Matrox **Iris GTR** »

Compact, capable smart camera

Matrox Iris GTR at a glance

Install comfortably in confined and dirty industrial environments by way of a compact IP67-rated design

Run typical vision jobs efficiently using an Intel dual-core embedded processor

Capture images at high speed through a choice of CMOS sensors

Simplify vision setup and upkeep via integrated lens focusing and illumination intensity control

Interact with vision and automation devices by way of real-time digital I/Os

Synchronize to the manufacturing line through the support for incremental rotary encoders

Communicate with automation controllers and enterprise networks via a Gigabit Ethernet interface

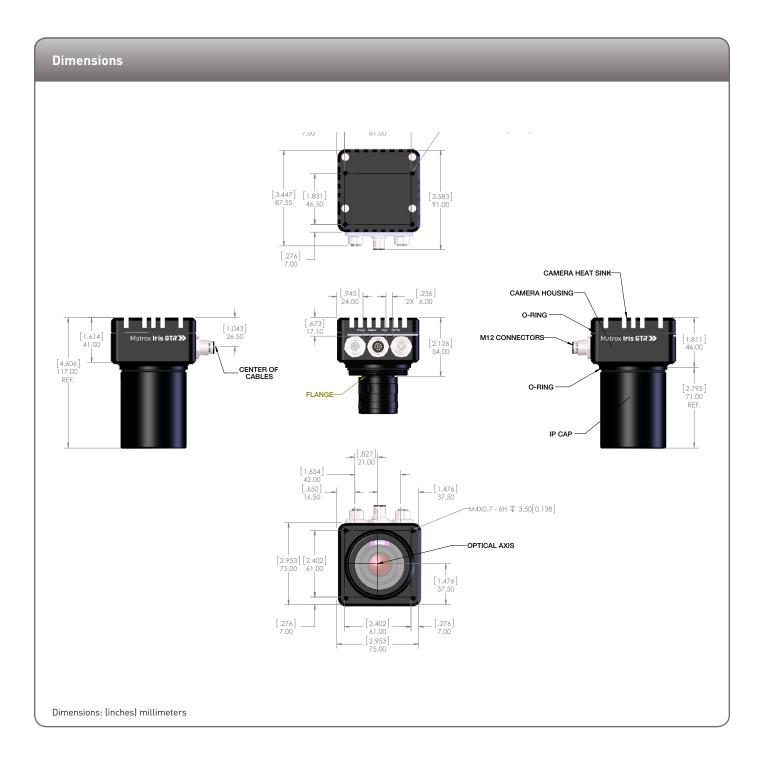**Take on HMI function** by way of VGA and USB connectivity

Program effectively for vision inspection and guidance using the field-proven and established Matrox Imaging Library (MIL) software

Camera and PC together as one

Matrox® Iris GTR combines fast image sensing, efficient embedded processing, and comprehensive I/O capabilities for an effective all-in-one vision system. It comes with a CMOS image sensor of choice—from a range of increasing resolutions in monochrome or color—to meet application requirements for scene coverage and detail, type of analysis, and throughput. An Intel® Celeron® dual-core processor running Microsoft® Windows® gives Matrox Iris GTR the power needed to perform regular inspection tasks at typical rates on a familiar software platform. Digital I/Os, Gigabit Ethernet and USB ports, and a VGA video output provide the connectivity to fully integrate the Matrox Iris GTR within an automation cell or machine.

Fit for cramped and dirty areas

Matrox Iris GTR occupies a small footprint enabling it to fit in tight spaces. It features an IP67-rated housing and robust M12 connectors for its external interfaces, allowing it to operate in dusty, wet, and other demanding conditions. The Matrox Iris GTR accepts standard C-mount lenses within a dust- and liquid-proof protective cap. Within this cap is an interface to a Corning® Varioptic® C-C-Series auto-focus lens, enabling focus adjustment directly from the application software. In addition, an LED lighting intensity control output, compatible with Advanced illumination Inline Control System (ICS) 3 lighting control, enables direct adjustments from the application software. The ability to adjust the lens focus and control illumination intensity directly from the application software eliminates the need for manual intervention in hard-to-reach places.

Prompt and dependable response

The digital I/Os on the Matrox Iris GTR are managed by a dedicated hardware engine for real-time performance. The real-time I/O engine enables an output event to occur at a precise moment in time, after a certain elapsed time, or following a specific input event. An input event can come directly from an input, including from an incremental rotary encoder or a count derived from an input. A programmed output event is 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 output. Multiple hardware timers, which can be cascaded together, are available to count or generate specific events.

MATROX IMAGING

Matrox Iris GTR also includes a hardware-assisted mechanism for PROFINET® communication. This mechanism ensures timely response when the automation controller is set up for a short cycle time or when the processor is too busy performing other tasks.

Pre-installed software platform
Matrox Iris GTR comes pre-installed with Microsoft Windows 10 IoT Enterprise 2016 (64-bit).

Field-proven application development software
Matrox Iris GTR is supported by MIL software[1], a comprehensive software development kit (SDK) with a 25-year history of reliable performance. This toolkit features programming functions for image capture, processing, analysis, annotation, display, and archiving operations, with the accuracy and robustness needed to tackle the most demanding applications. Refer to the MIL datasheet for more information.

Dimensions

Dimensions: (inches) millimeters

Specifications

Model	GTR300MW	GTR300CMW	GTR1300MW	GTR1300CMW	GTR2000MW	GTR2000CMW	GTR5000MW	GTR5000CMW
Sensor								
Model	PYTHON 300		PYTHON 1300		PYTHON 2000		PYTHON 5000	
Type	CMOS							
Geometry	1/4 in		1/2 in		2/3 in		1 in	
Format	Monochrome	Color	Monochrome	Color	Monochrome	Color	Monochrome	Color
Resolution	640 x 480		1280 x 1024		1920 x 1200		2592 x 2048	
Frame rate (effective)	Up to 293 fps	Up to 147 fps	Up to 85 fps	Up to 35 fps	Up to 45 fps	Up to 20 fps	Up to 21 fps	Up to 8.5 fps
Pixel size	4.8 µm x 4.8 µm							
Gain range	0 dB to 19.4 dB							
Shutter speeds	50 µsec to 4 sec							
External trigger latency	7.1 µs		7.2 µs		8.0 µs		8.0 µs	
External trigger to strobe output delay	9.1 µs		9.2 µs		10 µs		10 µs	
Processor, memory, and storage								
Processor	Intel Celeron N2807 (dual core 1.58 GHz)							
Memory	2 GB DDR3L SDRAM							
Storage	32 GB eMMC							
Interfaces								
Network	Gigabit Ethernet							
HMI	VGA and USB 2.0 (for keyboard and mouse)							
Digital I/Os	Three (3) opto-coupled inputs (with incremental rotary encoder support) One (1) dedicated opto-coupled trigger input and three (3) outputs							
Others	Dedicated 0 V-10 V LED lighting intensity control for Advanced illumination ICS 3 Dedicated interface for Corning Varioptic C-C Series auto-focus lens Note: See Third-party Accessories for more details.							
Mechanical, electrical, and environmental information								
Dimensions	Refer to Dimensions section							
Lens type	C-mount							
Connectors	M12-8 pins (female) for Ethernet M12-12 pins (female) for power, digital I/Os, and LED lighting intensity control M12-12 pins (male) for VGA and USB							
Weight	460 g							
Power consumption	450 mA @ 24 VDC or 10.8 W (typical)							
Operating temperature	0°C to 50°C (32°F to 122°F)							
Ventilation requirements	Natural convection							
Certifications	FCC Part 15 Class A, CE mark EN55011 Class A, EN61326-1 industrial environment ICES-003/NMB-003 Class A RCM Class A: IP67 enclosure (IEC 60529 - dust tight and protected against temporary immersion) Shock and vibration: EN60721-3-3/A2, Category 3M8 Shock: IEC 60068-2-27, 50 g, 3 ms, type II, half sine Random vibration: IEC60068-2-64, 10 Hz - 500 Hz, 5 g, 100 min Sine vibration: IEC60068-2-6, 10 Hz to 500 Hz, 5 g							
Software environment								
Operating system	Microsoft Windows 10 IoT Enterprise 2016 64-bit							
PC development tools	Microsoft Visual Studio 2017 and Matrox Imaging Library (MIL) for Windows							

Ordering Information

Hardware

Part number	Description
GTR300MW	Matrox Iris GTR smart camera with monochrome 640x480 sensor, dual-core Intel Celeron CPU, 2 GB of memory, 32 GB eMMC storage, and Microsoft Windows 10 IoT Enterprise 2016 (64-bit).
GTR300CMW	Matrox Iris GTR smart camera with color 640x480 sensor, dual-core Intel Celeron CPU, 2 GB of memory, 32 GB eMMC storage, and Microsoft Windows 10 IoT Enterprise 2016 (64-bit).
GTR1300MW	Matrox Iris GTR smart camera with monochrome 1280x1024 sensor, dual-core Intel Celeron CPU, 2 GB of memory, 32 GB eMMC storage, and Microsoft Windows 10 IoT Enterprise 2016 (64-bit).
GTR1300CMW	Matrox Iris GTR smart camera with color 1280x1024 sensor, dual-core Intel Celeron CPU, 2 GB of memory, 32 GB eMMC storage, and Microsoft Windows 10 IoT Enterprise 2016 (64-bit).
GTR2000MW	Matrox Iris GTR smart camera with monochrome 1920x1200 sensor, dual-core Intel Celeron CPU, 2 GB of memory, 32 GB eMMC storage, and Microsoft Windows 10 IoT Enterprise 2016 (64-bit).
GTR2000CMW	Matrox Iris GTR smart camera with color 1920x1200 sensor, dual-core Intel Celeron CPU, 2 GB of memory, 32 GB eMMC storage, and Microsoft Windows 10 IoT Enterprise 2016 (64-bit).
GTR5000MW	Matrox Iris GTR smart camera with monochrome 2592x2048 sensor, dual-core Intel Celeron CPU, 2 GB of memory, 32 GB eMMC storage, and Microsoft Windows 10 IoT Enterprise 2016 (64-bit).
GTR5000CMW	Matrox Iris GTR smart camera with color 2592x2048 sensor, dual-core Intel Celeron CPU, 2 GB of memory, 32 GB eMMC storage, and Microsoft Windows 10 IoT Enterprise 2016 (64-bit).
GTR-CBL-PWR/3	9.8' or 3 m cable for Matrox Iris GTR to connect power, discrete I/Os and LED lighting intensity control. M12 to open end.
GTR-CBL-ETH/5	16.4' or 5 m Ethernet cable for Matrox Iris GTR. M12 to RJ45 connector.
GTR-CBL-VGAUSB	3.2' or 1 m cable for Matrox Iris GTR to connect VGA and USB. M12 to HD-15 and USB connectors.

Note: All GTR...MW are governed by Microsoft Software License Terms among others.

Software

Refer to MIL datasheet.

Third-party Accessories

Compatible hardware

Supplier	Description
Optics	
Corning Varioptic	C-Series C-39N0-160-I2C: Variable focus 16 mm effective focal length (EFL) liquid lens with I2C control
Corning Varioptic	C-Series C-390N0-250-I2C: Variable focus 25 mm EFL liquid lens with I2C control
Illumination	
Advanced illumination	ICS 3 Inline Control System: Continuous and strobe mode inline controller
Smart Vision Lights	EZ Mount Ring Light: Ring light with built-in driver
Smart Vision Lights	Mini Ring Light: Ring light with built-in driver
Buchner	Rondo-LX IP67: Ring light with mechanical adapter
Buchner	Helios IP67: Ring light with mechanical adapter
Cables	
Phoenix Contact	SAC-12P-MS/5,0-PVC SCO: 5 m cable to connect power, discrete I/Os, and LED lighting intensity control. M12 to open end
Phoenix Contact	SAC-12P-MS/10,0-PVC SCO: 10 m cable to connect power, discrete I/Os, and LED lighting intensity control. M12 to open end
Phoenix Contact	NBC-MSX/2,0-94F/R4AC SCO: 2 m Ethernet cable. M12 to RJ45 connector
Phoenix Contact	NBC-MSX/10,0-94F/R4AC SCO: 10 m Ethernet cable. M12 to RJ45 connector

Endnotes:
1. The software may be protected by one or more patents; see www.matrox.com/patents for more information.
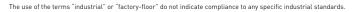
About Matrox Imaging

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, vision controllers, I/O cards, and frame grabbers, all designed to provide optimum price-performance within a common software environment.

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