

Versatile Machine Vision

Advanced Digital Machine Vision Cameras



VMV

Free Run Synchronize

Release 1/25/2012



Welcome to the VMV Free Run Synchronize Mode (FRS) application note.

In Free Run Sync mode the camera generates all timing signals to the CCD and to the camera link port as in Free Run Mode with the following exception: After the image is transferred into the interline storage area of the CCD, the camera waits for the trigger to assert. Thus the camera waits for a SYNC signal - provided by the trigger - and thus allows several cameras to be slaved to the trigger signal.

To use this function, read this application note,

Cheers and best Regards
The illunis team.

Please direct your comments to:
EMAIL: info@illunis.com



Specifications subject to change without notice.

Quick FAQ's:

- ▶ FRS is used to sync free running cameras.
- ▶ Cameras can be synced to one pixel clock period.
- ▶ Any number of cameras can be synchronized.
- ▶ The strobe signal can be used to determine frame timing.
- ▶ The strobe signal can be found on the VMVpower connector and is a 3.3V LVTTTL signal.
- ▶ FRS mode works with Auto exposure in rev E9

The screen shot below is from an oscilloscope showing the camera output of a camera in FRS mode. Note the trigger occurs on the rising edge (channel 3, pink). The camera output signals are FVAL (channel4, green) and LVAL (channel 1, yellow).

FRS is dependent on the rising edge of the trigger pulse. Just as important is the minimum trigger hold time (a logic '1') must be longer than two line times (LVALs).

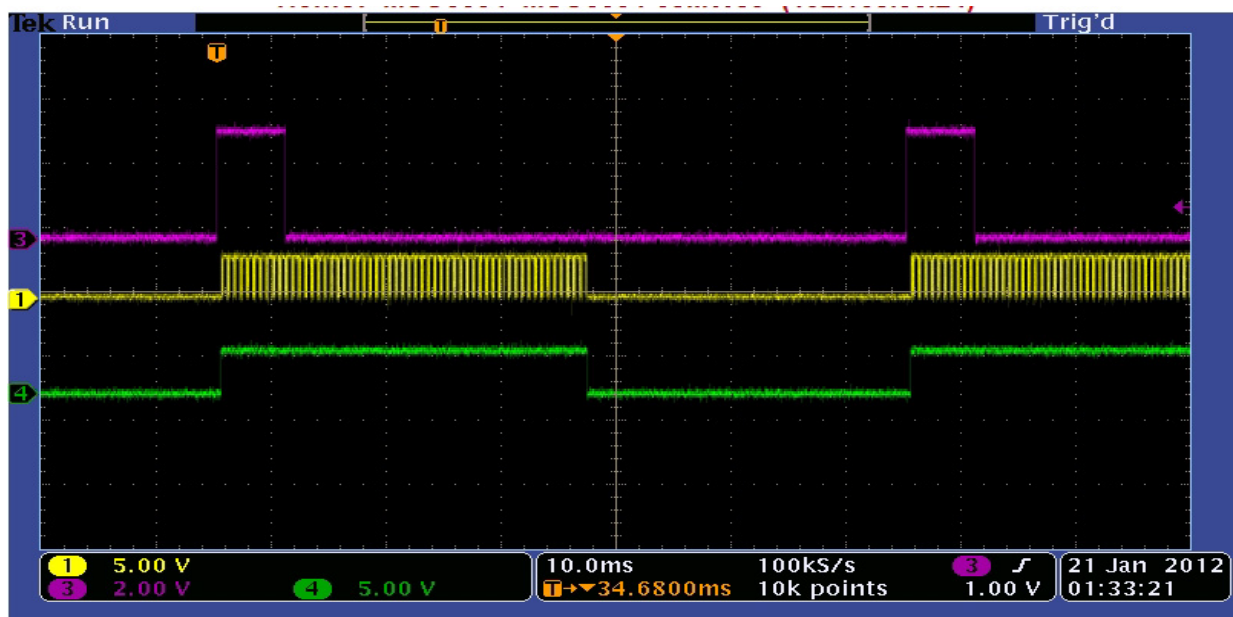
To set the VMV camera to trigger on the rising edge, PIO Register 0x5b bit 7 needs to be a logic level '1'. This should be done by using a logic OR operation of 0x80 to PIO register 0x5B.

Ex

```
Reg_0x5b_pio |= 0x80; // Set rising edge trigger bit to register.
```

Once the register bit is set correctly, issue the command below.

Serial Commands				
Target	Index	Command	R/W	Description
04	03	Readout Mode Select	W	0x0004 = Free Run Synchronize (Note ASYNC reset will work)



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