Application Note

Synchronizing Multiple Cameras

Feb. 27th, 2007
Version 1.0

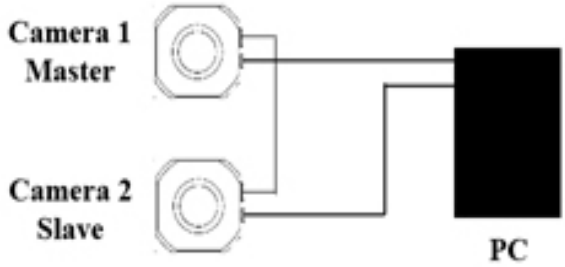
Abstract

The steps provided in this Application Note demonstrate how to synchronize multiple cameras. Synchronizing multiple cameras is defined as acquiring images from multiple cameras at the same time.

For simplicity this document is written for the synchronization of two cameras.

Introduction

Synchronization occurs by issuing a software grab to camera 1 (Master) which in turn initiates a hardware grab to camera 2 (Slave).



In practice the cameras do not acquire data at the same time. Camera 2 will acquire data at a delay of 1/<working frequency> sec of camera 1. For example a camera working at 40MHz will result in a delay of 25 ns.

Supported Hardware

USORIA, URORIA, ULTRA II

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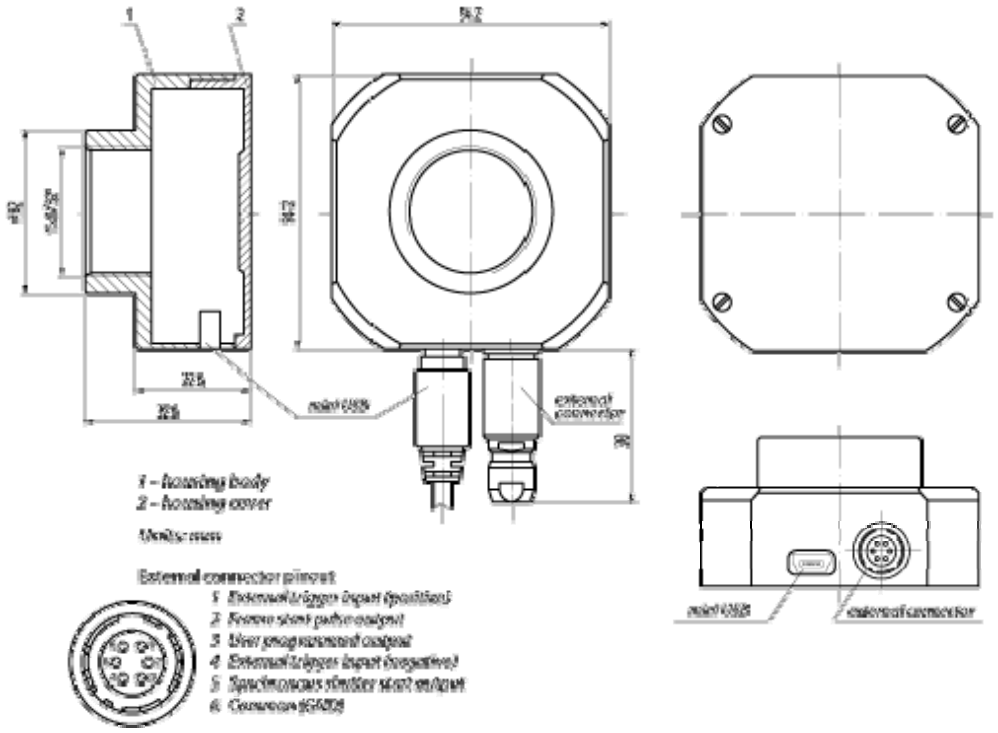
Hardware Setup

To establish a hardware connection between camera 1 and camera 2 connect the cameras through the hirose connectors as follows.

Camera 1 Master		Camera 2 Slave
Pin 5	⟶	Pin 1



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Software Setup

"Master" refers to Camera 1 and starts grabbing with CxGetSnapshot call. Prior to this call the application creates a thread with a CxGetSnapshot for the "Slave" camera. In the thread for the Slave Camera we set it to 'infinite waiting' on external trigger signal at pin 1.

Code to set Slave camera to infinite waiting:

```
CxGetSnapshot (
        H,      //camera handle
        0,      //infinite waiting
        True,           //waits for trigger
        True,           //polarity
        True,           //reserved
        pBuf,           //pointer to frame buffer
        BufSize, //bytes in frame
        pRetLen //number of bytes really returned by the call
);
```

When the application issues CxGetSnapshot for the master camera two cameras get start impulses.

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