

# User Manual

This is the functional description of CPS-121 operation with the firmware versions listed above.



## Power ON/OFF

Long-press the **⏻ - Mute** key 3-4 seconds

The same long-press will switch the amplifier into OFF mode from the ON mode. And it will switch the amplifier from OFF mode to the ON mode.

## Standby (sleep mode)

TeachLogic® Matrix™ (IMA-121 and IMA-120) amplifiers have a standby (or sleep) energy saving mode that causes the amplifier to enter a standby mode **after two hours** without audio activity. At this point, the CPS-121 control panel display will go dark (not just dim) and it will repeat the word “Standby” on the display every minute. The panel is still powered, however, and will respond to the command to change the amplifier power mode to ON (or wake the amplifier).

The *amplifier's* front panel power LED (see below) is Blue when ON, Red when OFF, and Amber when in Standby.

## Using Control Panel Buttons

Press any button to activate the control panel. If the panel display is dim, the panel is not active and pressing any button is required. When a button is pressed, the screen will brighten. Once the screen is bright, the panel is active.

## Setting Volume Levels

The channels adjustable are MICA, MICB, AUXIN1 AUXIN2, LINEOUT, BT (for Bluetooth®), and AUX3, a 3.5mm input port on the control panel.

To change the volume level of any input or the Line Out output, first select the channel to be adjusted by pressing its labeled button. For example, Press **MICA** to change the volume of the wireless microphone on channel A.

- Press the **VOL▲** and **VOL▼** buttons to control the level.
- Press **MUTE** to silence the channel. Press **MUTE** again will un-silence it.

## Bluetooth® Connections

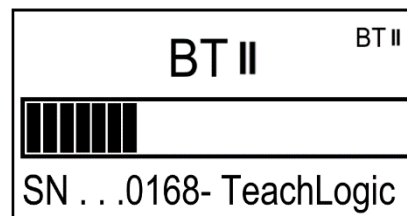
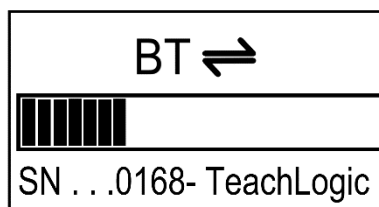
**Pair:** means the exchange of information and mutual validation between two devices (i.e., the control panel and a portable Bluetooth device).

**Connect:** means the active and current wireless linking of the control panel's Bluetooth receiver and a device with which it has paired.

Devices must be *paired* before they can *connect*. For more general background, read <https://www.sony.com/electronics/support/articles/00196698>.

## How to Pair

1. To pair a device, first press any button on control panel to activate it. The screen will change from dim to bright indicating active). 
2. Then press the **BT** button on control panel to select Bluetooth (see screen depiction at right).
3. Press the **BT** button (for 3-4 seconds) until the STOP block blinks once, and then release the **BT** button; the blink indicates that the panel has been put into pairing mode.
4. In pairing mode, the screen will show the two arrows as shown here. Note also the serial number of the control panel (ending in 0168, for this example). This is the control panel the user should select on their Bluetooth device. In case more than one classroom is in pairing mode, this is how one identifies their classroom system.
5. In this mode, any Bluetooth device can pair with BTR, and the device will then proceed to connect. The user will be prompted for a passcode. **The factory default passcode is 8-2-4-7 (spells T-C-H-R), and it can be changed.** (See last page for changing the passcode.)
6. Once the connection is made, the PAUSE ( **II** ) symbol will display. The PAUSE symbol means that a device is paired but not "playing" any content.



Note: Once the panel is in pairing mode, it will allow the user a few minutes to connect to a Bluetooth device. After the time expires with no connection being made, the BTR will exit pairing mode. (On earlier versions of the firmware, the BTR would remain in pairing mode indefinitely until the amplifier entered Standby or OFF mode, or until the panel was connected to a Bluetooth device.) While in pairing mode, it will continuously advertise its name to all Bluetooth devices within range until connected, so long as the power state is ON. Therefore, when you put it into pairing mode, all nearby phones, for example, can pair and connect to it.

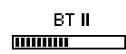
## Daily Bluetooth® Behavior

- The Bluetooth receiver (the "**BTR**") in the control panel will search for and try to connect to the most recently paired **device** (normally, this is the teacher's device).
- When the amplifier is powered and no device is connected to the control panel's BTR, a) any previously paired device(s) may connect with BTR by initiating the connection, and b) non-paired devices may not connect or pair with BTR.
- No new devices will pair with the BTR unless and until the panel BT button is first pressed for 4-5

seconds. With this button press, the BTR is put into pairing mode and any connected devices are disconnected. Because the BTR is in pairing mode, devices within range will see its *<serial number> Teachlogic* name advertised and can pair with the BTR. Once paired, a device will connect to the BTR.

## Display Screen Indicators for use of BTR (Bluetooth® receiver)

 STOP (■) symbol means BTR is not connected to any device. No non-paired devices can pair unless panel is put into pairing mode by long-pressing the BT button. STOP (■) symbol is displayed after a connected device disconnects with a disconnect command from the device. Note, however, that there is no disconnection command received by the BTR if the connected device is powered off, moves out of range (as much as 150'), has its Bluetooth feature turned off, or is connected to a different device. In those cases, the BTR remains in a connected state, displaying the PAUSE symbol.

 PAUSE (▮) symbol displays after a paired device connects (e.g., a teacher returns to room with a previously paired device and is automatically reconnected, or they select **SN...####-Teachlogic** control panel on their device's Bluetooth control application). The #### will be the serial number's last 4 digits (e.g., 0168 from s/n 000000168) and it is readable on the control panel screen. This allows a user to identify the control panel they desire for pairing or connection. If you see more than one TeachLogic device, select your desired device by its serial number.

 PLAY (▶) symbol displays after a device starts to send audio to the BTR and will remain displayed until 12 seconds after audio is stopped; then after 12 seconds the indicator reverts to PAUSE symbol, and the device remains actively connected.

Once disconnected, other previously paired devices may then connect. But as stated above, no other devices can pair unless panel is put into pairing mode by pressing BT button.

## Previously Paired Devices

When an Apple or Android device is paired and connected to the BTR and if the device moves out of range or their Bluetooth function is turned off, they can be reconnected to the BTR by manually selecting the TeachLogic panel's BTR when back in range.

If an Android device was connected and another paired device subsequently becomes connected, then after the second device disconnects, the Android device can reconnect if the panel is put into pairing mode again.

By contrast, if an Apple device was previously paired, and subsequently another device pairs and connects, then after the second device disconnects, the Apple device will not reconnect. The user needs to put the panel in BT pairing mode, forget the panel BTR in Apple's Bluetooth settings, then re-pair and connect to the Apple iOS device.

To disconnect a device from the panel, press the BT button for 3-4 seconds until the BT Stop icon blinks once. This will 1) disconnect the connected device, and 2) allow pairing and/or connection by other devices (including the one disconnected). The first one to connect will lock out others while connected.

## Classroom Strategy for Securing Bluetooth® Connections

To prevent persons other than the teacher from connecting to the classroom audio system, namely students acting contrary to a teacher's wishes, TeachLogic recommends the following.

1. Maintain control of access to the control panel. If anyone can press the BT button, they can pair their smartphone or other Bluetooth device to it.
2. Once you put the panel into pairing mode, immediately connect (or pair and connect) your (teacher's) Bluetooth device. This will keep it from being available to any previously paired device. If you do not pair, then power cycle the system using a long press of the **⏻ - Mute** button to power off, then another long press of it to power back on. Then the system will not be in pairing mode, advertising its Bluetooth identity. (Note that previously paired devices may still connect if no other device is connected to it.)
3. If you identify an unauthorized, undesired party that has paired with the audio system, require their device "forget" the TeachLogic system Bluetooth pairing identity. And please note that the BTR will remember the most recently connected device and try to connect with it, so pair and connect your (teacher's) device to override this. Having a device forget the BTR may be as simple as clicking on "forget device" on an unauthorized Apple device. With Android devices, the owner must first "forget device" then "rescan" to clear the pairing information from memory. If theirs was the last device connected, the BTR will actively try to reestablish connection and the unauthorized owner will need to decline to connect when prompted so that the Android device "forgets" the pairing.
4. Finally, if you have problems with unauthorized connections, then when you are not using the system to play audio from your desired Bluetooth-connected device, keep that BT input channel muted. To do this, press the BT button, then the **⏻ - Mute** button. This will keep the Bluetooth audio signal level at zero so if anyone else is connected, they may not send any sounds to the classroom speakers. Do this also if you ever hear audio from your classroom speakers that is from a device you do not intend have connected.

## Additional Functions in Firmware Release 1.1 for Detection of RS-232 Connection Loss

Sometimes, there can be a disruption of the electronic communication link between the control panel (CPS-121) and the amplifier (IMA-120/IMA-121). If this condition persists for a minute or more, the control panel will display the message "Amplifier Offline." This is a feature in release 1.1 and later, and the release number is shown on the display shortly after connecting the control panel to power via the RJ-45 connectorized cable.

## Troubleshooting Tips

***My amplifier does not respond to commands from the CPS-12x control panel.***

Check on the amplifier that the RS-232 switch is in the ON position. If OFF, the amplifier will only respond to its commands from its own front panel buttons and dials. If ON, it will respond only to remote volume change and mute commands from CPS-12x panels or other RS-232 controller devices (made by 3<sup>rd</sup> parties).

***The CPS-121 screen is dark or dim when I want to enter a command or does not respond to my commands at first.***

The panel will be dark if the amplifier is in the OFF or STANDBY state. Turn the amplifier ON by long-pressing the **⏻ - Mute** button (about 4 seconds). This will activate both the amplifier and the control panel. If the screen is merely dim, then press any button momentarily to ready the panel to receive a command; then it will return to full brightness, and you can press buttons to enter commands.

***I cannot hear any audio from one of the inputs (mics or other inputs).***

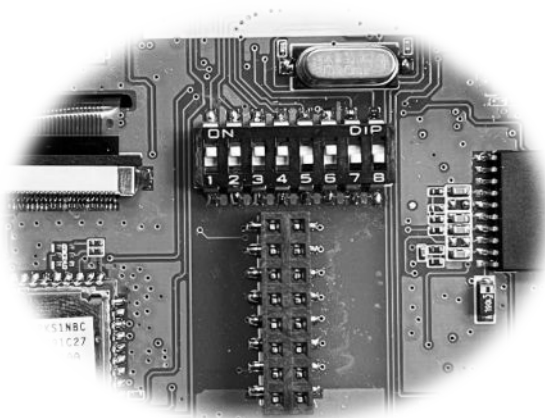
Press the button for that audio source (e.g. MicA or BT), then adjust the volume up to mid-range. If it had been muted or turned down to minimum level, this will correct that. Alternatively, independently check that the device sending audio (e.g. a microphone, computer, television) can successfully send audio to another system (over the same cables) such as a powered speaker or another room's TeachLogic system.

***Why does control panel blink the word "Standby?"***

This simply means that the amplifier is in a standby mode (aka sleep mode). It can be changed into the active mode by long pressing the power button on the panel or by using a microphone or audio source connected to the amplifier.

## Changing Passcode for Bluetooth Pairing

The passcode for Bluetooth pairing may be changed. To change it, removed the CPS-121 from the wall by removing the four Phillips drive screws on front panel, and locate the 8-position DIP switch centered on the circuit board.



The position of the small switches will determine the passcode. Each switch positions represents different value. The total value of all switches is added to 8200, and the result is the passcode for the CPS-120 device. The passcode may be any number between 8200 and 8455, inclusive.

The first switch (with the “1” label by it) has a value of 0 or 1 (of Off, or On);  
the second switch (with “2” label) has a value of 0 or 2;  
the third has a value of 0 or 4;  
and so forth, and as shown below.

| Switch | Value if On | Value if OFF |
|--------|-------------|--------------|
| 1      | 1           | 0            |
| 2      | 2           | 0            |
| 3      | 4           | 0            |
| 4      | 8           | 0            |
| 5      | 16          | 0            |
| 6      | 32          | 0            |
| 7      | 64          | 0            |
| 8      | 128         | 0            |

Set the switches in any combination of ON and OFF. Then sum total the values of each switch. Add that sum to 8200 for the final value, and that will be the passcode.

The factory default switch positions are (1 through 8): ON, ON, ON, ON, OFF, ON, OFF, OFF.  
Numerically, that is .....1 + 2 + 4 + 8 + 0 + 32 + 0 + 0 .... or **47**  
And this, added to 8200 equals 8247. 8247 is the passcode for each device as it leaves the factory.

For further help, contact your dealer that sold the product or TeachLogic at [www.teachlogic.com](http://www.teachlogic.com) Support page.