



# Regulations/Conformity

**Note:** For the most up-to-date regulations and conformity information, please refer to the In-Sight online support site: <http://www.cognex.com/Support/InSight>.

Declaration of Conformity	
Manufacturer	Cognex Corporation One Vision Drive Natick, MA 01760 USA
Declares this	 -marked Machine Vision System Product
Product Type	In-Sight 7010/7020/7050: TYPE 821-0084-1R Regulatory Model 1AAA In-Sight 7200/7210/7230: TYPE 821-0084-1R Regulatory Model 1AAA In-Sight 7400/7410/7430: TYPE 821-0084-1R Regulatory Model 1AAA In-Sight 7402/7412/7432: TYPE 821-0084-1R Regulatory Model 1AAA
Complies With	2004/108/EC Electromagnetic Compatibility Directive
Compliance Standards	EN 55022:2006 +A1:2007 Class A EN 61000-6-2:2005 EN 61000-3-2:2006+A1:2009+A2:2009 EN 61000-3-3:2008
European Representative	COGNEX INTERNATIONAL Immeuble "Le Patio" 104 Avenue Albert 1er 92563 Rueil Malmaison Cedex - France
Safety and Regulatory	
FCC	FCC Part 15, Class A This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference; and (2) this device must accept any interference received, including interference that may cause undesired operation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at their own expense.
KCC 	In-Sight 7010/7020/7050: Regulatory Model 1AAA KCC-REM-CGX-1AAA In-Sight 7200/7210/7230: Regulatory Model 1AAA KCC-REM-CGX-1AAA In-Sight 7400/7410/7430: Regulatory Model 1AAA KCC-REM-CGX-1AAA In-Sight 7402/7412/7432: Regulatory Model 1AAA KCC-REM-CGX-1AAA
NRTL	TÜV SÜD AM SCC/NRTL OSHA Scheme for UL/CAN 60950-1. Regulatory Model 1AAA.
CB	TÜV SÜD AM, IEC/EN 60950-1. CB report available upon request.
RoHS	RoHS 6 Compliant.

# Specifications

The following sections list general specifications for the In-Sight vision system.

## Vision System Specifications

**Table 1-1: Vision System Specifications**

Specifications	In-Sight 7010/7020/7050/7200/ 7210/7230/7400/7410/7430	In-Sight 7402/7412/7432
Minimum Firmware Requirement	In-Sight Version 4.7.0	
Job/Program Memory	256MB non-volatile flash memory; unlimited storage via remote network device.	
Image Processing Memory	256MB SDRAM	
Sensor Type	1/1.8-inch CMOS	
Sensor Properties	5.3mm diagonal, 5.3 x 5.3µm sq. pixels	8.7mm diagonal, 5.3 x 5.3µm sq. pixels
Resolution (pixels)	800 x 600	1280 x 1024
Electronic Shutter Speed	16µs to 1000ms	
Acquisition	Rapid reset, progressive scan, full-frame integration.	
Bit Depth	256 grey levels (8 bits/pixel)	
Image Gain/Offset	Controlled by software.	
Frames Per Second <sup>1</sup>	102 full frames per second.	60 full frames per second.
Lens Type	M12 or C-Mount.	
Image Sensor Alignment Variability <sup>2</sup>	±0.127mm (0.005in), (both x and y) from lens C-Mount axis to center of imager.	
Trigger	1 opto-isolated, acquisition trigger input. Remote software commands via Ethernet.	
Discrete Inputs	2 general-purpose inputs when connected to the Power and I/O Breakout cable. (Eight additional inputs available when using the optional CIO-MICRO or CIO-MICRO-CC I/O module.)	
Discrete Outputs	3 high-speed outputs when connected to the Power and I/O Breakout cable. (Eight additional outputs available when using the optional CIO-MICRO or CIO-MICRO-CC I/O module.)	
Status LEDs	Network link and activity, power and 2 user-configurable.	
Internal Lighting LEDs	Red, Green, Blue, White, IR (M12 configuration only).	
Network Communication	Ethernet port, 10/100 BaseT with auto MDI/MDIX. IEEE 802.3 TCP/IP protocol. Supports DHCP (factory default), static and link-local IP address configuration.	
Serial Communication	RS-232C: 4800 to 115,200 baud rates.	
Power Consumption	24VDC ±10%, 2.0 amp. External light output 24V, 500mA Max.	

<sup>1</sup> Maximum frames per second is job-dependent, based on the minimum exposure for a full image frame capture using the dedicated acquisition trigger, and assumes there is no user interface connection to the vision system.

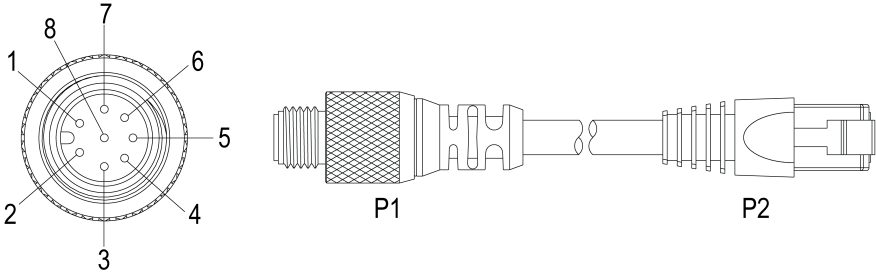
<sup>2</sup> Expected variability in the physical position of the image sensor, from vision system-to-vision system. This equates to ~±24 pixels on a 800 x 600 resolution CMOS and ~±24 pixels on a 1280 x 1024 resolution CMOS.

Specifications	In-Sight 7010/7020/7050/7200/ 7210/7230/7400/7410/7430	In-Sight 7402/7412/7432
Material	Aluminum housing.	
Finish	Painted.	
Mounting	Four M3 threaded mounting holes (1/4 - 20, M6 and flathead mounting holes also available on mounting bracket).	
M12 Configuration Dimensions	55mm (2.17in) x 84.8mm (3.34in) x 55mm (2.17in)	
C-Mount Configuration Dimensions	75mm (2.95in) to 83mm (3.27in) x 84.8mm (3.34in) x 55mm (2.17in) with lens cover installed.	
	42.7mm (1.68in) x 84.8mm (3.34in) x 55mm (2.17in) without lens cover installed.	
Weight	220 g (7.8 oz.) with lens cover and typical M12 lens installed.	
Operating Temperature	Operating: 0°C to 45°C (32°F to 113°F)	
Storage Temperature	Storage: -30°C to 80°C (-22°F to 176°F)	
Humidity	90%, non-condensing (Operating and Storage)	
Protection	IP67 with lens cover properly installed.	
Shock	80 G Shock per IEC 60068-2-27.	
Vibration	10 G from 10-500 Hz per IEC 60068-2-6.	
Regulatory Compliance	CE, FCC, KCC, TÜV SÜD NRTL, RoHS	

Ethernet Cable Specifications

The Ethernet cable is used to connect the vision system to other network devices. The Ethernet cable can be connected to a single device or provide connections to multiple devices via a network switch or router.

Table 1-2: Ethernet Cable Pin-Out

			
P1 Pin#	Signal Name	Wire Color	P2 Pin#
6	TPO+	White/Orange	1
4	TPO-	Orange	2
5	TPI+	White/Green	3
7	TRMA	Blue	4
1	TRMB	White/Blue	5
8	TPI-	Green	6
2	TRMC	White/Brown	7
3	TRMD	Brown	8

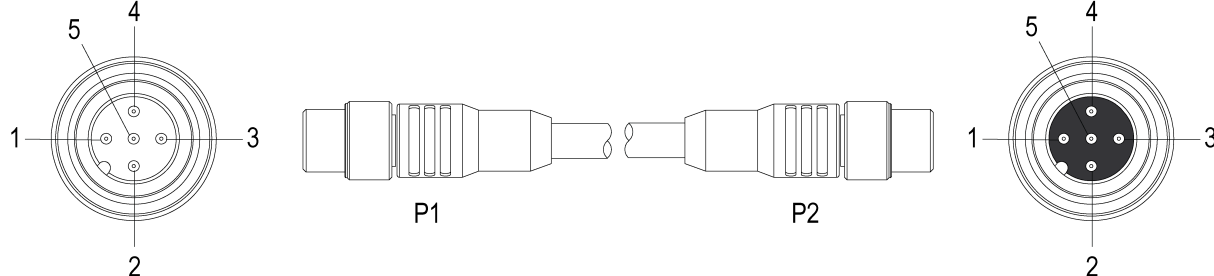
Note:

- Cables are sold separately.
- The wiring for this cable follows standard industrial Ethernet M12 specifications. This varies from the 568B standard.

# Light Cable Specifications

The Light cable is used to connect the vision system to an external lighting device, providing power and strobe control.

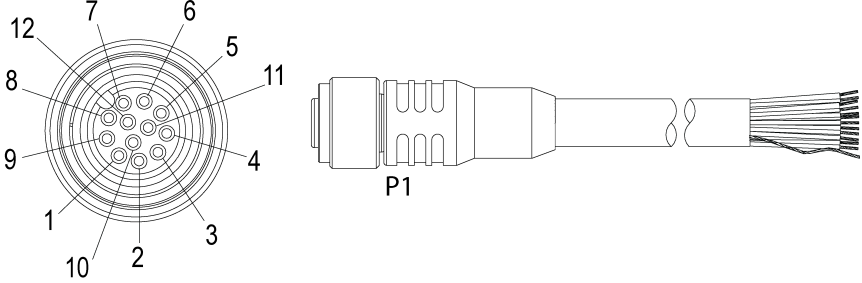
Table 1-3: Light Cable Pin-Out

		
Pin#	Signal Name	Wire Color
1	LIGHT POWER	Brown
2	RESERVED	White
3	GROUND	Blue
4	STROBE	Black
5	RESERVED	Grey
<b>Note:</b> Cables are sold separately.		

Power and I/O Breakout Cable Specifications

This Power and I/O Breakout cable provides access to an external power supply, the acquisition trigger input, general-purpose inputs, high-speed outputs and RS-232 serial communications. The Power and I/O Breakout cable is not terminated.

Table 1-4: Power and I/O Breakout Cable Pin-Out

		
Pin#	Signal Name	Wire Color
1	IN 2	Yellow
2	IN 3	White/Yellow
3	HS OUT 2	Brown
4	HS OUT 3	White/Brown
5	RS-232 RECEIVE <sup>1</sup>	Violet
6	INPUT COMMON	White/Violet
7	+24VDC	Red
8	GROUND	Black
9	OUTPUT COMMON	Green
10	TRIGGER	Orange
11	HS OUT 0	Blue
12	RS-232 TRANSMIT <sup>2</sup>	Grey
Shell	SHIELD	Bare Wire

**Note:**

- Cables are sold separately.
- Unused bare wires can be clipped short or tied back using a tie made of non-conductive material. Keep all bare wires separated from the +24VDC wire.

<sup>1</sup> If hardware handshaking is required, an I/O module must be used.

<sup>2</sup> If hardware handshaking is required, an I/O module must be used.

## Appendix 2 - Connect the I/O Module

The optional CIO-MICRO or CIO-MICRO-CC I/O module provides additional discrete inputs and outputs, hardware handshaking for serial communications and CC-Link communication capability (CIO-MICRO-CC only). When connected to the I/O module, the Power and I/O Breakout cable must be used to supply power to the vision system.

### CAUTION:

- The I/O module's TRIGGER+, TRIGGER-, HS OUT 0, HS OUT 1 and HS COMMON terminals are not supported with the In-Sight 7000 series vision system. Do not connect wire leads from remote devices to these terminals.
- The I/O module's I/O port (DB15) is not supported with the In-Sight 7000 series vision system. Do not connect anything to this port.
- If the vision system is configured for use with the I/O module, the RS-232 TRANSMIT and RS-232 RECEIVE pins on the Power and I/O Breakout cable are disabled. Use the I/O module's RS-232 OUT port (DB9) to connect to a serial device.
- All cable connectors are “keyed” to fit the connectors on the vision system; do not force the connections or damage may occur.

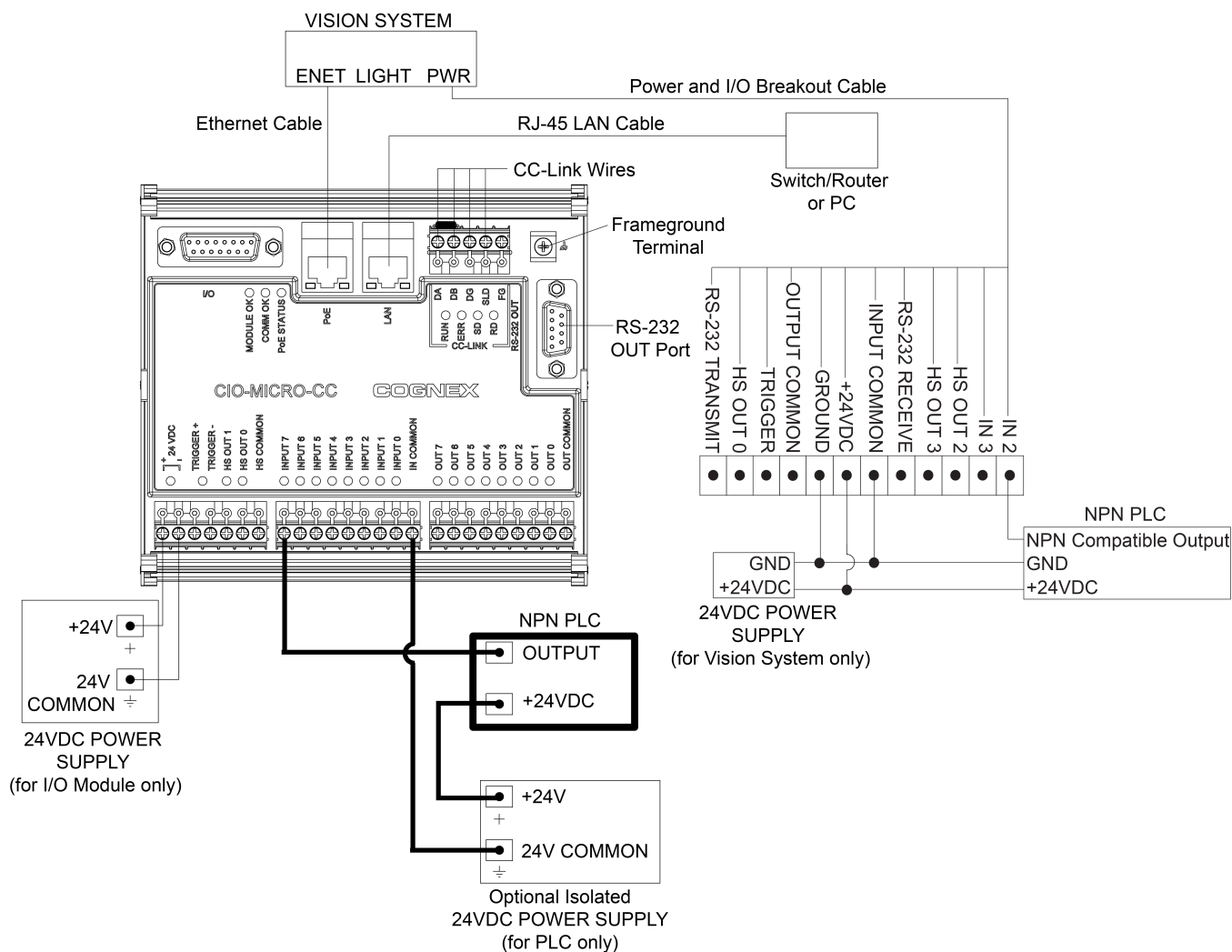


Figure 2-1: I/O Module Connections