

# IMAQ™ A8020 Camera Cable Installation Guide

This guide describes how to use the National Instruments IMAQ A8020 analog camera cable to connect the PXI/PCI-1409 image acquisition (IMAQ) device to a camera.

The IMAQ A8020 cable provides direct connection between the IMAQ 1409 device and the camera without using a breakout box. Use the IMAQ A8020 cable with the following JAI cameras:

- JAI CV-M1
- JAI CV-M10
- JAI CV-M50



**Note** Refer to the JAI Web site and documentation for information about the functionality of these cameras.

## Getting Started

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The following items are necessary for connecting the IMAQ A8020 cable:

- IMAQ A8020 cable
- IMAQ A8020 Camera Cable Installation Guide*
- IMAQ 1409 device and documentation
- Camera and documentation

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# Connecting the IMAQ A8020 Cable

Complete the following steps to connect the IMAQ A8020 cable to the IMAQ 1409 device and camera. Refer to Figure 1 for an illustration of the connectors on the IMAQ A8020 cable.

1. Connect the 68-pin male VHDCI connector to the connector on the IMAQ 1409 device and tighten the thumbscrews.
2. Connect the 12-pin male Hirose connector to the camera power supply.
3. Connect the 12-pin female Hirose connector to the input receptacle on the camera.
4. Connect the 6-pin female Hirose connector to the input receptacle on the camera.

## Optional Connections

1. Connect the external trigger to the **Ext. Trig 0** BNC.
2. Connect any device requiring general-purpose digital input/output, such as a strobe light, to the **Ext. Trig 1** BNC.

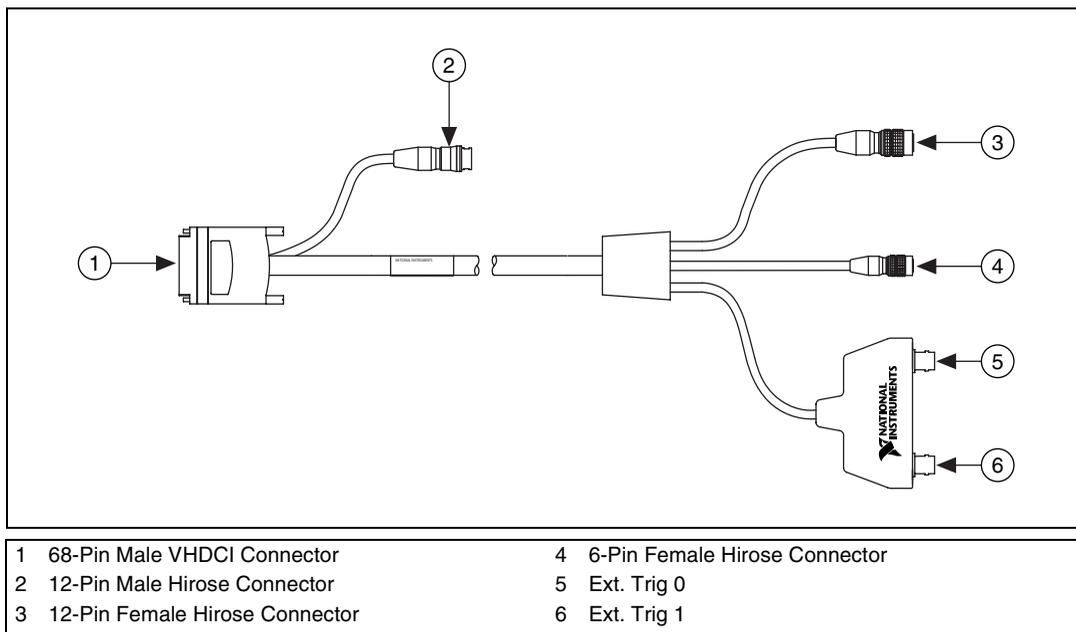
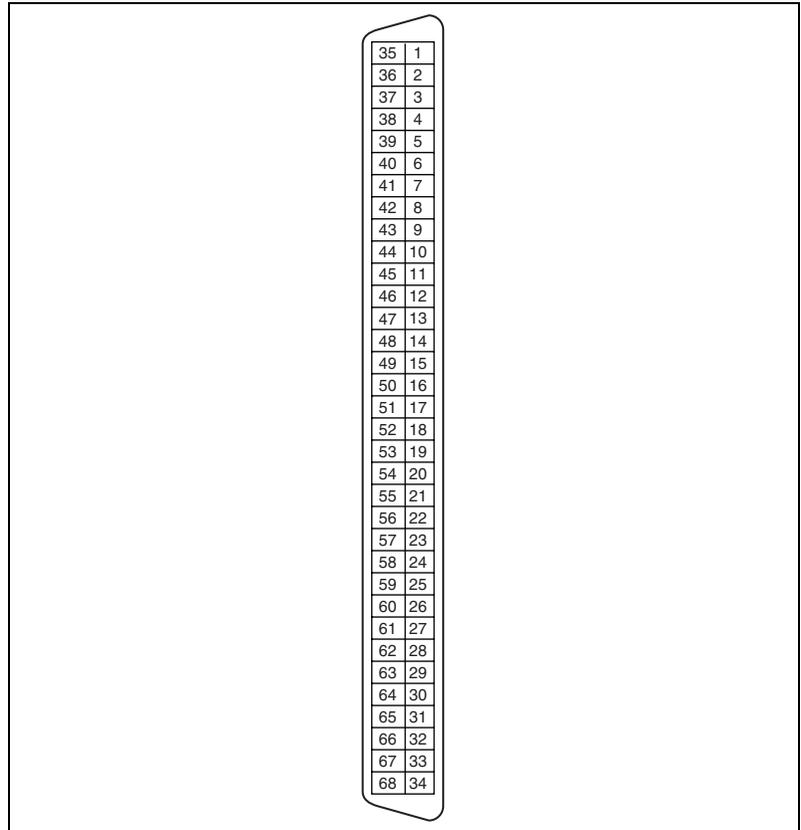


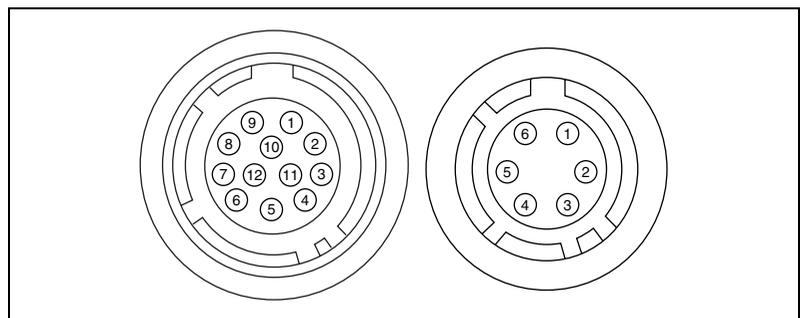
Figure 1. IMAQ A8020 Cable

# Connectors

The 68-pin VHDCI connector provides connection to the IMAQ 1409 device, and the 12-pin and 6-pin Hirose connectors provide connection to the camera. Figures 2 and 3 show the pinouts for these connectors.



**Figure 2.** 68-Pin VHDCI Connector (Cable)



**Figure 3.** Hirose Connectors (Cable)

# Pin Assignments

Table 1 shows the pin assignments for the connectors on the IMAQ A8020 cable.

**Table 1.** IMAQ A8020 Connector Pin Assignments

| Signal     | 68-Pin VHDCI | 12-Pin Male Hirose (to Power Supply) | 12-Pin Hirose (to Camera) | 6-Pin Hirose (to Camera) | Ext. BNC 0 | Ext. BNC 1 |
|------------|--------------|--------------------------------------|---------------------------|--------------------------|------------|------------|
| VIDEO(0) + | 68           | —                                    | 4                         | —                        | —          | —          |
| VIDEO(0) – | 67           | —                                    | 3                         | —                        | —          | —          |
| HSYNC_IN + | 12, 16*      | —                                    | 6                         | —                        | —          | —          |
| DGND       | 26           | —                                    | 5                         | —                        | —          | —          |
| PCLK_IN +  | 3            | —                                    | 9                         | —                        | —          | —          |
| DGND       | 39           | —                                    | 8                         | —                        | —          | —          |
| TRIG(0)    | 8            | —                                    | —                         | —                        | Center     | —          |
| DGND       | 42           | —                                    | —                         | —                        | Shield     | —          |
| TRIG(1)    | 7            | —                                    | —                         | —                        | —          | Center     |
| DGND       | 39           | —                                    | —                         | —                        | —          | Shield     |
| VSYNC_IN + | 15           | —                                    | —                         | 6                        | —          | —          |
| DGND       | 2            | —                                    | —                         | 3                        | —          | —          |
| TRIG(3)    | 5            | —                                    | —                         | 5                        | —          | —          |
| DGND       | 41           | —                                    | —                         | 3                        | —          | —          |
| DC +12V    | —            | 2                                    | 2                         | —                        | —          | —          |
| DGND       | —            | 1                                    | 1                         | —                        | —          | —          |

\* Pins 12 and 16 are connected internally.

## Triggering

You can use the IMAQ A8020 cable for applications requiring precise triggering or exposure control. In addition to connecting the video signal between the camera and the IMAQ 1409 device, the IMAQ A8020 cable also connects the camera control lines on the IMAQ 1409 to the exposure and trigger inputs on the camera. The IMAQ 1409 can then be programmed to generate precise timing pulses for controlling the camera.



**Tip** Visit the National Instruments Camera Advisor Web site at [ni.com/camera](http://ni.com/camera) for application notes and sample code for many of the cameras the IMAQ A8020 supports.

