COGNEX®

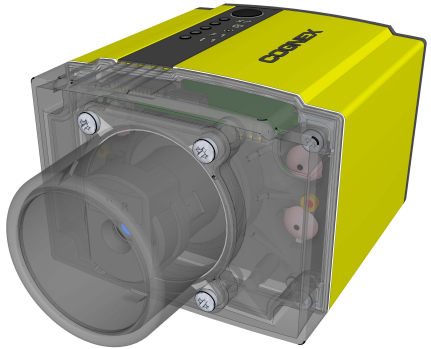
DataMan® 500

Quick Reference Guide

DATAMAN
ID Readers

About DataMan 500

The DataMan 500 is a high-performance, fixed-mount ID reader that offers the following advanced features:



- Automatic detection and triggering when codes enter the field of view.
- Ultra-sensitive custom image sensor that allows short exposures to freeze part motion.
- High-performance processing unit that provides extremely short cycle times.
- Automatic regulation of exposure time and gain to provide maximum performance.
- Electronically controlled solid-state variable focus system.
- Dynamically configurable network-based multiple-reader decoding ("master-slave").

The DataMan 500 provides advanced Ethernet connectivity, support for serial and discrete I/O, as well as advanced options for lighting and optics.

The DataMan 500 is packaged in a rugged, IP65-rated housing, and it provides numerous ease-of-use features, including one-button code training.

For More Information...

This document provides basic information about how to configure and use the DataMan 500. Additional information is available through the Windows **Start** menu after you install the DataMan software on your PC:

DataMan Communications & Programming Guide shows how to integrate your DataMan reader with your automation software and factory network.

Cognex->DataMan Setup Tool v x.x->Documentation->Communications & Programming

DataMan Reader Configuration Codes provides printable 2D codes that you can use to configure the DataMan reader.

Cognex->DataMan Setup Tool v x.x->Documentation->Reader Configuration Codes

DataMan Fixed Mount Readers Reference is a complete online hardware reference for the DataMan 300 and 500.

Cognex->DataMan Setup Tool v x.x->Documentation->Reference Manual

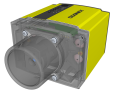
DataMan Questions and Answers provides context-sensitive information. You can view this help inside the setup tool or as a standalone help file.

Cognex->DataMan Setup Tool v x.x->Documentation->DM500->Questions and Answers

Release Notes list detailed system requirements and additional information about this DataMan software release.

Cognex->DataMan Setup Tool v x.x->Documentation->DataMan v x.y.z Release Notes

DataMan 500 Systems



	High-Speed Part Moving Applications	Omni-directional Code Reading	1DMax™ — Best-In-Class 1D Reading	IDQuick™ — High-Speed 2D Reading
DataMan 500L (DMR-500L-*xx*)	√		√	
DataMan 500QL (DMR-500QL-*xx*)	√	√	√	
DataMan 500X (DMR-500X-*xx*)	√	√	√	√

DataMan 500 Accessories

CD-ROM (Setup Tool and Drivers) (206-6400-400)

Quick Reference Guide (590-7145)

I/O Cable M12 to flying leads (CCB-M12IO-S05)

I/O Cable M12 to flying leads (right-angle) (CCB-M12IO-R05)

Ethernet M12 to RJ45 cable (CCB-84901-1003-xx)

RS-232 cables (CCB-M8X4-xx)

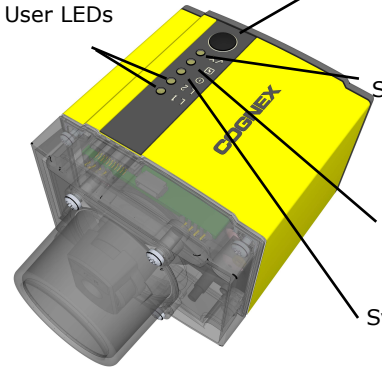
AC Power over Ethernet (PoE) Injector (CPS-AC-POE1A-xx)

24V Power over Ethernet (PoE) DIN-RAIL Mount Adapter (CPS-24V-POE1)

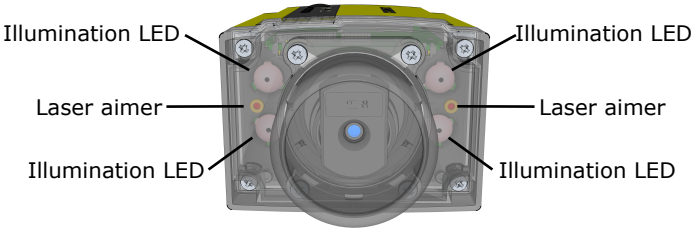
High-power lighting module (DM500-HPIA-000)

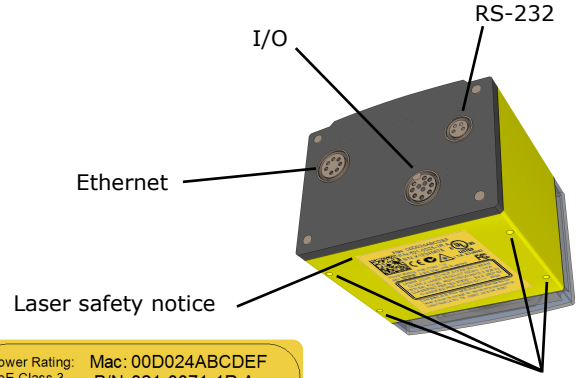
Liquid Lens Module (DM500-LLM-013 or DM500-LLM-018)

Reader Layout



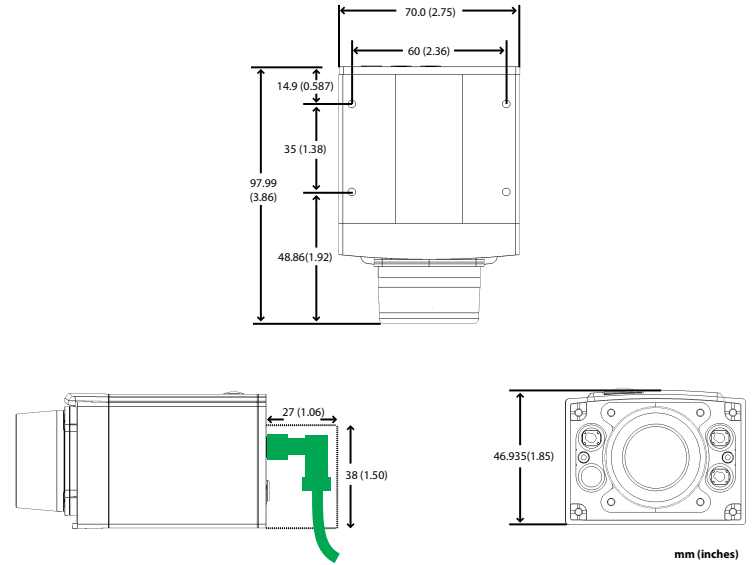
- Pushbutton
  - Push to read
  - Push and hold 3 seconds to train
  - Use Setup Tool to program additional button functions
- Status LED
  - Green (pulse): Read
  - Red (pulse): No read
  - Red/Green (long pulse): Train or Optimize Focus result
- User LED
  - Yellow: Untrained
  - Green: Trained
- System LED
  - Yellow: Power
  - Green: Ethernet connected
  - Blink: Data transfer





Dimensions

Observe the following DataMan 500 dimensions when installing your reader.

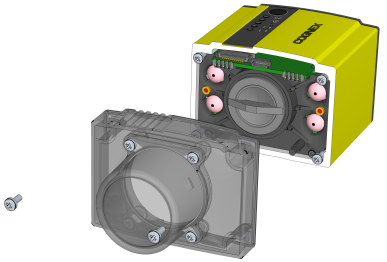


Installing the Lens

DataMan 500 ships with no lens installed. You must install either a standard CS-mount lens or a variable-focus liquid lens module before using your reader.

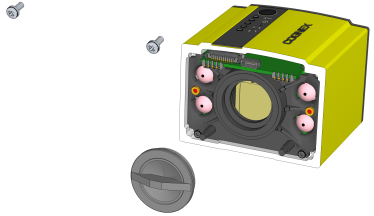
WARNING:Make sure your reader is unpowered before installing the lens.

1 Remove the front cover, if attached, and lens cover.



Remove the four mounting screws from the corners of the front cover and remove the cover.

Do not discard screws!

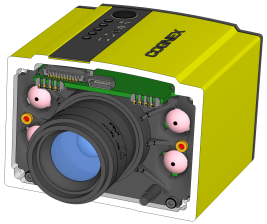


Unscrew the protective cover from the lens mount.

Do not leave the DataMan sensor exposed to the environment!

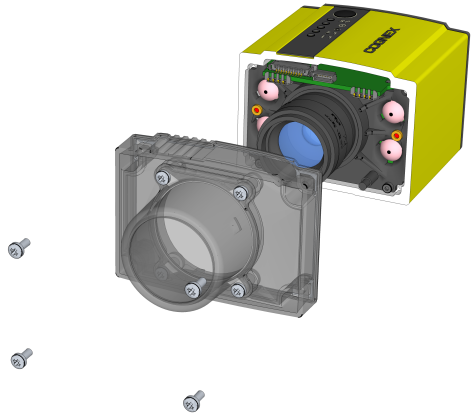
Installing CS-Mount Lens

1 Install lens.

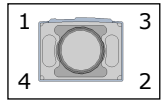


Use CS- to C-mount adapter ring for C-mount lenses.

2 Re-attach front cover.

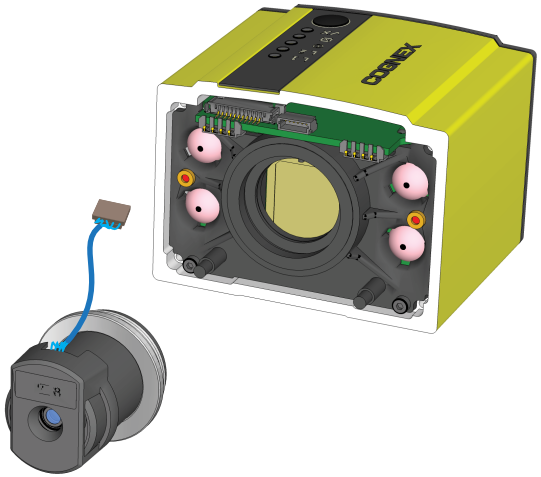


Tighten in sequence.
Torque limit: 9 N-cm (0.8 Lb-In).



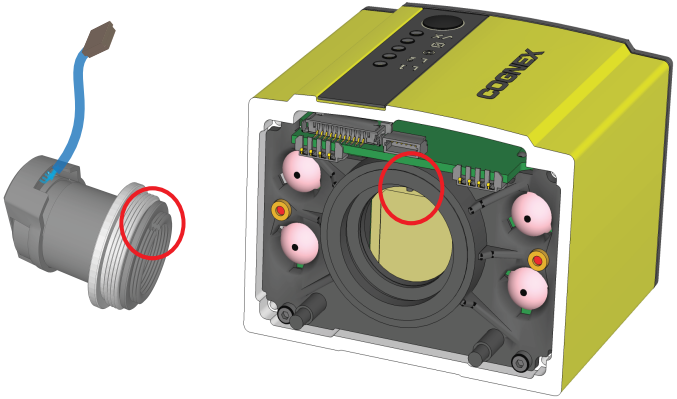
Installing Liquid Lens Module

1 Attach liquid lens module to Dataman 500.



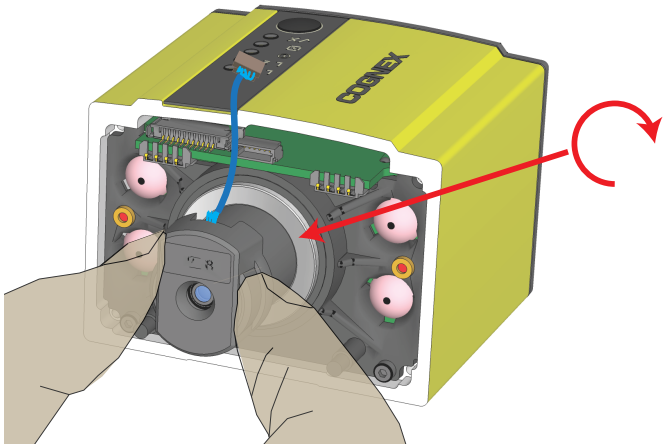
⚠ Do not pinch or pull cable while installing liquid lens module.

⚠ Make sure that C-to-CS mount adapter is ***not installed***.



⚠ Align slot in liquid lens module with key in lens mount.

While holding liquid lens module in place, tighten locking ring.

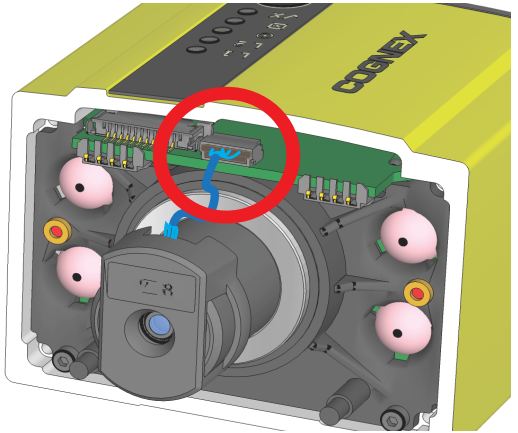


2 Connect liquid lens cable

Insert liquid lens cable into connector.

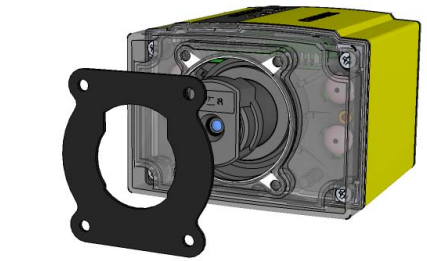
⚠ Do not pinch or pull cable.

⚠ Insert and remove cable using plug.



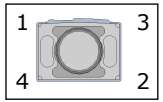
3 Re-attach front cover.

For the 13.3 mm lens, reattach the front plastic cover and make sure you add the light baffle before you attach the lens cover.

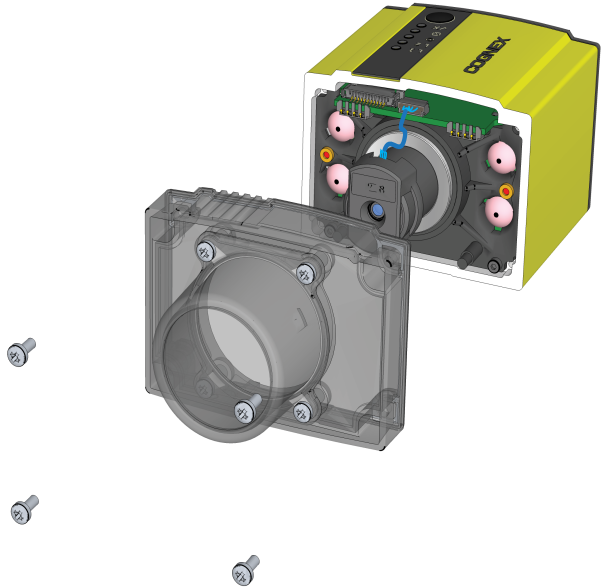


⚠ Avoid pinching or crimping wires when attaching cover.

⚠ Tighten in sequence. Torque limit: 9 N-cm (0.8 Lb-In).

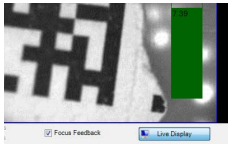
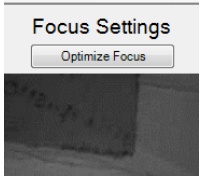
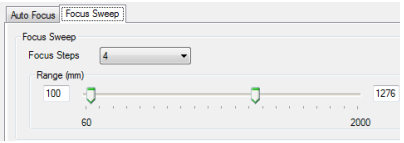


For the 18.8 mm lens, attach the front plastic cover and tighten the screws.



Setting Focus

There is a range of reading distances available for different code sizes and focus positions. To set focus on your reader, use the following options depending on whether you use a liquid lens or a manual focus lens.

Liquid Lens	Manual Focus Lens
Focus Feedback (Results Display) 	Focus Feedback (Results Display) 
Optimize Focus (Focus Settings) 	
Focus Sweep (Focus Settings) 	

For setting **Focus Sweep**, follow these guidelines:

- If your application has a consistent reading range, set the focus range to a limited depth of field with no steps (for example, set it to 20) or with limited steps (for example, set it to 2 steps between 0 and 30). This way you can achieve fast performance.
- If your application has a variety of code types and sizes, set the focus range to a wider depth of field with increased number of steps (for example, set it to 6 steps between 0 and 200). This way you can get better coverage.

Both **Optimize Focus** and the **Focus Feedback** use the same procedure for testing the current focus. They consider various subregions of the image.

For maximizing the performance of Optimize Focus and Focus Feedback, observe the following:

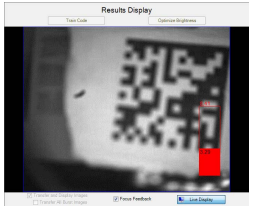
- Use a focus target (such as the one supplied with this Quick Reference Guide) that includes high-contrast features and is big enough that it fills at least a 100x100 pixel region in the center of the field of view at the desired working distance.
- Make sure the target is perfectly flat (avoid floppy pieces of paper).
- Make sure that the target is perfectly perpendicular to the optical axis of the reader.

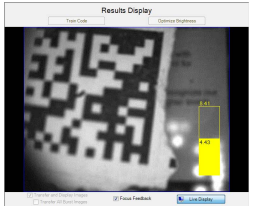
Setting Focus (Continued)

- Make sure that the rest of the field of view (such as the part not covered by the focus target) does not contain any high-contrast features. For example, you would ideally fill the entire field of view with a white card or sheet of paper (no shadows), then position the focus target in the middle.
- The supplied focus target (120x120mm) is appropriate for typical working distances. If you are using a working distance such that the target does not completely fill the image, make sure that there are no high-contrast features visible outside of the target (see previous bullet).

Perform the following steps to use **Focus Feedback**:

1. Connect the reader to the Setup Tool.
2. On the Results Display pane, check the Focus Feedback option and enable Live Display.
3. The Focus Feedback column is displayed in colors ranging from red (bad focus) through yellow to green (sharp focus).

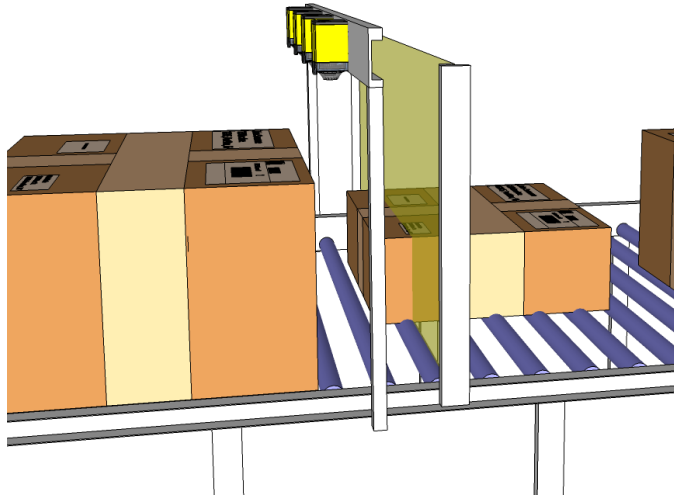




Position the reader in a way that the focus column becomes green. This makes sure that the lens is in focus and you will be able to decode the image.

Configuring a Light Curtain

In automatic focus mode you can configure a light curtain as a package height sensor. The DataMan 500 will automatically set its focus position based on the detected surface height. For more information, see the *DataMan Fixed Mount Readers Reference*.



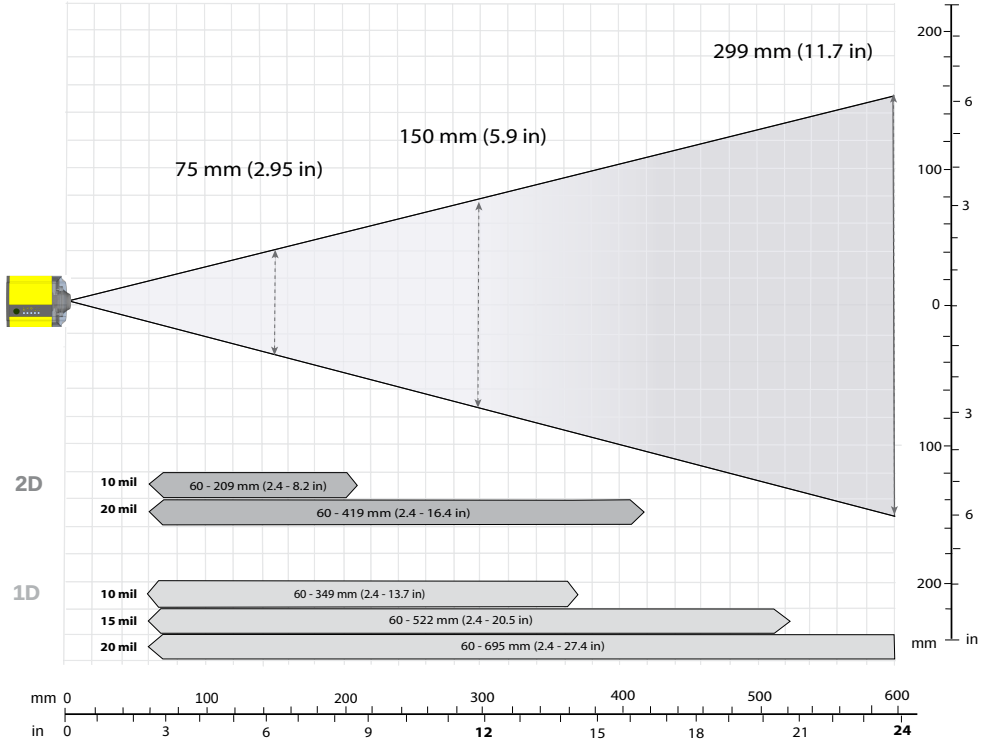
Reading Distance and Field of View (18.8mm Liquid Lens Module DM500-LLM-018)

For the DataMan 500, two liquid lens modules are available:

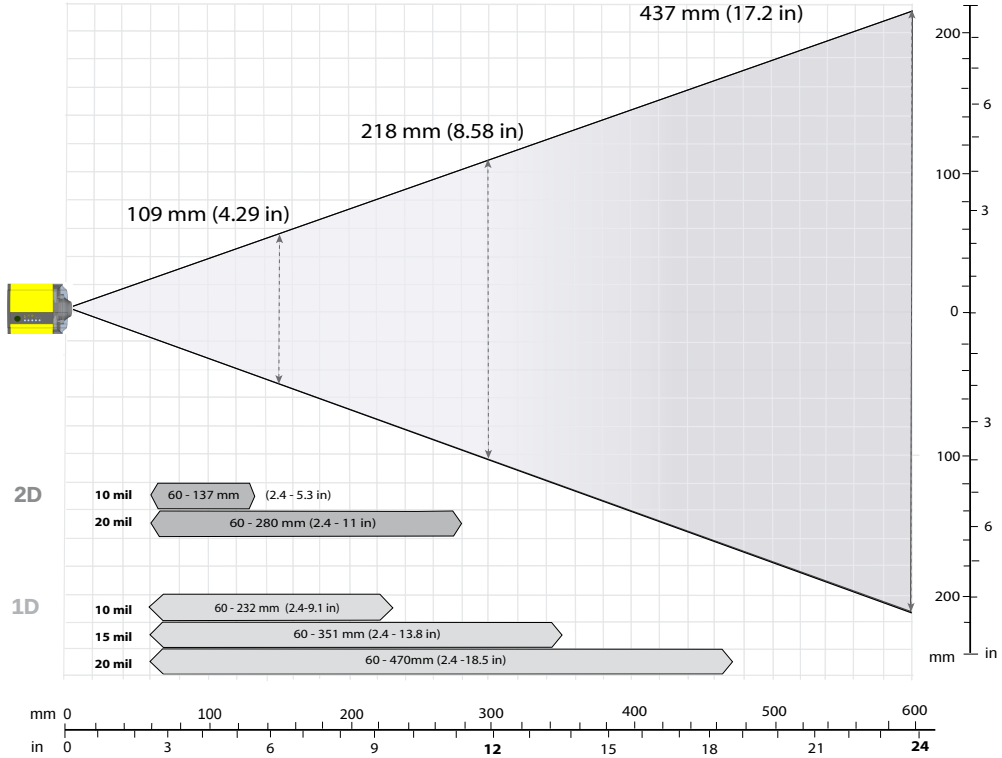
- An 18.8 mm lens (DM500-LLM-018) suitable for reading distant objects, such as on an assembly line or as a high-magnification lens.
- A 13.3 mm lens (DM500-LLM-013) suitable for reading objects at close distances.

Reading distance and field of view charts are provided for both modules.

For CS-mount lenses, the lens's focal length, focus setting, and aperture setting determine the field of view and reading distance.



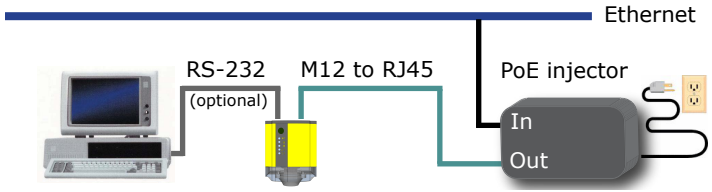
Reading Distance and Field of View (13.3mm Liquid Lens Module DM500-LLM-013)



Connecting the Reader

Supply power to the reader using a Power over Ethernet (PoE) injector. Cognex recommends the following connection sequence:

1. Connect the PoE injector with the Ethernet installation (both sides of the patch cable).
2. Connect the power cord (AC 230V/110V) to the PoE injector.
3. Connect the reader to the PoE injector.



To disconnect the reader:

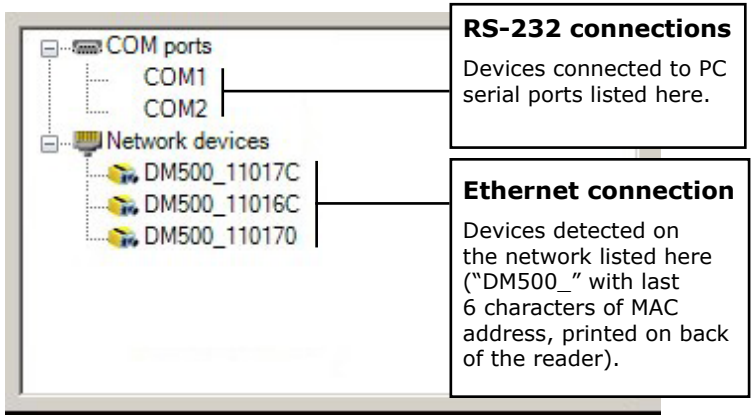
1. Disconnect the reader from the PoE injector.
2. Disconnect the power cord from the PoE injector.
3. Disconnect the PoE injector from the Ethernet installation.

Do not stare into beam when adding, removing, or changing cables. Cognex recommends to unpower the reader any time you make physical changes to it.

Installing DataMan 500 Software

1. Check the DataMan Release Notes for a full list of system requirements.
2. Insert CD-ROM and follow the on-screen prompts.
3. Connect the DataMan 500 to your PC.
4. Launch the Setup Tool and click **Refresh**.

   Detected readers will appear under **COM ports** or **Network devices**, or both.
5. Select a reader from the list and click **Connect**.



Start the Setup Tool

Connect the reader to the Setup Tool to configure it with the type of symbologies it will decode as well as other parameters, such as the type of trigger it will use and the format of the results it will generate.

Quick Setup

Configure your reader in a few basic steps

Connect to Reader

Establish a connection to the reader

Results Display

View results

Light and Imager Settings

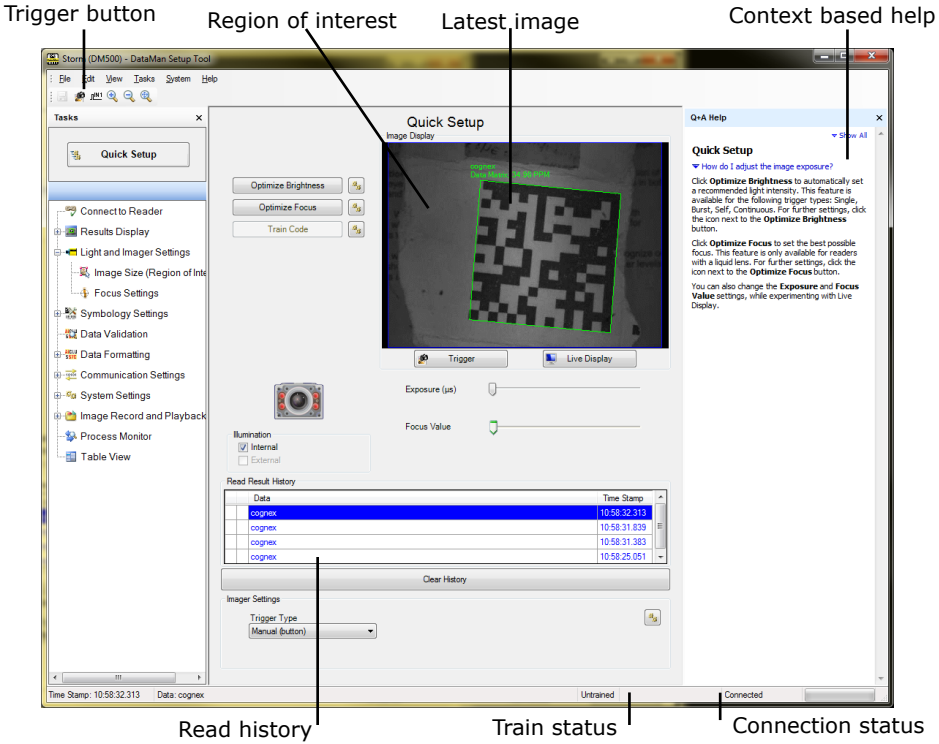
Choose a trigger type and other acquisition parameters

System Settings

Configure input and output signals

Table View

See all the selectable values in the Setup Tool in one table



Troubleshooting an Ethernet Connection

Based on your network configuration, the Setup Tool may not be able to communicate with the reader and it will not appear in the list of **Network devices**.

First check your Ethernet connection with the reader and click **Refresh** in the Setup Tool. Next, scan the **Enable DHCP** code in the *Reader Configuration Codes* document available from the Start menu. This might allow the reader to acquire a suitable IP address from a DHCP server on your subnet.

If the reader still does not appear, you can use either the **Add Device** or **Force Network Settings** options in the Setup Tool.

If you know the IP address of the reader, use the **Add Device** option. If you do not know the IP address, use the **Force Network Settings** options. Either method should allow the DataMan 500 reader to appear in the list of **Network devices** so that you can connect to it through the Setup Tool and your Ethernet connection.

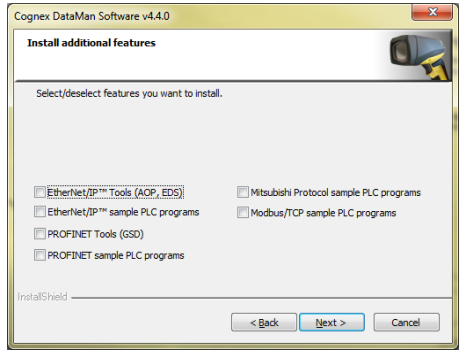
You can also use the RS-232 connection to configure the reader with parameters that allow it to communicate over your Ethernet network.

Industrial Protocols

The DataMan 500 series readers support the following industrial protocols:

- EtherNet/IP™
- PROFINET
- MC Protocol
- Modbus TCP

Select industrial protocol samples and tools you want to use when you install the DataMan Software.



There are three ways to enable or disable Industrial Protocols. Using either method, a reboot is required for the changes to come into effect.

- Enable the protocols using the **Industrial Protocols** pane of the Setup Tool (under Communication Settings).
- Scan the appropriate **Reader Configuration codes** (see *Reader Configuration Codes* available through the Windows Start menu).
- Send the appropriate **DMCC** (see *Command Reference* available through the Windows Start menu).

For more information on using the industrial protocols, read the *DataMan Communications and Programming Guide* available through the Windows Start menu.

Use the Setup Tool Menu Bar

The In1 button on the toolbar creates a virtual rising edge signal on Input 1. Use the In1 button to activate various actions such as training a code, optimizing brightness or setting a match string without a physical input 1 channel.

Each reader can store its current set of runtime parameters to a configuration (.cfg) file, which contains information such as the enabled symbologies and how any output data should be formatted.

The same configuration file can be loaded onto multiple readers, as the file does not contain identification information such as the IP address or device name of the reader used to create it.

A reader can also generate a Cognex device configuration (.cdc) file, which stores the set of runtime parameters plus any identification data, such as the name of the device, its IP address, subnet mask, and so on. Cognex recommends generating a device configuration file for each reader to allow you to restore a reader to its operating state with minimal effort.

Use the **File** menu of the Setup Tool to manage .cfg and .cdc files:

File Menu	
Open Configuration	Open a saved .cfg configuration file.
Save Configuration	Create a .cfg configuration file of current runtime parameters.
Print Configuration Code	Generate a programming codes sheet representing your reader's .cfg configuration.
Restore Device	Load a saved device configuration .cdc file, with run-time parameters plus device-specific information for a particular DataMan 300 series reader.
Backup Device	Create a device configuration .cdc file for a specific reader.
Print Device Backup Code	Generate a programming codes sheet representing your reader's .cdc configuration.
Export Parameters	Save (all or only the non-default) parameters of your device in a text file.
Load Image	Load an 8-bit uncompressed grey-scale .bmp or .jpg image for analysis.
Save Image	Save the latest acquired image with the .jpg or .bmp file format.
Save Burst Images	Save the latest batch of burst images.

Use the **Edit** menu for standard Cut, Copy and Paste operations.

Use the **View** menu to view reader information (serial number, firmware version, and so on) and to enable and disable various elements of the Setup Tool, and the **Tasks** menu to switch between various Setup Tool options.

Use the **System** menu to manage the current settings on the reader and to upgrade the features it currently supports:

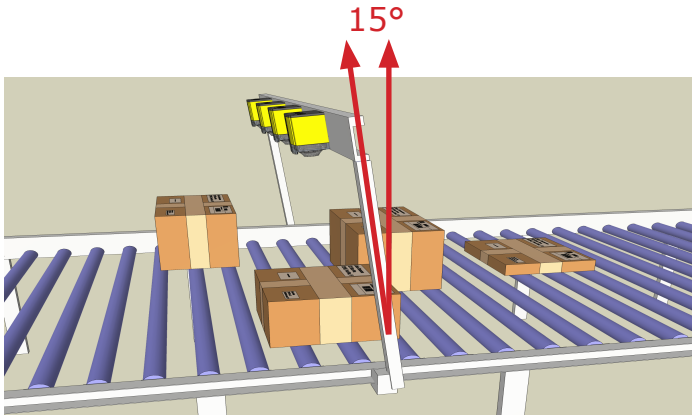
System Menu	
Save Settings	Save the current parameters to non-volatile memory, which allows the reader to restore these settings each time you reboot it.
Reset Configuration	Reset all configuration parameters in RAM (volatile memory) to the default settings.
Update Firmware	Update the reader software.
Upload Feature Key	Unlock additional features available in the reader software if you have the right key.
Show Device Log	Error and exception conditions, such as missed triggers and trigger overruns are logged.
Delete Device Log	Clear your device log.

Use the **Help** menu to display Setup Tool version information.

Mounting the Reader

The DataMan 500 reader provides four threaded attachment points. Use all of them when mounting your reader. For exact dimensions, see the *DataMan Fixed Mount Readers Reference*.

To avoid reflections and glare from part and label surfaces, mount the reader at a 15° angle from vertical.



DataMan 500 Triggering

DataMan 500 supports *self-triggered* operation. In self-trigger mode, at an interval you configure, the reader automatically detects and decodes codes in its field of view. The high-speed image acquisition and processing capabilities of the DataMan 500 allow it to detect *and decode* codes at up to 80 codes per second, multiple decodes per scan. If you set a higher re-read delay than the trigger interval, there is a code output only once until the code is out of the field of view for the duration of the re-read delay.

DataMan 500 also supports these additional trigger modes:

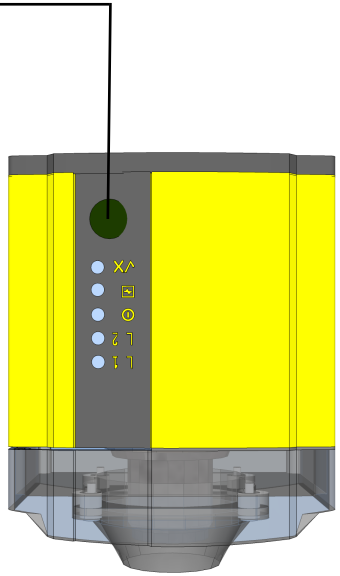
- Single (external trigger): Acquires a single image and attempts to decode any symbol it contains, or more than one symbol in cases where multicode is enabled. The reader relies on an external trigger source.
- Presentation: Scans, decodes and reports a single code in the field of view. The reader relies on an internal timing mechanism to acquire images.
- Manual: Begins acquiring images when you press the trigger button on the reader, and continues acquiring images until a symbol is found and decoded or you release the button.
- Burst: Performs multiple image acquisitions based on an external trigger and decodes any symbol appearing in a single image or within a sequence of images, or multiple symbols in a single image or within a sequence of images when multicode is enabled. You can control the number of images within each burst and the interval between image acquisitions.
- Continuous: Begins acquiring images based on a single external trigger and continues to acquire and decode images until a symbol is found and decoded, or until multiple images containing as many codes as specified in multicode mode are located, or until the trigger

DataMan 500 Triggering (Continued)

is released. You can configure your reader to acquire images based on the start and stop signal from separate digital IO pulses.

If you are using external triggering you can use any of these methods to trigger DataMan 500:

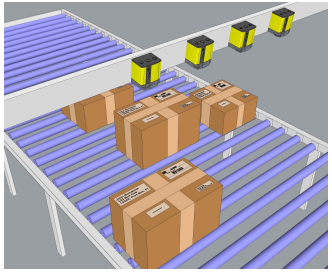
- Press the trigger button on the reader.
- Send a pulse on the I/O cable:
  - Trigger + (red/blue)
  - Trigger - (white)
- Send a trigger command over the RS-232 connection or Ethernet connection.
- Press <CTRL>-T on the keyboard.
- Click the Trigger button in the Setup Tool:

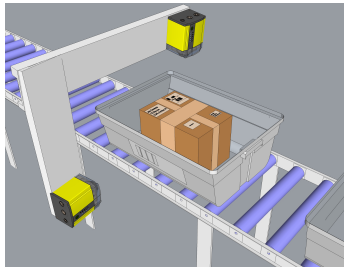


Multi-Reader Triggering

For trigger modes other than Presentation, the DataMan 500 supports *multi-reader triggering*, also known as *master-slave* configuration. In this configuration, you configure multiple DataMan 500 readers as a group. Whenever any reader in the group is triggered, all the readers are triggered and the results from all the readers are assembled and transmitted by a single reader that you designate as the master.

Multi-reader triggering is used to support extended field of view reading and reading codes from multiple product surfaces:



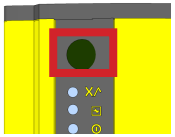


To configure multi-reader triggering, select the **Master/Slave** pane in the Setup tool (under **System Settings** in Advanced view). For more information, see the *DataMan Fixed Mount Readers Reference*.

Training the Reader

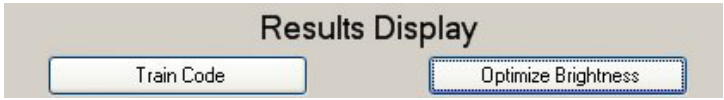
Training your reader with the expected symbology can decrease the time required to decode successive symbols. To train your reader, first switch to Single mode, then place a code in front of the reader and do one of the following:

- Press and hold the trigger button for a minimum of 3 seconds.



- Click and hold the trigger button in the Setup Tool for a minimum of 3 seconds.

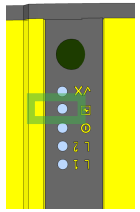
- Click **Train Code** in the Results Display pane.



You can now switch to Burst, Continuous or Self trigger modes if necessary.

NOTE that only a single symbol of each symbology kind can be trained.

Training Feedback



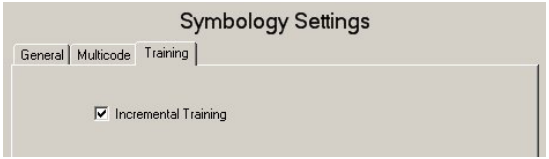
The middle LED on the reader glows green to indicate that it is currently trained, or yellow to indicate that it is not trained.

Connect the reader to the Setup Tool to untrain it and allow it to recognize other enabled symbologies.

Incremental Training for Multiple Symbologies

If you want to train the reader to recognize multiple symbologies, you can present a single image showing all the desired symbologies and perform the training procedure previously described.

If you cannot present a single image showing all the necessary symbologies, you can enable incremental training on the **Training** tab of the **Symbology Settings** pane:



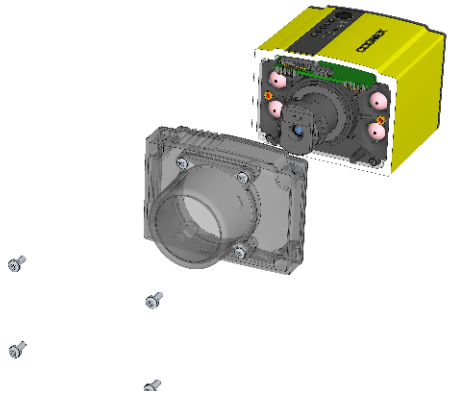
With incremental training enabled, you can train the reader using multiple images showing the symbologies you expect to decode. The reader will train each new symbology while retaining the existing trained symbologies.

High-Power Lighting Module

The high-power lighting module (available as an accessory) allows you to work with higher line speeds and greater working distances than the built-in internal illumination.

Follow the steps in this section to install and remove the module.

1 Remove the lens cover.

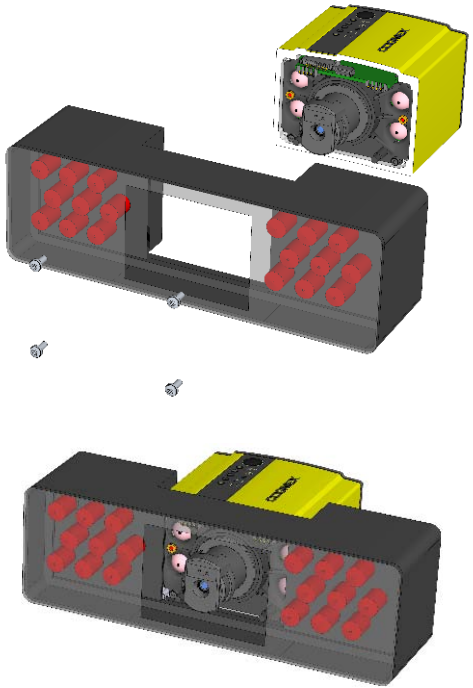


WARNING

Disconnect DataMan from power before inserting/ removing lighting module.

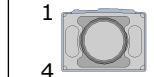
Remove and retain the four mounting screws from the corners of the front cover and remove the cover.

2 Attach lighting module to reader.



Avoid pinching or crimping wires when attaching cover.

Use screws supplied with lighting module.

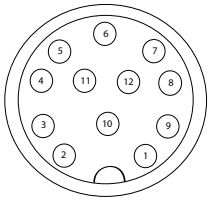


9 N-cm (0.8 Lb-In)

Observe torque limit

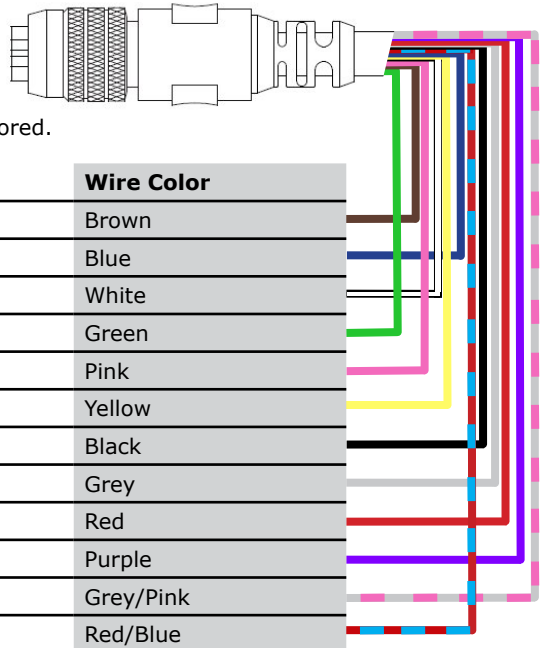
Tighten in sequence

I/O Cable



Device pin numbering.
Plug pin numbers are mirrored.

The I/O cable provides access to trigger and high-speed outputs. Unused wires can be clipped short or tied back using a tie made of non-conductive material.

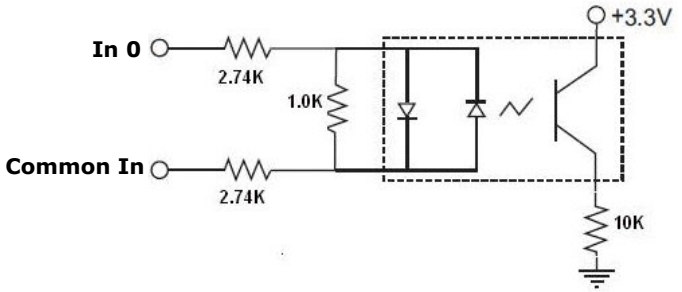


Pin #	Signal Name	Wire Color
1	Out 0	Brown
2	N/C	Blue
3	Common In	White
4	In 2	Green
5	In 1	Pink
6	Common Out	Yellow
7	Out 2	Black
8	Out 3	Grey
9	Out 1	Red
10	N/C	Purple
11	In 3	Grey/Pink
12	In 0	Red/Blue

Acquisition Triggering

The acquisition trigger input on the reader is opto-isolated. To trigger from an NPN (pull-down) type photo-detector or PLC output, connect **In 0** to +24V and connect **Common In** to the output of the detector. When the output turns on, it pulls **Common In** down to 0V, turning the opto-coupler on.

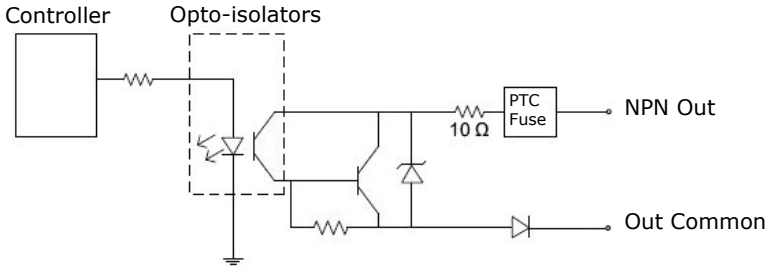
To trigger from an PNP (pull-up) photo-detector or PLC output, connect **In 0** to the output of the detector and connect **Common In** to 0V. When the output turns on, it pulls **In 0** up to 24V, turning the opto-coupler ON.



28V Max. Across input pins - Transition approx. 12V (Min).

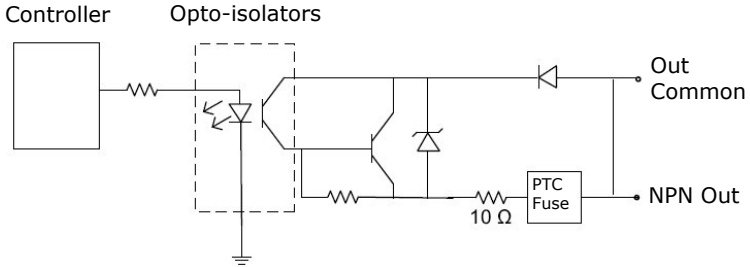
High-Speed Output Lines

The high-speed outputs can be used as either NPN (pull-down) or PNP (pull-up) lines. For NPN lines, the external load should be connected between the output and the positive supply voltage (<28V). The outputs pull down to less than 3V when ON, which causes current to flow through the load. When the outputs are OFF, no current flows through the load.



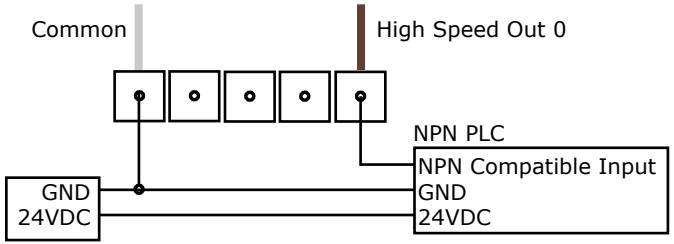
Specification	Description
Voltage	28V maximum through external load
Current	50mA maximum sink current
	OFF state leakage current 100µA
	External load resistance 240 Ohms to 10K Ohms
	Each line rated at a maximum 50mA, protected against over-current, short circuits and transients from switching inductive loads. High current inductive loads require external protection diode.

For PNP lines, the external load should be connected between the output and the negative supply voltage (0V). When connected to a 24VDC power supply, the outputs pull up greater than 21V when ON, and current flows through the load. When the outputs are OFF, no current flows through the load.

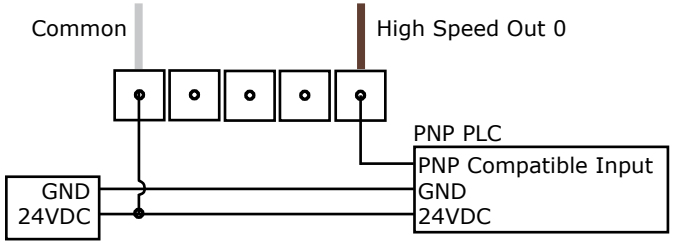


High Speed Output Wiring

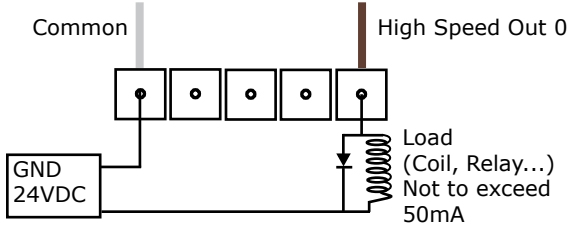
To connect to an NPN-compatible PLC input, connect Output 0 or Output 1 directly to the PLC input. When enabled, the output pulls the PLC input down to less than 3V.



To connect to a PNP-compatible PLC input, connect Output 0 or Output 1 directly to the PLC input. When enabled, the output pulls the PLC input up to greater than 21V.

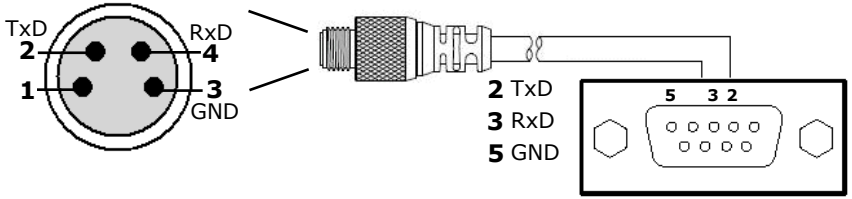


To connect the high-speed outputs to a relay, LED or similar load, connect the negative side of the load to the output and the positive side to +24V. When the output switches on, the negative side of the load is pulled down to less than 3V, and 24 appears across the load. Use a protection diode for a large inductive load, with the anode connected to the output and the cathode connected to +24V.



RS-232 Cable

The RS-232 cable provides an optional connection between the reader and your PC.



DataMan 500 Specifications

Weight	350 g	
Operating Temperature	0ºC — 40ºC (32ºF — 104ºF)	
Storage Temperature	-10ºC — 60ºC (-14ºF — 140ºF)	
Maximum Humidity	95% (non-condensing)	
Environmental	IP65 (with cable or protection cap attached to all connectors, front cover properly installed)	
Vibration	EN61373 including IEC 60068-2-6,60068-2-64 6.4, and 60068-2-27	
RS-232	RxD, TxD according to TIA/EIA-232-F	
Codes	Data Matrix™ (IDMax: ECC 0, 50, 80, 100, 140, and 200; IDQuick: ECC200) QR Code and microQR Code UPC/EAN/JAN Codabar, Interleaved 2 of 5, Code 39, Code 128, and Code 93, Pharma, Postal, RSS/CS, PDF 417, MicroPDF 417	
Discrete I/O operating limits	Trigger, HS Output 0,1	Max output current: 50 mA @ 28 VDC Output load: 470 Ω @ 24 VDC; 150 Ω @ 12 VDC Input voltage limits:- 28 VDC — +28 VDC Input current: 4.2 mA @ 24 VDC; 2.0 mA @ 12 VDC
Power Supply Requirements	Class 3 PoE injector	Maximum power: 5W

Compliance Notice

The DataMan 500 series 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 device.

Regulator	Specification
USA	FCC Part 15, Class A FDA/CDRH Laser Notice No 50
Canada	ICES-003
European Community	EN55022:2006 +A1:2007, Class A
	EN55024:1998 +A1:2001 +A2: 2003 EN60950
	EN60825-1
Australia	C-TICK, AS/NZS CISPR 22 / EN 55022 for Class A Equipment
Japan	J55022, Class A

FCC Class A Compliance Statement

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 instructions, 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 personal expense.

Canadian Compliance

This Class A digital apparatus complies with Canadian ICES-003.
Cet appareil numérique de la classe A est conforme à la norme NMB-003 du Canada.

C-Tick Statement

Conforms to AS/NZS CISPR 22/ EN 55022 for Class A Equipment.

European Compliance

The CE mark on the product indicates that the system has been tested to and conforms to the provisions noted within the 2004/108/EEC Electromagnetic Compatibility Directive and the 2006/95/EEC Low Voltage Directive.

For further information please contact:

Cognex Corporation
One Vision Drive
Natick, MA 01760
USA

Cognex Corporation shall not be liable for use of our product with equipment (i.e., power supplies, personal computers, etc.) that is not CE marked and does not comply with the Low Voltage Directive.

Laser Safety Statement

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

This device has been tested in accordance with IEC60825-1 2nd ed., and has been certified to be under the limits of a Class 2 Laser device.

Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.

UL and cUL Statement

UL and cUL listed: UL60950-1 1st ed. and CSA C22.2 No.60950-1 1st ed.

For European Community Users

Cognex complies with Directive 2002/96/EC OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 27 January 2003 on waste electrical and electronic equipment (WEEE).

This product has required the extraction and use of natural resources for its production. It may contain hazardous substances that could impact health and the environment, if not properly disposed.

In order to avoid the dissemination of those substances in our environment and to diminish the pressure on the natural resources, we encourage you to use the appropriate take-back systems for product disposal. Those systems will reuse or recycle most of the materials of the product you are disposing in a sound way.

The crossed out wheeled bin symbol informs you that the product should not be disposed of along with municipal waste and invites you to use the appropriate separate take-back systems for product disposal.

If you need more information on the collection, reuse, and recycling systems, please contact your local or regional waste administration.

You may also contact your supplier for more information on the environmental performance of this product.

Warnings and Notices

CAUTION: This device requires the use of a PoE Class 3 or 48V DC LPS power supply.

NOTE: For product support, contact http://support.cognex.com

CAUTION: IP protection is ensured only when all connectors are attached to cables or shielded by a sealing cap.

LASER LIGHT, DO NOT STARE INTO BEAM: CLASS 2 LASER PRODUCT

FAILURE TO FOLLOW THESE INSTRUCTIONS MAY CAUSE SERIOUS INJURY

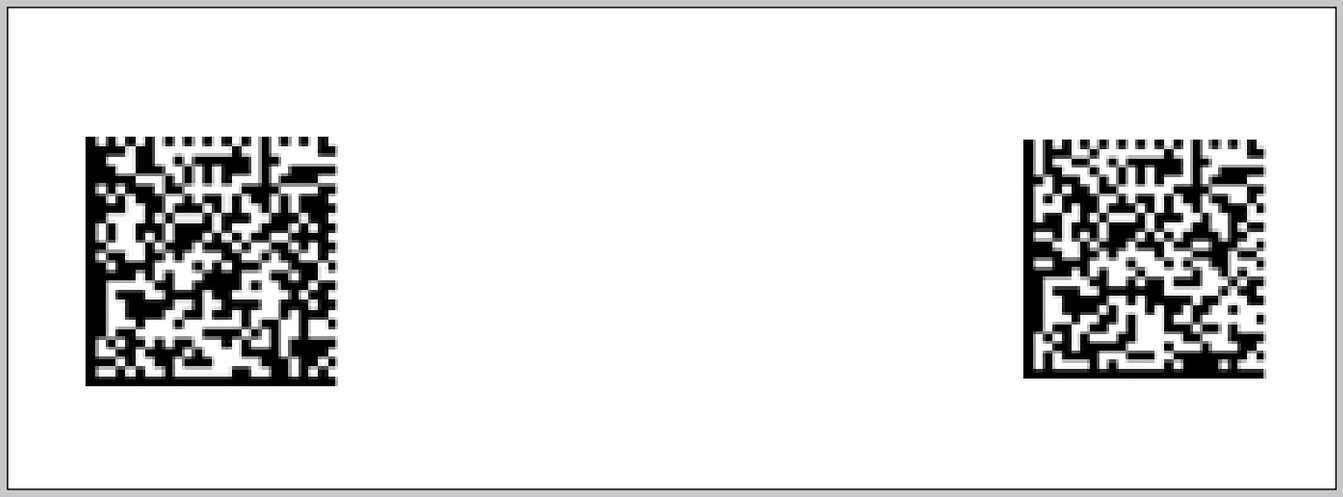
- CAUTION - Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.
- Do not attempt to service or repair this product -- return it to Cognex for service.
- Do not permit anyone other than Cognex Corporation to service, repair, or adjust this product.
- Do not attempt to open or modify this device except as described in this document.
- Do not direct or reflect laser light toward people or reflective objects.
- Do not operate this device if it is damaged or if the covers or seals are missing or damaged.

This Laser Product is designated as Class 2 during all procedures of operation.

Wavelength	650 nm
Laser Power for classification	< 1 mW
Beam Diameter	< 3mm at aperture
Divergence	< 1.5 mrad

For assistance contact Cognex Corporation at http://support.cognex.com

Reader Control Codes



Reset Scanner to
Factory Defaults

Reboot Scanner

P/N 590-7145