Extron Electronics
INTERFACING, SWITCHING AND CONTROL

IMPORTANT:
Go to www.extron.com for the complete user guide, installation instructions, and specifications before connecting the product to the power source.

MPS 602 Series • Setup Guide

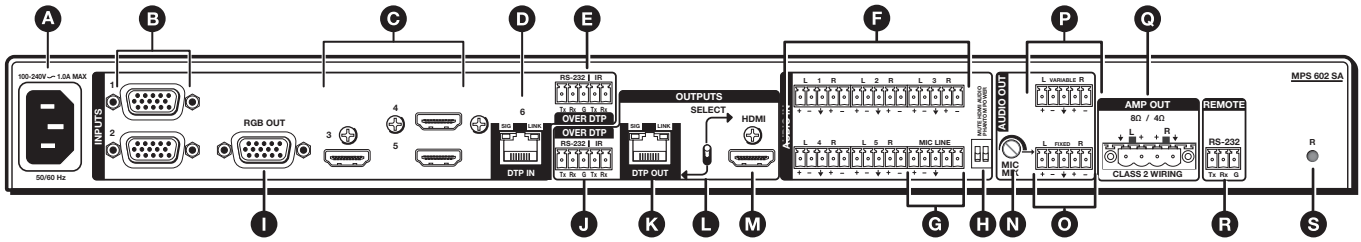
This guide provides basic instructions for an experienced technician to install, set up, and operate the Extron Media Presentation Switcher, MPS 602. Installation and service must be performed by authorized personnel only. For additional information and specifications, see the MPS 602 product page at **www.extron.com**.

The MPS 602 is available in three models. The MPS 602 is a non-amplified model with a variable preamp output. The MPS 602 SA delivers stereo power amplification with 50 watts rms per channel into 4 ohms and 25 watts rms per channel into 8 ohms. The MPS 602 MA provides mono 70 volt line amplification with 100 watts rms output.

Step 1 — Disconnect Power and Mount the MPS 602

Disconnect power to the MPS 602 and turn off all devices that will be connected to it. The MPS 602 is housed in a full rack width, 8.5 inch deep, 1U high metal enclosure that can sit on a table with the provided rubber feet or rack mounted. Select a suitable mounting location, choose an appropriate mounting option, and follow the instructions provided with the mounting kit.

Step 2 — Cable the Switcher



Power and Input Connections	Output Connections	Control Connections and the Reset Button
Ⓐ **AC power connector** Ⓑ Two configurable analog **15-pin HD (VGA) connectors** (inputs 1 and 2) Ⓒ Three **HDMI input connectors** (inputs 3 through 5) Ⓓ One RJ-45 connector for **DTP source input** Ⓔ One 3.5 mm 5-pole captive screw connector for **RS-232/IR Over DTP input** Ⓕ Five 3.5 mm, 5-pole captive screw connectors for **analog audio input** (associated with inputs 1 through 5) Ⓖ One 3.5 mm, 5-pole (only 3 poles used) **mic/line audio input** Ⓗ Two 2-position DIP switches for **HDMI mute and phantom power** for mic/line input Ⓖ	Ⓘ One 15-pin HD connector for **RGB video output** Ⓙ One 3.5 mm 5-pole captive screw connector for **RS-232/IR Over DTP output** Ⓚ One RJ-45 connector for **DTP output** Ⓛ One 2-position DIP switch for **DTP or HDMI output selection** Ⓜ One HDMI connector for **HDMI video output** to a display Ⓝ **Mic mix level control** Ⓞ One 3.5 mm, 5-pole **fixed line level output** connector Ⓟ One 3.5 mm, 5-pole **variable line level output** connector Ⓠ **Amplified program audio output** connectors	Ⓡ One 3.5 mm, 3-pole captive screw RS-232 connector for **host computer connection** Ⓢ **Reset button**

Figure 1. **MPS 602 Rear Panel (MPS 602 SA shown)**

Ⓐ **AC power** — IEC connector. Standard AC power: 100-240 VAC, at 50-60 Hz.

Video Input

Ⓑ **RGB/VGA video input group** — Two female 15-pin HD connectors for VGA input (numbered 1 and 2 on the rear panel). The connectors accept VGA signals.

NOTE: The MPS 602 does not scale or convert video; however, it does convert an analog RGB/VGA input to digital for digital output. The output signal resolution is the same as the input resolution.

Ⓒ **HDMI video input group** — Three HDMI connectors for HDMI compliant audio and video input (numbered 3, 4, and 5 on the rear panel). Connect to any HDMI source device using standard HDMI cable.

Video Output

- **I** **RGB video output** — One 15-pin HD connector acting as a pass-through to output the selected RGB/VGA input (see **figure 1** on page 1).
- **M** **HDMI video output** — Connect an HDMI display device for output from the selected HDMI input (see **figure 1**).

DTP

NOTE: The MPS 602 can communicate with both DTP 230 and DTP 330 transmitters and receivers. The DTP 330 connection has a maximum range of 330 feet (100 m). When connected to a DTP 230 device, the connection is limited to a maximum of 230 feet (70 m).

- **D** **DTP In** — Connect a DTP source (Tx) to this RJ-45 connector, input 6 on the rear panel, (see **figure 1**). The DTP signal format and protocol is used. The DTP input includes the HDMI (or DVI with an appropriate adapter) video with embedded audio, bidirectional RS-232 and IR, separate balanced or unbalanced analog audio, and remote power for a connected DTP Tx (transmitter) device (see **Twisted Pair Recommendations for DTP Communication** on page 5).
- **E** **RS-232 and IR (Over DTP) In** — One 3.5 mm 5-pole captive screw connector to connect and pass bidirectional RS-232 and remote IR signals between the MPS 602 and a DTP 230 or DTP 330 Tx device (see **figure 1**).
- **J** **RS-232 and IR (Over DTP) Out** — One 3.5 mm 5-pole captive screw connector to connect and pass bidirectional RS-232 and remote IR signals between the MPS 602 and DTP 230 or DTP 330 Rx device (see **figure 1**).

  RS-232 and IR Over DTP Wiring

  To pass bidirectional serial command and IR signals between connected DTP-compatible devices, connect a control device to the three leftmost poles (Tx, Rx, and G) of the 5-pole captive screw connector.

  NOTE: RS-232 and IR data can be transmitted or received simultaneously.

- **K** **DTP output** — Connect a DTP receiver (Rx) to this RJ-45 connector (see **figure 1**). The DTP signal format and protocol is used. The DTP output can include HDMI (with embedded audio), bidirectional RS-232 and IR, separate balanced or unbalanced analog audio (from the fixed audio output), and remote power for a connected DTP Rx (receiver) device.
- **L** **DTP out or HDMI out selection switch** — One single-pole double-throw switch to select either the DTP (**K**) or the HDMI (**M**) output (see **figure 1**).

Analog Audio Input

- **F** **Audio input group** —Five 3.5 mm, 5-pole captive screw connectors provide analog audio input to the switcher (see **figure 1**). Inputs 1-5 accept either balanced or unbalanced audio. Adjust the audio level of each analog audio input using the configuration software or using the front panel **Audio Input Level Adjustment** on page 5.

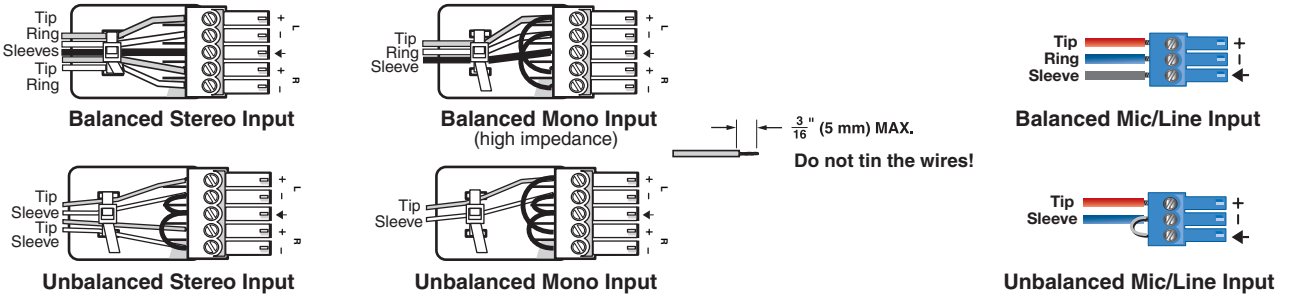
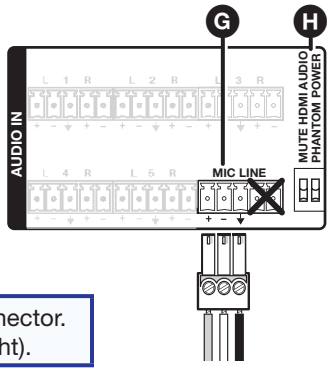


Figure 2. **Audio Input Connector Wiring**

- **G** **Mic Line input** — One 3.5 mm, 3-pole captive screw connector connects a mic or mono line level audio device to the MPS 602 (see figure at right). Use the configuration software to select the mic or line input level.
- **H** **Phantom Power and Mute HDMI** — Two 2-position DIP switches (see figure at right).

  MUTE HDMI AUDIO (on left) mutes the HDMI embedded audio on both the HDMI output (**M**) and the DTP output (**K**) (see **figure 1**) when the switch position is UP .

  PHANTOM POWER (on right) selects +48 V phantom power for the mic input (see figure at right, **G**) when the switch position is UP.

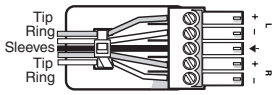


NOTE: Although the rear mic/line input is 5-pole, only 3 poles are used by the mic/line connector. Be certain to plug the 3-pole mic/line connector into the correct position (see figure at right).

Program Audio Output

P **Variable audio output** — 3.5 mm, 5-pole captive screw connector outputs the program audio (see **figure 1** on page 1). The level is controlled by the front panel volume encoder.

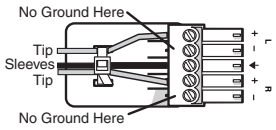
Balanced and unbalanced program audio output is available on the MPS 602 using a 3.5 mm, 5-pole captive screw connector. Refer to the illustration for proper wiring.



Balanced Audio Output

ATTENTION:

- For unbalanced audio, connect the sleeves to the ground contact. DO NOT connect the sleeves to the negative (–) contacts.
- Pour l'audio asymétrique, connectez les manchons au contact au sol. Ne PAS connecter les manchons aux contacts négatifs (–).

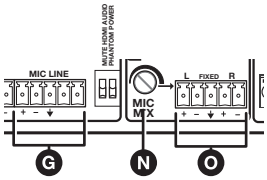


Unbalanced Audio Output

NOTE: Do not tin the audio leads. Tinned wires are not as secure in the connector and could be pulled out. See below for wire stripping instructions.

N **Mic Mix** — One potentiometer controls the Mic/Line input level (**G**) mixed into the fixed program audio output (**O**) (see figure at right).

O **Fixed audio output** — The bottom 3.5 mm, 5-pole captive screw connector is for balanced or unbalanced fixed level program audio output (see **O**). The front panel knob **does not** control the audio level from this audio output port.



Q **Amplified program audio output (SA and MA models only)**

MA models — One green 5 mm, 2-pole locking captive screw connector for mono 70V output.

SA models — One green 5 mm, 4-pole locking captive screw connector for amplified dual channel output to a 4 or 8 ohm speaker system (see figure at right).

1 Strip and insert the speaker wires into the connector and tighten the captive screws. Be sure to observe the correct polarity.

2 Insert the wired connector into the amplifier output and secure the locking screws on either side.

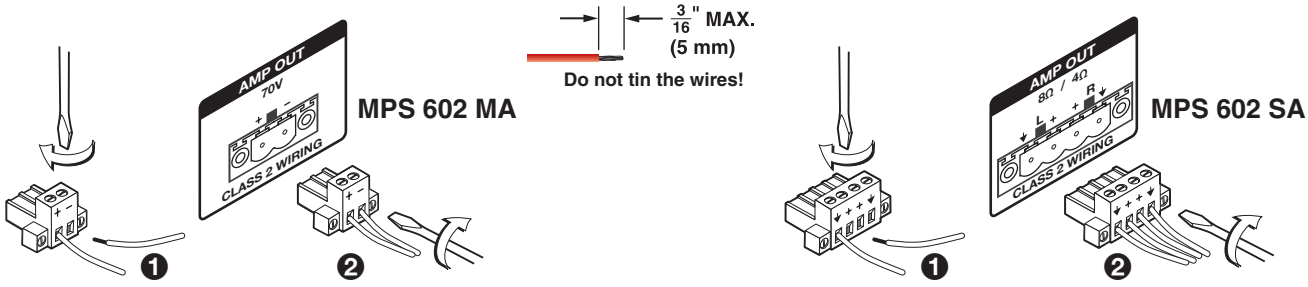
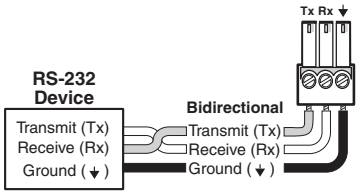


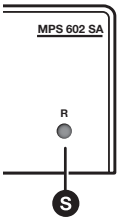
Figure 3. **Amplified Output Connector Wiring (SA and MA Models Only)**

Control

R **RS-232 remote** — 3.5 mm, 3-pole captive screw connector for connection of a host computer, or a controller using Simple Instruction Set (SIS™). Wire the connector as shown at right.



S **Reset button** — With the MPS 602 on, press and release this recessed button (see figure at right, **S**) to return the MPS 602 to the factory default settings.



Step 3 — Setup and Operation

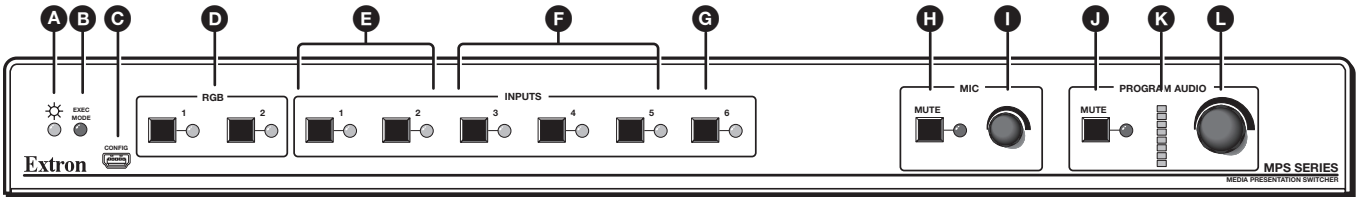


Figure 4. **MPS 602 SA Front Panel**

The MPS 602 can be connected to as many as six input devices including a DTP transmitter. Either RGB input can be routed to the RGB output. Separately, any of the six inputs (two RGB, three HDMI, and one DTP) can be routed to either the DTP output or the HDMI output, but not both.

NOTE: The RGB inputs can be switched to output on both the RBG output and HDMI/DTP output.

Ⓐ **Power LED** — The LED lights when power is applied to the MPS 602.

Ⓑ **Exec Mode LED** — This red LED indicates the status of Executive (Exec) mode. Two levels of Exec mode, enabled and disabled from the front panel, prevent accidental configuration changes from the front panel. Control and monitoring are still accessible using RS-232 or the front panel USB.

Exec mode 1 locks out all front panel controls. Exec mode 2 locks out the **`Mic Volume Encoder`** and **`Mute`** button.

To toggle exec mode:

1. Press and hold RGB **`Input 1`** (Ⓓ) for more than 3 seconds to enter the Exec Mode. All front panel LEDs blink once.
2. Continue to hold the RBG **`Input 1`**. Press and release **`Input 1`** of the Inputs group (Ⓔ) to toggle through the executive modes in the following order:
   a. If exec mode is not active (Exec Mode LED is off), the switcher toggles to executive mode 1. All front panel LEDs (with the exception of the power and Exec Mode LEDs) blink three times. Release both buttons to enter exec mode 1. When enabled, if adjustments are attempted from the front panel, all input and mute LEDs blink once.
   b. If the switcher is in exec mode 1, exec mode 2 is enabled and all front panel LEDs blink three times. Release both buttons to enter exec mode 2. In this mode, the **`Mic Volume`** and **`Mute`** button are locked out. If adjustment of either button is attempted from the front panel, the Mic Mute LED blinks once.
   c. If currently in executive mode 2, the switcher exits executive mode and the Exec Mode LED turns off.

Ⓒ **Config port** — One USB mini-B Config port for host computer connection for configuration and upgrading firmware.

Video Control

Ⓓ **RGB input group** — Two green LEDs and associated buttons select and indicate the RGB input currently routed to the RGB output.

The HDMI/DTP input group has six buttons with associated green LEDs. Press an input button in this group to switch it to the selected (HDMI or DTP) digital output. The associated LED lights. Only one of the six inputs can be selected at a time.

Ⓔ **RGB Inputs 1 and 2** — Select and indicate the current RGB input routed to the digital output (DTP or HDMI). Analog RGB signals are converted to digital signals before routing to the DTP or HDMI output. RGB inputs are not scaled. They are converted to digital signals at the same resolution.

Ⓕ **HDMI Inputs 3 to 5** — Select and indicate the current HDMI input switched to the digital output (DTP or HDMI).

Ⓖ **DTP Input 6** — Select and indicate the current DTP input switched to the digital output (DTP or HDMI).

Audio Control

The audio buttons and indicators provide control of the mic input and program audio output levels.

Ⓗ **Mic Mute button and LED** — Mute and unmute the Mic input. This mutes the Mic input for both the program audio output and amplified audio output. When lit, the red LED indicates the Mic input is muted.

Ⓘ **Mic Volume** — Rotary encoder controls the Mic level mixed into the program audio output and amplified audio output (SA and MA models). Rotate the knob clockwise to increase, and counterclockwise to decrease mic volume. If the mic volume is muted, rotating the control unmutes the volume.

Ⓙ **Program Audio Mute button and LED** — Mutes and unmutes program and amplified audio. The red LED lights to indicate program audio and amplified audio is muted.

K **Program Audio LEDs** – Stacked LEDs indicate the program audio volume in dB. No segments lit indicate a volume level of Ø dB. All segments lit represent full volume (+24 dB). Segments in between track volume levels. The LEDs continue to display the current volume level even when audio is muted (the red Mute LED lights).

L **Program Audio Volume** – Rotary encoder controls the line level program audio output and the amplified audio output (MPS 602 SA and MPS 602 MA only). It has no effect on the fixed audio output. Rotate the knob clockwise to increase and counterclockwise to decrease the audio volume.

Audio Input Level Adjustment

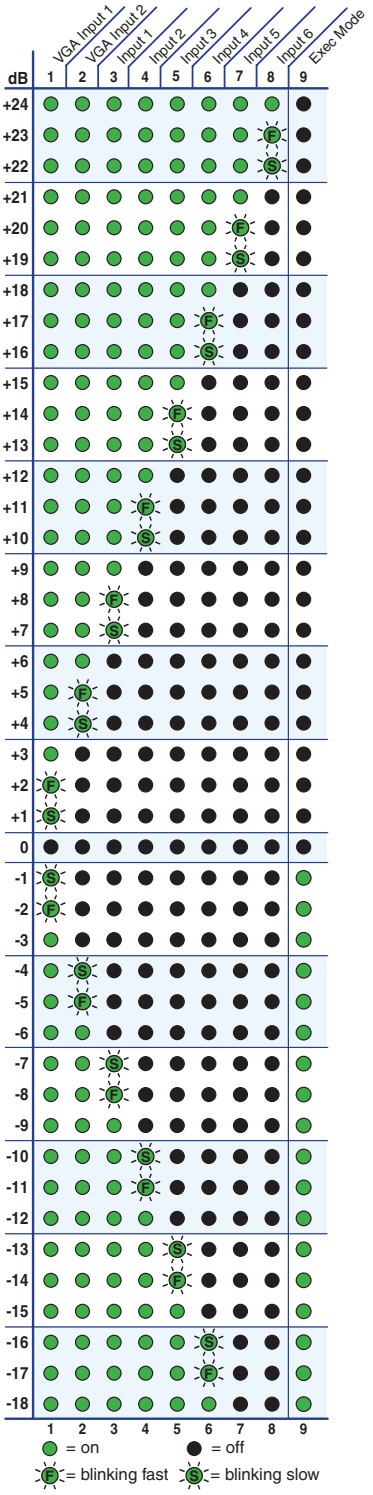
Each analog audio input can be adjusted within a range of -18 dB to +24 dB. When adjusting the audio level, the front panel LEDs used for RGB inputs 1 and 2 and Inputs 1 through 6 function as indicators of the current audio level for the selected input as shown on the right.

Gain or attenuation is shown by the red Exec Mode LED: off indicates gain (+dB), on indicates attenuation (-dB).

To adjust an audio input level from the front panel:

1. Press and hold the **Program Audio Mute** and **Mic Mute** buttons until the two mute LEDs blink 3 times (approximately 3 seconds).
2. Press the desired input button.
3. Once the input button is selected, the front panel input LEDs indicate the current gain or attenuation setting. By default, all inputs are set to 0 dB (all LEDs unlit). Rotate the **Program Audio Volume** knob clockwise to increase and counterclockwise to decrease the selected input audio level. The front panel LEDs track the level as the knob is turned.
4. Once the desired input level is set, the user can press the two mute buttons to exit, or within 3 seconds, select another input to adjust.

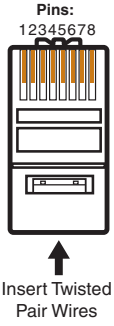
While in the input level adjustment mode, if a front panel button is not pressed or the **Program Audio Volume** knob is not rotated for more than 3 seconds, the switcher times out and exits the mode.



Twisted Pair Recommendations for DTP Communication

Extron recommends using the following practices to achieve full transmission distances up to 330 feet (100 m) and reduce transmission errors.

- Use Extron XTP DTP 24 STP cable for the best performance. When not using XTP DTP 24 cable, Extron recommends 24 AWG, solid conductor, STP cable with a minimum bandwidth of 400 MHz.
- Terminate cables with shielded connectors to the TIA/EIA T568B standard (shown to the right).
- Limit the use of more than two pass-through points, which may include patch points, punch down connectors, couplers, and power injectors. If these pass-through points are required, use CAT 6 or 6a shielded couplers and punch down connectors.



Pin	T568B Wire color
1	White-orange
2	Orange
3	White-green
4	Blue
5	White-blue
6	Green
7	White-brown
8	Brown

ATTENTION:

- Do not connect these devices to a computer data or telecommunications network.
- Ne connectez pas ces cartes appareils à des données informatiques ou à un réseau de télécommunications.

- DTP is intended for indoors use only. No part of the network that uses DTP remote power can be routed outdoors.
- DTP est destiné à une utilisation en intérieur uniquement. Aucune partie du réseau qui utilise l'alimentation DTP à distance ne peut être routée en extérieur.

NOTE: When using shielded twisted pair cable in bundles or conduits:

- Do not exceed 40% fill capacity in conduits.
- Do not comb the cable for the first 20 m, where cables are straightened, aligned, and secured in tight bundles.
- Loosely place cables and limit the use of tie wraps or hook and loop fasteners.
- Separate twisted pair cables from AC power cables.

Extron Product Configuration Software (PCS)

PCS product configuration software combines multiple standalone product configuration modules in a single software application. Product tabs along the top of the screen allow users to quickly choose between all open product configurations. The MPS 602 is configured via USB connection only.

To configure an MPS 602 switcher using PCS, install the software (available on the Extron website, **www.extron.com**) to a PC connected to the switcher via the front panel USB Config port. After the installation, start the program and choose the connection option. For full instructions on PCS operation, press <F1> or click the icon in the upper right corner (see figure 5, ❼) and select **`Extron PCS Help`**.

Click on the installed desktop icon to start the program. The main window opens to the `Device Discovery` panel. The application lists all the Extron AV devices connected on the local network or via USB.

Device Discovery Panel

PCS opens to the `Device Discovery` panel. This panel lists the accessible devices on the local network or connected via USB. You can also start a new configuration file, or open an existing configuration file for offline work. When PCS is operating, device discovery searches for PCS supported Extron devices. The search includes the network the PC is connected to, and devices connected to the PC via USB. All "discovered" TCP/IP and USB connected devices are listed. The list has four columns:

- The model name (see figure 5, ❶)
- IP Address (❷) (blank for the MPS 602 connected via USB)
- Device name (❸) (this can be derived from the model name and last three octets of the MAC address, or the model name and the part number of the device)
- Connection type (❹).

NOTE: If the model name of the device has not changed, the default **`Model Name`** (❶) is the model name plus the part number of the device. The **`Device Name`** (❸) is the model name of the device and the last three octets of the MAC address if the connection is TCP/IP or the name of the device for USB.

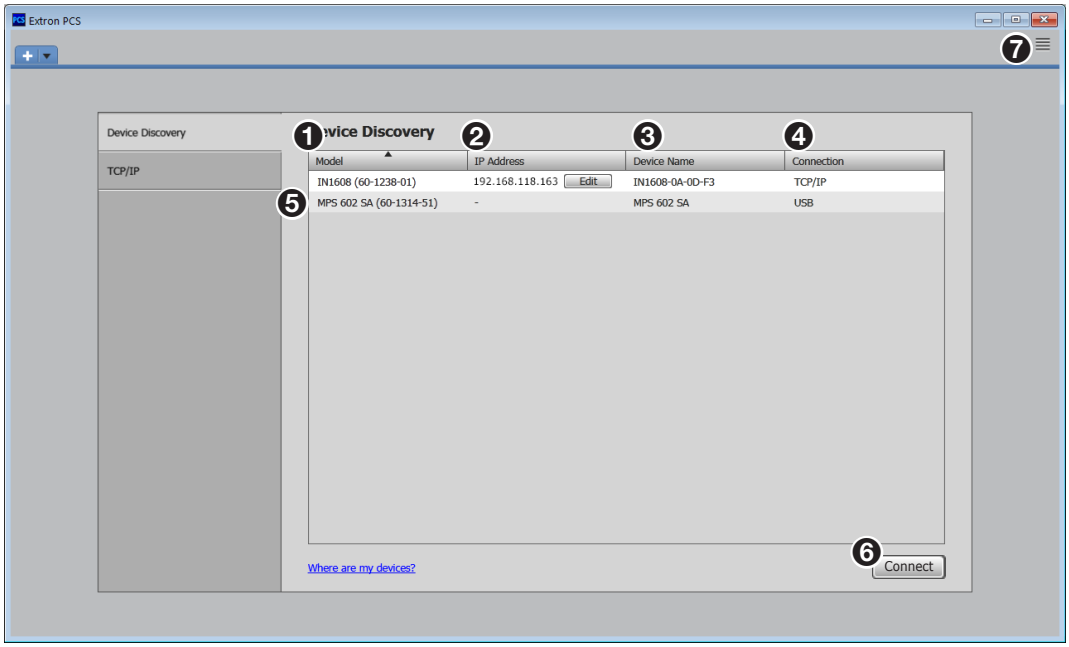


Figure 5. PCS, Device Discovery Panel

Click on the heading at the top of any column to sort the device list (ascending or descending).

In the **`Device Discovery`** list, look for your device (the MPS 602 only supports USB connection). The name listed in the Model column (see figure 5, ❶) is the MPS 602 model name (by default, the MPS 602 model number plus the part number). The `Device Name` column (❸) can be the default name (MPS 602 plus the model suffix), or the name given it from a previous PCS session (see the *MPS 602 Series User Guide* or the device help file for information on how to change the device name).

To connect to any device in the **Device Discovery** list:

- <Double-click> on the device name (see **figure 5**, ❺ on page 6), or
- <Single click> on the name (the row is highlighted) and click **Connect** (❻).

When the device connects, PCS opens to the configuration page for that device. Follow the specific product help file to configure the device.

Connect to Additional Devices

If at any time you wish to connect to a different device using device discovery:

1. Click + on the tab at the top left of the toolbar (see figure 6, ❶).

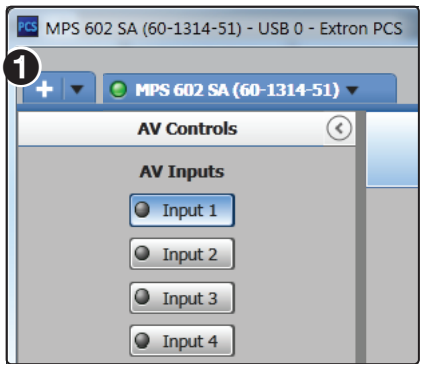


Figure 6. New Device Configuration

The Device Discovery panel opens (see **figure 5** on page 6)

2. See "To connect to any device in the **Device Discovery** list" (above) to connect to a new device.

NOTE: Devices currently open in PCS are not listed.

3. The device opens in a new tab.

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