# CrystalView EX HDMI Multi

Multi-head CATx Extender • HDMI/USB 2.0/Audio • 330' (100m)

# Installation and Operation Manual





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#### LIMITED WARRANTY

Rose Electronics® warrants the CrystalView EX HDMI Multi to be in good working order for one year from the date of purchase from Rose Electronics or an authorized dealer. Should this product fail to be in good working order at any time during this one-year warranty period, Rose Electronics will, at its option, repair or replace the Unit as set forth below. Repair parts and replacement units will be either reconditioned or new. All replaced parts become the property of Rose Electronics. This limited warranty does not include service to repair damage to the Unit resulting from accident, disaster, abuse, or unauthorized modification of the Unit, including static discharge and power surges.

Limited Warranty service may be obtained by delivering this unit during the one-year warranty period to Rose Electronics or an authorized repair center providing a proof of purchase date. If this Unit is delivered by mail, you agree to insure the Unit or assume the risk of loss or damage in transit, to prepay shipping charges to the warranty service location, and to use the original shipping container or its equivalent. You must call for a return authorization number first. Under no circumstances will a unit be accepted without a return authorization number. Contact an authorized repair center or Rose Electronics for further information.

ALL EXPRESS AND IMPLIED WARRANTIES FOR THIS PRODUCT INCLUDING THE WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, ARE LIMITED IN DURATION TO A PERIOD OF ONE YEAR FROM THE DATE OF PURCHASE, AND NO WARRANTIES, WHETHER EXPRESS OR IMPLIED, WILL APPLY AFTER THIS PERIOD. SOME STATES DO NOT ALLOW LIMITATIONS ON HOW LONG AN IMPLIED WARRANTY LASTS, SO THE ABOVE LIMITATION MAY NOT APPLY TO YOU.

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#### **DECLARATIONS OF CONFORMITY**

#### **FCC Radio Frequency Interference**

This device complies with Part 15 of the FCC rules. Operation is subject to the following two conditions:

- 1. (1) this device may not cause harmful interference
- 2. (2) this device must accept any interference received including interference that may cause undesired operation.

#### **CE Statement**

This product is in conformity with European Standards EN 55022, EN 61000, and EN 55024.

#### **IC Statement**

This Class A digital apparatus complies with Canadian ICES-003.

#### **WEEE Statement**

The European Union has established regulations for the collection and recycling of all waste electrical and electronic equipment (WEEE). Implementation of WEEE regulations may vary slightly by individual EU member states. Please check with your local and state government guidelines for safe disposal and recycling or contact your national WEEE recycling agency for more information.

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#### INTRODUCTION

#### **Disclaimer**

While every precaution has been taken in the preparation of this manual, the manufacturer assumes no responsibility for errors or omissions. Neither does the manufacturer assume any liability for damages resulting from the use of the information contained herein. The manufacturer reserves the right to change the specifications, functions, or circuitry of the product without notice.

The manufacturer cannot accept liability for damages due to misuse of the product or other circumstances outside the manufacturer's control. The manufacturer will not be responsible for any loss, damage, or injury arising directly or indirectly from the use of this product.

#### **System Introduction**

Thank you for choosing the CrystalView EX HDMI Multi extender from Rose Electronics for your remote accessing needs. The CrystalView EX HDMI Multi system consists of a Transmitter unit and a Receiver unit. The Transmitter unit connects to your computer's HDMI and USB Type A connectors using HDMI and USB cables. The Receiver unit connects to your workstation. The Transmitter and Receiver units are connected together with industry standard CAT5e or better cable. This provides access to your computer from up to 330 feet (100m) away.

The extender system is available with HDMI connections to two or four computers. These multi-unit models are used to aggregate several HDMI+USB extensions into one chassis. Multi-head models extend multiple video outputs and one USB only. They are intended for use with computers operated by only one user. The video-only models omit any USB functions and extend the video only.

The CrystalView EX HDMI Multi extender complies with USB 1.1 and USB 2.0 specifications and supports USB 1.1 and low bandwidth USB 2.0 devices. It is ideal for use in industrial control areas, digital signage, connecting cameras for security systems, USB device printing, scanning, and storage.

If additional USB devices are needed, you can add up to 4 USB hubs to the Receiver and connect up to 13 USB devices.

The CrystalView EX HDMI Multi supports all major operating systems including Windows<sup>®</sup>, MAC<sup>®</sup>, and Linux<sup>®</sup>.

USB printers, scanners, web cameras, USB hard drives, flash drives, MP3 players and more can easily be connected to the Receiver unit.

Since there are a number of factors that affect the operation of the CrystalView EX HDMI Multi, not all devices are compatible with this product.

#### **Features**

- Available as multi-unit (each video has USB extension), multi-head (only one video has USB extension), or video-only (no USB)
- Uncompressed video extension provides uncompromised quality at resolutions of 3840×2048@30Hz, 1920×1200@60Hz, 1920×1080@60Hz, and others
- Supports USB 2.0 at speeds to 40 Mbps and USB 1.1 and 1.0 at speeds from 1.5 to 12 Mbps
- Compatible with USB host ports: xHCl (USB 3.0), EHCl (USB 2.0), and OHCl/UHCl (USB 1.1)
- Compatible with Windows, OS-X, and Linux
- Transparent USB provides plug-and-play installation with no configuration required
- Remote USB ports provide 500mA each
- Two chassis styles: mini and wide
- Options include: bi-directional analog audio and RS-232
- USB 2.0 audio devices are supported
- Optional locking DC power supplies
- Optional rackmount kit
- \* CAT5e or better cable, Solid core CAT6 STP cable is recommended

#### **Package Contents**

- Transmitter unit
- Receiver unit
- 5V, 3A power adapter (Transmitter)
- 5V, 3A power adapter (Receiver)
- Product Manual

#### Additional Installation Items

- Computer with HDMI output
- USB 1.1 or 2.0 host computer
- 1 CAT5e cable (Transmitter to Receiver Point-To-Point)
- USB 1.1 or 2.0 compatible devices

#### **System Overview**

The CrystalView EX HDMI Multi is a very versatile and flexible system that is easily and quickly installed. You can position your computer anywhere within 330 feet of the Receiver unit and access and control it as if you were directly connected to the computer. You can control and use a USB keyboard, USB mouse, webcam, flash drive, USB speakers, microphone, and other compatible USB devices.

The versatility of the CrystalView EX HDMI Multi makes it ideal for security, medical, signage, and industrial applications where remote access is required.

The Receiver unit has three USB Type A connectors. These are usually connected to a USB mouse, USB keyboard, and a USB HUB. The CrystalView EX HDMI Multi supports up to 13 USB devices and 4 HUB levels.

#### **CrystalView EX HDMI Dual Models**

The CrystalView EX HDMI Multi is highly customizable. It comes in a dual chassis with two HDMI cards, or a quad chassis with four HDMI cards. Each card has optional USB connections. Other options include a second power supply, a serial, and an audio connection. Sample dual chassis and quad chassis configurations are displayed below.



Figure 1. CrystalView EX HDMI Dual Front Panel



Figure 2. Sample CrystalView EX HDMI Dual Transmitter Rear Panel



Figure 3. Sample CrystalView EX HDMI Dual Receiver Rear Panel



Figure 4. CrystalView EX HDMI Quad Front Panel



Figure 5. Sample CrystalView EX HDMI Quad Transmitter Rear Panel



Figure 6. Sample CrystalView EX HDMI Quad Receiver Rear Panel

#### **Connectors**

#### **Transmitter:**

- Video In (always present): HDMI-A Female
  - 2x for Dual Chassis
  - 2x 4x for Quad Chassis (depending on how many main cards are present)
- Main Card Link (always present): RJ45 Female
  - 2x for Dual Chassis
  - 2x 4x for Quad Chassis (depending on how many main cards are present)
- Program (always present): Micro USB Female
  - 2x for Dual Chassis
  - 2x 4x for Quad Chassis (depending on how many main cards are present)
- USB (optional): USB Type B
  - 0-2x for Dual Chassis
  - 0-4x for Quad Chassis
- Power: 1.7 mm Barrel Jack Female
  - 1x for Dual Chassis (always present)
  - 1x always present, 1x optional for Quad Chassis
- Serial (optional): DB9 Female
  - 1x for Dual and Quad Chassis
- Serial Link (optional present if Serial present): RJ45 Female
  - 1x for Dual and Quad Chassis
- Audio (optional): 3.5 mm Jack
  - 1x Audio In for Dual and Quad Chassis
  - 1x Audio Out for Dual and Quad Chassis
- Audio Link (optional present if Audio present): RJ45 Female
  - 1x for Dual and Quad Chassis

#### Receiver:

- Video Out (always present): HDMI-A Female
  - 2x for Dual Chassis
  - 2x 4x for Quad Chassis (depending on how many main cards are present)
- Main Card Link (always present): RJ45 Female
  - 2x for Dual Chassis
  - 2x 4x for Quad Chassis (depending on how many main cards are present)
- Program (always present): Micro USB Female
  - 2x for Dual Chassis
  - 2x 4x for Quad Chassis (depending on how many main cards are present)
- USB (optional): USB Type A
  - 0, 3x or 6x for Dual Chassis
  - 0, 3x, 6x, 9x or 12x for Quad Chassis
- Power: 1.7 mm Barrel Jack Female
  - 1x for Dual Chassis (always present)
  - 1x always present, 1x optional for Quad Chassis
- Serial (optional): DB9 Female
  - 1x for Dual and Quad Chassis
- Serial Link (optional present if Serial present): RJ45 Female
  - 1x for Dual and Quad Chassis
- Audio (optional): 3.5 mm Jack
  - 1x Audio In for Dual and Quad Chassis
  - 1x Audio Out for Dual and Quad Chassis
- Audio Link (optional present if Audio present): RJ45 Female
  - 1x for Dual and Quad Chassis

#### **Indicators**

- Power: Green = powered and ready
- Link: Green = Link established
- USB: Green = USB host connected
- Video: Solid Green = HDCP video signal; Blinking Green = non-HDCP video

#### INSTALLATION AND OPERATION

#### **System Installation**

Before installing the CrystalView EX HDMI Multi, plan the layout of the computer, the Transmitter, the Receiver, and the equipment that will be connected to the Receiver. The Transmitter and Receiver units should be in easily accessible locations. The CAT5e cable should be routed away from equipment or environments that can cause interference with the data transmission between the Transmitter and Receiver.

The CrystalView EX HDMI Multi is installed in a "Point-To-Point" configuration. This is easily done by connecting CAT5e\* cables (330 ft / 100m) directly from the Transmitter's RJ45 ports to the Receiver's RJ45 ports.

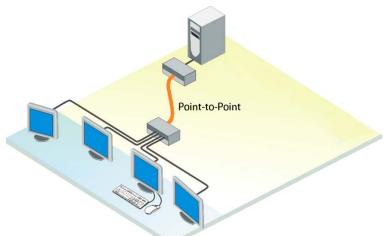


Figure 7. Typical Installation

#### Transmitter installation

- 1. Locate the Transmitter unit near the computer.
- 2. Connect a USB Type A/B cable to the Transmitter unit's USB Type B port and to an available USB (1.1 or 2.0) Type A port on the computer.
- 3. Connect HDMI cables to the Transmitter unit's HDMI In connectors and to the HDMI video ports on the computer.
- 4. Connect an audio cable to the Transmitter unit's Audio port and to the audio output port on the computer.
- 5. Connect CAT5e\* cables from the Transmitter's RJ45 connectors to the Receiver's RJ45 connectors.
- 6. Connect the supplied 5V, 3A power adapter to an AC outlet and to the Transmitter's power port.

#### Receiver installation

- 1. Locate the Receiver unit near the monitors and USB devices.
- 2. Connect the HDMI monitor cables to the HDMI out connectors on the Receiver's rear panel.
- 3. Connect your USB devices to the three USB Type A ports on the rear panel of the Receiver. Normally these USB ports are connected to a USB keyboard, USB mouse, and a USB Hub.
- 4. Connect an audio cable to the Receiver unit's Audio port and to the audio input port on the console sound device.
- 5. Connect CAT5e\* cables from the Transmitter's RJ45 connectors to the Receiver's RJ45 connectors.
- 6. Connect the supplied 5V, 3A power adapter to an AC outlet and to the Receiver's power port.
- \* CAT5 cable It is recommended that only CAT5e or better, UTP cabling be used to connect the Transmitter and Receiver units together. The CAT5e cabling must have straight-through conductors with no crossovers and terminated with 8 conductor RJ45 connectors at each end. The maximum CAT5e cable length for a point-to-point configuration is 330 feet (100 meters).

#### **Installation Verification**

The Power, Link, Video, and USB LEDs on the Transmitter and Receiver units will provide information regarding the installation, cabling, video, and other items. Verify that the LEDs are registering properly

If a Link LED is off, the CAT5e cable between the Transmitter and Receiver is not connected.

The Power LED should be solid green. If it is off, the system is not ready.

#### **Connecting USB Devices**

Up to 13 USB 1.1 or 2.0 devices can be connected to the Receiver unit using USB Hubs. Normally the three USB Type A connectors on the Receiver are connected to a USB Keyboard, USB mouse, and a USB Hub. Installing your USB devices is no different than installing them when connected directly to a computer's USB port.

- 1. Install the USB device according to the manufacturer's procedure and any required software to operate the USB device.
- 2. Connect the USB device to the Receiver's USB ports or a HUB port.
- 3. Verify that the operating system has recognized the USB device and, if needed, installed the proper drivers to operate the USB device.
- 4. Test the USB device.

Each USB Type A port on the Receiver unit can supply up to 500ma to a USB device or USB Hub. When connecting additional USB devices through a USB Hub, consider the total current needed to operate all of the USB devices. If the total power is greater than 500ma, use a powered Hub to supplement the power to the devices.

The CrystalView EX HDMI Multi is compatible with a wide variety or graphic cards, monitors, USB devices, and operating systems.

#### **System Operation**

The operation of the CrystalView EX HDMI Multi is no different than operating your computer with your keyboard, monitor, mouse, and USB devices directly connected to it. The only difference is the computer can be located anywhere within 330 feet from the Receiver unit. Applications can be executed, files opened, edited, and saved, upgrades can be performed and normal system operations can be performed as if you were directly connected to your computer.

#### **TROUBLESHOOTING**

#### **System Troubleshooting**

#### All LEDs on the Transmitter or Receiver are off

- Check the DC power adapter connection to the Unit
- Verify there is power at the power source

#### Link LED on the Transmitter and Receiver are off

Check the CAT5e Link connections on the Transmitter and Receiver

#### Video and/or USB performance is not satisfactory

 High amount of network traffic, reduce the number of CrystalView EX HDMI Multi units on the network or reduce the network traffic.

#### Graphic/video settings do not list the specific resolution

- Up to date video drivers are not installed
- Resolution is not supported

The CrystalView EX HDMI Multi Transmitter and Receiver indicators will provide information about the operation, connectivity, and data transmission. Observe these.

#### **PRODUCT SAFETY**

#### **Safety**

The CrystalView EX HDMI Multi, like all electronic equipment, should be used with care. To protect yourself from possible injury and to minimize the risk of damage to the Unit, read and follow these safety instructions.

- Follow all instructions and warnings marked on this Unit.
- Except where explained in this manual, do not attempt to service this Unit yourself.
- Do not use this Unit near water.
- Assure that the placement of this Unit is on a stable surface.
- Provide proper ventilation and air circulation.
- Keep connection cables clear of obstructions that might cause damage to them.
- Use only power cords, power adapter and connection cables designed for this Unit.
- Keep objects that might damage this Unit and liquids that may spill, clear from this Unit. Liquids and foreign objects might come in contact with voltage points that could create a risk of fire or electrical shock.
- Do not use liquid or aerosol cleaners to clean this Unit. Always unplug this Unit from the power source before cleaning.

Remove power from the Unit and refer servicing to a qualified service center if any of the following conditions occur:

- The connection cables are damaged or frayed.
- The Unit has been exposed to any liquids.
- The Unit does not operate normally when all operating instructions have been followed.
- The Unit has been dropped or the case has been damaged.
- The Unit exhibits a distinct change in performance, indicating a need for service.

#### SERVICE AND MAINTENANCE

#### **Maintenance and Repair**

This Unit does not contain any internal user-serviceable parts. In the event a Unit needs repair or maintenance, you must first obtain a Return Authorization (RA) number from Rose Electronics or an authorized repair center. This Return Authorization number must appear on the outside of the shipping container. See the Limited Warranty page for more information.

When returning a Unit, it should be double-packed in the original container or equivalent, insured and shipped to:

Rose Electronics
Attn: RA\_\_\_\_\_
10707 Stancliff Road
Houston, Texas 77099 USA

#### **Technical Support**

If you are experiencing problems, or need assistance in setting up, configuring or operating your product, consult the appropriate sections of this manual. If, however, you require additional information or assistance, please contact the Rose Electronics Technical Support Department at:

Phone: (281) 933-7673

E-Mail: <u>TechSupport@rose.com</u>

Web: <u>www.rose.com</u>

Technical Support hours are from: 8:00 am to 6:00 pm CST (USA), Monday through Friday.

Please report any malfunctions in the operation of this Unit or any discrepancies in this manual to the Rose Electronics Technical Support Department.

## Appendix A — Specifications

Dimensions	Mini: 8.8" × 4.85" × 1.75" / 223 × 123 × 44 mm
$(W \times D \times H)$	Wide: 16.7" × 4.85" × 1.75" / 424 × 123 × 44 mm
Weight	Mini chassis: 4.4 lb (2 kg) Wide chassis: 6 lb (2.7 kg)
Power	100-240 VAC 50-60Hz External adapter (1 or 2), +5V, 4A, grounded Dual: 15W Triple: 30W Quad, 45W
Maximum Resolution	Uncompressed 1920x1200@60Hz
Color	24-bit color
Latency	Less than 1ms
USB speed	USB 2.0: up to 40Mbps USB 1.1: 1.5 to 12Mbps
USB host	xHCI (USB 3.0), EHCI (USB 2.0), OHCI/UHCI (USB 1.1)
USB hubs	Up to 4 hubs per single chain
USB devices	Maximum of 30 USB devices per Receiver port
USB power	500 mA per USB port at the Receiver
Connectors for each port	Common to transmitter and receiver:  Video: 2× to 4× HDMI-A female  Link port: 2x to 4× RJ45 jack  Power: 1 × or 2 × 1.7mm barrel jack  Audio in: 1 × 3.5mm jack (optional)  Audio out: 1 × 3.5mm jack (optional)  Serial: 1 × DB9 Female (optional)  Transmitter:  USB(when present): 0x to 4× Type B receptacle  Receiver:  USB(when present): 0, 3×, 6x, 9, or 12x Type A receptacle
Indicators  Environment	Power: Green = powered and ready Link: Green = Link established USB: Green = USB host connected Video: Solid Green = HDCP video signal Blinking Green = non-HDCP video  Operating temp: 32°F - 104°F (0°C - 40°C)
	Storage temp: -4°F - 158°F (-20°C - 70°C) Rel. humidity: 20% - 80%, non-condensing
Compliance	FCC Part 15 Class A, CE Class A, ICES-003 Class A, RoHS2 (CE)

#### **Appendix B — Part Numbers**

#### CRYSTALVIEW EX HDMI MULTI — EXTENDER KITS

#### (Includes transmitter unit, receiver unit, and power supply external adapters)

MULTI-UNIT KIT — 2, 3, or 4 HDMI+USB				
Part number	HDMI	USB	CHASSIS	POWER SUPPLIES
CRK-1DTXT2DM-2T-HD6	2	2	Mini	2
CRK-1DTXT2D-2T-HD6	2	2	Wide	2
CRK-1DTXT3D-3T-HD6	3	3	Wide	3
CRK-1DTXT4D-4T-HD6	4	4	Wide	3

MULTI-HEAD KIT — one USB and 1, 2, 3, or 4 HDMI					
Part number	HDMI	USB	CHASSIS	POWER SUPPLIES	
CRK-1DTXT1DM-HD6	1	1	Mini	2	
CRK-1DTXT2DM-HD6	2	1	Mini	2	
CRK-1DTXT2D-HD6	2	1	Wide	2	
CRK-1DTXT3D-HD6	3	1	Wide	2	
CRK-1DTXT4D-HD6	4	1	Wide	2	

VIDEO-ONLY KIT — no USB and 1, 2, 3, or 4 HDMI						
Part number HDMI USB CHASSIS POWER SUPPLIES						
CRK-1DTX01DM-HD6	1	0	Mini	2		
CRK-1DTX02DM-HD6	2	0	Mini	2		
CRK-1DTX02D-HD6	2	0	Wide	2		
CRK-1DTX03D-HD6	3	0	Wide	2		
CRK-1DTX04D-HD6	4	0	Wide	2		

#### CRYSTALVIEW EX HDMI MULTI — TRANSMITTER ONLY

#### (Includes transmitter unit and power supply external adapter)

MULTI-UNIT TRANSMITTER — 2, 3, or 4 HDMI+USB				
Part number	HDMI	USB	CHASSIS	POWER SUPPLIES
CRV-SLDTXT2DM-2T-HD6	2	2	Mini	1
CRV-SLDTXT2D-2T-HD6	2	2	Wide	1
CRV-SLDTXT3D-3T-HD6	3	3	Wide	1
CRV-SLDTXT4D-4T-HD6	4	4	Wide	1

MULTI-HEAD TRANSMITTER — one USB and 1, 2, 3, or 4 HDMI					
Part number	HDMI	USB	CHASSIS	POWER SUPPLIES	
CRV-SLDTXT1DM-HD6	1	1	Mini	1	
CRV-SLDTXT2DM-HD6	2	1	Mini	1	
CRV-SLDTXT2D-HD6	2	1	Wide	1	
CRV-SLDTXT3D-HD6	3	1	Wide	1	
CRV-SLDTXT4D-HD6	4	1	Wide	1	

VIDEO-ONLY TRANSMITTER — no USB and 1, 2, 3, or 4 HDMI						
Part number HDMI USB CHASSIS POWER SUPPLIES						
CRV-SLDTX01DM-HD6	1	0	Mini	1		
CRV-SLDTX02DM-HD6	2	0	Mini	1		
CRV-SLDTX02D-HD6	2	0	Wide	1		
CRV-SLDTX03D-HD6	3	0	Wide	1		
CRV-SLDTX04D-HD6	4	0	Wide	1		

#### (Includes receiver unit and power supply external adapter(s))

MULTI-UNIT RECEIVER — 2, 3, or 4 HDMI+USB						
Part number HDMI USB CHASSIS POWER SUPPLIES						
CRV-SRDTXT2DM-2T-HD6	2	2	Mini	1		
CRV-SRDTXT2D-2T-HD6	2	2	Wide	1		
CRV-SRDTXT3D-3T-HD6	3	3	Wide	2*		
CRV-SRDTXT4D-4T-HD6 4 4 Wide 2*						
*3-port and 4-port receiver units require two power supplies due to increased USB current						

MULTI-HEAD RECEIVER — one USB and 1, 2, 3, or 4 HDMI					
Part number HDMI USB CHASSIS POWER SUPPLIES					
CRV-SRDTXT1DM-HD6	1	1	Mini	1	
CRV-SRDTXT2DM-HD6	2	1	Mini	1	
CRV-SRDTXT2D-HD6	2	1	Wide	1	
CRV-SRDTXT3D-HD6	3	1	Wide	1	
CRV-SRDTXT4D-HD6	4	1	Wide	1	

VIDEO-ONLY RECEIVER — no USB and 1, 2, 3, or 4 HDMI					
Part number HDMI USB CHASSIS POWER SUPPLIES					
CRV-SRDTX01DM-HD6	1	0	Mini	1	
CRV-SRDTX02DM-HD6	2	0	Mini	1	
CRV-SRDTX02D-HD6	2	0	Wide	1	
CRV-SRDTX03D-HD6	3	0	Wide	1	
CRV-SRDTX04D-HD6	4	0	Wide	1	

#### **CRYSTALVIEW EX HDMI COMPACT UNITS**

TRANSMITTER OR RECEIVER — always come with 1 HDMI and 1 USB					
Part number HDMI USB CHASSIS POWER SUPPLIES					
CRK-1DTXT-HD6 (kit w/ Transmitter & Receiver)	1	1	Compact	2	
CRV-SLDTXT-HD6 (Transmitter)	1	1	Compact	1	
CRV-SRDTXT-HD6 (Receiver)	1	1	Compact	1	

#### **OPTIONS and ACCESSORIES**

OPTIONS (fitted on multi TX and RX units)	
/A2	Bi-directional Audio
/S	Serial RS232
/AS	Bi-directional Audio + Serial

ACCESSORIES	
CAB-HDMIMMnnn	HDMI male to male cable, nnn = length
CAB-USBABnnn	USB type A/B cable, nnn=length
RM-UM19	Rackmount kit for mini chassis
RM-UB19	Rackmount kit for wide chassis
RM-CRV-EX/19	Rackmount kit for compact chassis (holds 2 units, side-by-side)
RM-CRVEX/CP	Blanking plate for compact chassis rackmount kit
RM-UD/CRV-EX	Under desk bracket for compact chassis
TFR-05D400FSUB-1.7F	Replacement power supply for multi transmitter or receiver
TFR-05D300FSUB-1.7F	Replacement power supply for compact transmitter or receiver

