

Eagle™ PT-MP1  
Pan Tilt Communications Multiplexer  
Installation and Operations Manual  
Revision 3.0  
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The Eagle PT-MP1 multiplexer accepts inputs from six different control devices and combines them to a single output for control of a pan-tilt network. All inputs and the output can run simultaneously. Five of the inputs are RS-485 allowing direct connection to PT-C or PT-TSC controllers; one input is RS-232 for direct connection to a PC running Eagle pan-tilt software.

## **1. PRECAUTIONARY STATEMENT**

**1.1 Improper settings and connections may cause damage to the PT-100 pan tilt, the camera, and the lens being used. Please read all of the following documentation before attempting the installation and configuration of these systems. If any of the instructions are unclear to you, call your servicing dealer or Hitachi before proceeding for clarification. Failure to correctly configure and install these systems may cause damage to the equipment, and will void the warranties. Please make sure before connecting or disconnecting any cables that the power supplies are turned OFF.**

## **2. WARRANTY**

Hitachi Denshi America, Ltd. warrants to the original customer that each unit shall be free from malfunction due to defective workmanship or component failure for a period of ONE YEAR from the original date of delivery to the customer. For service under the warranty period, return authorization must be obtained before returning the product. This warranty does not apply to finish or appearance items, to malfunction due to abuse or operation in violation of published operating specifications, or to failures caused by improper connections, modifications, alterations, or other unauthorized repairs. This warranty does not cover labor or shipping costs for removal and/or reinstallation of equipment under warranty. Under no circumstances shall Hitachi Denshi America, Ltd. or Display Devices, Inc., their owners or employees be liable to you for any special damages, including any lost profits, lost savings, or other incidental or consequential damages, or for any claim by any other party.

## **3. MULTIPLEXER USAGE**

3.1 See section 4.2 for a diagram of pin configurations for cable building.

3.2 The front panel has nine LEDs for status of the unit. Red LEDs RX1 to RX6 will blink whenever there is a signal on their respective controller inputs, one to six. It is important to note the LED will flash on any signal, even a faulty or miswired signal. If the signal is correct, then the output LED will flash. The output port has two LEDs, RX and TX. RX (green) is input from the pan-tilts and TX (red) is out to the pan-tilts.

The final LED is Power (red), and will blink twice, then remain lit when power is turned on.

3.3 The rear of the unit has an on/off switch and input for +12 volts DC. Plug the included wall adapter in this socket.

3.4 There are seven DB-9 connectors on the rear of the unit. The pin outs for port 2 to port 6 and pan-tilt output are the same as that of the controller, allowing you to drop the multiplexer in as a replacement for the PT-C or PT-TSC for testing and troubleshooting. Please note that on systems with the HS designation in the serial number, the communications speed of the multiplexer to the heads is 57.6 K baud, instead of the normal 9600. Port PC is RS-232 for connection to a serial port on a PC.

3.5 The cable to connect a PT-C or PT-TS to ports 2 through 6 is a 'straight-through' DB-9 female to DB-9 Female. Pin 2 to 2, pin 3 to 3, and pin 5 to 5.

3.6 All RS-485 lines must be properly terminated. On the inside of the multiplexer are terminating jumpers for ports 2 to 6, and the output port. The lines to/from each controller should always be terminated. The line to/from the pan-tilts may or may not need to be terminated depending on your network configuration. To access the jumpers, remove the top cover (four screws). On the PCB, near each DB-9 connector is the terminating jumper for its respective port. Jumper on means the line is terminated. Please see the PT-C or PT-TSC manual for a discussion on when a line should be terminated. There should never be more than two terminating ends on a RS-485 line.

### 3.7 Using the MULTIPLEXER with PT-C controller

Pressing FUNCTION, CAMERA will bring up a menu on the LCD for setting and releasing exclusive control of pan-tilt heads attached to the PT-MP-1 multiplexer unit. Press 1 to RESERVE HEAD, press 2 to RELEASE HEAD. When you press either 1 or 2, the display will change to RESERVE PT or RELEASE PT. It is now waiting for you to input the address of the pan tilt head you want to control. Enter this address number, and the display will change again, asking which controller port on the PT-MP-1 you are plugged into. Ports on the multiplexer are labeled 1 through 6; enter the number of the port you are connected to. The LCD display will clear itself after 3 to 4 seconds.

The assignments will be retained until they are released by the user or power on the PT-MP-1 is cycled on and off; thus if a user has made assignments that you wish to clear, simply cycle the power.

## 4. POWER REQUIREMENTS / PIN CONFIGURATION

### 4.1 Rear view of PT-MP-1



### 4.2 Here are tables of pin configurations for the connectors on the unit.

<b>DB-9 Female Port PC input</b>	<b>DB-9 male Port 2, 3, 4, 5, 6 and Pan-Tilts</b>
PIN 1	PIN 1
PIN 2 RS-232 Receive	PIN 2 RS-485+
PIN 3 RS-232 Transmit	PIN 3 RS-485-
PIN 4	PIN 4
PIN 5 RS-232 GROUND	PIN 5 RS-485 GROUND

Power for the controller is 12VDC, supplied by the included wall transformer with attached connector; make sure not to use another power supply with this unit!

## 5. TROUBLESHOOTING TIPS

5.1 If your observed problem is:

5.1.1 Pan tilt head can't be controlled / accessed, but you have a video image from the camera.

SOLUTION: Verify the data connection for the RS-485 line. Video image means that the head is powered up; the data connection may be disconnected, or the head may have been misaddressed or readdressed to a different number. Also, verify that another user has not set up exclusive control of the head using the multiplexer.

5.1.2 Pan tilt head only pans or tilts in one direction upon power up

SOLUTION: Travel limits are not set. Clear any preset limits by entering FUNCTION and 10. Reset travel limits for left, right, up, and down. Once these are chosen they are set in the non-volatile memory of the head, so that if system power is lost and restored, the limits will still be present. If this does not fix the problem please call for tech support.

5.1.3 Head turns more than 360° in pan or tilt.

SOLUTION: Discontinue usage immediately; position feedback potentiometer is slipping or has failed. Wiring harness can be damaged or destroyed. Call for tech support.

5.1.4 Lens control is sluggish or non-responsive

SOLUTION: Make sure lens is in correct operating mode. See section in PT-C manual for FUNCTION 11—Setting lens type. It could be that a user has changed lens types from a CCTV lens to a teleconferencing lens or vice versa.

or

SOLUTION: Make sure that the lens is in SPEED mode and not in POSITION mode if manual operation is desired. Refer to section in PT-C manual regarding FUNCTIONS 1 and 2.

or

SOLUTION: Make sure that lens cables are plugged in securely to the camera and pan tilt head.