Extron

HD CTL 100 Workspace Controller • Setup Guide

The Extron HD CTL 100 is a compact workspace controller designed for automatic display control in small meeting rooms and huddle spaces. It features an HDMI pass-through port that detects signal presence and can facilitate automatic display power. When an active signal is connected to the HDMI input, the HD CTL 100 automatically turns on the display via CEC control. When no signal is detected, the HD CTL 100 powers off the display after a predetermined period. For further flexibility, integration with Extron OCS 100 occupancy sensors can enable the controller to power the display on when users enter the room. Control of the display is provided via one-way RS-232, IR, or Consumer Electronics Control (CEC).

> **NOTE:** For more details about installation, configuration, and operation, see the *HD CTL 100 User Guide*, available at **www.extron.com**.

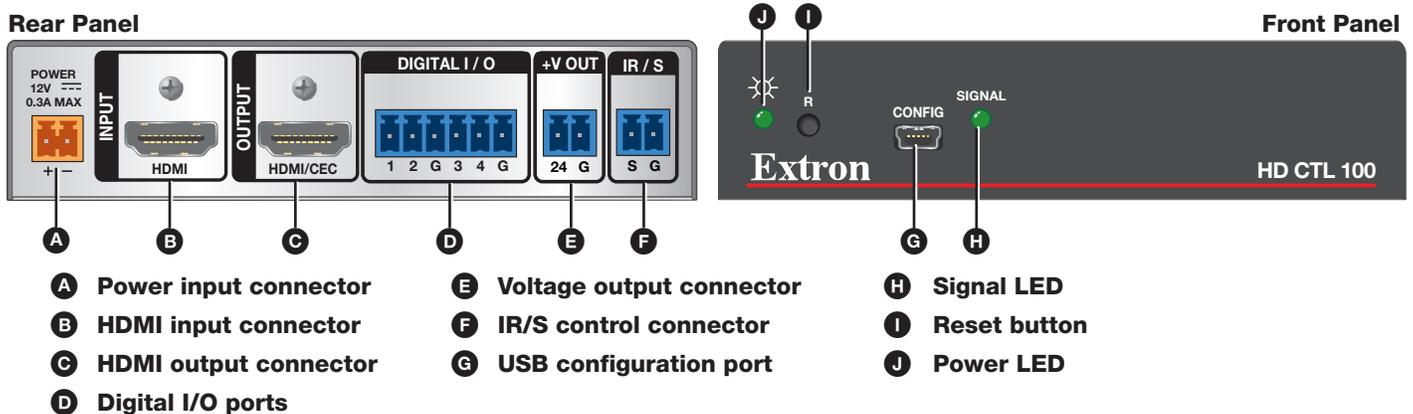## HD CTL 100 Panels

The front and rear panel connectors include:

A	Power input connector	E	Voltage output connector	H	Signal LED
B	HDMI input connector	F	IR/S control connector	I	Reset button
C	HDMI output connector	G	USB configuration port	J	Power LED
D	Digital I/O ports				

Figure 1. HD CTL 100 Rear and Front Panels

Installation Steps

> **ATTENTION:**
> - Installation and service must be performed by authorized personnel only.
> - L'installation et l'entretien doivent être effectués uniquement par un technicien qualifié.

1. (Optional) Mount the HD CTL 100 on a wall, rack, rack shelf, or furniture. Mounting kits are available at **www.extron.com**.

> **TIP:** Extron recommends wall-mounting the HD CTL 100 behind the display (place the top panel of the unit against the wall). using a mounting kit such as the Extron MBU 125 Under Desk Mounting Brackets (see the illustration at right). Mounting kits and instructions are available at **www.extron.com**.

2. Wire and connect the provided power supply to the two-pole rear panel Power connector (see figure 1, **A**, and the illustration at right).

3. Connect an HDMI source to the INPUT connector (see figure 1, **B**).

4. Connect an HDMI display or other output device to the rear panel OUTPUT connector (see figure 1, **C**).

Ground all devices.

External Power Supply (0.5 A, 12 VDC)
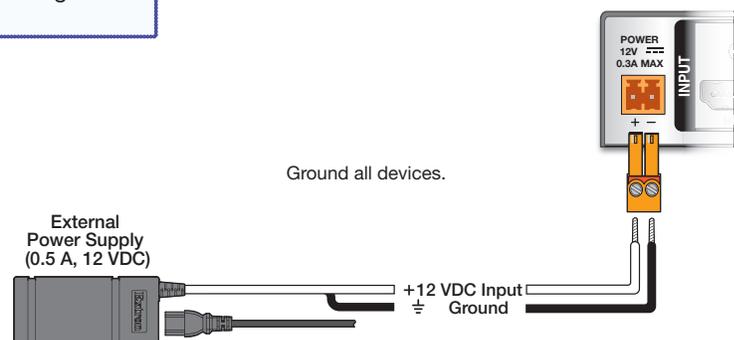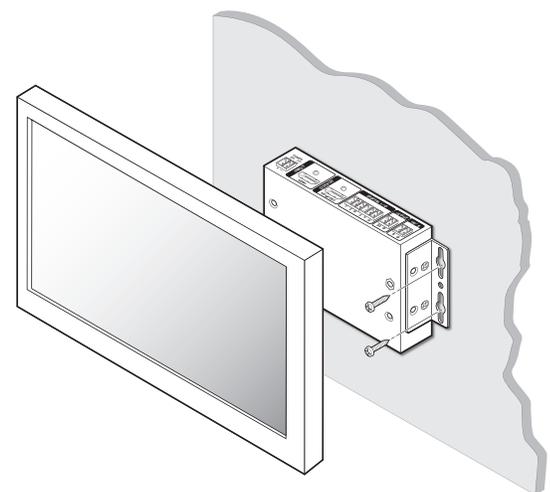
+12 VDC Input
Ground

5. Connect devices to the rear panel INPUT, OUTPUT, IR/S, DIGITAL I/O, and +V OUT ports as needed.

- **IR/S control port** — This port (see **figure 1**, **F**, on the previous page) provides unidirectional communication to control a projector or a display via RS-232 or IR. The S (signal) and G (ground) pins of the 2-pole captive screw IR/S connector comprise the IR/serial port.

> **NOTE:** The HD CTL 100 can be configured to send CEC, unidirectional RS-232, and IR commands, using the Extron HD CTL 100 Configuration Program (see **Downloading and Installing the HD CTL 100 Configuration Program** on page 3, and the *HD CTL 100 Configuration Program Help File* for more information).

- **For RS-232 control** — Connect the S (signal) and G (ground) pins of the IR/S connector to the RS-232 port of a display device or switcher (see the illustration at right).

  See the communication sheets for your device drivers for information on compatible baud rates and cabling type and distance. These communication sheets are accessed via the HD CTL 100 configuration program and also at **www.extron.com** (see the *HD CTL 100 User Guide* or the configuration program help file to view the communication sheets and download the drivers).
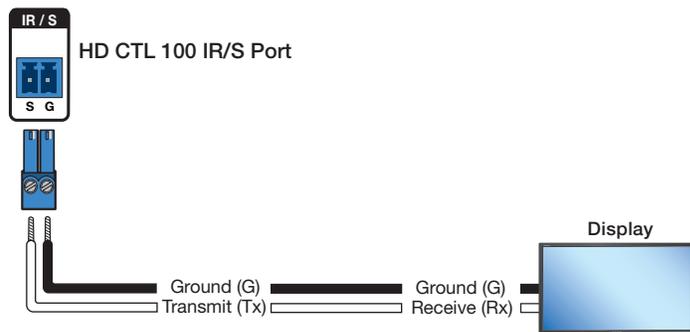
- **For IR control** — Connect one or two single IR emitters or one dual IR emitter to the S and G pins of the IR/S connector (**F**), with a maximum of 50 feet (15 m) from port to emitter. The port provides unidirectional IR signal output to control a display, projector, switcher, or other device. Figure 2 shows a single IR emitter connected to the IR/S port of an HD CTL 100.
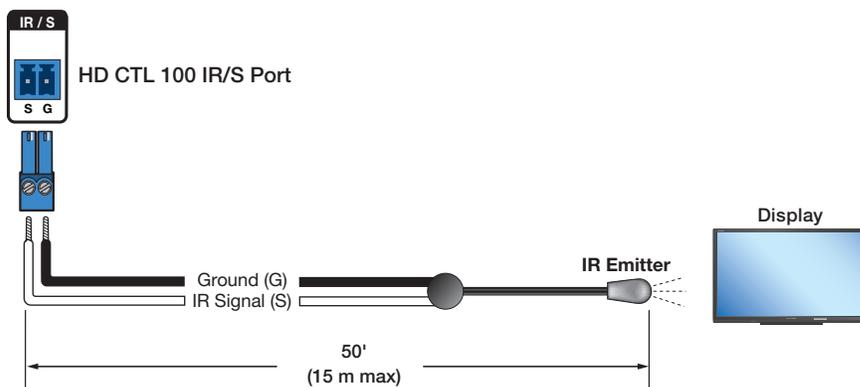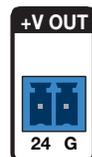
Figure 2.   IR Emitters for the HD CTL 100

- **Digital I/O connectors** — This 6-pole captive screw connector provides four digital input or output ports (plus two ground pins) to which you can connect sensors, switches, or contact closure buttons (see **figure 1**, **D**, on the previous page). Each port can be configured as a digital input, output, input with pull-up, or output with pull-up, via the HD CTL 100 Configuration Program. The ports enable you to monitor connected devices and trigger functions on the controller.

  - **Digital input** — Use one or more of the Digital I/O ports to connect a sensor, such an occupancy sensor, or a switch, such as a push-button device that can be configured to be triggered by a press or release of the button.

  - **Digital output** — Use one or more of the Digital I/O ports as a digital output to control LEDs or other devices that accept a transistor-to-transistor logic (TTL) signal. They can also provide contact closure control for projector lifts, motorized screens, or room and light switches when attached to relay devices. Each port can sync up to 250 mA.

  > **NOTE:**
  > - If the digital output port is set with pull-up disabled, the voltage output is set by an external source.
  > - If the pull-up resistor is enabled, the voltage output is equal to approximately +4.6 V.

  a. Connect a digital input or output device (such as a switch, relay device, or sensor) to pin 1, 2, 3, or 4 and to a G (ground) pin on the Digital I/O connector (see **figure 3** on the next page).

  b. (Optional) If using an occupancy sensor or other device that requires + 24 V power and does not have a power supply, wire its power connector to the HD CTL 100 rear panel +V OUT connector (see **figure 1**, **E**, and the illustration at right). The maximum current for this connector is 50 mA.

HD CTL 100 Rear Panel

Digital I/O (digital input/output)
Configure each port as a digital input or output, with or without +5 VDC pull-up. Use these ports to:
• Monitor or trigger events and functions (toggle digital output or issue commands).
• Control LEDs or other devices that accept a TTL signal.

Heat Shrink Over Shield Wires

Ground
Wire Nut
Share the same ground among I/O connections.

G 4 3 G 2 1
Switch, Sensor

Device 4
Device 3
Device 2
Device 1
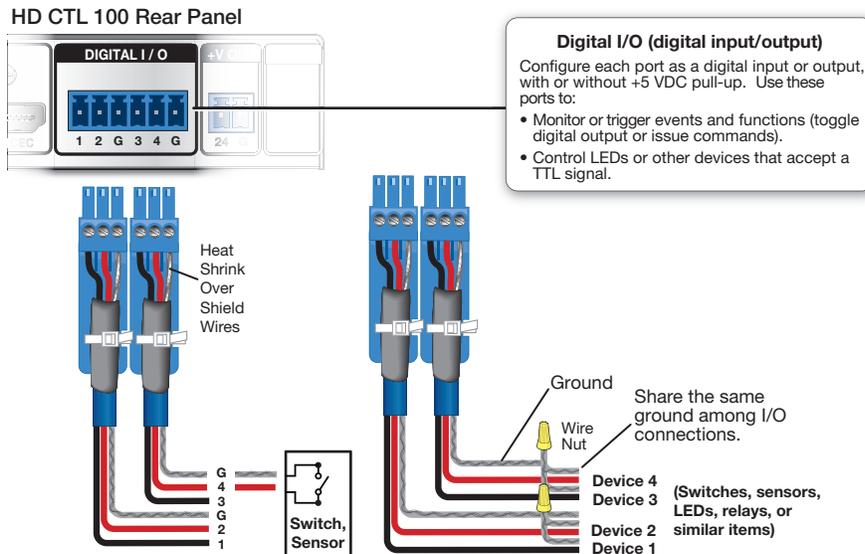(Switches, sensors, LEDs, relays, or similar items)

Figure 3.   Wiring the Digital I/O Connectors

6. Connect all other power cords and power on all the devices, including the HD CTL 100.

7. Download and install the HD CTL 100 Configuration Program (see "Downloading and Installing the Configuration Program").

8. If necessary, download drivers for the devices to be connected to the HD CTL 100 (see the *HD CTL 100 User Guide*, available on the Extron website, or the *HD CTL 100 Configuration Program Help File*, provided with the software).

9. Connect a USB A-to-USB mini-B cable to the HD CTL 100 front panel USB CONFIG port (see **figure 1**, **G**), and to a USB port on your computer.

10. Configure the rear panel ports using the configuration program (see the *HD CTL 100 Configuration Program Help File* for these procedures). To access the help file, see **Accessing the Configuration Program Help File** on the next page.

Downloading and Installing the HD CTL 100 Configuration Program

The HD CTL 100 Configuration Program can be downloaded free of charge from the **Extron website**. To obtain the configuration program, download it to your computer as follows:

1. Go to **www.extron.com** and select the `Download` tab.

2. On the `Download` screen, click the **Software** link in the left sidebar or the **Software** button. The `Download Center` screen is displayed, containing a list of control software products.

3. On the `Download Center` page, click **H** on the linked alphabet at the bottom of the screen. A list of products with names starting with H is displayed below the alphabet.

4. Scroll to find the HD CTL 100, then click the **Download (Login required)** link at the far right on the line.

5. On the `Login` screen, fill in your e-mail address and your password, which is your Extron Insider ID number (available from your Extron representative).

6. Follow the instructions on the subsequent screens to download the HD CTL 100 Configuration Program and install it on your computer.

By default, the configuration program files are stored on the computer at `C:\Program Files (x86)\Extron\HDCTL_100`. You can place them elsewhere if desired.

Starting the Configuration Program

To use the HD CTL 100 to control devices, you must create one or more configurations for it, using the HD CTL 100 Configuration Program. A configuration is a set of specifications for command assignments and port parameters that enable the HD CTL 100 to control your display device.

> **NOTE:**   Configurations can be created away from the job site and without the HD CTL 100 being connected to the computer.

After you have downloaded and installed the program and device drivers if necessary (see the *HD CTL 100 User Guide*, available at **www.extron.com**, to obtain any needed drivers), begin by creating a new project.

3

An HD CTL 100 project is a file (with a .hdc extension) that contains port configurations for one or more HD CTL 100s. A configuration must be created within a new or existing project. A project can be saved, copied, and edited (for example, by adding or changing configurations within it). You can also create a configuration and add it to an existing project. You can start a new project either when first opening the HD CTL 100 program or while the program is open and another project is active.

1. Open the HD CTL 100 Configuration Program by clicking **Start\All Programs\Extron Electronics\ HD CTL 100\HD CTL 100**, Alternatively, navigate to the location where you saved the program and open the file from there.

2. In the `Start Options` dialog box, select the **Create a New Project** radio button (see ❶ in the illustration at right).

3. If desired, click the **Add Driver Subscriptions** button (see ❷ in the illustration at right) to add drivers to the HD CTL 100 (see the *HD CTL 100 User Guide*, available at **www.extron.com**, for more information). You can also add drivers via the software at any time.

4. Click **OK**. The HD CTL 100 Configuration Program main window opens, with `Unnamed Project` displayed in the title bar.

5. Name your project and create configurations for it as desired (see the *HD CTL 100 Configuration Program Help File* for details).

6. When finished, save the project.
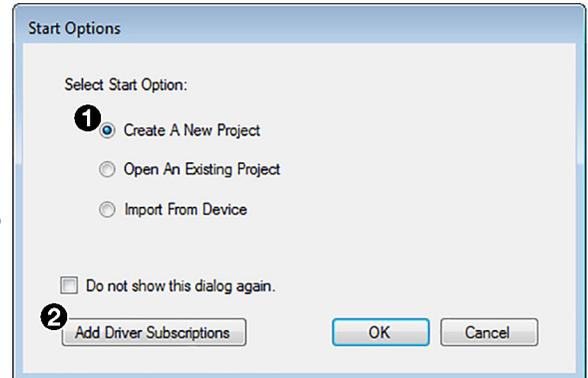
Accessing the Configuration Program Help File

For instructions on creating configurations using the program, see the *HD CTL 100 Configuration Program Help File*. You can access the help file when the configuration program is open using any of the following methods:

- From the **Help** menu, select **HD CTL 100 Configuration Program Help**. When you hover the mouse pointer over a menu option, a pop-up explanation (tooltip) of its function appears.
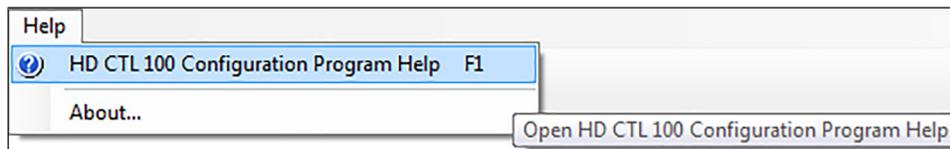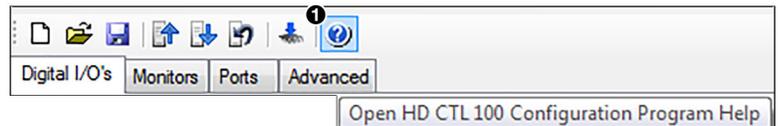
Figure 4. Help Menu

- Click the **Help** icon on the main window toolbar (see the ❶ in the image at right). When you hover the mouse pointer over a toolbar icon, a tooltip for it appears.

- Press the <**F1**> key on your computer keyboard.

CEC Control

CEC can control standard functions on a display attached to the HDMI output by inserting unidirectional CEC control commands (see the *HD CTL 100 Configuration Program Help File* for instructions on using the commands). The CEC commands are issued from the HD CTL 100 HDMI output port. Using the configuration program, you can set up CEC commands to be sent to the output device when:

- A digital input is triggered.
- Signal presence is detected or not detected.
- An action detected by a monitor (also set up via the configuration program) is triggered.

The following commands are available:

Power on	Audio mute (toggle on and off)	Volume up
Power off	Input selection (1 through 6)	Volume down

You can also insert user-defined CEC commands for the display (see the *HD CTL 100 Configuration Program Help* file).

Default CEC Functionality

The HD CTL 100 is preconfigured with the following monitors and actions, which can be reconfigured via the HD CTL 100 Configuration Program (see the program help file).

- When an HDMI signal is detected, the HD CTL 100 sends the CEC `Power On` command to the connected sink (display).

- When no HDMI signal is present for 30 seconds, a CEC `Power Off` command is sent to the connected sink.

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