

# FLEXIDOME IP panoramic 7000 MP and Edge Dewarping Guide

## Technical Brief

### Overview

The FLEXIDOME IP panoramic 7000 MP camera has the ability to perform edge dewarping. This feature provides multiple benefits such as “Corridor Mode” and “Quad Virtual Cameras”, but this feature also has varying effects depending on the deployment scenario. This technical brief will look at several scenarios to include; standalone deployment utilizing the camera’s web browser, Bosch Video Client 1.7.3.45 (BVC), and Video Security Client 1.01(VSC), Video Recording Manager 3.X (VRM), BVMS 5.5.5, and edge recording.

### Standalone Deployment

The factory default mode of the 7000 panoramic camera is “Warped”. This view provides the entire 360-degree view produced by the camera. In this mode “Dewarping” must be performed by the viewing client. In some cases client-side dewarping may not be possible due to the viewing client software or the hardware platform it is deployed on.

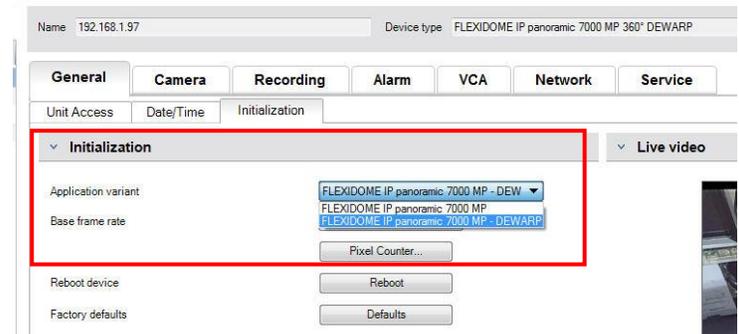


### Application Variants

The first step in enabling edge dewarping is to apply the correct “Application Variant”. This setting can be accessed in *Bosch Configuration Manager* as well as the camera’s web browser. In *Configuration Manager* after highlighting the camera select:

- The “General” menu tab, then select the “Initialization” sub menu
- In the “Application variant” drop down-menu select the “FLEXIDOME IP panoramic 7000 MP-DEWARP” option
- Select the “save” tab

Note: After making this selection, the camera will revert to basic default settings. The IP address will remain, but all other settings will be set to default. The camera’s base frame rate will be limited to 12.5 FPS



Note: This “Application variant” menu is not accessible via BVMS 5.5.5



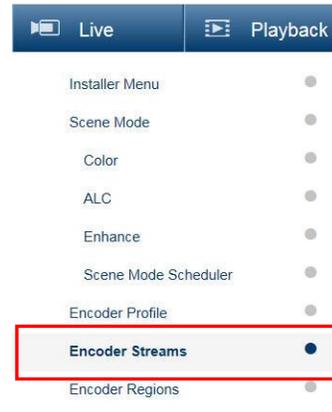
“Application variant” menu in the device’s web interface

### Dewarped Settings and the Web Browser

Once the camera has been set for edge dewarping, there are certain configuration settings that can only be accessed from the devices web page. To better explain these settings and their effects, this document will show examples of menu options and settings from both a “Warped” and “Dewarped” application variant.

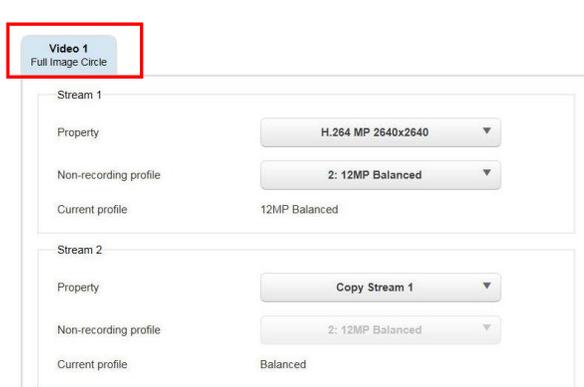
The primary menu for adjusting Dewarped settings is the “Encoder Streams” menu option in the web browser:

- From the cameras web browser select the “Configuration” tab in the top right hand corner
- Select the “Encoder Streams” menu

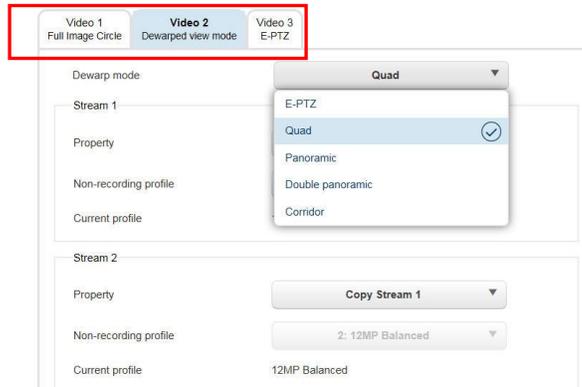


After dewarping has been configured, the “Encoder Streams” menu will change from have one (1) stream to having three (3) streams:

- Video 1: This is the default “Full Image Circle” stream for both variants and is a fixed view
- Video 2: “Dewarped view mode” is a configurable stream that can be placed in the following modes:
  - E-PTZ, Quad, Panoramic, Double Panoramic, or Corridor
- Video 3: E-PTZ is the default view for video 3 and is a fixed view



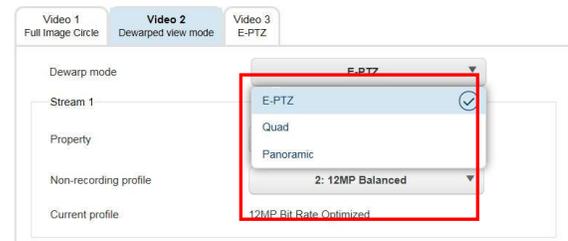
Video Stream Menu “Warped Mode”



Video Stream Menu “Dewarped Mode”

Availability of modes are dependent on the “Mount Position” of the camera that is selected in the installer menu (wall or ceiling). In the “Wall” mount position only E-PTZ, Quad, and Panoramic are available

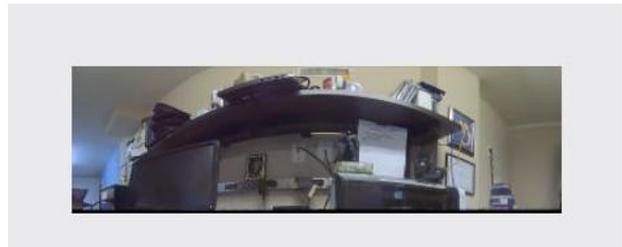
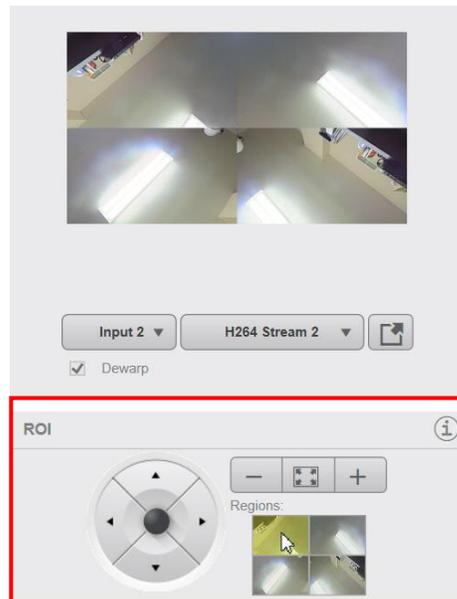
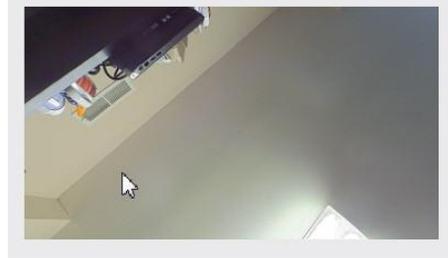
### Encoder Streams



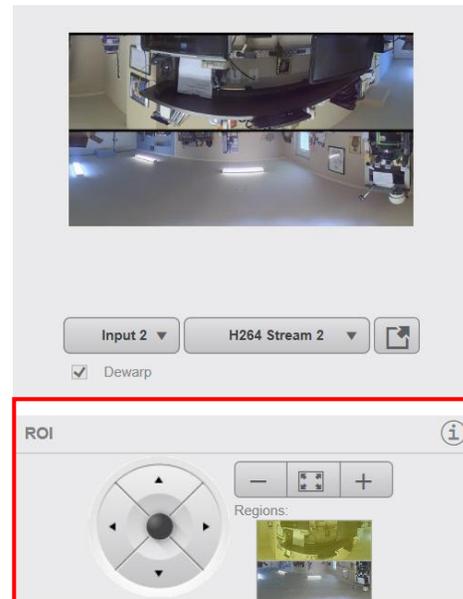
**Video 2 Mode Settings:**

As stated above, "Video 2" is the only malleable video stream of the three encoder streams in Dewarped mode, and is the key in providing specific features. **These settings are ONLY available via the web browser:**

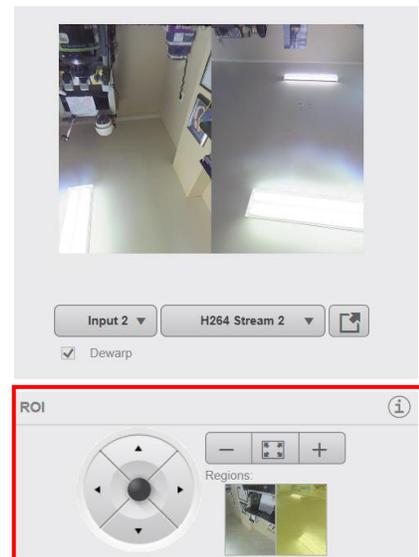
- *E-PTZ Mode:* This mode provides basic virtual PTZ controls in a Dewarped fashion performed at the edge
  
- *Quad Mode:* This mode allows the creation of four virtual PTZ cameras. The virtual views can be individually controlled via the "ROI" menu from this location and/or the Live Page of the camera:
  - Simply select the quadrant to be adjusted in the ROI menu; then use the PTZ controls to position the scene
  
- If viewing Video 2 within BVC, only the upper right hand quadrant responds to PTZ commands. Quadrants 1,3, and 4 remain static scenes
- If utilizing VSC, all four virtual cameras move simultaneously if PTZ controls are enabled.
  
- *Panoramic Mode:* This mode creates a single panoramic scene:
  - This view can be panned in segments via the live page of the web browser and VSC
  - This is a static scene in BVC



- *Double Panoramic Mode:* This mode creates two virtual panoramic cameras which can be individually controlled via the “ROI” menu from this location, the Live Page of the camera, VSC:
  - Changes are incremental segments
  - When viewing in BVC, only the lower panoramic scene can be moved



- *Corridor Mode (Ceiling only):* This mode allows the creation of two virtual cameras with upright views looking in opposite directions. The two virtual cameras can be individually controlled via the “ROI” menu from this location and the live page of the cameras web browser
  - If viewing this stream with BVC, only the virtual camera on the right can be controlled
  - If viewing this stream in VSC, both virtual cameras will move simultaneously when the PTZ controls have been enabled

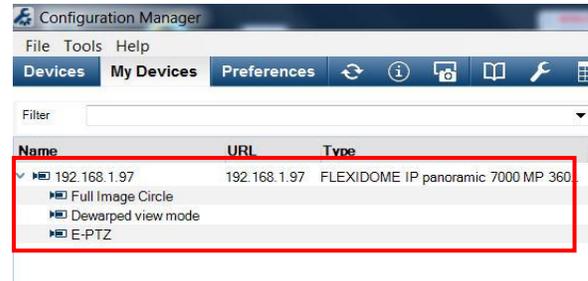


### Dewarped Settings and Live Viewing

From a live viewing perspective, once the camera has been placed in Dewarping mode, it will present itself as three (3) individual cameras to BVC, VSC, and Bosch Configuration Manager.

- *Configuration Manager:* Shown here is the 7000 camera added into the local database in Configuration Manager.

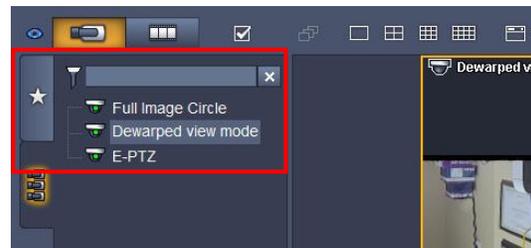
- It is added as an IP camera, but it lists the “Video Streams” as separate sub cameras
- These menus will be used later to manipulate recording settings



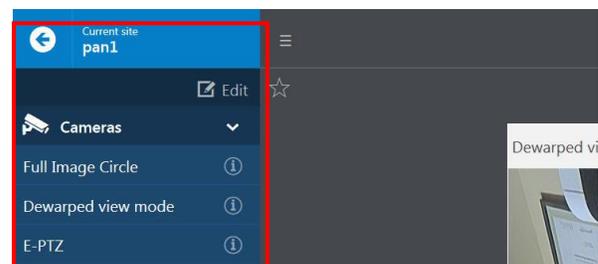
- *Live Page of the Camera's Web Browser:* If the Dewarped mode is selected in the live page of the camera's web browser, the “Video Input” drop down menu will allow the selection of the desired “Video Stream”



- *BVC Camera Tree:* If utilizing BVC as a viewing client, the 7000 in Dewarped mode will appear as three (3) cameras in the camera tree.



- *VSC Camera Tree:* If utilizing VSC as a viewing client, the 7000 in Dewarped mode will appear as three (3) cameras in the camera tree.



### Default Edge Recording and VRM Integration:

As stated earlier, when an IP 7000 camera is placed in dewarping mode, three “Video Streams”, or pseudo cameras are created. By default, when the device is assigned to a VRM system or configured for edge recording, all three (3) pseudo cameras are recorded as separate devices. If not configured correctly, this default behavior can have varying effects on the system:

- Miscalculation of storage consumption and retention
- Depending on the deployment method, this could affect the number of licensed channels of a VRM system
- If deployed in a BVMS system, it could cause non retrievable video

The screen shoot below shows the default recording state of a 7000 panoramic in dewarping mode

Recording Status

Device: 192.168.1.97 (scheduler active)

Camera 1	[Recording 1]	Recording 192.168.1.10\0\0 (Data rate: 4368 kbps)
Camera 2	[Recording 1]	Recording 192.168.1.10\0\0 (Data rate: 1547 kbps)
Camera 3	[Recording 1]	Recording 192.168.1.10\0\0 (Data rate: 992 kbps)

### Recording Configuration in Dewarping Mode:

To configure the camera to record correctly, Bosch Configuration Manager must be used. In a typical scenario, the IP device itself would be selected and configured to record the desired stream. When dealing with a panoramic camera in Dewarped mode, each of the “Video Streams” has its own recording sub menu:

- To either enable or disable a particular Dewarped video stream, select the desired sub camera icon
- Select the “Recording” tab
- From the “Recording 1” drop down menu, select the desired option: Off, Stream 1, Stream 2, or I-Frames only
- Repeat this process for all schedules: Day, Night, and Weekend
- If only one stream from the device has been used in retention time calculations, ensure that the other two “Video Streams” have been set to off on all schedules

Recording 1

- Stream 1
- Off
- Stream 1
- Stream 2
- Iframes only
- Off

**BVMS Integration:**

BVMS 5.5.5 is specifically designed to perform dewarping at the client and not at the edge device. Because default recording stream of any Bosch video device is stream one:

- When adding a 7000 panoramic camera in Dewarped mode to BVMS, only the “Full Image Circle” video stream will be accessible
- The Dewarped view and the E-PTZ video streams will not be available in BVMS Operator Client
- If the recording settings of the Dewarped streams were previously misconfigured, BVMS may not be able to access recorded video or may show that the device is not recording at all, if video stream two or three are recording.
- In the current release, it is advisable to leave the camera in “Warped” mode

