![Avenview logo]

Control Your Video

VIDEO WALL VIDEO PROCESSORS
MULTIVIEWERS DIGITAL SIGNAGE
EXTENDERS CONTROL CENTERS
SCALERS WIRELESS

HDM-6IP4K-SET VideoWall and Switch Configuration Guide

Model #: HDM-C6IP4K-SET

Avenview HDM-C6IP4K Overview

The Avenview HDM-C6IP4K-SET features a chipset that enables extension, switching and compositing of real-time, uncompressed Ultra-HD AV signals with zero-frame latency over off-the-shelf (OTS) Layer 2/ Layer 3 Ethernet switches In addition of that, it also can extend 8 channels of audio, 1 Gb Ethernet, 480 Mbit/sec USB 2.0[1] and other control signals over either multi or single mode fiber or Cat-X cabling.

Avenview HDM-C6IP4K-SET Evaluation Kit

The Avenview HDM-C6IP4K-SET Evaluation/Demo Kit that you have received consists of the

following hardware and software components:

- **2x Transmitters (TX):** Transmitters are meant to be connected to source devices such as computers, laptops, Blu-ray players and other media or HDMI source devices. The I/O interface is as follows:
    - HDMI-input
    - Audio-input
    - IR input and output
    - RS-232 (bidirectional)
    - RJ45 Ethernet Port (10/100/1000)
    - 10 GbE Fiber or Copper output for connection to a 10 GbE Ethernet switch or direct to a BlueRiver NT Receiver (RX) in case of point to point setup.
- **2x Receivers (RX):** Receivers connected to display devices such as LCD/LED displays and projectors. The receivers have the following I/O:
    - HDMI-output
    - Audio-output
    - IR input and output
    - RS-232 (bidirectional)
    - RJ45 Ethernet Port (10/100/1000)
    - 10 GbE Fiber or Copper input from 10 GbE switch or directly from a BlueRiver NT transmitter in case of point to point setup.
- 4x SFP+ transceivers only if received BRNT devices are for fiber extension
- 4x Power Supply Units
- **BlueRiver Manager**: Control demo software to configure and control extension and routing of all signal types between HDM-C6IP4K TX and RX devices. For operation, The BlueRiver Manager software has to be installed onto a Windows 7 or Windows 8.1/10 computer/laptop that is connected directly to the 10 GbE switch or directly to the RJ45 Ethernet port on one of the TX or RD devices.

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[1] Requires 3rd party USB 2.0 chipset

- **Firmware**: All TX and RX devices are running with the latest firmware. But in case you have to reinstall the firmware the firmware is provided as well as bitstream files. The Manager Demo software can be used to update firmware on all Avenview devices on the same network. Please note that the firmware for the TX and RX are unique and cannot be interchanged.

Initial Setup

The Avenview HDM-C6IP4K extender set you have received include a 2 transmitters (TX) and a 2 receivers (RX). Each unit has a label at the bottom to indicate if it is a transmitter "TX" or receiver "RX".

If you received the fiber version of the Avenview Evaluation Kit, you will find four (4) SFP fiber optic transceivers included in the package. These should be inserted into the SFP slots of TX and RX units before use.   To complete the initial setup, please follow the steps below:

- Connect the power supply (5V) to the power connector.
- Connect the video/graphics source device to the HDMI connector on each TX unit
- Connect the video display device to the HDMI connector on each RX unit
- (Optional) Connect audio sources to the audio-in connector of the TX if you want to test additional audio extension
- (Optional) Connect audio output device (e.g. speaker or headphone) to the audio-out connector of the RX if you want to test additional audio extension
- (Optional) Connect RS-232 devices as needed if you want to test RS-232 serial extension between TX and RX units
- (Optional) Connect GbE compatible Ethernet devices as needed for testing the 1 Gig Ethernet ports of any TX or RX units
- (Optional) Connect compatible IR emitter modules to the IR-out connectors of any TX or RX
- (Connect) Connect compatible IR receiver modules to the IR-in connectors of any TX or RX
- For fiber units:
    - Connect a duplex, LC terminated multimode fiber from the SFP+ port of each TX and RX unit to any available 10G SFP+ ports of the 10GbE switch. *It is important to ensure that the fiber type matches the SFP module used. This means that multi-mode fiber can only be used with multi-mode SFP modules and conversely single-mode fiber (typically yellow) should only be used with single-mode SFP modules.* **The SFP+ modules included in received evaluation kit are multi-mode modules**.

BlueRiver Manager Software

The BlueRiver Manager is demo control software used to configure and control signal extension and switching between TX and RX units.

General Information

The BlueRiver NT Manager can be used on any Windows PC using Microsoft .Net framework 4.0 or higher (Windows 7 SP1 or Windows 8.1/10 is recommended).

The PC running BlueRiver Manager can be connected to the GbE port of any Avenview device or to any RJ45 port of the 10GbE switch except the management/console port of the switch which is not part of the network. For this evaluation, all Avenview devices should also be connected to the same 10GbE Switch.

Before proceeding, make sure all Avenview devices are powered ON. Then ensure that the PC receives an IP address in the 169.254.X.X range. If this is not the case, please set your IP address manually in the169.254.X.X range with a mask of 255.255.0.0. In case of manual setup, make sure to use an address not currently in use by any TX or RX device.

Start the application by double clicking on BlueRiverNT_Manager.exe file provided by Avenview. If you receive a pop-up asking for network access confirmation, make sure that both Private and Public networks are allowed.

Upon launch, the BlueRiver Manager's main interface appear as per the picture below:
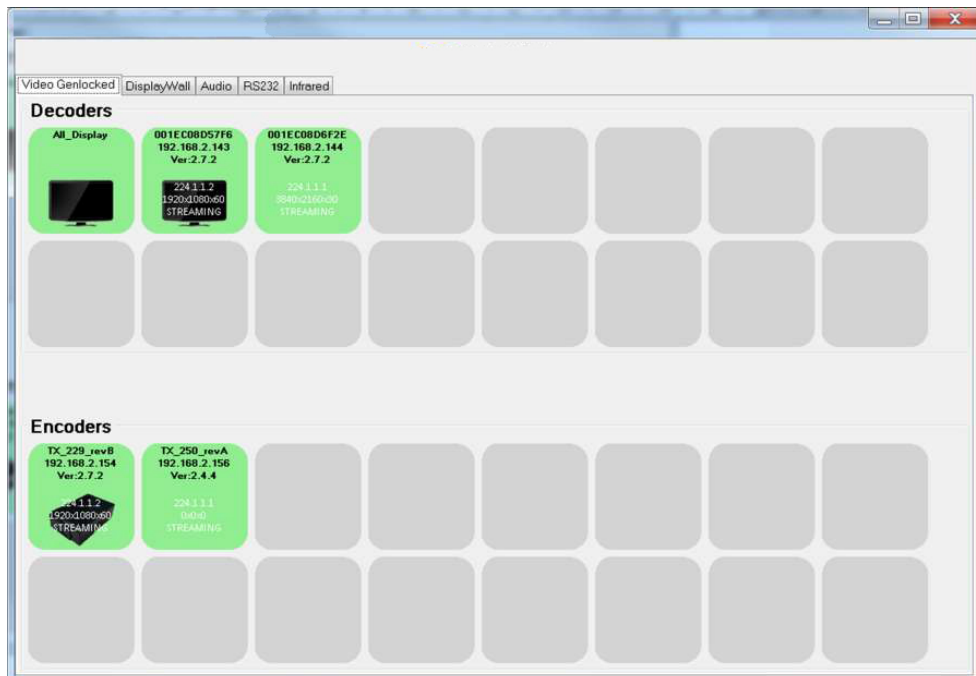
Multiple Avenview devices can be grouped together to form a video wall. To experiment with this functionality, select the "DisplayWall" tab in the main window. Start with configuring the wall size. Then drag and drop RX units onto the matrix that corresponds to the wall size entered previously.

Now drag and drop TX unit with a source connected onto the 'Wall Group' tile. The source connected to the TX units will now appear, scaled across all the displays connected to the RX units that form the 'Wall Group'.
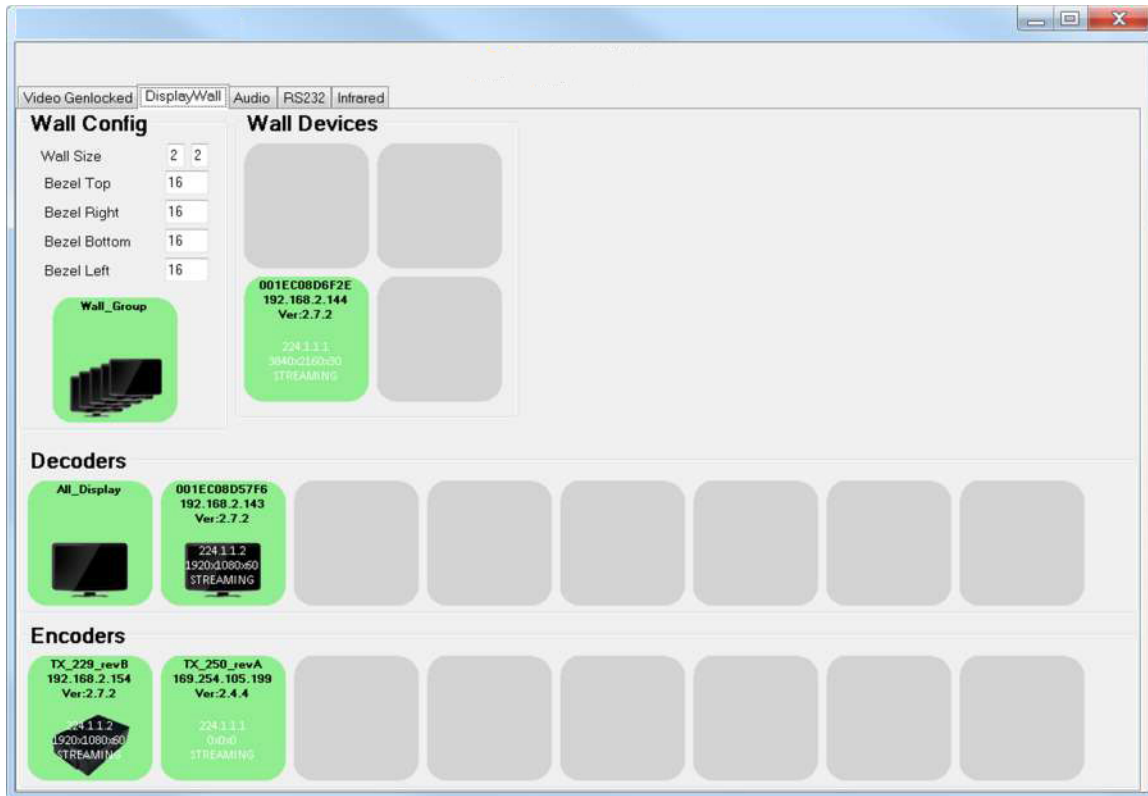

Figure 4: BlueRiver NT Manager, Video Wall tab

To compensate for Bezel thickness, enter the Bezel Top, Right, Bottom and Left thickness in pixel units.

Avenview devices make use of IP multicast to route packets between TX and RX devices. To maintain a map of which links need which IP multicast streams, the switches take use of IGMP Snooping. Some switches have the IGMP Snooping feature disabled by default and manual configuration is required to enable it. Most of the time, a simple checkmark near "Enable IGMP Snooping" is needed.

The list below is an overview of options that need to be looked for when configuring a switch to enable IGMP snooping and IP multicasting.

- ✓ **Enable IGMP Snooping (must be enabled)**
- ✓ **Enable IGMP Snooping on VLAN 1 (must be enabled where all ports default to VLAN1)**
- ✓ **Filter/Drop unregistered Multicast traffic (must be enabled if found)**
- ✓ **Unregistered Multicast Flooding (must be disabled if found)**
- ✓ **Set IP Address for switch (169.254.254.254 must be set if found)**
- ✓ **Set IP Address for switch on VLAN1 (169.254.254.253 must be set if found)**
- ✓ **Enable IGMP Querier**
- ✓ **Enable IGMP Querier on VLAN1**
- ✓ **Set IGMP Version to IGMP V2 (must be set if found)**
- ✓ **Enable FASTLEAVE on port X (can be enable if found)**
- ✓ **Enable FASTLEAVE for VLAN1 (can be enabled if found)**

Because the implementation of IGMP Snooping is vendor specific, more configurations may be needed. For more information, consult documentation from the switch manufacturer.