

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

Deploy with either leading embedded operating system through support for both Microsoft Windows and Linux

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® or Linux® 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 Iris GTR also includes a hardware-assisted mechanism for PROFINET^{®1} 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.

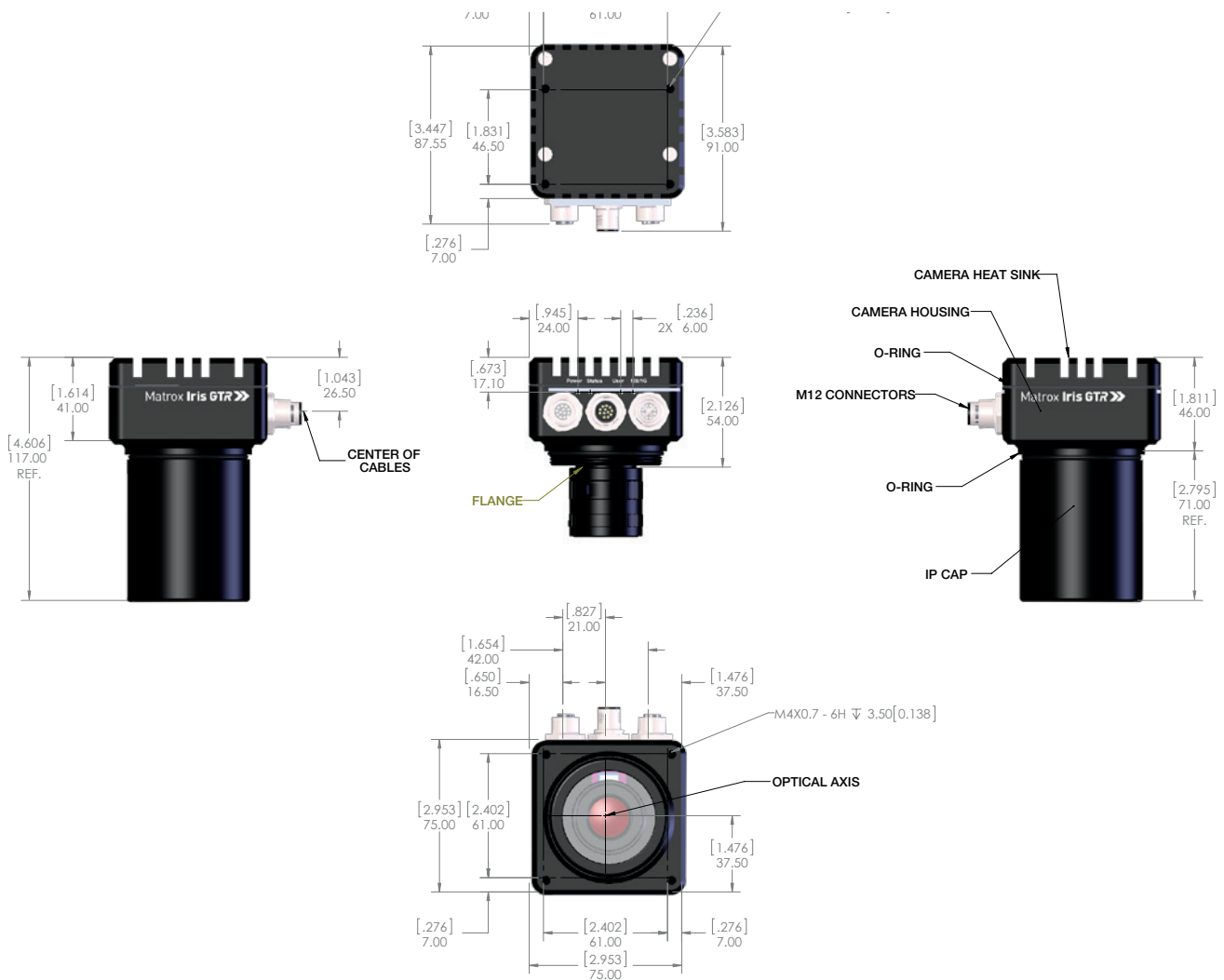
Choice of software platform

Matrox Iris GTR comes pre-installed with either Microsoft Windows 10 IoT Enterprise 2016 (64-bit) or a customized Linux 64-bit distribution.

Field-proven application development software

Matrox Iris GTR is supported by MIL software², 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 GTR300ML | GTR300CMW GTR300CML | GTR1300MW GTR1300ML | GTR1300CMW GTR1300CML | GTR2000MW GTR2000ML | GTR2000CMW GTR2000CML | GTR5000MW GTR5000ML | GTR5000CMW GTR5000CML |
|--|--|------------------------|------------------------|--------------------------|------------------------|--------------------------|------------------------|--------------------------|
| 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 (pre-installed) | | | | | | | | |
| ...MW models | Microsoft Windows 10 IoT Enterprise 2016 64-bit | | | | | | | |
| ...ML models | Matrox Fedora Remix Linux 64-bit | | | | | | | |

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

| Software |
|--|
| Refer to MIL datasheet . |

| Hardware (cont.) | |
|---|--|
| Part number | Description |
| GTR300ML Ask for availability | Matrox Iris GTR smart camera with monochrome 640x480 sensor, dual-core Intel Celeron CPU, 2 GB of memory, 32 GB eMMC storage and Matrox Fedora Remix Linux (64-bit). |
| GTR300CML Ask for availability | Matrox Iris GTR smart camera with color 640x480 sensor, dual-core Intel Celeron CPU, 2 GB of memory, 32 GB eMMC storage and Matrox Fedora Remix Linux (64-bit). |
| GTR1300ML Ask for availability | Matrox Iris GTR smart camera with monochrome 1280x1024 sensor, dual-core Intel Celeron CPU, 2 GB of memory, 32 GB eMMC storage and Matrox Fedora Remix Linux (64-bit). |
| GTR1300CML Ask for availability | Matrox Iris GTR smart camera with color 1280x1024 sensor, dual-core Intel Celeron CPU, 2 GB of memory, 32 GB eMMC storage and Matrox Fedora Remix Linux (64-bit). |
| GTR2000ML Ask for availability | Matrox Iris GTR smart camera with monochrome 1920x1200 sensor, dual-core Intel Celeron CPU, 2 GB of memory, 32 GB eMMC storage and Matrox Fedora Remix Linux (64-bit). |
| GTR2000CML Ask for availability | Matrox Iris GTR smart camera with color 1920x1200 sensor, dual-core Intel Celeron CPU, 2 GB of memory, 32 GB eMMC storage and Matrox Fedora Remix Linux (64-bit). |
| GTR5000ML Ask for availability | Matrox Iris GTR smart camera with monochrome 2592x2048 sensor, dual-core Intel Celeron CPU, 2 GB of memory, 32 GB eMMC storage and Matrox Fedora Remix Linux (64-bit). |
| GTR5000CML Ask for availability | Matrox Iris GTR smart camera with color 2592x2048 sensor, dual-core Intel Celeron CPU, 2 GB of memory, 32 GB eMMC storage and Matrox Fedora Remix Linux (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. |

Third-party Accessories

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

Endnotes:

1. Certification pending.
2. 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.

Corporate headquarters

Matrox Electronic Systems Ltd.
1055 St. Regis Blvd. Dorval, Quebec, Canada, H9P 2T4
Tel: +1 (514) 685-2630, Fax: +1 (514) 822-6273

For more information, please contact us at 1-800-804-6243 (toll free in North America), (514) 822-6020, imaging.info@matrox.com, or www.matrox.com/imaging.

The use of the terms "industrial" or "factory-floor" do not indicate compliance to any specific industrial standards. All trademarks by their respective owners are hereby acknowledged. Matrox Electronic Systems, Ltd. reserves the right to make changes in specifications at any time and without notice. The information furnished by Matrox Electronic Systems, Ltd. is believed to be accurate and reliable. However, no responsibility license is granted under any patents or patent rights of Matrox Electronic Systems, Ltd. Windows and Microsoft are trademarks of Microsoft Corporation. © Matrox Electronic Systems, 2009-2017. Printed in Canada, 2018-06-26 **51E-5493-B**