

Rugged Real-Time Compact Vision Systems

NI CVS-1454, NI CVS-1455, NI CVS-1456

- Rugged system for real-time IEEE 1394a image acquisition, analysis, and storage
- 3 IEEE 1394a camera inputs
- High-performance processor ensures fast inspection times
- Operating temperature of 0 to 55 °C
- Ethernet and RS232 ports
- Control triggers, cameras, lighting, and PLCs with 15 digital inputs and 14 digital outputs
- Reconfigurable DIO with LabVIEW FPGA
- Compatible with IEEE 1394 hard drives

Recommended Software

- Vision Builder for Automated Inspection
- LabVIEW with the NI Vision Real-Time Development Kit

Optional Software

- LabVIEW FPGA Module

Driver Software (included)

- Vision Acquisition software



	CVS-1454	CVS-1455	CVS-1456
Configurable software	Vision Builder AI available		
Programmable software	LabVIEW and the Vision Development Module		
Typical processor performance	833 MIPS ¹	1436 MIPS ¹	1623 MIPS ¹
Digital I/O lines	29	29	29
Number of cameras	Up to 3	Up to 3	Up to 3
Resolution and frame rate	Camera-defined	Camera-defined	Camera-defined
Nonvolatile storage	32 MB	128 MB	256 MB

¹MIPS: Millions instructions per second

Table 1. CVS-145x Selection Guide

Overview

The National Instruments Compact Vision System gives you the flexibility, integration, and ruggedness for all of your inspection, alignment, gauging, and identification applications. A high-performance processor integrated with three IEEE 1394a ports means that NI CVS-145x systems are equipped to handle any inspection task. A diverse range of digital I/O options means that CVS-145x systems can communicate with a wide range of automation devices including PLCs, relays, and robotics. CVS-145x systems are designed for extreme operating temperatures common in manufacturing environments. No longer are you confined to the limited image processing capability, sensor size, and sensor speed of traditional smart cameras.

Automotive	Inspect part presence, measure distances
Electronics	Verify component placement, inspect displays, verify patterns
Pharmaceutical	Read lot codes, inspect packaging, match colors
Semiconductor	Read wafer codes, guide motion control, align wafers to probers
Consumer products	Inspect labels, packaging, packaging text
Packaging	Read text, ensure proper placement of labels, identify components

Table 2. CVS-145x systems excel in a wide range of applications.

Configure or Program

With the National Instruments machine vision software approach, you no longer need to make a trade-off between the power and flexibility of a programming language such as NI LabVIEW and the ease of use of a menu-driven environment such as NI Vision Builder AI. It simplifies the development process by replacing programming complexity with an interactive development environment. It is designed to solve gauging, inspection, part present/not present, alignment, and optical character recognition applications. Overall, if you need the power and flexibility of a full application development environment, you should use LabVIEW. With LabVIEW, you develop your own custom image processing algorithms, optimize your image processing application for speed, optimize memory usage, develop a custom user interface, and extend the I/O capabilities to PXI and Compact FieldPoint.

Multicamera Inspection

CVS-145x systems provide a low-cost way to inspect from multiple angles. With three IEEE 1394a ports, you can directly connect three cameras to the Compact Vision System with ease. Each camera shares a portion of the 400 Mb/s bandwidth.

Choice of Sensor

By using IEEE 1394a image acquisition, a CVS-145x gives you the option of choosing the sensor that is right for your application. You can choose from nearly 100 cameras, including infrared, line-scan, high-speed, and high-resolution. In addition, as new, improved industrial IEEE 1394a cameras enter the marketplace, CVS-145x systems are ready for them.

BUY ONLINE at ni.com or CALL 866 265 9891 (U.S.)

External Device Control

A CVS-145x has 29 digital I/O lines with built-in functionality for communicating with external devices, such as reading quadrature encoder inputs, generating strobe pulses, and writing to or reading from digital lines. Using these signals, you can dynamically control your lighting or cameras, synchronize with a conveyor belt, or communicate with relays that control solenoids and other actuators. You can customize and reconfigure all of the digital I/O lines with LabVIEW FPGA.

Each CVS-145x has 15 digital input lines (13 isolated 24 V lines and two dedicated TTL lines) and 14 digital output lines (four isolated 24 V and 10 dedicated TTL).

In addition, CVS-145x systems can send commands and data to other devices, such as PLCs, via Ethernet and RS232 serial. Connect the system to any network to monitor the inspection. Send images over the network for viewing or store them in a database for future reference. In addition, you can use NI VI Server technology to publish your data and results in real time to a Web browser.



Figure 1. CVS-145x Terminal Block and Prototyping Accessory

Real-Time Display

Using the VGA output, you can see the product under inspection in real time, as well as pass/fail and inspection data. All of the overlays are user-definable; with LabVIEW you can change the overlays programmatically and create custom user displays.

Rugged, Reliable Design

Run your application with confidence. A CVS-145x uses the powerful, award-winning LabVIEW Real-Time engine, a reliable embedded programming environment. Time-bounded algorithms ensure that you can meet the deterministic demands of your system; configure your inspections to occur in a defined amount of time.

CVS-145x systems were designed with harsh industrial environments in mind. The temperature range of 0 to 55 °C ensures that uptime is kept at a maximum. The absence of fans, vents, or moving parts ensures the CVS-145x system is a reliable addition

to your industrial inspection robotics, packaging, or assembly applications. CVS-145x systems are ready for panel and DIN-rail mounting.

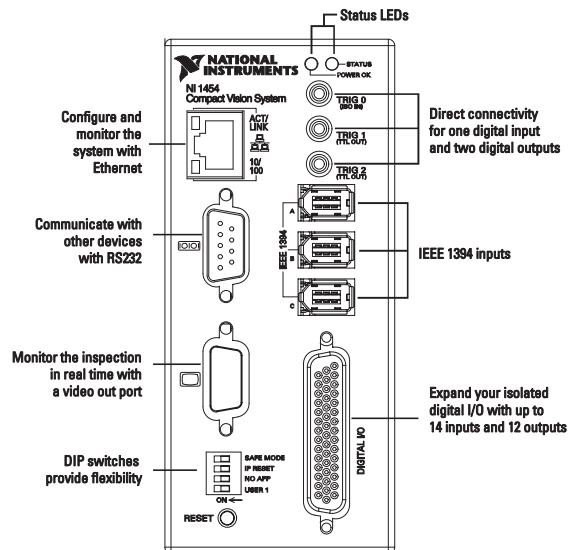


Figure 2. Connect to all types of sensors and devices with the many connectivity options.

Ordering Information

Step 1. Select your compact vision system.

NI CVS-1454	778638-01
NI CVS-1455	778736-01
NI CVS-1456	778986-01

Includes Vision Acquisition software.

Step 2. Select your software.

Configuration	
NI Vision Builder for Automated Inspection	778649-01
Programming	
NI LabVIEW	776671-03
NI Vision Real-Time Development Kit.....	779324-03

Step 3. Select your power option.

24 VDC, 50 W power supply	778794-01
24 VDC, 120 W power supply with DIN-rail mounting kit.....	778805-90

BUY NOW!

For complete product specifications, pricing, and accessory information, call 866 265 9891 (U.S. only) or go to ni.com/vision.