

# Matrox Iris GT

Powerful, programmable smart camera.



## Key features

efficient Intel® Atom® (Z530) embedded processor

pre-installed with Microsoft® Windows® Embedded CE or XP Embedded (XPe)

programmed using Microsoft® Visual Studio® and Matrox Imaging Library (MIL)

VGA to 5 Mpixel monochrome or color CCD sensor

Opto-coupled trigger input and strobe output

VGA output

Gigabit Ethernet and USB connectivity

8 GPIOs and RS-232 serial port

controlled current source for powering LED illuminators directly

rugged construction with IP67-rated housing and M12 connectors

## A PC-like smart camera

Matrox Iris GT combines the integration of a smart camera with the programmability of a PC-based machine vision system. An Intel® Atom® processor, choice of Microsoft® Windows® Embedded CE or XP Embedded operating systems, and keyboard, video and mouse (KVM) support, enable the Matrox Iris GT to provide a PC-like environment for deploying fully custom applications.

A choice of monochrome or color CCD sensors, combined with an efficient CPU, allows the Matrox Iris GT to tackle a variety of machine vision applications. Gigabit Ethernet, USB and RS-232 connectivity, as well as GPIOs, give the Matrox Iris GT the ability to interface with automation equipment and enterprise systems. An IP67-rated housing and M12 connectors make the Matrox Iris GT perfectly suited for harsh industrial environments. A DIN-mountable breakout box is available separately to easily connect the Matrox Iris GT to electrical panels.

## Windows® Embedded

The Matrox Iris GT comes pre-installed with either Microsoft® Windows® Embedded CE or XP Embedded®. Windows® Embedded CE delivers real-time performance in a smaller memory footprint and is programmed using a subset of the Windows® API. The Matrox Iris GT running Windows® Embedded CE includes support for the EtherNet/IP™ and MODBUS® industrial communication protocols. Windows® XP Embedded on the other hand, is a pared down version of Windows® XP Professional with extended availability and support. For both operating systems, application development is cross-platform (i.e., PC linked to smart camera) and is done using the familiar Microsoft® Visual Studio® integrated development environment.

## Matrox Imaging Library

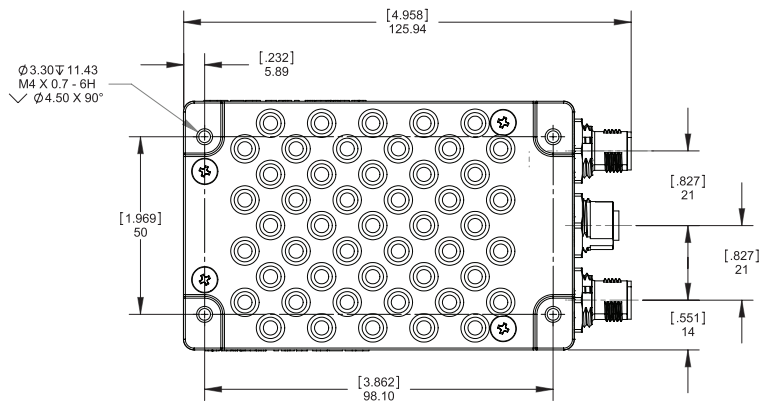
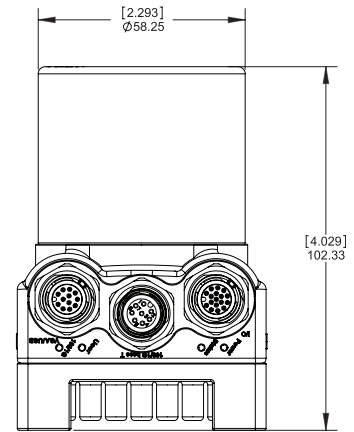
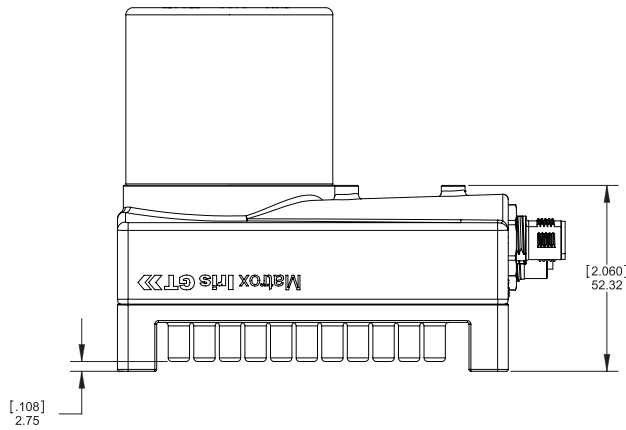
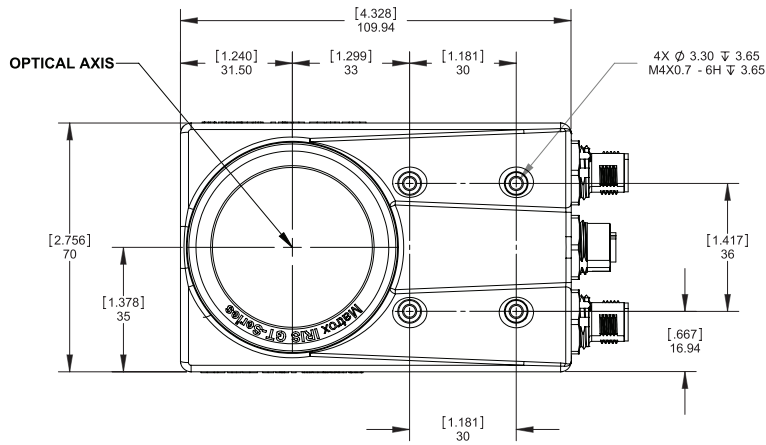
Matrox Iris GT is supported by the Matrox Imaging Library (MIL), a comprehensive collection of software tools for developing machine vision applications. MIL features interactive software and programming functions for image capture, processing, analysis, annotation, display and archiving. These tools are designed to enhance productivity, thereby reducing the time and effort required to bring your solution to market. Refer to the MIL datasheet for more information.



## Specifications

|   |                      | GT300/M*<br>GT300/X*   | GT300C/M*<br>GT300C/X* | GT1200/M*<br>GT1200/X*       | GT1200C/M*<br>GT1200C/X* | GT1900/M*<br>GT1900/X*           | GT1900C/M*<br>GT1900C/X* | GT5000/M*<br>GT5000/X*        |
|---|----------------------|--|------------------------|------------------------------|--------------------------|----------------------------------|--------------------------|-------------------------------|
| <b>Sensor</b>   |                      |  |                        |                              |                          |                                  |                          |                               |
| CCD<br>sensor <sup>2</sup>                                  | Geometry             | diagonal 6 mm<br>(1/3"-type)   |                        | diagonal 6 mm<br>(1/3"-type) |                          | diagonal 8.9 mm<br>(1/1.8"-type) |                          | diagonal 11 mm<br>(2/3"-type) |
|   | Format               | monochrome   | color                  | monochrome                   | color                    | monochrome                       | color                    | monochrome                    |
|   | Make and<br>model    | Kodak<br>KAI-0340S   | Kodak<br>KAI-0340SCM   | Sony<br>ICX445AL             | Sony<br>ICX445AQ         | Sony<br>ICX274AL                 | Sony<br>ICX274AQ         | Sony<br>ICX625AL              |
| Effective resolution (H x V)                                |                      | 640 x 480  |                        | 1280 x 960                   |                          | 1600 x 1200                      |                          | 2448 x 2050                   |
| Frame rate  |                      | 110 fps  |                        | 22.5 fps                     |                          | 15 fps                           |                          | 15 fps                        |
| Pixel size (H x V)  |                      | 7.4 µm x 7.4 µm  |                        | 3.75 µm x 3.75 µm            |                          | 4.4 µm x 4.4 µm                  |                          | 3.45 µm x 3.45 µm             |
| Gain range  |                      | 0 to 36 dB   |                        | 0 to 36 dB                   |                          | 0 to 36 dB                       |                          | 0 to 36 dB                    |
| Shutter speeds  |                      | 34 µs to 1.19 s  |                        | 58 µs to 2.91 s              |                          | 88 µs to 3.5 s                   |                          | 58 µs to 2.15 s               |
| External trigger latency                                    |                      | 1.1 µs   |                        | 1.4 µs                       |                          | 7.2 µs                           |                          | TB                            |
| Ext. trigger to output<br>strobe delay                      |                      | 1.1 µs   |                        | 1.4 µs                       |                          | 7.2 µs                           |                          | TB                            |
| <b>Processing</b>   |                      |  |                        |                              |                          |                                  |                          |                               |
| CPU   |                      | 1.6 GHz Intel® Atom® (Z530)  |                        |                              |                          |                                  |                          |                               |
| Volatile memory   |                      | 1GB DDR2 <sup>3</sup>  |                        |                              |                          |                                  |                          |                               |
| Non-volatile memory   |                      | 2GB flash disk   |                        |                              |                          |                                  |                          |                               |
| <b>I/Os</b>   |                      |  |                        |                              |                          |                                  |                          |                               |
| Network interface   |                      | 10/100/1000 Mbit Ethernet  |                        |                              |                          |                                  |                          |                               |
| UI interface  |                      | VGA, USB (keyboard & mouse)  |                        |                              |                          |                                  |                          |                               |
| Serial interface  |                      | RS-232   |                        |                              |                          |                                  |                          |                               |
| Digital I/Os  |                      | 4 opto-coupled inputs, 4 outputs (including a strobe output), 1 opto-coupled trigger   |                        |                              |                          |                                  |                          |                               |
| Current-controlled  |                      | 0-500 mA in 255 steps for LED illuminators   |                        |                              |                          |                                  |                          |                               |
| <b>Mechanical, electrical and environmental information</b> |                      |  |                        |                              |                          |                                  |                          |                               |
| Dimensions  |                      | refer to Figure on page 3  |                        |                              |                          |                                  |                          |                               |
| Lens type   |                      | C-mount  |                        |                              |                          |                                  |                          |                               |
| Connectors  |                      | M12-8 pins for Ethernet, M12-17 pins for power, RS-232 and digital I/Os, M12-12 for VGA and USB ports  |                        |                              |                          |                                  |                          |                               |
| Weight  |                      | 0.7 kg or 1.5 lbs  |                        |                              |                          |                                  |                          |                               |
| Power consumption   |                      | 425 mA @ 24VDC or 10 W (typical)   |                        |                              |                          |                                  |                          |                               |
| Operating temperature                                       |                      | 0 °C to 50 °C (32 °F to 122 °F)  |                        |                              |                          |                                  |                          |                               |
| Ventilation requirements                                    |                      | natural convection   |                        |                              |                          |                                  |                          |                               |
| Certifications  |                      | FCC class A, CE class A, RoHS-compliant, IP67 enclosure (IEC 60529-dust tight and protected against temporary immersion), EN 60721-3-3 Category 3M8 (operating vibration up to 5g and shock up to 25g) |                        |                              |                          |                                  |                          |                               |
| <b>Software environment</b>                                 |                      |  |                        |                              |                          |                                  |                          |                               |
| /M models   | Operating system     | Microsoft® Windows® Embedded CE 6.0 (display-based configuration)  |                        |                              |                          |                                  |                          |                               |
|   | PC development tools | Microsoft® Visual Studio 2005® (with SP1) or 2008, Smart Device Extension and Matrox Imaging Library (MIL) for Windows® CE.NET   |                        |                              |                          |                                  |                          |                               |
| /X models   | Operating system     | Microsoft® Windows® XP Embedded (XPe) with SP3   |                        |                              |                          |                                  |                          |                               |
|   | PC development tools | Microsoft® Visual Studio 2005® (with SP1) or 2008 and Matrox Imaging Library (MIL) for Windows®  |                        |                              |                          |                                  |                          |                               |

# Dimensions



## Ordering Information

| Hardware               |   |
|------------------------|---|
| Part number            | Description   |
| <b>GT300/X*</b>        | Matrox Iris GT smart camera with monochrome 640x480 @ 110fps CCD sensor, 1.6 GHz Atom CPU, 1GB DRAM, 2GB flash disk and Windows® XPe.                           |
| <b>GT300C/X*</b>       | Matrox Iris GT smart camera with color 640x480 @ 110fps CCD sensor, 1.6 GHz Atom CPU, 1GB DRAM, 2GB flash disk and Windows® XPe.                                |
| <b>GT1200/X*</b>       | Matrox Iris GT smart camera with monochrome 1280x960 @ 22fps CCD sensor, 1.6 GHz Atom CPU, 1GB DRAM, 2GB flash disk and Windows® XPe.                           |
| <b>GT1200C/X*</b>      | Matrox Iris GT smart camera with color 1280x960 @ 22fps CCD sensor, 1.6 GHz Atom CPU, 1GB DRAM, 2GB flash disk and Windows® XPe.                                |
| <b>GT1900/X*</b>       | Matrox Iris GT smart camera with monochrome 1600x1200 @ 15fps CCD sensor, 1.6 GHz Atom CPU, 1GB DRAM, 2GB flash disk and Windows® XPe.                          |
| <b>GT1900C/X*</b>      | Matrox Iris GT smart camera with color 1600x1200 @ 15fps CCD sensor, 1.6 GHz Atom CPU, 1GB DRAM, 2GB flash disk and Windows® XPe.                               |
| <b>GT5000/X*</b>       | Matrox Iris GT smart camera with monochrome 2448 x 2050 @ 15fps CCD sensor, 1.6 GHz Atom CPU, 1GB DRAM, 2GB flash disk and Windows® XPe.                        |
| <b>GT-STARTER-KIT*</b> | Matrox Iris GT starter kit. Includes power supply, 12mm C-mount lens, Ethernet cable, power cable, VGA/USB cable and breakout board for digital I/Os and RS232. |
| <b>GT-CBL-PWR/3*</b>   | 9.8' or 3m cable for Matrox Iris GT to connect power and GPIOs. M12 to open end.  |
| <b>GT-CBL-ETH/5*</b>   | 16.4' or 5m Ethernet cable for Matrox Iris GT. M12 to RJ45 plug.  |
| <b>GT-CBL-VGAUSB*</b>  | 3.2' or 1m cable for Iris GT to connect VGA and USB. M12 to HD-15 and USB socket.   |
| <b>GT-CBL-PWRDB25*</b> | 9.8' or 3m cable for Iris GT to connect to third-party terminal blocks. M12 to DB25.  |
| <b>BREAKOUT-BOX*</b>   | Breakout box for GPIOs, trigger, strobe, RS232 and power input for Matrox Iris GT. Includes M12 to DB25 cable.  |

End note:

1. Certification pending.
2. Interline transfer progressive scan with square pixels.
3. /M models running Windows® Embedded 6.0 can only access 512MB of DRAM.

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| Hardware          |  |
|-------------------|--|
| Part number       | Description  |
| <b>GT300/M*</b>   | Matrox Iris GT smart camera with monochrome 640x480 @ 110fps CCD sensor, 1.6 GHz Atom CPU, 1GB DRAM <sup>2</sup> , 2GB flash disk and Windows® Embedded CE 6.0.    |
| <b>GT300C/M*</b>  | Matrox Iris GT smart camera with color 640x480 @ 110fps CCD sensor, 1.6 GHz Atom CPU, 1GB DRAM <sup>2</sup> , 2GB flash disk and Windows® Embedded CE 6.0.         |
| <b>GT1200/M*</b>  | Matrox Iris GT smart camera with monochrome 1280x960 @ 22fps CCD sensor, 1.6 GHz Atom CPU, 1GB DRAM <sup>2</sup> , 2GB flash disk and Windows® Embedded CE 6.0.    |
| <b>GT1200C/M*</b> | Matrox Iris GT smart camera with color 1280x960 @ 22fps CCD sensor, 1.6 GHz Atom CPU, 1GB DRAM <sup>2</sup> , 2GB flash disk and Windows® Embedded CE 6.0.         |
| <b>GT1900/M*</b>  | Matrox Iris GT smart camera with monochrome 1600x1200 @ 15fps CCD sensor, 1.6 GHz Atom CPU, 1GB DRAM <sup>2</sup> , 2GB flash disk and Windows® Embedded CE 6.0.   |
| <b>GT1900C/M*</b> | Matrox Iris GT smart camera with color 1600x1200 @ 15fps CCD sensor, 1.6 GHz Atom CPU, 1GB DRAM <sup>2</sup> , 2GB flash disk and Windows® Embedded CE 6.0.        |
| <b>GT5000/M*</b>  | Matrox Iris GT smart camera with monochrome 2448 x 2050 @ 15fps CCD sensor, 1.6 GHz Atom CPU, 1GB DRAM <sup>2</sup> , 2GB flash disk and Windows® Embedded CE 6.0. |

| Software  |  |
|---|--|
| Refer to MIL datasheet.   |  |
| Contact Matrox Imaging or your local sales representative for more information. |  |

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