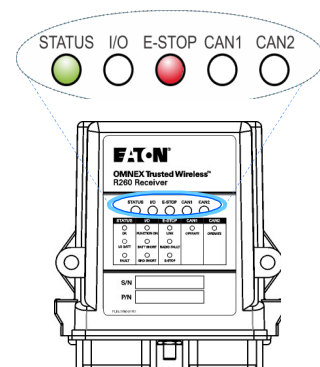
Light Legend	Solid	Slow Flash	Fast Flash	Red Solid	Green Solid	Yellow Solid	Red & Green Alternating

2.2. Initiate R260 Setup Mode

A.   Maneuver the rear of the wand with magnet so that its magnet is placed over the top left corner ❷ of the R260.

A.
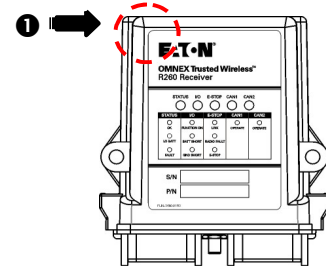
B.   Adjust the position of the wand until the R260 **E-Stop** light slow flashes green.

Status: solid green
E-Stop: slow flashing green

B.
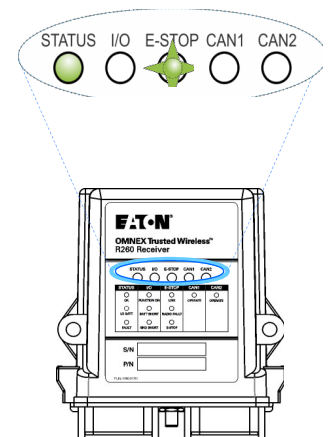
C.   Remove the wand when the R260 **E-Stop** light slow flashes green quickly.

E-Stop: fast flashing green

C.
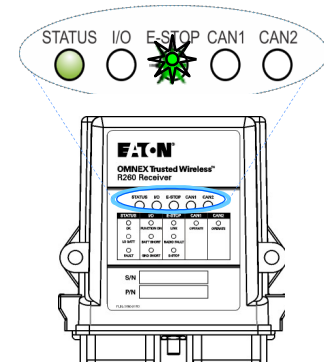
NOTE: If the R260 is left in Setup Mode idle for over 30 seconds, the R260 will time out. The **Status light stays solid green** and **E-Stop** light will flash red slowly and after Setup Mode times out. To return to Setup Mode repeat step 2.2.

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

3. Start Pairing

A. Press [ENTER] ❶ on the TD3100 to start the pairing process.

A.

The pairing will start and the TD3100 screen will display the pairing progress as shown on the right ❷.

❷

B. Pairing is complete when

B. ❸
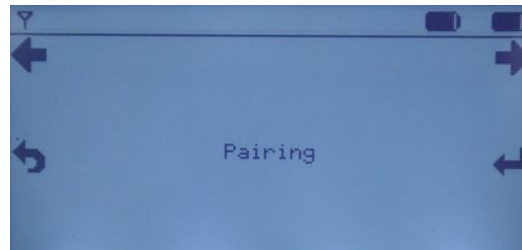
1. TD3100 displays the success screen as shown on right ❸.

If a base name was assigned to the R260 then it will appear in the bottom line of the TD3100 display (default is the R260 serial number); otherwise, "No Base Name" will be displayed.

2. R260 E-Stop light will change from green to red ❹.
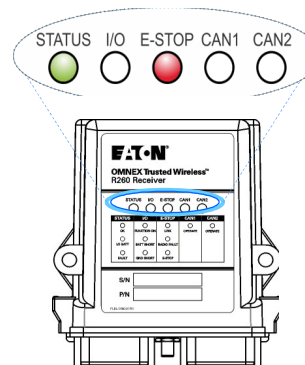
❹

E-Stop: solid red

NOTE: If the pairing fails the TD3100 will display an error screen with the reason for failure. Correct the error, power cycle the transmitter and base station, and then repeat the pairing process.

If repeated attempts at pairing fails, contact your service representative for assistance as there may be a setup or hardware failure.

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

Modify Parameters

This function allows you to modify the TD3100 operational parameters:

- Active Backlight Brightness
- Inactive Backlight Brightness
- Backlight On Time
- Auto Backlight Mode
- Transmitter Timeout
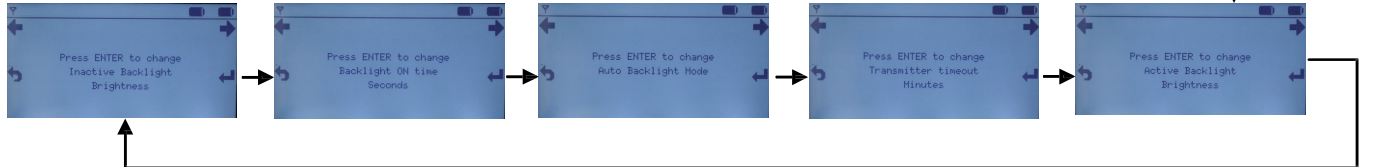
Press [ENTER] to adjust these parameters. Press the top left or top right navigation button to move to the next service option. The available service option, in order of navigation, are displayed to the right.

The following sections describe each *Modify Parameters* adjustment in detail.

Active Backlight Brightness

When a button is pressed the backlight will switch to an active state and light the display at a configured brightness.

The active backlight brightness is configurable from 0 to 100% in increments of 10%. The backlight is off at 0% and maximum brightness at 100%. The default value is 15%.

To adjust the backlight brightness navigate to the screen on the right ❶. Press the top left button to decrease the brightness by 10%. Press the top right button to increase the brightness by 10%.

Press and release [ENTER] to save your changes. Press and release [EXIT] to abort any changes and return to the previous menu.
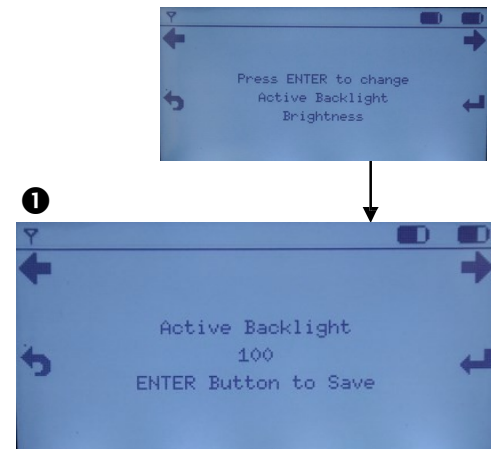
Inactive Backlight Brightness

The backlight inactive state occurs when no button has been pressed after the backlight on time has passed. The inactive backlight brightness is configurable from 0 to 100% in increments of 10%. The default value is 0% or backlight OFF.

To adjust the backlight brightness navigate to the screen on the right ❷. Press the top left button to decrease the brightness by 10%. Press the top right button to increase the brightness by 10%.

Press and release [ENTER] to save your changes. Press and release [EXIT] to abort any changes and return to the previous menu.
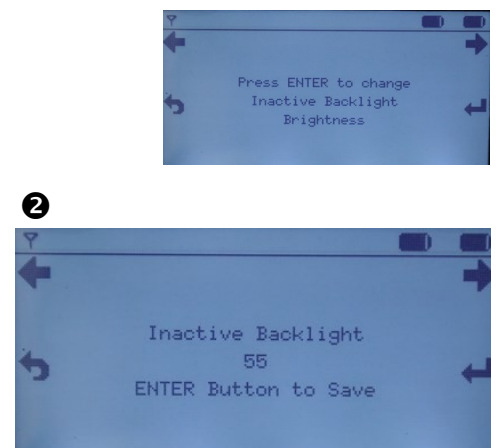
Service Mode: Modify Parameters

Backlight On Time

When a button is pressed the backlight will switch to an active state for a period defined by backlight on-time. Once the period has expired the back-light will switch to its Inactive state.

The active backlight on-time is configurable from 0 to 100 seconds in incre-ments of 10 seconds. The backlight on-time is disabled when set to 0 sec-onds and the display backlight is only active while a button is pressed. The default value is 15 seconds.

To adjust the backlight on-time navigate to the screen on the right ❶. Press the top left button to decrease the on-time by 10 seconds. Press the top right button to increase the on-time by 10 seconds.

Press and release [ENTER] to save your changes. Press and release [EXIT] to abort any changes and return to the previous menu.

❶

Press ENTER to change
Backlight ON time
Seconds

Backlight On-time
10
ENTER Button to Save
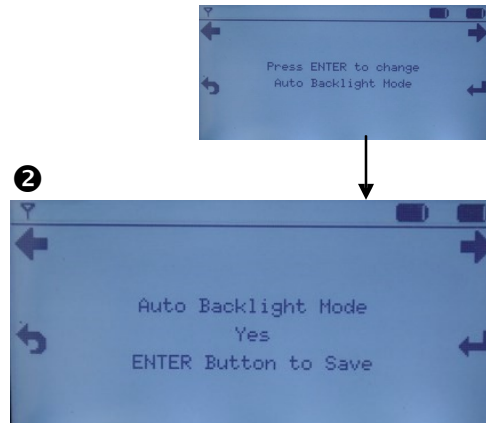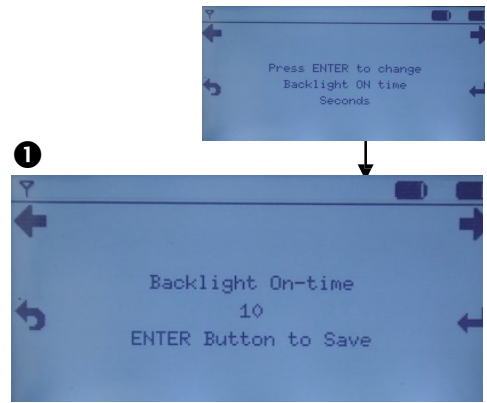
Auto-Backlight Mode

The Auto-Backlight Mode uses ambient light sensor to adjust light level. When the ambient light is bright, backlight is turned off. When the ambient light is dark, the backlight is set to "Active backlight level". To enable or disable Auto-Backlight Mode navigate to the screen on the right ❷. Press the top left or top right button to toggle between "Yes" and "No".

Press and release [ENTER] to save your changes. Press and release [RETURN] to abort any changes and return to the previous menu.

❷

Press ENTER to change
Auto Backlight Mode

Auto Backlight Mode
Yes
ENTER Button to Save

NOTE: The display backlight affects power consumption! The higher the backlight brightness or longer the backlight is active affects the remaining battery power.

To reduce power consumption always configure the backlight brightness and on time to a minimum.

Transmitter Timeout

As a battery saving feature the transmitter has the ability to turn it self off after a defined period of inactivity.

The transmitter timeout is configurable from 0 to 480 minutes in increments of 5 minutes. The default value is 0 or timeout feature disabled.

To adjust the transmitter timeout navigate to the screen on the right ❸. Press the top left button to decrease the timeout by 5 minutes. Press the top right button to increase the timeout by 5 minutes.

Press and release [ENTER] to save your changes. Press and release [EXIT] to abort any changes and return to the previous menu.

❸

Press ENTER to change
Transmitter timeout
Minutes

Transmitter Timeout
0
ENTER Button to Save
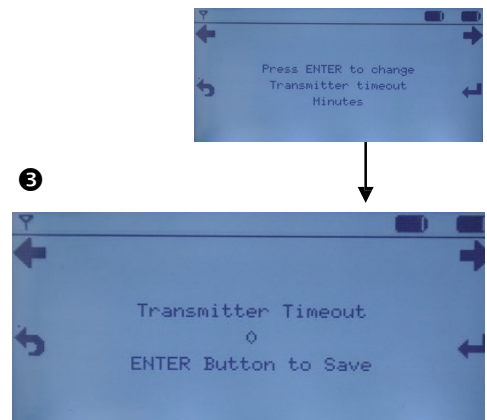
CAUTION: When a transmitter turns off due to inactivity it will cause the receiver it is communicating with to go in to its safe state. The receiver safe state by default is all functions off unless specified dif-ferently by your equipment supplier.

You must be aware of any behavior that may change due to adjusting the timeout and consider all safety aspects of operation. Consult with the supplier of your equipment if your are unsure of affected safety operation.

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

Pair WSO

This function allows you to pair the TD3100 with a WSO accessory.

Pairing is required to teach a WSO unique configuration to a transmitter. Once complete the WSO is capable of establishing a radio link with a unique transmitter.

Pairing is a three step process

1. Prepare the TD3100
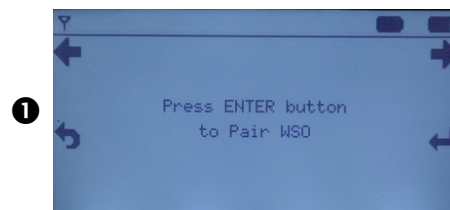2. Prepare the WSO accessory
3. Start Pairing

The following sections describes the three-step process to pair the WSO to a TD3100.

NOTE: It is necessary to pair the WSO to a transmitter when replacing either the transmitter or WSO.

1. Prepare the TD3100

On the TD3100 navigate to the screen on the right ❶. **Do not** press [ENTER].

❶ Press ENTER button to Pair WSO

2. Prepare the WSO

1. Start with the anchor in its normal location and wait for **Link** light to go off ❷.

   Link: off

2. Remove the anchor from the normal location ❸.

3. Hold the anchor over the pairing corner of the WSO ❹ until the **Link** light turns solid green for 5 seconds. After 5 seconds the **link** light will slow flash green ❺.

   Link: slow flash green

4. Reattach the anchor and the **link** will slow flash blue ❻.

   Link: slow flash blue

The WSO is now ready to pair with TD3100.
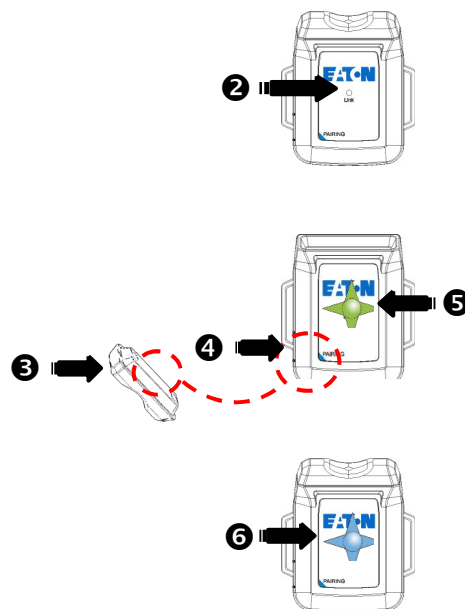
NOTE: If the WSO is left in Pairing Mode idle for over 30 seconds, the WSO will time out. The **Link** light will rapidly flash red two to three times after it times out. To return to Setup Mode repeat step 2.

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

3. Start Pairing

A. Press [ENTER] ❶ on the TD3100 to start the pairing process.

The pairing will start and the TD3100 screen will display the pairing progress as shown on the right ❷.

A.

Press ENTER button to Pair WSO

POWER

❷
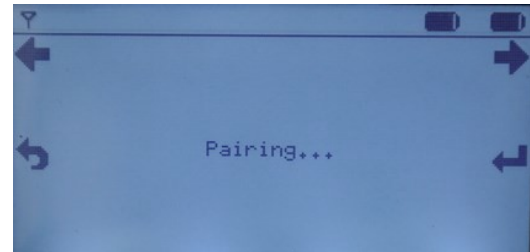
Pairing...

B. Pairing is complete when

1. TD3100 displays the success screen as shown on right ❸.

2. WSO **Link** light will turn off ❹.

    Link: off

B.

❸
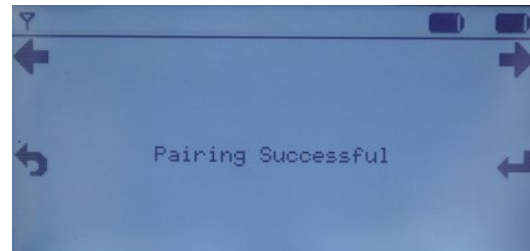
Pairing Successful

NOTE: If the pairing fails the TD3100 will display an error screen with the reason for failure or the WSO link light with be red. Correct the error, power cycle the transmitter and base station, and then repeat the pairing process.

If repeated attempts at pairing fails, contact your service representative for assistance as there may be a setup or hardware failure.

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

Calibrate Controls

This service mode allows you to calibrate the different controls (paddles, joysticks, pots, etc.) installed on your TD3100.

1. To calibrate the controls navigate to the screen on the right ❶.   Press [ENTER] to start

2. Move all controls to neutral (safe) position ❷

3. Press [ENTER]

4. Move all controls to their respective maximum positions (make sure they reach their end points) and return to neutral. For best results repeat this for each control 2-3 times. ❸

5. Press [ENTER] to save or Press [EXIT] to discard any changes

NOTE:

- If one or more controls have been replaced, only the replaced controls need to be calibrated.

- If any controls not to be calibrated are accidentally moved, make sure they get calibrated properly following the above steps.

- Calibrated range can be reduced by selecting end points that are not at mechanical stops, this is particularly useful for calibrating pots.

❶

Press ENTER button
to Calibrate Paddles/Joysticks

❷

Place all controls in neutral position
Press ENTER button to start

❸

Move controls to their maximum limits
Press ENTER button to finish
Press EXIT button to abort
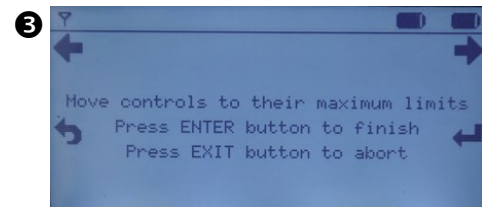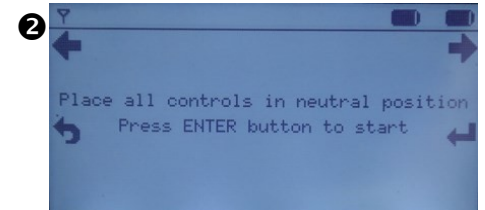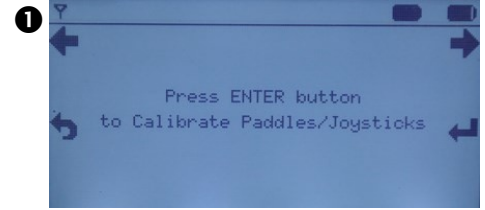
Service Mode: Calibration Mode

Calibration Mode

This function allows you to run your application specific TD3100 calibration.

If your application was not specified with specific calibration parameters then executing the mode will do nothing.

Use the following procedures to enter calibration mode and execute any specific application calibration required.

Run Calibration Mode

1. On the TD3100 navigate to the screen on the right ❶ and press [ENTER]

2. To confirm running calibration mode ❷ press [ENTER] again

3. If this device supports calibration mode the TD3100 will power cycle and enter calibration mode. If calibration mode is not defined the TD3100 will loop back to step 1.

❶

Press ENTER button
to Run in CAL Mode

❷

Press ENTER button
Confirm RUN CAL Mode

Run Diagnostics

This function allows you to run TD3100 diagnostics.

Diagnostics allow you test the functionality of buttons and E-Stop.

To run diagnostics on the TD3100 navigate to the screen on the right ❶ press [ENTER] and follow the procedures below.

See the diagram below for screen navigation.

❶

Press ENTER button
to Run Diagnostics

```
┌──────────┐   ┌──────────┐   ┌──────────┐   ┌──────────┐   ┌──────────┐
│   Test   │──▶│   Test   │──▶│   Test   │──▶│  Update  │──▶│  Export  │
│ buttons  │   │ controls │   │  E-Stop  │   │ firmware │   │ log file │
└──────────┘   └──────────┘   └──────────┘   └──────────┘   └──────────┘
     ▲                                                             │
     └─────────────────────────────────────────────────────────────┘
```
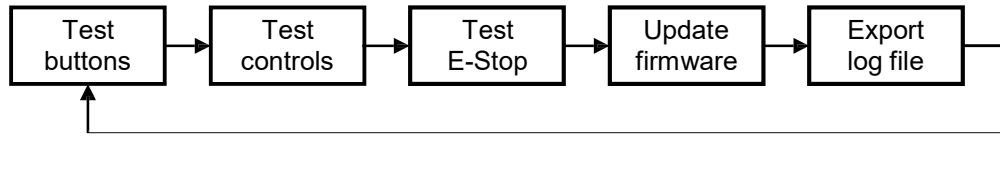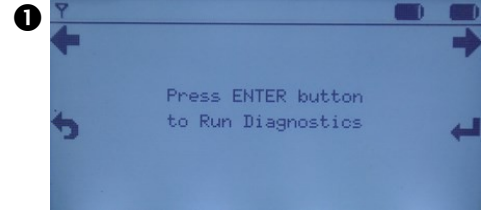
Test Screen Buttons

1. On the TD3100 navigate to the screen on the right ❷ and press [ENTER]

2. The screen will prompt you to press any button ❸.

3. Press the button to test. If the button is functioning it will place a 0 in the following respective position (left to right):

   Position 1 = Top Left button
   Position 2 = Bottom Left button
   Position 3 = Top Right button
   Position 4 = Bottom Right button
   Position 5 = Power button

4. To quit button testing press [EXIT] and hold for 2 seconds.

If a button will not function make sure the button is clean of any debris and repeat the test. After cleaning, if the button still does not function then contact you service representative for assistance.
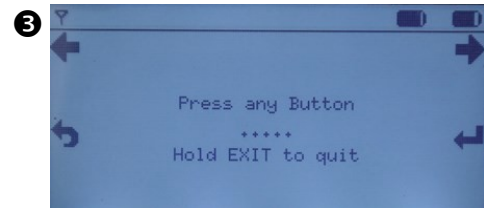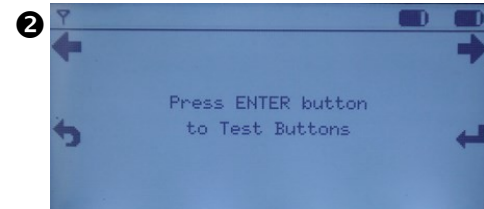
❷

Press ENTER button
to Test Buttons

❸

Press any Button
+ + + + +
Hold EXIT to quit

⚠ **CAUTION:** Only clean a button or the TD3100 with a soft cloth lightly dampened with water.

DO NOT clean a button or the TD3100 with any sharp instruments or objects that can cut or damage the button membrane or housing. DO NOT pour any liquids, use a hose, or pressured water directly on the TD3100. Consult with the supplier of your equipment if your are unsure of correct cleaning procedures.

Failure to follow CLEANING PROCEDURES may result in equipment failure and serious personal injury.

Service Mode: Run Diagnostics

Test Controls

1. On the TD3100 navigate to the screen on the right ❶ and press [ENTER]

2. This screen ❷ displays the current values for all controls (whether installed or not). All controls are displayed as analog signals.

3. If the displayed value changes significantly when the corresponding control is moved, the control is working (The displayed values do not provide any diagnostic information. They show a change of state when the controls are moved).
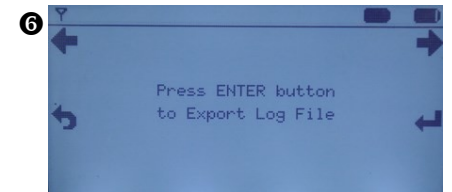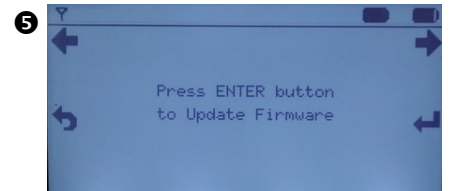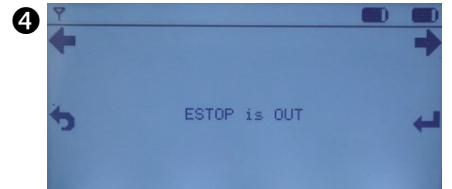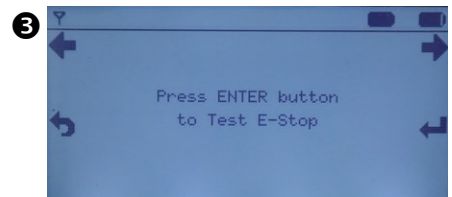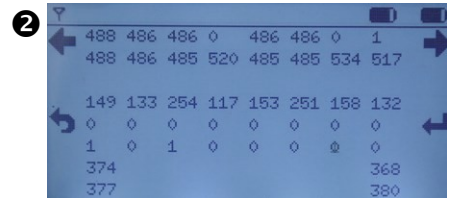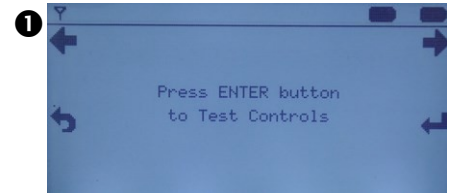
Test E-Stop

1. On the TD3100 navigate to the screen on the right ❸ and press [ENTER]

2. The screen ❹ will display the current E-Stop button state.

   Changing the state of the E-Stop by twisting and releasing it (OUT) will display ESTOP is OUT. Pushing the E-Stop in will display ESTOP is IN.

3. To exit E-Stop testing press [EXIT]

If the E-Stop fails to report its status correctly clean the E-Stop of any debris and repeat the test.

If E-Stop will not function then contact you service representative for assistance.

Update Firmware

1. Install the USB adaptor cable (sold separately) onto the tether connector and plug in the USB memory stick with the upgrade files [**IMPORTANT**: **Only put the files applicable to the device being updated on the memory stick!**]

2. On the TD3100 navigate to the screen on the right ❺ and press [ENTER] to copy files from the USB memory stick to the device (The files being updated will be displayed on the screen)

3. After file transfer is complete, press ENTER again to reset device. [Note: The device may take longer to start up the first time as the new firmware is being installed.]

Export Log File

1. Install the USB adaptor cable onto the tether connector and plug in a USB memory stick

2. On the TD3100 navigate to the screen on the right ❻ and press [ENTER] to export the log files to the USB memory stick

⚠ **CAUTION:** Only clean a button or the TD3100 with a soft cloth lightly dampened with water.

DO NOT clean a button or the TD3100 with any sharp instruments or objects that can cut or damage the button membrane or housing. DO NOT pour any liquids, use a hose, or pressured water directly on the TD3100. Consult with the supplier of your equipment if your are unsure of correct cleaning procedures.

Failure to follow CLEANING PROCEDURES may result in equipment failure and serious personal injury.

Device Information

This function allows you to retrieve the TD3100 device information.

The TD3100 device information is fixed information assigned at the time of the devices manufacturing. The information is very important for assisting your service representative in identifying your unit and its configuration loadout.

Use the following procedures to display the information.

NOTE: The screens shown are for demonstration purpose only. The information to the right of each label is different for each TD3100 manufactured.

Display Device Information

1. On the TD3100 navigate to the screen on the right ❶ and press [ENTER]. Then use the top left and top right buttons to navigate to the following screen displays.

2. Screen ❷ displays TD3100:
   • ID
   • Version
   • Serial Number
   • Base name pair with this device

3. Navigating to the next screen ❸ displays radio:
   • Wireless band
   • HW version
   • Transmission power
   • Bluetooth version

4. Navigating to the next screen ❹ displays
   • Application name
   • Part number
   • Revision number

❶

Press ENTER button
for Device Info

❷

ID: 6789
VER: V1.0(43652)
S/N: No Serial
asdfs

❸

RAD: XPD-2400
VER: V1.17(43192) PHY 2104
PWR: 10 dBm
BLE: V1.2(43359)

❹

TD3100 Jig Loadout
Part No: 392501
Revision: #2
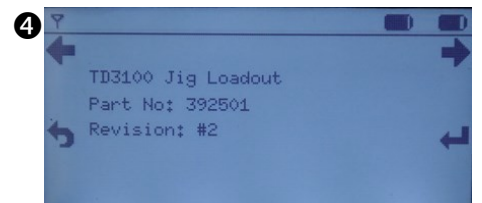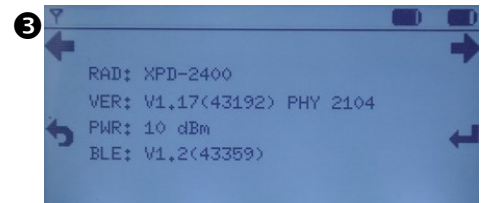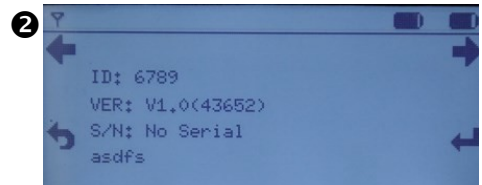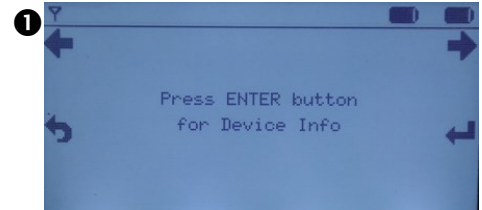
Indicators / Items	Description
	Occurs whenever a function is pressed. Will also remain on momentarily on Power Up.
	Transmitter is in Operating mode. (Data is sent to and received from R260)
	Low Battery. (**Note:** *Low batteries will last approximately 1 hour once the Low Battery light begins to flash).* Action: Change or Recharge Batteries
	An internal error is preventing the RCU from operating (When available, a specific error message is displayed on the screen.)
Received Signal Strength (Top left corner of the display)	Strong Weak No signal
Out of range audio notification	When the RCU moves out of radio range of the R260, the RCU beeps to alert the operator. Move the RCU closer to the R260 within radio range to re-link.
Other audio notifications	Other audio notifications can also be used (defined under application control) to alert the operator when warnings or alarms happen.
Tether operation (Icon displayed when RCU is connected using a tether cable) 	• The tether connection is used to replace radio communication. When the tether is connected, the RCU is guaranteed not to transmit any RF signals. This may be a requirement around some construction zones. • If the RCU is operating and communicating with the R260 when the tether cable is plugged in or removed, the RCU will cease communications and turn itself off. • The tether also provides power to the RCU. When it is plugged in, the RCU will use this power to recharge its batteries (assuming they and the rechargeable type). If the RCU is turned on while charging the status bar will show a small charging icon next to the battery icon. If the RCU is turned off, the display will show a large battery symbol to indicate charging: . When the battery is fully charged and the tether remains plugged in the display will show: .

| **Light Legend** | **Solid** ⬤ | **Slow Flash** ✦ | **Fast Flash** ✴ | **Red Solid** 🔴 | **Green Solid** 🟢 | **Yellow Solid** 🟡 | **Red & Green Alternating** ✴ |

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LED Pattern	State	Description
OFF	Low-power	· WSO is consuming minimum power · It may or may not be paired
Solid blue	ON	· WSO is on with anchor attached
Flashing blue (every 0.5s)	Advertising Or Pairing	· Advertising: WSO attempting to establish a link with the RCU it has previously been paired with · Pairing: Waiting to pair with an RCU
Solid red	Shutdown	· WSO updates anchor status and then terminates link with the RCU
Flashing red (every 0.1s)	Link loss	· Link with RCU lost
Solid green	Pairing Entry 1	· Pairing entry initiated (pairing switch has been activated)
Flashing green (every 0.2s)	Pairing Entry 2	· Follow-on state from pairing entry 1
Flashing red (every 0.5s)	Pairing timeout	· Timed out wait for RCU to pair
Pink	Not paired	· WSO is out of low-power mode and not yet been paired with an RCU
Solid bluish white	Configuring	· WSO in self-configuration mode
Solid amber	Configuration fault	· WSO self-configuration failed

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

Operations - Charge Cradle

Items	Description
Charging	· The cradle will start charging the TD3100 RCU when the vehicle battery voltage is above 12.25V with the RCU inserted. · During charging, if the vehicle battery voltage drops below 12.0V, the charging will be suspended. · If the charging is suspended, it will not resume charging until the battery is above 12.7V (Allowing time for the vehicle's battery to recharge and prevent draining it). · At any time when the battery voltage is above 12.25V, the transmitter is removed and reinserted, the charging will start again. · The batteries can only be charged when their temperature is between 0ºC and 45ºC. Due to self-heating the batteries will not charge completely when the ambient temperature of the charger is above 35ºC.

LED Indicator	· OFF: Not charging, possible causes:
	   · Battery Fully Charged
	   · No Batteries or Incorrect Battery Type
	   · Out of Temperature Range
	   · Vehicle Battery Low
	· ON: Charging RCU
	· FLASHING: Internal error, return for service.

Connector	**Name** **Description** BAT GND Vehicle Battery Ground BAT+ Vehicle Battery positive (9-32VDC) CAN HIGH CAN Bus High CAN LOW CAN Bus Low PARK IN "Vehicle in Park" input when > 6V RLY-NC Transmitter Present Relay – normally closed. 0.5A max RLY-COM Transmitter Present Relay – common RLY-NO Transmitter Present Relay – normally open. 0.5A max Transmitter Present Outputs: · Connections 5-8 can be used to wire to an indicator to alert the vehicle operator if the RCU is not placed in the cradle. · The PARK-IN input is used to indicate when the vehicle is stationary (typically neutral or park indicator). · The "Transmitter Present" relay will be energized (RLY-NO connected to RLY-COM), after a 5 second delay, if the vehicle is NOT in park and the RCU is missing.

operation	The cradle will transmit a status message every 250mSec. The status message has a PGN of 61439. The status message contains the following information:
	    Position **Description**
	    1.1 1 = transmitter present
	    1.2 1 = charging RCU
	The default CAN ID of the cradle is 144 (90H). This can be changed by sending the following CAN message with PGN 61328.
	    Position **Description**
	    1 Change CAN ID command 70, 46H
	    2 Current CAN ID (typically 144 (90H).
	    3 New CAN ID.
	CAN priority must be 3 for all packets.
	CAN data rate is 250 kbps.

CAN Termination	CN5 Jumper settings:

Normal Operation

Indicator Lights (STATUS I/O E-STOP CAN1 CAN2)	Description
	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 ON in Operation When a function is activated on the transmitter, the I/O 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 IO light will stay on GREEN. If the system was intentionally designed this way, the receiver is operating properly, if not call for service.
	Transmitter is ON or OFF Activity on CAN a channel. Light is on when CAN running and will flash when message received or sent. Light is off when CAN is *not* present or disabled.
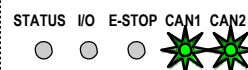
Trouble Indicators

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
STATUS I/O E-STOP CAN1 CAN2	**Transmitter is ON** The reason is the transmitter is not communicating with the receiver.	Refer to **Troubleshooting Chart #3** for solutions
STATUS I/O E-STOP CAN1 CAN2	**Transmitter is ON or OFF** Internal fault or PLC program is not loaded or stopped.	Recycle the Receiver power. Refer to **Troubleshooting Chart #1** for solutions. If the problem persists than contact Eaton Wireless Business Unit service providing part and serial number.
STATUS I/O E-STOP CAN1 CAN2	**Transmitter is ON** A short to ground or excessive current draw on an output. 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.
STATUS I/O E-STOP CAN1 CAN2	**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.
STATUS I/O E-STOP CAN1 CAN2	**Transmitter is ON or OFF** CAN channel 1 is in fault.	Verify that the CAN 1 network is wired correctly. Check for; breaks, shorts, and network termination. If problem persists than contact Eaton Wireless Business Unit service providing part & serial number.
STATUS I/O E-STOP CAN1 CAN2	**Transmitter is ON or OFF** CAN channel 2 is in fault.	Verify that the CAN 2 network is wired correctly. Check for; breaks, shorts, and network termination. If problem still persists than contact Eaton Wireless Business Unit service providing part & serial number.

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

Test the Receiver—R260

Start Initial Condition:
- Turn off transmitter (all lights are off—press the OFF button)
- Cycle power to receiver (turn off and back on)

Receiverlights?
Status – GREEN
I/O – OFF/GREEN
E-Stop – RED

Error Condition: — NO
Review Lights

YES →

Receiver OK:

Note: If there is a short to ground on an output, it is not indicated at this stage. To test for short to ground, refer to the "I/O – RED" troubleshooting at the bottom of page.

Status – Flashing GREEN — YES →

Low Battery:

Check that system is wired correctly to battery and that battery is functioning correctly.

NO

Status – RED — YES →

Internal Fault:

Call for service.

Go to **Chart 2**

NO

I/O – Alternating RED & GREEN — YES →

Short to Supply:

1. Disconnect A & B connectors from receiver and check all outputs for power (e.g. bare wires, improper connections) and make the correct adjustments.
2. Call for service.

NO

I/O – RED — YES →

Short to Ground:

Note: This should only occur when the transmitter is on and a function button is pressed.

Go to **Chart 2** to test the transmitter. If the transmitter is functioning correctly, proceed to check the status of each of the output connections:

Press each of the function buttons and observe the I/O Light.
- turns GREEN, everything is OK.
- turns RED, there is a short in that connection.

NO

E-Stop – Flashing RED — YES →

Radio Fault:
Call for service.

NO

Unknown Fault:
Call for service.

Test the Transmitter—TD3100

```
┌─────────────────────────────────────────────┐
│  1.  Turn off the receiver                    │
│  2.  Ensure transmitter batteries are good/charged │
│  3.  Turn on the transmitter                  │
└─────────────────────────────────────────────┘
                       │
                       ▼
               ╱─────────────╲
              ╱  Transmitter   ╲        YES    ┌─────────────────────┐
             ⟨ display and indica-⟩ ─────────▶ │ Go to "Service Mode: │
              ╲  tors ON?       ╱              │ Run Diagnostics" to test │
               ╲─────────────╱                │ the buttons          │
                       │                       └─────────────────────┘
                      NO
                       ▼
┌─────────────────────────────────────────────┐
│ Complete in order the following steps:       │
│                                              │
│  1.  Check battery orientation               │
│  2.  Clean battery contacts                  │
│  3.  Check, Recharge or Replace              │
│      batteries                               │
│  4.  Turn on the transmitter                 │
└─────────────────────────────────────────────┘
                       │
                       ▼
               ╱─────────────╲
              ╱  Transmitter   ╲        YES    ┌─────────────────────┐
             ⟨ display and indica-⟩ ─────────▶ │ Go to "Service Mode: │
              ╲  tors ON?       ╱              │ Run Diagnostics" to test │
               ╲─────────────╱                │ the buttons          │
                       │                       └─────────────────────┘
                      NO
                       ▼
┌─────────────────────────────────────────────┐
│ Transmitter failure:                         │
│ Send unit in for service                     │
└─────────────────────────────────────────────┘
```

Testing the Transmitter / Receiver Communication

Transmitter: Active light is flashing **Receiver:** Status—GREEN E-Stop—RED	← What is light status of both transmitter and receiver? →	**Transmitter:** Active light is flashing **Receiver:** Status—GREEN E-Stop—Flashing GREEN

There is no LINK between the transmitter and receiver

Transmitter swapped with another one on the job site? — **YES or UNSURE** → Search the job site for the correct transmitter.

NO

The transmitter code may need to be paired to the receiver again

Was it found? — **YES** → Turn on the transmitter to check if the units function correctly. If not, proceed to **Chart 1**

NO

Transmitter and receiver should be working properly. The problem may rest with the machine instead of the radio system

Call for service

Considerations when Pairing

Potential 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 Pairing/Configuration mode.

Possible issues could arise during Step 4, the teaching phase of pairing. 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 pairing phase, test the link by turning on the transmitter (note: the transmitter remains in service mode after pairing 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: If possible 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.

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)

Manually Initiate R260 Setup Mode

This is only to be used when no magnet is available to place the R260 base station into setup mode for the pairing process.

If you are able to use the transmitter magnet or magnetic wand (sold separately) then the recommend method is to use section *2. Prepare the R260 base station* in Setup Mode: Pairing.

Only proceed if it is not possible to use a magnet to initiate R260 Setup Mode.

1. Opening R260 Case (No Magnet Access)

The case cap is attached to the base by two plastic tabs at opposing sides, which can be unlatched using a screw driver as shown on the right ❶. Once the cap is free slide the base ❷ partially out of the case.
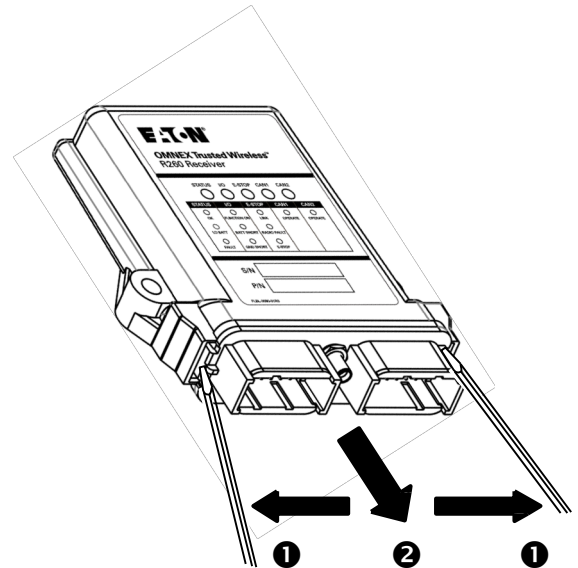
NOTE: Do not slide the base completely from the cap. Once the case is opened the board electronics are exposed and can be damaged Care must be taken to prevent debris, moisture, or external objects from contacting internal components.

2. Power R260

Supply power to the base station. The base station is ready when the base station lights

> **Status:** solid green
> **E-Stop:** solid red
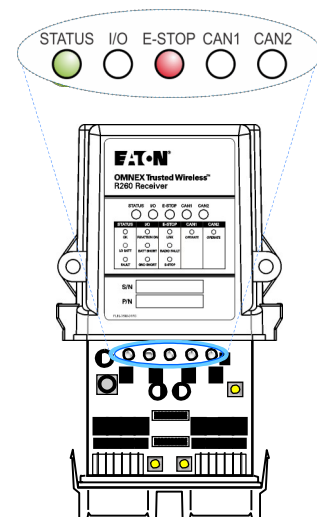
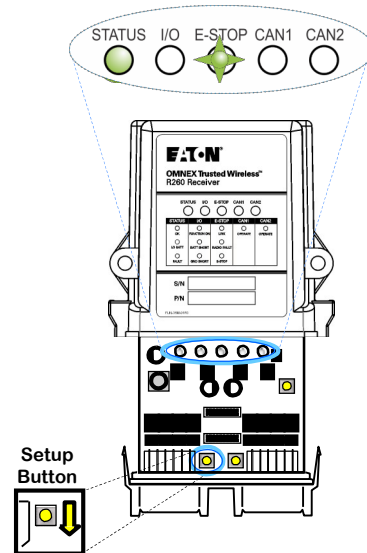| Light Legend	Solid	Slow Flash	Fast Flash	Red Solid	Green Solid	Yellow Solid	Red & Green Alternating

3. Initiate R260 Pairing Mode

A. Press and hold the Setup button until the R260 **E-Stop** light slow flashes green.

> **Status:** solid green
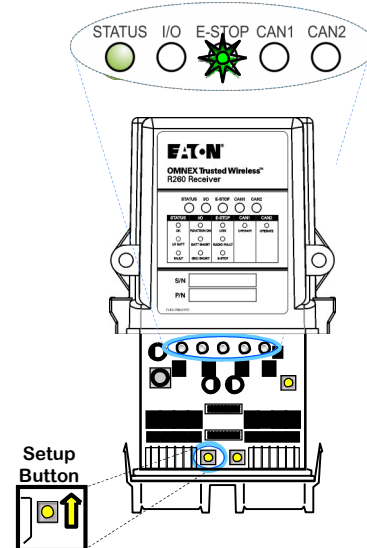> **E-Stop:** slow green

A.

B. Release the Setup button when the **E-Stop** light flashes fast green.

> **Status:** solid green
> **E-Stop:** fast green

B.

NOTE: If the R260 is left in Setup Mode idle for over 30 seconds, the R260 will time out. The **Status** and **E-Stop** light will rapidly flash red after Setup Mode times out. To return to Setup Mode repeat step 2.2.

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

Failure to secure the cover may void warranty, result in radio equipment failure and serious personal injury.

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

Notes:

Parts & Accessories

Eaton Part Number	Description
ASSY-3834-01	Battery pack, Non-rechargeable
ASSY-3834-02	Battery pack, Rechargeable
ASSY-3849-01	Battery Charger
ASSY-3933-01	Charge Cradle
ASSY-3933-02	TD3100 mount & detect switch
ACAB-3681-01	Tether cable, 10 meters
ACAB-3681-02	Tether cable, 30 meters
ACAB-3681-03	Tether cable, 15 meters
ACAB-3679-01	TD charge cable, 12/24VDC,auto pwr plug
ACAB-3680-01	TD charge cable, 120/240VAC
FMEC-2709-01	Shoulder strap
FMEC-1248-02	Waist belt

Specifications

	R260 Receiver	TD3100 Transmitter
Size	5.1" x 4.7" x 1.4" (130mm x 119mm x 36mm)	7.7" x 9.0" x 6.2" (196mm x 229mm x 158mm)
Weight	0.65lbs (0.295kg)	3.5 lbs (1.59kg) incl. batteries
Construction	High impact plastic, weatherproof	Industrially robust, hardened plastic, chemical resistant
Input Power	+9V to +30VDC	4 x AA batteries (alkaline or rechargeable Lithium Ion)
Battery Life	N/A	14 hours (with lithium ion battery)
Operating Temperature Range	-40ºF to +158ºF (-40ºC to +70ºC)	-22ºF to +136ºF (-30ºC to +58ºC)
Storage Temperature Range	-58˚F to +185˚F (-50˚C to +85˚C)	-40ºF to +140ºF (-40ºC to +60ºC) with lithium ion battery (refer to manufacturer specifications for alkaline battery)
Charging Temperature Range	N/A	+32ºF to +113ºF (0ºC to +45ºC)
Outputs	3A (max) each (sourcing), 10A (max) each (combined)	N/A
Antenna	Internal or external	Internal
Approvals	**USA**- FCC part 15.247 **Canada**- IC RSS 210 Issue 6, Sept. 2005	

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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