



Available  
for deep learning  
training

# Matrox **4Sight XV6** >>>

Expandable entry-level vision controller



# Overview

## Ideal for intensive machine vision applications

Matrox® 4Sight XV6 is an expandable ruggedized computer designed for demanding imaging workloads. Its reliable platform is ideal for video acquisition, offering four full-height, half-length PCIe® expansion slots designed to host multiple cards, including frame grabbers operating at full performance. It can support up to three displays—VGA, DVI-D, HDMI™, and/or DisplayPort™—from the available outputs.

This powerful vision controller is the latest iteration of the Matrox 4Sight series, delivering desktop-level processing performance and ample expansion, all packaged in a small, sturdy casing. Powered by an eighth-generation Intel® Core™ processor, the Matrox 4Sight XV6 is capable of supporting intensive machine vision applications. Matrox 4Sight XV6 vision controllers are supported by two comprehensive software platforms: Matrox Design Assistant X is a flowchart-based integrated development environment (IDE), whereas Matrox Imaging Library (MIL) X is a software development kit (SDK) for more traditional programmers. Each software offers tools for video capture, analysis, classification, location, measurement, reading, verification, communication, and I/O operations so that engineers and technicians can quickly configure and deploy machine vision applications to Matrox 4Sight XV6 vision controllers.

## Wide range of expansion options

Camera interfaces abound and Matrox 4Sight XV6 provides support for these either directly or with one or more expansion boards. The addition of Matrox Imaging frame grabber boards enables video capture from Camera Link, CoaXPress, DisplayPort, HDMI, and SDI sources including cameras.

Frame grabbers from the Matrox Radiant eV-CL series provide Camera Link connectivity. Adding Matrox Rapixo CXP cards delivers up to four CoaXPress 2.0 connections, as well as FPGA processing offload. Use of a Matrox Clarity UHD card allows for capture of eight independent video streams.

Gigabit Ethernet connectivity with Power-over-Ethernet (PoE) support, perfect for interfacing to GigE Vision cameras, is available with Matrox Concord PoE frame grabbers and Matrox Indio I/O cards. Matrox Concord PoE can also provide optional Trigger-over-Ethernet (ToE) capability while the Matrox Indio can alternatively deliver hardware-assisted PROFINET® communication and provides real-time I/O capabilities. Finally, an NVIDIA® GPU can be used to accelerate deep learning training.

## Solid construction

The Matrox 4Sight XV6 fits readily into tough industrial environments, including warehouses, plants, and manufacturing or fabrication facilities. A full steel chassis protects the system from rough conditions; efficient cooling ensures steady functioning for consistent maximum performance. Serviceable air filters keep the interior of the unit free of foreign particles.

## Matrox 4Sight XV6 at a glance

**Tackle demanding imaging applications** using an eighth-generation Intel Core processor

**Capture directly** from GigE Vision® and USB3 Vision® cameras

**Broaden support for** Camera Link®, CoaXPress®, DisplayPort, HDMI, and SDI video interfaces using Matrox Imaging frame grabbers

**Customize I/O capabilities** through four PCIe slots accepting full-height, half-length cards

**Install in space-limited industrial environments** given its small footprint and rugged design

**Streamline application development** using the Matrox Design Assistant X flowchart-based IDE or the MIL X SDK

**Tackle machine vision applications with utmost confidence** using field-proven tools for analyzing, locating, classifying, measuring, reading, and verifying

**Leverage machine learning including deep learning** to categorize image content

**Ready for deep learning training** with suitably equipped and configured model

# Software Environment

## Microsoft Windows 10 IoT Enterprise

Matrox 4Sight XV6 comes pre-installed with Microsoft® Windows® 10 IoT Enterprise 2019 (64-bit), which provides the familiarity, performance, and reliability of Windows 10, including multi-language support.

## Field-proven application development software

Matrox 4Sight XV6 is supported by MIL X<sup>1</sup> software—a comprehensive SDK with a 25-year history of reliable performance. This toolkit features interactive software and programming functions for image capture, processing, analysis, annotation, display, and archiving operations, with the accuracy and robustness needed to tackle the most demanding machine vision applications. Refer to the MIL X datasheet for more information.

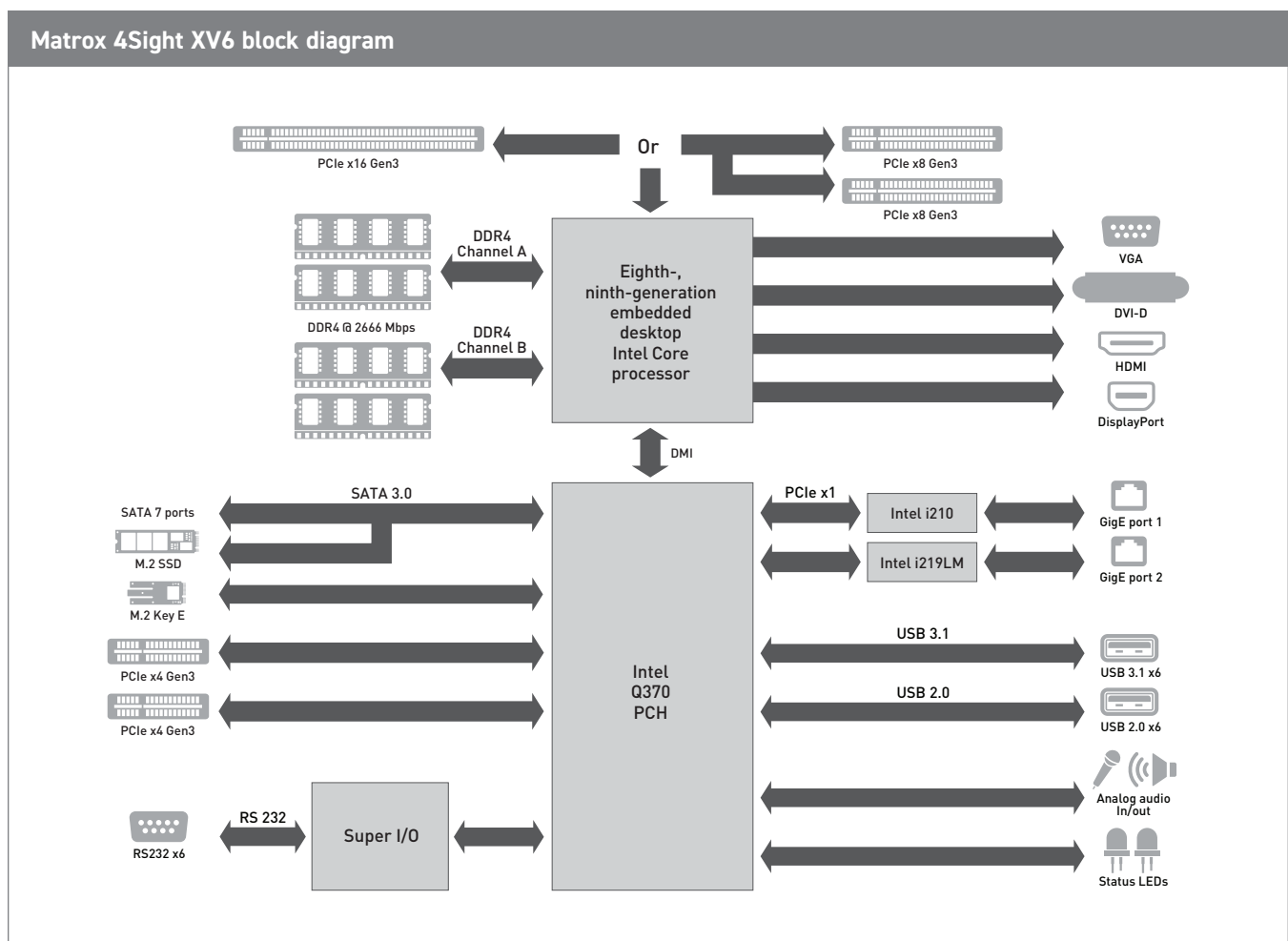
Matrox 4Sight XV6 is also available with, and licensed for, Matrox Design Assistant X<sup>1</sup> software, a versatile and extendable IDE. Vision applications are created by constructing an intuitive

flowchart instead of writing traditional programming code. A custom, web-based operator interface to the application is created through an integrated HTML visual editor. Refer to the Matrox Design Assistant X datasheet for more information.

## Ready for deep learning training

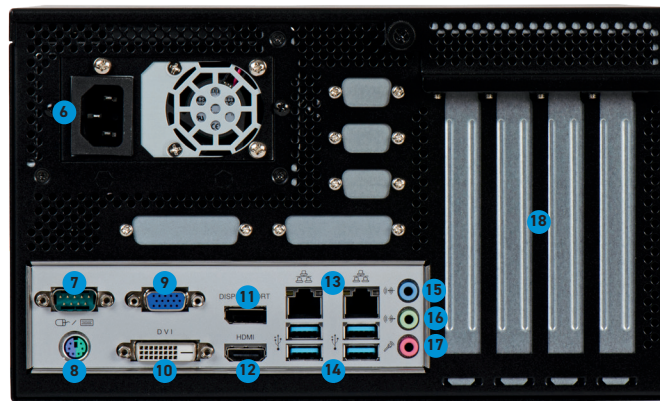
Matrox 4Sight XV6 is also available equipped and configured for deep learning training. Additions include more memory, separate storage for software and training dataset, and a suitable professional NVIDIA GPU card, all to accelerate the training process. The specific model is pre-loaded with the MIL X software, including the MIL CoPilot interactive environment, and comes ready-licensed for using the MIL X Classification package. Refer to the MIL X datasheet for more information.

# Connectivity



# Connectivity (cont.)

## Matrox 4Sight XV6 front and back views



- 1. Fan filter door
- 2. Power switch
- 3. HDD LED
- 4. Power-on LED

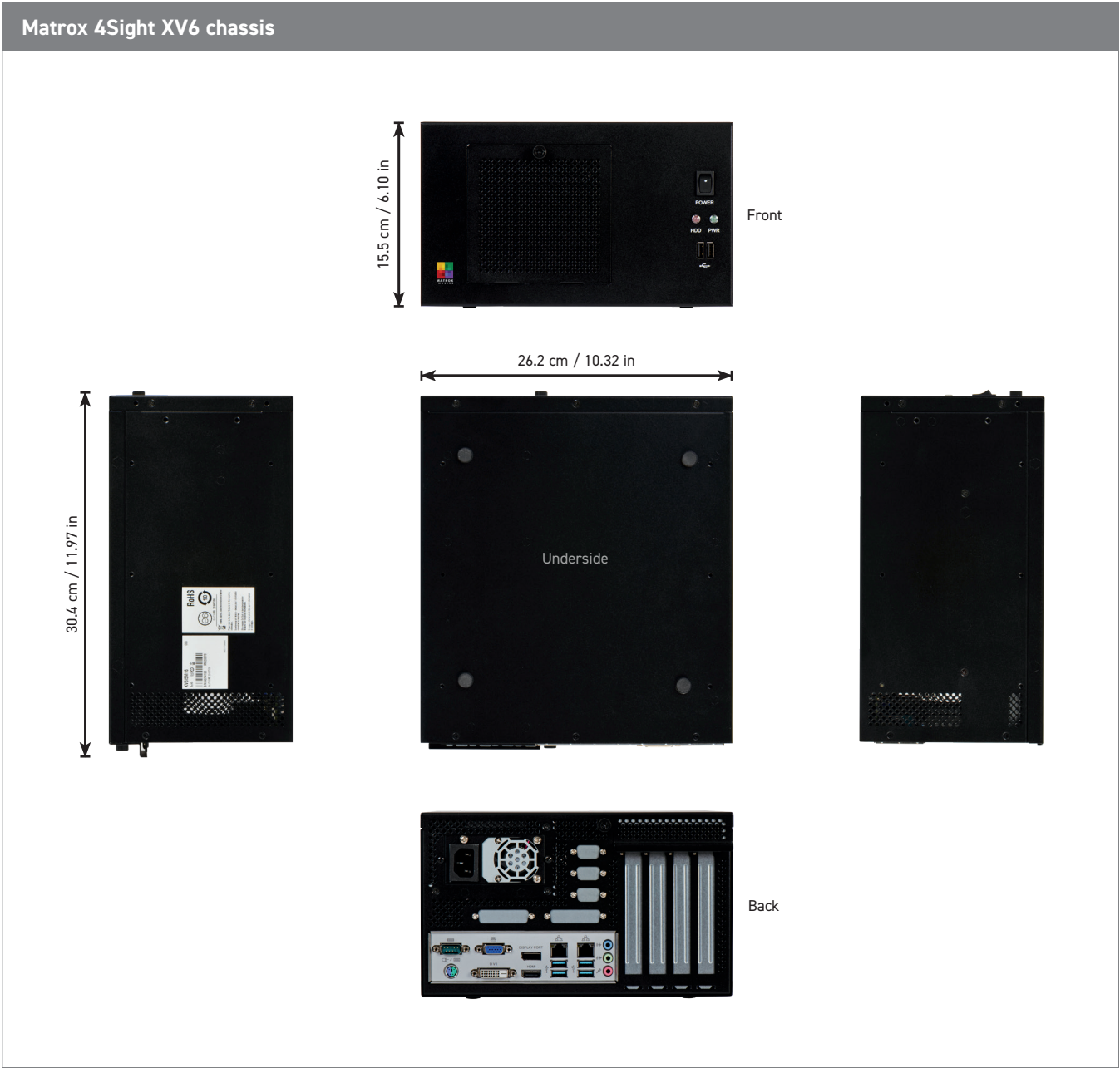
- 5. USB 2.0 ports
- 6. Power input
- 7. Serial port
- 8. PS/2 port

- 9. VGA output
- 10. DVI output
- 11. DisplayPort output
- 12. HDMI output

- 13. Gigabit Ethernet ports
- 14. USB 3.1 ports
- 15. Audio in
- 16. Audio out

- 17. Microphone in
- 18. PCIe slots

# Connectivity (cont.)



# Specifications

Matrox 4Sight XV6	
Motherboard	
Micro-ATX form factor (24.4 x 24.4 cm or 9.6 x 9.6 in)	
Intel Q370 Platform Controller Hub (PCH)	
Four (4) 288-pin DDR4 long-DIMM sockets	
Up to 64 GB DDR4-2666 SDRAM	
Triple display	
One (1) VGA output	
Up to 1920x1200 @ 60 Hz	
One (1) DVI-D output	
Up to 4096x2304 @ 60 Hz	
One (1) HDMI 1.4 output	
Up to 4096x2160 @ 24 Hz	
One (1) DisplayPort 1.2 output	
Up to 4096x2304 @ 60 Hz	
Two (2) Gigabit Ethernet ports (10/100/1,000)	
One (1) Intel Ethernet Connection I210	
One (1) Intel Ethernet Connection I219-LM	
Twelve (12) USB ports	
Four (4) USB 3.1 ports	
Two (2) USB 2.0 ports	
Two (2) USB 3.1 ports (internal)	
Four (4) USB 2.0 ports (internal)	
Eight (8) SATA3 ports (one shared with M.2 Key M)	
Support for RAID 0, 1, 5, and 10	
One (1) mini-PCIe (full/half) connector	
One (1) M.2 Key M (2242/2260/2280) connector (used by 128 GB SSD)	
One (1) M.2 Key E (2230) connector	
Stereo line-in	
Stereo line-out	
Mic-in	
Six (6) serial ports	
One (1) RS-232/RS-422/RS-485 port	
Five (5) RS-232 ports (internal)	
One (1) PS/2 combo connector	
Four (4) PCIe Gen3 slots	
Slot 1: PCIe x16 (x8 if slot 3 used in x8)	
Slot 2: PCIe x4	
Slot 3: PCIe x8 (mechanically x16)	
Slot 4: PCIe x4	
CPU	
Intel Core i5-8500 processor	
Six (6) cores	
3.0–4.1 GHz	
9 MB cache	
Intel UHD Graphics 630 (350 MHz–1.1 GHz)	



# Specifications (cont.)

Matrox 4Sight XV6
<b>Memory Options</b>
16 GB DDR4-2666
32 GB DDR4-2666
<b>Storage Options</b>
128 GB M.2 2280 SATA3 SSD
256 GB 2.5 in SATA MLC SSD + 256 GB M.2 2280 NVME SSD
<b>Chassis</b>
Dimensions (L x W x H): 26.2 x 29.2 x 15.5 cm (10.3 x 11.5 x 6.1 in)
Heavy-duty steel
Horizontal or vertical mounting
120 mm 138 CFM cooling fan
Four (4) PCIe full-height, half-length expansion slots
Two (2) USB ports in the front
Power switch
Power and HDD notification LEDs
<b>Mounting</b>
Horizontal or vertical
<b>Power Supply</b>
Integrated 400 W power supply
AC input
100–240 VAC
50–60 Hz
80 Plus Gold rated
Power-factor corrected
Supplemental power connectors
Two (2) SATA power (12 VDC & 5 VDC)
Two (2) 6-pin + 2-pin PCIe power
<b>Certifications</b>
FCC Class A
CE Class A
RoHS-compliant
<b>Environmental</b>
Operating temperature: 10°C to 45°C (50°F to 113°F)
Storage temperature: -40°C to 85°C (-40°F to 185°F)
Relative humidity: Up to 90% (non-condensing)
<b>Software</b>
Pre-loaded with Microsoft Windows 10 IoT Enterprise 2019 (64-bit)
Pre-loaded with MIL X run-time and Matrox Design Assistant X run-time environments
Optionally pre-loaded with MIL X development environment including MIL CoPilot interactive environment
Optionally pre-loaded with Matrox Design Assistant X development and run-time environments

# Ordering Information

Part number	Description
<b>Hardware</b>	
XV6I5M16	<p>Matrox 4Sight XV6 integrated unit with Intel Core i5-8500, 16 GB DDR4 RAM, 128 GB M.2 MLC SSD, and Microsoft Windows 10 IoT Enterprise (64-bit). Pre-loaded with MIL X and Matrox Design Assistant X run-time environments. Partially licensed for Matrox Design Assistant X and MIL X.</p> <p>Note: The use of this product is governed by <a href="#">Microsoft Software License Terms</a>, among others.</p>
XV6I5M16DA	<p>Matrox 4Sight XV6 integrated unit with Intel Core i5-8500, 16 GB DDR4 RAM, 128 GB M.2 MLC SSD, and Microsoft Windows 10 IoT Enterprise (64-bit). Pre-loaded with Matrox Design Assistant X design-time and run-time environments. Partially licensed for Matrox Design Assistant X and MIL X.</p> <p>Note: The use of this product is governed by <a href="#">Microsoft Software License Terms</a>, among others.</p>
XV6I5M16DA+	<p>Matrox 4Sight XV6 integrated unit with Intel Core i5-8500, 16 GB DDR4 RAM, 128 GB M.2 MLC SSD, and Microsoft Windows 10 IoT Enterprise (64-bit). Pre-loaded with Matrox Design Assistant X design-time and run-time environments. Fully licensed for Matrox Design Assistant X and MIL X.</p> <p>Note: The use of this product is governed by <a href="#">Microsoft Software License Terms</a>, among others.</p>
XV6I5M32CT	<p>Matrox 4Sight XV6 integrated unit for deep learning training with Intel Core i5-8500, 32 GB DDR4 RAM, 256 GB SATA SSD for software, 256 GB NVME SSD for training dataset, NVIDIA Quadro RTX 4000 GPU, and Microsoft Windows 10 IoT Enterprise (64-bit). Pre-loaded with MIL X development environment. Partially licensed for Matrox Design Assistant X and MIL X.</p> <p>Note: The use of this product is governed by <a href="#">Microsoft Software License Terms</a>, among others.</p>
<b>Software</b>	
Included with XV6I5M16 and XV6I5M32CT	Licensed for the Matrox Design Assistant X / MIL X Interface, Distributed MIL, Industrial and Robot Communications (XV6I5M16 only) and Classification (XV6I5M32CT only) run-time packages. See Matrox Design Assistant X and Matrox Imaging Library (MIL) X datasheets for more information.
Included with XV6I5M16DA and XV6I5M16DA+	<p>Separate installation media with the Matrox Design Assistant IDE and on-line documentation as well as a Matrox Design Assistant Maintenance registration number. Pre-loaded with the Matrox Design Assistant X design-time and run-time environment. Allow the Matrox Design Assistant IDE to run when it is connected to them. XV6I5M16DA is licensed for the Matrox Design Assistant X / MIL X Machine Vision, Identification, Image Compression, Interface, Distributed MIL, Metrology, Color Analysis, and Industrial and Robot Communications run-time packages. The String Reader and SureDotOCR®, Geometric Model Finder, Registration, 3D Calibration and Supplemental and Classification packages need to be licensed separately. See Matrox Design Assistant X and Matrox Imaging Library (MIL) X datasheets for more information. XV6I5M16DA+ is licensed for all Matrox Design Assistant X and MIL X run-time packages.</p>

## Endnotes:

1. The software may be protected by one or more patents; see [www.matrox.com/patents](http://www.matrox.com/patents) for more information.



## 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.



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## ABOUT MATROX IMAGING

**Matrox Imaging, now a part of Zebra Technologies, 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. For more information, visit [www.matrox.com/imaging](http://www.matrox.com/imaging)**

The use of the terms "industrial" or "factory-floor" do not indicate compliance to any specific industrial standards.

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