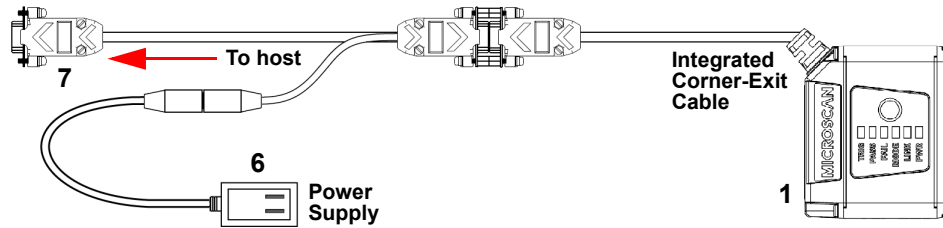


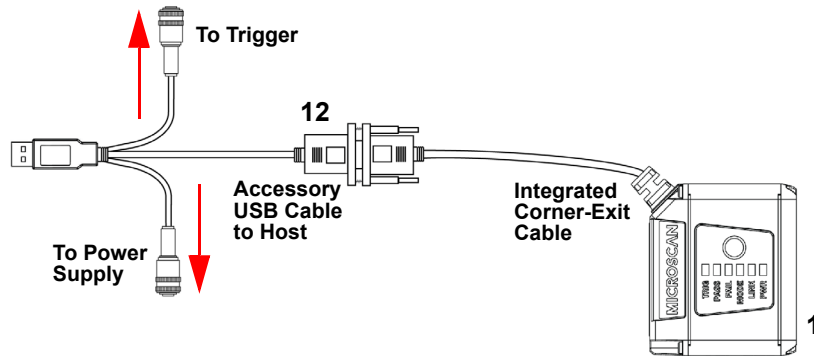


## Configurations (continued)

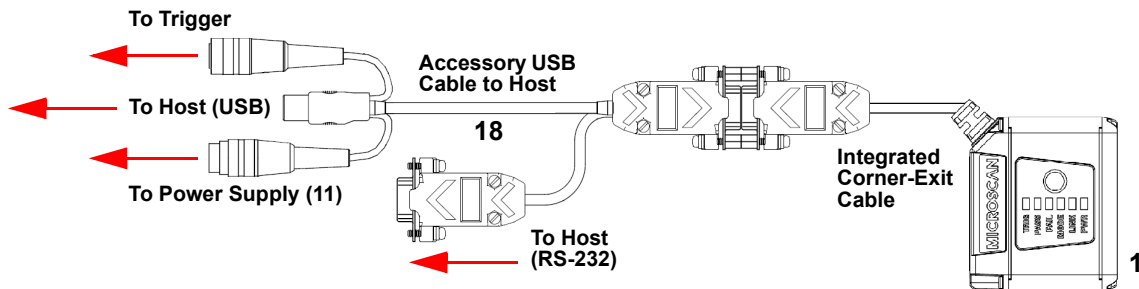
### MicroHAWK MV-30 with DB15 to Ext. Power/RS-232



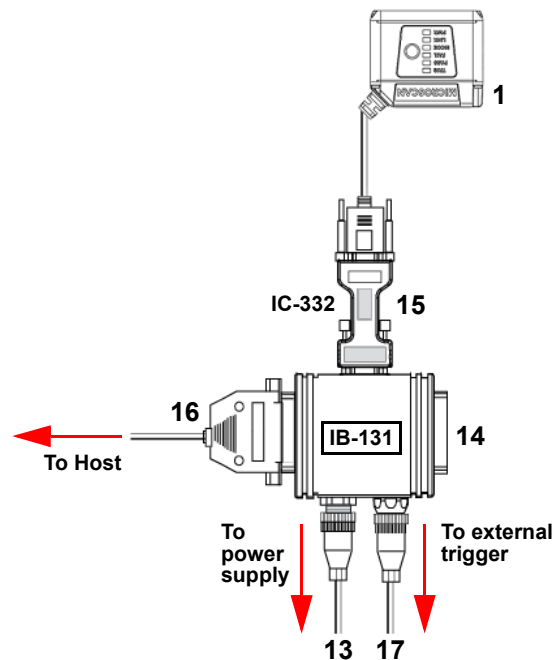
### MicroHAWK MV-30 with DB15 to Ext. Power/USB, I/O



### MicroHAWK MV-30 with DB15 to USB/RS-232, Triggered

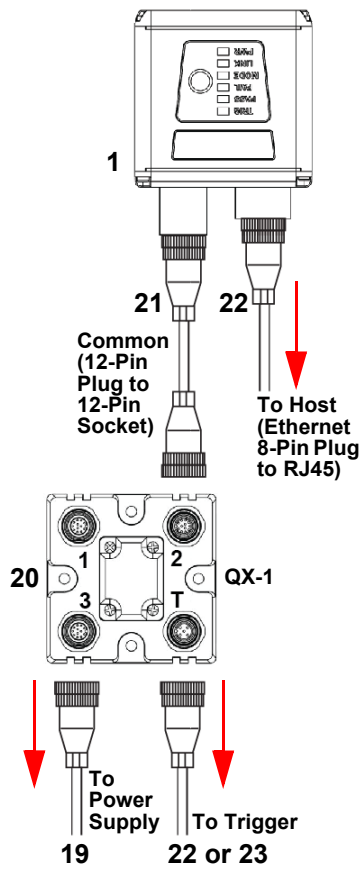


### MicroHAWK MV-30 with IB-131 and IC-332

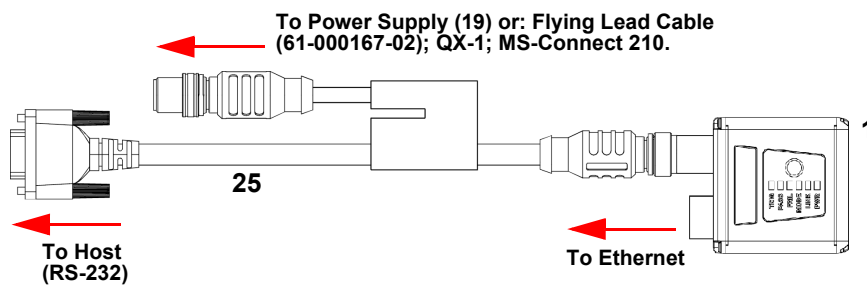


## Configurations (continued)

### MicroHAWK MV-40 with QX-1 Interface Device



### MicroHAWK MV-40 M12 12-Pin Socket to 9-Pin Socket and M12 Plug



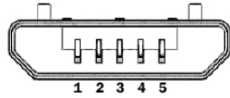
MicroHAWK MV-20 / MV-30 / MV-40 Configuration

**Electrical Specifications**

- MicroHAWK MV-20:** 5VDC ± 5%; 350mA at 5VDC (typ.)
- MicroHAWK MV-30:** 5V ± 5%; 600mA at 5VDC (typ.)
- MicroHAWK MV-40:** 4.75V – 30V; 150mA at 24VDC (typ.)

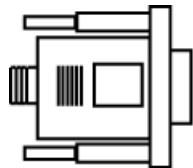
**Important:** See the *MicroHAWK MV-20 / MV-30 / MV-40 Smart Camera Guide* for information about Omron Microscan's **Isolation Mounting Kit (P/N 98-9000064-01)** to eliminate ground loops or other external electrical noise through your MicroHAWK MV-30 or MV-40 camera.

**MicroHAWK MV-20 Micro-USB Type B Socket**



Pin	Function
1	Vbus (5V)
2	D-
3	D+
4	N/C
5	Ground

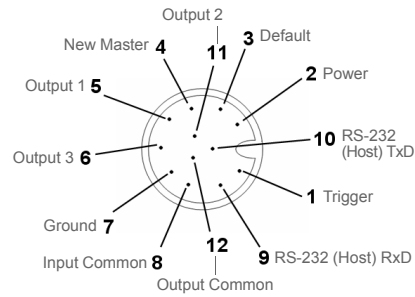
**MicroHAWK MV-30 High-Density 15-Pin Dsub USB/Serial Socket**



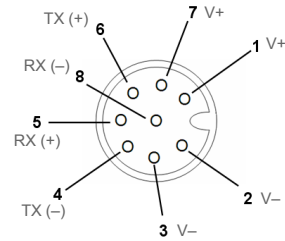
**Note:** An accessory cable is required between the MV-30's 15-pin corner-exit cable and the host's USB port.

Pin	Function
1	+5VDC
2	TX232
3	RX232
4	GND
5	D+
6	N/C
7	Output 1+
8	Default+
9	Trigger+
10	D-
11	Output 3+
12	Input+ (New Master+)
13	Chassis
14	Output 2+
15	Vbus

**MicroHAWK MV-40 M12 Connectors**

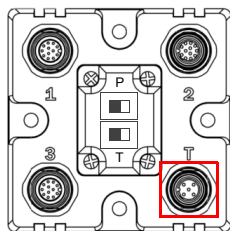


**M12 12-Pin Plug**

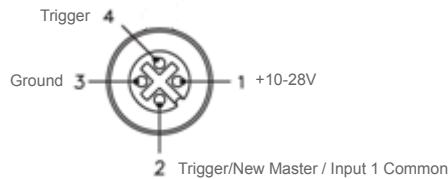


**M12 8-Pin Socket (Ethernet)**

**QX-1 Interface Device – for use with the MicroHAWK MV-40 (Top View)**



**Connector T** on the QX-1 Interface Device is the trigger connector. **Connectors 1, 2, and 3** can be used to bus power and data as required by the application.



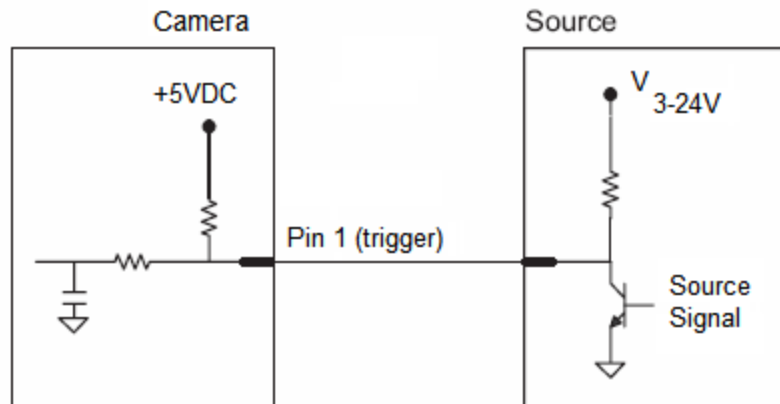
**QX-1 Trigger Connector (T) 4-pin Socket**

## MicroHAWK MV-30

### Direct Input / Output Diagrams (MV-30)

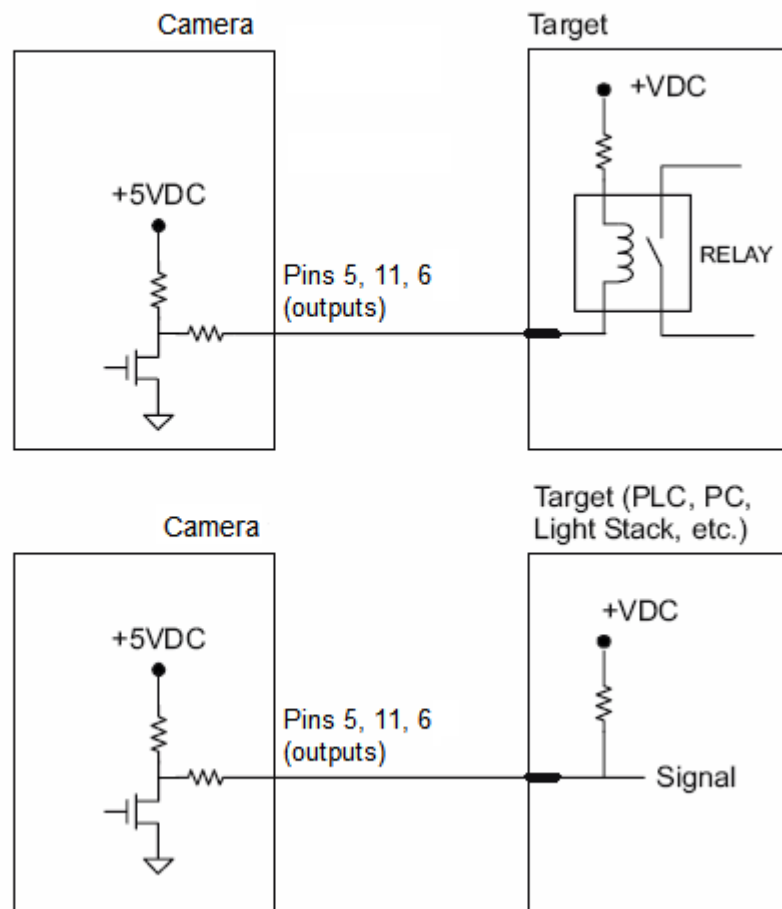
#### Trigger Input Example

Trigger, New Master Inputs: 3 to 24V rated, 1mA @ 5VDC



#### Output Examples

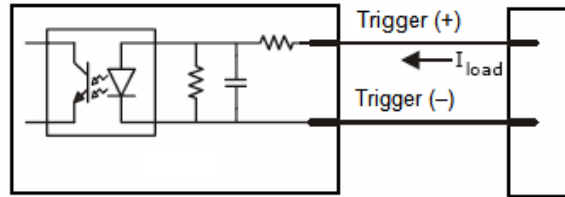
Outputs (1, 2, 3): 5V TTL compatible, can sink 10mA and source 2mA



**Optoisolator Trigger Inputs for IC-332 (MV-30)**

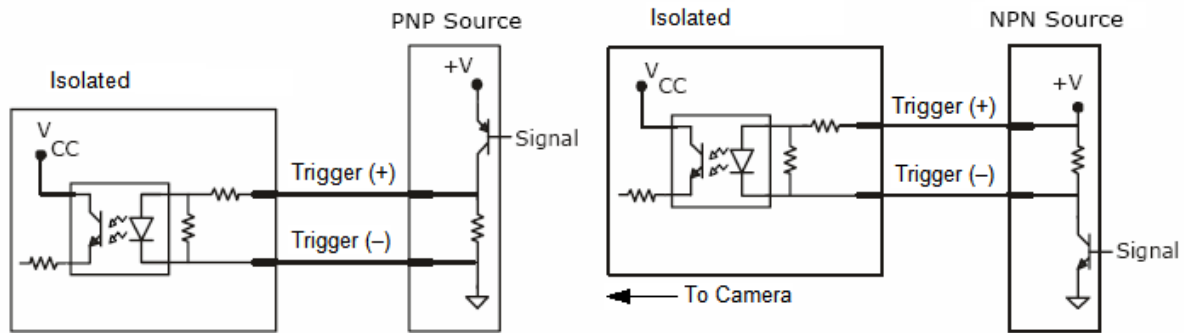
Trigger input can be fully electrically isolated from an NPN or PNP signal source.

	Minimum	Maximum
$V_{IN-HIGH}/I_{IN-HIGH}$	4.5V/3.0mA	28V/15mA
$V_{IN-LOW}/I_{IN-LOW}$	0V/0mA	2.0V/1mA
Pulse Width <sub>min</sub>	48 $\mu$ s	

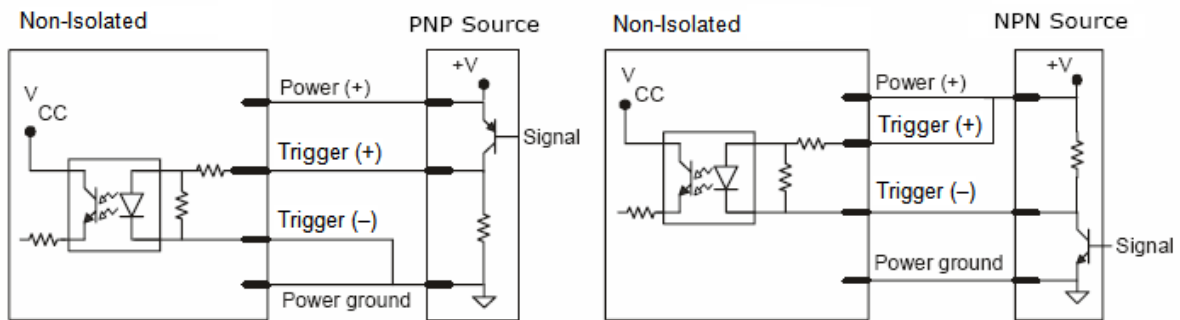


**Input Examples**

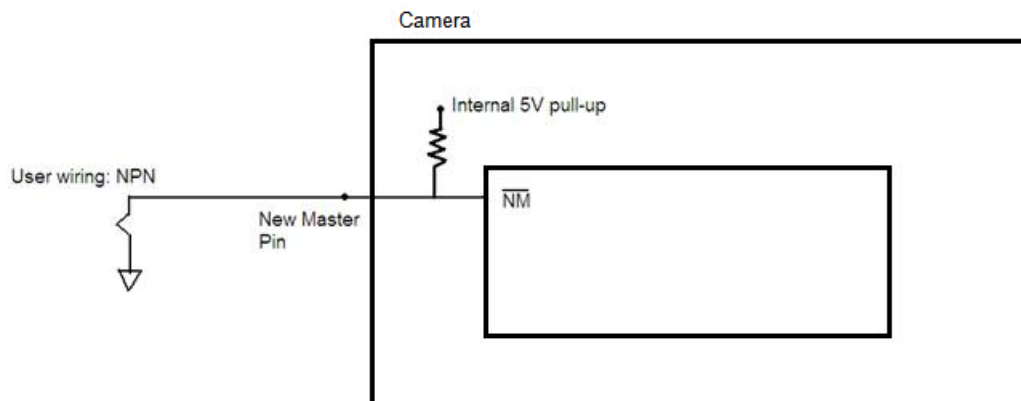
**Fully Optoisolated**



**Not Optoisolated**



**New Master Pin (MV-30)**

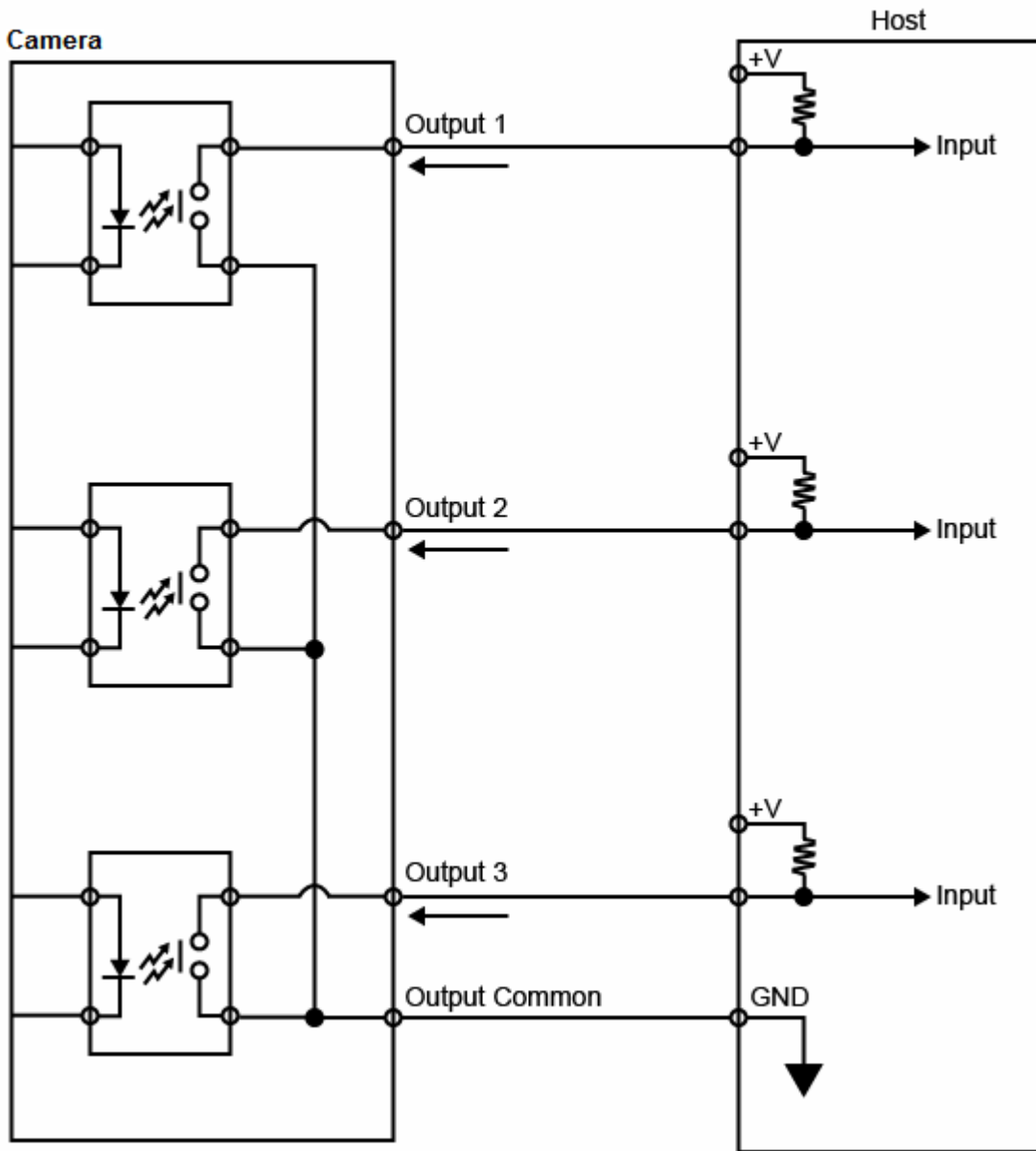


## MicroHAWK MV-40

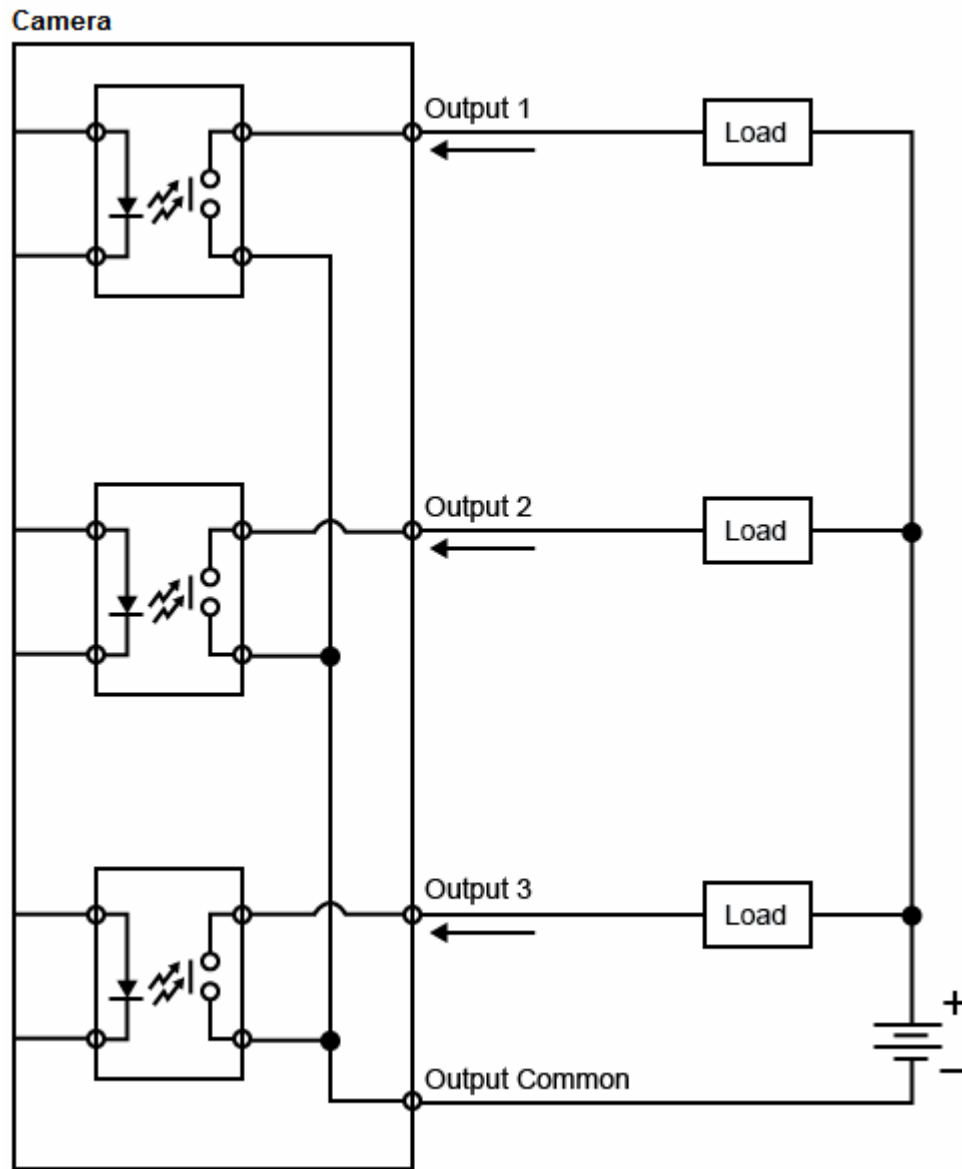
### Optoisolated Outputs (MV-40)

The camera has optoisolated outputs that can transfer signals from the camera to peripherals. Outputs can be configured as either NPN or PNP, but NPN and PNP cannot be mixed in a system, because the output common is shared by all outputs.

### NPN Output for Host Input (MV-40)

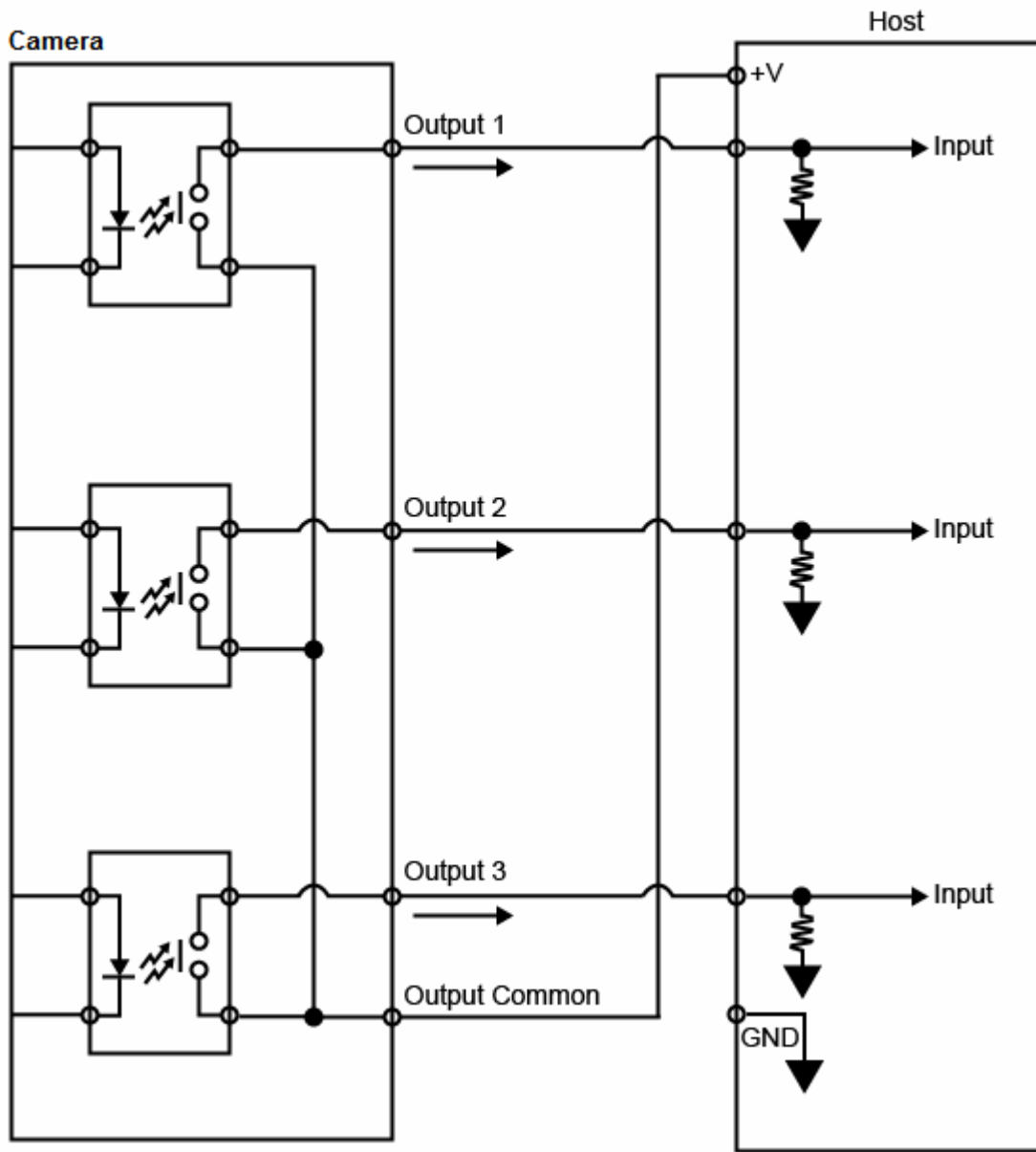


**NPN Output for External Load (MV-40)**



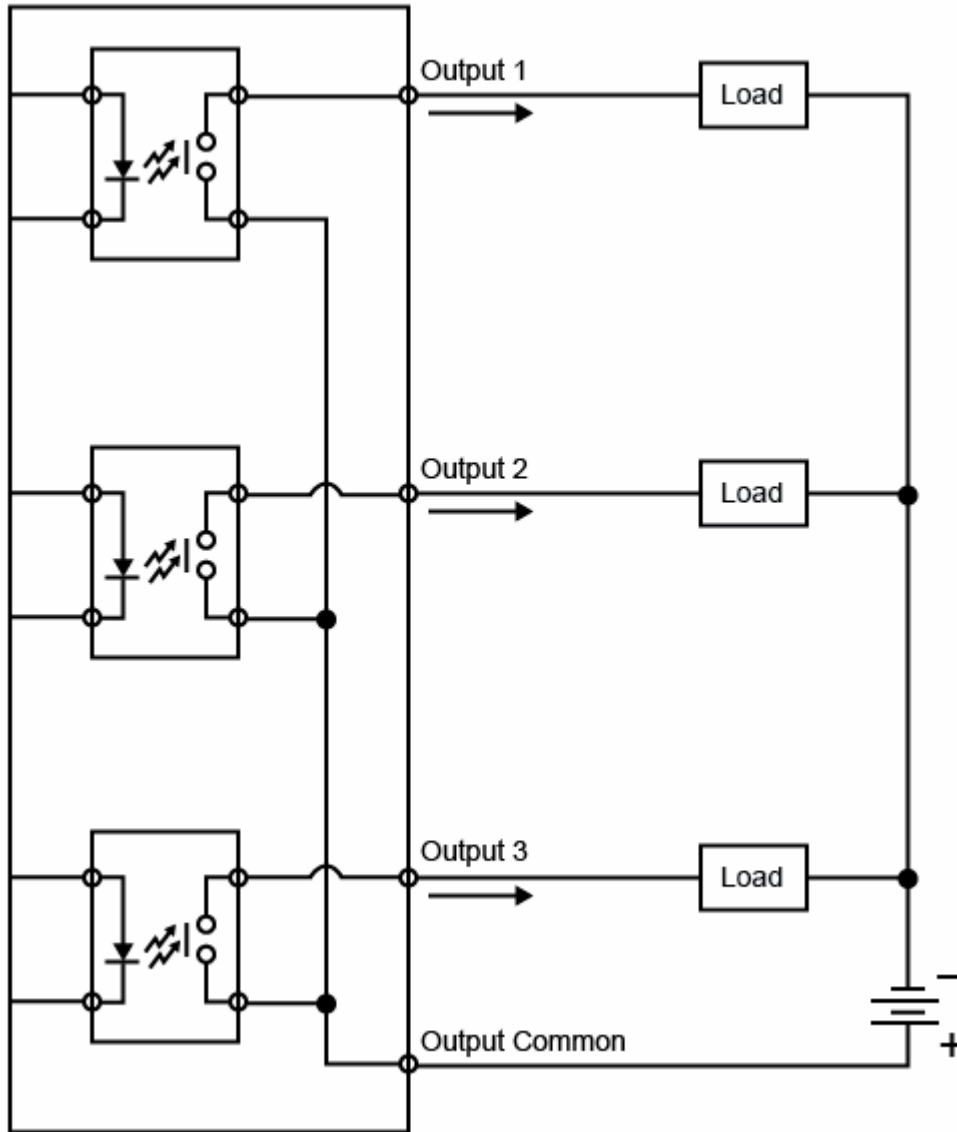


**PNP Output for Host Input (MV-40)**



**PNP Output for External Load (MV-40)**

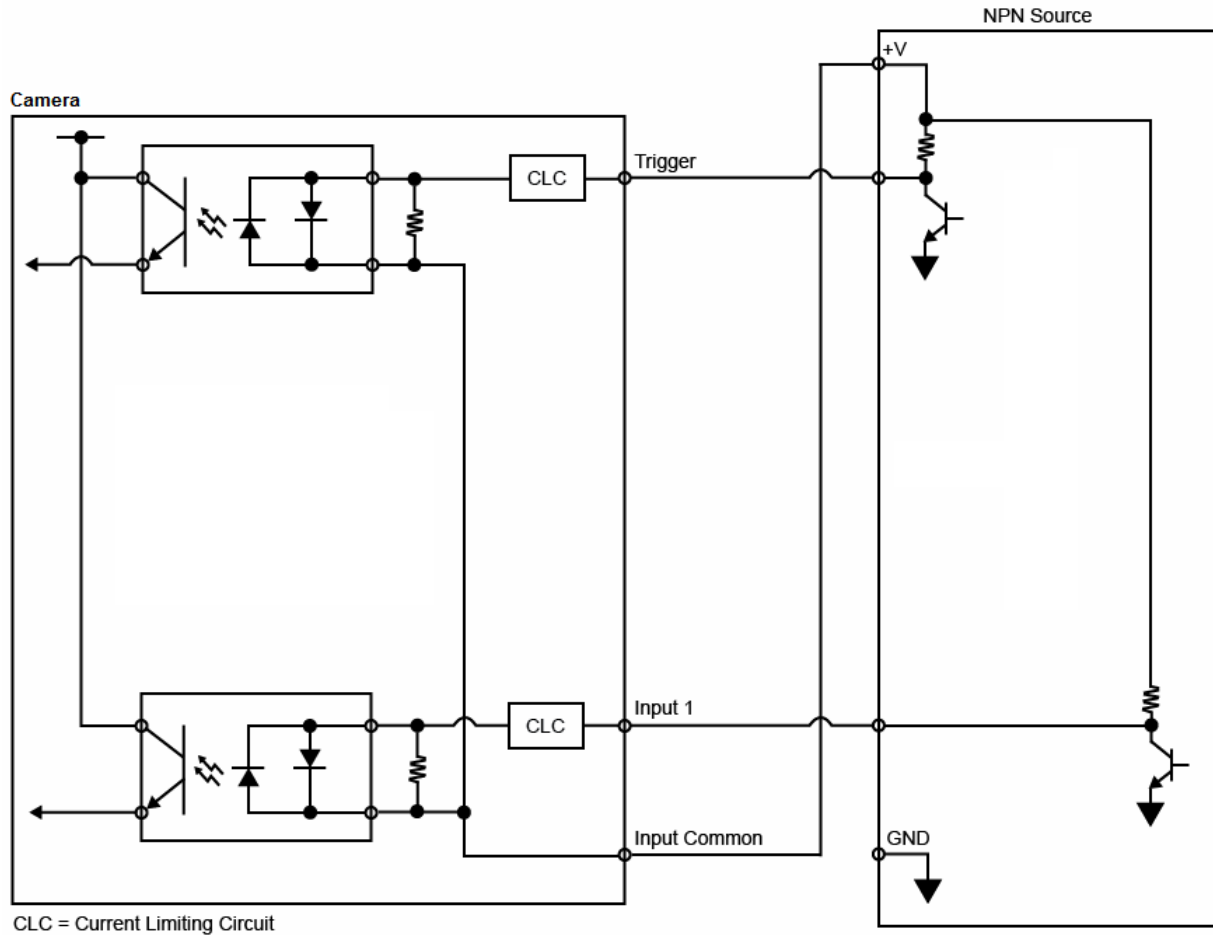
Camera



### Optoisolated Inputs (MV-40)

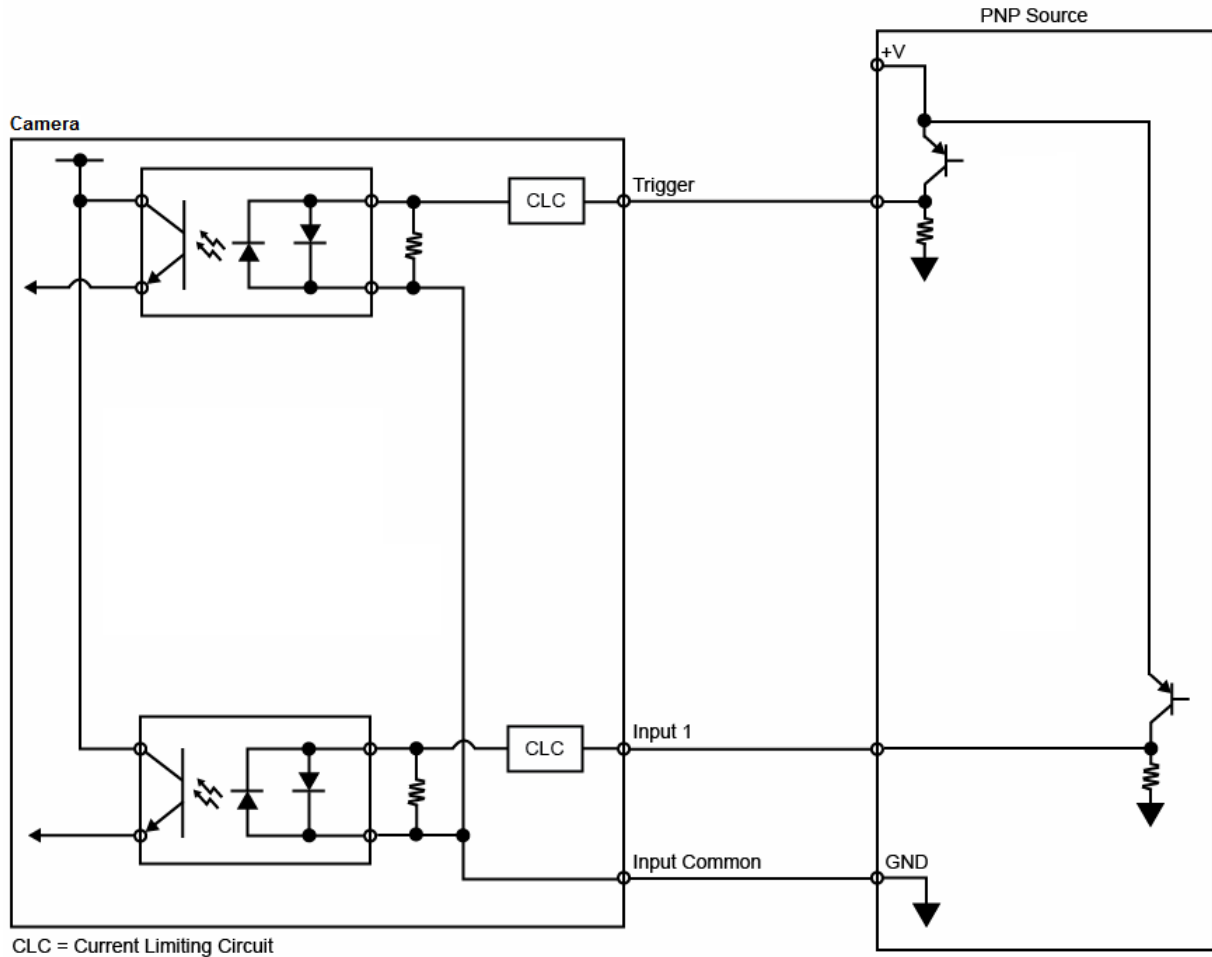
All discrete inputs are optoisolated. Inputs can be configured as either NPN or PNP, but NPN and PNP cannot be mixed in a system, because the input common is shared by all inputs.

#### NPN (MV-40)

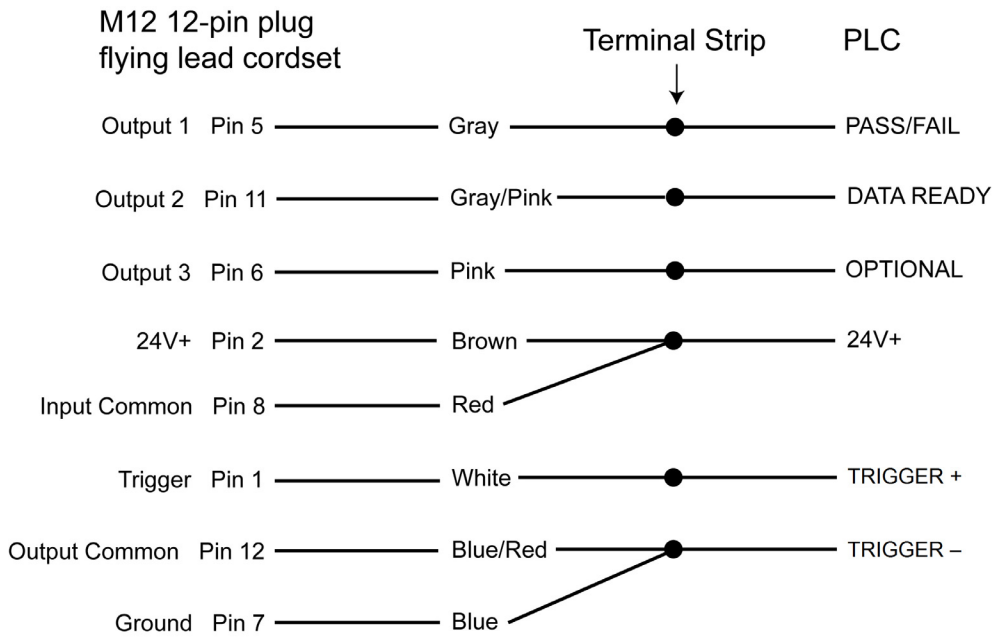


MicroHAWK MV-20 / MV-30 / MV-40 Configuration

**PNP (MV-40)**



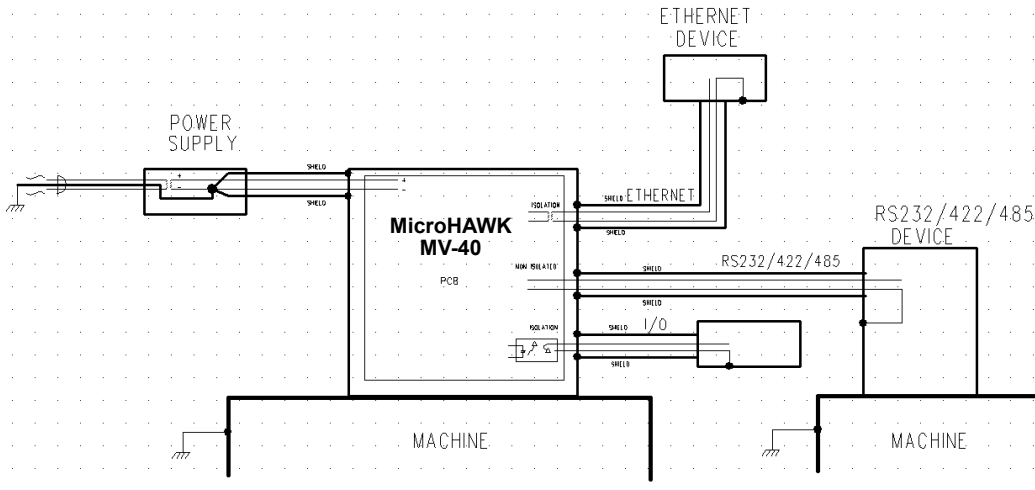
**Input/Output Wiring (MV-40)**



## MicroHAWK MV-20 / MV-30 / MV-40 Configuration

### Ground and Shield Considerations

Proper grounding is necessary for operator safety, noise reduction, and the protection of equipment from voltage transients. Buildings, including any steelwork, all circuits, and all junction boxes must be grounded directly to an earth ground in compliance with local and national electrical codes.

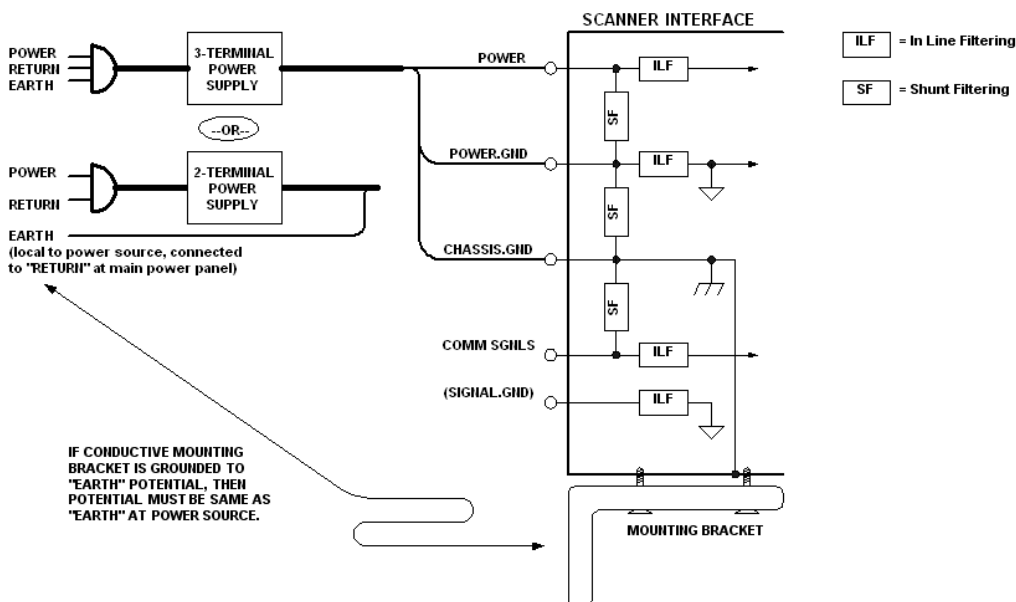


An earth ground is provided through the cable shields and chassis of the camera.

### Ground Loops

Ground loops (signal degradation due to different ground potentials in communicating devices) can be eliminated or minimized by ensuring that both the host, imager, and their power supplies are connected to a common earth ground.

### Expected Power and Ground Connections for Proper Operation



### Grounding Notes

- Ensure that mounting bracket “Earth” is at the same potential as power source “Earth”.
- Supply “Return” and “Earth” ground must be stable, low-impedance reference points.
- “2-Terminal Power Supply” must still provide an “Earth” connection to the imager.
- “Signal Ground” can be used for communications and/or discrete signal ground reference. It must **not** be used as Power Ground or Earth Ground.

MicroHAWK MV-20 / MV-30 / MV-40 Configuration

**MicroHAWK MV Accessories**

<b>MicroHAWK MV-30 Connectivity Kits</b>	
98-9000048-01	Kit, Cable, DB15 to Ext. Power/RS-232 with Power Supply, MV-30 – includes 97-9000006-01 and 61-9000037-01
98-9000049-01	Kit, Cable, DB15 to Ext. Power/USB with Power Supply, MV-30 – includes 97-9000006-01 and 61-9000038-01
98-9000050-01	Kit, Cable, DB15 to Ext. Power/USB, I/O with Power Supply, MV-30 – includes 97-000011-02 and 61-9000039-01 Recommended items (not included with kit): <ul style="list-style-type: none"> <li>• 99-000019-01, Visible, NPN, Light On, 5VDC</li> <li>• 61-000151-01, Flying Lead Cable</li> </ul>
<b>MicroHAWK Power Supplies</b>	
97-9000006-01	Power Supply, 5V – for use with cables 61-9000037-01 and 61-9000038-01
97-000011-02	Power Supply, 100-240VAC, +5VDC, 2-Pin U.S./Euro Plug
97-000012-01	Power Supply, 100-240VAC, +24VDC, TRK 3-Pin, U.S./Euro Plug
<b>MicroHAWK Cables</b>	
61-9000034-01	Cable, USB A to Micro B, 6 ft., MV-20
61-9000045-01	Cable, USB A to Micro B, 3 ft., MV-20
61-9000037-01	Cable, DB15 to Ext. Power/RS-232, MV-20
61-9000038-01	Cable, DB15 to Ext. Power/USB, MV-30
61-9000039-01	Cable, DB15 to Ext. Power/USB, I/O, MV-30
61-9000043-01	Cable, DB15 to BUS Power USB, MV-30
61-9000102-01	Cable, DB15 to USB/RS-232 Triggered, MV-30
61-9000054-01	Cable, M12 12-Pin Socket to 9-Pin Socket and M12 Plug
61-9000088-01	Cable, M12 12-Pin Socket to USB Keyboard Wedge and M12 Plug
<b>MicroHAWK Mounting Accessories</b>	
98-9000034-01	Kit, Adapter, MS-4 to MV-20
98-9000041-01	Kit, L-Bracket, MicroHAWK
98-9000047-01	Kit, 1/4-20 Camera Mount, MicroHAWK
98-9000052-01	Kit, Mounting Stand, Ram, MS-3, MS-4, MINI, MicroHAWK, 4"
98-9000053-01	Kit, Mounting Stand, Ram, MS-3, MS-4, MINI, MicroHAWK, 3"
98-9000054-01	Kit, Mounting, APG, MS-4, MINI, MicroHAWK
98-9000059-01	Kit, Adapter Plate, MS-4, MINI to MicroHAWK
<b>Other Accessories</b>	
98-9000043-01	Kit, Diffuser, MicroHAWK MV-30/MV-40
98-9000129-01	Kit, Polarizer, MicroHAWK MV-30/MV-40
98-9000045-01	Kit, Red LED, MicroHAWK MV-30/MV-40
98-9000046-01	Kit, White LED, MicroHAWK MV-30/MV-40
98-9000051-01	Kit, Window, MicroHAWK MV-30/MV-40
98-9000057-01	Kit, Right-Angle Mirror, MicroHAWK MV-20
98-9000058-01	Kit, Right-Angle Mirror, MicroHAWK MV-30/MV-40
98-9000064-01	Kit, Isolation Mounting, M3, MicroHAWK MV-30/MV-40

