VERTIV.

HMX1080/ HMX2080 RX&TX

User Manual 用户手册

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HMX1080 HMX2080

用户手册

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HMX1080 HMX2080

User Manual

Version　　V1.2

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感谢您购买 新一代 HMX1080/2080 系列虚拟矩阵延长器。透过我们高质量可信赖的产品，您可以尽情享受它所带来的各项方便及利益。

中文用户手册

第一章 产品简介

新一代 HMX1080/2080 系列是以 IP 为架构的矩阵信号延长器，让用户在远程通过千兆交换网络来传输计算机的 DVI、USB、音频和 RS232 信号。HMX1080/2080 系列主要可分为发送器和接收器两个主要套件，为了能在千兆网络进行 KVM 信号传输， 两者均拥有一组独特的 IP 地址。

在发送端， 通过两个 RJ-45 千兆以太网络桥接端口，可将其他发送器或计算机接入；而在接收器端，在网络交换机足够端口及网络背板带宽支持下，可将众多接收器连接到同一个千兆网络中实现 IP 矩阵切换，理论值最大可支持到 65,000 台接收器与发送器。

第二章 产品特色

- 支持 USB 2.0 的 IP 透传

- 支持发送器 DVI -I 本地环路输出口（本地 KVM 接口）

- 支持高分辨率，最大可达 1920x1200@60HZ

- 低延迟时间 <1 frame/sec.

- 支持多声道无损压缩音讯格式

- 支持 RS-232 串口 IP 透传

第三章 包装内容

HMX1080 发送器	HMX1080 接收器
发送器主机 x 1	接收器主机 x 1
电源适配器 x 1	电源适配器 x 1
使用手册 x 1	使用手册 x 1
DVI-A 公对 VGA 母转接器 x1	DVI-A 公对 VGA 母转接器 x1
RS-232 公母头线 x 1	
USB Type-A-B / DVI-D/耳麦公头并线 x 1	
红外线遥控套件（包括：带线发送器和带线接收器，选购）x 1	

HMX2080 发送器	HMX2080 接收器
发送器主机 x 1	接收器主机 x 1
电源适配器 x 1	电源适配器 x 1
使用手册 x 1	使用手册 x 1
DVI-A 公对 VGA 母转接器 x2	DVI-A 公对 VGA 母转接器 x2
RS-232 公母头线 x 1	
USB Type-A-B / DVI-D/耳麦公头并线 x 1	
DVI-D 公头线 x 1	
红外线遥控套件（包括：带线发送器和带线接收器，选购）x 1	

第四章 产品规格

4.1 HMX1080 规格

表4-1 HMX1080 规格

型号	单屏发送器	单屏接收器
主机	发送器	接收器
端口	USB 端口 (Type B) x 2	USB 端口 (键盘和鼠标 , Type A) x 2
	DVI 输入端口 x 1	USB 端口 (周边装置 . Type A) x 2
	DVI 输出端口 x 1	DVI 输出端口 x 1
	IR 输出孔 x 1	IR 输入孔 x 1
	麦克风孔 x 2	麦克风孔 x 1
	喇叭孔 x 2	喇叭孔 x 1
	RJ45 端口 x 2	RJ45 端口 x 2
	RS-232 母头 x 1	RS-232 公头 x 1
	电源连接孔 x 1	电源连接孔 x 1
按钮	功能键 x 2	功能键 x 2
LED 指示灯	红 x 1	红 x 1
	绿 x 1	绿 x 1
		黄 x 1
体积 (L x W x H)	222 x 105 x 44 mm	222 x 105 x 44 mm
重量	670g	660g
分辨率	1920 x 1200@60Hz	
电源适配器	DC 5V	
操作温度	0 ~ 40° C	
储存温度	-20 ~ 60° C	
湿度	0~90% RH, 无凝结	
材质	金属	
安规认证	CE, FCC	

4.2 HMX2080 规格

表4-2 HMX2080 规格

| 型号	双屏发送器	双屏接收器
主机	发送器	接收器
端口	USB 端口 (Type B) x 2	USB 端口（键盘和鼠标，Type A) x 2
	DVI 输入端口 x 2	USB 端口（周边装置 Type A) x 2
	DVI 输出端口 x 2	DVI 输出端口 x 2
	IR 输出孔 x 1	IR 输出孔 x 1
	麦克风孔 x 2	麦克风孔 x 1
	喇叭孔 x 2	喇叭孔 x 1
	RJ45 端口 x 2	RJ45 端口 x 2
	RS-232 母头 x 1	RS-232 公头 x 1
	电源连接孔 x 1	电源连接孔 x 1
按钮	功能键 x 2	功能键 x 2
LED 指示灯	红 x 1	红 x 1
	绿 x 1	绿 x 1
		黄 x 1
体积 (L x W x H)	222 x 105 x 44 mm	222 x 105 x 44 mm
重量	760g	740g
分辨率	1920 x 1200@60Hz	
电源适配器	DC 5V	
操作温度	0 ~ 40° C	
储存温度	-20 ~ 60° C	
湿度	0~90% RH, 无凝结	
材质	金属	
安规认证	CE, FCC	

第五章 产品外观

5.1 HMX1080T
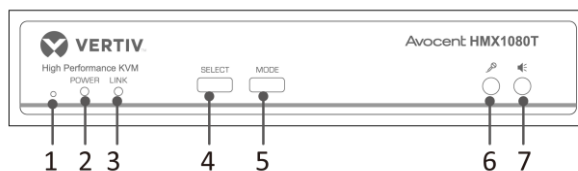
图5-1 前面板 1
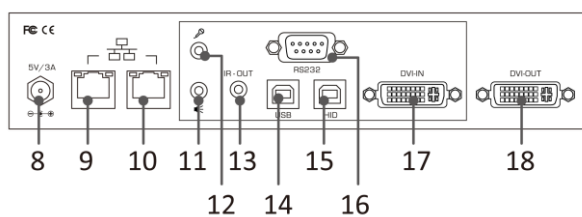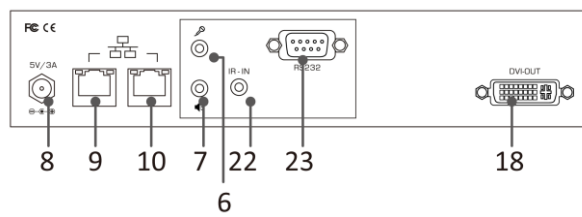

图5-2 后背板 1

5.2 HMX1080R
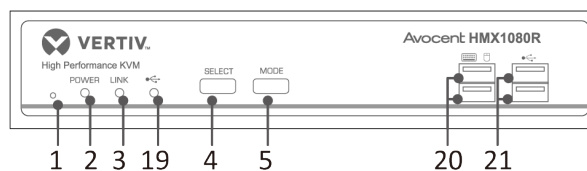
图5-3 前面板 2

图5-4 后背板 2

表5-1 编码描述

编号	项目	描述
1	重启	系统重启。
2	电源指示灯	当有电源供应时，指示灯亮起。
3	联机指示灯	当发送器和接收器已经联机，指示灯亮起。
4	Select 按钮	按压进行发送器和接收器之间的联机或断线。
5	Mode 按钮	按压选择图形模式或视频模式。
6	麦克风输入孔	连接麦克风。
7	声音输出孔	连接喇叭。
8	电源连接孔	连接电源适配器。
9	LAN 端口 1	连接到发送器、接收器或千兆网络交换机。
10	LAN 端口 2	连接到发送器、接收器或千兆网络交换机。
11	声音输入孔	连接到计算机的声音输出孔。
12	麦克风输出孔	连接到计算机的麦克风输入孔。
13	IR 输出孔	连接到 IR 红外发送器。
14	USB Type-B 端口	连接到计算机。
15	HID 端口	此功能保留。
16	RS-232 端口	连接计算机的 RS-232 端口。
17	DVI 输入端口	连接计算机的 DVI 输出端口。
18	DVI 输出端口	连接到 DVI 屏幕。
19	USB 指示灯	当有 USB 装置连接至此接收器时，指示灯亮起。
20	USB Type-A 端口	连接 USB 键盘和鼠标。
21	USB Type-A 端口	接 USB 周边装置。
22	IR 输入孔	连接到 IR 接收器。
23	RS-232 端口	连接 RS-232 装置。

虽然所有的 LAN 端口都可以连接到发送器、接收器、高速千兆网络千兆交换机，或是任何可以透过 RJ45 端口连接到局域网络的装置，请勿将发送器/接收器的两个 LAN 端口连接到同一台交换机，否则会导致网络链接无效。
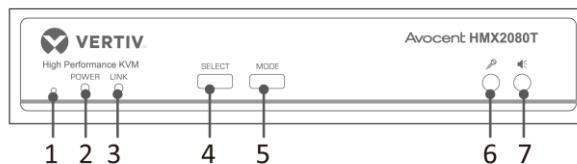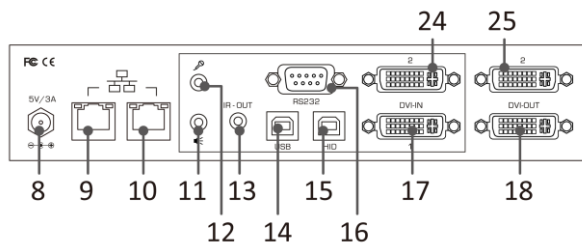
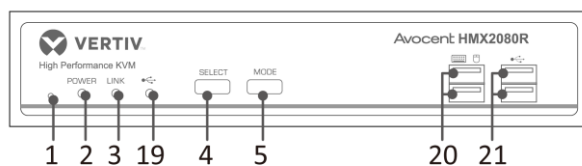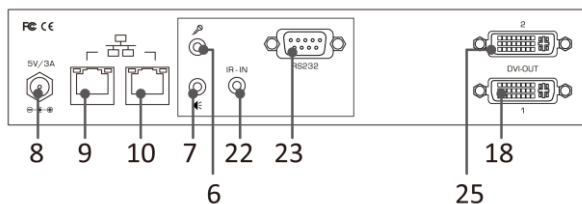## 5.3 HMX2080T

图5-5 前面板 3

图5-6 后背板 3

5.4 HMX2080R

图5-7 前面板 4

图5-8 后背板 4

表5-2 编码描述

编号	项目	描述
1	重置	系统重设。
2	电源指示灯	当有电源供应时，指示灯亮起。
3	联机指示灯	当发送器和接收器已经联机，指示灯亮起。
4	Select 按钮	按压进行发送器和接收器之间的联机或断线。
5	Mode 按钮	按压选择绘图或是视频模式。
6	麦克风输入孔	连接麦克风。
7	声音输出孔	连接喇叭。
8	电源连接孔	连接电源适配器。
9	LAN 端口 1	连接到发送器、接收器或千兆网络交换机 *。
10	LAN 端口 2	连接到发送器、接收器或千兆网络交换机 *。
11	声音输入孔	连接到计算机的声音输出孔。
12	麦克风输出孔	连接到计算机的麦克风输入孔。
13	IR 输出孔	连接到 IR 发送器。
14	USB Type-B 端口	连接到计算机。
15	HID 端口	此功能保留。
16	RS-232 端口	连接计算机的 RS-232 端口。
17	DVI 输入端口 1	连接计算机的 DVI 输出端口。
18	DVI 输出端口 1	连接到 DVI 屏幕。
19	USB 指示灯	当有 USB 装置连接至此接收器时，指示灯亮起。
20	USB Type-A 端口	连接 USB 键盘和鼠标。
21	USB Type-A 端口	接 USB 周边装置。
22	IR 输入孔	连接到 IR 接收器。
23	RS-232 端口	连接 RS-232 装置。
24	DVI 输入端口 2	连接计算机的 DVI 输出端口。
25	DVI 输入端口 2	连接到 DVI 屏幕。

虽然所有的 LAN 端口都可以连接到发送器、接收器、千兆网络千兆交换机，或是任何可以透过 RJ45 端口连接到局域网络的装置，请勿将两个 LAN 端口连接到同一台千兆交换机，此动作将导致网络链接无效。

第六章 连机示意图

下列插图仅为常规的连接示意图，具体连接方式以现场实际情况为准，KVM 包装箱也不包含示意图中所展示的计算机、外设和屏幕。在开始使用此 IP 矩阵系统前，请务必确认所有的 KVM 装置是否连接妥当。

HMX1080 和 HMX2080 采用相同的 KVM 传输协议，因此支持混用。例如，用户可以使用 HMX2080R 双屏接收器连接到 HMX1080T 单屏发送器，但双屏接收器的副屏没有 KVM 信号输出。此外，用户也可以根据实际需求进行网线直连，或者透过千兆网络交换机进行连接。
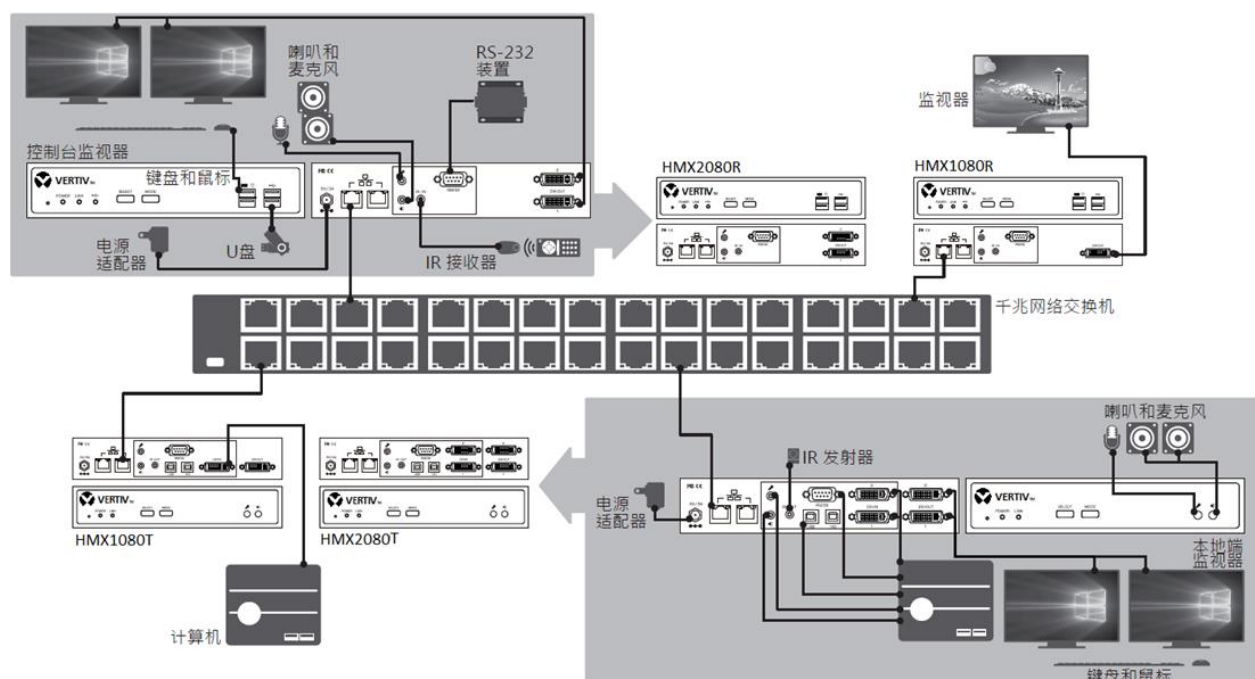

图6-1 连机示意图

6.1 安装前注意事项

HMX1080 提供了多样化的使用方式，例如用户可以点对点的连接或是多点连接，用户可以根据其需求选择安装方式，在您开始安装前，请务必注意下列事项：

请先行计划好网络线的配置图。

先行规画好发送器和接收器之间的路线图。在规划路线时，不但要考虑到最短的距离，也要注意避开电磁干扰。

注：

使用符合千兆传输标准的 CAT6 或以上网线，以确保较好的视频输出质量和延伸性。

确保在远程的接收器附近有电源插座可以供电。

6.2 直接连接

用户可以通过 CAT6 网线，将发送器和接收器点对点直接连接。用户可根据实际需求连接一台发送器对多台接收器，或是多台发送器对单一接收器，每个主机最多可以支持到 4 台连接。
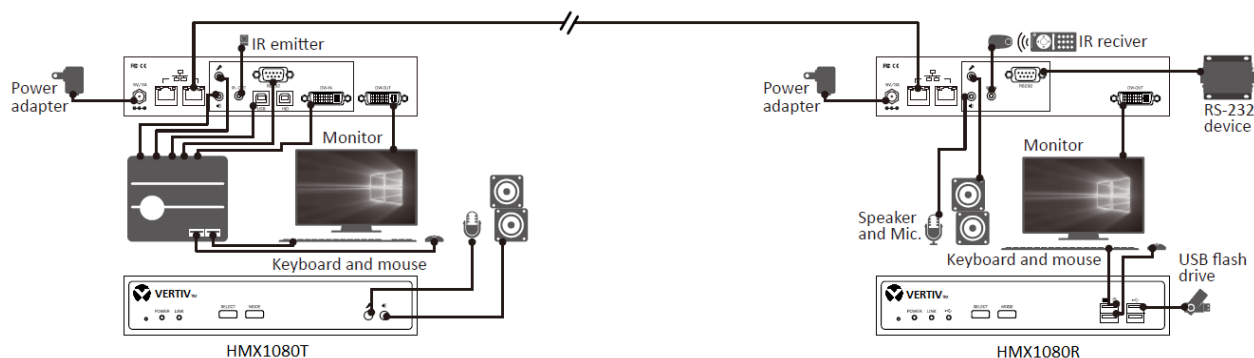
单一发送器和单一接收器连接（1 控 1）

图6-2 1 控 1

单一发送器和多台接收器连接（多控 1）

下列插图仅为 HMX1080 连接示意图，而且只有标示发送器和接收器的线路连接。如欲知道其他周边的连接，请参阅单一发送器和单一接收器连接。关于 HMX2080 的联机方式，则与 HMX1080 雷同。
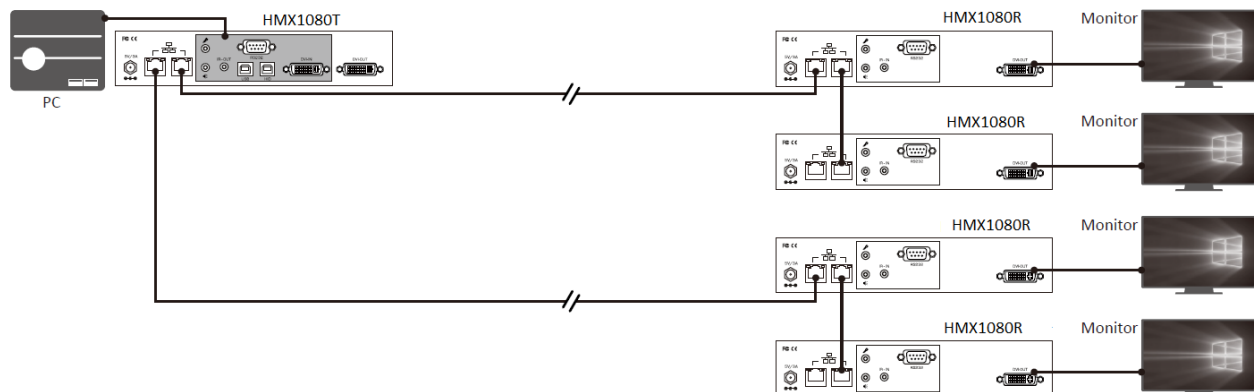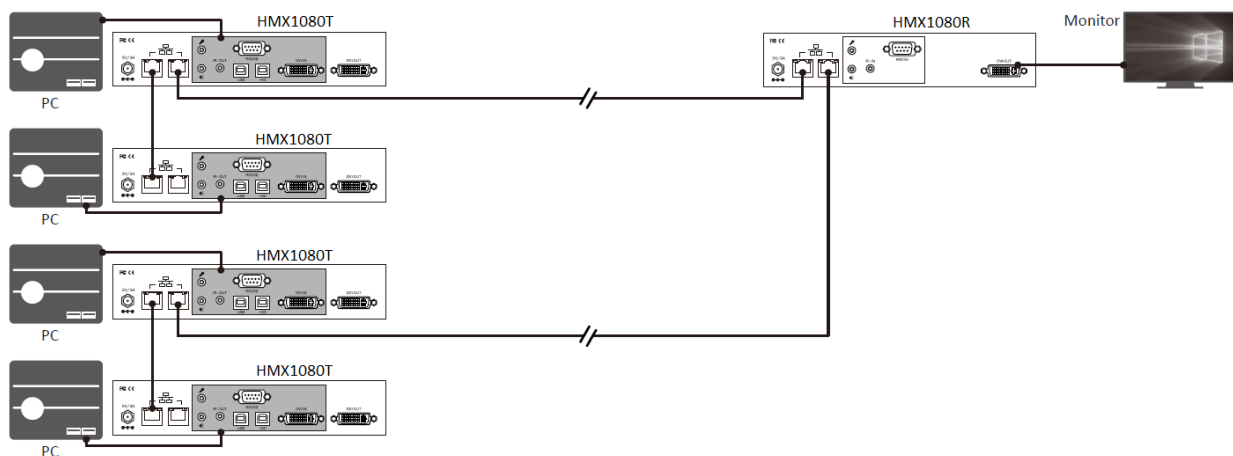

图6-3 多控 1

多台发送器和单一接收器连接（1 控多）

图6-4 1 控多

6.3 透过千兆网络交换机连接

如果用户的使用环境有超过 4 台发送器／接收器的连接，那么需要使用千兆交换机将发送器及接收器进行连接，且交换机必须符合下述技术要求：

千兆网络交换机基本需求

(1) 当 IP 矩阵包含多个发送器及接收器实现切换要求情况下，必须使用千兆网络交换机进行连接。

(2) 为了确保 IP KVM 信号传输质量及较少时延，建议购买一线品牌的千兆交换机。

(3) 为提供更好的 KVM 效果，千兆网络交换机必须支持下述功能 IGMP v2 组播协议（包括 IGMP Querier 、IGMP Snooping、Multicast Filtering、IGMP Fast Leave） 及 Jumbo Frame 巨帧传输技术（Frame>9000 byte），如果缺乏上述功能，例如 IGMP Querier 在连接多台发送器到千兆交换机的时候可能会出现无法正常工作的情况。

(4) 当使用多台千兆交换机通过光纤级联时，必须使用万兆光纤确保交换机之间光纤主干有足够的带宽，否则将会直接影响跨交换机 KVM 会话质量，出现切换卡顿黑屏、KVM 画面出现水波纹、键鼠响应慢等情况，严重时甚至无法使用。

下面的网络交换机的图示仅供设定参考，如需了解详细设定信息请参阅实际使用的千兆交换机说明书。

IGMP Snooping

图6-5 IGMP Snooping

Jumbo Frame

图6-6 Jumbo Frame

Multicast Filtering

图6-7 Multicast Filtering

第七章　操作

1) 开启发送器、接收器和所有连接装置的电源。

2) 长按发送器或接收器前面板的 SELECT 钮进行联机。

欲知更多关于切换钮的细节，请参阅下面的 *7.1 前面板按钮*章节。

注 : 尽管 HMX IP 矩阵系统允许多个用户在同一时间访问同一个发送器，但为避免键鼠控制权冲突，延长器将键鼠控制权授权给予第一位进行该计算机存取的用户，其他用户须等待数秒。

7.1 前面板按钮

发送器或接收器前面板提供了用户一个简单且直接的操作方式，用户可以透过这些按钮直接进行设备的功能设置。

7.1.1 Select/Mode(左/右)按钮

1) 长按 Select 按钮后上电源。长按 Select 按钮进行发送器和接收器的联机或断线切换。

2) 电源关闭，长压 Select 按钮后插入电源上电，当看到红/绿 LED 灯闪烁时再重启电源一次，即让发送器或接收器返回出厂设定。

3) 长按 Mode 钮后连接 USB 设备。

4) 断线后，长压右按键此时 link 灯恒亮，即设置 Jumbo Frame 为 8000；短压右按键 link 灯闪烁，即设置 Jumbo Frame 为 1500。

7.1.2 键盘热键

欲从控制台选择计算机，键盘热键的切换也是方法之一，每一组键盘热键至少由三个按键所组成。

>> 热键前行序列 = SCROLL LOCK + SCROLL LOCK + 指令键

>> 欲知更多详细的前行串行键和指令键的设定，请参阅下面表格。

此外，为避免您的 Scroll Lock 已经用于其他程序的快捷键而无法使用，此交换机亦可以自行定义其他的前行串行键。

>> 使用者自定义 = Scroll Lock、Num Lock、Caps 或 L/R_Ctrl。

表7-1 键盘热键说明

指令和描述	热键前行序列
切换到上一台计算机	Scroll Lock + Scroll Lock + Up
切换到下一台计算机	Scroll Lock + Scroll Lock + Down
复制 EDID 到选择的发送器	Scroll Lock + Scroll Lock + M
USB 连接 (USB 周边装置端口) 切换不同主机间的 USB 装置 *	Scroll Lock + Scroll Lock + U
频道切换 从任意数字选择频道(请先于接受器 OSD 中进阶设置)	Scroll Lock + Scroll Lock + Numbers+Enter

指令和描述	热键前行序列
发送器输出分辨率设置:F1(输入源透传) 默认;F2(固定 1920x1200p);F3(固定 1920x1080p)	Scroll Lock + Scroll Lock + F1/F2/F3
选择前行串行键初始键 用户可以自行定义热键初始键，X 键可以选择 Scroll Lock、Num Lock、Cap 或 L/R_Ctrl.	Scroll Lock + Scroll Lock + H+X
切换回前一台计算机	Scroll Lock + Scroll Lock + Backspace

*如果在矩阵架构下有数个 USB 装置同时分别插入不同的远程控制面板，用户可以透过此键盘热键切换存取不同的 USB 装置。

7.2 OSD 选单

一旦完成所有的联机之后（请参阅第六章 *联机示意图*章节），用户可于控制台端键击 Scroll Lock + Scroll Lock +Space 进入 OSD 控制页面。註:按 Ctrl+Ctrl 可快速開啟 OSD 選單
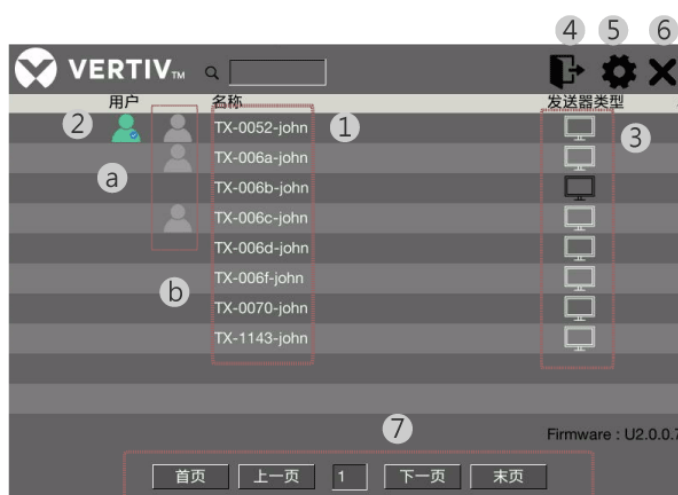

图7-1 OSD 控制页面

图中标注说明如下：

所有装置的状态会自动呈现在此表格内，用户可以按页面查看。

1. 按下任一发送器名称进入发送器页面。欲知更多详细内容，请参阅设定发送器章节。

2. 显示目前的在线用户状况。

   a.) 绿色用户图标显示目前连接到的发射器

   b.) 灰色用户图标显示其他在线的用户

3. 按下任一发送器图标(屏幕)进入设定发送器页面。欲知更多详细内容，请参阅设定发送器章节。

4.　　点击注销 OSD 控制页面。为管理接口使用。

5.　　点击进入接收器设定。欲知更多详细内容，请参阅设定接收器章节。

6.　　点击离开 OSD 控制页面。

7.　　逐页查找列出的所有设备

7.3 设定接收器

图7-2 接收器

图中标注说明如下：

1 设备名称：为方便辨识接收器，用户可以自行设定名称。

2 语言：下拉选单选择想要的语言。

3 网络：选择自动分配 IP 或是手动设定。

4 操作模式：根据实际需求选择适当的模式，请务必确认此设定和发送器相同。

5 频道资讯：显示目前接收器的菜单频道信息。设定菜单关闭时间与显示屏幕的位置。

6 RS-232：设定连接 RS-232 串行端口参数，请务必确认这些设定的参数必须和发送器以及 RS-232 相同。

　　下列为系统默认值：

　　波特率：115200　　　　数据位：8　　　　奇偶校验：None　停止位：1

7 开关通道之后始终打开 OSD：勾选以开启屏幕讯息显示。在切换频道后，讯息将会显示在屏幕上。

8 进阶：点击进入进阶设定。欲知更多详细内容，请参阅进阶设定章节。

9 重启：点击重启接收器，按 OK 确认选项。

10 出厂默认设置：回复接收器系统默认值，按 OK 确认选项。

11 储存：点击储存上述已经变更的设定。

特别注意: 修改设置后要一定储存并重启才会使新设定值生效...

7.3.1 进阶设定

此 IP 矩阵系统不仅可以透过 OSD 控制选单选择发送器，也可以透过键盘热键直接切换。每一组键盘热键由三颗按键所组成，基本组合的方式为 Scroll Lock + Scroll Lock + 指令键。除了系统默认值外，用户也可以在此选单中指定特定的指令键。

图7-3 进阶设定

a: 点击箭头下拉出选项，然后选择想要设定的发送器。

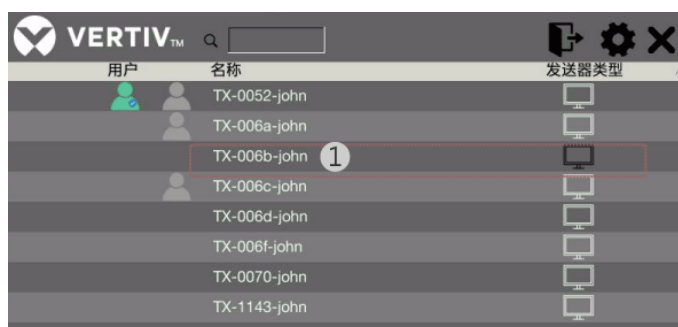b: 开关通道之后始终打开 OSD：勾选以开启屏幕讯息显示。在切换频道后，讯息将会显示在屏幕上。

c: 点击储存以储存设定并离开。

7.4 设定发送器

图7-4 发送器

图中标注说明如下：

1 设备名称：按下任一台的设定图标进入。为便于辨识发送器，用户可以自行设定名称。

2 操作模式：根据实际需求选择适当的模式，请务必确认此设定和接收器相同。

3 EDID：选择输出的分辨率，并按更新确认所选设定。

4 RS-232：设定连接 RS-232 串行端口参数，请务必确认这些设定的参数必须和接收器以及 RS-232 相同。

　　下列为系统默认值：

　　波特率：115200　　　　　数据位：8　　　　奇偶校验：None　停止位：1

5 重启：点击重启发送器，按 OK 确认选项。

6 出厂默认设置：回复发送器系统默认值，按 OK 确认选项。

7 网络：选择自动分配 IP 或是手动设定。

8 储：点击储存上述已经变更的设定。

特别注意: 修改设置后要一定储存并重启才会使新设定值生效...

7.5 管理员 OSD 选单

完成所有的联机之后，HMXCC1 初步设定完成，可以开始使用 HMX1080R 或是 HMX2080R 接收器。

进入 HMXCC1 控制界面将设备注册。可开始操作管理员 OSD 选单。到仪表盘 >> 检测到的设备，选取未注册的，按下底下的+号。

图 7-5 注册接收器/更改语言

完成注册后为管理模式须输入用户名及密码。

用户名(User name) 输入:admin, 密码(Password): adminpass。

用热键 SCROLL LOCK + SCROLL LOCK + SPACE 开启或按 Ctrl+Ctrl 开启登入画面, 进行操作。

管理界面更改语言操作界面需到 HMXCC1 控制中心的设备>>接收器>>设置中更改。请参阅 HMXCC1 手册的<仪表盘>及<设备>。

图 7-6 登录页面
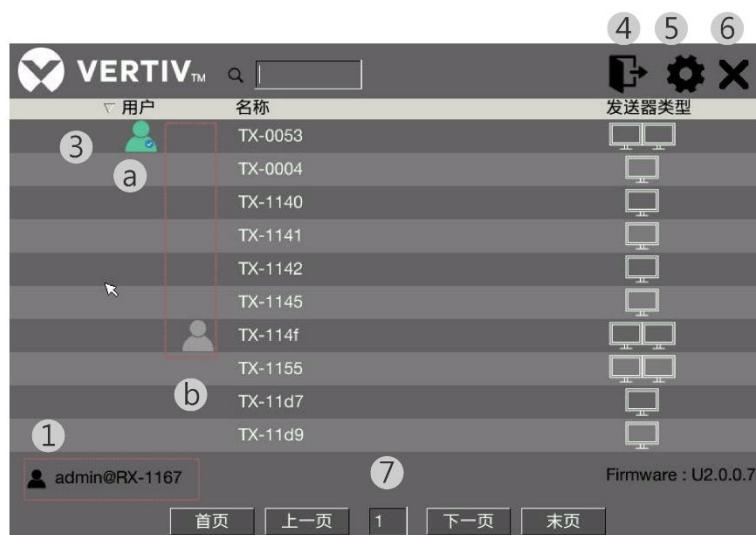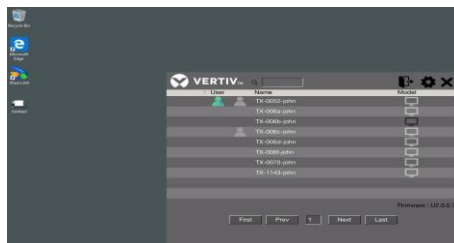

图 7-7 OSD 管理账号控制界面

图中标注说明如下：

所有装置的状态会自动呈现在此表格内，用户可以按页面查看。

1. 显示管理模式

2. 按下任一发送器名称进入发送器页面。

3. 显示目前的在线用户状况。

    a.) 绿色用户图标显示目前连接到的发射器

    b.) 灰色用户图标显示其他在线的用户

4. 点击注销 OSD 控制页面。为管理接口使用。

5. 管理模式下，点击进入设定发射器热键号。

此 IP 矩阵系统不仅可以透过 OSD 控制选单选择发送器，也可以透过键盘热键直接切换。每一组键盘热键由三颗按键所组成，基本组合的方式为 Scroll Lock + Scroll Lock + 指令键。除了系统默认值外，用户也可以在此选单中指定特定的指令键。

6. 点击离开 OSD 控制页面。

7. 逐页查找列出的所有设备

第八章 系统更新

在系统更新方面，此延长器提供了友善的网页接口便于用户进行更新，请参阅下列步骤进行操作。如果有任何更新的问题，请洽询授权服务中心或当地经销商。

1、从网路下载软件 "Bonjour browser" (请参考 https://support.apple.com/kb/dl999?locale=zh_TW)

2、连接一台计算机到延长器主机或是与延长器共同的网络上。

3、打开 Bonjour 浏览器和选取 Web Server(HTTP)选项，来获取延长器 IP 地址的列表，如下图标范例。

4、点选延长器 IP 地址来开启 IE 浏览器和进入该 IP 地址的页面进行固件升级作业。

5、请重复第四点来进行其他延长器的升级。
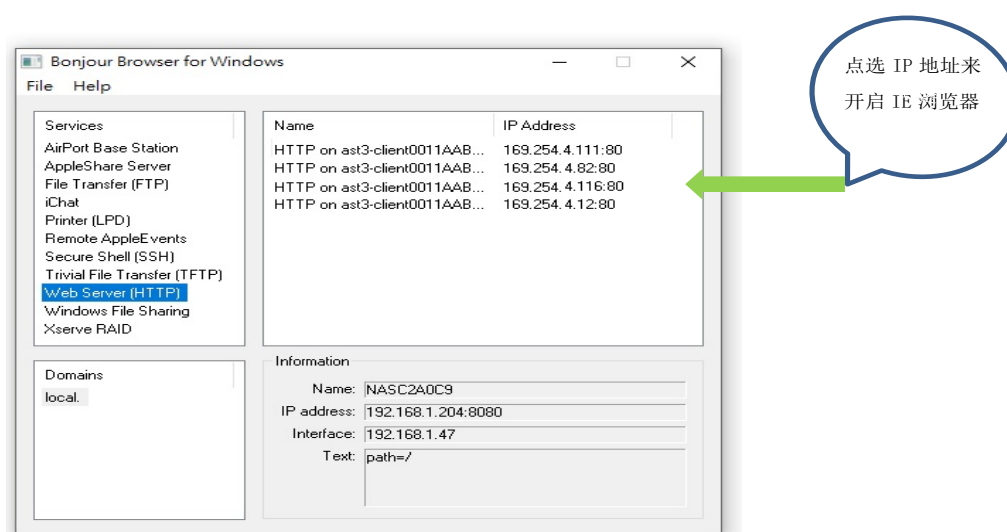
图8-1

执行更新

在用户执行更新之前，建议用户先点击 Version Information 页面确认固件版本。

图8-2

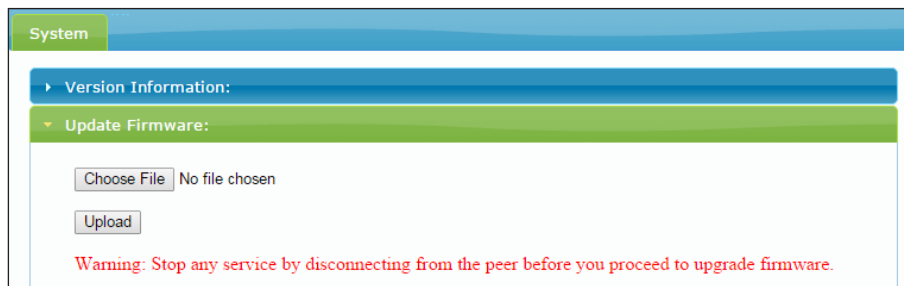1）点击 Update Firmware 下拉出更多选项。

2）点击 Choose File 选择欲更新的档案，然后按 Upload。

图8-3 执行更新

3）重复上述步骤更新其他延长器主机。

第九章 技术支持

如有任何疑问，请联络当地经销商。

第十章 FCC / CE 声明

FCC 声明：本设备经测试证明符合 FCC 规则第 15 部分中关于 B 类数字设备的规定。这些限制旨在为在商业环境中操作设备提供合理的保护，以防止有害干扰。本设备会产生、使用并辐射射频能量，如果未按照本《用户指南》进行安装和使用，可能会对无线电通信造成有害干扰。在居民区使用本设备可能会造成有害干扰，在这种情况下，将要求用户自费纠正干扰。

CE 声明：这是家用环境中的 B 类产品，此产品可能会引起无线电干扰，在这种情况下，可能要求用户采取适当的措施

EMI Statements Products which are certified for EMC in the regions or countries indicated will have the required marking or statement on the product label. The applicable statement for that country is listed below.

China warns users that this is a Class-A information product, which may cause radio frequency interference when used in the living environment. In this case, users will be required to take some appropriate countermeasures.

Technical Support Site If you encounter any installation or operational issues with your product, check the pertinent section of this manual to see if the issue can be resolved by following outlined procedures. For additional assistance, visit https://www.VertivCo.com/en-us/support/.

Thanks for purchasing HMX1080/HMX2080 series KVM over IP Transmitter/Receiver. With our highly reliable and quality product, you can enjoy countless benefits by using this KVM Extender.

English User Manual

Chapter 1   Introduction

The HMX1080/HMX2080 DVI-I KVM over IP allows extension of DVI, USB, 2-ch analog audio, RS232 and IR over a Gigabit Local Area Network. The units of transmitter and receiver can be automatically a unique IP address, and connected to the same network is supported. Multiple computers and other IP enabled devices can be connected to these units with the built-in Ethernet switch and 2 additional RJ-45 Ethernet ports. Multiple receivers can be simultaneously connected to the sender unit within the network to create a virtual cross point matrix of up to 65,000 senders and multiple receivers up to a theoretical limit of just over 65,000 units, depending on the network bandwidth and the number of ports of the network switch.

Chapter 2   Features

- USB 2.0 over IP for KVM application
- DVI-I OUT loopback port on Transmitter
- Supports high quality video streaming up to 1920x1200@60HZ
- Low latency time <1 frame/sec.
- Supports uncompressed and lossless multichannel audio formats
- Integrated RS232 port for distributed remote control

Chapter 3   Package contents

HMX1080 Transmitter	HMX1080 Receiver
Transmitter unit x 1	Receiver unit x 1
Power adapter x 1	Power adapter x 1
User's manual x 1	User's manual x 1
DVI-A male to VGA female adapter x1	DVI-A male to VGA female adapter x1
RS-232 male to female cable x 1	
USB Type-A-B/DVI-D/Audio/Mic male cable set x 1	
IR Remote Control Unit Pack (Include: Wired Transmitter and Wired Receiver, Optional) x 1	

HMX2080 Transmitter	HMX2080 Receiver
Transmitter unit x 1	Receiver unit x 1
Power adapter x 1	Power adapter x 1
User's manual x 1	User's manual x 1
DVI-A male to VGA female adapter x2	DVI-A male to VGA female adapter x2
RS-232 male to female cable x 1	
USB Type-A-B/DVI-D/Audio/Mic male cable set x 1	
DVI-D male Cable x1	
IR Remote Control Unit Pack (Include: Wired Transmitter and Wired Receiver, Optional) x 1	

Chapter 4   Specification

4.1   HMX1080 Specification

Table 4-1 HMX1080 Specification

Model No.	HMX1080T	HMX1080R
Component Type	Transmitter	Receiver
Connector	USB Port (Type B) x 2	USB Port (keyboard and mouse, Type A) x 2
	DVI-I In Port x 1	USB Port (Devices. Type A) x 2
	DVI-I Out Port x 1	DVI-I Out Port x 1
	IR Out Jack x 1	IR In Jack x 1
	Mic.Jack x 2	Mic.Jack x 1
	Speaker Jack x 2	Speaker Jack x 1
	RJ45 connector x 2	RJ45 connector x 2
	RS-232 Female x 1	RS-232 male x 1
	Power Jack x 1	Power Jack x 1
Button	Functional button x 2	Functional button x 2
LED indicator	Red x 1	Red x 1
	Green x 1	Green x 1
		Yellow x 1
Dimension (L x W x H)	222 x 105 x 44 mm	222 x 105 x 44 mm
Weight	670g	660g
Resolution	1920 x 1200@60Hz	
Power Adapter	DC 5V	
Operation Temperature	0 ~ 40°C	
Storage Temperature	-20 ~ 60°C	
Humidity	0~90% RH, Non-condensing	
Housing	Metal enclosure	
Safety / Emission	CE, FCC	

4.2 HMX2080 Specification

Table 4-2 HMX2080 Specification

Model No.	HMX2080T	HMX2080R
Component Type	Transmitter	Receiver
Connector	USB Port (Type B) x 2	USB Port (keyboard and mouse, Type A) x 2
	DVI In Port x 2	USB Port (Devices. Type A) x 2
	DVI Out Port x 2	DVI Out Port x 2
	IR Out Jack x 1	IR In Jack x 1
	Mic.Jack x 2	Mic.Jack x 1
	Speaker Jack x 2	Speaker Jack x 1
	RJ45 connector x 2	RJ45 connector x 2
	RS-232 Female x 1	RS-232 male x 1
	Power Jack x 1	Power Jack x 1
Button	Functional button x 2	Functional button x 2
LED indicator	Red x 1	Red x 1
	Green x 1	Green x 1
		Yellow x 1
Dimension (L x W x H)	222 x 105 x 44 mm	222 x 105 x 44 mm
Weight	760g	740g
Resolution	1920 x 1200@60Hz	
Power Adapter	DC 5V	
Operation Temperature	0 ~ 40°C	
Storage Temperature	-20 ~ 60°C	
Humidity	0~90% RH, Non-condensing	
Housing	Metal enclosure	
Safety / Emission	CE, FCC	

Chapter 5   Product overview

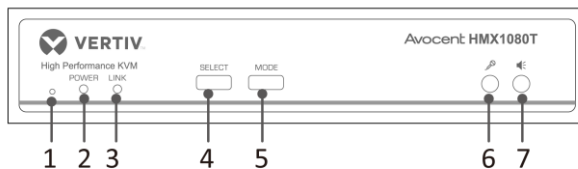## 5.1   HMX1080T

Figure 5-1 Front panel 1

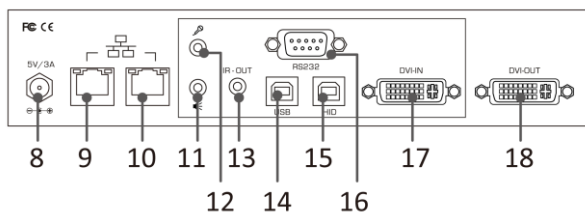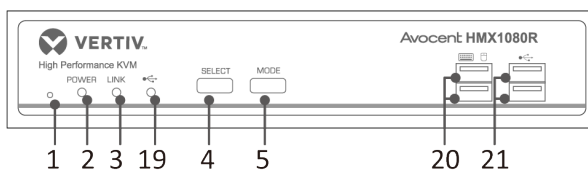*Figure 5-2 Rear panel 1*

5.2   HMX1080R

Figure 5-3 Front panel 2
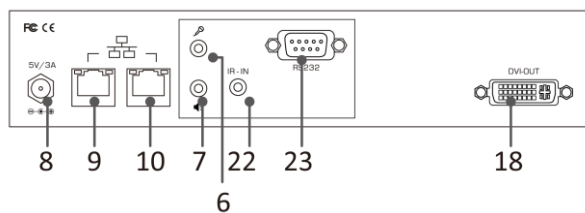
Figure 5-4 Rear panel 2

Table 5-1 Description

No.	Item	Description
1	Restart	Restart the unit.
2	Power indicator	Lights when power is on.
3	Link indicator	Lights when the connection between transmitter and receiver is active.
4	Select button	Press to connect or disconnect between the transmitter and receiver.
5	Mode button	Press to select Graphic mode or Video mode.
6	Mic. input jack	Connect to a microphone.
7	Audio output jack	Connect to a speaker.
8	Power jack	Connect to the power adapter.
9	LAN port 1	Connect to the LAN port of Tx, Rx or a Gigabit Ethernet Hub/Switch*.
10	LAN port 2	Connect to the LAN port of Tx, Rx or a Gigabit Ethernet Hub/Switch*.
11	Audio input jack	Connect to the audio output jack of PC.
12	Mic. output jack	Connect to the mic. input jack of PC.
13	IR output jack	Connect to the IR emitter.
14	USB Type-B connector	Connect to the host PC.
15	HID connector	Reserved.
16	RS-232 connector	Connect to the RS-232 port of PC.
17	DVI input connector 1	Connect to the DVI output of PC.
18	DVI output connector 1	Connect to a DVI monitor.
19	USB indicator	Lights when a USB peripheral is connected.
20	USB Type-A connector	Connect to a USB keyboard and mouse.
21	USB Type-A connector	Connect to USB peripherals.
22	IR input jack	Connect to the IR receiver.
23	RS-232 connector	Connect to a RS-232 device.

Both LAN ports can be connected to the transmitter, receiver, Gigabit Ethernet Hub/Switch or a device can be supported to connect to the Local Area Network using an RJ45 connector. Beware the connection may invalid if connecting both LAN ports into a same hub/switch.
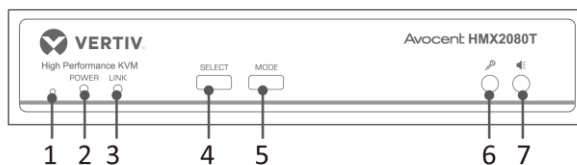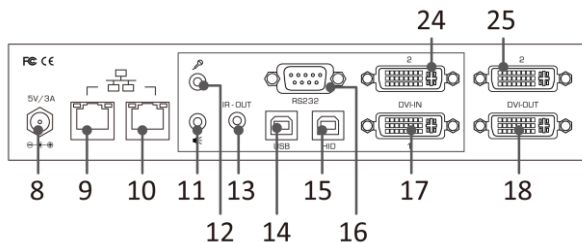
5.3 HMX2080T

Figure 5-1 Front panel 3

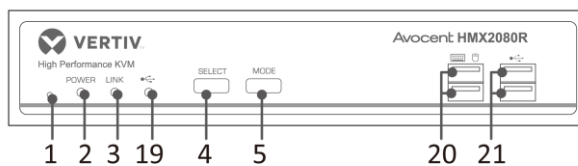*Figure 5-2 Rear panel 3*

5.4 HMX2080R

Figure 5-3 Front panel 4
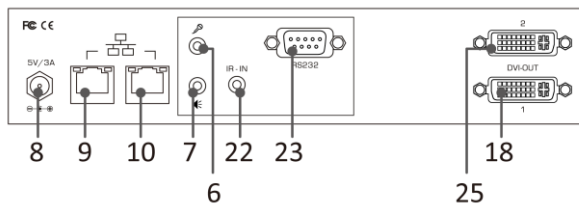
Figure 5-4 Rear panel 4

Table 5-2 Description 2

No.	Item	Description
1	Reset	Reset the unit.
2	Power indicator	Lights when power is on.
3	Link indicator	Lights when the connection between transmitter and receiver is active.
4	Select button	Press to connect or disconnect between the transmitter and receiver.
5	Mode button	Press to select Graphic mode or Video mode.
6	Mic. input jack	Connect to a microphone.
7	Audio output jack	Connect to a speaker.
8	Power jack	Connect to the power adapter.
9	LAN port 1	Connect to the LAN port of Tx, Rx or a Gigabit Ethernet Hub/Switch*.
10	LAN port 2	Connect to the LAN port of Tx, Rx or a Gigabit Ethernet Hub/Switch*.
11	Audio input jack	Connect to the audio output jack of PC.
12	Mic. output jack	Connect to the mic. input jack of PC.
13	IR output jack	Connect to the IR emitter.
14	USB Type-B connector	Connect to the host PC.
15	HID connector	Reserved.
16	RS-232 connector	Connect to the RS-232 port of PC.
17	DVI input connector 1	Connect to the DVI output of PC.
18	DVI output connector 1	Connect to a DVI monitor.
19	USB indicator	Lights when a USB peripheral is connected.
20	USB Type-A connector	Connect to a USB keyboard and mouse.
21	USB Type-A connector	Connect to USB peripherals.
22	IR input jack	Connect to the IR receiver.
23	RS-232 connector	Connect to a RS-232 device.
24	DVI input connector 2	Connect to the DVI output of PC.
25	DVI output connector 2	Connect to a DVI monitor.

Both LAN ports can be connected to the transmitter, receiver, Gigabit Ethernet Hub/Switch or a device can be supported to connect to the Local Area Network using an RJ45 connector. Beware the connection may invalid if connecting both LAN ports into a same hub/switch.

Chapter 6   Connection diagram

The diagrams illustrated here are examples of Virtual Matrix KVM over IP, the actual applications may vary. All illustrated computer, accessories and monitors are not included in the package, it is for reference only. Make sure all the devices and peripherals are connected appropriately before using this unit.

Based on the same series, the mixed connection can be supported, for example, HMX1080 transmitter connects to HMX2080 receiver. Besides, you can select to install the KVM directly or via a Gigabit Ethernet Hub/Switch depends on your requirement.
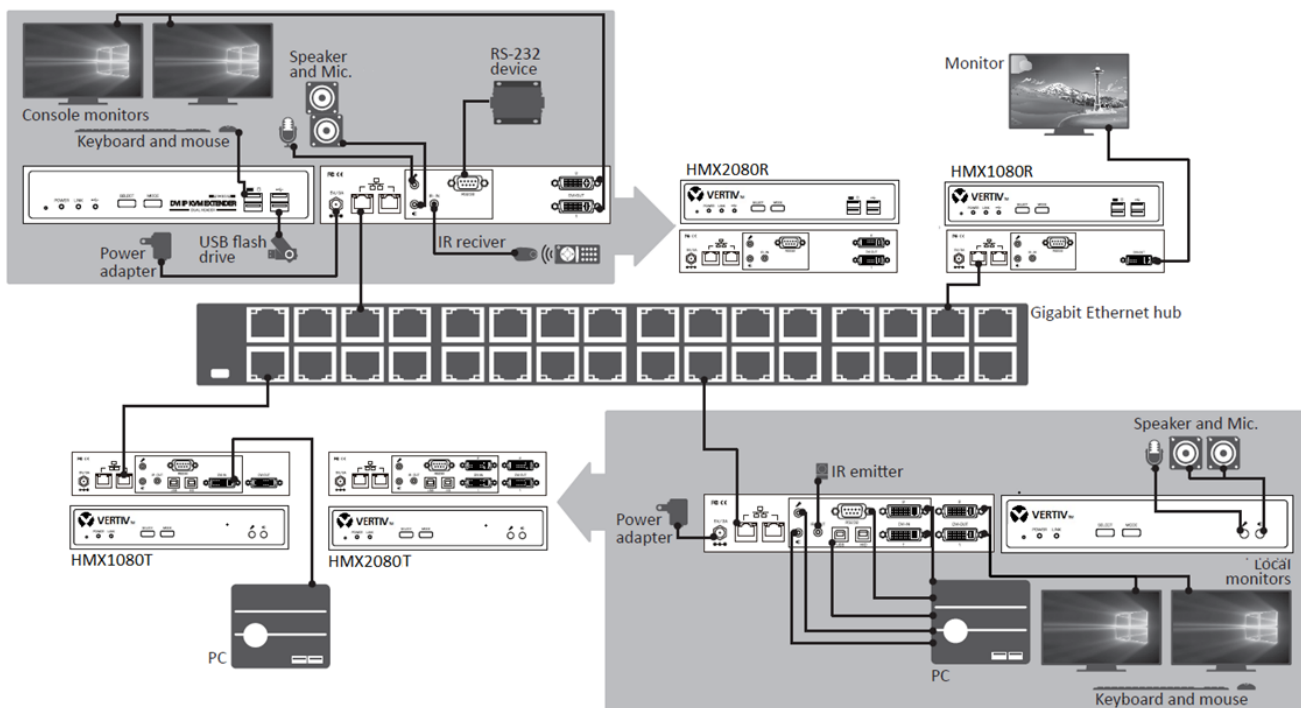

Figure 6-1 Connection diagram

6.1   Before connection

Before you install the Virtual Matrix KVM over IP, you should have these items on the checklist ready:

Plan the layout path and deploy the UTP cable for extension.

Plan the path through which the CAT6 UTP cable (or higher category network cable) will be deployed across the distance between the Transmitters and the Receivers. You should choose the layout path not only based on shortest possible length consideration, but also on least electromagnetic interference.

Notes:

Use good quality CAT6 cable can be produced the better video outcome with longer distance span.

The ideal location for the power outlets near where you located the extenders.

6.2   Direct connection

Basically, you can extend the signal using a connection of point-to-point via a CAT6 cable. Based on your requirement, you can also connect the transmitter to multiple receivers and vice versa. Each point can be supported the unit up to 4.
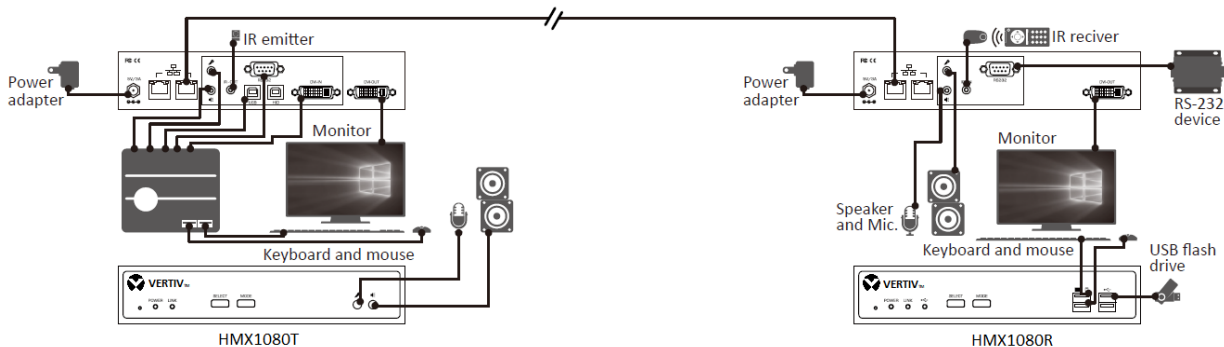
Single transmitter to single receiver

Figure 6-2 1 control 1

Single transmitter to multiple receivers

The illustration shows here is using HMX1080 as an example and only highlighted the connection between the transmitter and receiver. To connect other peripherals, please refer to the connection of Single transmitter to single receiver. For the connection of HMX2080, you may take a reference of HMX1080.
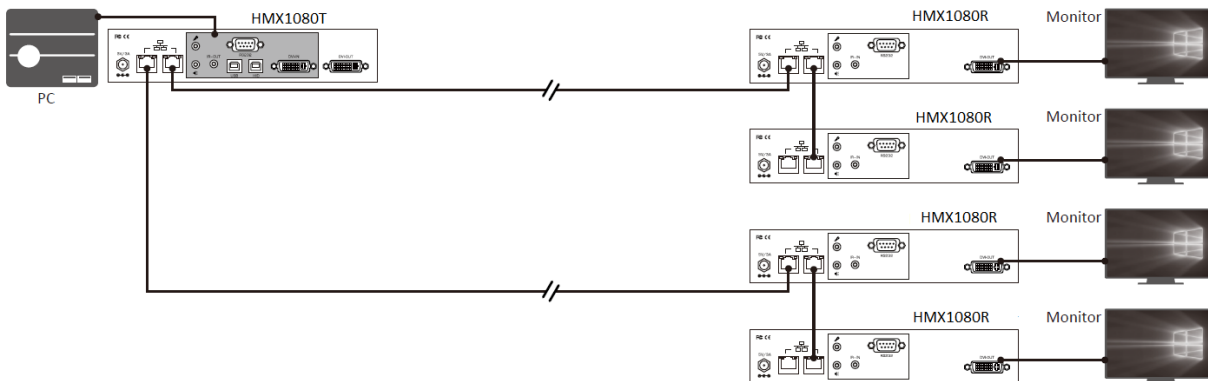

Figure 6-3 Multi control 1
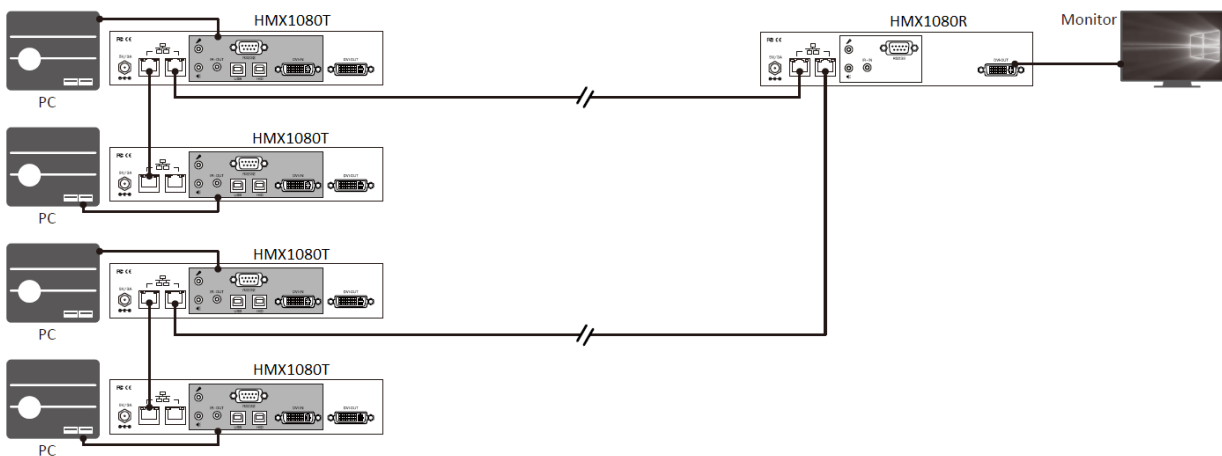
Multiple transmitters to single receiver

Figure 6-4 1 control multi

6.3 Connection via a Hub/switch

A Gigabit Ethernet Switch/Hub is necessary if the Network structure is forward to the matrix and expected more than 4 transmitters/receivers will be connected. Under the usage scenario like this, make sure the requirements listed in the chapter of Requirement of Gigabit Ethernet Switch below must be supported by the Hub/Switch.

Requirement of Gigabit Ethernet Switch.

1)   When grouping these units of Transmitter and Receiver, a Gigabit Ethernet Hub/Switch is necessary due to the requirement of bandwidth. To ensure the better quality of transmission, a reputable name brand hub/switch is recommended.

2) Some features of Gigabit Ethernet Switch/HUB are required, for example, IGMP Snooping, Multicast Filtering and Jumbo Frame, other specs like IGMP Querier, IGMP v2 and IGMP Fast Leave are strongly recommended. If more than one transmitter connects to the same network segment without support of IGMP Querier by Switch/Hub, the Extender System may work incorrectly. The images below are examples of the settings, for more setting details, please refer to the Hub/Switch's instruction manual.
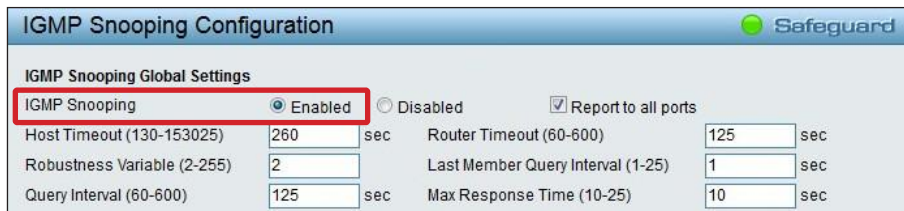
IGMP Snooping

Figure 6-5 IGMP Snooping

Jumbo Frame

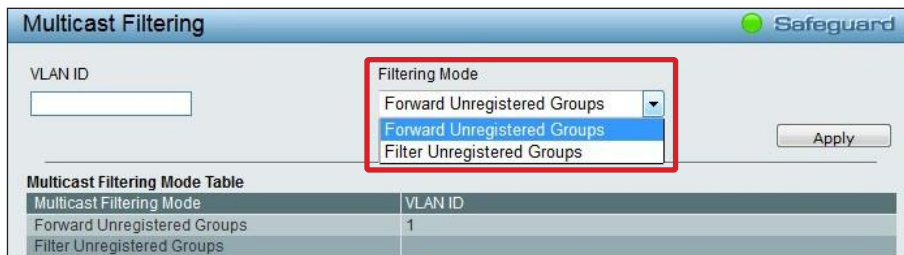*Figure 6-6 Jumbo Frame*

Multicast Filtering

Figure 6-7 Multicast Filtering

Make sure you have enough available bandwidth between switches if the Network you connected is a cascading architecture, otherwise, the quality of stream video may poor.

Chapter 7   Operation

1) Power the transmitter, receivers and all the connected devices to on.
2) Long press the SELECT button on the front panel of transmitter or receiver to connect.

   For more details, refer to the description of *7.1 Front panel buttons*.

Note: Although this Virtual Matrix KVM over IP allows multiple concurrent users to access multiple computers at the same time, the contentions may be happened if more than one user accesses the same computer. To avoid the contentions, the authorization is designed and provided for the user who first accesses the computer. It may take a few seconds if requires to access by other users.

7.1   Front panel buttons

These buttons provide a simple and intuitional operation for users. It's easy to configure the transmitter/ receiver by pressing the button directly.

7.1.1 Select/ Mode (Left/ Right) buttons

1) Long press the Select button and then power on. Long press to switch on and off the remote console.
2) Long press the Select button after turning off the power and then plug in the power adapter to power on, it will see the Green/Red LEDs flash at the same time, then power off and on again. That will make the Receiver or Transmitter **set to factory default**.
3) Long press the Mode button to connect online USB device
4) Long press the Mode button after offline, when the LED lit steady on, and then set the Jumbo Frame enabled (8000 Jumbo Frame).

   Short press the Mode button after offline, when the LED lit flashing, and then set the Jumbo Frame enabled (1500 Jumbo Frame).

7.1.2 Keyboard Hotkeys

To select different PC from console, the keyboard hotkey is provided. Each keyboard hotkey sequence consists of three specific keystrokes at least.

Hotkey sequence = SCROLL LOCK + SCROLL LOCK + Command key(s)

For detailed hotkey sequences and their corresponding functional commands, refer to the table below.

In addition, you can also define a desired hotkey instead of Scroll Lock if this key has been used in another program.

User-definable = Scroll Lock, Num Lock, Caps or L/R_Ctrl

Table 7-1 Keyboard hotkeys

Command and description	Hotkeys Sequence
Back to upper channel	Scroll Lock + Scroll Lock + Up
Go to next channel	Scroll Lock + Scroll Lock + Down
Copy EDID to the selected Transmitter	Scroll Lock + Scroll Lock + M
USB connection (device port) Switch to the unit which connecting with USB devices*.	Scroll Lock + Scroll Lock + U
Channel selection Select the desired channel in any numbers.	Scroll Lock + Scroll Lock + Numbers +Enter
Receiver Output Resolution setup	Scroll Lock + Scroll Lock + F1/F2/F3

Command and description	Hotkeys Sequence
Select the output resolution: F1(Passthrough)Default; F2(Fixed 1920x1200); F3(Fixed 1920x1080)	
Prefix key selection User can define the desired hotkey initial sequence, X can be Scroll Lock, Num Lock, Cap and L/R_Ctrl.	Scroll Lock + Scroll Lock + H+X
Return to previous channel	Scroll Lock + Scroll Lock + Backspace

Several USB devices may be plugged in different consoles at the same time if the system structure is in the matrix. To access the desired USB device, you may click this hotkey sequence.

7.2 OSD menu

Once you have completed the connection (refer to the chapter of connection diagram), press Scroll Lock + Scroll Lock + Space to enter the control page from the console. Note: Press Ctrl + Ctrl as shortcut key to pop up OSD menu directly.
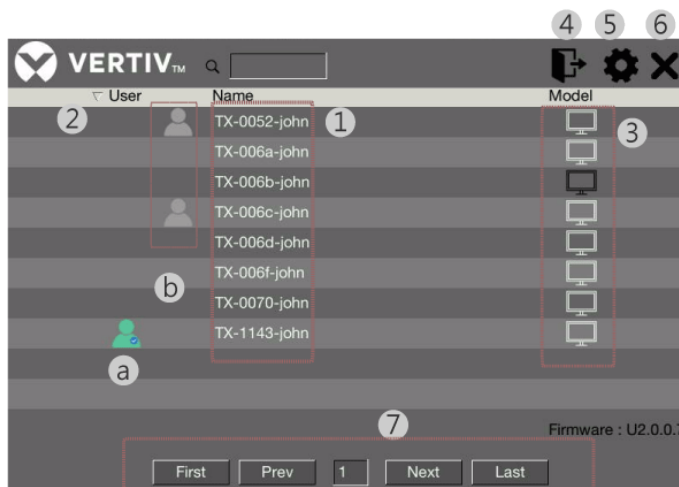

Figure 7-1 OSD control page

The annotations in the figure are as follows:

1. Click any name of the transmitter monitor you wish to access.
2. Show the status of all users
    a.) The green user icon shows which transmitter is connected
    b.) The gray user icon shows other users connecting to the group of transmitters.
3. Click any setting icon (monitor) to configure the transmitter. Refer to the chapter of Transmitter configuration.
4. The logout icon is reserved for admin users
5. Click the setting icon to configure the receiver. Refer to the chapter of Receiver configuration.
6. Click to exit the control page.
7. Find the all devices listed searching page by page
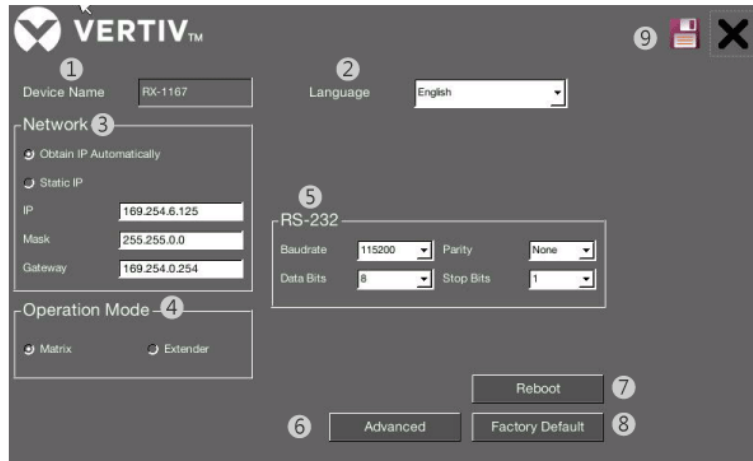
7.3 Receiver configuration

Figure 7-2 Receiver

The annotations in the figure are as follows:

1. **Device Name**: You can change to a new name to for recognizing the receiver.
2. **Language**: Drop down to select a preferred language.
3. **Network**: Select to obtain an IP automatically or select static IP to setup manually.
4. **Operation mode**: Select a desired mode according to your requirement. Make sure this option you selected is matched with the transmitter.
5. **RS232**: Setup the serial parameters for the connected RS-232 device. Make sure these parameters must match the settings of transmitter and RS-232 device. By default, the system settings are as following:
6. **Advanced**: Refer to the chapter of Advanced settings for more details.
7. **Reboot**: Click to **reboot** the receiver, and then click OK to confirm.
8. **Factory default**: Click to restore the receiver to the factory default settings, and then click OK to confirm.
9. **Save**: Click to save the settings once you have changed.

Warning: MUST reboot the units after save to make new setting active

7.3.1 Advanced settings

This KVM is not only supporting the selection of transmitter on the control page, but also using the keyboard hotkey. Each keyboard hotkey is consisted by using three specific keystrokes. The concept of keyboard hotkey is Scroll Lock + Scroll Lock + Command key(s). Except the default setting, you also can define a desired command key.
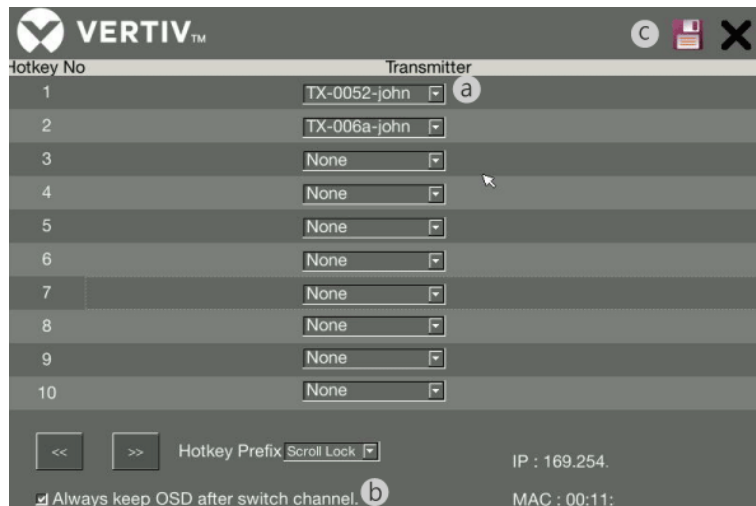

Figure 7-3 Advanced Settings

a.) **Hotkey No Device:** Click to drop down the options and select the desired transmitter.

b.) **Always keep OSD after switch channel:** Tick to display the information on the screen after switching the channel.

c.) **Save:** Click Save to save the settings and exit.
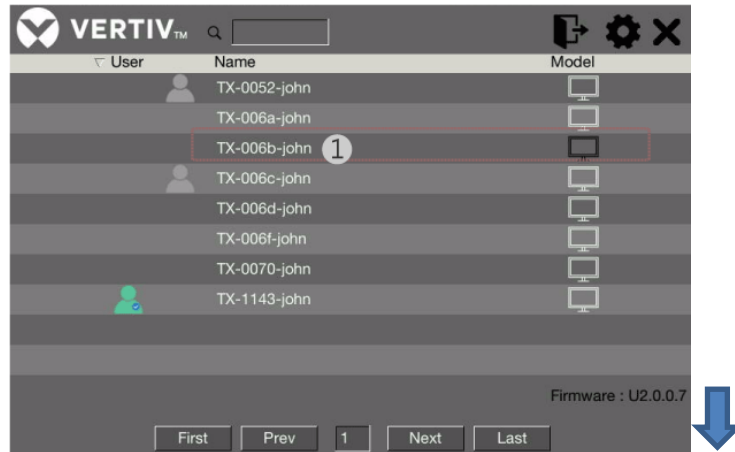
7.4 Transmitter configuration

Figure 7-4 Receiver

Figure 7-5 Transmitter

The annotations in the figure are as follows:

1. **Device Name**: Click any transmitter icon to enter the settings. You can change to a new name to for recognizing the transmitter.
2. **Operation mode**: Select a desired mode according to your requirement. Make sure this option you selected is matched with the receiver.
3. **EDID**: Select the output resolution of image source, or you can click Update to upload the EDID of monitor.
4. **RS232**: Setup the serial parameters for the connected RS-232 device. Make sure these parameters must match the settings of receiver and RS-232 device.
   By default, the system settings are as following:
   Baudrate: 115200   Data bits: 8   Parity: None   Stop bits: 1
5. **Reboot**: Click to **reboot** the transmitter, and then click OK to confirm.
6. **Factory default**: Click to restore the transmitter to the factory default settings, and then click OK to confirm.
7. **Network**: Select to obtain an IP automatically or select static IP to setup manually.
8. **Save**: Click to save the settings once you have changed.

Warning: MUST reboot the units after save to make new setting active

7.5 Admin OSD menu

Once you have completed the connection (refer to the chapter of connection diagram); also complete HMXCC1 control unit and SW setup, press Scroll Lock + Scroll Lock + Space to enter the control page from the console. Note: Press Ctrl + Ctrl as shortcut key to pop up OSD menu directly.

Under HMXCC1 Control Center:

➢   Go to Dashboard >> Detected Devices to register one device. Select the device and click + symbol below.

➢   Go to Devices to change the language interface under <setup receiver>
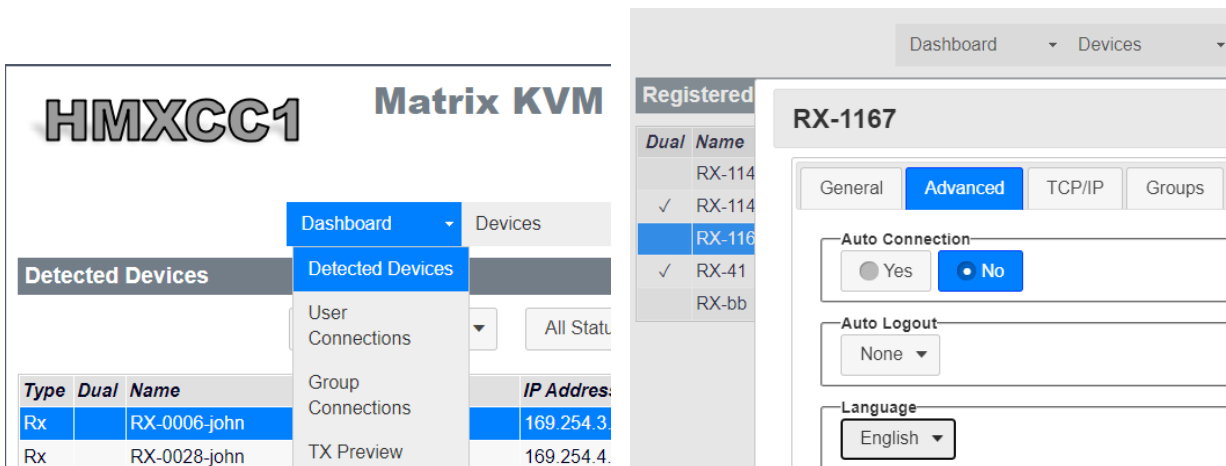

Figure 7-6 Device Registration/ Device Language

When finishing set up HMXCC1, you could start using HMX1080 or HMX2080 receiver.

User name: admin

Password: adminpass

Figure 7-7 Admin OSD Login

Figure 7-8 Admin OSD control page

The annotations in the figure are as follows:

1.   The icon of admin mode and device name are displayed here

2.   Click any name of the transmitter monitor you wish to access.

Figure 7-9 TX device screen

3.   Show the status of all users

    a.)   The green user icon shows which transmitter is connected

    b.)   The gray user icon shows other users connecting to the group of transmitters.

4.   Log out

5.   Click the setting icon to configure hotkey no device. The concept of keyboard hotkey is Scroll Lock + Scroll Lock + Command key(s). Except the default setting, you also can define a desired command key.
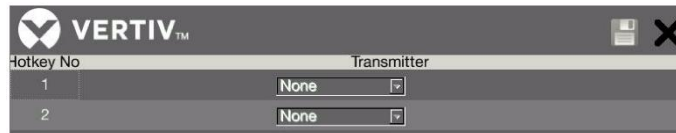

Figure 7-10 Hotkey Settings

6.   Click to exit the control page.

7.   Find the all devices listed searching page by page

Chapter 8 System upgrades

To update the system, a web user interface is provided. Users can easily access and configure what they need. Please follow the steps below for more operations. Contact with authorized service, local dealer or distributor for more support if you have trouble to update.

1. Down load "Bonjour browser" from internet. (Please refer to https://support.apple.com/kb/dl999?locale=zh_TW)

2. Connect a PC to the same network of KVM system.

3. Launch Bonjour browser and select Web Server (HTTP) to get IP address list of KVM as below example windows.
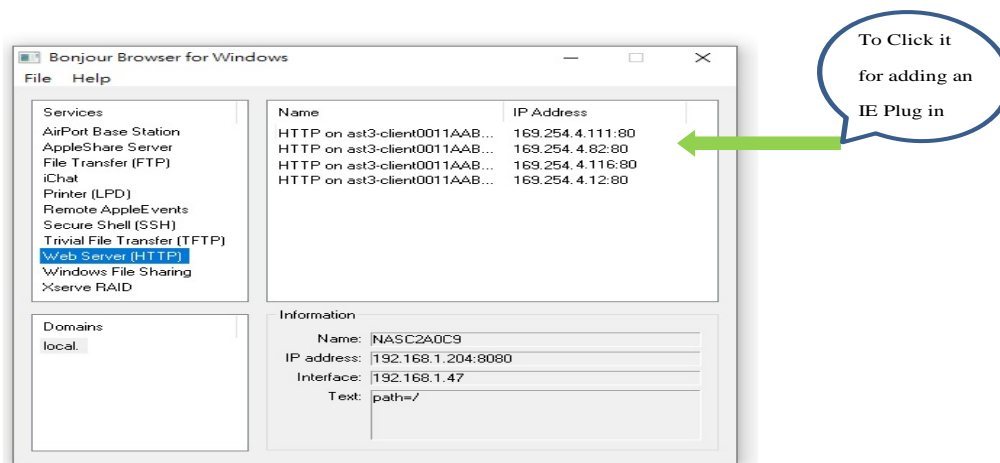

Figure 8-1

4. to click an IP address for adding an IE plug in and entering the following WEB page of Updated Firmware.

5. Repeating item 4 upgrade process to the other KVM IP address respectively .

Upgrade

It's recommended to check the firmware version by clicking the tab of Version Information before updating the system.

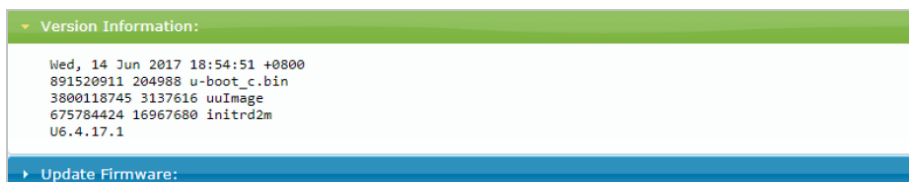If you have latest firmware, follow the procedures below.

Figure 8-2

1)   Click **Update Firmware** to drop down more options.

2)   Click **Choose File** to select the desired file, and then click **Upload**.

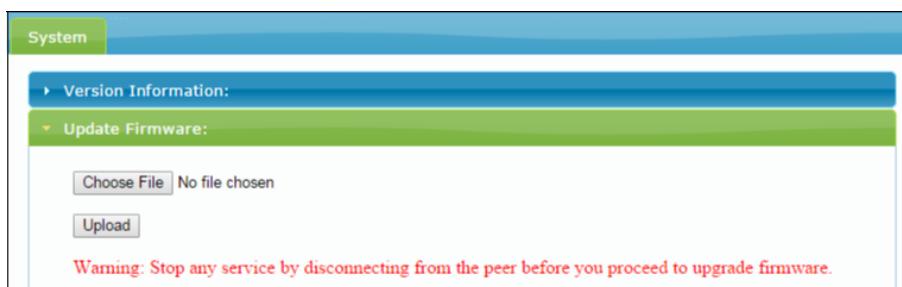3)   Please repeat the same upgrade procedure to other extender devices.

Figure 8-3 Upgrade

Chapter 9 Technical support

Please contact with your local distributor for more information or technical support.

Chapter 10 FCC / CE Statements

FCC Statement: This equipment has been tested and found to comply with the regulations for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with this User Guide, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case, the user will be required to correct the interference at his/her own expense.

CE Statement: This is a Class B product in a domestic environment, this product may cause radio interference, in which case the user may be required to take adequate measures.