

SPECIFICATIONS

NI CVS-1457RT

GigE Vision Compact Vision System with Reconfigurable I/O and Power over Ethernet

This document provides the specifications for the NI CVS-1457RT. Specifications are subject to change without notice. For the most recent NI CVS-1457RT specifications, visit ni.com/manuals.

Characteristics/Nominal Specifications describe basic functions and attributes of the device established by design.

Specifications

Physical Characteristics

Dimensions 10.8 cm × 6.1 cm × 13.0 cm (L × W × H)

Weight..... 936 g (2.06 lb)



Caution The protection provided by the NI CVS-1457RT can be impaired if the device is used in a manner not described in this document.

To clean the NI CVS-1457RT, wipe it with a dry towel.

Processor

Type Intel Atom Processor N455

Frequency 1.66 GHz

On-die L2 cache..... 512 KB

Memory

System RAM

Capacity 1 GB

Type DDR3 SDRAM

Speed 667 MT/s

Nonvolatile storage

Capacity 2 GB

Reconfigurable FPGA

Type.....	Spartan-6 LX25
Number of flip-flops	30,064
Number of 6-input LUTs	15,032
Number of DSP48A1 slices	38
(18 × 18 multipliers)	
Number of RAM blocks	52 (936 Kbits)

Primary Network Port

Standard	IEEE 802.3 Ethernet 10BASE-T, 100BASE-TX, 100BASE-T
Interface	RJ45
Speed.....	10, 100, 1000 Mbps

PoE-Capable Network Ports

Number of ports	2
Standards	IEEE 802.3 Ethernet 10BASE-T, 100BASE-TX, 100BASE-T IEEE 802.3af (PoE) compatible
Interface	RJ45
Speed.....	10, 100, 1000 Mbps
Supported PoE power classes	0, 1, 2, 3
PoE power output (per port)	15.4 W

USB Ports

Number of ports	2
Type.....	USB 2.0, Hi-Speed
Maximum data rate	480 Mbit/s
Maximum current	1 A, shared across both ports

RS-485/422/232 Serial Port

Interface	RJ50
Maximum baud rate	115,200 bps
Data bits	5, 6, 7, 8
Stop bits	1, 1.5, 2
Parity.....	Odd, Even, Mark, Space

Maximum pulse rate	100 kHz
Minimum pulse detected.....	100 μ s
Input protection	
Reverse polarity protection	Yes, -30 V
Input voltage (channel to C _{ISO}).....	30 V maximum
Input current.....	3.3 mA, internally limited

Isolated Outputs

Type.....	Current sourcing
Number of channels	8
Supply voltage range (V _{ISO})	5 V to 24 V
Over voltage protection	+30 V
Reverse polarity protection.....	Yes, -30 V
Maximum output voltage drop	
V _{ISO} = 5 V	1.08 V at 35 mA
V _{ISO} = 24 V	1.18 V at 80 mA
Output current	
V _{ISO} = 5 V	35 mA, maximum
V _{ISO} = 24 V	80 mA, maximum
Maximum current limit	345 mA
Minimum pulse rate	2.5 kHz (load of 100 k Ω , 300 pF)
Maximum pulse rate	20 kHz (load of 10 k Ω , 300 pF)
Minimum pulse generated	400 μ s



Note The isolated outputs have a current limit which will turn off the outputs in case the limit is exceeded. The circuit resets when the output is turned off. Do not draw more than 100 mA from any 24 V isolated output. Do not draw more than 50 mA from any 5 V isolated output. Do not draw more than 640 mA combined from the V_{ISO} pins on the 44-pin D-SUB connector.

Environmental

Indoor use only.	
Operating temperature	0 °C to 55 °C
Storage temperature	-20 °C to 85 °C
Relative humidity.....	10% to 90%, noncondensing
Pollution Degree	2
Maximum Altitude.....	2,000 m

Operating Shock (IEC 60068-2-27)	50 g, 3 ms half sine, 3 shocks per side 30 g, 11 ms half sine, 3 shocks per side
Operating vibration	
Random (IEC 60068-2-34)	10 to 500 Hz, 5 G _{rms}
Swept Sine (IEC 60068-2-6)	10 to 500 Hz, 5 g

Safety

This product is designed to meet the requirements of the following standards of safety for electrical equipment for measurement, control, and laboratory use:

- IEC 61010-1, EN 61010-1
- UL 61010-1, CSA 61010-1



Note For UL and other safety considerations, refer to the product label, or visit ni.com/certification, search by model number or product line, and click the appropriate link in the Certification column.

Electromagnetic Compatibility

This product meets the requirements of the following EMC standards for electrical equipment for measurement, control, and laboratory use:

- EN 61326-1 (IEC 61326-1): Class A emissions; Basic immunity
- EN 55011 (CISPR 11): Group 1, Class A emissions
- EN 55022 (CISPR 22): Class A emissions
- EN 55024 (CISPR 24): Immunity
- AS/NZS CISPR 11: Group 1, Class A emissions
- AS/NZS CISPR 22: Class A emissions
- FCC 47 CFR Part 15B: Class A emissions
- ICES-001: Class A emissions



Note In the United States (per FCC 47 CFR), Class A equipment is intended for use in commercial, light-industrial, and heavy-industrial locations. In Europe, Canada, Australia and New Zealand (per CISPR 11) Class A equipment is intended for use only in heavy-industrial locations.



Note Group 1 equipment (per CISPR 11) is any industrial, scientific, or medical equipment that does not intentionally generate radio frequency energy for the treatment of material or inspection/analysis purposes.

CE Compliance

This product meets the essential requirements of applicable European Directives, as amended for CE marking, as follows:

- 2004/108/EC; Electromagnetic Compatibility Directive
- 73/23/EEC; Low-Voltage Directive (safety)
- 89/336/EEC; Electromagnetic Compatibility Directive (EMC)



Note Refer to the Declaration of Conformity (DoC) for this product for any additional regulatory compliance information. To obtain the DoC for this product, visit ni.com/certification, search by model number or product line, and click the appropriate link in the Certification column.

Environmental Management

NI is committed to designing and manufacturing products in an environmentally responsible manner. NI recognizes that eliminating certain hazardous substances from our products is beneficial to the environment and to NI customers.

For additional environmental information, refer to the *Minimize Our Environmental Impact* web page at ni.com/environment. This page contains the environmental regulations and directives with which NI complies, as well as other environmental information not included in this document.

Waste Electrical and Electronic Equipment (WEEE)



EU Customers At the end of the product life cycle, all products *must* be sent to a WEEE recycling center. For more information about WEEE recycling centers, National Instruments WEEE initiatives, and compliance with WEEE Directive 2002/96/EC on Waste and Electronic Equipment, visit ni.com/environment/weee.

电子信息产品污染控制管理办法（中国 RoHS）



中国客户 符合中国电子信息产品中限制使用某些有害物质指令 (RoHS)。关于 National Instruments 中国 RoHS 合规性信息，请登录 ni.com/environment/rohs_china。(For information about China RoHS compliance, go to ni.com/environment/rohs_china.)

Battery Replacement and Disposal



Battery Directive This device contains a long-life coin cell battery. If you need to replace it, use the Return Material Authorization (RMA) process or contact an authorized National Instruments service representative. For more information about compliance with the EU Battery Directive 2006/66/EC about Batteries and Accumulators and Waste Batteries and Accumulators, visit ni.com/environment/batterydirective.

Where to Go Next

The following documents and resources contain information you may find helpful as you use the NI CVS-1457RT in an application. Refer to the National Instruments Product Manuals Library at ni.com/manuals for the most recent versions of product documentation.

- *NI CVS-1457RT Getting Started Guide*—Explains how to install and configure the NI CVS-1457RT.
- *NI CVS-1457RT User Manual*—Contains connector pinouts, configuration information, mounting information, and answers to common troubleshooting questions.
- *NI CVS I/O Accessory User Manual*—Contains installation and operation instructions for the CVS I/O Accessory.

Where to Go for Support

The National Instruments website is your complete resource for technical support. At ni.com/support you have access to everything from troubleshooting and application development self-help resources to email and phone assistance from NI Application Engineers.

A Declaration of Conformity (DoC) is our claim of compliance with the Council of the European Communities using the manufacturer's declaration of conformity. This system affords the user protection for electromagnetic compatibility (EMC) and product safety. You can obtain the DoC for your product by visiting ni.com/certification. If your product supports calibration, you can obtain the calibration certificate for your product at ni.com/calibration.

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