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Matrox **Indio** »

Industrial I/O and communication card

MATROX
IMAGING

Overview

Turn any PC into a Matrox Imaging vision controller

Matrox® Indio provides the industrial I/O and communication capabilities to turn any PC running Matrox Imaging vision software into a genuine vision controller. It provides discrete inputs and outputs managed in hardware for the real-time synchronization of a vision application with automation devices. It also provides Gigabit Ethernet connectivity for interfacing with programmable logic/automation controllers or GigE Vision® cameras equipped for Power-over-Ethernet (PoE).

Discrete I/Os

Matrox Indio offers eight discrete inputs and eight discrete outputs that are jumper-selectable for 24 V or TTL-level signaling, supporting both factory-floor and lab use. The I/Os are optically isolated while the outputs are also protected by resettable fuses, all to prevent damage from unintended use. The I/Os can be hooked up in either sinking or sourcing configurations and are accessible from a standard 37-pin D-Sub connector.

Real-time synchronization

Matrox Indio delivers real-time I/O management through a dedicated hardware-assisted mechanism. The mechanism enables output events to occur at precise moments in time, based on elapsed time, or specific input events. An input event can come directly from a discrete input—including from a rotary encoder—or a count derived from a discrete input. Programmed output events are stored in a hardware list, which is traversed based on a clock or an input event. The carrying out of an output event results in a state transition, pulse, or pulse train on a specific discrete output. Multiple cascadable hardware timers are available to count or generate specific events.

Industrial Ethernet or GigE Vision

Matrox Indio also makes available a Gigabit Ethernet port through a standard RJ45 connector for industrial networking using the EtherNet/IP™, Modbus®, and PROFINET® protocols. PROFINET communication is hardware-assisted to ensure timely response. The Gigabit Ethernet port can alternatively connect to a GigE Vision camera and power it by way of PoE support.

Matrox Indio at a glance

Facilitate computer integration with a PCIe® x1 interface

Benefit from real-time synchronization with 16 discrete digital I/Os

Get straightforward access to I/Os via standard D-Sub connector

Support factory-floor and lab use with 24 V and TTL-compatible signaling

Protect against unintended use with optical isolation and resettable fuses

Track moving production lines with support for two rotary incremental encoders

Use status indicator LED for each I/O to assist with integration troubleshooting

Leverage Gigabit Ethernet port for industrial communication or video capture using GigE Vision

Use with Matrox Design Assistant X and Matrox Imaging Library (MIL) X vision software

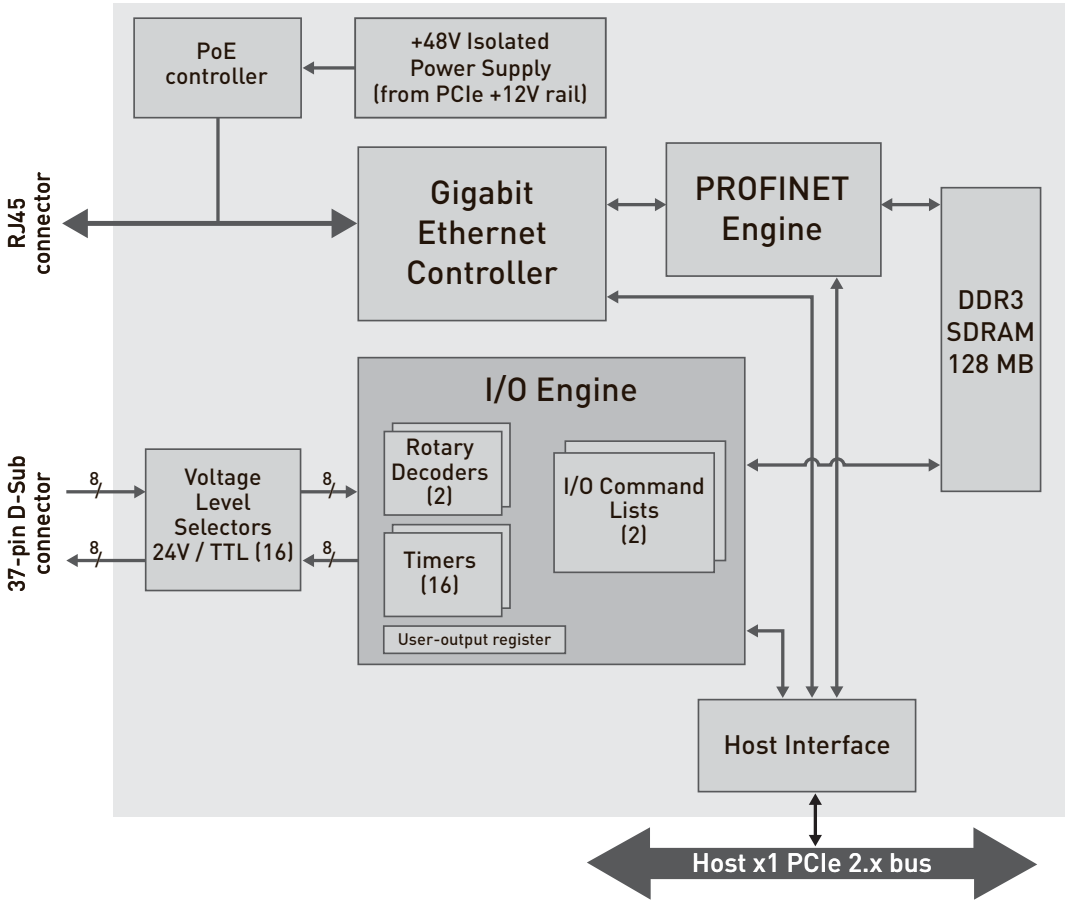
Software Environment

Vision software support

Matrox Design Assistant X and MIL X vision software include support for the Matrox Indio. The card automatically provides access to the software's industrial communication and GigE Vision functionality.

Connectivity

Matrox Indio block diagram



Specifications

Matrox Indio
Board
Eight (8) independent inputs
Opto-isolated
Jumper selectable for 24 V or TTL operation
Logic low level
0 V to 5 V (default) or 0 V to 0.8 V (TTL mode)
Logic high level
11 V to 24 V (default) or 2 V to 5 V (TTL mode)
Sink or source acting at up to 100 mA
Configurable for two rotary incremental encoders
Generate system interrupt
With status indicator LED
Eight (8) independent outputs
Opto-isolated
Jumper selectable for 24 V or TTL operation
Logic low level
0 V to 3 V (default) or 0 V to 0.1 V (TTL mode)
Logic high level
Up to 24 V (default) or up to 5 V (TTL mode)
Sink or source acting at up to 100 mA
Protected by resettable fuse
With status indicator LED
Gigabit Ethernet port
Hardware-assist for PROFINET protocol (1 ms minute I/O cycle time)
Isolated PoE support up to 15.4 W
Connectors
37-pin D-Sub for I/Os
RJ45 for Gigabit Ethernet port
Power requirements
+3.3 V @ 1.6 A maximum
+12 V @ 2 A maximum (when 15.4 W is drawn for PoE)
Dimensions (L x W x H)
16.76 x 1.87 x 10.67 cm (6.6 x 0.737 x 4.2 in)
Certifications
FCC Part 15 Class B, CE mark
EN55011 Class B
EN61326-1 Industrial Environment
ICES-003/NMB-003 Class B
RCM Class B

Specifications (cont.)

Matrox Indio
Environmental
Operating temperature: 0°C to 55°C (32°F to 131°F)
Storage temperature: -40°C to 85°C (-40°F to 185°F)
Relative humidity: 10% to 90% (non-condensing)
Software
Refer to MIL X datasheet. Note: Board acts as a MIL X license fingerprint and can store a supplemental MIL X license.

Ordering Information

Part number	Description
Hardware	
INDIO	Matrox Indio PCIe x1 card with 16 real-time discrete digital I/Os and Gigabit Ethernet port with PoE. Pre-licensed for MIL X interface (GigE Vision) and industrial communications packages.

Endnotes:
1. As of Matrox Design Assistant 5.
2. As of MIL 10 with Update 53.

The Matrox Imaging advantage

Assured quality & longevity
Adhering to industry best practices in all hardware manufacturing and software development, product designs pay careful attention to component selection to secure consistent long-term availability. Matrox Imaging is able to meet Copy Exact and Revision Change Control procurement requirements in particular circumstances, backed by a dedicated team of QA specialists.

Trusted industry standards
Matrox Imaging champions industry standards in its design and production. Leveraging these standards to deliver quality compatible products, Matrox Imaging protects its customers' best interests by ensuring hardware and software components work with as many third-party products as possible.

Comprehensive customer support
Devoted front-line support and applications teams are on call to offer timely product installation, usage, and integration assistance. Matrox Professional Services delivers deep technical assistance to help customers develop their particular applications in a timely fashion. Services include personalized training and device interfacing as well as application feasibility, prototyping, troubleshooting, and debugging.

Tailored customer training
Matrox Vision Academy comprises online and on-premises training for Matrox Imaging vision software tools. On-premises intensive training courses are regularly held at Matrox headquarters, and can also be customized for onsite delivery. The Matrox Vision Academy online training platform hosts a comprehensive set of on-demand videos available when and where needed.

Long-standing global network
Matrox Imaging customers benefit from a global network of distributors who offer complementary products and support, and integrators who build customized vision systems. These relationships are built on years of mutual trust and span the globe, ensuring customer access to only the best assistance in the industry.



About Matrox Imaging

Founded in 1976, Matrox is a privately held company based in Montreal, Canada. Imaging, Graphics, and Video divisions provide leading component-level solutions, leveraging the others' expertise and industry relations to provide innovative, timely products.

Matrox Imaging is an established and trusted supplier to top OEMs and integrators involved in machine vision, image analysis, and medical imaging industries. The components consist of smart cameras, 3D sensors, vision controllers, I/O cards, and frame grabbers, all designed to provide optimum price-performance within a common software environment.

Contact Matrox

imaging.info@matrox.com

North America Corporate Headquarters: 1 800-804-6243 or 514-822-6020
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The use of the terms "industrial" or "factory-floor" do not indicate compliance to any specific industrial standards.

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