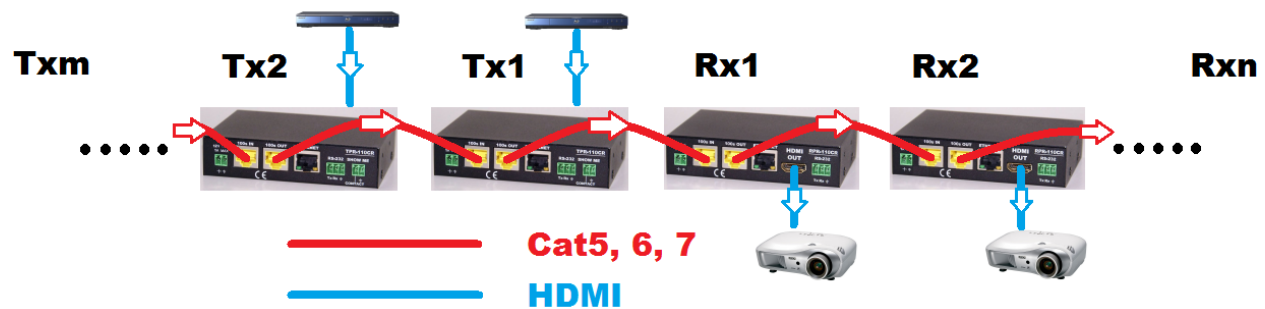


## TPR-150CR Presenter® Transmitter Quick Start Guide



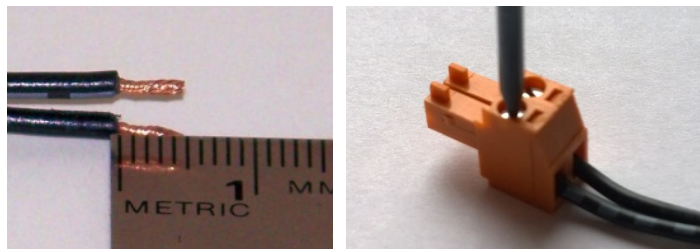
Thank you for purchasing the Luxi Electronics® TPR-150CR Presenter® transmitter. Please read through this guide before using the product.

**How the product functions:** The TPR-150CR has 2 PCBs. The front PCB has the switcher and scaler; please refer to the “Video signal path” and “Audio signal path” sections in the right column of the specs on page 4 for details. The rear PCB has the daisy chain circuits. Think of the daisy chain as the flow of a river; each transmitter (Tx) connects to a source device and loads the signal to the river flow; each receiver (Rx) unloads the signal from the river flow and sends it to the display it is connected to. The front panel and the RS-232 controls determine which source signal goes to which display.

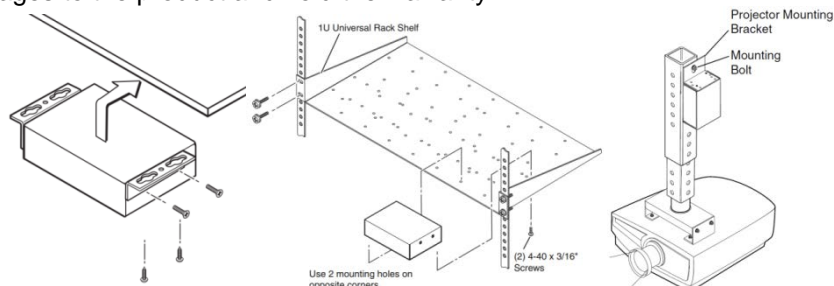


**Power options:** This product draws power from an external 12 V power supply sold separately (Luxi P/N 69-002-01). Do NOT plug the power supply connector into any other connectors; this could cause permanent damages to the product and void the warranty.

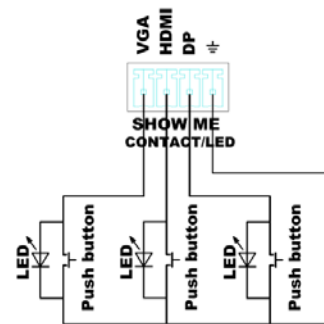
**Captive screw plug termination:** The captive screw plugs for power, RS-232 and contact controls are supplied with the unit. Separate the wires about 1” (2.5 cm) long; strip off the wire insulation precisely 3/16” (5 mm) from the end. Identify the positive and negative leads for power; Luxi power supply has a white stripe on the positive wire. If not sure, use a multi meter to verify.



**Mounting options:** Luxi has the under desk mount sold separately (Luxi P/N 78-002-01); the product also fits many other mounting hardware from Extron, Middle Atlantic, etc. Only use the type 4-40, 3/16” (5 mm) long screws supplied with the mounting hardware to screw onto the product. Wrong type of screw could strip the threads; too long screw could touch and short the internal circuit, cause permanent damages to the product and void the warranty.



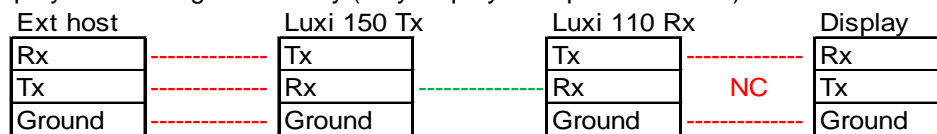
**Control options:** Pressing the “Show Me” button on the front panel will select the current box. 3 sets of external contact closure push buttons and LEDs can select inputs discretely with the LED indication, see wiring diagram on the right side. Only one LED associated with the active input is lit at any given time. When the current box not selected in the daisy chain, the LED blinks slowly. When the current box selected, LED is solid on. A RS-232 host connected to the rear panel can control all functions.



**Auto input switching:** The default is auto switching on, front panel button defeated. When the button pressed, the 3 LEDs next to it will blink 3 times. To turn off auto switching, press and hold the button for about 7 seconds until the LEDs blink twice, or use RS-232 command. When auto switching off, use the button or contact closure buttons or RS-232 to select input. To engage auto switching again, press and hold the button for about 7 seconds until the LEDs blink 3 times, or use RS-232 command.

**RS-232 controls:** Only the Show Me/input selections can be controlled by front panel or external buttons; all other functions can only be controlled by RS-232. See the RS-232 Setup Guide on Luxi website for more information. **If RS-232 port not responding, please double check the two bank DIP switches in a recessed window on the bottom of the enclosure, and make sure they are in “00” (low) positions.**

**Display power controls:** The 150Tx with rev 3.28 and later MCU firmware has the configurable display power control feature to enable fully automated system operations without any operator or 3<sup>rd</sup> party control devices. The switcher will send a display power off command via RS-232 port with a set delay time (1 to 60 minutes) after the last input signal disappears; and will send a display power on command as soon as the first input signal detected, and will automatically select that input. The switcher uses one RS-232 port to connect both external host (optional; only required for setup) and display in parallel with the display in “listening” mode only (only display’s Rx pin connected). Here’s the wiring diagram:



NC = Not Connected

Use the “2{xxx}R” and “1{yyy}R” commands listed in next page to setup the display power on and off commands respectively, then use the “1\*zR” command to enable the display power control feature while setting the power off delay time at “z” minutes. Use “0R” command to disable the display power control feature. The system reset command “r” will not erase the stored display power on and off commands, but will disable the display power control feature (factory default).

**System query command:** Command “q” is to check the daisy chain system size, and the current box ID.

**Signal routing commands:** Command “m\*s” is to send signal from box Txm to box Rxn. Command “m\*s” is to send signal from box Txm to all Rx. Command “n1,n2,n3,n4S” is to send audio to the 4 designated Rx boxes. Do not add leading “0” to box number for these commands.



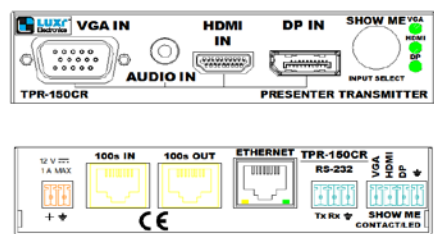

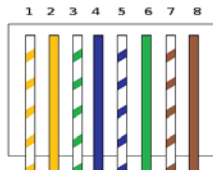



**Pass thru commands:** There are two types of them: Command “x\*y{xxxx}Q” is to send RS-232 command from ext. host connected to box x to ext. slave connected to box y. Command “x\*y{xxxx}Q” is to send from ext. host connected to box x to box y. The responses will be routed back to ext. host. Add a leading “0” to the Rx box number for this command; for example, 02 for Rx2, 2 for Tx2.

**Resetting the product to factory defaults:** Use the RS-232 command “r” to reset the product to factory defaults. See RS-232 commands on Luxi website for the default values.

**Support:** Please contact your reseller directly for local support; or Luxi using the contact info in the header. See Luxi website for additional and more updated documents.

**Helpful tips:**

- 1) **Damages by plugging into the wrong port:** The 110 Tx has a Show Me port which happens to be the same 2-pin captive screw connector as the 12 V power connector. Be very careful not to plug in the 12 V power into the Show Me port by accident. Although there are protection circuits inside, the prolonged error can still burn the protection circuit and the main daisy chain IC.
- 2) **Needs for the initial press:** When a system powered up, the user needs to press a Show Me button or to send a routing command to a unit in the system to create a signal link. This applies to even the system with only one Tx unit.
- 3) **May need to press again:** When a new link is created after the Show Me button press, the source device and display will handshake and HDCP check again, and the time for completing this depends on the source device and display involved. In the rare case when the handshake and HDCP check time exceeds the Presenter time out period, the picture may not show. User just needs to press the Show Me button again to see the image.
- 4) **Initialization practice for a large system:** When there are more than one Rx (displays) in a system, at the initial power up, every source device needs to handshake and HDCP check with every display through the Presenter daisy chain, this could take some time depending on the number of devices and the communication speed of the devices involved. During this brief initial handshake and HDCP check period, the signal link may not happen. The installer should connector all Tx (source devices) and the first Rx (display) in a system during setup, wait for the image shown after any Show Me button press, then link the 2<sup>nd</sup> Rx box to the 1<sup>st</sup> with a Cat6 cable, press any Show Me button until the image shown. Then add the 3<sup>rd</sup>, 4<sup>th</sup> etc Rx boxes one by one when the system power is live. This procedure breaks down the many handshake and HDCP checks into several groups, and each group is fast. Once finished, no need to do this initialization sequence again unless the daisy chain system is power off again. It's a good practice to keep the daisy chain powered all the time. The communication is maintained between the Presenter boxes and the displays even when the displays are powered off. The system with only one Rx (display) does not need this initialization procedure.
- 5) **System status for security and troubleshooting:** One of the most useful command is the "q" command. Send a "q" command to a RS232 port of any Presenter in a daisy chain, the port will report back "Max Tx=M, Max Rx=N, Me=Txm or Rxn". For example, if there are 8 Tx units, 4 Rx units, the current box is the 3<sup>rd</sup> Rx box, the response would be "Max Tx=8, Max Rx=4, Me=Rx3. The system will also send a "reset" message from all units' RS232 ports when the system just powered up or any system changes (like adding or removing a Presenter box or cable) occurs. If the Presenter is used in a high security facility, the system monitoring engineer can program the control system to send a "q" command to record how many Tx and Rx in a system every morning, then send "q" again right after receiving a "reset" message, and compare the number of Tx and Rx in a system. If any number changed, then there could be a security breach or component failure at a specific location. For example, if the known systems size is 8 Tx and 4 Rx, and at any moment the system size changed to 5 Tx and 4 Rx, then the breach or failure must be between the Tx5 and Tx6. The engineer can program the control system to send a text message or phone call to the security personnel to check anything wrong between Tx5 and Tx6. This also helps to troubleshoot the system to pinpoint the poor cable or connection.
- 6) **Link cable selections:** Please use the **unshielded** Cat6 550 MHz rated 23 AWG solid conductor cables to link the Presenter boxes whenever possible. The Cat5 cable does not have enough bandwidth for long run. Shielded Cat6 or Cat7 cables have higher capacitance which reduces the drivability of the Presenter boxes.
- 7) **Max. and min. cable lengths:** The max cable length between Presenter units varies depending on the cable performance, source device drivability, display's sensitivity and error correction, and the signal data rate (resolution). It's a good practice to first to use 720p (or the popular 1280x800 computer and projector resolution) in system setup, once working, and then change to higher resolution if needed. Please use a min. 2 m long cable between Presenter boxes even for short distance to prevent the accumulated signal over boost over the daisy chain.

<b>Product Specifications</b> Presenter 150 series transmitter	<b>Part Number: 74-018-02</b> Model: TPR-150CR (rev 2)
<b>Product Image</b>  Front   Back 	<b>Product Drawing</b>  
<b>Features and Benefits</b> <ul style="list-style-type: none"> <li>&gt; Universal interface, compatible with all source signal formats</li> <li>&gt; Built in scaler, audio de-embedder, embedder</li> <li>&gt; Completely scalable; you can form many different sized switcher, splitter by daisy chaining with Presenter 110 Tx/Rx</li> <li>&gt; Only 1 Cat6 cable needed to connect between Tx and Rx</li> <li>&gt; Configurable display power controls via RS-232 enables fully auto operation systems without any 3rd party controller</li> <li>&gt; No compression; full 18 Gbps bandwidth; virtually no propagation delays</li> <li>&gt; "Show Me" control button on every Tx box gives every user a simplified way to control the signal routing</li> <li>&gt; Additional control devices can be inserted anywhere in the daisy chain via RS-232</li> <li>&gt; Signals can be transmitted to very long distances with multiple daisy-chained devices up to 110' (33 m) each span (e.g., 10 spans for up to 330 m)</li> <li>&gt; Remote power capability</li> <li>&gt; Rack mountable, under-table mountable, above-projector mountable metal enclosures</li> </ul>	<b>Mechanical</b> Enclosure material: steel Enclosure size: 4.29" x 1.00" x 6.00" (10.9 x 2.5 x 15.2 cm)
<b>Package</b> One piece in one color cardboard box; with captive screw plugs and quick start guide no power adaptor   Box size: 7.4" x 6.1" x 1.1" (18.9 x 15.4 x 2.8 cm) Weight: package, 1.1 lb (0.49kg); product, 0.97 lb (0.44kg) 20-pc box size: 12.4" x 11.6" x 9.4" (31.5 x 29.5 x 24.0 cm) 20-pc box weight: 23 lb (10.5 kg)	<b>Electrical</b> Video signal path: There are 3 video inputs and 1 video output The analog RGB video from the VGA input goes to the scaler's analog input; the DisplayPort (DP) input signal is first converted to HDMI, then switched with the HDMI input signal, the selected signal goes to the digital input of the scaler. The scaler converts all video to LVDS, feeds to a HDMI encoder, then the daisy chain processor. VGA input: 0.7 Vp-p analog RGBHV, 75 ohm impedance HDMI input: HDMI 2.0, 1080p deep color, max 6.7 Gbps DP input: DP 1.3 Dual Mode, 1080p deep color, max 6.7 Gbps Video processing: 36-bit decoding, sampling, 225 MHz clock Video input resolution range: from 800x600 to 1920x1080 Scaled video output resolutions presets: 1080p, 720p, 1280x800, 1920x1200, 1024x768, 1280x1024, 1600x1200, Pxt0Px HDCP compliance: HDCP 2.0 Audio signal path: There are 3 audio inputs and 1 audio output. The digital audio embedded in HDMI and DP inputs are selected by a HDMI switcher, then goes to the scaler. The scaler produces both SPDIF digital audio and de-embedded analog audio. The HDMI encoder can select the former in pass thru or the latter mixed with analog input and embeds into HDMI, then the daisy chain processor Daisy chain system Luxi proprietary format, digital video, audio, control, Ethernet and power, up to 32 devices (1 Tx = 1; 1 Rx = 2) System cables: unshielded Cat6 550 MHz rated 23 AWG solid conductor cables recommended Max distance between 2 adjacent devices: Typical 33 m (110') for 720p; 18 m (60') for 1080p (depends on source, display device performance, and signal format) RJ45 connector pin configuration:  standard EIA 568B pinout
<b>Connections</b> Input connectors: VGA, HDMI, DP, audio, chain in, Ethernet Output connector: 1 daisy chain out Power connector: 2-pin 3.5 mm captive screw receptacle Control connectors: 1 RS-232, 1 Show Me/Input selection	<b>Other Related Products</b> Power adaptor, 100-240 V in on US plug, 12 V out, P/N 69-002-01   Under desk mount, P/N 78-002-01   Presenter receiver, P/N 74-020-01, model RPR-110CR 
	Power: 12 V DC, 0.3 A from external power or other Presenter Optional power supply: Not included. Luxi 69-002-01 Auto switching 100-240 V AC input on US plug, 12 V DC 1 A max on bare wires, wall ward type, UL, PSE, CE, FCC Mounting: Not included. Luxi under desk mount 78-002-01. compatible with many Extron and Middle Atlantic models Regulatory compliance Safety: CE, cUL, UL (power supply only) EMI/EMC: CE, FCC Class A MTBF: 30,000 hours Warranty: 3 years parts and labor