

## **DataMan<sup>®</sup> 390 Series**

### **Quick Reference Guide**

**2025 May 14**

**Revision: 25.2.0.28**

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.

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

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**Note:** This symbol indicates additional information about a subject.

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

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## 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	
<b>i</b> Note: No IR Blocking filter.		
10 mm f5 Cognex High Speed Liquid Lens with Visible and IR	CLN-C10F5FS-HSLL	
<b>i</b> Note: No IR Blocking filter.		
16 mm f8 Cognex High Speed Liquid Lens with Visible and IR	CLN-C16F8FS-HSLL	
<b>i</b> Note: No IR Blocking filter.		
24 mm f6 Cognex High Speed Liquid Lens with Visible and IR	CLN-C24F6FS-HSLL	
<b>i</b> Note: No IR Blocking filter.		
35 mm f8 Cognex High Speed Liquid Lens	CLN-C35F8FS-HSLL	
<b>i</b> 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.



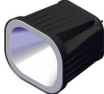

Accessory	Product Number	Illustration
Ethernet Cable, X-coded M12-8 to RJ-45	CCB-84901-2001-xx (straight, xx specifies length: 2m, 5m, 10m, 15m, 30m)	
Ethernet Cable, X-coded M12-8 to RJ-45	CCB-84901-2002-xx (right-angled, xx specifies length: 2m, 5m, 10m)	
Ethernet Cable, Robotic X-Coded M12-8 to RJ-45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


**CLASS 1  
LASER PRODUCT**



**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.

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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	✓	✓	✓		
		<b>Note:</b>  Only compatible with the DM394 (3MP).				
	Standard				✓	
	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	✓	✓	✓		
		 <b>Note:</b> Only compatible with the DM394 (3MP).				
	Narrow				✓	✓

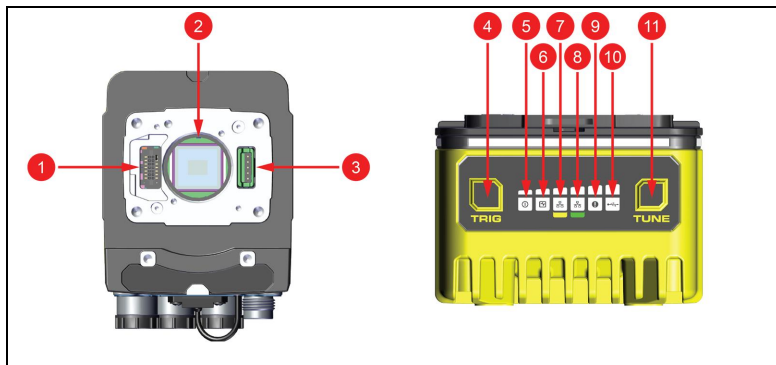
# DataMan 390 Series Systems

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

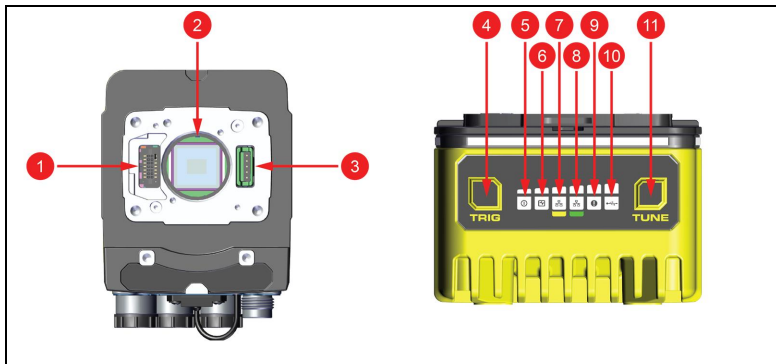
# Setting Up Your DataMan Reader

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

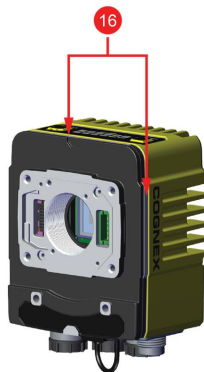
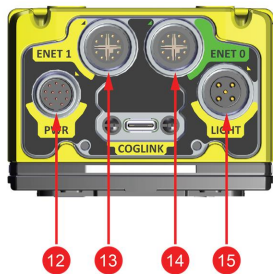
## Reader Layout



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.

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**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.

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## Connecting the Ethernet Cable

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**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.

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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

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

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### 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 28.
- 



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

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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 45 mm lens cover attached: 69 x 89.7 x 99.7 mm (2.72 x 3.53 x 3.93 in)	
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 45 mm C-mount cover: 624 g (22 oz) — no lens included	

Specification	DataMan 394X	DataMan 395X
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 <sup>2</sup> 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 <sup>2</sup> 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	
	 <b>Note:</b> 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	
Protocols	TCP/IP Protocol Supports DHCP, static, and link-local IP address and configuration. One port supports TSN networks.	

<b>Specification</b>	<b>DataMan 394X</b>	<b>DataMan 395X</b>
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 $\mu\text{m}$ square pixels	11.1 mm diagonal, 3.45 x 3.45 $\mu\text{m}$ square pixels
Image Resolution (pixels)	2048 x 1536	2448 x 2048
Electronic Shutter Speed	25.1 $\mu\text{s}$ to 200 000 $\mu\text{s}$	19.1 $\mu\text{s}$ to 200 000 $\mu\text{s}$

# Regulations and Conformity




**Note:** For the most current CE and UKCA declaration and regulatory conformity information, see the Cognex support site: [cognex.com/support](http://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
<b>CE</b>	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.</p>
<p>UK CA</p>	<p>CB report available upon request. TÜV SÜD, IEC/EN 61010-1.</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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