

COGNEX

DataMan[®] 503 Quick Reference Guide



2021 April 14

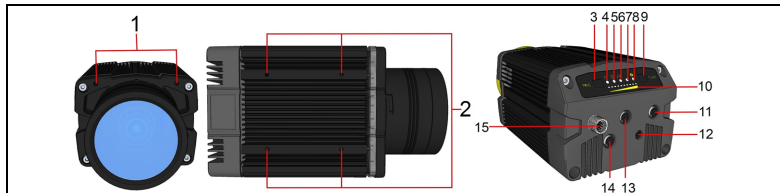
Revision: 5.7.7SR5.5

Precautions

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










- 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.
- Changes or modifications not expressly approved by the party responsible for regulatory compliance could void the user's authority to operate the equipment.
- 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.





Product Overview



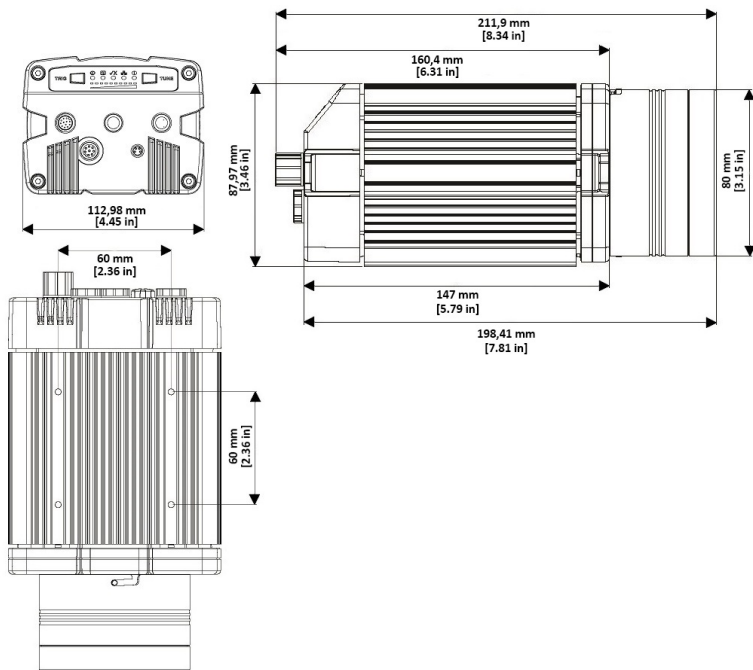
1	External illumination mounting point
2	Mounting holes (M3 x 5mm)
3	Trigger button
4	Power
5	Train status
6	Good/bad read
7	Network
8	Error
9	Tuning button
10	Peak meter
11	Synchronized Acquisition
12	RS-232
13	External light control
14	Ethernet
15	Power I/O

DataMan 503 Accessories

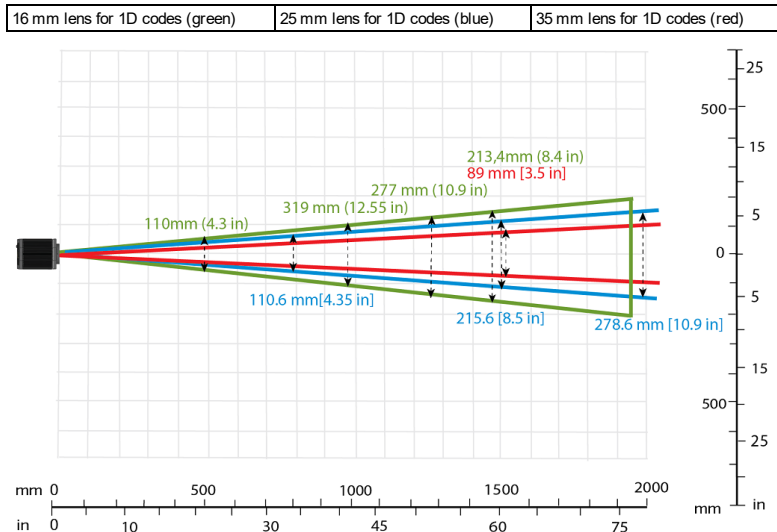
<p>16 mm, 25 mm and 35 mm lens (LEC-CFFxx-F8) (xx specifies focal length)</p>	
<p>Connection cable 24V, I/O (CCBL-05-01)</p>	
<p>Ethernet M12 to RJ45 cable (CCB-84901-y00x-xx) (y straight/angled, x-xx specifies length)</p>	
<p>External light cable (CCB-M12x4MS-xxx) (xxx specifies length) Only compatible with CLRR / CLRB / CLRO / CLRS / CLRD illumination</p>	
<p>External light control cable for DataMan, 5 meters in length with flying leads (CCB-M12XFLY-05)</p>	
<p>Bar light cable (xxx specifies length: 300, 500, 1000, 2000 mm) (IVSL-5PM12-Jxxx) Compatible with IVSL lights, except IVSL-LX280</p>	
<p>I/O extension cable, 5m straight (CKR-200-CBL-EXT)</p>	
<p>Power cable for multiple bar lights (use in combination with IVSL-5PM12-5) (CCB-FOV25-MAL-012)</p>	
<p>RS-232 M8 to SUB-D cable (CCB-M8X4-xx)</p>	
<p>Synchronization Cable (DM503-SYNC-012 - 1.2 meter, DM503-SYNC-05 - 5 meter)</p>	
<p>Xpand 15 (DMA-FOVE-15)</p>	

Xpand 25 (DMA-FOVE-25)	
SVL Light Bar (IVSL-YLW300-xxx)	
Bar light, blue (IVSL-LX520-470)	
Bar light, red (IVSL-LX520-650)	
DM503 high power illumination (DM503-HPIA-xxx)	

Dimensions



Field of View and Reading Distances

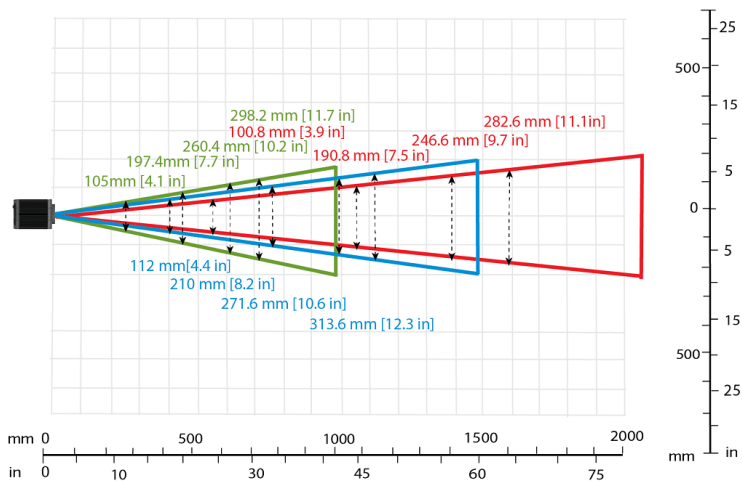


Device	Distances in mm/1D min. code 16 mm lens		Distances in mm/1D min. code 25 mm lens		Distances in mm/1D min. code 35 mm lens	
	DM503	500	5 MIL	790	5 MIL	1100
980		10 MIL	1530	10 MIL		
1270		13 MIL	1990	13 MIL		
1460		15 MIL				

16 mm lens for 1D codes (green)

25 mm lens for 1D codes (blue)

35 mm lens for 1D codes (red)



Device	Distances in mm/1D min. code 16 mm lens		Distances in mm/1D min. code 25 mm lens		Distances in mm/1D min. code 35 mm lens	
	DM503	250	5 MIL	400	5 MIL	460
	480	10 MIL	750	10 MIL	1070	10 MIL
	620	13 MIL	970	13 MIL	1380	13 MIL
	710	15 MIL	1120	15 MIL	1580	15 MIL

Connecting the Reader

Perform the following steps:

1. Mount the reader.
2. Connect the Ethernet cable to a computer or a switch.
3. Connect the breakout cable.



For information on the cable pinout and wire colors, see section *Connections, Optics and Lighting* in the *DataMan 503 Reference Manual*.

Installation

Installation procedures and specifications are presented in detail in the *DataMan® 503 Reference Manual*, which is installed with the DataMan Setup Tool. From the Windows Start menu, select the following to access the manual: *All Programs > Cognex > DataMan Software vx.x.x > Documentation*.

Note:

- Cables are sold separately.
- If a standard component is missing or damaged, immediately contact your Cognex Authorized Service Provider (ASP) or Cognex Technical Support.



CAUTION: All cable connectors are "keyed" to fit the connectors on the DataMan system; do not force the connectors or damage may occur.

Install Software and Documentation and Connect the Reader

Follow the steps below to connect your reader to power and network:

1. Connect the I/O+RS232+24V cable to your reader.
2. For a network connection, connect your reader through an Ethernet cable to your network.
3. Connect the cable to a 24V power supply.

To configure a DataMan 503 reader, the DataMan Setup Tool software must be installed on a networked PC. The DataMan Setup Tool is available from the DataMan support site: <http://www.cognex.com/support/dataman>.

1. After installing the software, connect the DataMan 503 reader to your PC.
2. Launch the DataMan Setup Tool and click **Refresh**.
3. Select your DataMan 503 reader from the list and click **Connect**.

DataMan 503 Specifications

Weight	1602 g			
Operating Temperature	0°C — 45°C (32°F — 113°F)			
Storage Temperature	-10°C — 60°C (-14°F — 140°F)			
Maximum Humidity	<95% (non-condensing)			
RS-232	Rx/D, Tx/D according to TIA/EIA-232-F			
Codes	1-D barcodes: Codabar, Code 39, Code 128, and Code 93, Interleaved 2 of 5, MSI, Pharma, GS1 DataBar, Postal, UPC/EAN/JAN 2-D barcodes: Data Matrix™ (IDMax: ECC 0, 50, 80, 100, 140, and 200; IDQuick: ECC200), QR Code and microQR Code, RSS/CS, PDF 417, MicroPDF 417			
Discrete I/O operating Limits	HS Output 0, 1	I_{MAX}	@ 24 VDC	50 mA
		R_{MAX}	@ 12 VDC	150 Ω
			@ 24 VDC	470 Ω
	Input 0 (Trigger)	V_{IL}	0 — ± 7 V	
	Input 1	I_{TYP}	@ 12 VDC	2.0 mA
			@ 24 VDC	4.2 mA
Power Supply Requirements	24V +/- 10%	Maximum current: 500 mA (at 25°C) Maximum power: 18W (external lights)		
Ethernet Speed	10/100/1000			
Duplex Mode	Full duplex or half duplex			

DataMan 503 Imager Specifications

Specification	DataMan 503 Imager
Image Sensor	2/3 inch CMOS
Image Sensor Properties	5.5 μ m square pixels
Image Resolution (Pixels)	2048 x 1088
Image Acquisition	Maximum 150 fps
Lens Type	C-mount lens

Compliance Statements

The DataMan 503 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, Subpart B, Class A
Canada	ICES-003, Class A
European Community	EN55022 Class A EN55024 EN60950
Australia	AS/NZS for Class A Equipment
Korea	KCC-REM-CGX-DM503



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

Safety and Regulatory

European Compliance 	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. The CE mark on the product indicates that the system has been tested to and conforms with the provisions noted within the 2014/30/EU Electromagnetic Compatibility 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.
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Safety and Regulatory	
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.
UL and cUL Statement	 UL and cUL listed: UL60950-1 2nd ed. and CSA C22.2 No.60950-1 2nd ed.

For European Community Users

Cognex complies with Directive 2012/19/EU OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 4 July 2012 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.

China RoHS



Part Name 部件名称	Hazardous Substances 有害物质					
	Lead (Pb) 铅	Mercury (Hg) 汞	Cadmium (Cd) 镉	Hexavalent Chromium (Cr (VI)) 六价铬	Polybrominated biphenyls (PBB) 多溴联苯	Polybrominated diphenyl ethers (PBDE) 多溴二苯醚
DM503	X	O	O	O	O	O

This table is prepared in accordance with the provisions of SJ/T 11364.
这个标签是根据SJ/T 11364的规定准备的。

O: Indicates that said hazardous substance contained in all of the homogeneous materials for this part is below the limit requirement of GB/T26572 - 2011.
表示本部件所有均质材料中含有的有害物质低于GB/T26572 - 2011的限量要求。

X: Indicates that said hazardous substance contained in at least one of the homogeneous materials used for this part is above the limit requirement of GB/T26572 - 2011.
表示用于本部件的至少一种均质材料中所含的有害物质超过GB/T26572 - 2011的限制要求。

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