

PTX Universal PanTilt Head Model 1 Quick Setup Guide

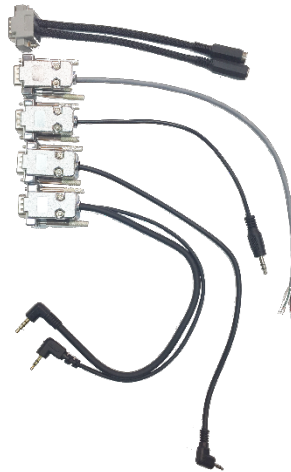
* in the PTX box *

IEC power cable. The power supply accepts AC110-240V 50/60Hz; Fuse T3 15A/250V; power consumption 60W.

Note: IEC cables are NOT included in International shipments.

The following **HD15** short breakout cables are included to allow connectivity with most camera types:

- 1) LANC & 12VDC (for Blackmagic Micro Studio 4K)
- 2) RS 422/485
- 3) RS 232
- 4) LANC
- 5) Panasonic Remote (two wires)



6" BNC-BNC cable for use with Mini BNC adapter to take SDI out from a standard BNC on a camera. (The two internal SDI wires terminate with Mini BNC connectors at the top of the head.)

2 x Mini BNC-to-BNC adapters for adapting internal cables with Mini BNC connectors for use with cameras that use standard BNC connectors for SDI OUT (and perhaps GENLOCK IN).



Cable bundle clamp and screw (if used with Blackmagic Micro Studio 4K camera).



5mm Allen wrench for removing and reseating the two Allen screws on the bottom of the fixture. Select either the Truss Mount bracket or the Tripod/Stand Bracket.



Small double-ended screwdriver, often called a “tweaker”, for adjusting voltage provided from the PTX chassis to the camera you’re using.



U-bracket for **truss mounting** of the fixture.



$\frac{1}{4}$ x 20 threaded plate for **tripod/stand mounting**. Use the two included 5mm Allen screws to secure the plate to the bottom of the PTX.



$\frac{1}{4}$ x 20 x $\frac{1}{2}$ thumb screw with washer for attaching camera to tilt plate through the horizontal adjustment slot.



The Ctrl+R User Guide, PTX QUICK SETUP Guide, Model 1 and 2 Specifications and VISCA/DMX Connectivity sheets are available on the PTX web page.

www.RUSHWORKS.tv/ptx.htm

Mounting the U-Bracket or Tripod Mount to the PTX Base

On the bottom of the Model 1 there are two 5mm Allen screws.



Use the included 5mm Allen wrench to loosen and remove the two screws.



FOR TRUSS MOUNTING: Secure the U-Bracket to the bottom of the PTX using the two 5mm screws previously removed, and tighten with the 5mm hex wrench.



FOR TRIPOD/STAND MOUNTING: Secure the Tripod Mount to the bottom of the PTX using the two 5mm screws previously removed, and tighten with the 5mm hex wrench.



Connecting your Camera to the Tilt Plate

Most cameras have a 1/4 x 20 thread for mounting on tripods and stands. Use the included 1/4 x 20 x 1/2 thumbscrew (with plastic washer) to mount your camera of choice to the tilt plate.



Shown here is the bottom of the Blackmagic Micro Studio Camera 4K ...

and the bottom of the Canon XA25 with a single threaded hole.



Some cameras, like the AJA RovoCam and Marshall CV models, have threaded mounts on both the bottom and the top ... so you can mount them "upside down" on the tilt plate then mount the PTX in an inverted position on truss or other structure if desired.

These pictures show the single thread on the TOP of the Micro Studio Camera 4K ...



and the thread on both the top and bottom of the Marshall CV-350.



NOTE: YOU MUST REMOVE THE HANDLE FROM CANON XA SERIES AND SIMILAR MODELS IN ORDER FOR THE PTX TO INITIALIZE AND OPERATE PROPERLY.

ALSO REMOVE THE HAND STRAP ON THE RIGHT SIDE OF THE CAMERA SO IT WILL MOUNT PROPERLY ON THE TILT CRADLE.



With the PTX powered OFF, tilt the plate forward and place the thumbscrew into the long adjustment slot on the tilt plate.



Note: the FRONT of the PTX has the PTX logo sticker on the yoke. The REAR does not have the sticker.



Tighten the thumbscrew to secure the camera, but only tight enough that the camera can slide forward and backward along the slot.



Move the tilt plate to the horizontal position, and slide the camera forward and back while gently tilting the plate in both directions. You want to find the best center of gravity for the camera and lens ... then tighten the thumbscrew, applying as much pressure with your fingers as possible to assure a solid and secure mount.



The PTX Model 1 Internal Wiring Bundle

To minimize torsional stress on wires and connectors in a housing that can spin 360°, the wires run through the core of the PTX chassis and pan/tilt yoke.

Pictured here are the wires and connectors that emerge from the open passage on the side of the yoke.

- MICRO HDMI
- SDI OUT
- SDI IN
- 12VDC



The Mini-BNC connectors are used for SDI In and SDI Out on the Blackmagic Studio Camera 4K, so you just run any SDI Program Out line from an ATEM switcher to the SDI IN on the PTX chassis.



The SDI Out from the camera is then available on the full size BNC connector on the PTX chassis. If the camera provides an HDMI output, it's available on this chassis mount.



For other cameras using standard BNC connections, use the included Mini-BNC-to-BNC snap-on converters.



Note: If your camera requires a GENLOCK source, use the SDI IN on the chassis for that signal, and use the snap-on converter on the bundled SDI IN wire for connection with the Genlock In on your camera.

If you are using a Blackmagic Micro Studio 4K camera, connect the included HD15 breakout cable to the side of the camera, then use the cable bundle clamp and screw to secure the cables to the top (or bottom) of the camera.



Then connect the LANC TO CAM and 12VDC TO CAM cables to the two cables/connectors from the HD15.



DMX Control: If you're using more than one PTX head, connect the DMX OUT to the DMX IN of each fixture (daisy-chain) for control.



VISCA Control: Daisy-chain up to SEVEN PTX heads by connecting the RS422 OUT from the first to the RS422 IN of additional fixtures. **THE DMX ID MUST BE SET TO CHANNEL 1 ON ALL SEVEN FIXTURES!** The DMX/VISCA ID (DIP switch) must be set to 1 – 7 on the respective fixtures.



The PTX PanTilt heads are designed to integrate seamlessly into any DMX hardware or software controlled system.



Set the DMX ID for each fixture as you would with any other DMX lighting fixture. When you turn on the power switch, the system will initialize, displaying **.rSt** on the LED display.



It a few seconds it will then show the currently selected DMX ID. The default is Channel 1, which displays as **A001**.

To change the DMX ID, click the ENTER button beneath the LED display and you'll see red dots separating the ID segments.



Use the UP or DOWN buttons to select the desired ID, then click the ENTER button again to Save the ID.



Use the supplied "tweaker" (a tiny flat-blade screwdriver) to adjust the voltage output from the PTX that will supply DC power to the camera you'll be using with the PTX.

Check the camera manufacturer's information regarding the DC voltage required to power the camera.

CAUTION: The output can be set from **3V to 28V**, so be SURE you know what your camera is 'expecting' and set the voltage accordingly before you connect the PTX power connector to the camera's DC power input.

Use the built-in voltage display meter to confirm your settings during output adjustment.



Improper voltage output can result in (a) the camera not powering on, or (b) potential damage to the camera if the voltage is set higher than the manufacturer's specifications.



Note: be sure to set the **MODE** and **DMX/VISCA ID** DIP switches on the base of the PTX at the same time you set the DMX ID using the LED display above them on the fixture. Following is a chart showing the corresponding camera numbers, DMX Values and DMX/VISCA ID DIP settings.

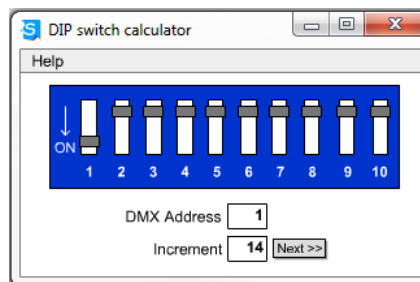
It's good practice to set the corresponding DIP switches at the same time you set the DMX ID for each fixture. The **MODE** switch settings are discussed on the next page.



PTX Number	DMX Value	DMX/VISCA ID DIP POSITION	PTX Number	DMX Value	DMX/VISCA ID DIP POSITION
1	1		7	85	
2	15		8	99	
3	29		9	113	
4	43		10	127	
5	57		11	141	
6	71		12	155	

To configure additional PTX heads, select and enter the **DMX/VISCA ID** for each head. Increment each head based on the number of channels in the profile. For 14 channels the second fixture would be DMX ID 15, the third 29, etc. as indicated in the graphic.

To help you determine appropriate DIP settings we've included a small file, **dipcalc.exe**, on the USB card included in the PTX box. It's also available on the **Ctrl+R** page on the website. Use the Increment function with the profile channel number to obtain consecutive DMX addresses.



After you've entered the Increment value, click **Next >>** to obtain addresses, starting from the DMX Address you enter in the field.

SETTING THE MODE DIP SWITCH

There are currently TWO methods of controlling the PTX Universal PanTilt Heads: DMX control from a console or software; and VISCA control, using a number of controllers that support VISCA serial control output.

It's important to understand the distinction between CONTROLLER and CAMERA. The Controller is the device that connects to either the DMX IN (XLR), or the green 9-pin Phoenix connector that supports two-way RS-422 serial communications with the controller.



The Camera is a camera or camcorder connected to the tilt plate on the PTX fixture. Cameras are controlled using the internal protocols supported by the PTX. These include LANC, Panasonic Remote and VISCA connections.

LANC is a single-wire, one-way digital protocol used by Sony, Canon, JVC and Blackmagic on many of their cameras.

Panasonic Remote is a two-wire, one-way analog protocol for many Panasonic models.

Both of these are limited because they provide no feedback to the controller regarding the position of the zoom, or the current focus or iris settings.

VISCA is a bi-directional serial protocol that uses three types of physical connections depending on the controlled device: RS232, RS422 and RS485.

So you use the **MODE** switch to select both the CONTROLLER and the CAMERA. This label is affixed to the base of the PTX so you can set the DIP switches to the appropriate positions.

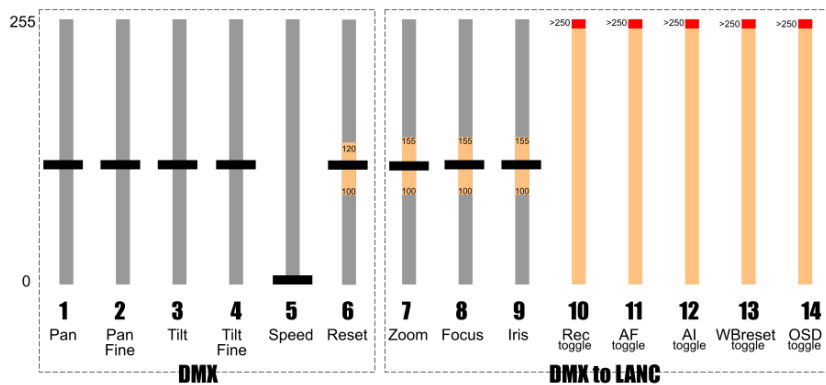


- SW1 CONTROLLER** ON for VISCA Control
OFF for DMX Control from a console or computer/software
- SW2 CAMERA** ON for VISCA (only active if SW1 is ON)
OFF for LANC and Panasonic Remote controlled cameras
- SW3 CAMERA** ON for 38400 Baud rate (only active if SW 1 and 2 are ON)
OFF for 9600 Baud rate (only active if SW 1 and 2 are ON)
- SW4 CAMERA** ON for RS422 or RS285 serial connection (if SW1 and SW2 ON)
OFF for RS232 (if SW1 and SW2 ON)
- SW5 CAMERA** ON for RS422 (if SW1, SW2 and SW4 ON)
OFF for RS485 (if SW1, SW2 and SW4 ON)
- SW6 OP MODE** ON for NORMAL operation
OFF for firmware (FW) updates

DMX Control: There is three profiles you can load into your DMX console and/or DMX software control system. These profiles are also saved as files on the USB card included in the PTX box (**DMX-LANC Profile.ssl2**, **DMX-Panasonic Profile.ssl2**, and **DMX-VISCA Profile.ssl2**).

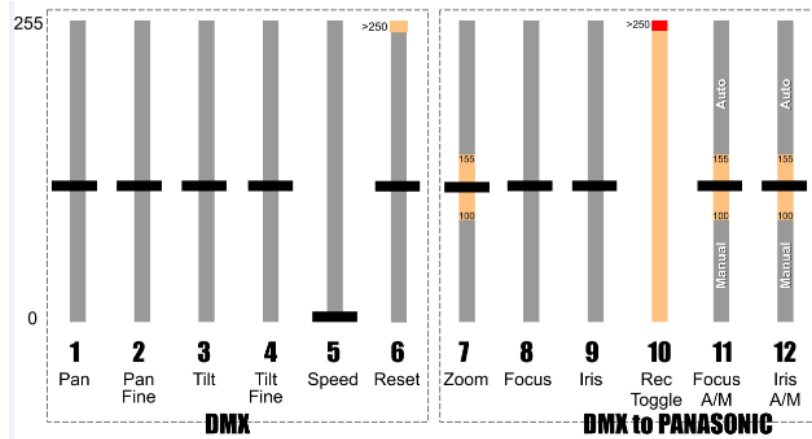
DMX-LANC profile 14 channel map:

- 1 Pan
- 2 Pan Fine
- 3 Tilt
- 4 Tilt Fine
- 5 Speed
- 6 Reset
- 7 Zoom
- 8 Focus
- 9 Iris
- 10 Record Toggle
- 11 Auto Focus Toggle
- 12 Auto Iris Toggle
- 13 White Balance Reset
- 14 OSD (On Screen Display) Toggle



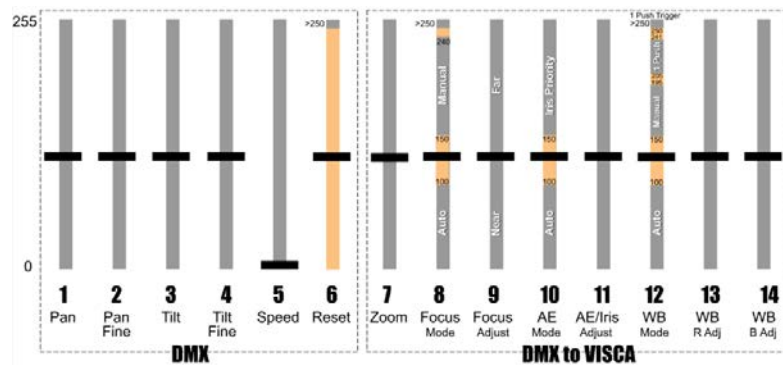
DMX-Panasonic profile 12 channel map:

- 1 Pan
- 2 Pan Fine
- 3 Tilt
- 4 Tilt Fine
- 5 Speed
- 6 Reset
- 7 Zoom
- 8 Focus
- 9 Iris
- 10 Record Toggle
- 11 Focus Auto/Manual
- 12 Iris Auto/Manual



DMX-VISCA profile 14 channel map:

- 1 Pan
- 2 Pan Fine
- 3 Tilt 1 Pan
- 2 Pan Fine
- 3 Tilt
- 4 Tilt Fine
- 5 Speed
- 6 Reset
- 7 Zoom
- 8 Focus
- 9 Iris
- 10 AE Mode (Auto/Iris Priority)
- 11 AE/Iris Adjust (based on 10 setting)
- 12 White Balance Mode (Auto/Manual/1Push/1Push Trigger)
- 13 White Balance (Red Adjust – based on 12 setting)
- 14 White Balance (Blue Adjust – based on 12 setting)



VISCA Control: The heads can be controlled via RS422 connections using VISCA control protocol. RUSHWORKS offers its **Ctrl+R** Camera Control Utility, which includes a four-port USB-to-RJ45 MUX that provides serial and 12VDC on CAT5 cables to each camera and/or PTX fixture. Additionally, the **VDESK** and **REMO** Integrated PTZ/PTX Production Systems include the same camera control, along with multi-input mixing, transitions, effects, program and ISO recording, and much more. The Sony RM-BR300 joystick controller is also a good candidate.

RUSHWORKS software applications run on Windows (32 or 64 bit) devices. However, you can also use the Boot Camp utility built into Mac OSX and install Windows on that computer.

Blackmagic Design has incorporated the PTX pan and tilt commands into its ATEM switcher User Interface. Now you can use the ATEM software for comprehensive camera setup and motion control.

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