



**Model Number:**

PT12X-SDI-GY-G2 (gray)

PT12X-SDI-WH-G2 (white)

<http://ptzoptics.com/12x-sdi/>

## PTZOPTICS Broadcast & Conference Camera

The PTZOptics 12X-SDI is a 1080p camera with 12X optical zoom for capturing both wide angles and long shots. With support for 3G-SDI, HDMI, and IP streaming (H.264, H.265, & MJPEG), this camera is ideal for broadcasting high definition video signals for broadcast, recording, or video conferencing applications.

### KEY FEATURES

- 72.5 degree wide-angle lens.
- High performance in low light scenarios with Wide Dynamic Range.
- Full 1920x1080p HD Resolutions up to 60 frames per second.
- 2D and 3D noise reduction with our latest “low noise CMOS sensor”.
- RS232 & RS485 (Serial), and IP (LAN/WAN) control
- H.264, H.265, & MJPEG Streaming over RJ-45 LAN port
- HDMI, 3G-SDI, & IP streaming (all 3 simultaneously)
- PoE (Power over Ethernet) or 12VDC
- RTMP & RTSP IP streaming

### WHAT'S IN THE BOX

- 12X Zoom 3G-SDI Camera
- Power Adapter + Cord
- IR Remote Control
- RS-232C Cable
- User Manual

Camera & Lens	
Video Sensor	1/2.7" CMOS, 2.12 Mega Pixels
Frame Rates	1080p/60, 50, 30 & 25, 1080/60 & 50, 720p/60, 50, 30 & 25
Frame Rates (CVBS)	576i/30, 480i/30
Focal Length	12x, F3.5mm-42.3mm, F1.8-F2.8
Lens Zoom	12x
Field of View	72.5°
Min Lux	0.5 Lux at F1.8, AGC ON
Shutter Speed	1/30s - 1/10000s
SNR	≥55dB
Vertical Flip & Mirror	Supported
Horizontal Angle of View	6.9° (tele) to 72.5° (wide)
Vertical Angle of View	3.9° (tele) to 44.8°(wide)
Working Environment	Indoor
Pan & Tilt Movement	
Pan Movement	±170°
Tilt Rotation	Up: 90°, Down: 30°
Presets	10 via IR (255 via Serial or IP)

Rear Board	
Video Output	HDMI, 3G-SDI, IP Streaming, CVBS
Network Interface	RJ45
Audio Interface	Line In, 3.5mm (HDMI & IP Stream Only)
Communication	RS-232, RS-485, PELCO-D/P,
Baud Rate	2400/4800/9600 bits
Power Supply	JEITA type Power Adapter (DC IN 12V)
3G-SDI Interface	BNC – 75 Ohm, Female
USB 2.0 Interface	Future Use
Electrical Index	
Power Supply	12W (Max)
Input Voltage	12V DC (10.8 - 13.0V DC) or PoE 802.3af
Physical	
Dimension (in.)	5.6W x 6.5H x 6.7D (7.88H max w/ Tilt)
Dimensions (mm)	142W x 164H x 169D (189H max w/ Tilt)
Box Dimensions	9"x9"x10"   229mmx254mmx229mm
Camera Weight	3.05 lbs. (1.38 kg)
Boxed Weight	5.4 lbs. (2.45 kg)



**Model Number:**

PT20X-SDI-GY-G2 (gray)  
 PT20X-SDI-WH-G2 (white)  
<http://ptzoptics.com/20x-sdi/>

## PTZOPTICS Broadcast & Conference Camera

The PTZOptics 20X-SDI is a 1080p camera with 20X optical zoom for capturing HD images at long distances. With support for 3G-SDI, HDMI, and IP streaming (H.264, H.265, & MJPEG), this camera is ideal for broadcasting high definition video signals for broadcast, recording, or video conferencing applications.

### KEY FEATURES

- 60.7 degree wide-angle lens.
- High performance in low light scenarios with Wide Dynamic Range.
- Full 1920x1080p HD Resolutions up to 60 frames per second.
- 2D and 3D noise reduction with our latest “low noise CMOS sensor”.
- RS232 & RS485 (Serial), and IP (LAN/WAN) control
- H.264, H.265, & MJPEG streaming over RJ-45 LAN port
- HDMI, 3G-SDI, & IP streaming (all 3 simultaneously)
- PoE (Power over Ethernet) or 12VDC
- RTMP & RTSP IP streaming

### WHAT'S IN THE BOX

- 20X Zoom 3G-SDI Camera
- Power Adapter + Cord
- IR Remote Control
- RS-232C Cable
- User Manual

Camera & Lens	
Video Sensor	1/2.7" CMOS, 2.12 Mega Pixels
Frame Rates	1080p/60, 50, 30 & 25, 1080i/60 & 50, 720p/60, 50, 30 & 25
Frame Rates (CVBS)	576i/30, 480i/30
Focal Length	20x, F4.42mm-88.5mm, F1.8-F2.8
Lens Zoom	20x
Field of View	60.7°
Min Lux	0.5 Lux at F1.8, AGC ON
Shutter Speed	1/30s - 1/10000s
SNR	≥55dB
Vertical Flip & Mirror	Supported
Horizontal Angle of View	3.36° (tele) to 60.7° (wide)
Vertical Angle of View	1.89° (tele) to 34.1°(wide)
Working Environment	Indoor

Pan & Tilt Movement	
Pan Movement	±170°
Tilt Rotation	Up: 90°, Down: 30°
Presets	10 via IR (255 via Serial or IP)

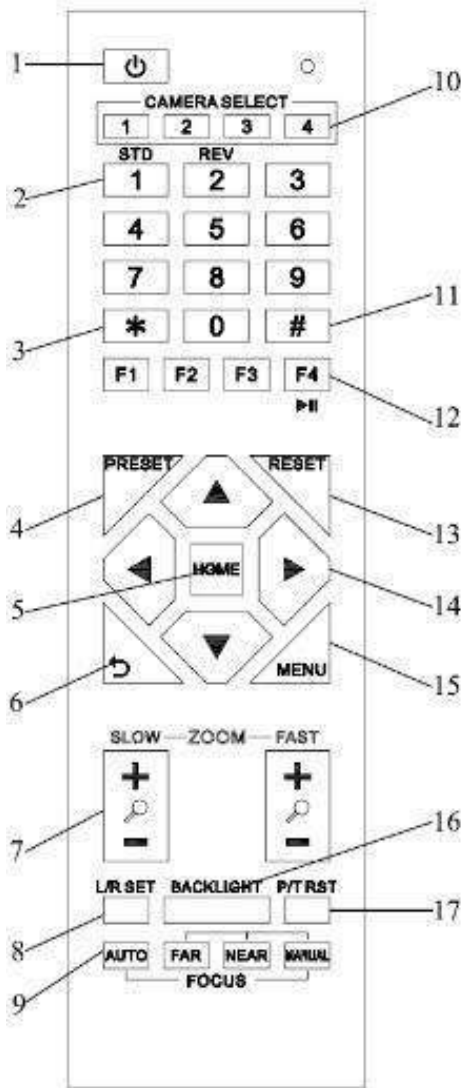
Rear Board	
Video Output	HDMI, 3G-SDI, IP Streaming, CVBS
Network Interface	RJ45
Audio Interface	Line In, 3.5mm (HDMI & IP Stream Only)
Communication	RS-232, RS485, PELCO-D/P
Baud Rate	2400/4800/9600 bits
Power Supply	JEITA type Power Adapter (DC IN 12V)
3G-SDI Interface	BNC – 75 Ohm, Female
USB 2.0 Interface	Future Use

Electrical Index	
Power Supply	12W (Max)
Input Voltage	12V DC (10.8 - 13.0V DC) or PoE 802.3af

Physical	
Dimension (in.)	5.6W x 6.5H x 6.7D (7.8H max w/ Tilt)
Dimensions (mm)	142W x 164H x 169D (198H max w/ Tilt)
Box Dimensions	9"x9"x10"   229mmx254mmx229mm
Camera Weight	3.10 lbs. (1.41 kg)
Boxed Weight	5.4 lbs. (2.45 kg)



**1. Standby Button**

Press this button to enter standby mode. Press it again to enter normal mode.  
NOTE: Power consumption in standby mode is approximately half of the normal mode.

**2. Position Buttons (0-9)**

To set preset or call presets and for Special Shortcut Functions.

**3. \* (asterisk) Button**

For use with multiple function buttons (see 12)

**4&13. Set/Clear Preset Buttons**

Set preset: Store a preset position [PRESET] + Numeric button (0-9): Setting a corresponding numeric key preset position.  
Clear preset: Erase a preset position [RESET] + Numeric button (0-9)  
Note: [\*] + [#] + [RESET]: Erase all presets.

**5&14. Pan/Tilt & Home Control Buttons**

Press the arrow buttons to perform panning and tilting. Press the [HOME] button to face the camera back to its Home position.

**6. Return Button**

Press button to return to previous menu.

**7. Zoom Buttons (Slow & Fast)**

Zoom+: Zoom In (Slow and fast speeds)  
Zoom-: Zoom Out (Slow and fast speeds)

**8. L/R Set Button**

Set the left & right direction of panning control. Hold [L/R Set] + Press [1]: Normal panning direction. Hold [L/R Set] + Press [2]: Left and right panning direction will be reversed.

**9. Focus Buttons**

Used for focus adjustment. Press [AUTO] to adjust the focus on the center of the object automatically. To adjust the focus manually, press the [MANUAL] button, and then adjust focus with [Far] (focus on far object) and [Near] focus on near object).

**10. Camera Address Select Buttons**

Press the button corresponding to the camera which you want to operate with the IR remote controller.

**11. # Button**

For use with multiple function buttons (see 12)

**12. Multiple Function Buttons**

Function 1. Set camera IR address function: Press 3 keys consecutively to set the camera's IR address as follow:

- [\*] + [#] + [F1]: IR Address 1
- [\*] + [#] + [F2]: IR Address 2
- [\*] + [#] + [F3]: IR Address 3
- [\*] + [#] + [F4]: IR Address 4

Function 2. Image freezing function: Press [F4] to start the freeze function. The word "Freeze" displays on the upper left corner. After five seconds, the display disappears automatically (though the freeze feature continues). To cancel the freeze, press the [F4] key the word "Unfreeze" displays on the upper left corner. After five seconds, the display disappears automatically.

**15. Menu Button**

OSD Menu Settings: Press this button to enter or exit the OSD (on screen display) menu.

**16. Backlight Button**

Backlight (aka BLC) button: Press this button to enable backlight compensation. Press it again to disable backlight compensation. NOTE: Effective only in auto exposure mode. NOTE: If there is a light behind the subject, the subject will appear dark (i.e. silhouetted). In this case, press the backlight button to turn BLC On . To cancel this function, press the backlight button to turn BLC Off.

**17. P/T RST Button**

Press the button to self-calibrate the pan and tilt positions and limits.

**Special Shortcut Functions**

- [\*] + [#] + [1]: Display OSD menu in English
- [\*] + [#] + [3]: Display OSD menu in Chinese
- [\*] + [#] + [4]: Show IP address
- [\*] + [#] + [6]: Quickly restore default settings
- [\*] + [#] + [8]: Show the camera FW version
- [\*] + [#] + [9]: Quickly set mounting mode (vertical flip / normal)



**Model Number:**  
NUC-i7-G2



## Powerful Intel Micro PC

The Intel NUC i7 Skull Canyon is a powerful micro PC. This compact PC is the perfect accessory for use with a video mixing studio paired with PTZOptics cameras. Whether paired with the Producer or Producer+ kit, the Intel Skull Canyon will keep your show running reliably.

### KEY FEATURES

- Windows 10 Enterprise
- 6th Generation Intel Core 2.6 GHz i7-6770HQ Quad-Core Processor
- 1) HDMI 2.0, 1) Mini DisplayPort, 1) DisplayPort 1.2 via USB-C
- 32GB DDR4 RAM
- 256GB SSD
- 2) rear USB 3.0 ports, 2) front USB 3.0 ports (one charging)
- Integrated Intel Iris Pro Graphics 580
- 10/100/1000 Mbps Ethernet
- Thunderbolt 3/USB 3.1 via USB-C

### WHAT'S IN THE BOX

Intel NUC i7 "Skull Canyon"  
Power Adapter + Cord  
(International Power  
Adapters)  
VESA mount  
Non-Skull lid

#### Processor

- Intel Core i7-6770HQ processor (2.6 to 3.5 GHz turbo, Quad core, 6MB Cache, 45W TDP)

#### System Memory

- 2) 16GB DDR4 SO-DIMM RAM (32GB total)

#### Storage

- 1) 256GB SSD

#### Audio

- Up to 7.1 surround audio via HDMI and Mini DisplayPort
- Headphone/Microphone jack on the front panel
- Combo speaker/TOSLINK audio output on the back panel

#### Peripheral Connectivity

- Intel Gigabit LAN
- 1) Thunderbolt 3 port with USB 3.1
- 4) Super Hi-Speed USB 3.0 ports (2) front and 2) rear panel)
- Intel Dual Band Wireless-AC 8260 (802.11ac), 2x2, up to 867 Mbps
- Dual Mode Bluetooth 4.2

#### Baseboard Power Requirements

- 19V, 120W AC-DC power adapter

#### Graphics

- Intel Iris Pro Graphics 580
- 1) HDMI 2.0 port
- 1) Mini DisplayPort 1.2
- 1) Thunderbolt with support for Mini DisplayPort 1.2

#### System Bios

- 64 Mb Flash EEPROM with Intel Platform Innovation Framework for EFI Plug and Play
- Advanced configuration and power interface V3.0b, SMBIOS2.5
- Intel Visual BIOS
- Intel Express BIOS update support

#### Expansion Capabilities

- 1) NFC header
- 2) internal USB 2.0 ports
- 2) additional Hi-Speed USB 3.0 ports via internal headers

#### Storage/Operation Temperature

- -20°C to +60°C | -4°F to 140°F (Storage Temperature)
- 0°C to +40°C | 32°F to 104°F (Operation Temperature)

#### Mechanical Chassis Size (L x W x H)

- 211mm x 116mm x 28mm | 8.3" x 4.56" x 1.1"

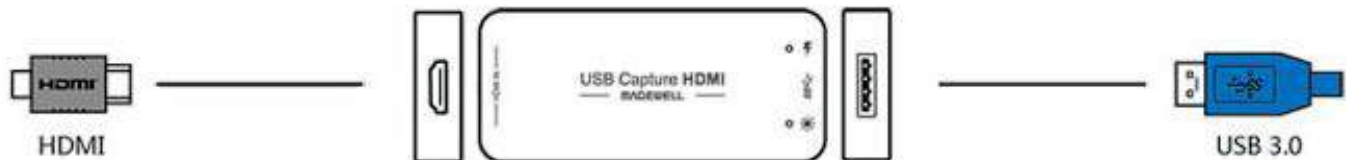
## Magewell SDI to USB Converter

The Magewell SDI to USB converter allows for SDI connections to the Intel NUC Skull Canyon. This low latency dongle allows for a reliable, full resolution and framerate conversion for use with a mixing software. Magewell devices offer superior compatibility to be paired with virtually any software.

### KEY FEATURES

- Supports input resolutions up to 2048x1080
- Support for SD/HD/3Ga/3Gb/3Ga-DL/3Gb-DS SDI standards
- Compatible with Windows, Mac OS X, & Linux
- Up or Down automatic scaling
- Compatible with virtually any software
- Continuously work 24/7

**WHAT'S IN THE BOX**  
Magewell SDI to USB Converter  
MCX to SDI cable  
USB 3.0 A-A cable



#### Product Specification

Operating System (Tested)	Windows - 7/8.1/10 Mac - OS X 10.9.5/10.10/10.11.2 ~ 10.11.4 MacOS 10.12/10.13.2/10.13.3 Linux - Ubuntu/CentOS/Fedora/Red Hat
Supported Software	VLC, VirtualDub, OBS, xSplit, vMix, VidBlaster, Wirecast, Microsoft Media Encoder, Adobe Flash Media Encoder, Any other DirectShow, V4L2, QuickTime, AV Foundation based encoding or streaming software
Dimensions LxWxH	92.2mm x 40.2mm x 12.3mm

#### Connection Specification

Video Capture Format	RGB24/32 4:4:4 8-bit YUY2/UYVY 4:2:2 8-bit (Default is YUY2)
Color Sampling	RGB 4:4:4, YCbCr 4:4:4, YCbCr 4:2:2
SDI Standards	SD/HD/3Ga/3Gb/3Ga-DL/3Gb-DS
Power Consumption	5V max current: ~0.5 A max power consumption: ~2.5W
Host Interface	Backwards Compatible with USB 2.0 Compatible with USB 3.1 Gen 1
HDMI Interface	DVI-D 1.0   HDMI 1.4a Supports HDMI cable lengths up to 30M

### Compatibility

- VISCA Protocol
- PELCO-D Protocol
- PELCO-P Protocol

### What's in the Box?

- Three-axis control keyboard
- RS232 cable
- DC12V Power Supply
- Manual

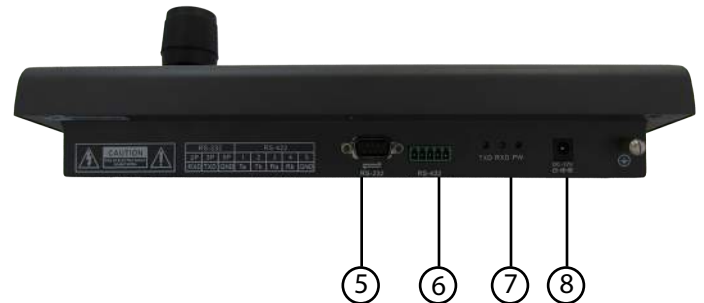
### Features

- Durable Metal Housing
- VISCA, PELCO- P & D
- RS232, RS422, RS485
- On Screen Display
- Variable Speed Pan, Tilt & Zoom Control
- Iris, Focus, Home, Backlight & Preset controls
- 4 Camera Quick Select keys

## HuddleCamHD

Model No: HC-JOY-G2

Easy pan, tilt & zoom controls for any RS-232, RS-422, RS-485 VISCA or Pelco protocol camera!  
Controls pan & tilt with variable speed.  
Use 3 dimensional joystick with "twist" for variable control of zoom.



- LCD Display**  
Menu options displayed here
- Camera Control keys**  
Quick camera select, camera select, Focus, Iris, BLC, Home, Preset set, call & clear
- Numeric Keys**  
Setting, Gamma and calling and clearing presets and changing parameters

- Joystick**  
Three-Axis Joystick Controller
- DB9 Connection**  
For RS-232 Camera Control
- RS422/485 Connection**  
For RS422/485 camera control
- Activity LEDs**
- Power Connection**  
12V Power Connection

### Specifications

#### Key Technical Specifications

Connections:	RS-232, RS-485, RS-422
Baud Rate:	1200-19200 bps
Interfaces:	DB9: RS232; 5SCT: RS485/RS422.
Maximum Cameras:	Control up to 255 Cameras
Maximum Presets:	Up to 255 Presets
Maximum Distance:	3,937' (1200m) using 24 gauge twisted pair

#### Operational Specifications

Power:	6W (12VDC)
Working Temp:	14°F to 122°F (-10° to +50° C).
Working Humidity:	10 ~ 90% (non-condensation)
Weight:	3.4 lbs   1.6 kg
Dimensions:	12.6"(W) x 7.1"(D) x 4.3(H) 320mm(W) x 181mm(D) x 110mm(H)



**Model Number:**  
MVI-LTG

## Shure Motiv MVI-LTG

The Shure Motiv MVI-LTG converts any standard XLR or 1/4" plug into a USB source to be used with a computer. This allows for audio from a mixing board to be embedded into the Intel Skull Canyon for use with a mixing software.

### KEY FEATURES

- Converts XLR or 1/4" plug to USB 2.0
- Toggle mute from microphone/mixing board
- Supplies 12-48v phantom power (12v-iOS/48v-USB)
- 5) DSP Preset Modes (Speech, Singing, Flat, Acoustic Instrument, Loud)
- Durable all metal housing

### WHAT'S IN THE BOX

Shure Motiv MVI-LTG  
Micro USB 2.0 cable  
Lightning to micro USB 2.0

Product Specification	
MFi Certified	Yes
DSP Modes (Presets)	Speech/Singing/Acoustic/Loud/Flat
Input	Combination XLR and 1/4" (6.35mm) TRS
Input Impedance	3-pin XLR: > 2 kΩ   1/4" TRS: > 1 MΩ
Bit Depth	16-bit/24-bit
Sampling Rate	44.1/48 kHz
Frequency Response	20 Hz to 20,000 Hz
Adjustable Gain Range	3-pin XLR: 0 dBV   1/4" TRS: +9 dBV
Maximum Input Level	3-pin XLR: 0 dBV   1/4" TRS: +9 dBV
Headphone Output	3.5mm (1/8")
Power Requirements	Powered through USB or Lightning connector
Phantom Power	USB: +48 VDC   iOS: +12 VDC
Input Mute	Yes
Housing	All-metal construction
Net Weight	310.0g (10.93 oz.)
Dimensions	42 x 84 x 72mm (H x W x D)
Cable	Includes 1) micro-b to USB cable and 1) micro-b to lightning cable