



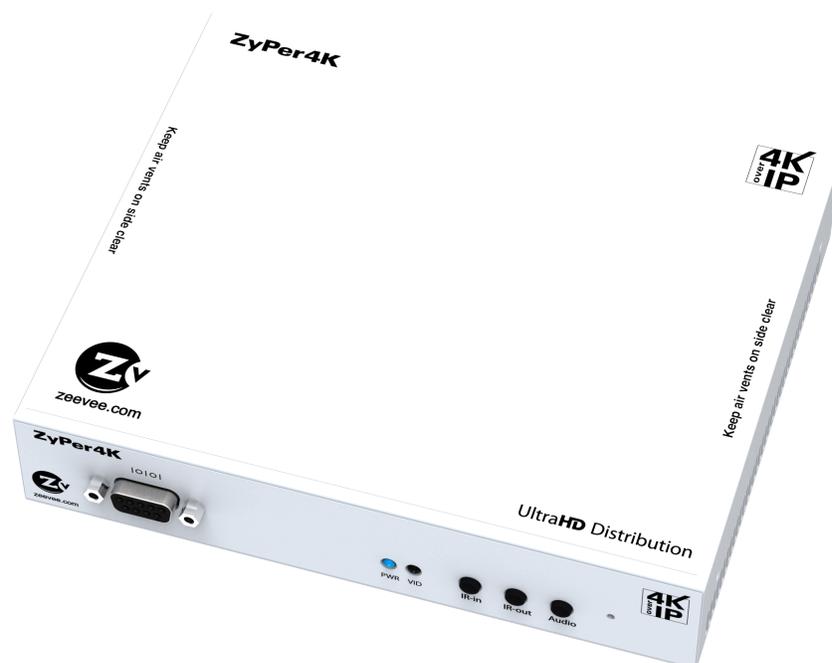
Intelligent AV Distribution

## ZyPer4K

HDMI 2.0  
IP VIDEO DISTRIBUTION SYSTEM

## ZyPer4K Quick Start Guide

Updated April 2022



# System Description

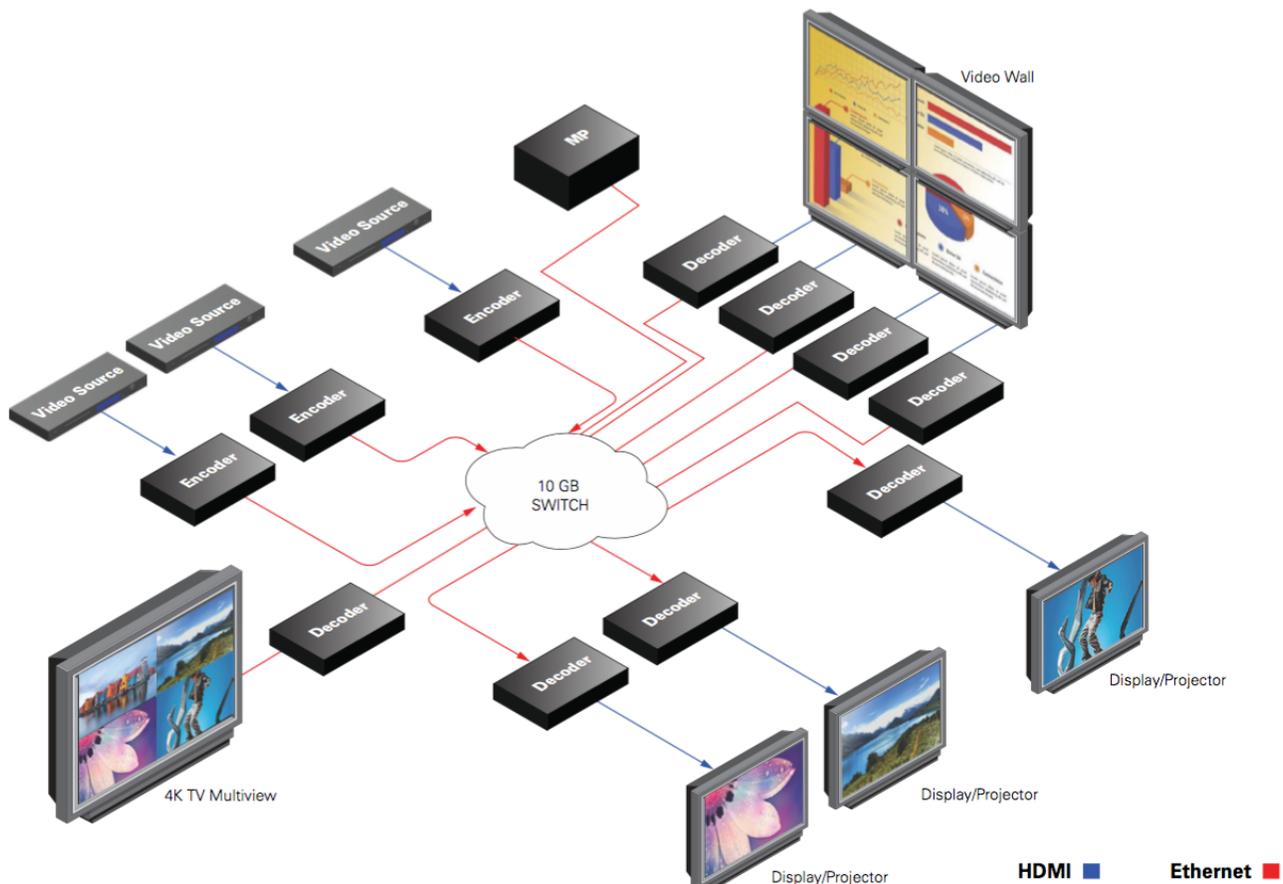
The ZyPer4K series of products from ZeeVee provide a means for transmitting and receiving up to 4K audio-visual information across a standard 10Gb IP network with outstanding quality at very low latencies.

**A minimal system consists of:**

- Video Source (Up to 4K)
- ZyPer4K Encoder device
- CatX Cable or Fiber cables with SFP modules
- ZyPer4K Decoder device
- Display device

**A fully realized system consists of:**

- (N) Video Sources (HDMI 2.0 support with HDR)
- (N) ZyPer4K Encoder devices
- 10Gb Ethernet switching Infrastructure (> (N+M) ports of non-blocking capacity)
- (M) ZyPer4K Decoder devices
- (M) Display devices
- ZyPerMP control node



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## Management Platform

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Most installations will require a ZyPer Management Platform (ZyPerMP). This device controls the operation and manages the connectivity between endpoints. The management platform is a hardened controller node that must reside on the same logical network as the ZyPer4K Encoders and Decoders. It runs a ZeeVee application as its sole function. The application presents an API to potential third party management platforms as well as hosting its own Maestro-Z management application.

The purpose of the Management Platform is to interface user operational requests into the specific device-level control needed to effect connectivity changes, screen management, interface management, and distribute software and control data to all the endpoints of the overall system. The ZyPerMP is the entity that ensures all the endpoints, are accounted for, operating properly, and performing the correct operation at the correct time.

Further, the ZyPerMP is the element that guarantees security, manages access to the overall system and prevents rogue listeners or observers from snooping or spoofing unwanted content.

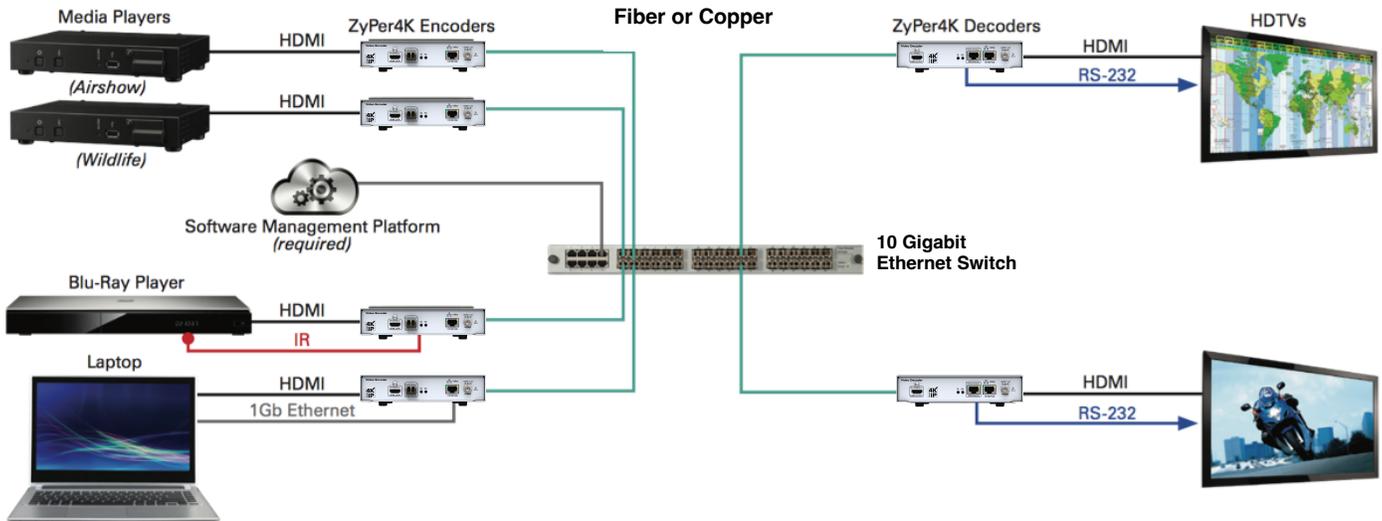
Multiple ZyPerMP devices may be deployed in a redundant configuration to provide for fault tolerant control of the greater ZyPer4K overall system.

Operation of the ZyPerMP, the Maestro-Z application, and the ZyPer-API are beyond the scope of this manual and are documented separately in far greater detail in the *ZyPer Management Platform User Manual*. Documentation can be downloaded from the ZeeVee website.

<https://www.zeevee.com/documentation/>

## Setting up ZyPer4K in Multipoint Environment

A multipoint, or switched environment involves connecting many sources to many displays. ZyPer4K allows you a flexible and scalable amount of input-output options without limitations. For example, in a 24-port configuration, you can configure a 1x23, 6x18, or 4x20 (and so on) system. A network switch is needed in these many to many configurations. These environments also require configuration through the ZyPer4K management software.

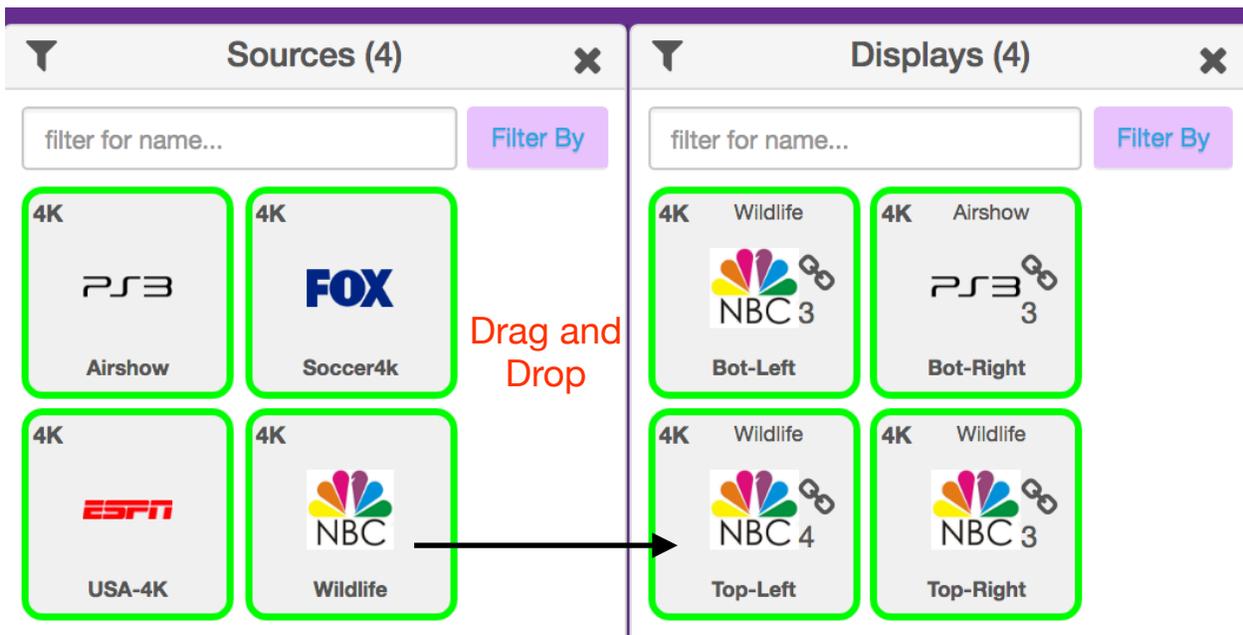
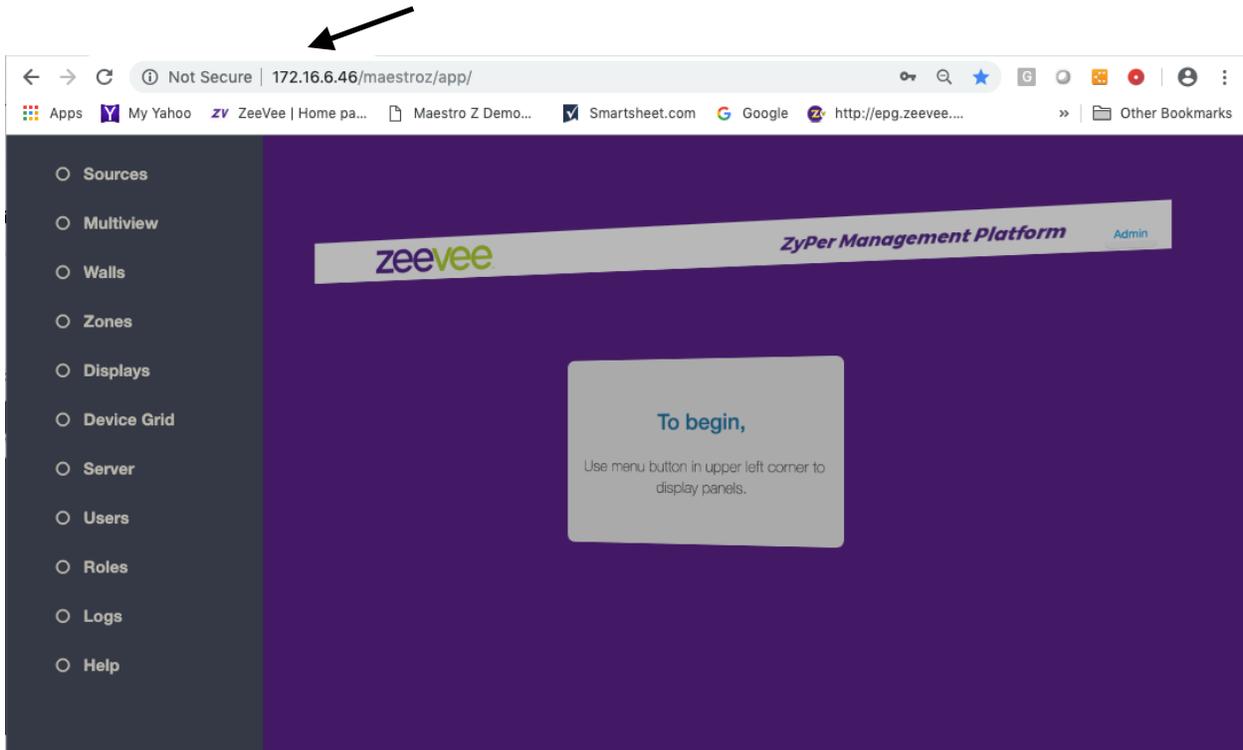


### To set up ZyPer4K in a multipoint environment, you have to:

- Connect the ZyPer Management Platform (MP) to the network switch
  - Determine the IP Address of the ZMP (See the Management Platform User Guide for details)
- Connect all Encoders and Decoders to the 10Gb network switch
- Connect a PC or Laptop to the network switch.
  - Make sure laptop is on same “network” as the ZMP
  - Open a Chrome browser and point it to the IP Address of the ZMP. (This opens the ZyPer Management Platform GUI)
  - Login to the ZMP using the default username and password. “admin” / “admin”
  - All devices (encoders and decoders) will automatically appear in ZMP

- Switch (or route) video from sources to displays
- Drag source onto display to route video/audio

IP Address of ZMP



Please consult the *ZyPer Management Platform User Manual* for additional details on switching/routing video from sources to displays.

Please consult the *ZyPer4K Network Requirements and Security Considerations* document for details on Network switch requirements.

Both documents are available on the ZeeVee website:

<https://www.zeevee.com/documentation/>

## Fast-Switched vs. Genlocked Mode

The ZyPer4K provides two uniquely different modes for joining video/audio between a source (encoder) and display (decoder). The chart below details the differences between these two modes.

Feature	Fast-Switched	Genlocked
Latency	1-frame of latency. (16-33ms depending on frame rate of source video.	0 frames of latency. Less than 100µs
Transition Appearance	Instantaneous if switching between sources at same resolution and frame rate	Visible blanking of display when switching between sources
Scaling	Automatic scaling up or down to preferred resolution of the display (As determined by display EDID)	Source is not scaled. What comes in at source is presented to display exactly as input. (Note: Special Genlock-scaled mode is available)
HDR	HDR input is automatically reduced to 8-bits at output	HDR input is maintained exactly at output.
Encoded Audio	AC3 or other encoded audio formats are passed from encoder to decoder (Requires API Version 2.0 or newer)	AC3 or other encoded audio formats are passed from encoder to decoder
Video Wall	Video walls are not supported in Fast-Switched mode (Join command for walls defaults to Genlock-scaled)	Video walls are technically always in Genlock-scaled mode
Multiview	Multiview is supported in Fast-Switch mode	Multiview is not supported in Genlocked mode
Video Disconnect	Disconnecting video ( <b>Join None</b> ) will maintain a black screen output. (Video is not technically disconnected)	Disconnecting video ( <b>Join None</b> ) will disconnect the video stream entirely. No video output from decoder.
USB, IR, RS232	None of these items are associated with Fast-Switched or Genlocked mode	

**Notes:** Video Disconnect refers to the existing join between encoder and decoder. If existing join is Fast-Switched then a “Join None” command simply puts out a fully black video output from the decoder. If the existing join is Genlocked, then a “Join None” command disconnects the video stream and nothing is output from the decoder. This can be verified by looking at the VID light on the ZyPer4K decoder.