

Fisheye Camera Modes Explained

The Luma fisheye camera is a versatile camera that can monitor entire rooms, replacing two or more other cameras. It has several different operating modes that address various situations, one of which is sure to meet your needs.

What Good Is the Fisheye View?

First, let's talk about the fisheye view itself. The fisheye view covers everything that the camera sees—that's an entire hemisphere of surveillance! The fisheye image, being highly distorted, is not very useful to viewers in its raw form, however **recording this view captures everything the fisheye camera sees**. You can then use the Luma fisheye viewer to de-warp the video and review the image from any area, operating the viewer as if it were a PTZ.

What Are the Virtual PTZs?

The virtual PTZs are a slice of the fisheye view that is de-warped in real time so that you can monitor and/or record those areas as a separate camera stream. It acts as a separate camera, even though it's part of the fisheye camera. You have up to three virtual PTZs that you can position to view key areas of immediate interest.

Understanding Modes

The default mode for the fisheye is 1+2, which comprises the fisheye view and two virtual PTZs. With this mode, you might place the camera on the ceiling of a large room. The fisheye view captures everything that happens in that room, and the two virtual PTZs are aimed at the two doorways to see who comes and goes. In this mode, the single fisheye camera acts like three cameras, and if all three views are recorded, they take up three channels on the NVR, because the NVR sees it as three different cameras.

While flexible, the fisheye has limitations. Each channel of the fisheye can support up to three different streams:

- Main Stream (for recording to NVR and/or H.264 stream to control system)
- Substream (for recording to NVR and/or MJPEG stream to control system)
- JPEG Snapshot (for email snapshot and/or JPEG to control system)

However, the fisheye camera can only support **up to six total streams**, regardless of mode. This limits the streams you can use depending on the modes and your system requirements, as shown below.

Camera	Stream	Fisheye + 3PTZ	Fisheye + 2PTZ	Fisheye + 1PTZ	2 PTZ
Fisheye	Main	✔	✔	✔	⊘
	Sub	✔	✔	✔	⊘
	Snapshot	✔	⚠	✔	⊘
Virtual PTZ #1	Main	✔	✔	✔	✔
	Sub	⚠	✔	✔	✔
	Snapshot	⚠	⚠	✔	✔
Virtual PTZ #2	Main	✔	✔	⊘	✔
	Sub	⚠	✔	⊘	✔
	Snapshot	⚠	⚠	⊘	✔
Virtual PTZ #3	Main	✔	⊘	⊘	⊘
	Sub	⚠	⊘	⊘	⊘
	Snapshot	⚠	⊘	⊘	⊘

- ✔ : Stream is available
- ⚠ : Stream is unavailable
- ⊘ : Camera not used in this mode

Selecting a Mode to Use

With versatility comes complexity, but selecting a mode is actually pretty easy once you account for your needs.

Control System Applications

Since control systems typically require all three streams (Main, Sub, and Snapshot) you must choose either **Fisheye + 1 PTZ** or **2 PTZ** mode.

- Choose **Fisheye + 1 PTZ** if you'd like to record the entire area on the NVR.
- Otherwise, use **2 PTZ** mode.

NVR-Only Recording

If all you're doing is recording to the NVR, use the default mode of **Fisheye + 2 PTZ**. The NVR requires both the main and sub stream to record properly, so this is your go-to mode.

Fisheye Without an NVR

If you have neither an NVR nor a control system, use **Fisheye + 3 PTZ** to get the maximum number of cameras. Add the fisheye camera directly to the Luma app and monitor all four cameras at any time. The app can even de-warp the fisheye view in real time, allowing you to view any location in the area.