



SightLine

APPLICATIONS

EAN-TVP7002

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Alerts

The following notifications are used throughout the document to help identify important safety and setup information to the user:

 **CAUTION:** Alerts to a potential hazard that may result in personal injury, or an unsafe practice that causes damage to the equipment if not avoided.

 **IMPORTANT:** Identifies crucial information that is important to setup and configuration procedures.

 *Used to emphasize points or reminds the user of something. Supplementary information that aids in the use or understanding of the equipment or subject that is not critical to system use.*



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1 Overview

Provides information on configuring a 3000-OEM system to acquire digital video from a TVP7002 interface. The TVP7002 converts component video signals to digital video signals.

1.1 Associated Documents

[EAN-Startup Guide 3000-OEM](#): Describes steps for connecting, configuring, and testing the 3000-OEM video processing board on the 3000-IO interface board.

[Interface Command and Control \(IDD\)](#): Describes the native communications protocol used by the SightLine Applications product line. The IDD is also available as a local download on the [Software Download](#) page.

Panel Plus User Guide: Provides descriptions of all the settings in the Panel Plus application. (Located in the Panel Plus application in the *Help* menu.)

1.2 Hardware Compatibility

Currently only supported on 3000-OEM hardware.


1.3 Sightline Software Requirements

3000 Firmware version 2.24.xx or later is required.

i IMPORTANT: The Panel Plus software version should match the firmware version running on the board.

2 Supported Formats

The SLA3000 and TVP7002 supports the following component video formats: 720p60/720P50, 1080i60/1080i50, and 1080p60.

 *1080p50 is not currently supported but may be in the future. The Linux driver for tvp7002 did not include a register setup for this mode.*

2.1 Powerup Ordering and Reset

The firmware currently uses the *Acquisition Parameters* to configure the register setup on the TVP7002. It is necessary to reset the TVP7002 (using the reset line) when powering up the system.

In the current design, the TVP7002 Reset line is connected to board ID2, which is gpio49 (GP1_17_ID2).

Important -> these board ID GPIO's need to be set as inputs when VT3000_Release first runs, as we read these to get the board ID (0xD). This requires care as the VT3000 also sets the video format by writing to the 7002 chip through I2C (based on digital camera acquisition params). If you just reset the 7002 whenever you power cycle the camera, this will not be updated.



It will be necessary to use linux commands in the initialization script sla3000_init.sh and do the following - set the GPIO to an output, reset 7002, (gpio49=0, wait 1 mSec, gpio49=1) set GPIO to an input, then run VT3000_Release (So at the top of sla3000_init.sh)

```
echo "out" > /sys/class/gpio/gpio49/direction
echo "0" > /sys/class/gpio/gpio49/value
sleep 1
echo "1" > /sys/class/gpio/gpio49/value
echo "in" > /sys/class/gpio/gpio49/direction
```

The resolution settings set up through *Acquisition Parameters* will not be used to control the format of the camera, as there is no available serial link to the camera. The camera must be manually setup/persisted in the desired resolution.

2.2 720p60/720p50

The following acquisition parameters result in an acquired frame rate of 30 fps/25 fps.

Frame Step can be set to 0 to acquire 60/50 fps, but can result in inconsistent frame acquisition rates.

The screenshot shows the 'Acquisition Settings' window. The 'Camera Index' is set to 'Cam 2', 'Camera Type' is 'Generic Digital', and 'Frame Step' is '2'. Under 'Generic Digital Settings', 'Height' is '720', 'Width' is '1280', and 'Bit Depth' is '8'. The 'Input' is set to 'YUV color', and 'Sync/Crop' is 'Embedded Sync'. A red 'Apply' button is visible, along with a warning box that says 'Hit Apply, then Save Parameters and cycle power. Check for errors in menu View >> User Warnings.'

Figure 1: 720p60/50 Acquisition Parameters



2.3 1080i60/1080i50

The following acquisition parameters result in an acquired (full) frame rate of 30 fps/25 fps. The interlaced video can be deinterlaced to remove motion artifacts using the *Deinterlace* checkbox on the *Video* tab of Panel Plus.

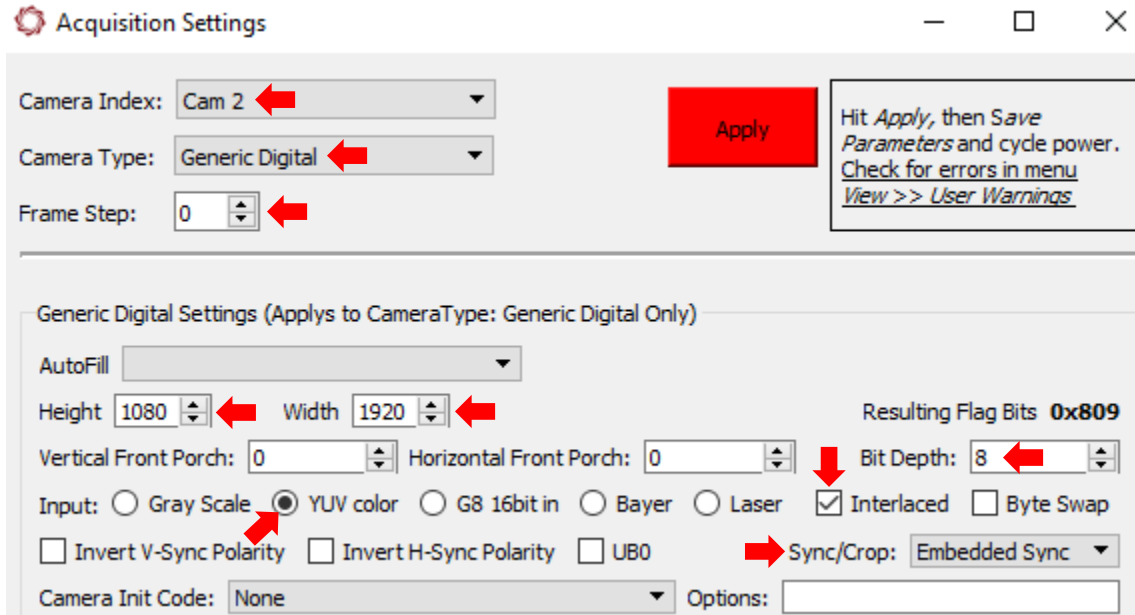


Figure 2: 1080i60/50 Acquisition Parameters

2.4 1080p60

The following acquisition parameters result in an acquired frame rate of 30. Frame Step can be set to 0 to acquire 60 fps, but this may result in inconsistent frame acquisition rates.

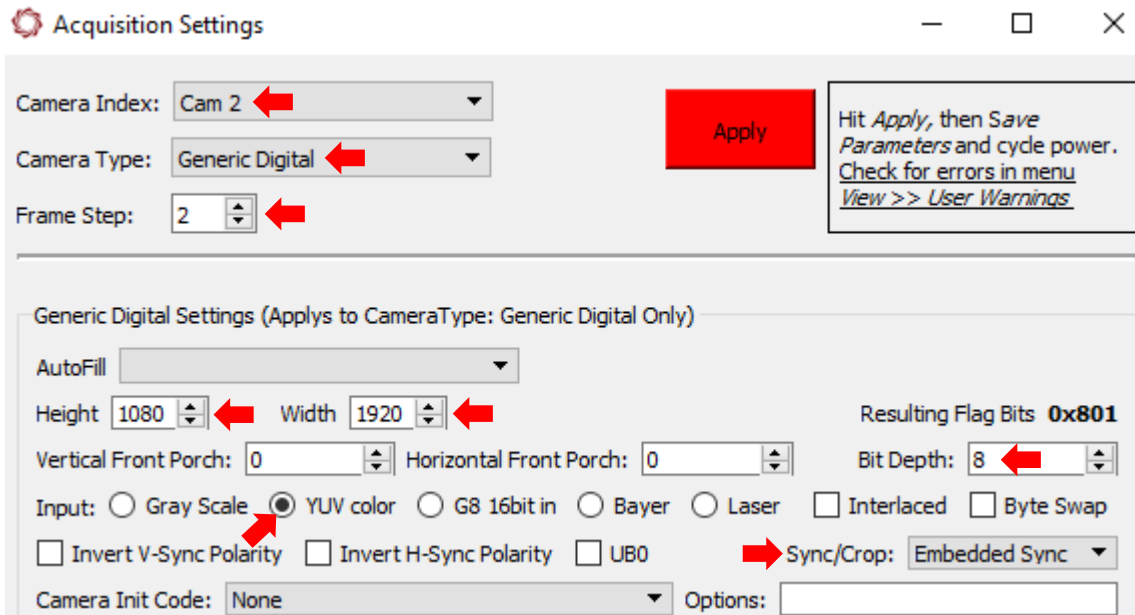


Figure 3: 1080p60 Acquisition Parameters



3 Troubleshooting

3.1 Interlace Effects

During flight or other motion, interlace video effects may degrade video quality. The 3000-OEM can deinterlace the video to remove these effects.

1. Run Panel Plus and connect to the board.
2. Select *Cam 2* (this is the camera that will be deinterlaced).
3. On the *Video* tab, under *Image Control*, check *Deinterlace (commanded camera)*
4. From the main menu in Panel Plus, go to *Parameters » Save to Board*.
5. From the main menu, go to *Reset » board* to keep the settings persistent through restarts.

3.2 Blank Columns

In version 2.24.xx there may be several blank columns at the right-hand side of the image. This is due to timing or register settings in the TVP7002 driver. This can cause problems during stabilization and tracking. These can be removed using the Margin Chopping setting through Panel Plus.

1. Run Panel Plus and connect to the board.
2. Select *Cam 2* (this example assumes connection to Cam 2).
3. On the *Video* tab, press *Chop Margins* to bring up the *Set Margin Chopping* window
4. Ensure that the text along the top reads *Show Settings for Commanded camera: 2*.
5. Use the check box to enable *AutoChop*.

 *Another option is to use the up/down arrow keys to chop 8 pixels from the right side.*

6. Press the *Send* button to send changes to the 3000-OEM.
7. From the main menu in Panel Plus, go to *Parameters » Save to Board*.
8. From the main menu, go to *Reset » board* to keep the settings persistent through restarts.

4 Questions and Additional Support

For questions and additional support, please contact [Technical Support](#). Additional support documentation and Engineering Application Notes (EANs) can be found on the Support pages of the SightLine Applications [website](#).