Installation Guide

UDM-RX02N Multi-Format Receiver with Native NetLinx Control

Overview

Installed at the display device, the UDM-RX02N (FG1402-20) converts the signal received from UDM-0808-SIG Multi-Format Distribution Hubs to standard audio/video signals. In addition, the UDM-RX02N supports AMX IR(.irl) files to provide native AMX device control. Serial control of the display device is also possible via standard asynchronous serial support.

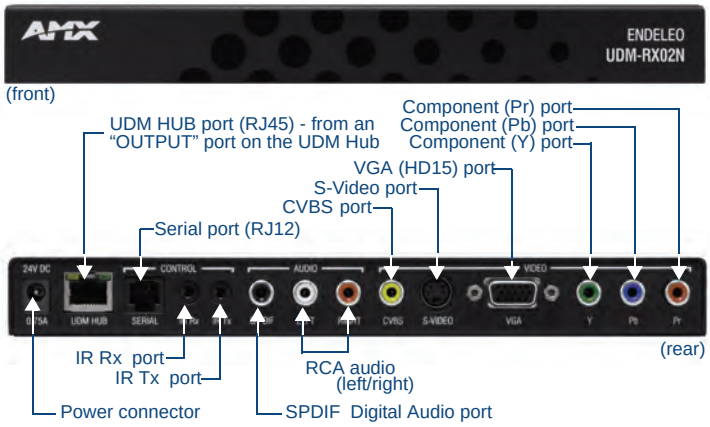

FIG. 1 UDM-RX02N

The UDM-RX02N is powered locally to support long cable runs and is capable of being powered remotely when short cable runs are used. With intelligent receiver technology, each UDM-RX02N is powered remotely from the Multi-Format Distribution Hub via Cat5/5e/6/7 Ethernet cable.

Distances of 1,000 feet/300 meters are supported at 1280x1024; higher resolutions are supported at shorter distances.

Common Application

Perfect for the receiving end of a variety of sources such as HDTV Satellite tuners, Blu-Ray DVD players and PCs just to name a few to be displayed in rooms throughout a residence or in classrooms, conference rooms presentation rooms or other commercial applications.

Features

- Video Support for 1600 x 1200 (UXGA), 1920 x 1080 (HDTV), Component Y/Pb/Pr, S-Video, CVBS-PAL/NTSC
- S/PDIF, Digital and analog stereo audio support
- IR blaster and receiver ports

***Note**: Unlike previous versions of the UDM receiver, the UDM-RX02N is a native NetLinx device, and can be configured using the NetLinx Studio software application.*

Compatibility

The UDM-RX02N is compatible for use with UDM-0808-SIG Multi-Format Distribution (FG1402-01) Hubs.

Product Specifications

UDM-RX02N Specifications	
Power Requirements:	• 24VDC @ .75A • Power via UDM-0808-SIG (UTP pins 7 & 8) supported for cable runs of less than 328' / 100M. • Local 24VDC, 750mA Power Supply required for cable distances above 328' / 100M (FG-UDM-PS, included)
Rear Panel Connectors:	
Power Socket:	2.1mm barrel-style DC power socket (female)
UDM Hub (RJ45) Port:	Provides audio/video transport as well as control via Cat5, Cat5e or Cat6 to an UDM Hub.
Serial (RJ12) port:	Provides bi-directional serial control of remote devices. It Also allows administrators to control the various functions to the UDM-RX02N from a command line prompt and terminal connection. • Requires a DB9-to-RJ12 adapter cable (FG-RS01) to connect to a PC.
IR Rx (3.5mm) Port:	3.5mm input port, for connection of an IR receiver to allow setup of the UDM-RX02N, local compensation controls, and remote control of centrally located IR devices.
IR Tx (3.5mm) Port:	3.5mm IR Transmitter output port allows one IR-controlled device (such as a DVD or VCR player) to be controlled via optional wired IR emitter.
Audio Connectors:	• Black RCA female connector - Digital audio • White RCA female connector - Analog audio Left • Red RCA female connector - Analog audio Right

UDM-RX02N Specifications (Cont.)	
Video Connectors:	• Yellow RCA female connector - CVBS (supports composite video) • S-Video - S-video female connector • VGA - HD15 female connector (supports VGA video) • Green RCA female connector - Component output: Y • Blue RCA female connector - Component output: Pb • Red RCA female connector - Component output: Pr
Operating Environment:	• 35°F - 95°F (5°C - 35°C) • Max. relative humidity - 85% (non-condensing)
Dimensions (HWD):	1" x 8 15/16" x 3 3/8" (25 mm x 227 mm x 85 mm)
Weight:	1.45 lb. (658 g)
Certifications:	• CE • FCC part 15 Class A
Included Accessories:	UDM-PS 24VDC, 750mA Power Supply (FG-UDM-PS) ***Note**: No A/V interface cables supplied.*
Other AMX Equipment:	• RS232 DB9/RJ12 Connection Cable (FG-RS01) • UDM-RC05 Multi-Format IR Remote Control (FG-UDM-RC05) • IR01 IR Emitter Module (FG-IR01) • IR03 External IR Receiver Module (FG-IR03)

Configuration Options

The UDM-RX02N is configured via the UDM Hub that it is connected to, via NetLinx Studio or via serial commands. Refer to the *UDM-0808-SIG, UDM-RX02N & UDM-AB8-SIG Operation/Reference Guide* for configuration details.

The UDM-RX02N will appear in NetLinx Studio's Online Device Tree as being connected to the UDM-0808-SIG Hub.

- By default, the UDM-0808-SIG is assigned device # **05600**.
- By default, the UDM-RX02N is assigned device # **0560X,** where **X** is the port number used by each UDM-RX02N.

Audio & Video Formats/Resolutions/Distance

Audio & Video Formats/Resolutions/Distance			
Class	**Format**	**Name**	**UDM-RX02N**
Composite/S-Video	720 x 480	NTSC	300 m / 1000'
	720 x 576	PAL	300 m / 1000'
Component	720 x 480	480p	300 m / 1000'
	720 x 576	576p	300 m / 1000'
	1280 x 720	720p	300 m / 1000'
	1920 x 1080	1080i	300 m / 1000'
	1920 x 1080	1080p	300 m / 1000'
RGBHV	640 x 480	VGA	300 m / 1000' *
	800 x 600	SVGA	300 m / 1000' *
	1024 x 768	XGA	300 m / 1000' *
	1280 x 1024	SXGA	300 m / 1000' *
	1600 x 1200	UXGA	140 m / 460'
	1920 x 1080	HD	140 m / 460'
	* When using VGA modes **with audio enabled**, the maximum cable distance is approximately 200 m / 650' (UDM-RX02N).		

***Note**: The maximum distances indicated above are not absolute, but are recommended distances that have been tested to deliver video at the specified resolutions, without significant signal degradation. In particular, lower resolutions (640 x 480, 720 x 480 and 800 x 600) can often be delivered significantly further than what is indicated in the table. Refer to the UDM-0808-SIG Endeleo Multi-format Distribution Hub Operation/Reference Guide for additional details on maximum cable distances.*

Wiring and Connections

The UDM-RX02N connects to an Endeleo UDM Hub using a twisted pair Cat5/5e/6/7 Ethernet cable.

Power Connector

Use the 2.1mm barrel-style DC power socket (female) to connect to a 24VDC, 750mA power supply.

***Note**: While the UDM-RX02N can be powered via UTP for short cable runs, a local (24VDC, 750mA) power supply is required for cable distances above 328' / 100M. The recommended power supply is the UDM-PS (FG-UDM-PS, included).*

Powering on the UDM-RX02N

To connect the UDM-RX02N to the optional power supply, insert the barrel connector of the power supply into the power connector on the UDM-RX02N.

To power down the UDM-RX02N, remove the barrel connector of the power supply from the power connector and remove the patch cable from the UDM HUB RJ45 connector.

***Note**: As a Class 1 appliance, ensure the display device is connected to a power outlet with a protective grounding connection.*

UDM HUB (RJ-45) Port

This is a standard RJ-45 connector - the UDM-RX02N can be connected to the UDM-0808-SIG Hub using CAT5/5e/6 /7 cabling

Connecting the UDM-RX02N to a UDM-0808-SIG Hub

The UDM-0808-SIG Hub features eight UDM OUTPUT RJ45 connectors, each of which support one UDM-RX02N. The UDM-RX02N will then be connected to a display device.

1. Connect a UTP patch cable to the appropriate UDM OUTPUT RJ45 connector. The UDM-0808-SIG is marked with the port number for each output (1- 8).
2. Connect the other end of the UTP patch cable to the **UDM HUB** port on the UDM-RX02N.
3. When the power is switched on, two LEDs will be visible at the **UDM HUB** port:

UDM Port LEDs

2 LEDs are visible at the **UDM HUB** port on the UDM-RX02N, when the Hub is switched on:

- **Green** – Audio/Control Communication from UDM Hub (if UTP patch cable is removed, LED switches off)
- **Amber** – Power

CONTROL Connectors

***Note**: The UDM-RX02N can be controlled via SEND_COMMANDS (UDM-0808-SIG), or via the (optional) UDM-RC05 Endeleo IR Remote Control (FG-UDM-RC05).*

The CONTROL connectors on the UDM-RX02N include the **SERIAL** (RJ12) connector, the **IR Rx** (IR receive), and **IR Tx** (IR transmit) ports.

SERIAL (RJ12) Port

The SERIAL (RJ12) port allows administrators to control the various functions to the UDM-RX02N from a command line prompt and terminal connection.

- Requires a DB9-to-RJ12 adapter cable (FG-RS01) to connect to a PC.
- Default settings = 9600, 8 bit, No Parity, 1 Stop Bit.

The Serial port can also be used as a control port for sending serial data to a connected device. In this mode the UDM-RX02N supports baud rates from 1200 - 115200. If a display device is controlled using a serial connection instead of IR, then a serial cable is connected from the UDM-RX02N to the serial port on the display device.

***Note**: The baud rate on the UDM-RX02N must match the baud rate as the receiver is set up for. For example, if the baud rate has been changed to 115200 for a certain display, then you'll need to change your terminal to the same 115200 baud rate.*

Also note that you must type 'setup' **within 30 seconds of powering up** - after this time period, anything typed will be sent back to the UDM hub.

Depending on the screen manufacturer, it may be necessary to introduce a cross into this connection by instead using the FG-RS02 cable, or a null modem DB9-DB9 adaptor with the FG-RS01. In some cases the null modem adaptor may need a link between RTS/CTS at the DB9 end.

For example, NEC LCD panels act as DTE equipment and work with standard serial cable, while Fujitsu and Panasonic Plasma screens act as DCE equipment and therefore require cross connections.

***Note**: Refer to the UDM-0808-SIG / UDM-RX02N Operation/Reference Guide for pinout details on the SERIAL (RJ12) connector.*

To connect to a display device using a serial cable:

1. Connect a serial cable to the UDM-RX02N's SERIAL port.
2. Run the serial cable (observing distance limitations) to the display device's serial port and connect.

***Note**: The serial cable must be pinned out according to the Manufacturer's instructions. Failure to do so will result in serial commands failing.*

IR Rx (IR Receiver) Port

The IR Rx IR Receiver port supports pass-through remote control of connected IR devices.

If pass-through mode is required (where an IR-controlled device is controlled via the UDM-RX02N using a an AMX or Endeleo remote control), then an IR03 External IR Receiver Module (FG-IR03, not included) is required to receive IR commands from the remote control. Likewise, an IR Receiver is required to compensate video on the UDM-RX02N using the RC02 Endeleo remote control.

To connect an IR Receiver to the UDM-RX02N:

1. Connect the IR03 IR Receiver cable to the **IR Rx** port on the UDM-RX02N.
2. Run the cable and attach the receiver bud such that it has a clear line-of-sight with the intended remote control device.

IR Tx IR Transmitter Port

The IR Tx IR Transmitter port supports wired control of connected IR devices.

To issue IR commands to a display device, an IR01 External IR Emitter Module (FG-IR01, not included) is required.

To connect an IR Emitter:

1. Connect an IR01 IR Emitter cable (**FG-IR01**) to the **IR Tx** port on the UDM-RX02N.
2. Run the other end of the IRTX cable to the display device and locate the IR window.
3. Attach the IR Emitter bud over the device's IR sensor by removing the cover of the reverse side of the Emitter and sticking it directly over the IR window.

AUDIO & VIDEO Connectors

The rear of the UDM-RX02N has two sets of output connectors: AUDIO and VIDEO. Each of these sets of outputs has connections for Digital Audio, Analog Audio (L & R) and Video:

UDM-RX02N Output Connectors	
Audio:	
SPDIF	Digital audio
Left	Analog audio left
Right	Analog audio right
Video:	
CVBS	Composite Video Blanking & Sync analog video
S-Video	S-Video
VGA	HD 15 female connector for VGA format
Y	Analog component video output: Y
Pb	Analog component video output: Pb
Pr	Analog component video output: Pr

CVBS (Composite) Video Output Port

1. Attach a composite cable to the **CVBS** connector on the UDM-RX02N.
2. Run the other end of the composite cable to the Composite connector on the display device and establish a firm connection.
3. If the display device has audio feeds, connect its audio to the audio connectors on the UDM-RX02N.

S-Video Video Output Port

1. Connect an S-Video cable (FG-UDM-SVID01) to the 4 pin **S-Video** connector on the UDM-RX02N.
2. Run the other end of the S-Video cable to the S-Video connector on the display device and make sure of a firm connection.
3. If the display device has audio feeds, connect its audio to the audio connectors on the UDM-RX02N.

***Note**: Refer to the UDM-0808-SIG / UDM-RX02N Operation/Reference Guide for pinout details on the S-VIDEO connector.*

VGA Video Output Port

1. Attach one end of the VGA cable to the UDM-RX02N's VGA connector.
2. Run the other end to the VGA connector on the display device and make a firm connection.
3. If the display device has audio feeds, connect its audio to the audio connectors on the UDM-RX02N.

***Note**: Refer to the UDM-0808-SIG / UDM-RX02N Operation/Reference Guide for pinout details on the VGA HD15 connector.*

Component (Y/Pb/Pr) Video Output Port

1. Attach the Component cables to the **Y** (green), **Pb** (blue) and **Pr** (red) connectors on the UDM-RX02N.
2. Run the other end of the Component cable to the Component connectors on the display device and make sure of a firm connection.
3. If the display device has audio feeds, connect its audio to the audio connectors on the UDM-RX02N.

Video Compensation

Video can be compensated at the UDM-RX02N Receiver via NetLinx LEVEL Commands.

- NetLinx SEND_LEVELs and SEND_COMMANDs are also available for video compensation control, as described in the *UDM-0808-SIG, UDM-RX02N & UDM-AB8-SIG Operation/Reference Guide*.
- Video can also be compensated at the UDM-RX02N Receiver using the UDM-RC05 Multi-Format IR Remote Control (FG-UDM-RC05, not included) and IR03 External IR Receiver Module (FG-IR03, not included).

Additional Documentation

Refer to the *UDM-0808-SIG, UDM-RX02N & UDM-AB8-SIG Operation/Reference Guide* (available online at **www.amx.com**) for additional installation details, video compensation and configuration information, as well as a full listing of supported NetLinx control options.

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