



# TL-EMS-2x4

## Description:

The TL-EMS-2X4 is a high performance RF broadband signal switcher with a bandwidth of 5 to 1000 MHz (figure 1). Using the wireless remote control, each of the 4 outputs can be individually set to transmit the signal from input A or input B.

Input sources include Cable TV, Off-Air Antenna, FM, RF data.

The remote control distance is up to 300 ft indoors, through typical building material (figure 2).

The TL-EMS 2x4 has high-quality RF characteristics, which makes it suitable for commercial, industrial, experimental, and residential applications. It distributes and switches RF signals without spectrum loss or distortion, and high isolation between input signals. The input to output insertion loss is similar to that of a 4-way signal splitter.

Figure 3 shows the TL-EMS 2x4 in a sample small building TV distribution application. It allows four users to choose between cable TV source, and, local content (e.g., security camera modulators, PC, DVD, and off-air HDTV).

## Features:

- Simple installation - includes input selection LED
- Access to two broadband signals in TV/RF system using wireless push-button RF remote control (FCC Certified)
- Indoor, wireless remote control range up to 100 feet
- Indoor control range up to 300' with 200' control cable
- Excellent RF characteristic (RF Switches / Remote Control)
- Compatible with Tin Lee RF products to integrate local content or modify the Cable TV spectrum
- Easy to install RF receiver
- Multiple remote controls can operate in the same zone
- Each remote control has a unique ID
- Expandable to 16 outlets. (4x TL-EMS-2x4 per receiver)
- Full two year limited warranty
- Custom computer control option (RS-232)

## Example Application

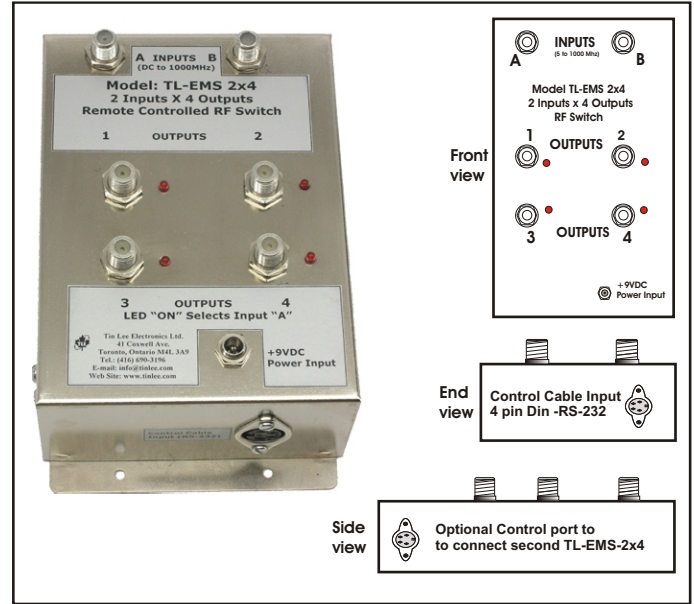


Figure 1: TL-EMS-2x4

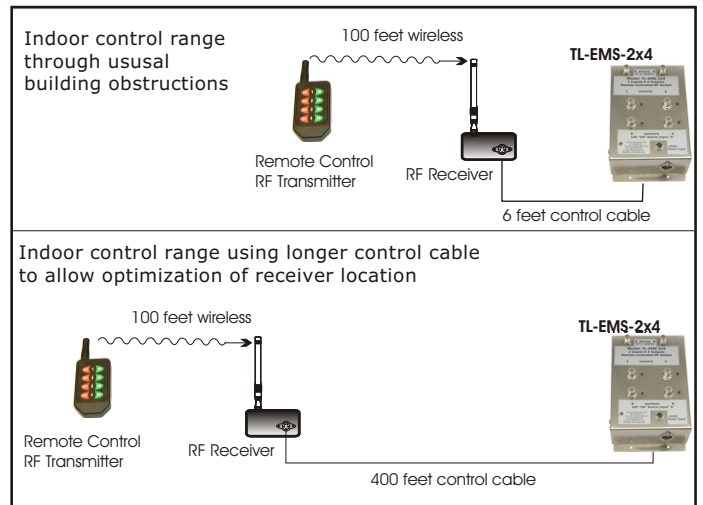


Figure 2: Remote Control Range

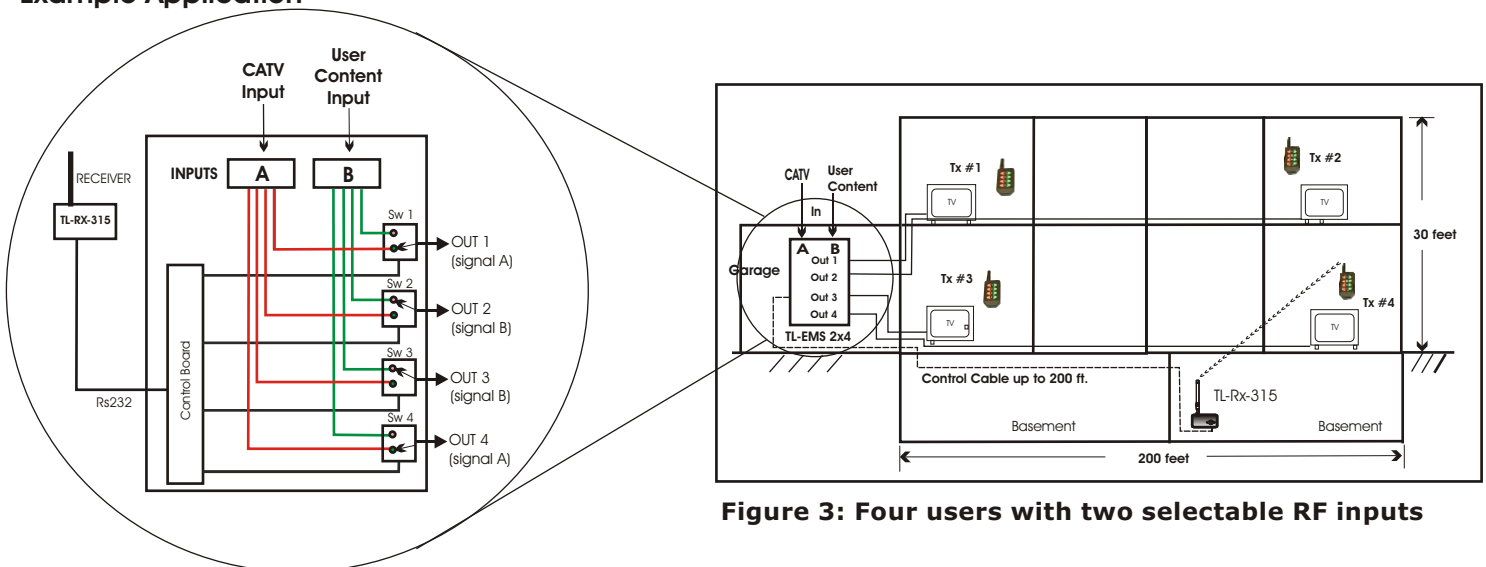


Figure 3: Four users with two selectable RF inputs



### Product Applications

- Residential:** Small building - Adds 4 to 16 outputs to TV/FM/RF Distribution System Switch with two selectable inputs
- Commercial:** Enhances Signal content distribution to e.g., TV show room, media equipment, entertainment venues
- Industrial:** CATV and Broadcast TV/FM signal switching and testing operations
- Emergency and Security Systems:** RF broadband signal switcher for monitoring and messaging applications

### Product Specifications

<b>Bandwidth and Flatness</b>	5-1000 MHz +/- 1 dB
<b>Number of Ports</b>	2 Inputs and 4 Outputs
<b>Input Signal Level</b>	10 dBmV minimum
<b>Insertion Loss (Input-Output)</b>	8 dB (internal 4-way splitter)
<b>Isolation (Input to Input)</b>	> 65 dB
<b>Isolation (Output-Output)</b>	> 65 dB
<b>Input Return Loss;</b>	>18 dB
<b>Output Return Loss:</b>	>18 dB
<b>RF Connectors, Impedance</b>	F-type female , 75 ohms
<b>Operating Power</b>	9 V DC (Power Adapter Incl.)
<b>Power Consumption</b>	1 Watt
<b>Remote Control:</b>	Transmitter - CMD HHLR-315 Receiver - TL-Rx-315 (Rs232)
<b>Max. Input Power to Switch</b>	1 Watt
<b>Switching Speed</b>	20 ms
<b>Dimensions (in):</b>	7 x 4 x 2 (179 mm x 104 mm x 52 mm)
<b>Output Expansion</b>	4 TL-EMS-2x4 units can be cascaded under one main TL-EMS-2x4 unit

### Order Information

Model # TL-EMS-2x4

Description: 2 by 4 RF Switch with remote control.

### TL-EMS-2X4 basic package list (see figure 4)

1. One TL-EMS-2X4 Switch
  2. One 6-foot shield control cable \* (circular plugs at ends)
  3. One TL-Rx-315 Receiver (FCC compliant and Industry Canada certified) with mounting bracket
  4. Two CMD-HHLR-315 Transmitters \* (FCC certified)
  5. One +9 V DC Power adapter (UL certified)
- \* Includes user manuals for TL-EMS-2x4, Tx and Rx.

#### \*Options:

**Control cable** - length can be specified up to 200 ft.  
**Remote Control configuration** - standard unit provides switch selection for all outlets (*Master control*). Optional: Remote Control can be configured to switch only one specified outlet (*Private control*).

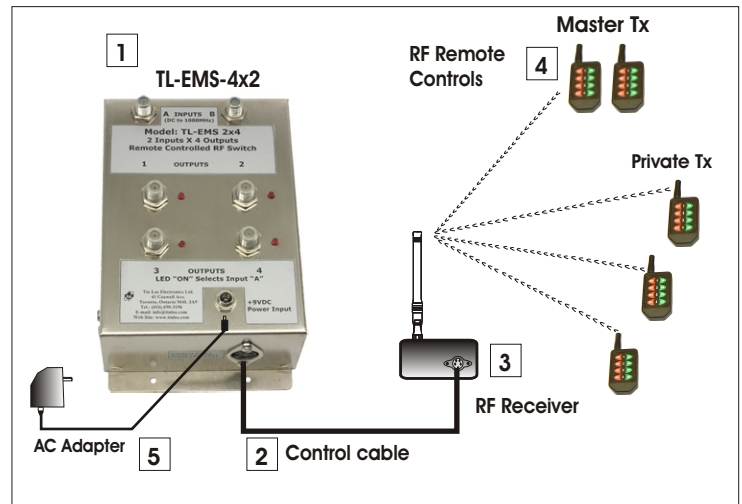


Figure 4

