



PPT VISION



IMPACT C-Series™



Machine Vision Micro System™ QuickStart Guide

PPT Publication # 843-0100 (Rev H)

About this guide

Thank you for using PPT's IMPACT C-Series Machine Vision Micro System™ (PPT Part # 661-0326). This guide provides diagrams and a brief overview to help you get started with your new system. For more detailed instructions, please refer to the Inspection Builder Reference Guide and the IMPACT C-Series Hardware Guide. It is important that you note the cautions and warnings in these manuals.

- Step 1: Unpack and check all the equipment.
- Step 2: Mount the vision device (see page 4).
- Step 3: Plug the camera, strobes, and Ethernet cable into the vision device (see page 3). Connect the Ethernet cable to the client PC.
- Step 4: Wire the power supply to the vision device power connector. Wire AC power to the power supply (see page 4).
- Step 5: Plug the power connector into the vision device. The status lights should blink, indicating the start-up sequence.
- Step 6: Configure the client IP address and install IMPACT software (see page 2).
- Step 7: Change the client's and vision device's IP addresses and/or masks, if necessary (see page 2).

Unpack the C-Series Machine Vision Micro System

Extreme temperature precautions: If your system arrives in very cold or hot weather, allow all the equipment to reach room temperature before plugging it in. Exposing cold equipment to a warm room can cause condensation. If condensation forms, wait for the equipment to dry completely before plugging it in.

Check the shipping cartons for wrinkled or damaged corners, holes through the cardboard, or other signs of rough handling or abuse. Carefully remove the C-Series vision device, camera, cabling, and accessories from the shipping package. Place the equipment you unpack on a table and inspect each item. Save all packing materials so you can repack the shipment in case you need to move or ship it.

C-Series Operating Specifications

Dimensions	8.0 w x 2.8 h x 6.7 d (inches) 203.2 w x 71.1 h x 170.1 d (mm)
Weight	3.4 lb. (1.54 kg.)
Input Power	+24 VDC(+/- 10%) 2.0 A (min.)
Temperature	-5 to +45 C (+23 to +113 F)
Humidity	20% to 80% (non-condensing)
Pollution Degree	3
Product Safety Compliance	UL 60950, IEC, EN 60950 CAN/CSA C22.2 No. 60950
Electromagnetic Compatibility	Emissions: EN 50081-2 Immunity: EN61000-6-2

An optional power supply is available for the C-Series vision device. If you provide your own, it must be a Listed power supply for the United States and Canada, or a power supply that meets the requirements for use where either IEC 60950 or EN60950 is applicable. It must provide the required input power within the operating specifications listed above.

System Precautions

- Follow all warnings and instructions in this guide and in other user manuals shipped with your hardware components.
- To avoid damage to your vision system and its components, never plug or unplug a cable when the power is on. Always disconnect the power supply before making any cable changes.
- Never use the system if a power cable has been damaged. Do not allow anything to rest on a power cable. Keep cables away from traffic.
- The fan inlets on the top and sides of the unit are for ventilation. Do not block or cover these openings. Do not insert anything into these openings.
- Do not expose your C-Series vision system to moisture, rain, or snow, and do not use it near water.
- To avoid injury, never open the case. Opening the case or removing the tamper-proof sticker will void the product warranty.

Warning: There are no user-serviceable parts inside the IMPACT C-Series vision device. To avoid electrical shock, never open the case.

Avertissement: Il n'y a aucune partie utilisateur-utile à l'intérieur du dispositif d'IMPACT C-Série. Pour éviter le choc électrique, n'ouvrez jamais la valise.

Installing IMPACT Software

A client computer is required to install IMPACT software and configure the vision device. Refer to the IMPACT Hardware Guide for client system requirements.

1. You may need to turn off automatic virus checking during install if it causes installation problems.
2. You must have administrator privileges to install IMPACT software.
3. To be able to communicate, the client and device's IP addresses for the local area connection must be configured. The vision device is shipped with a default IP address of 192.168.0.128 and a default mask of 255.255.255.0. If you need to change the device's IP address or mask, do so before installation.
4. Insert the IMPACT software installation CD in the client computer's drive and follow the on-screen instructions.

Changing the device IP Address

1. Connect an Ethernet cable from the client computer to the vision device's Ethernet connector.
2. Start IMPACT VPM, select the desired device in the device list and click Edit IP Address.
3. Enter the desired IP address and IP mask. Leave the Gateway unchanged. Click OK.
4. When the Reboot Warning is displayed, click OK.
5. You may need to change the client computer's IP mask and address so the device and client can communicate. See the instructions below.

Changing the client IP Address

Windows 7

1. In the Start Menu, select Computer, Network, then click Network and Sharing Center.
2. Under "View your Active Networks," click Local Area Connection.
3. Click Internet Protocol Version 4 in the list, then click Properties.
4. On the Alternate Configuration tab, select User Configured.
5. Enter the desired IP address and Subnet Mask.
6. Click OK to close all the open dialog windows.

Windows Vista

1. In the Start Menu, select Network, then click Network and Sharing Center.
2. For the Local Area Connection, click View Status.
3. Click Internet Protocol Version 4 in the list, then click Properties.
4. On the Alternate Configuration tab, select User Configured.
5. Enter the desired IP address and Subnet Mask.
6. Click OK to close all the open dialog windows.

Windows XP

1. In the Start menu, right click on My Network Places and select Properties.
2. Right click Local Area Connections and select Properties.
3. On the General tab, select Internet Protocol (TCP/IP) and click Properties.
4. On the Alternate Configuration tab, select User Configured.
5. Enter the desired IP address and Subnet Mask.
6. Click OK to close all the open dialog windows.

Strobe Wiring

Strobe Cable Layout

Terminal	Signal Name	Terminal	Signal Name
1 9	Strobe Trigger 1+ Strobe Trigger 1 -	7	Strobe Power 24VDC Enable (when connected to Common)
2 10	Strobe Trigger 2+ Strobe Trigger 2 -	8, 15	Strobe Power (24 VDC 500 mA Max)
3 11	Strobe Trigger 3+ Strobe Trigger 3 -	12	Strobe Trigger 1 (TTL level, signal return is Common)
4	No Conn	13	Strobe Trigger 2 (TTL level, signal return is Common)
5,6	Common	14	Strobe Trigger 3 (TTL level, signal return is Common)



Strobe Cable Connector
Solder Side

Strobe output signals are provided on the C-Series vision device front panel Strobe and I/O connectors. Connect strobes only to the Strobe or I/O connector, not both at the same time.

Pins 1 and 9, 2 and 10, and 3 and 11 provide optically-isolated, current-mode signals for strobes 1, 2, and 3 respectively (350 mA maximum continuous DC current at 20° C (68° F) – derated at higher temperatures).

When Pin 7 is connected to common, +24V DC (500 mA maximum) is available on pins 8 and 15. This is intended as a power source for PPT-provided strobes.

Pins 12, 13, and 14 provide optically-isolated TTL level voltage-mode strobe signals. These open collector drives are pulled up to +3.3 VDC internally and can provide 50 mA maximum continuous DC current. The signal level goes from high to low when the strobe is triggered.

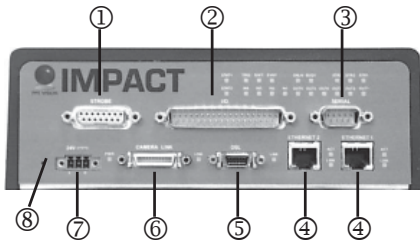
Strobe Trigger Characteristics

Output Current (max)	TTL Level Trigger	Strobe Power
350 mA _{dc} @ 20° C	+3.3V _{dc} 50 mA Max	24V _{dc} 500 mA Max

Resetting the vision device

To reset the vision device, insert the tip of an unfolded paper clip (or similar object without a sharp tip), inside the hole on the front panel of the device located to the left of the power plug (see page 3). Gently press the reset button. The front panel lights will flash in sequence when the reset starts. Vision programs and data are retained, but the device is put off-line.

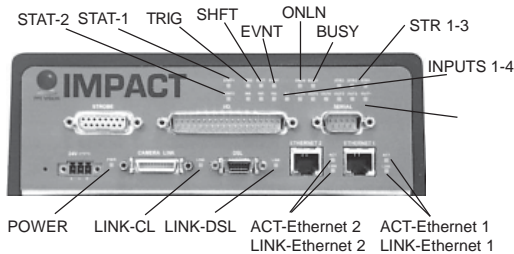
Connection Points



Vision Device Connection Points

- ① **PPT Strobe and cable** - Contact PPT or your distributor for a detailed list of compatible strobes and cables.
- ② **I/O** - Cable 606-0437-xx with terminal block (248-0110) or Cable 431-0306-xx (Rev C) without terminal block.
- ③ **Serial port** - Cable to serial port on external device (e.g. PLC). May require null modem wiring. Serial Cable Layout on Page 2.
- ④ **Client computer or network** - Use Cable 606-0457-x (cross-over cable not required)
- ⑤ **PPT Digital Camera** - Use Cable 431-0452-xx. Contact PPT or distributor for a list of cameras.
- ⑥ **Camera Link Camera** - Use camera link cable 606-0543-xx, 606-0544-xx-U, or 606-0544-xx-D. Contact PPT or your distributor for a list of compatible cameras.
- ⑦ **Power supply** - See Power Supply Cable (page 4)
- ⑧ **Reset Button**

Vision Device Status Lights

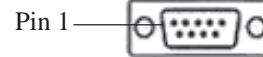


Light Name	Status Light On Indicates
ACT-Ethernet	Ethernet links are active
BUSY	Acquiring image; Busy Output is On (pins 9 and 28)
EVNT	Event trigger signal present on I/O (pins 3 and 22)
INPUTS 1-4	Indicated Input is On
LINK-DSL	Link is established with DSL camera
LINK - CL	Link is established with Camera Link camera
LINK-Ethernet	Ethernet link is established
ONLN	Device Online; Online Output is On (pins 8 and 27)
OUTPUTS 1-6	Indicated Output is On
POWER	24 VDC power is On
SHFT	Shift trigger signal present on I/O (pins 2 and 21)
STAT-1	Device accessing camera or compact flash memory
STAT-2	Device currently processing data
STR 1-3	Indicated Strobe is On
TRIG	Trigger signal present on I/O (pins 1 and 20)

Cable Layouts

Serial Cable Layout

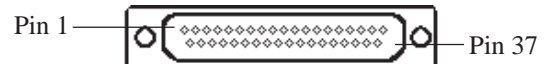
Pin	Signal Name	Pin	Signal Name
1	Carrier Detect (CD)	6	Data Set Ready (DSR)
2	Received Data (RxD)	7	Request To Send (RTS)
3	Transmit Data (TxD)	8	Clear To Send (CTS)
4	Data Terminal Ready (DTR)	9	Ring Indicator (RI)
5	Signal Ground (GND)		



Serial Cable Connector
(Solder Side)

Input/Output Cable Layout

Terminal	Signal Name	Terminal	Signal Name
1 20	Trigger In + Trigger In -	11 30	Output 5 + Output 5 -
2 21	Shift In + Shift In -	12 31	Output 4 + Output 4 -
3 22	Event In + Event In -	13 32	Output 3 + Output 3 -
4 23	Input 4 + Input 4 -	14 33	Output 2 + Output 2 -
5 24	Input 3 + Input 3 -	15 34	Output 1 + Output 1 -
6 25	Input 2 + Input 2 -	16	No Conn
7 26	Input 1 + Input 1 -	18 35	Strobe Trig 3 + Strobe Trig 3 -
8	Online Out + Online Out -	17 36	Strobe Trig 2 + Strobe Trig 2 -
9 28	Busy (acquire) Out + Busy (acquire) Out -	19 37	Strobe Trig 1 + Strobe Trig 1 -
10 29	Output 6 + Output 6 -		



I/O Cable Connector
(Solder Side)

Output Characteristics

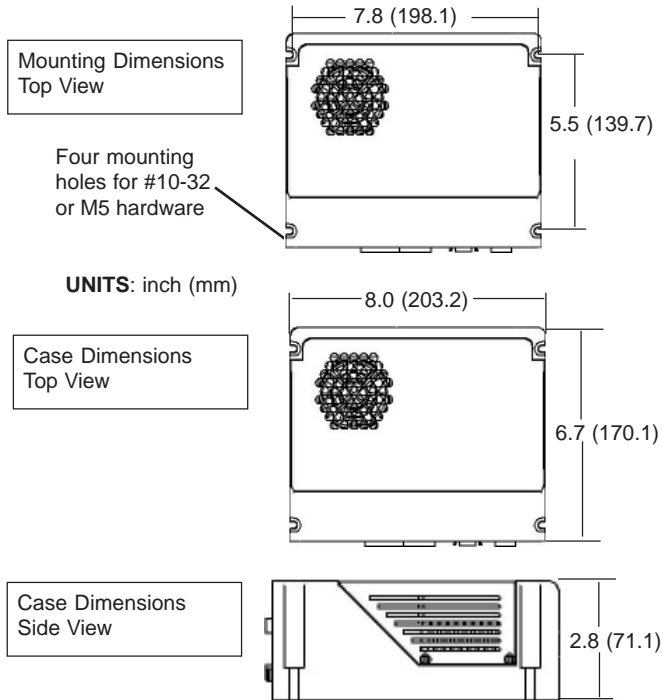
Supply Voltage	Turn-on Time	On Current	Off Current
26 VDC (max)	250 uS	300 mA (max)	100 uA (max)

Input Current (nominal)	Input	On Voltage	On Delay	Min On Current	Off Voltage	Off Delay	Max Off Current
3.75 mA @ 12Vdc 5 Ma @ 24 Vdc	0-26 Vdc	>2.8 Vdc	10 uS	2.5 mA	<1.5 Vdc	50 uS	500 uA

Mounting the IMPACT C-Series Camera

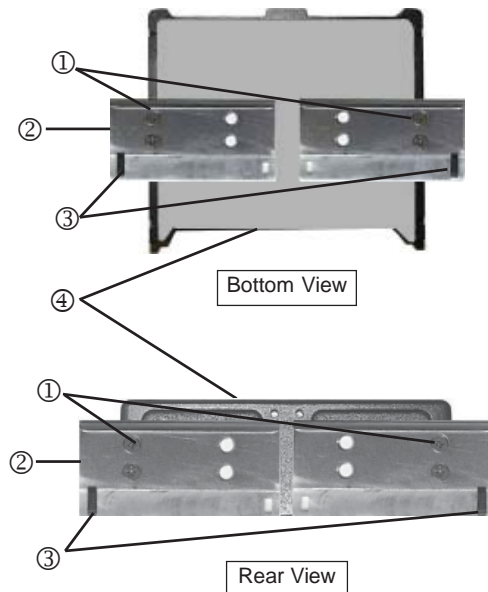
Flat Surface Mounting

The C-Series vision device may be fastened from the case top to any flat, stable surface, in any orientation, using the built-in case mounting holes. **IMPORTANT:** Maintain at least 1.5 inches (38 mm) of clearance at the sides and top of the unit.



DIN Rail Mounting

- ① DIN bracket mounting screws
- ② DIN brackets
- ③ DIN bracket holding clips
- ④ C-Series Vision Device



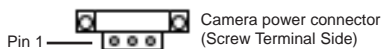
The device may be hung from the bottom or rear onto a horizontally-mounted DIN rail using the optional hardware kit (PPT Part # 651-0091).

1. Insert the bracket holding clips into the brackets.
2. Using the bracket mounting screws, fasten the brackets to the desired holes in the rear or bottom of the unit .
3. Hang the unit on the DIN rail.
4. Verify that the holding clips are clipped securely to the rail.

Power Supply Wiring

Warning: To avoid shock hazard and possible personal injury, do not wire the power supply while AC power is connected.

Optional vision device power supply wiring



- ① Connect Power Connector Pin 1 to Power Supply +24VDC
- ② Connect Power Connector Pin 2 to Power Supply 24VDC Minus or Ground
- ③ Connect Power Connector Pin 3 to Power Supply Circuit Ground

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