COGNEX

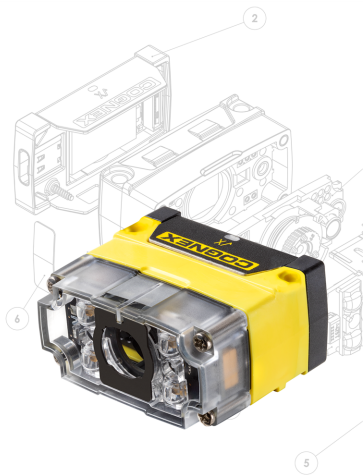# DataMan® 70 Series
Quick Reference Guide

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.

- 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.

- This product does not contain user-serviceable parts. Do not make electrical or mechanical modifications to product components. Unauthorized modifications can void your warranty.

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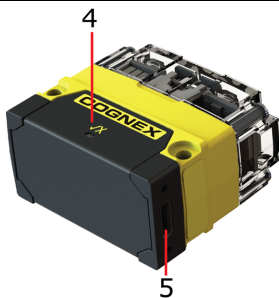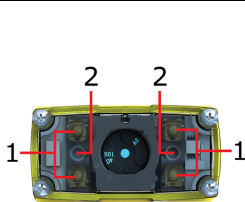
Note: This symbol indicates additional information about a subject.

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

Product Overview

Item	Description
1	Illumination LEDs
2	LED aimers
3	Mounting holes
4	Good/bad read indicator
5	USB type-C port

DataMan 70 Accessories

ACCESSORIES FOR DM70

Sealed USB type C cable to USB type A straight 2.5m	DMA-STCBLE-IP65-25	
Sealed USB type C cable to USB type A straight 3.6m	DMA-STCBLE-IP65-36	

Sealed USB type C cable to USB type A angled 2.5 m	DMA-RTCBLE-IP65-25	
Sealed USB type C cable to USB type A angled 3.6m	DMA-RTCBLE-IP65-36	
Sealed Serial I/O Adapter cable with straight USB type C connector	DMA-SERIAL-IP65-ST	
Sealed Serial I/O Adapter cable with angled USB type C connector	DMA-SERIAL-IP65-RA	
Universal Mounting Bracket	DM70-UBRK-000	
Pivot Mounting Bracket	DM100-PIVOTM-00	
Logistics Bracket	DMA-BKT-LGS	
Value Line Bracket	DMA-BKT-70-VAL	
Industrial Ethernet connection module	DMA-EZCCM-001	
EZCCM to USB cable	DMCB-EZCCM-USB-03	

ACCESSORIES FOR DM70 USED WITH DMA-SERIAL-IP65-xx

USB & Flying Leads I/O Cable, 2.0 m	DM-USBIO-00	
RS-232 & Flying Leads I/O Cable, 2.5 m	DM-RS232IO-00	
DataMan Basic I/O Module	DM100-IOBOX-000	

Dimensional Drawings

42.4 [1.67]
21.2 [0.83]
OPTICAL CENTER
22.2 [0.87]
11.1 [0.44]

38.6 [1.51]
12.2 [0.48]
3.5 [0.14]
11.1 [0.44]
CENTER USB TYPE C

MOUNTING HOLES
⌀3.1 [0.12] THROUGH (2x)

COGNEX

37.0 [1.46]
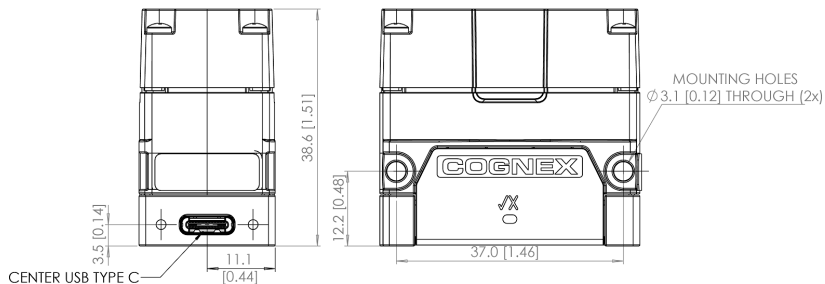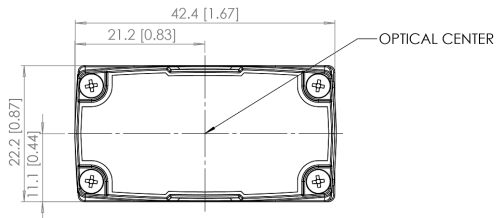
Field of View and Reading Distances
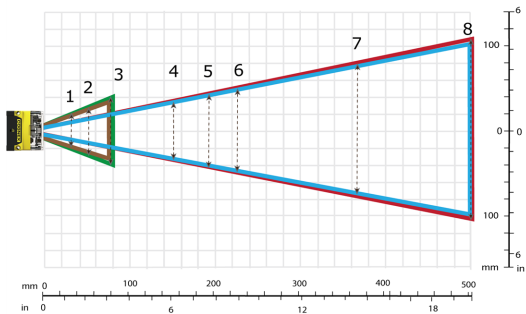
Horizontal Field of View values

1	2	3	4
DM72 Short Range: 31 mm [1.2 in]	DM72 Short Range: 50 mm [1.9 in]	DM72 Short Range: 82 mm [3.2 in]	DM70 Long Range: 115 mm [4.5 in]

DM70 Short Range: 29 mm [1.14 in]	DM70 Short Range: 47 mm [1.85 in]	DM70 Short Range: 76 mm [2.99 in]	DM72 Long Range: 123 mm [4.8 in]
5	**6**	**7**	**8**
DM70 Long Range: 144 mm [5.6 in]	DM70 Long Range: 170 mm [6.7 in]	DM70 Long Range: 279 mm [10.9 in]	DM70 Long Range: 370 mm [14.5 in]
DM72 Long Range: 153 mm [6.0 in]	DM72 Long Range: 181 mm [7.1 in]	DM72 Long Range: 297 mm [11.7 in]	DM72 Long Range: 394 mm [15.5 in]

Vertical Field of View values

1	2	3	4
DM72 Short Range: 23 mm [0.8 in]	DM72 Short Range: 38 mm [1.25 in]	DM72 Short Range: 61 mm [1.9 in]	DM70 Long Range: 73 mm [2.8 in]
DM70 Short Range: 18 mm [1.1 in]	DM70 Short Range: 30 mm [1.65 in]	DM70 Short Range: 48 mm [2.5 in]	DM72 Long Range: 92 mm [3.6 in]
5	**6**	**7**	**8**
DM70 Long Range: 92 mm [3.6 in]	DM70 Long Range: 108 mm [4.25 in]	DM70 Long Range: 178 mm [7.0 in]	DM70 Long Range: 236 mm [9.2 in]
DM72 Long Range: 115 mm [4.5 in]	DM72 Long Range: 135 mm [5.3 in]	DM72 Long Range: 223 mm [8.7 in]	DM72 Long Range: 295 mm [11.6 in]

Device	Distances in mm/ 2D min. code 6.2 mm lens Long Range		Distances in mm/ 1D min. code 6.2 mm lens Long Range	
DM70	150	12 MIL	150	6 MIL
	190	15 MIL	190	10 MIL
	225	18 MIL	225	10 MIL
	375	30 MIL	375	15 MIL
	500	35 MIL	500	20 MIL
	1000	80 MIL	1000	35 MIL
DM72	150	10 MIL	150	5 MIL
	190	12 MIL	190	6 MIL
	225	15 MIL	225	6 MIL
	375	20 MIL	375	10 MIL
	500	25 MIL	500	15 MIL
	1000	50 MIL	1000	30 MIL

Device	Distances in mm/ 2D min. code 6.2 mm lens Short Range		Distances in mm/ 1D min. code 6.2 mm lens Short Range	
DM70	40	4 MIL	40	2 MIL
	65	5 MIL	65	3 MIL
	105	10 MIL	105	6 MIL
DM72	40	4 MIL	40	2 MIL
	65	5 MIL	65	3 MIL
	105	10 MIL	105	6 MIL
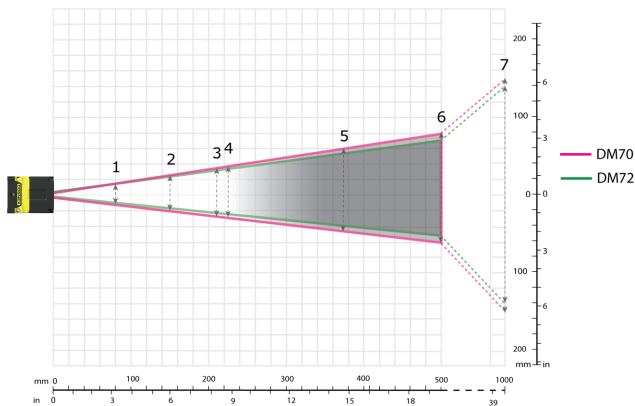
Horizontal Field of View values

1	2	3	4	5	6	7
DM70: 22 mm [0.87 in]	DM70: 43 mm [1.7 in]	DM70: 54 mm [2.1 in]	DM70: 64 mm [2.5 in]	DM70: 106 mm [4.1 in]	DM70: 142 mm [5.6 in]	DM70: 283 mm [11 in]
DM72: 24 mm [0.94 in]	DM72: 45 mm [1.8 in]	DM72: 58 mm [2.3 in]	DM72: 68 mm [2.7 in]	DM72: 113 mm [4.4 in]	DM72: 151 mm [5.9 in]	DM72: 301 mm [12 in]

Vertical Field of View values

1	2	3	4	5	6	7
DM70: 14 mm [0.55 in]	DM70: 27 mm [1.1 in]	DM70: 34 mm [1.3 in]	DM70: 41 mm [1.6 in]	DM70: 68 mm [2.7 in]	DM70: 90 mm [3.5 in]	DM70: 180 mm [7.1 in]
DM72: 18 mm [0.71 in]	DM72: 34 mm [1.3 in]	DM72: 43 mm [1.7 in]	DM72: 51 mm [2.0 in]	DM72: 85 mm [3.3 in]	DM72: 113 mm [4.4 in]	DM72: 226 mm [8.9 in]

Device	Distances in mm/ 2D min. code 16 mm lens		Distances in mm/ 1D min. code 16 mm lens	
DM70	80	3 MIL	80	2 MIL
	150	5 MIL	150	3 MIL
	190	6 MIL	190	4 MIL
	225	7 MIL	225	4 MIL
	375	12 MIL	375	5 MIL
	500	15 MIL	500	10 MIL
	1000	25 MIL	1000	15 MIL

Device	Distances in mm/ 2D min. code 16 mm lens		Distances in mm/ 1D min. code 16 mm lens	
	80	2 MIL	80	2 MIL
	150	3 MIL	150	2 MIL
	190	4 MIL	190	2 MIL
DM72	225	4 MIL	225	3 MIL
	375	7 MIL	375	4 MIL
	500	10 MIL	500	6 MIL
	1000	20 MIL	1000	15 MIL

Connecting the Reader

Perform the following steps:

1. Connect the breakout cable.
2. Connect the reader to the PC.
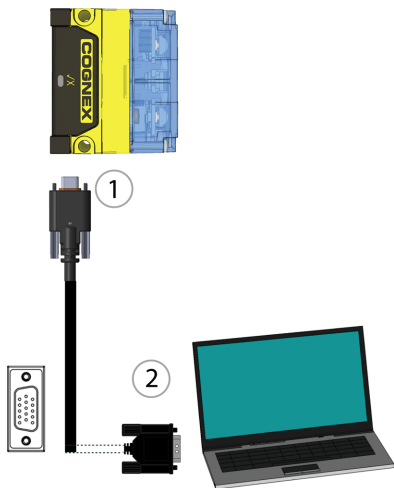
For information on the pinout and wire colors, see section *Connections, Optics and Lighting* in the *DataMan 70 Reference Manual*.

Installation

Installation procedures and specifications are presented in detail in the *DataMan® 70 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**:
> (i) If a standard component is missing or damaged, immediately contact your Cognex Authorized Service Provider (ASP) or Cognex Technical Support.

Mounting

Mounting the DataMan 70 at a slight angle (15°) can reduce reflections and improve reader performance. Having a recess for screw heads on the top and the bottom, DataMan 70 allows for upside down mounting. Recommended fasteners and nuts:

- Fastener: 2 x DIN 7985 M3x30mm or DIN 912/ISO 4762 M3x30mm
- Nut: 2 x DIN 985 M3
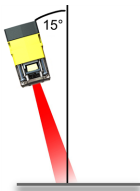
Install Software and Documentation and Connect the Reader

To configure a DataMan 70 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 70 Series reader to your PC.
2. Launch the DataMan Setup Tool and click **Refresh**.
3. Select your DataMan 70 reader from the list and click **Connect**.

DataMan 70 Series Specifications

Specification	DataMan 70 Series Reader
Weight	43 g (without cable)
Operating Temperature	0ºC — +40ºC (+32ºF — +104ºF)[1]
Storage Temperature	-10ºC — +60ºC (+14ºF — +140ºF)
Maximum Humidity	<95% (non-condensing)
Environmental	IP65
Shock and Vibration	IEC 60068-2-27: 1000 shocks, semi-sinusoidal, 11g, 10ms IEC 60068-2-6: vibration test in each of the three main axis for 2 hours @ 10 Gs (10 to 500 Hz at 100m/s2 / 15mm)
LED Safety	IEC 62471: Exempt risk group, no further labeling is required.

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[1] Housing temperature must not exceed +60°C (+140°F). Mounting the reader onto a metal bracket is recommended for temperatures above +32°C (+90°F).

Codes	**1-D barcodes**: Codabar, Code 39, Code 128, and Code 93,Code 25, Interleaved 2 of 5, Pharma, Code UPC/EAN/JAN, MSI **2-D barcodes**: Data Matrix™ (I IDQuick: ECC 0, 50, 80, 100, 140, and 200) QR Code and microQR Code, PDF 417, MicroPDF 417, AztecCode, MaxiCode
Power Supply Requirements	• USB powered: 2.5 W, or • External power supply: +5 — +24 VDC Supplied by limited-energy circuit according to IEC/ UL/ CSA 61010-1
Power Consumption	5VDC, <2.5 W (powered over USB), average power max. 1.5 W

DataMan 70 Series Imager Specifications

Specification	DataMan 70 Imager	DataMan 72 Imager
Image Sensor	1/3 inch CMOS	1/3 inch CMOS
Image Sensor Properties	4.51 mm x 2.88 mm (W x H), 6.0 μm square pixels	4.86 mm x 3.66 mm (W x H), 3.75μm square pixels
Image Resolution (pixels)	752 x 480	1280 x 960
Lens Type	S-mount 6.2 mm F:7 S-mount 16 mm F:7	

LED Wavelengths

The following table shows LED types and the related wavelengths:

LED	λ [nm]
RED	617

| RED HPIL | 617 |

Regulations/Conformity

The DataMan 70 has Regulatory Model R00044 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 device.

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

Safety and Regulatory	
Manufacturer	Cognex Corporation One Vision Drive Natick, MA 01760 USA
USA	FCC 47 CFR Part 15 Subpart B, Class A This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference; and (2) this device must accept any interference received, including interference that may cause undesired operation. 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 their own expense.
Canada	ICES 003 compliant CAN ICES-3 (A)/NMB-3(A) 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.

Safety and Regulatory	
Europe	EN 61326-1, Class A IEC 61010-1 UL 61010-1:2012/R:2015-07, CAN/CSA-C22.2 No. 61010-1:2012 + UPD No. 1:2015-07 + UPD No. 2:2016-04 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 marked.
Australia 	AS/NZS 3548, CISPR 22 Class A
Korea	KN32, KN35 A급 기기(업무용 방송통신기자재): 이 기기는 업무용(A급) 전자파적합기기로서 판 매자 또는 사용자는 이 점을 주의하시기 바라 며, 가정외의 지역에서 사용하는 것을 목 적으 로 합니다. Certificate number: MSIP-REM-CGX-DM70
Japan	VCCI-3/2015.04 Class A この装置は、クラスA情報技術装置です。この装置を家庭環境で使用すると電波妨害を引き起こすことがあります。この場合には使用者が適切な対策を講ずるよう要求されることがあります。　　　VCCI－A
TÜV	Regulatory Model 1AA3 Regulatory Model 1ABE
	TÜV SÜD SCC/NRTL OSHA Scheme for UL/CAN 61010-1..
	CB report available upon request. .TÜV SÜD, IEC/EN 61010-1.

LED Safety Statement

This device has been tested in accordance with IEC62471, and has been certified to be under the limits of Exempt Risk Group. No further labeling is required.

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.

中国大陆 RoHS (Information for China RoHS Compliance)

根据中国大陆《电子信息产品污染控制管理办法》(也称为中国大陆 RoHS)，以下部份列出了本产品中可能包含的有毒有害物质或元素的名称和含量。

Table of toxic and hazardous substances/elements and their content, as required by China's management methods for controlling pollution by electronic information products.

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
Regulatory Model R00044	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危害物质超过 GB / T26572 - 2011 的限制要求。						