

4K UHD

H70

70M HDBaseT Extender

Operations Guide



AS[®]

Safety Instructions

Symbols used in user manuals and equipment indicate the possible harm to users or others and the risk of property damage. In order for you to use the equipment safely and correctly, the signs and their meanings are as follows. Please make sure to correctly understand these signs before reading the user manual.



The Federal Communications Commission's certification mark for electronic products EMC.



The product contains some metal components, please pay attention to environmental protection.



Adopted Directive 2002 / 95 / EC of the European Parliament and of the Council.



CE certification means that this product has reached the safety requirements stipulated by the EU directives, and users can use it with confidence.



This product is Class A, which may cause radio interference in living environment. In this case, users may need to take practical measures against interference.



Remind the user that the uninsulated dangerous voltage in the equipment may cause electric shock.



Warning: To avoid electric shock, please don't open the cover and put the useless parts in the case. Please contact qualified service personnel.

General information indication



Lists the contents that may lead to unsuccessful operation or setup and some related information that needs attention.

Warning

To ensure the reliable use of the equipment and personal safety, please observe the following items during installation, use and maintenance:

Precautions during installation

- Do not use this product in the following places: places with dust, lampblack, conductive dust, corrosive gas and combustible gas; Exposed to high temperature, condensation, wind and rain; There are occasions of vibration and impact. Electric shock, fire and misoperation can also lead to product damage and deterioration;
- During screw hole processing and wiring, do not make metal scraps and wire ends fall into the vent hole of the controller, which may cause fire, failure and misoperation;
- At the end of the product installation, it is necessary to ensure that there are no foreign objects on the ventilation surface, including dust-proof paper and other packaging items, otherwise it may lead to poor heat dissipation during operation, resulting in fire, failure and misoperation;
- Avoid wiring, plugging and unplugging cable plugs in the live state, otherwise it will easily lead to electric shock or circuit damage;
- And the installation and wiring must be firm and reliable, and poor contact may lead to misoperation;
- For applications with serious interference, shielded cables should be used for input or output cables of high-frequency signals to improve the anti-interference performance of the system.

Matters needing attention when wiring

- All external power supply must be cut off before installation, wiring and other operations can be carried out, otherwise electric shock or equipment damage may be caused;
- This product is grounded through the grounding wire of the power cord. To avoid electric shock, the grounding wire must be connected to the earth. Before connecting the input or output of this product, please be sure to properly ground this product.
- After the installation and wiring, remove the foreign matter immediately. Please cover the terminal cover plate of the product before electrifying to avoid electric shock.

Matters needing attention in maintenance

- Do not touch the terminal when it is energized, otherwise it may cause electric shock and misoperation;
- Please clean and tighten the terminals after turning off the power supply, which may cause electric shock when powered on;
- Please connect or remove the communication signal cable, cable connection or removal of expansion module or control unit after turning off the power supply, otherwise it may cause equipment damage and misoperation;
- Do not disassemble the equipment to avoid damaging the internal electrical components;
- Be sure to read this manual carefully and fully confirm the safety before changing, commissioning, starting and stopping the program.

Matters needing attention when scrapping products

- Electrolytic capacitors on circuit boards may explode when burned;
- Please collect and treat them separately, and do not put them into domestic garbage.
- Please treat it as industrial waste or according to local environmental protection regulations.

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1. Technical parameter



TX



RX

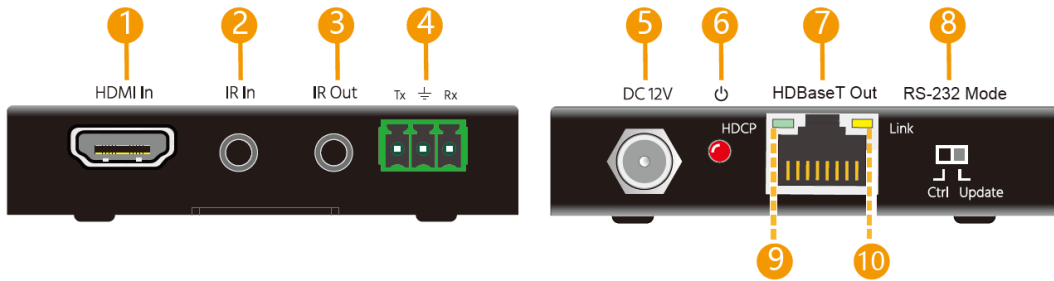
Specifications for the H70 are listed in the following table.

Parameter specification	
HDMI version	HDMI 1.4
HDCP version	HDCP 2.2
Video bandwidth	10.2Gbps
Video resolution	Up to 4Kx2K@30Hz 4:4:4
Transmission mode	HDBaseT
Transmission distance	1080P≤70m; 4K×2K≤40m
Electrostatic protection	Mannequin: ±8kV (air discharge), ±4kV (contact discharge)
Shell	Metal shell
Color	Black
Size	TX/RX: 120mm[L]×74mm[W]×16mm[H]
Weight	TX/RX: 240g
Power supply	Input: AC100~240V 50/60Hz Output: DC 12V/1A (US/EU standard, CE/FCC/UL certification)
Power consumption	10W (MAX)
Operating temperature	0° C ~ 40° C / 32° F ~ 104° F
Storage temperature	-20° C ~ 60° C / -4° F ~ 104° F
Relative humidity	0~90% RH (No condensation)
TX	Input: 1×HDMI Type A [19-pin female] Output: 1×HDBT Out [RJ45] Control: 1×IR In [3.5mm Stereo Mini-jack] 1×IR Out [3.5mm Stereo Mini-jack] 1×RS-232 [Phoenix]
RX	Input: 1×HDBT Out [RJ45] Output: 1×HDMI Type A [19-pin female] Control: 1×IR In [3.5mm Stereo Mini-jack] 1×IR Out [3.5mm Stereo Mini-jack] 1×RS-232 [Phoenix]

2. Physical Description

2.1 Panel introduction

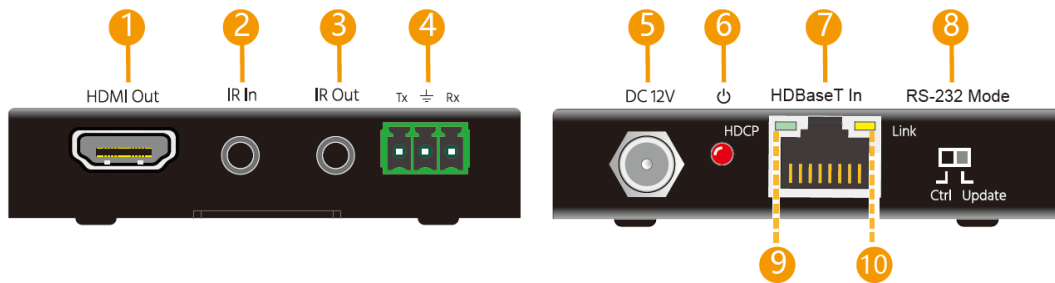
◆ TX View



Connectors, Controls & Indicators

No.	Name	Functional description
1	HDMI In	HDMI input, Connect to HDMI source equipment.
2	IR In	Connect to IR receive cable, receive IR remote control signal. IR signal will be send to the RX's IR Out.
3	IR Out	Connect to IR transmit cable, transmit IR remote control signal. IR signal comes from the RX's IR In.
4	RS-232 Interface	RS-232 instruction output port.
5	DC 12V	12V DC power supply interface. Support bidirectional POC, only one interface is required to connect the power adapter.
6	Power Indicator	Red means power on.
7	HDBaseT Out	Connect to the RX's HDBaseT In with CAT5e/6 cable.
8	RS-232 Mode Switch	Ctrl - RS-232 pass-through mode. Update - Upgrade mode (connect the RS-232 interface to a computer to update the Valens IC program).
9	Digital Signal Indicator (Green)	Light on: HDMI signal with HDCP. Light flashing: HDMI signal without HDCP. Light off: No HDMI signal.
10	Connection Signal Indicator (Yellow)	Light on: The connection between TX and RX is normal. Light flashing: The connection is unstable. Light off: TX and RX are not connected.

◆ RX View

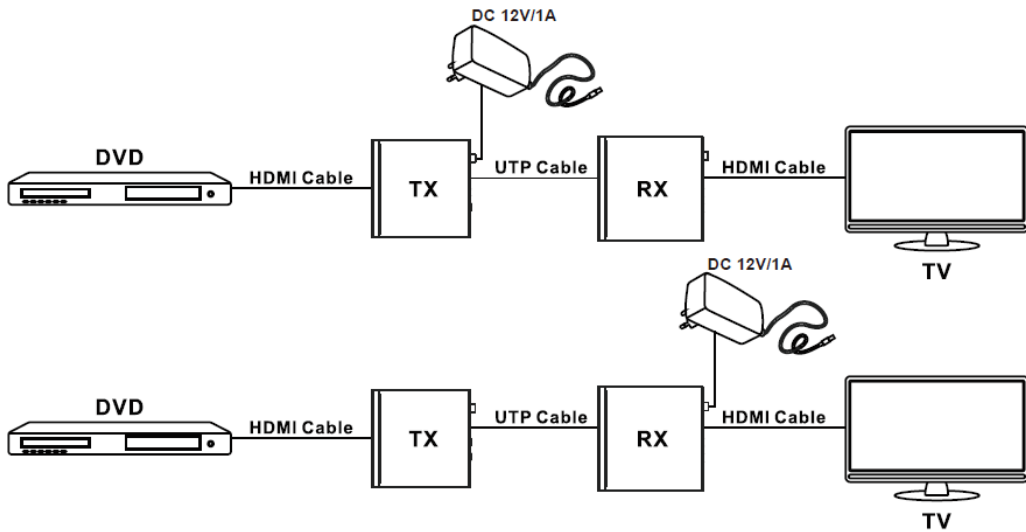


Connectors, Controls & Indicators

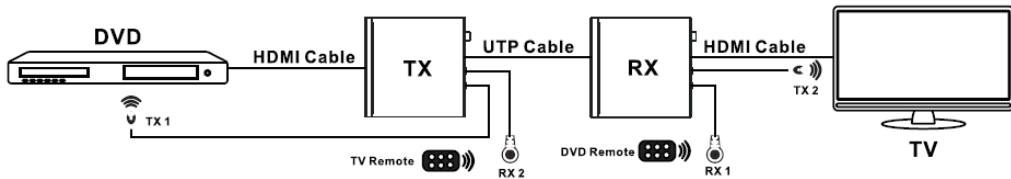
No.	Name	Functional description
1	HDMI Out	HDMI output, Connect to HDMI display device.
2	IR In	Connect to IR receive cable, receive IR remote control signal. IR signal will be send to the TX's IR Out.
3	IR Out	Connect to IR transmit cable, transmit IR remote control signal. IR signal comes from the TX's IR In.
4	RS-232 Interface	RS-232 instruction output port.
5	DC 12V	12V DC power supply interface. Support bidirectional POC, only one interface is required to connect the power adapter.
6	Power Indicator	Red means power on.
7	HDBaseT Out	Connect to the TX's HDBaseT In with CAT5e/6 cable.
8	RS-232 Mode Switch	Ctrl - RS-232 pass-through mode. Update - Upgrade mode (connect the RS-232 interface to a computer to update the Valens IC program).
9	Digital Signal Indicator (Green)	Light on: HDMI signal with HDCP. Light flashing: HDMI signal without HDCP. Light off: No HDMI signal.
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2.2 Schematic diagram

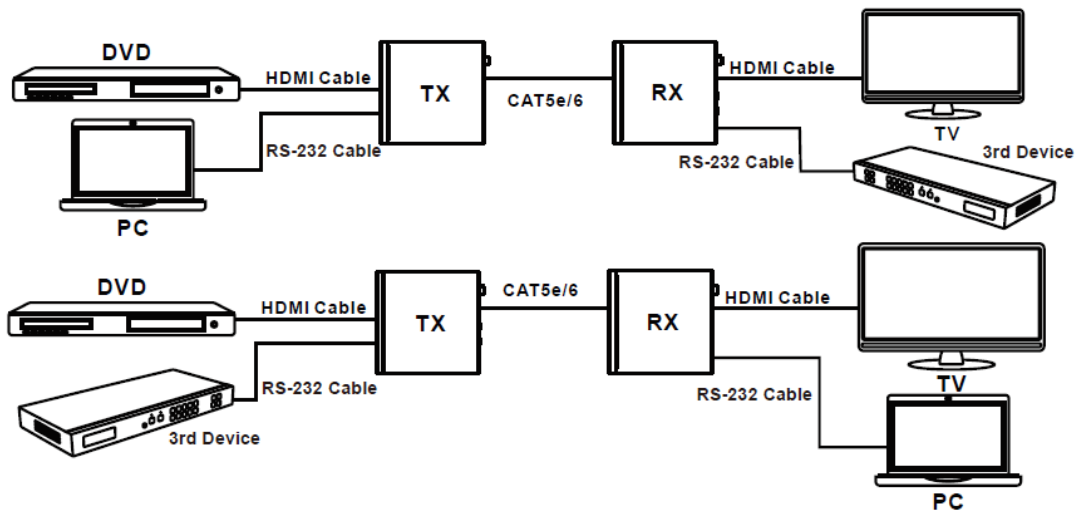
◆ POC (Power Over Cable) Schematic diagram



◆ Bidirectional IR control Schematic diagram



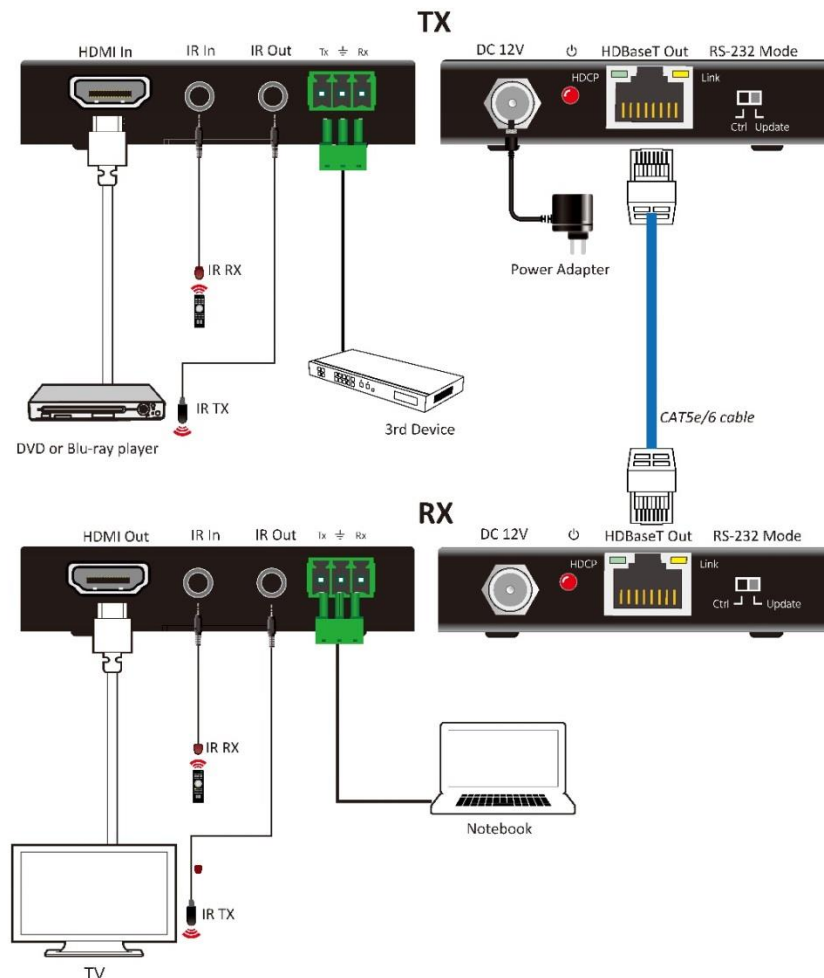
◆ Bidirectional RS-232 control Schematic diagram



3. Functional performance

- Comply with HDMI 1.4 and HDCP.
- Support high video resolution up to $4K \times 2K @ 30Hz$.
- Support 10.2Gbps video bandwidth.
- Maximum transmission distance extended by a single CAT6 network cable:
 - 70M: 1080P@60Hz/36bit; 3D 1080P@30Hz/36bit;
 - 40M: 1080P@60Hz/48bit; 1080P@120Hz/24bit;
 - 3D 1080P@60Hz/36bit; 4K x 2K@30Hz/24bit.
- POC (power over cable) function is supported, only one interface of TX or RX is required to connect the power adapter, the power consumption of POC power supply is less than 10W.
- Bidirectional IR and RS-232 pass-through mode is supported.
- Reasonable design and easy installation.

4. Schematic diagram



安全指示

用户手册和设备上所使用的符号，指出可能对用户或他人造成的伤害以及财产受损的风险，为了您能够安全、正确使用设备，标识及其含义如下，请确保在阅读用户手册之前正确理解这些标识。



美国联邦通讯委员会对电子产品EMC的认证标志。



产品中含有一些金属元器件，请注意环保。



通过欧盟议会和欧盟理事会2002/95/EC指令。



CE认证表示此产品已经达到了欧盟指令规定的安全要求，用户可放心使用。



此为A级产品，在生活环境中，该产品可能会造成无线电干扰。在这种情况下，可能需要用户对干扰采取切实可行的措施。



提醒使用者设备内出现的未绝缘的危险电压可能会导致人遭受电击



警告：为了避免电击，请不要打开机盖，也不要将无用的部分放在机箱内。请与有资格的服务人员联系。

一般信息指示



列示了可能导致操作或设置不成功的内容及一些需要注意的相关信息。

警告

为确保设备可靠使用及人员人身安全，请在安装、使用和维护时，请遵守以下事项：

安装时的注意事项：

- 请勿在下列场所使用本产品：有灰尘、油烟、导电性尘埃、腐蚀性气体、可燃性气体的场所；暴露于高温、结露、风雨的场合；有振动、冲击的场合。电击、火灾、误操作也会导致产品损坏和恶化；
- 在进行螺丝孔加工和接线时，不要使金属屑和电线头掉入控制器的通风孔内，这有可能引起火灾、故障、误操作；
- 产品在安装工作结束，需要保证通风面上没有异物，包括防尘纸等包装物品，否则可能导致运行时散热不畅，引起火灾、故障、误操作；
- 避免带电状态进行接线、插拔电缆插头，否则容易导致电击，或导致电路损坏；
- 安装和接线必须牢固可靠，接触不良可能导致误操作；
- 对于在干扰严重的应用场合，高频信号的输入或输出电缆应选用屏蔽电缆，以提高系统的抗干扰性能。

布线时的注意事项：

- 必须将外部电源全部切断后，才能进行安装、接线等操作，否则可能引起触电或设备损坏；
- 本产品通过电源线的接地导线接地，为避免电击，必须将接地导线与大地相连，在对本产品的输入端或输出端进行连接之前，请务必将本产品正确接地；
- 在安装布线完毕，立即清除异物，通电前请盖好产品的端子盖板，避免引起触电。

保养时的注意事项：

- 请勿在通电时触摸端子，否则可能引起电击、误操作；
- 请在关闭电源后进行清扫和端子的旋紧工作，通电时这些操作可能引起触电；
- 请在关闭电源后进行通讯信号电缆的连接或拆除、扩展模块或控制单元的电缆连接或拆除等操作，否则可能引起设备损坏、误操作；
- 请勿拆卸设备，避免损坏内部电气元件；
- 务必熟读本手册，充分确认安全后，再进行程序的变更、试运行、启动和停止操作。

产品报废时的注意事项：

- 电路板上的电解电容器焚烧时可能发生爆炸；
- 请分类收集和处理，不能投入生活垃圾中；
- 请按工业废弃物进行处理，或者按当地的环境保护规定处理。

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1. 技术参数



发射器



接收器

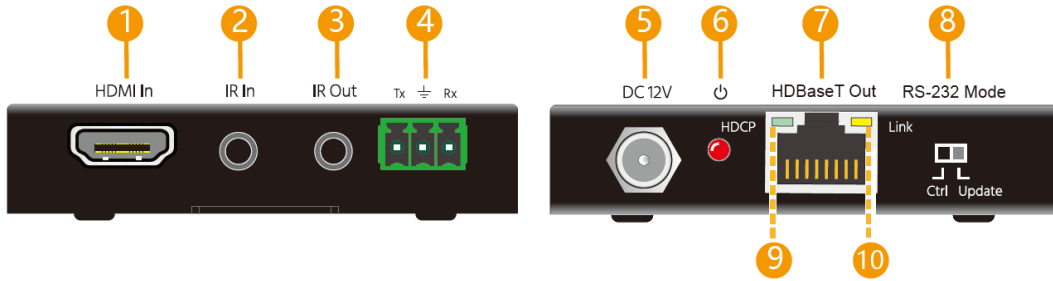
下表列出了H70的规格：

参数规格	
HDMI标准	HDMI 1.4
HDCP标准	HDCP 2.2
视频带宽	10.2Gbps
视频分辨率	高达4Kx2K@30Hz 4:4:4
传输模式	HDBaseT
传输距离	1080P≤70m; 4K×2K≤40m
静电保护	±8kV(空气放电), ±4kV(接触放电)
外壳	金属外壳
颜色	黑色
尺寸	发射器/接收器: 120mm[长]×74mm[宽]×16mm[高]
重量	发射器/接收器: 240克
供电电源	输入: AC100~240V 50/60Hz输出: DC 12V/1A(US/EU标准, CE/FCC/UL认证)
电源功耗	10W(最大值)
工作温度	0° C ~ 40° C / 32° F ~ 104° F
储存温度	-20° C ~ 60° C / -4° F ~ 104° F
相对湿度	0~90% RH(无凝结)
发射器	输入: 1×HDMI Type A [19-pin 母口] 输出: 1×HDBT Out [RJ45] 控制: 1×IR In [3.5mm Stereo Mini-jack] 1×IR Out [3.5mm Stereo Mini-jack] 1×RS-232 [凤凰端子]
接收器	输入: 1×HDBT Out [RJ45] 输出: 1×HDMI Type A [19-pin 母口] 控制: 1×IR In [3.5mm Stereo Mini-jack] 1×IR Out [3.5mm Stereo Mini-jack] 1×RS-232 [凤凰端子]

2. 物理描述

2.1 面板介绍

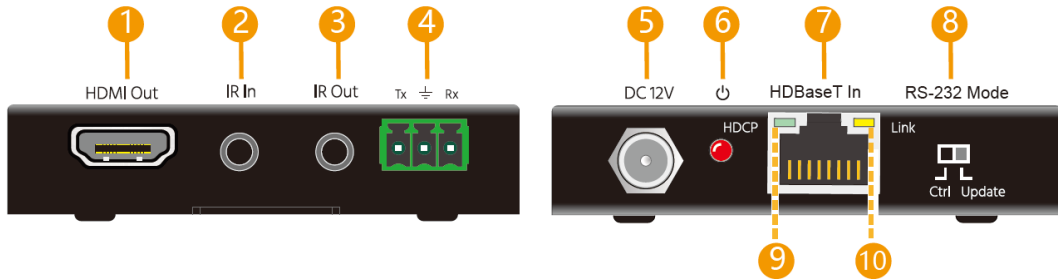
◆ 发射器面板



连接器、控制器和指示器

标号	名称	功能描述
1	HDMI In	HDMI输入口，连接HDMI信号源设备。
2	IR In	连接IR接收线，接收IR遥控信号。IR信号将发送到接收器的IR Out口。
3	IR Out	连接IR发射线，发射IR遥控信号。IR发射信号来自接收器的IR In口。
4	RS-232接口	通过3-pin凤凰端子连接电脑或控制系统用于RS-232命令传输。
5	DC 12V	DC 12V电源供电接口。支持双向POC, 其中一个接口连接电源适配器即可。
6	电源指示灯	发射器通电时，红色电源指示灯点亮。
7	HDBaseT Out	通过CAT5e/6网线连接到接收器上的HDBaseT In端口。
8	RS-232模式切换开关	Ctrl - RS-232透传控制模式。 Update - 升级模式 (将RS-232接口连接到电脑，可更新Valens IC 程序)。
9	数字信号指示灯 (绿色)	灯亮：HDMI信号带HDCP。 灯闪：HDMI信号不带HDCP。 灯灭：无HDMI信号。
10	连接信号指示灯 (黄色)	灯亮：发送端与接收端连接正常。 灯闪：发送端与接收端连接不稳定。 灯灭：发送端与接收端未连接。

◆ 接收器面板

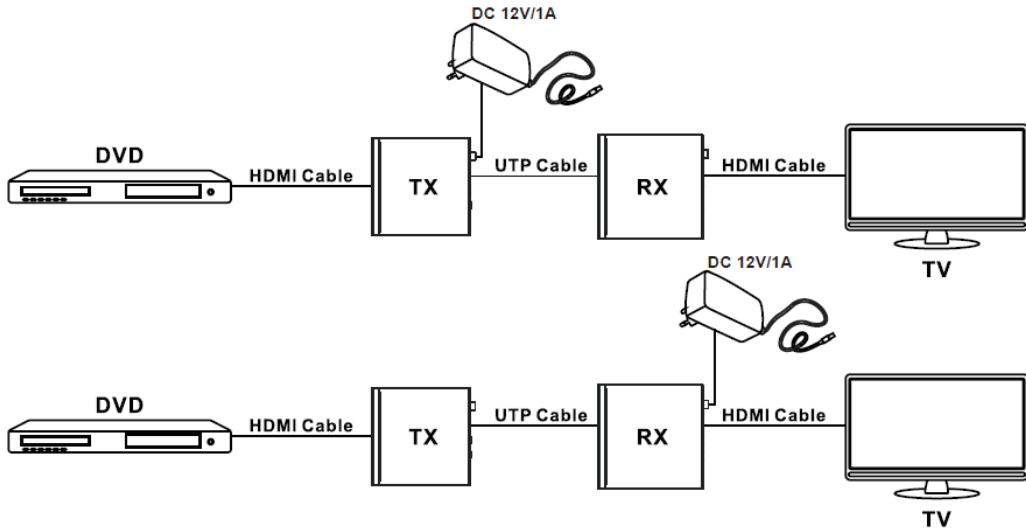


连接器、控制器和指示器

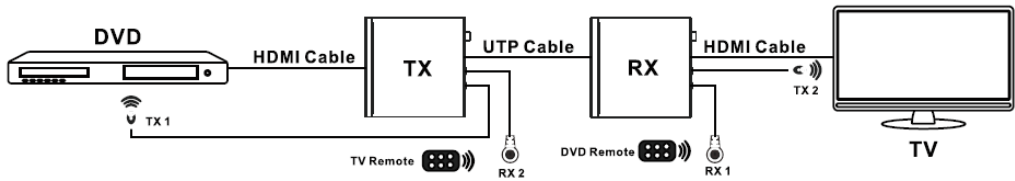
标号	名称	功能描述
1	HDMI Out	HDMI输出口，连接HDMI显示设备。
2	IR In	连接IR接收线，接收IR遥控信号。IR信号将发送到发射器的IR Out口。
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4	RS-232接口	通过3-pin凤凰端子连接电脑或控制系统用于RS-232命令传输。
5	DC 12V	DC 12V电源供电接口。支持双向POC，其中一个接口连接电源适配器即可。
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10	连接信号指示灯 (黄色)	灯亮：发送端与接收端连接正常。 灯闪：发送端与接收端连接不稳定。 灯灭：发送端与接收端未连接。

2.2 应用示意图

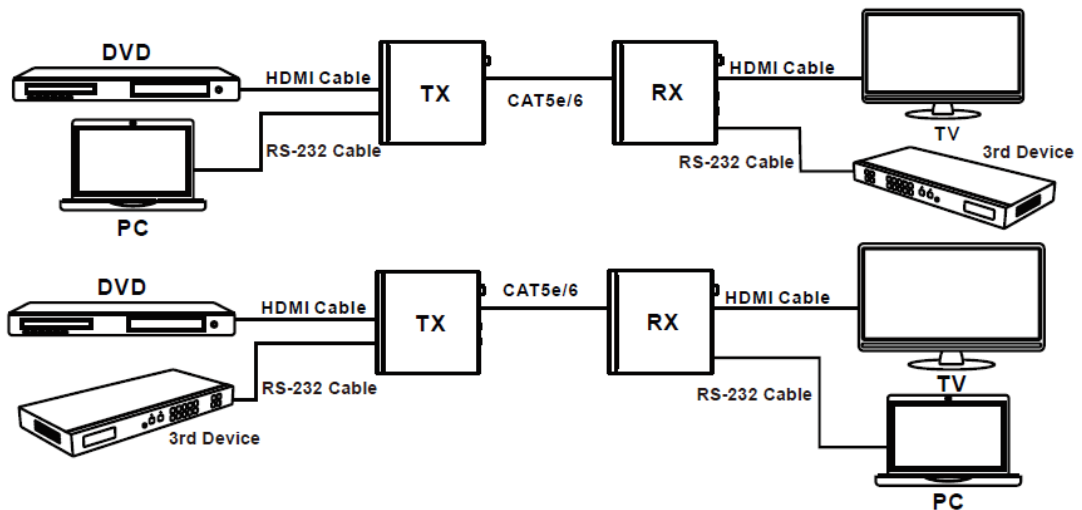
◆ POC (Power Over Cable) 应用示意图



◆ 双向红外控制应用示意图



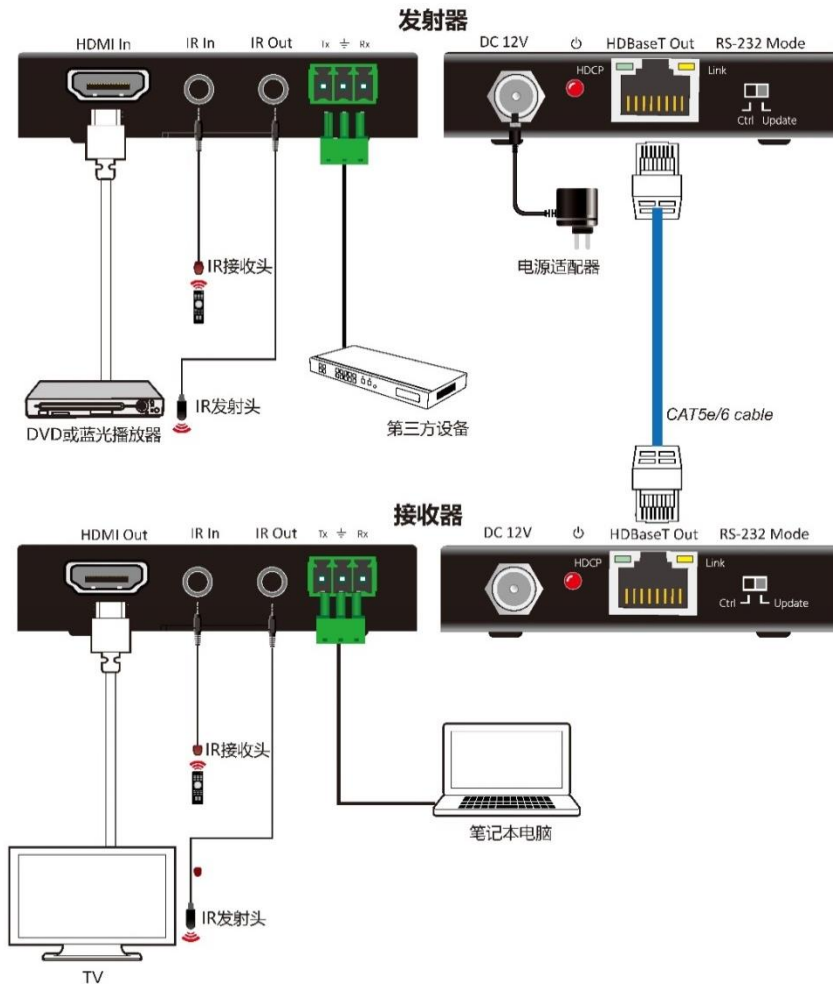
◆ 双向RS-232控制应用示意图



3. 功能特性

- 符合HDMI 1.4和HDCP 2.2规范
- 支持视频分辨率高达4K x 2K@30Hz
- 支持10.2Gbps视频带宽
- 通过单根CAT6网线延长的最大传输距离:
70米: 1080P@60Hz/36bit; 3D 1080P@30Hz/36bit;
40米: 1080P@60Hz/48bit; 1080P@120Hz/24bit;
3D 1080P@60Hz/36bit; 4K x 2K@30Hz/24bit.
- 支持POC(Power Over Cable)功能, 即只要在TX或RX设备一端外接12V/1A电源另一端设备无需外部供电, POC电源功耗少于10瓦。
- 支持双向红外和RS-232控制信号透传
- 设计合理, 便于安装

4. 系统连接图





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Operations Guide – DOC.H70

Specifications subject to
change without notice.