Instruction Manual **TL-EMS 8x1** RF Switch
(8 Inputs x 1 Output, with RF Remote Control)

RF Switch
TL-EMS-8x1

RF Remote Controls (Tx)
CMD-HHLR

RF Receiver (Rx)
TL-RX-315

Control Cable

9VDC

**AC Adapter
110/220 VAC**
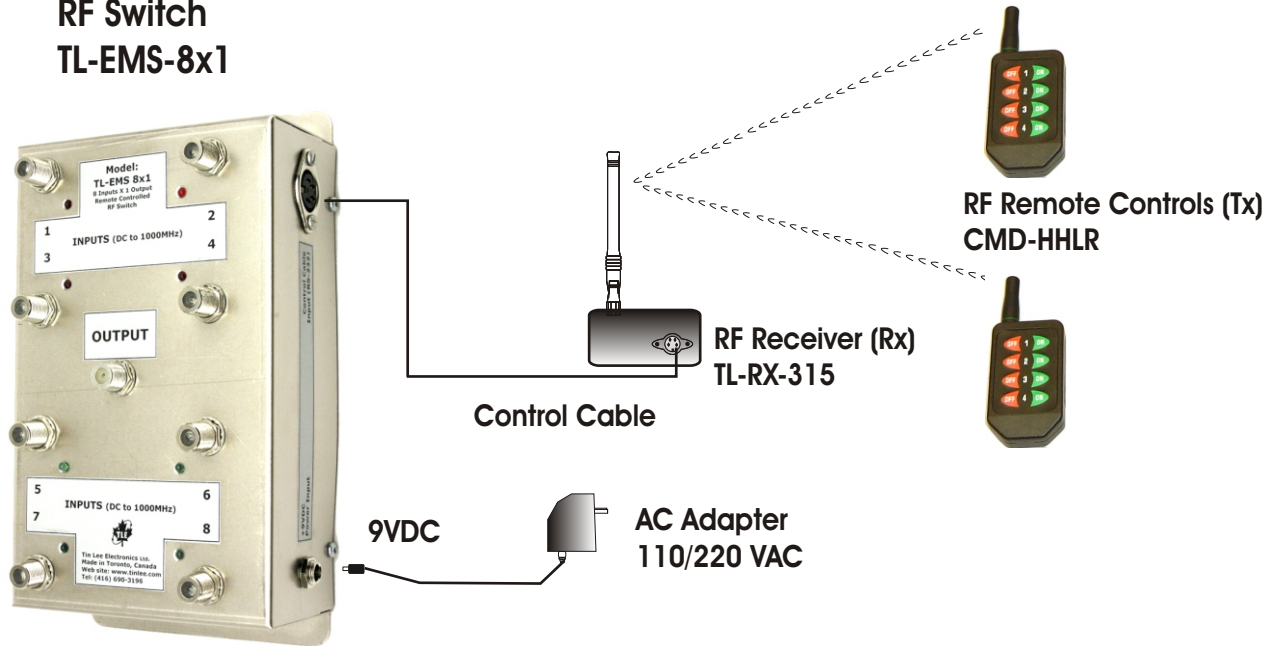
TL-EMS 8x1 Instructions

Please read all instructions before installing and operating.
Save this Instruction manual.
Record ID: # 0123 for remote control Transmitter (CMD-HHLR-315) _ Additional Tx must
have **ID # 0123** to control this particular switch (see Operations) .
**Limitation: the Switch will not operate properly if either Tx and Rx are located behind RF
shielded obstruction.**

Contents:

TL-EMS-8x1

Thank you for purchasing model TL-EMS-8x1 RF switch. It is designed to allow user to select an output signal from up to eight different inputs. Operating bandwidth is DC to 1000 Mhz (suitable for cable TV, off-air antenna, AM/FM radio, RF data, or composite video).

The TL-EMS-8x1 operation requires RF remote control CMD-HHR-315 handheld transmitter (Tx) and RF receiver TL-Rx-315 (Rx). For details on Tx and Rx refer to LINX Data Guide and TL-Rx-315 User's Manual, respectively.

The Tx will work up to 100' from Rx through typical building materials. Control distance can be increased when Rx can be located away from the Switch box in low obstruction location using the optional extended control cable - figure 2 (unobstructed control distance is up to 1000 feet).

TL-EMS-8x1 features

High-quality RF characteristic: thru loss < 1dB, port to port RF isolation >55dB, return loss >12 dB

Switching speed <10 mSec, and, low power switching and non power latching.

Simple installation - includes LED input indicator

Rugged wireless RF remote control (FCC Certified)

Easy to install RF receiver (FCC Compliant)

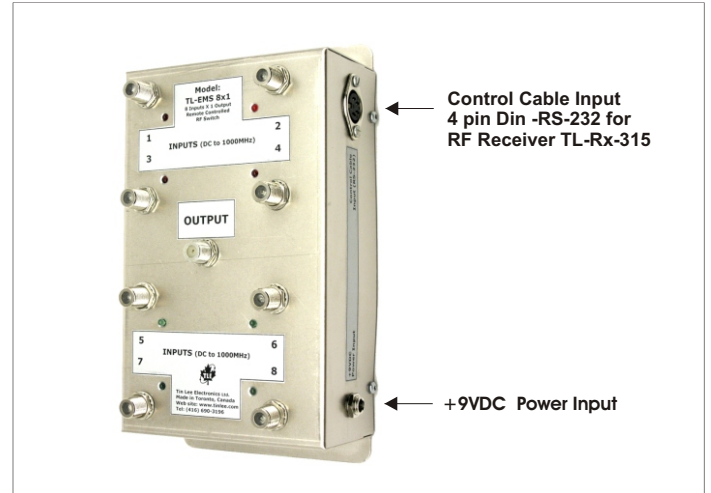Remote Control ID Unique and Secure

Two-year limited warranty

Figure 1: TL-EMS-8x1
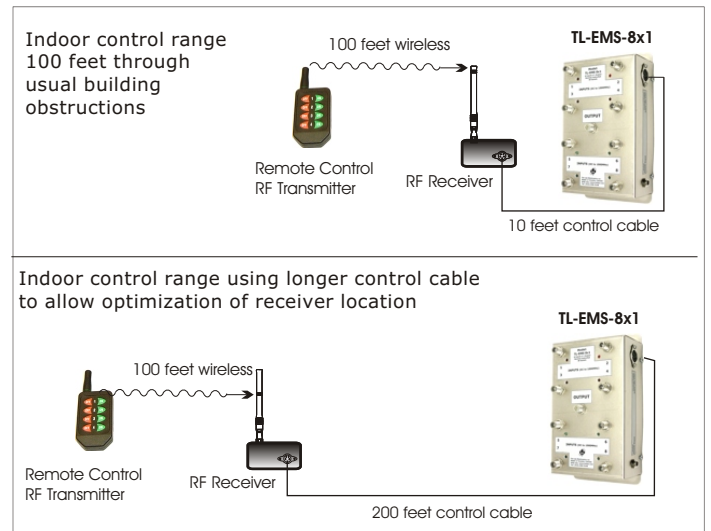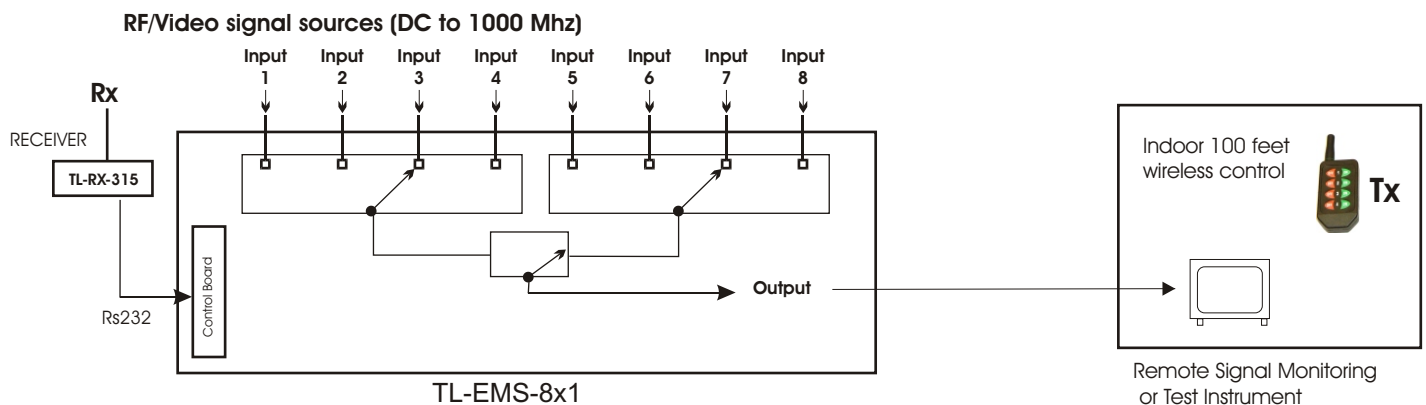

Figure 2: Remote Control Range

Basic Application   Figure 3 shows a block diagram and basic application of the TL-EMS-8x1. It is used to switch between eight input sources from a remote location.
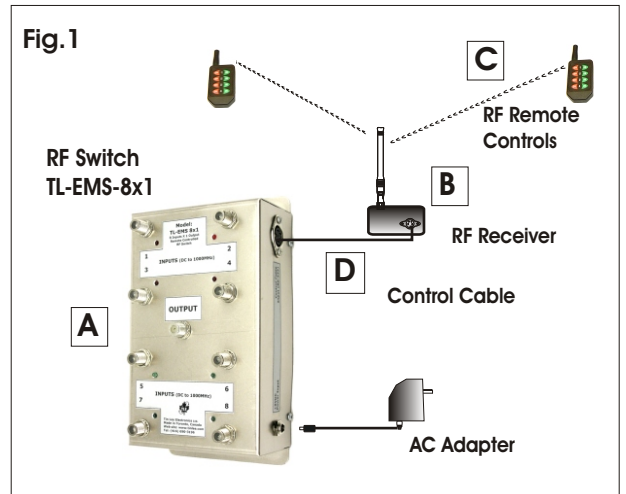
Model TL-EMS-8x1 RF Switch with Remote Control

Switch Package Contents

Description (refer to fig.1)

Model TL-EMS-8x1 RF Switch Package includes:

A One RF Switch and power adapter;
B One RF Receiver with mounting bracket and four screws;
C Two Remote Controls with two spare batteries;
D One Control Cable (10 ft length)
G Documentation:

1. Instruction Manual RF Switch TL-EMS-8x1
2. Data guide for Remote Control (LINX Handheld Transmitter CMD-HHLR-315)
3. User's Manual RF Wireless Receiver TL-Rx-315

Fig.1

A 1x TL-EMS-8x1 RF Switch and AC Adapter

110/220 VAC to 9VDC adapter with European plug adapter

B 1x TL-RX-315 RF Receiver (Rx)

Mounting Bracket and Screws

C 2x Remote Controls CMD-HHLR-315 (Tx)

ID # 0123

Spare batteries for (Tx), for battery replacement refer to LINX data guide.

D 1x Shielded 10 feet Control Cable

G Documentation:

1. Instruction Manual RF Switch TL-EMS-8x1
2. Data guide for Remote Control (LINX Handheld Transmitter CMD-HHLR-315)
3. User's Manual RF Wireless Receiver TL-Rx-315

Notes:

1. Both **CMD-HHLR-315** remote controls have the same factory preset ID (**ID# 0123)** to operate with this RF Switch.
2. control cable is 10 feet (standard). Optional control cable is available up to 200 feet.

Installation and Connection Guide

TL-EMS-8x1 and TL-Rx-315 (Rx) Location
For best performance, the Switch and Rx should be located in an interference free location, and where there is least amount of obstructions. Remote control works best when physical distance between Tx and Rx are less than 100 ft apart through usual indoor building materials. Install Switch and Rx indoors, do not immerse in water, and avoid locating them under direct sunlight or in temperatures below +14°F (-10°C) or above +122°F (+50°C).

Control Cable Connection (refer to Step 1 Connect Control Cable)
Control cable is to be connected to Rx and TL-EMS-8x1. Both devices have a circular 4 pin DIN output jack. The control cable is a shielded four conductor control cable with 4 pin circular DIN plugs. Cable length is 10 feet standard, and available up to 200 feet.
The Rx is powered from the RF Switch through the control cable (+5Vdc). When power is applied to Switch and Rx the LED on the Rx will flash rapidly to indicate it will receive the control signals.

Antenna Orientation: The angle of Rx articulating antenna can be adjusted for best performance.(see illustrations below-control range and Antenna orientation). In general, Rx and Tx work best togther when both antennas are vertical relative to the floor.

DO NOT modify the receiver.
The user is cautioned that changes and modifications made to the equipment without the approval of the manufacturer could void the user's authority to operate this equipment.

Operating the Remote Control - To send a control signal press down a button and hold for 1 second, then release.
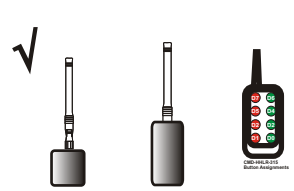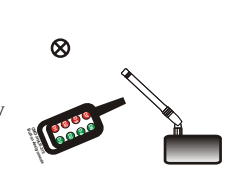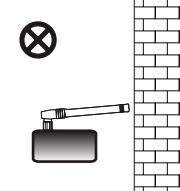
Operating range
Wireless remote control range is up 100 ft with typical indoor obstructions. The control cable between Rx and Switch can be up to 200 feet. This allows for optimizing location of Rx.

Limitations:
The Tx and Rx control range will vary depending on operational and environmental conditions. Remote Controls will not function if either Tx or Rx are located behind RF shielded area (RF signals will not travel through metal obstructions, e.g., aluminized wall panels).

Control Range and Antenna Orientation

Best Range:
When Tx and Rx antennas are in parallel.
And when obstructions between Tx and Rx are minimized.

Least range:
When Tx and Rx antennas are perpendicular. Keep antenna away from objects, including Rx enclosure.

Operation of Remote Control Switch

Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.

Keep Information of Remote Control (Tx)

Model # CMD HHLR-315 Mhz (LINX) ID: # 0123
Example: Any CMD with **ID # 0123** will have the following DIP switch setting...

Tx Dip Switches settings

↓ ↓ ↓ ↓ ↑ ↓ ↓ ↓ ↓ ↓
1 2 3 4 5 6 7 8 9 0

STEP 1   Connect Control Cable

Locate the Switch - near AC outlet,
Locate Rx away from metallic
obstacles.
Connect control cable between Switch
and Rx (photo A). Note: Cable plugs
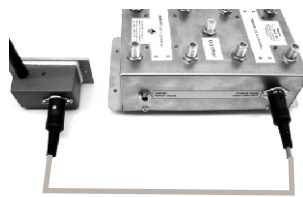into Switch and Receiver with the
orientation shown photo B and C.

Photo A

Photo B:
Cable to
Receiver (Rx)

Photo C:
Cable to
Switch

STEP 2   Locate Receiver (Rx)

Locate Rx next to Switch , or up to
cable length away (10 ft standard or up
to 200 ft from Switch with optional
control cable). LED on Rx will flash
rapidly to indicate ready to receive
status when hookup is complete, and
power is applied.
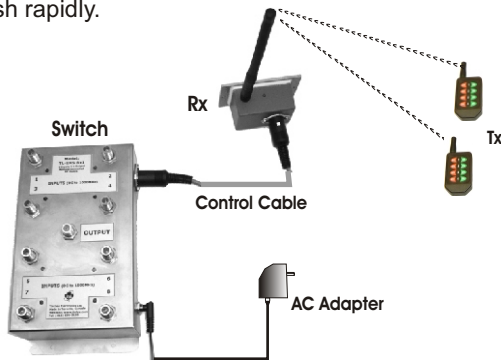
* Refer to TL-Rx-315 manual for details,

STEP 3   Plug in DC 9V

Connect 9 VDC plug into
RF Switch. Check over all
hookup (step 5) before
connecting AC plug into
wall outlet.

STEP 4   Check Hookup

Check for correct hookup before connecting to
AC. When is AC plugged in, the LED on Rx will
flash rapidly.

Rx

Switch

Tx

Control Cable

OUTPUT

AC Adapter

STEP 5   Review Remote Control Button Assignments

Before testing Switch review corresponding Remote Control Button and
Switch Input assignments: four RED and four Green. Table, below,
shows Button and Input assignments

Control button - Input Selection

RED 1- selects Input **1**
RED 2- selects Input **2**
RED 3- selects Input **3**
RED 4- selects Input **4**

Control button - Input Selection

GREEN 1- selects Input **5**
GREEN 2- selects Input **6**
GREEN 3- selects Input **7**
GREEN 4- selects Input **8**

STEP 5   Test Remote Control

Preliminary testing of remote control Switch, should
be done next to RF Switch to view LED of Input
selection Note: Listen for audible switch "click" sound
when switching occurs.

All LEDs are off when Switch is first powered up.

To use remote control - Press and Release button to
select desired Input - the LED beside Input will lighten.

Testing the Remote Control away from Switch should
be performed when input and output signals can be
monitored.
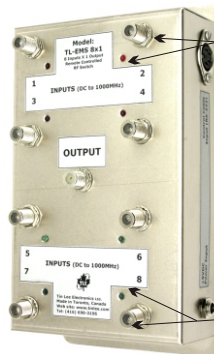
Example 1: Press RED Button 2
to select Input 2 - LED 2 "ON"

Example 2: Press Green Button 4
to select Input 8 - LED 8 "ON"