

DataMan[®] 390 Series

Quick Reference Guide

2025 July 02

Revision: 25.3.0.5

A large rectangular box with a black border, containing the text "PLACEHOLDER IMAGE" centered within it.

**PLACEHOLDER
IMAGE**

Precautions

To reduce the risk of injury or equipment damage, observe the following precautions when you install the Cognex product:

- Connectivity is possible through the following options:
 - 24 VDC (+/- 10%) output connection using a UL or NTRL listed power supply

Any other voltage creates a risk of fire or shock and can damage the components. Applicable national and local wiring standards and rules must be followed.

- This product is intended for industrial use in automated manufacturing or similar applications.
- The safety of any system incorporating this product is the responsibility of the assembler of the system.
- Do not install Cognex products where they are exposed to environmental hazards such as excessive heat, dust, moisture, humidity, impact, vibration, corrosive substances, flammable substances, or static electricity.
- Route cables and wires away from high-current wiring or high-voltage power sources to reduce the risk of damage or malfunction from the following causes: over-voltage, line noise, electrostatic discharge (ESD), power surges, or other irregularities in the power supply.
- Do not expose the image sensor to laser light. Image sensors can be damaged by direct, or reflected, laser light. If your application requires laser light that might strike the image sensor, use a lens filter at the corresponding laser wavelength. For suggestions, contact your local integrator or application engineer.

- This product does not contain user-serviceable parts. Do not make electrical or mechanical modifications to product components. Unauthorized modifications can void your warranty.
- Changes or modifications not expressly approved by the party responsible for regulatory compliance could void the user's authority to operate the equipment.
- Include service loops with cable connections.
- Ensure that cable strain relief is applied within strain relief zone. The strain relief zone is between two inches to six inches from the connector.
- Ensure that the cable bend radius begins at least six inches from the connector. Cable shielding can be degraded or cables can be damaged or wear out faster if a service loop or bend radius is tighter than 10X the cable diameter.
- This device should be used in accordance with the instructions in this manual.
- All specifications are for reference purposes only and can change without notice.

Symbols

The following symbols indicate safety precautions and supplemental information:



WARNING: This symbol indicates a hazard that could cause death, serious personal injury or electrical shock.



CAUTION: This symbol indicates a hazard that could result in property damage.



Note: This symbol indicates additional information about a subject.






Tip: This symbol indicates suggestions and shortcuts that might not otherwise be apparent.

Accessories

You can purchase the following components separately. For a list of options and accessories, contact your local Cognex sales representative.





Lenses

| Accessory | Product Number | Illustration |
|--|------------------|---|
| 8 mm f8 Cognex High Speed Liquid Lens | CLN-C08F8FS-HSLL |  |
| i Note: No IR Blocking filter. | | |
| 10 mm f5 Cognex High Speed Liquid Lens with Visible and IR | CLN-C10F5FS-HSLL | |
| i Note: No IR Blocking filter. | | |
| 16 mm f8 Cognex High Speed Liquid Lens with Visible and IR | CLN-C16F8FS-HSLL | |
| i Note: No IR Blocking filter. | |  |
| 24 mm f6 Cognex High Speed Liquid Lens with Visible and IR | CLN-C24F6FS-HSLL | |
| i Note: No IR Blocking filter. | | |
| 35 mm f8 Cognex High Speed Liquid Lens | CLN-C35F8FS-HSLL | |
| i Note: No IR Blocking filter. | | |
| 8 mm Variable Aperture Moritex UR Series | ML-M0822UR |  |
| 12 mm Variable Aperture Moritex UR Series | ML-M1218UR | |
| 16 mm Variable Aperture Moritex UR Series | ML-M1616UR | |
| 25 mm Variable Aperture Moritex UR Series | ML-M2516UR | |
| 35 mm Variable Aperture Moritex UR Series | ML-M3520UR | |





Note: For lens and light compatibility, see *Lens, Reader, and Light Compatibility* on page 16.

Lens Covers



| Accessory | Product Number | Illustration |
|---------------------------|-------------------|---|
| 45 mm Plastic Lens Cover | COV-380-CMNT-45 |  |
| 60 mm Plastic Lens Cover | COV-380-CMNT-60 |  |
| 75 mm Plastic Lens Cover | COV-380-CMNT-75 |  |
| 30 mm Lens Cover Extender | COV-7000-CMNT-LGX |  |




Mounting Brackets

| Accessory | Product Number | Illustration |
|--|------------------|--|
| Pivot mounting bracket | DMBK-PIVOT-DM380 |  A black metal pivot mounting bracket with a rectangular cutout and a circular hole. |
| Mounting bracket with M3, M4 and 1/4 - 20 mounting holes | BKT-INS-01 |  A black metal mounting bracket with a rectangular shape and multiple mounting holes. |




Cables

i Note: Cables are sold separately.



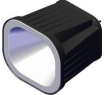

| Accessory | Product Number | Illustration |
|--|--|---|
| Ethernet Cable, X-coded M12-8 to RJ-45 | CCB-84901-2001-xx (straight, xx specifies length: 2m, 5m, 10m, 15m, 30m) |  |
| Ethernet Cable, X-coded M12-8 to RJ-45 | CCB-84901-2002-xx (right-angled, xx specifies length: 2m, 5m, 10m) | |
| Ethernet Cable, Robotic X-Coded M12-8 to RJ-45 | CCB-84901-2RBT-xx (straight, xx specifies length: 2m, 5m, 10m) | |
| X-Coded to A-Coded Ethernet cable adapter, 0.5 m | CCB-M12X8MS-XCAC |  |

| Accessory | Product Number | Illustration |
|---|---|---|
| Power and I/O Breakout Cable, M12-12 to Flying Lead | CCB-M12x12Fy-xx (y = straight/angled, xx specifies length) |  |
| Power and I/O Breakout Cable, M12-12 to Flying Lead | CCBL-05-01 | |
| Power and I/O Breakout Cable, M12-12 to Flying Lead | CCB-PWRIO- xx (straight, xx specifies length: 5m, 10m, 15m) | |
| Power and I/O Breakout Cable, M12-12 to Flying Lead | CCB-PWRIO-xxR (right-angled, xx specifies length: 5m, 10m, 15m) | |
| Power and I/O Breakout Cable, M12-12 to DB15 | CCB-PWRIO-MOD-xx (xx specifies length: 2m, 5m) |  |
| RS-232 Connection Cable | CCB-M12xDB9Y-05 |  |

External Lights

| Accessory | Product Number | Illustration |
|---|-------------------|---|
| Brick light, narrow red | IVSL-ODDM-S75-625 |  |
| Bar light, wide red | IVSL-YLW2X-625 |  |
| Bar light, narrow red, linear polarizer | IVSL-YLW2X-625P | |
| Bar light, wide red | IVSL-YLW300-625 W | |
| Bar light, blue | IVSL-LX520-470 |  |

Integrated Lights and Accessories

| Accessory | Product Number | Illustration |
|--|-------------------|---|
| High Power Integrated Torch (HPIT), Red, wide (Risk Group Red LED exempt risk acc. IEC 62471) | DMLT-HPIT-RE-W |  |
| HPIT, Red, standard (Risk Group Red LED exempt risk acc. IEC 62471) | DMLT-HPIT-RE-S | |
| HPIT, Red, narrow (Risk Group Red LED exempt risk acc. IEC 62471) | DMLT-HPIT-RE-N | |
| HPIT, White, wide (Risk Group White LED low risk acc. IEC 62471) | DMLT-HPIT-WHI-W | |
| HPIT, White, standard (Risk Group White LED low risk acc. IEC 62471) | DMLT-HPIT-WHI-S | |
| HPIT, White, narrow (Risk Group White LED low risk acc. IEC 62471) | DMLT-HPIT-WHI-N | |
| Fully polarized front cover | DMLA-HPIT-PLCOV-F |  |
| Partially polarized front cover | DMLA-HPIT-PLCOV | |
| Clear front cover | DMLA-HPIT-CLCOV | |
| Diffuse front cover | DMLA-HPIT-DLCOV | |
| Passive Dome front cover | DMLA-HPIT-DFCOV |  |
| HPIT Adapter (includes PCB light port adapter and screws) | DMLA-HPIT-ADAP390 |  |

| Accessory | Product Number | Illustration |
|---|-------------------|---|
| Standard Light | |  |
| High power Illumination Accessory (HPIA), Red, narrow (Risk Group White LED low risk acc. IEC 62471) | DM30X-HPIA3-625 |  |
| HPIA, Red, wide (Risk Group White LED low risk acc. IEC 62471) | DM30X-HPIA3-625-W | |
| HPIA, White, narrow (Risk Group White LED low risk acc. IEC 62471) | DM30X-HPIA3-WHI-W | |
| HPIA, White, wide (Risk Group White LED low risk acc. IEC 62471) | DM30X-HPIA3-WHI-W | |
| HPIA, Blue, narrow (Risk Group White LED low risk acc. IEC 62471) | DM30X-HPIA3-470 | |
| HPIA, Blue, wide (Risk Group White LED low risk acc. IEC 62471) | DM30X-HPIA3-470-W | |
| HPIA, Infrared, narrow (Risk Group White LED low risk acc. IEC 62471) | DM30X-HPIA3-IR | |
| HPIA, Infrared, wide (Risk Group White LED low risk acc. IEC 62471) | DM30X-HPIA3-IR-W | |
| HPIA C-mount Lens Cover | DM300-CMCOV-SH |  |
| Linear Polarizer Kit | DM30X-HPIA3-LP |  |

WARNING: High-Powered Integrated Torch devices equipped with a Time-of-Flight sensor, the device has been tested to be under the limits of a Class 1 Laser device. Wavelength 930-950 nm invisible laser radiation.



CAUTION: High-Powered Integrated Torch devices equipped with a target aimer have been tested in accordance with IEC 60825-1. 3rd ed. 2014, and have been certified to be under the limits of a Class 2 Laser device. Wavelength 515 nm laser radiation.

LASER LIGHT - DO NOT STARE INTO BEAM
CLASS 2 LASER PRODUCT 650nm<1mW
CLASSIFIED PER IEC 60825-1, Ed 3, 2014



Complies with FDA performance standards for laser products except for deviations pursuant to Laser Notice No. 50, dated June 24, 2007




Lens, Reader, and Light Compatibility

The following tables detail the compatibility between different lenses and lights.

High Power Integrated Torch and High Speed Liquid Lens compatibility


This configuration is not compatible with C-mount lenses.

| | | 8 mm f8 HSSL | 10 mm f5 HSSL | 16 mm f8 HSSL | 24 mm f6 HSSL | 35 mm f8 HSSL |
|------------------|---|--------------|---------------|---------------|---------------|---------------|
| HPIT (any color) | Wide | ✓ | ✓ | ✓ | | |
| | Note:  Only compatible with the DM394 (3MP). | | | | | |
| | Standard | | | | ✓ | |
| | Narrow | | | | | ✓ |

Standard Light and High Speed Liquid Lens compatibility

This configuration is not compatible with C-mount lenses.


| | 8 mm f8 HSSL | 10 mm f5 HSSL | 16 mm f8 HSSL | 24 mm f6 HSSL | 35 mm f8 HSSL |
|--|--------------|---------------|---------------|---------------|---------------|
| | | | | | |

| | | | | | | |
|-------------------------------|---|---|---|---|---|---|
| Standard Light (any color) | Wide | ✓ | ✓ | | | |
| | Note:  Only compatible with the DM394 (3MP). | | | | | |
| | Narrow | | | ✓ | ✓ | ✓ |


High Power Illumination Accessory and Moritex lens compatibility

This configuration is not compatible with High Speed Liquid Lenses.

| | | | | | |
|--|-----------------------------------|--|--|--|--|
| | 8 mm Variable Aperture Moritex | 12 mm Variable Aperture Moritex | 16 mm Variable Aperture Moritex | 25 mm Variable Aperture Moritex | 35 mm Variable Aperture Moritex |
|--|-----------------------------------|--|--|--|--|

| | | | | | | |
|------------------------|--------|--|---|---|---|---|
| HPIA (any color) | Wide | ✓ | ✓ | ✓ | | |
| | | Note: Only compatible with the DM394 (3MP).  | | | | |
| | Narrow | | | | ✓ | ✓ |

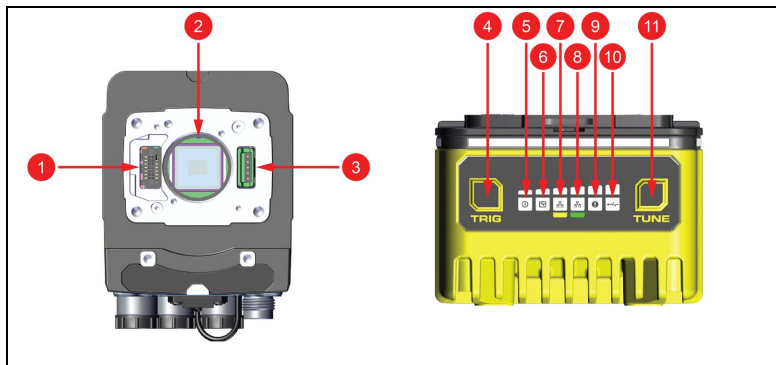
DataMan 390 Series Systems

|  | Omnidirectional 1D Codes | Omnidirectional 1D/2D Codes | Multi-Reader Sync | Resolution (Pixels) |
|--|--------------------------|-----------------------------|-------------------|---------------------|
| DM394 | ✓ | ✓ | ✓ | 2048 x 1536 |
| DM395 | ✓ | ✓ | ✓ | 2448 x 2048 |

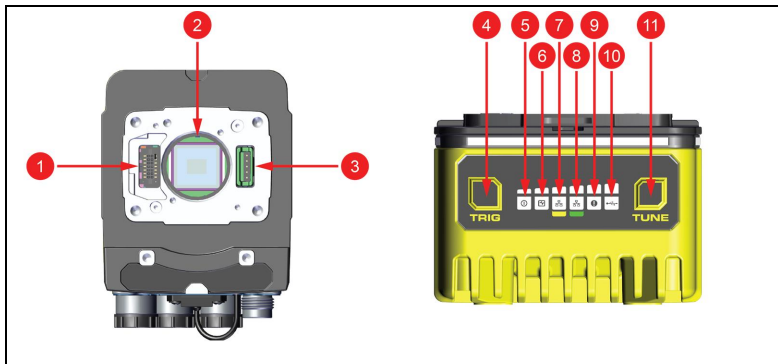
Setting Up Your DataMan Reader

Read this section to learn how the reader connects to its standard components and accessories.

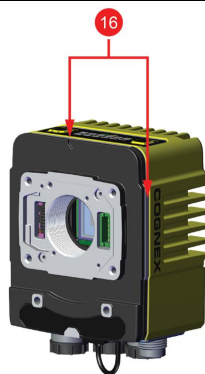
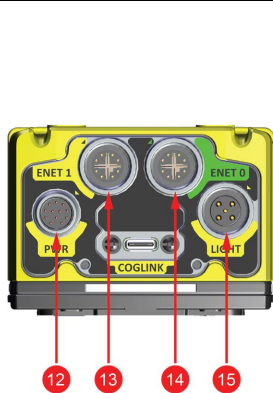
Reader Layout



| Number | Description |
|--------|-----------------------------------|
| 1 | Integrated Illumination connector |
| 2 | Imager/C-mount flange |
| 3 | Lens connector |
| 4 | Trigger button |



| Number | Description |
|--------|----------------------------|
| 5 | Power LED indicator |
| 6 | Train status LED indicator |
| 7 | Ethernet 1 status LED |
| 8 | Ethernet 0 status LED |
| 9 | Error LED indicator |
| 10 | Coglink/USB-C status LED |
| 11 | Tune button |



| Number | Description |
|--------|------------------------------------|
| 12 | Power I/O Breakout cable connector |
| 13 | Ethernet connector 1 |
| 14 | Ethernet connector 0 |
| 15 | Light connector |
| 16 | Indicator lights |

Dimensions

The following sections list dimensions of the reader.

Note:



- Dimensions are in millimeters [inches] and are for reference purposes only.
- All specifications are for reference purposes only and can change without notice.

Field of View and Working Distances

Installing Lenses and Lights

Mounting the Reader

The reader provides mounting holes for attachment to a mounting surface.



CAUTION: You must ground the reader, either by mounting the reader to a fixture that is electrically grounded or by attaching a wire from the mounting fixture on the reader to frame ground or earth ground. If you use a ground wire, attach the wire to one of the four mounting points on the back plate of the reader and not to the mounting points on the front of the reader.

Connecting the Ethernet Cable



CAUTION: The Ethernet cable shield must be grounded at the far end. Whatever this cable is plugged into (typically a switch or router) should have a grounded Ethernet connector. A digital voltmeter should be used to validate the grounding. If the far end device is not grounded, a ground wire should be added in compliance with local electrical codes.

1. Connect the M12 connector of the Ethernet cable to the reader ENET connector.
2. Connect the RJ-45 connector of the Ethernet cable to a switch/router or PC, as applicable.

Connecting the Power and I/O Breakout Cable



CAUTION: To reduce emissions, connect the far end of the Breakout cable shield to frame ground.

Note:



- Perform wiring or adjustments to I/O devices when the reader is not receiving power.
 - You can clip unused wires short or use a tie made of non-conductive material to tie them back. Keep bare wires separated from the +24 V DC wire.
-

1. Verify that the 24 V DC power supply is unplugged and not receiving power.
 2. Attach the +24 V DC connector of the Power and I/O Breakout cable and Ground wires to the corresponding terminals on the power supply. For more information, see *Specifications* on page 29.
-



CAUTION: Never connect voltages other than 24 V DC. Always observe the polarity shown.

3. Attach the M12 connector of the Power and I/O Breakout Cable to the 24 V DC connector of the reader.
4. Restore power to the 24 V DC power supply and turn it on if necessary.

Specifications

The following sections list general specifications for the reader.

DataMan 390 Series Reader

| Specification | DataMan 394X | DataMan 395X |
|----------------------------------|--|--------------|
| Lens Type | C-Mount lens or High Speed Liquid Lens | |
| Acquisition (at Full Resolution) | Up to 45 Hz | Up to 33 Hz |
| Lighting | High Powered Integrated Torch (HPIT): red or white lighting with a distance sensor, laser aimer and configurable indicator lights High Powered Integrated Accessory (HPIA): red, white, blue, or IR lighting Front cover options: polarized and clear Other: various controllable external light options | |
| Status LEDs | Pass/Fail LED and Indicator Ring, Network LED, and Error LED. | |
| Discrete Inputs | 1 opto-isolated, acquisition trigger input. Up to 3 general-purpose inputs when connected to the Breakout cable | |
| Discrete Outputs | Up to 4 outputs when connected to the Breakout cable | |
| Power Output | 24 V DC at 1.0 A maximum to external light | |
| Power Consumption | 24 V DC +/- 10%, 2.0 A maximum | |
| Dimensions | DataMan 390 with no accessories attached: 69 x 89.7 x 45.9 mm (2.72 x 3.53 x 1.81 in) DataMan 390 with HPIT attached: 90.5 x 89.7 x 89.1 mm (3.56 x 3.53 x 3.51 in) DataMan 390 with Standard Light attached: 90.8 x 89.7 x 82.3 mm (3.6 x 3.53 x 3.2 in) DataMan 390 with 45 mm lens cover attached: 69 x 89.7 x 99.7 mm (2.72 x 3.53 x 3.93 in) | |

| Specification | DataMan 394X | DataMan 395X |
|----------------------------------|--|--------------|
| Weight | DataMan 390 with no accessories attached: 569 g (20.1 oz) DataMan 390 with HPIT attached: 762 g (26.9 oz) — no lens included DataMan 390 with Standard Light attached: 763 g (26.9 oz) DataMan 390 with 45 mm C-mount cover: 624 g (22 oz) — no lens included | |
| Operational Temperature | 0° C to 40° C (32° F to 122° F) | |
| Storage Temperature | -20° C to 80° C (-4° F to 176° F) | |
| Humidity | < 95% non-condensing | |
| Shock (Shipping and Storage) | IEC 60068-2-27: 18 shocks (3 shocks in each polarity in each (X, Y, Z) axis) at 80 Gs (800 m/s ² at 11 ms, half-sinusoidal) with cables or cable plugs and a 150 gram or lighter lens attached. | |
| Vibration (Shipping and Storage) | IEC 60068-2-6: vibration test in each of the three main axis for 2 hours at 10 Gs (10 to 500 Hz at 100 m/s ² at 15 mm) with cables or cable plugs and a 150 gram or lighter lens attached. | |
| Environmental Protection | IP67, altitude: 2000 m, indoor use only, pollution degree II Note: IP67 rating applies only if all blind plugs and cables are attached properly, or the provided connector plug is installed. Make sure that the IP67-rated cover is installed properly. | |
| Network Communication | 2 Ethernet ports | |
| Ethernet | 10/100/1000 BaseT with auto MDIX. IEEE 802.3 | |
| RS-232 | Rx/D, Tx/D according to TIA/EIA-232-F | |

| Specification | DataMan 394X | DataMan 395X |
|------------------------|--|--------------|
| Protocols | TCP/IP, PROFINET, Ethernet/IP, ModBus TCP, SLMP, CC-Link IE Field Basic Supports DHCP, static, and link-local IP address and configuration. One port supports TSN networks. | |
| Protection | IP67 | |
| RoHS Certified | Yes | |
| Regulations/Conformity | CE, FCC, KCC, TÜV SÜD NRTL, UKCA | |

DataMan 390 Series Reader Image Sensor

| Specification | DataMan 394 | DataMan DM395 |
|---------------------------|---|---|
| Image Sensor | 1/1.8 in CMOS, global shutter | 2/3 in CMOS, global shutter |
| Image Sensor Properties | 8.99 mm diagonal, 3.45 x 3.45 μm square pixels | 11.1 mm diagonal, 3.45 x 3.45 μm square pixels |
| Image Resolution (pixels) | 2048 x 1536 | 2448 x 2048 |
| Electronic Shutter Speed | 25.1 μs to 200 000 μs | 19.1 μs to 200 000 μs |

Regulations and Conformity




Note: For the most current CE and UKCA declaration and regulatory conformity information, see the Cognex support site: cognex.com/support.

The DataMan 390 reader has the Regulatory Model 50103 and meets or exceeds the requirements of all applicable standards organizations for safe operation. However, as with any electrical equipment, the best way to ensure safe operation is to operate them according to the agency guidelines that follow. Please read these guidelines carefully before using your reader.

| Safety and Regulatory | |
|-----------------------|---|
| Manufacturer | Cognex Corporation One Vision Drive Natick, MA 01760 USA |
| CE | Model Name: Regulatory Model 50103 This is a class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take immediate measures. This equipment complies with the essential requirements of the EU Directive 2014/30/EU. Declarations are available from your local representative. |
| EU RoHS | Compliant to the most recent applicable directive. |
| FCC | FCC Part 15, Class A This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense. |

Safety and Regulatory

| | |
|---|---|
| <p>Korea</p>  | <p>R-R-CGX-50103 This device is certified for office use only and if used at home, there can be frequency interference problems.</p> |
| <p>TÜV</p> | <p>Regulatory Model 50103</p> |
| | <p>NRTL: TÜV SÜD SCC/NRTL OSHA Scheme for UL/CAN 61010-1. CB report available upon request. TÜV SÜD, IEC/EN 61010-1.</p> |
| <p>UK CA</p> | <p>Regulatory Model 50103 This is a class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take immediate measures. This equipment complies with the essential requirements of the Electromagnetic Compatibility Regulations 2016. Declarations are available from your local representative.</p> |

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