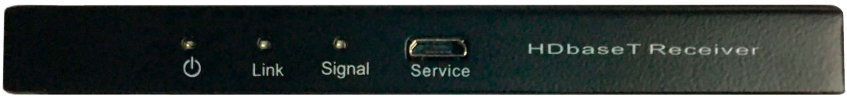
PRESTEL

Prestel TP4K-H-RX-1

4K HDBaseT Receiver
70m @1080p or 40m @4K



USER MANUAL

Contents

Thank you for purchasing the TP4K-H-RX-1 HDBaseT Receiver Set.

This HDBaseT receiver is designed with the professional AV installers in mind. The many extensive features assist in system integration, validation and maintenance.

Installation precautions

This product has special circuitry to protect it against moderate surges and static discharges. However, to ensure reliable operation and long service life, it is important to take the necessary precautions against any spikes, surges and static discharges.

Place the units away from heat sources and allow adequate ventilation.

Shielded cable and in particular cat6, cat6a or cat7 is highly recommended. As much as possible cables should be routed away from any noisy sources and avoiding long runs in close proximity to mains cables.

The TP4K-H-RX-1 HDBaseT receiver set supports all input resolutions to 4K, with bi-directional IR, and two independent pass-through RS232 ports. The main RS232 channel (Tx/Rx) is also used for controlling the many features. The second RS232 channel (T2, R2) can also be used for RTS/CTS handshaking.

Features

- Supports up to 4K resolution
- Transmission length
  Up to 70m @1080p, or 40m @4K
- Over-temperature control and protection
- Bidirectional IR and two independent RS232 ports
- PoC safely provides power to both units using a single 24V PSU

Connectors and Controls

Front

Name	Description
Power LED	Lit when the unit is powered
Link LED	Lit when the HDBaseT Transmitter and Receiver are linked together
Signal LED	Lit when there is video signal transmission through HDMI cable
Service port	Used for firmware updating (do not use as a USB port)

Rear

Name	Description
24-48V	Two way 3.5mm phoenix connector. 24 to 48V supply input
IR OUT	IR output – Connect to IR emitter
IR IN	IR input – Connect to IR eye
HDMI OUT	HDMI output to display
HDBaseT	HDBaseT RJ45 connection - (with PoC)
RS232	• **Tx, Rx and GND** connections A general-purpose pass-through RS232 port. This port is also used to control the Transmitter/Receiver units – see **RS232 Control Commands**. • **T2, R2 and GND** connections Independent second RS232 (pass-through) data port for any baud rate up to 57600. These can also be used as RTS/CTS

	handshaking lines.

Connecting to the IR Ports

The IR IN and IR OUT ports on the rear of the Transmitter/Receiver units may be used to send IR remote control data between the two units. The following table details the wiring connections for the IR input and output ports:

3.5mm Jack Terminal	IR Eye (Receiver)	IR Bud (Emitter)
Tip	5V	5V
Ring	IR Signal	Not applicable
Sleeve	Ground	IR Signal

RS232 Control Commands

The many features of TP4K-H-RX-1 units can be managed using RS232 commands (Tx, Rx port). The ASCII commands given in this section use the following port settings:

Baud Rate: 57600
Data Bits: 8
Parity: None
Stop Bits: 1

Notes:

1. All commands in this section must be sent in uppercase and are always terminated with the ASCII carriage-return character, 0x0d (represented by the ↵ symbol).
2. All responses are terminated with the ASCII carriage-return character, 0x0d.
3. All spaces shown in the commands are required. Lowercase letters are used as value placement indicators, the required value or identifier is given in the **Details** panel for the respective command.
4. All RS232 communications are passed through regardless of baud rate or other settings. This allows the use of third-party RS232 communication without having to set the protocol specifics – Just pass-through.

Safety Temperature

The following commands can set the Power Off, Warning, and Re-Power temperatures:

Commands	Details
SET RX SAFE-TEMP-ONOFF ON↵	Enable Receiver safety temperature handling
SET RX SAFE-TEMP-ONOFF OFF↵	Disable Receiver safety temperature handling
SET RX SAFE-TEMP-VALUE x y z↵	Set warning temperature **x** Set shutdown temperature **y** Set re-power temperature **z** Default RX settings: x=75, y=80, z=70, the unit is °C
GET RX SAFE-TEMP-VALUE↵	Get the current Receiver safety temperature values

Notes:

1. For the **SAFE-TEMP-VALUE** commands, the following rule must be followed:
   55 < Re-Power (z) < Warning (x) < Shutdown (y).
2. When the device enters the Temperature Warning condition, the red PWR LED will slow flash once every two seconds. When the device enters the power off condition due to excessive overheating, the red PWR LED will fast flash three times a second.

Diagnostic Commands

Diagnostic commands such as Cable Length, Signal Error, Link/Signal Status, Power Supply Voltage Values, are most useful during installation.

Diagnostic Commands	Details
Cable Length	
GET RX CABLE-LENGTH↵	**GET RX CABLE-LENGTH wM,** w=20,30…70
Link/Signal Status	
GET RX LINK-STATUS↵	Returns Receiver link **on** or link **off** status
GET RX SIGNAL-STATUS↵	Returns Receiver signal **on** or signal **off** status
Signal Error	
GET RX SIGNAL-ERROR↵	GET RX SIGNAL-ERROR w, w=1, 2, 3…
Pulse HPD	
SET RX PULL-HPD↵	Forces HDMI HPD low for 200ms
Voltage Values	
GET RX SUPPOC-VOLTAGE↵	Get the current RX Supply & PoC Voltages
Temperature Read	
GET RX CPU-TEMP↵	**GET RX CPU-TEMP wC**

- **Cable Length:** cat6 cable length between 20-70m is reported back
- **Link Status:** Indicates the Transmitter/Receiver units are intercommunicating correctly.
- **Signal Status:** Indicates video signal activity on HDMI Output
- **Signal Error:** Indicative of cat6 signal line quality
- **Pulse HPD:** This command forces the HDP line low for 200mS, which has a similar effect as HDMI cable disconnection/reconnection.
- **Voltage Values:** Power supply and PoC power voltage level measurements are reported.

- **Temperature Read:** Transmitter and Receiver temperatures closest to the main heat source can be read. This temperature will be higher than the device surface temperature.

Specifications

General

Name	Description
Max Bandwidth	Output: 10.2 Gbps (4K60 4:2:40)
HDCP Compliance	HDCP: 1.4 and 2.2
RS232 (Control Commands – Tx, Rx)	57600 baud, 8 data bits, 1 stop bit, no parity
RS232 (Pass-Through – Tx, Rx)	Any baud rate to maximum of 115200.
RS232 (Pass-Through – T2, R2)	Any baud rate to maximum of 57600. (or use as CTS, RTS)
IR IN, IR OUT	25-60 KHz carrier frequency

Power Supply

Name	Description
Power Consumption (Tx + Rx)	5.5W max
PSU Rating	24V @ 1A (operating voltage range: 24V to 48V)

Environmental and Physical

Name	Description
Operating Temperature Range	0 to +40°C (+32 to +104°F)
Operating Humidity Range	10 to 90 % RH (non-condensing)
Dimensions (L x W x H)	109 x 74 x 11.5 mm (excluding connectors)
Weight (Unit only)	165g

Package Contents

Item	Qty
TP4K-H-RX-1 unit	1
Brackets	2
5 pin female captive screw connector	1
IR Emitter / IR Receiver (eye) set	1
24V DC/1A Power Adapter With interchangeable fittings for UK, EU and US	1