

T150 / R150 User Guide



STEP 1

Install Batteries

Remove the battery cover on the back of the **T150**, and install the four **AA** alkaline batteries as shown in Figure 1.



Figure 1

STEP 2

Power Up T150

Activation of any switch will cause the **T150** to power up. However as a safety feature, the **[EStop]** switch must be pressed and released, or if already pressed, released within 10 seconds for unit to remain powered up.



T150

STEP 3

Using The T150

The **ACTIVE** LED will flash two times per second indicating that the **T150** is transmitting to the **R150**. When a function switch is used, the **ACTIVE** LED will flash brightly upon activation of the switch and return to flashing at a rate of two times per second when there is no switch activity.

During normal operation the **LOW BATT.** LED will flash to indicate a low battery condition.

The **[EStop]** button is used for both an emergency shutdown as well as a safe way of powering down the **T150** after operation.

Each switch has a device specific label to identify its function.

The Trigger is a Proportional Control switch used in conjunction with a function switch (i.e. **[ROT CW]**). The type of Proportional Control output is dependent on the option of the receiver but will generally be either a Voltage, PWM or Current Control.



R150

This device complies with the requirements of the Federal Communication Commission (FCC) as specified in document CFR47 Part 15.247 and Industry and Science Canada (ISC), as specified in document RSS 210. The device is permitted only on a no-interference, no-protection basis, that is, it must cease operation when it is determined that it causes harmful interference to the services authorized by the FCC or the ISC. Changes or modifications to the equipment not expressly approved by OMNEX will void the warranty.

Setting ID Codes

Required when replacing either the Transmitter or Receiver

The Transmitter has its **ID Code** factory programmed. Its matching receiver needs to have this same code programmed into it. To do this, the Receiver needs to have its cover removed – refer to Figure 2. Follow the procedure below to program the Receiver **ID Code** to match its corresponding Transmitter.

1. Release the **[EStop]** switch on the **T150**.
2. Turn the **T150** on by toggling the **[SW5]** switch to the **UP** position.
3. While holding the **[SW5]** switch in the **UP** position, press and release the **[EStop]** switch. This enables the “Download Password” mode.
4. Release the **[SW5]** switch. The **ACTIVE** LED will flash once per second.
5. Toggle the switches in sequence: **[SW3]**, **[SW1]**, **[SW4]** and then **[SW2]** to the **UP** position to enter the password code (**3142**), followed by toggling the **[SW5]** switch to the **UP** position. Both the **ACTIVE** and **LOW BATT.** LED's will flash twice per second. This confirms the unit is in the “Ready to Download” state.
6. Press and hold the **[SETUP]** button on the **R150** for 5 seconds. The **STATUS** LED on the **R150** will flash once per second while depressed and then begin flashing rapidly indicating that the **R150** is ready to receive “Configuration Data” from the **T150**. Continue holding the **[SETUP]** button after the **STATUS** LED begins flashing rapidly.
7. Momentarily toggle the **[SW5]** switch to the **UP** position; this enables the **T150** to send “Configuration Data” to the **R150**. Release **[SW5]** and release the **[SETUP]** button.
8. Press the **[EStop]** switch to power down the **T150**, and restart the **T150** – refer to **STEP 2**.

Current Control Module Calibration

Permits the user to adjust minimum and maximum currents

1. Release the **[EStop]** on the **T150**.
2. Turn the **T150 ON** by toggling the **[SW5]** switch to the **UP** position.
3. While holding the **[SW5]** switch in the **UP** position, press and release the **[EStop]** switch. This enables the “Download Password” mode.
4. Release the **[SW5]** switch. The **ACTIVE** LED will flash once per second.
5. Toggle the switches in sequence: **[SW3]**, **[SW1]**, **[SW4]** and then **[SW4]** to the **DOWN** position to enter the password code (**3144**), followed by toggling the **[SW5]** switch to the **UP** position. The **ACTIVE** and **LOW BATT.** LED's will flash alternately once per second. This confirms the **T150** is sending “Calibration Data” to the **R150**.
6. Select and hold one of the “Proportional Functions” (i.e. **[SW4]** or **[ROT CW]**).
7. With the trigger **OFF** (fully released), the “MIN” level is set. The “MIN” level may be increased by toggling the **[SW5]** switch up or decreased by toggling the **[SW5]** switch down.
8. With the trigger **ON** (fully engaged), the “MAX” level is set. The “MAX” level may be increased by toggling the **[SW5]** switch up or decreased by toggling the **[SW5]** switch down.
9. To reset the “MIN” and “MAX” settings to the factory default, hold the **[SW5]** switch in either the **UP** or **DOWN** position for 5 seconds.
10. To exit, press the **[EStop]** switch.

Transmitter / Receiver Replacement and Service

In order to program the **R150** or replace the fuse, you will first need to remove the circuit board from the housing of the **R150**. This is done by releasing the two side tabs on the housing, and sliding the connector block and circuit board out of the housing until the four **STATUS LED's** are visible and the **[SETUP] SW1** button is accessible. See Figure 2.

Also refer to **Setting ID Codes** for a step by step procedure of setting **ID Codes** to match on both the Transmitter and the Receiver.

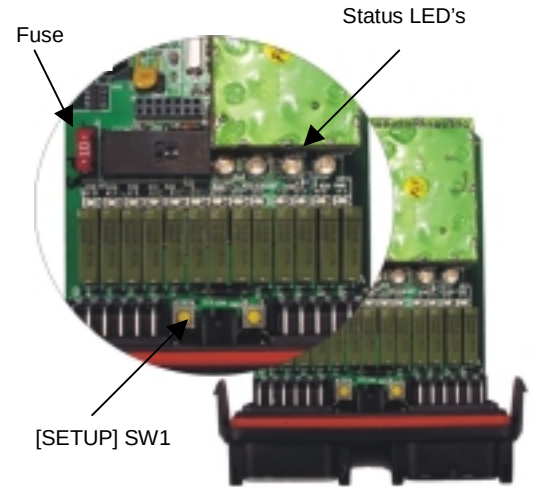
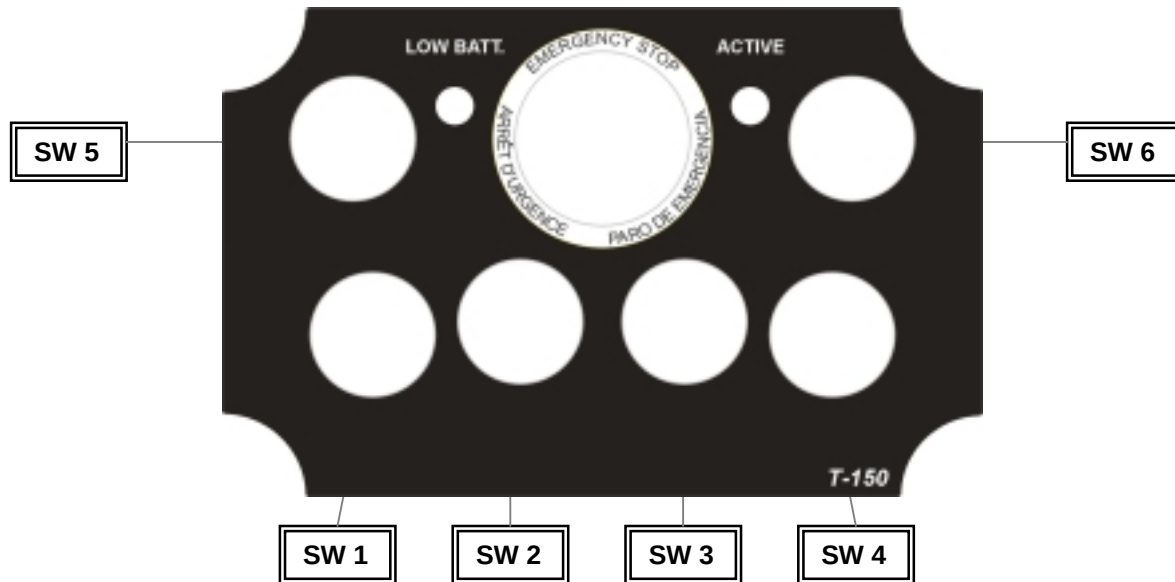


Figure 2



T150 / R150 Switch Function Table					
Switch Number	Position	Output Control	Pin Assignment	Color Code	Function
SW1	UP	Output 9	B3	Green	
	DOWN	Output 10	B4	Green (Black/White)	
SW2	UP	Output 7	B1	White (Red/Black)	
	DOWN	Output 8	B2	Red (Black/White)	
SW3	UP	Output 5	A10	Orange (Black)	
	DOWN	Output 6	A12	Orange (Red)	
SW4	UP	Output 3	A9	White (Red)	
	DOWN	Output 4	A11	Blue (Red)	
SW5	UP	Output 11	B5	White	
	DOWN	Output 12	B6	Orange	
SW6	UP	Output 1	A7	Orange (Green)	
	DOWN	Output 2	A8	Red (Green)	
Trigger	Released	Output 13	A4	Green (Black)	Proportional Control
	Engaged				
Power			A6	Red	9 to 30VDC
Ground			A3	Black	Ground
EStop		EStop Output	A5		]-- Jumpered Externally
Driver Power		Driver Power Input	A2		

Troubleshooting

The **R150** has 4 LED's that are used to indicate device status:

ESTOP LED

GREEN – indicates RUN

RED – indicates ESTOP

Flashing RED – indicates fuse blown or relay fault

FUNCTION/FAULT LED

GREEN – indicates function ON, no fault

RED – indicates no voltage to relay, short to ground or blown fuse

Flashing RED – indicates short to supply or shorted output relay

Not lit – indicates no function

LINK LED

GREEN – indicates Link

RED – indicates No Link

STATUS LED

GREEN – indicates STATUS OK

RED – indicates unrecoverable fault; requires factory authorized service

Flashing RED – indicates low battery

The **T150** has 2 LED's that display the mode and status of the device

ACTIVE LED

Momentarily ON or Flashing indicates Power Up procedure or Programming status. LED will flash with each function during normal operation indicating Transmit Status to the R150 is good

LOW BATT. LED

Momentarily ON or Flashing indicates Power Up procedure or Programming status

During normal operation, this LED will only flash to indicate battery low

ACTIVE and LOW BATT. LED's

Both LED's flashing in sync indicates one of the switches is stuck

Inputs and Outputs

Inputs

4 x 0-5VDC analog inputs (factory configurable only)

Outputs

Option 1

13 x Form **A** relay, monitored, 3A max. each, total combined current 10A

Option 2

12 x Form **A** relay, monitored, 3A max. each, total combined current 10A max.

1 x **Proportional Control**

NOTE: The Current Control Module may be installed as an option giving the user Proportional Control on output 13 of the **R150** - refer to **Current Control Module Calibration** for Proportional Calibration procedures.

The Proportional Control option is available from the factory in either Voltage Control, PWM or Current Control.

Replaceable Parts

Fuse

MINI® Fuse Type, 10A Littelfuse

Mating Plugs

OMNEX (p/n F0047) or equiv.

Pins

OMNEX (p/n's J0418 / J0419)

Sealing Plug

OMNEX (p/n J0417)

Wedge

OMNEX (p/n J0421)

Switches

OMNEX (p/n J0420)

EStop Switch

OMNEX (p/n S0042)

EStop Contact Block

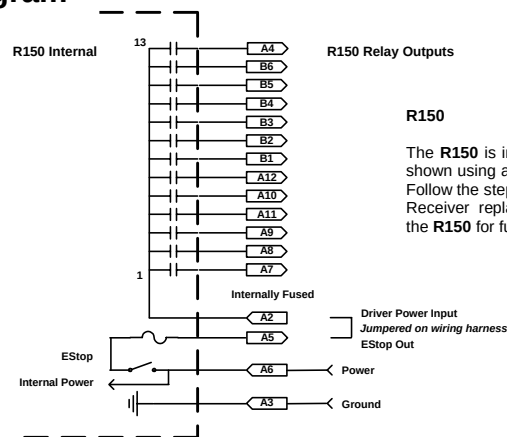
OMNEX (p/n S0072)

Batteries

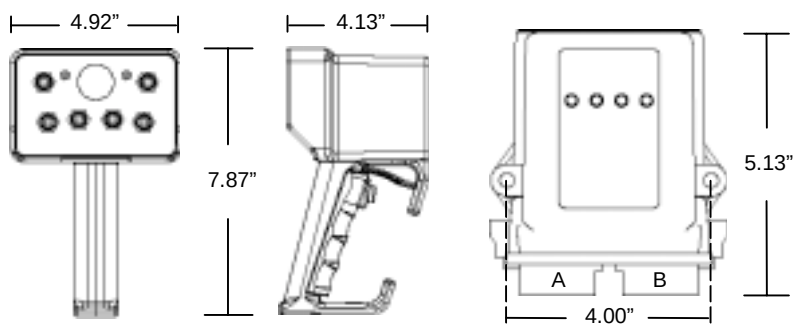
OMNEX (p/n S0071)

OMNEX (p/n B0010) 4 x AA

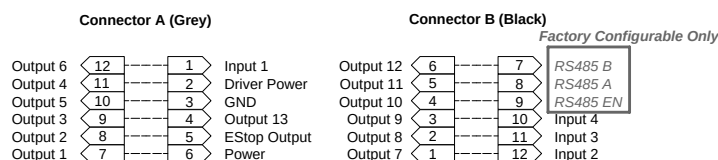
I/O Diagram



Dimensions



Deutsch Connector Pin Assignments



WARRANTY

OMNEX Control Systems Inc. Warrants to the original purchaser that the OMNEX 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. OMNEX's entire liability and your exclusive remedy shall be, at OMNEX's option, either the (a) repair or (b) replacement of the OMNEX product which is returned within the warranty period to OMNEX freight *collect* by the OMNEX APPROVED carrier with a copy of the purchase receipt and with the return authorization of OMNEX. If failure has resulted from accident, abuse or misapplication, OMNEX shall have no responsibility to repair or replace the product under warranty. In no event shall OMNEX 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 OMNEX Control Systems Inc. Neither OMNEX nor its Distributors shall be liable for any delay or failure of the performance of any of its obligations under this agreement caused by acts of God, labor disputes, embargoes, boycotts, shortage of parts or any cause beyond its reasonable control.

Neither OMNEX nor its Distributors shall be responsible for incurred costs associated with border clearance or with the delay of the OMNEX products in transit to OMNEX. **Any charges associated with the return of the OMNEX products may be subject to billing to the original purchaser in the event that the OMNEX products are NOT covered by the warranty as noted above.**

GET CONTROL
GET **OMNEX**