Powerful, Cost-Effective Collaboration Solution

HC 404
MEETING SPACE COLLABORATION SYSTEM

- Automate meeting room AV systems
- Signal extension for video, audio, and power up to 230 feet (70 meters) over a shielded CATx cable
- Built-in control capability
- Advanced scaling engine with 30-bit processing
- Auto-switching between inputs
The Extron HC 404 combines video switching, scaling, signal extension, and system control into a transmitter and receiver pair at a price point that fits any application. The HC 404 features two HDMI and one VGA input at the transmitter, and one HDMI input at the receiver. Advanced Extron scaling technology ensures excellent image quality with maximum detail and color accuracy. Built-in control capabilities facilitate automatic source switching, display control, and integration with occupancy sensors for an intuitive, effortless user experience. Designed for professional integration, low-profile HC 404 transmitter and receiver enclosures are ideal for discreet placement beneath tables, behind displays, or wherever the application requires.

Effortless Collaboration
The HC 404 is easy-to-use and fully operational out of the box. Automatic power control and switching allow users to collaborate with minimal interaction with the AV hardware. The system powers the display on when a presenter connects a source device, and automatically switches to new source devices as they are connected. When no signal is detected, the system will power down after a predetermined time period. For further flexibility, the unit can integrate with Extron OCS 100 occupancy sensors to automatically power the system on when users enter the room.

Bring Your Own Device
Connecting a ShareLink wireless collaboration gateway to the receiver’s HDMI input adds support for wireless BYOD – Bring Your Own Device environments, providing effective collaboration and content sharing from a wide variety of mobile devices.

Reliable Operation
The HC 404 is a highly reliable AV system solution designed for professional requirements. It delivers high quality extension of video and audio signals for maximum performance and reliability. Multiple input connections are provided to support a wide range of video sources and resolutions. Advanced Extron video scaling ensures excellent video quality and EDID Minder® technology ensures a consistently reliable image at the display.

Easy to Integrate
The HC 404 is simple to install and easy to set up. A single power supply connected at the receiver can provide power to both the transmitter and receiver. Managing system AV settings is easy with Extron PCS – Product Configuration Software, which also allows convenient control of multiple systems. Ethernet connectivity facilitates management, monitoring, and control of AV devices over a standard network. The HC 404 offers built-in control processing, eliminating the need to connect additional equipment. Ethernet, RS-232, IR, CEC, and digital I/O ports are available on the receiver to control and interface with displays, sensors, switchers, or other equipment. No programming is required. Configuration is simple using Global Configurator Plus and Professional, Extron’s powerful software for AV control systems.

Expandable Functionality
HC 404 system solutions can be expanded for even more functionality with a variety of compatible products. Wireless collaboration may be added with a ShareLink gateway. Control capability can be expanded by linking the HC 404 to another pro series control processor using the controller grouping function within Global Configurator Professional. GlobalViewer Enterprise software can be used to monitor and support HC 404-equipped collaboration rooms across the enterprise.

Works with TeamWork Show Me Cables
Connect the Show Me™ cable to your laptop or mobile device to enable intuitive sharing of content by pressing the Share button. The HC 404 is available as part of the preconfigured Teamwork Connect 300 package and in the TeamWork System Builder, an interactive online tool that guides users through the configuration of the ideal collaboration solution.
Overview

HC 404 Transmitter - HCT 103

- **Audio Embedding**: Analog audio can be selectively embedded onto any input.
- **Transmitter has two HDMI inputs and one VGA input**.
- **Twisted Pair Signal Extension**: Extends video, audio, and power over a shielded CATx cable up to 230 feet (70 meters).
- **Contact Closure and Tally Outputs**: Facilitates integration with Extron TeamWork Show Me cables.

HC 404 Receiver - HCR 102

- **Advanced Extron Scaling Engine**: Features 30-bit processing and selectable output resolutions up to 1920x1200, including 1080p/60 and 2K.
- **Twisted Pair Signal Extension**: Extends video, audio, and power over a shielded CATx cable up to 230 feet (70 meters).
- **Menu navigation controls for on-screen display**.

Remote Power Capability
DC Power is sent to transmitter over CATx when the receiver is connected to a local power supply.

Receiver accepts local HDMI input in addition to video from transmitter.

HDMI output with CEC control.

Stereo audio de-embedding.

Integrated control processing with RS-232, IR, and four Digital I/O ports.

Ethernet port for network control and management.
Features

**Powerful solution for meeting rooms**
The HC 404 system incorporates video switching, scaling, signal extension, and system control into a pair of compact, easily installed transmitter and receiver modules.

**Transmitter has two HDMI inputs and one VGA input**

**HDMI input on receiver is ideal for connecting a local source, such as a ShareLink wireless collaboration gateway**

**Signal extension for video, audio, and power up to 230 feet (70 meters) over a shielded CATx cable**
The HC 404 supports digital signal extension between the transmitter and receiver up to 230 feet (70 meters) over a shielded CATx cable, providing high reliability and maximum performance on an easily installed cable infrastructure.

**Supports computer and video resolutions up to 1920x1200, including 1080p/60 and 2K**

**Selectable output rates from 640x480 to 1920x1200, including 1080p/60 and 2K**

**Auto-switching between inputs**
Auto-switching allows for intuitive operation in collaboration spaces. Multiple switching priority modes are available, including last-connected input and user-selectable priority.

**Stereo audio embedding**
Analog stereo audio may be selectively embedded onto any of the transmitter’s video inputs.

**Stereo audio de-embedding**
Embedded HDMI two-channel PCM audio can be extracted to the receiver’s analog audio output, or multi-channel bitstream formats can be passed to the HDMI output.

**Remote power capability**

**Advanced scaling engine with 30-bit precision processing and motion-adaptive deinterlacing for signals up to 1080i**

**EDID Minder® automatically manages EDID communication between connected devices**

**HDCP compliant**

**User-selectable HDCP authorization**
Allows individual inputs to appear HDCP compliant or non-HDCP compliant to the connected source, which is beneficial if the source automatically encrypts all content when connected to an HDCP-compliant device. Protected material is not passed in non-HDCP mode.

**HDCP Visual Confirmation provides a green signal when encrypted content is sent to a non-compliant display**
A full-screen green signal is sent when HDCP-encrypted content is transmitted to a non-HDCP compliant display, providing immediate visual confirmation that protected content cannot be viewed on the display.

**Supported HDMI specification features include data rates up to 6.75 Gbps, Deep Color, and HD lossless audio formats**

**Aspect ratio control**
The aspect ratio of the video output can be controlled by selecting a FILL mode, which provides a full screen output, or a FOLLOW mode, which preserves the original aspect ratio of the input signal.

**Automatic 3:2 and 2:2 pulldown detection**

**On-screen menus**
Intuitive on-screen menus allow for easy system setup using the front panel controls. Key parameters such as input and output video formats are conveniently grouped on the initial Quick Setup screen, while additional screens provide full control over the unit’s other functions and settings.

**Internal video test patterns and pink noise generator for calibration and setup**

**1" (2.5 cm) high, half rack width metal enclosure**

**Includes two MBU 125 under-table low-profile mount kits**

**Includes LockIt® HDMI cable lacing brackets**

**Built-in control capability**
Designed for handling essential AV functions, such as display on/off, input switching, volume control, and control of AV devices over Ethernet, RS-232, IR, and CEC connections.

**Supports TouchLink® Pro touchpanels**

**Supports secure industry standard communication protocols**
The HC 404 uses industry standard communication protocols, including HTTP (insecure), HTTPS, SSH, SFTP, SMTP, NTP, Discovery Service, DHCP, DNS, ICMP, and IPv4.

**Automatic display control via bi-directional RS-232, Ethernet, IR, or CEC**
The ability for CEC to control specific display functions, such as power on/off, input selection, or volume level, is dependent on implementation by the display manufacturer.

**Four Digital I/O ports**

**Contact closure remote control with tally output**

**Compatible with TeamWork Show Me Cables**

**Supports popular BMS - Building Management System protocols, such as BACnet, KNX, and DALI**

**Manage, monitor, and control AV devices using a standard Ethernet network**

**Supports 10/100Base-T**

**Supports control system synchronization**
Synchronization will allow users to retain and recover the state of their configured endpoints in case of network or power failure.

**Multi-level password protection**

**Fully configurable using Extron control system software**

**Library of Pro Series device drivers for use with Global Configurator**
PCS SOFTWARE

The HC 404 can be easily configured using Product Configuration Software. The user-friendly interface makes it simple to adjust every aspect of system performance including video and audio settings, HDCP authorization, power down conditions, and more.

GLOBAL CONFIGURATOR SOFTWARE

Global Configurator control system configuration software offers powerful features such as conditional logic, variables, and macros provide flexibility for sophisticated control system designs. Global Configurator has two modes. Global Configurator Plus is ideal for smaller scale applications requiring one control processor. Global Configurator Professional is especially suited for applications requiring multiple control processors, enhanced functionality, and advanced configuration.
INTUITIVE OPERATION RIGHT OUT OF THE BOX

This basic HC 404 system will power up automatically and display the correct image when a laptop is connected for presentation. It will switch automatically upon connection of another laptop. Built-in video scaling and signal extension ensure consistently high picture quality and maximum signal integrity. The system will power down automatically when the meeting is over and there are no sources connected.

WIRED AND WIRELESS TEAMWORK COLLABORATION

HC 404 contact/tally connections are designed to work with Show Me cables for users who prefer direct, tactile feedback when presenting. Use the TeamWork System Builder to specify complete installation kits including cables, enclosures, and accessories. Connecting a ShareLink Wireless Collaboration Gateway to the HDMI input at the receiver creates flexibility to support both wired and wireless video sources. The HC 404 interfaces directly with the OCS 100W occupancy sensor for automatic system power control in facilities where always-active video sources are attached.
GlobalViewer Enterprise software makes it easy to remotely manage multiple AV systems that are on the network across the enterprise, as shown below. GVE simplifies AV system resource management with intuitive control for hundreds of common AV tasks. Whether you’re working with 5 or 5000 rooms, GVE provides a powerful, flexible way to manage, monitor, and control nearly any device over a standard network. It’s quite common for corporations, universities, and government agencies to have hundreds of collaboration spaces spread over broad areas. GVE provides you with all the information and help desk resources you need to effectively manage the ever-increasing demand for AV technology.
Specifications

NOTE: This product consists of a switching transmitter (HCT 103) and a scaling receiver (HCR 102), sold together as a system, with a twisted pair cable linking the transmitter and receiver.

**VIDEO INPUT**

<table>
<thead>
<tr>
<th>Connectors</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>HCT 103</td>
<td>1 female 15-pin HD</td>
</tr>
<tr>
<td>HCR 102</td>
<td>1 female HDMI type A</td>
</tr>
</tbody>
</table>

**HDMI input cable length**

50’ (15 m) for resolutions up to 1920x1200 or 1080p @ 60 Hz, 2K, using Extron HDMI Pro Series cable.

**Resolution range**

640x480 to 1600x1200 and 1920x1200*, 480p, 576p, 720p, 1080i, 1920x1080, and 2K

*reduced blanking

**INTERCONNECTION BETWEEN TRANSMITTER AND RECEIVER**

<table>
<thead>
<tr>
<th>Connector</th>
<th>1 female RJ-45 on each unit (transmitter and receiver)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Termination standard</td>
<td>TIA/EIA T568B</td>
</tr>
</tbody>
</table>

**Cable requirements**

Solid conductor, 24 AWG or better

**Cable recommendations**

400 MHz bandwidth, STP (shielded twisted pair) cable.

**NOTE:** Extron XTP DTP 24 shielded twisted pair cable is strongly recommended for optimal performance.

**VIDEO PROCESSING**

**Digital pixel data bit depth**

8, 10, or 12 bits per channel; 165 MHz pixel clock (HDMI)

**Colors**

1 billion (10 bit processing)

**AUDIO**

<table>
<thead>
<tr>
<th>Gain</th>
<th>Unbalanced output: 0 dB, balanced output +6 dB</th>
</tr>
</thead>
<tbody>
<tr>
<td>Frequency response</td>
<td>20 Hz to 20 kHz, ±0.5 dB</td>
</tr>
<tr>
<td>THD + Noise</td>
<td>&lt;0.1%, 20 Hz to 20 kHz at nominal level</td>
</tr>
<tr>
<td>S/N</td>
<td>&gt;90 dB, at maximum input (unweighted)</td>
</tr>
</tbody>
</table>

**AUDIO INPUT**

<table>
<thead>
<tr>
<th>Connectors</th>
<th>1 female 3.5 mm mini stereo jack (tip, ring, sleeve (ground))</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>3 female HDMI Type A</td>
</tr>
</tbody>
</table>

**AUDIO OUTPUT**

<table>
<thead>
<tr>
<th>Connectors</th>
<th>(1) 3.5 mm captive screw connector, 5 pole</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1 female HDMI</td>
</tr>
</tbody>
</table>

| Output volume range | 0 to -100 dB in 1 dB steps |

**COMMUNICATIONS**

<table>
<thead>
<tr>
<th>Tally port</th>
<th>(1) 3.5 mm, 4 pole captive screw connector</th>
</tr>
</thead>
<tbody>
<tr>
<td>Contact closure control</td>
<td>(1) 3.5 mm, 4 pole captive screw connector</td>
</tr>
<tr>
<td>USB control port</td>
<td>1 front panel female USB mini-B</td>
</tr>
<tr>
<td>USB standards</td>
<td>USB 2.0, high speed</td>
</tr>
<tr>
<td>Program control</td>
<td>Extron Product Configuration Software (PCS) for Windows®</td>
</tr>
</tbody>
</table>

**COMMUNICATIONS — CONTROL PROCESSOR**

**Software and control options**

Software: Extron Global Configurator® Plus and Professional for Windows®

**Ethernet control**

Connectors: 1 female RJ-45 connector

**Data rate**

10/100Base-T, half/full duplex with autodetect

**Protocols**

DHCP, DNS, HTTP, HTTPS, ICMP, NTP, SFTP, SMTP, SNMP, SSL, SSH, UPnP

**Serial control**

Quantity/type: 1 bidirectional RS-232

**Digital I/O control**

Quantity/type: 4 digital input/output (configurable)

**Digital inputs**

Input voltage range: 0 to 24 VDC, clamped at +30 VDC

**Digital outputs**

250 mA sink from 24 VDC max.

**IR control**

Quantity/type: 1 programmable TTL level (0 to 5 V) infrared (carrier and non-carrier) up to 330 kHz

**GENERAL**

**Power supply**

External: Input: 100-240 VAC, 50-60 Hz

Output: 12 VDC, 3 A, 36 watts

**Power consumption**

Transmitter: Note: Connect the included 3 A, 36 W, external power supply to the HCR 102, and the receiver remotely powers the HCT 103. Alternatively, the transmitter can be powered locally by an optional external power supply.

**Mounting**

Furniture mount: Yes, with included, attached MBU 125 under-desk mounting brackets

**Enclosure type**

Metal

**Enclosure dimensions**

1.0” H x 8.75” W x 6.0” D (half rack wide)

(2.5 cm H x 22.2 cm W x 15.2 cm D)

(Depth excludes connectors.)

**Product weight**

HCT 103: 1.1 lb (0.5 kg)

HCR 102: 1.2 lbs (0.6 kg)

**Vibration**

ISTA 1A in carton (International Safe Transit Association)

**Regulatory compliance**

Safety: CE, c-UL UL

EMC: CE,** C-tick, FCC Class A**, ICES, VCCI

Environmental: Complies with the appropriate requirements of RoHS, WEEE

**NOTE:** CE and FCC testing is conducted with STP (shielded twisted pair) I/O cable.

For complete specifications, please go to www.extron.com

Specifications are subject to change without notice.

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