COGNEX

DataMan® 80 Series
Quick Reference Guide

2024 April 24
Revision: 24.2.0.12

Precautions

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

- This product is intended for indoor barcode reading 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 the cable bend radius begins at least six inches from the connector. Cable shielding can be degraded or cables can be damaged or wear out faster if a service loop or bend radius is tighter than 10X the cable diameter.

- This device should be used in accordance with the instructions in this manual.

- All specifications are for reference purposes only and can change without notice.

Symbols

The following symbols indicate safety precautions and supplemental information:

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

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

Note: This symbol indicates additional information about a subject.

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

DataMan 80 Series 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

6.2 mm lens kit that includes:
 	
    • 6.2 mm optics mount
 	
    • 6.2 mm lens
 	
    • Manual lens cap (assembled)
 	
    • Screws
	DM280-LENS-62	

UV Light Kit for 6.2 mm lens (Risk Group Exempt acc. IEC 62471)
 	
    • UV light board (365 nm wavelength)
 	
    • UV resistant front cover
 	
    • Screws
	DM280-UV365-62	

16 mm lens kit with extended optics mount (requires the use of an extended front cover and high-powered red LED). The kit includes:
 	
    • 16 mm optics mount
 	
    • 16 mm lens
 	
    • Manual lens cap (assembled)
 	
    • Screws
	DM260-LENS-16	

Accessory	Product Number	Illustration
IR 6.2 mm lens kit, 3-position with IR LED includes: • 6.2 mm optics mount • 6.2 mm lens (IR) • Standard Infrared Light for 6.2mm (Risk Group Exempt acc. IEC62471) • Manual lens cap (not assembled) • Screws	DM280-KIT-IR-62	
IR 16 mm lens kit that includes: • 16 mm optics mount • 16 mm lens (IR) • Standard Infrared Light for 16mm (Risk Group Exempt acc. IEC62471) • Manual lens cap (assembled) • Screws	DMA-KIT-IR-16	
High Speed Liquid Lens Module (HSLL) to be used with 6.2 mm lens or 16 mm lens	DMA-HSLL-280	

Accessory	Product Number	Illustration
16 mm lens with ImageMax kit that includes: • 16 mm optics mount • 16 mm lens • High Speed Liquid Lens Module (DMA-HSLL-280) • High Powered red LED illumination (DM260-LED-RED-HP) (Risk Group Exempt acc. IEC62471) • 2-LED half-polarized extended cover (DM260-LENS-16CVR-P) (Risk Group Exempt acc. IEC62471)	DM280-KIT-IMGMAX	
Blue bandpass filter	DM150-BP470	
Red bandpass filter	DM150-BP635	

Illumination

Accessory	Product Number	Illustration
Red LED Light for 6.2 mm Lens (Risk Group Exempt acc. IEC 62471)	DM150-LED-RED	
White LED Light for 6.2 mm Lens (Risk Group Exempt acc. IEC 62471)	DM150-LED-WHT	
Blue LED Light for 6.2 mm Lens (Risk Group Exempt acc. IEC 62471)	DM150-LED-BLU	
High-Powered Red LED Light for 16 mm Lens (Risk Group Exempt acc. IEC 62471)	DM280-LED-RED-HP	

Accessory	Product Number	Illustration
High-Powered White LED Light for 16 mm Lens (Risk Group Exempt acc. IEC 62471)	DM280-LED-WHT-HP	

Lens Covers

Accessory	Product Number	Illustration
Standard front cover. Use with a 6.2 mm lens only.	DM280-CVR-62	
Standard front cover, half-polarized. Use with a 6.2 mm lens only.	DM280-LENS-62CVR-P	
Standard front cover, fully-polarized. Use with a 6.2 mm lens only.	DM280-LENS-62CVR-F	
Extended front cover. Use with a 16 mm lens only.	DM260-LENS-16CVR	
Extended front cover, half-polarized. Use with a 16 mm lens only.	DM260-LENS-16CVR-P	
Extended front cover, fully-polarized. Use with a 16 mm lens only.	DM260-LENS-16CVR-F	
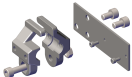
Cables

> **ⓘ Note**: Cables are sold separately.

Accessory	Product Number	Illustration	DM80-USB	DM80-PoE
Locked IP67 USB Type C Cable to USB Type A, Straight, 2.5 m	DMA-STCBLE-IP65-25		✓	
Locked IP67 USB Type C Cable to USB Type A, Straight 3.6 m	DMA-STCBLE-IP65-36		✓	
Locked IP67 USB Type C Cable to USB Type A, Angled, 2.5 m	DMA-RTCBLE-IP65-25		✓	
Locked IP67 USB Type C Cable to USB Type A, Angled, 3.6 m	DMA-RTCBLE-IP65-36		✓	
Locked IP67 RJ50 to RJ45 PoE with Flying Leads, Straight, 2 m	CCB-PIO-RJ50-2ST			✓
Locked IP67 RJ50 to RJ45 PoE with Flying Leads, Right Angle, 2 m	CCB-PIO-RJ50-2RA			✓
Locked IP67 USB-C to DB15, Straight 0.5 m	CCB-PIO-DB15-05ST		✓	

Accessory	Product Number	Illustration	DM80-USB	DM80-PoE
Locked IP67 USB-C to DB15, Right Angle, 0.5 m	CCB-PIO-DB15-05RA		✓	
USB I/O Cable with Flying Leads, 2.0 m	DM-USBIO-00		✓	
RS-232 I/O Cable with flying leads, 2.5 m	DM-RS232IO-00		✓	

Mounting Brackets

Accessory	Product Number	Illustration
Universal mounting bracket	DM100-UBRK-000	
Pivot mounting bracket	DM100-PIVOTM-01	
Tilted angle pivot bracket	DMBK-DMPIVOT-00	
Logistics mounting bracket and plate kit	DMA-BKT-LGS	

Other Accessories

Accessory	Product Number	Illustration	DM80-USB	DM80-PoE
Sound Amplifier	DM80-AMP		✓	

DataMan 80 Series Systems
DataMan 80-PoE Systems

	Omni-directional 1D Code	1D Max with Hotbars	High Speed Decoding	2DMax - Hard to read 2D codes	PowerGrid - Damaged 2D codes	Multi-Reader Sync	Resolution
DM-80L 1D Codes		✓	✓			✓	
DM-80QL 1D Codes	✓	✓	✓			✓	
DM-80S 1D/2D Codes	✓	✓				✓	1440 x 1080
DM-80Q 1D/2D Codes	✓	✓	✓	✓		✓	
DM-80X 1D/2D Codes	✓	✓	✓	✓	✓	✓	

DataMan 80-USB Systems

	Omni-directional 1D Code	1D Max with Hotbars	High Speed Decoding	2DMax - Hard to read 2D codes	PowerGrid - Damaged 2D codes	Resolution
DM-80L 1D Codes		✓	✓			
DM-80QL 1D Codes	✓	✓	✓			
DM-80S 1D/2D Codes	✓	✓				1440 x 1080
DM-80Q 1D/2D Codes	✓	✓	✓	✓		
DM-80X 1D/2D Codes	✓	✓	✓	✓	✓	

Setting Up Your DataMan Reader

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

> **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 reader. Do not force the connections or damage may occur.

Reader Layout

DM80-USB Layout
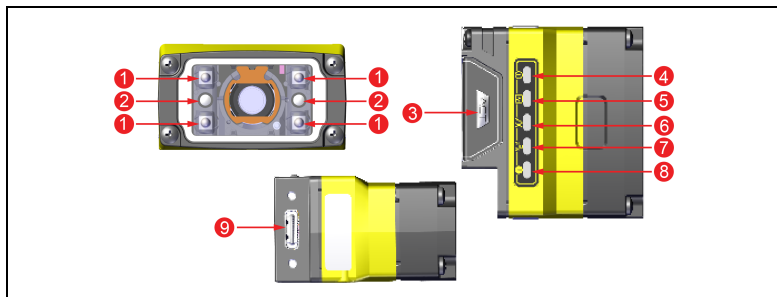
Number	Description
1	Illumination LEDs
2	LED aimers
3	ACT button
4	Power LED indicator
5	Train status/Trigger status LED indicator
6	Good/bad read LED indicator
7	Communication LED indicator
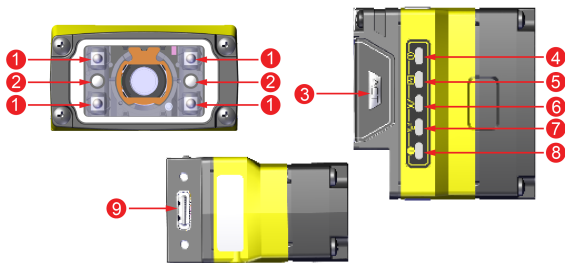
| 8 | Error LED indicator |
| 9 | USB-C slot |

DM80-PoE Layout
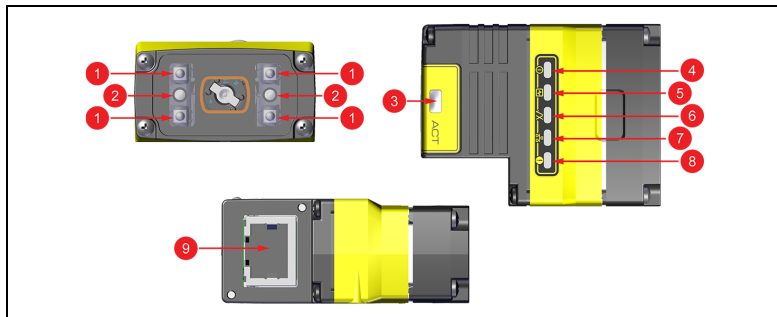
Number	Description
1	Illumination LEDs
2	LED aimers
3	ACT button
4	Power LED indicator
5	Train status/Trigger status LED indicator
6	Good/bad read LED indicator
7	Communication LED indicator
8	Error LED indicator
9	Ethernet connector

Dimensions

The following sections list dimensions of the reader.

Note:
- Dimensions are in millimeters and are for reference purposes only.
- All specifications are for reference purposes only and can change without notice.

DataMan 80-USB with 6.2 mm Lens

The following image shows the dimensions of DataMan 80, equipped with 6.2 mm lens.
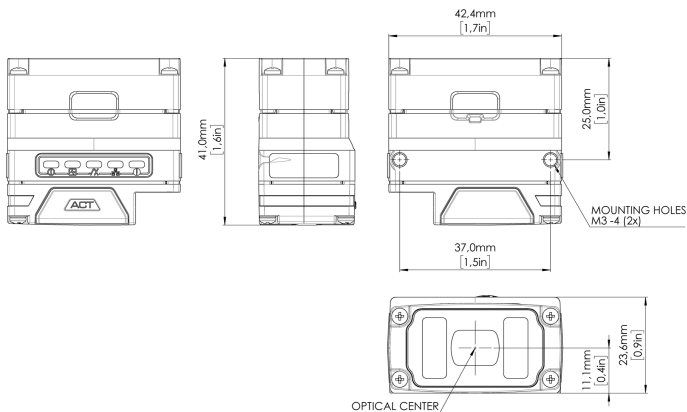
DataMan 80-USB with 6.2 mm Lens and Sound Amplifier

The following image shows the dimensions of DataMan 80, equipped with 6.2 mm lens and the Sound Amplifier attachment.
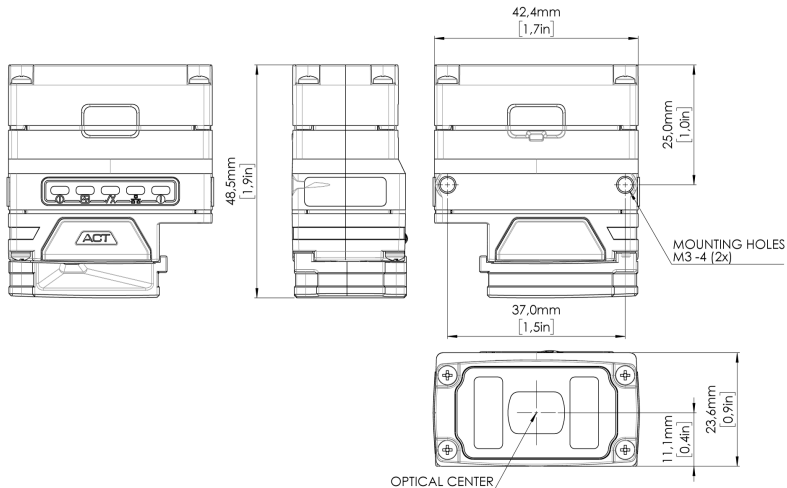
DataMan80-USB with 16 mm Lens

The following image shows the dimensions of DataMan80, equipped with 16 mm lens.
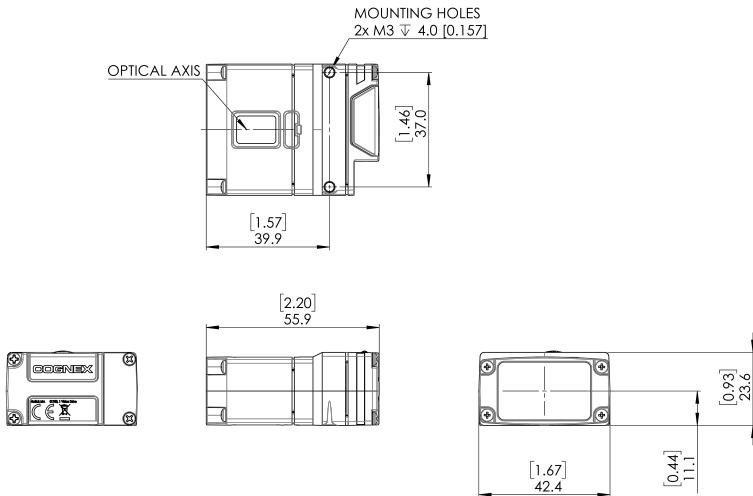
DataMan 80-PoE with 6.2 mm Lens

The following image shows the dimensions of DataMan80-PoE equipped with 6.2 mm lens.
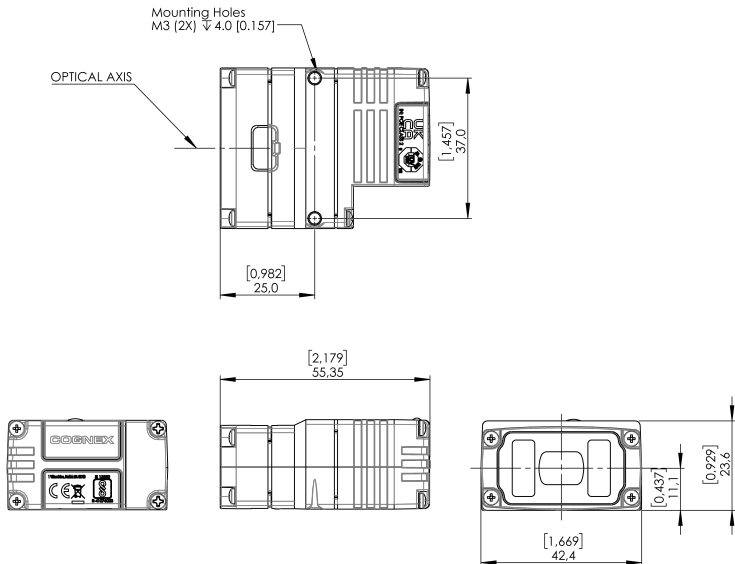
DataMan 80-PoE with 16 mm Lens

The following image shows the dimensions of DataMan80-PoE equipped with 16 mm lens.
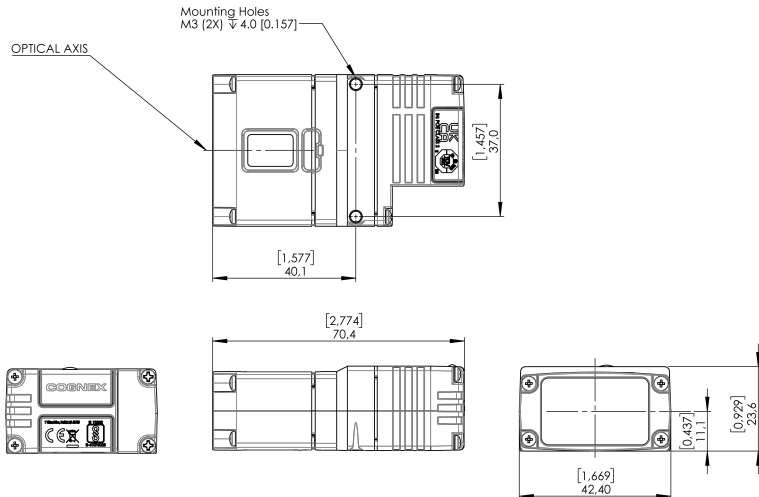
Field of View and Distance

This section provides the Field of View (FoV) values for 6.2 mm and 16 mm lenses.

DataMan 80 Readers with 6.2 mm Lens

6.2 mm lenses can be focused to 105 mm (short range) and to 190 mm (long range).

Short Range (Focused to 105 mm)
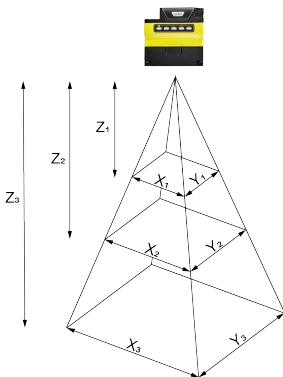
The following tables show the Field of View (FoV) widths of the 6.2 mm lens focused to 105 mm at various distances.

Working distance in mm	Horizontal values in mm	Vertical values in mm
$Z_1 = 40$	$X_1 = 38$	$Y_1 = 29$

Working distance in mm	Horizontal values in mm	Vertical values in mm
Z_2= 65	X_2= 58	Y_2= 44
Z_3= 105	X_3= 90	Y_3= 68

Distances in mm	2D min. code in mil	1D min. code in mil
40	4	2
65	5	3
105	10	5

Long Range (Focused to 190 mm)
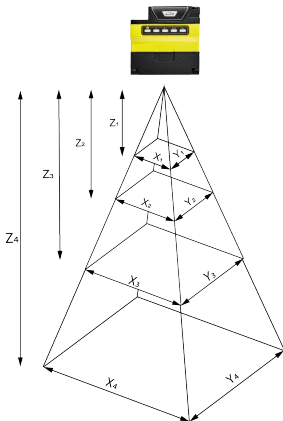
The following table shows the Field of View (FoV) widths of the 6.2 mm lens focused to 190 mm at various distances.

Working distance in mm	Horizontal values in mm	Vertical values in mm
$Z_1 = 190$	$X_1 = 159$	$Y_1 = 119$
$Z_2 = 225$	$X_2 = 187$	$Y_2 = 140$
$Z_3 = 375$	$X_3 = 307$	$Y_3 = 230$
$Z_4 = 1000$	$X_4 = 808$	$Y_4 = 606$

Distances in mm	2D min. code in mil	1D min. code in mil
150	10	6
190	12	8
225	15	8
375	20	15
500	30	20
1000	60	35

DataMan 80 Readers with 16 mm lens
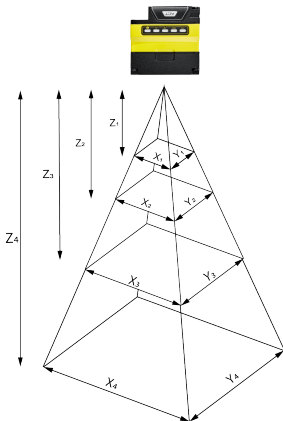
The following tables list the Field of View (FoV) widths of the 16 mm lens at various distances:

Working distance in mm	Horizontal values in mm	Vertical values in mm
$Z_1 = 150$	$X_1 = 46$	$Y_1 = 34$
$Z_2 = 225$	$X_2 = 69$	$Y_2 = 52$
$Z_3 = 375$	$X_3 = 116$	$Y_3 = 87$
$Z_4 = 1000$	$X_4 = 310$	$Y_4 = 232$

Distances in mm	2D min. code in mil	1D min. code in mil
80	2	2
150	3	2
190	4	3
225	5	3
375	8	5
500	10	7
1000	20	15

Mounting the Reader

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

⚠️ **CAUTION**: The reader has to be grounded, either by mounting the reader to a fixture that is electrically grounded or by attaching a wire from the reader's mounting fixture to frame ground or Earth ground. If a ground wire is used, it has to be attached to one of the two mounting points on the bottom plate of the reader and not to the mounting points on the front of the reader.
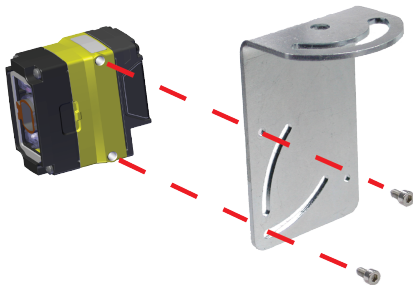
Align the holes on the mounting surface with the mounting holes on the reader. Insert the M3 screws into the mounting holes.

Note:
Mounting the reader at a slight angle (15°) reduces reflections and improves performance.

ⓘ
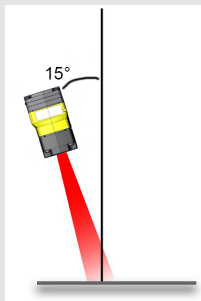
Connecting the Ethernet Cable

CAUTION: The Ethernet cable shield has to 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 has to 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.

ⓘ **Note**: Make sure to power the reader through a PoE (Power over Ethernet) connection.

1. Connect the RJ-50 connector of the CCB-PIO-RJ50-2ST/RA cable to the Ethernet connector of the reader.

2. Connect the RJ-45 connector of the CCB-PIO-RJ50-2ST/RA cable to a switch, router, or PC, as applicable.

Using your DataMan 80-USB Device through USB

For a detailed description, see the DataMan 80 Reference Manual.

Specifications

The following sections list general specifications for the reader.

DataMan80 Series Reader

Specification	DataMan 80-USB	DataMan 80-PoE
Weight	With 6.2 mm lens: 64 g With 16 mm lens: 97 g	With 6.2 mm lens: 99 g With 16 mm lens: 132 g

Power	• USB powered:
	  • USB BC 1.2 port.
	  • USB 3.0 port with 4.5 W or higher.
	  • USB-C with USB-PD (5 V/3 A)
	• External power supply: +5 — +24 V DC.
	
	Note: External power is only available when using a Cognex serial I/O breakout cable, for example CCB-PIO-DB15-05ST.
	
	Supplied by limited-energy circuit according to IEC/UL/CSA 61010-1.
		PoE Class 2

Power Consumption	Average: 3.3 W Maximum: 4.2 W	Average: 4.3 W Maximum: 6 W
Operating Temperature	0–40 °C (32–104 °F)	

Specification	DataMan 80-USB	DataMan 80-PoE
Storage Temperature	-10–60 °C (14–140 °F)	
Humidity	<95% non-condensing	
Environmental	DataMan 80: IP67	
	Note: - IP67 rating applies only if you attach all blind plugs and cables properly, or install the provided connector plug. - The DataMan 80-USB is compatible with 10-pin CAT5 RJ50 cables. When using off-the-shelf cables, the IP rating is based on the rating of your chosen cable. - Make sure to install the IP67-rated cover properly.	
	Altitude: 2000 m, indoor use only, pollution degree II	
Shock	IEC 60068-2-27 - 500 shocks in each polarity of each (X, Y, and Z) axis, 3000 shocks total, semi-sinusoidal, 11 g, 10 ms	
Shock (Shipping and Storage)	ISTA-1A Standardized Testing - Packaged Products 150 lb or less	
Vibration	IEC 60068-2-6: vibration test in each of the three main axis for 2 hours @ 10 Gs (10 to 500 Hz at 100 m/s^2 / 15 mm)	
Vibration (Shipping and Storage)	FedEx Vibration Testing for packaged products 150 lbs or less	

Specification	DataMan 80-USB	DataMan 80-PoE
Codes	**1-D barcodes**: Codabar, Code 39, Code 128, Code 93, Code 25, Interleaved 2 of 5, Postal Codes, UPC/EAN/JAN, MSI **2-D barcodes**: Data Matrix (IDMax and IDQuick: ECC 0, 50, 80, 100, 140, and 200), QR Code, microQR, PDF 417, AztecCode, DotCode, MaxiCode	
High-Speed Output 0	**Note**: Only available when using the Serial I/O Adapter (CCB-PIO-DB15-05ST).	**Note**: The DataMan 80-PoE uses one shared line for input and output.
	I_{MAX}: 50 mA	I_{MAX}: 50 mA
	V_{OL}: ≤ ± 3 V @ 50 mA	V_{OL}: ≤ ± 3 V @ 50 mA
Input 0	**Note**: Only available when using the Serial I/O Adapter (CCB-PIO-DB15-05ST).	**Note**: Only available when using the PoE Cable (CCB-PIO-RJ50-2ST).
	V_{IL}: ≤ ± 6 V	V_{IL}: ≤ ± 6 V
	V_{IH}: ≥ ± 12 V	V_{IH}: ≥ ± 12 V
	I_{TYP}: 4.2 mA @ 24 V	I_{TYP}: 4.2 mA @ 24 V
Ethernet	N/A	10/100/1000. Full duplex or half duplex.
RS-232	RxD, TxD according to TIA/EIA-232-F **Note**: Only available when using the Serial I/O Adapter (CCB-PIO-DB15-05ST).	N/A

DataMan 80 Series Reader Image Sensor

Specification	DataMan 80
Image Sensor	1/3-inch CMOS, global shutter
Image Sensor Properties	Diagonal size: 6.21 mm Pixel size: 3.45 µm (H) x 3.45 µm (V)
Image Resolution (pixels)	1440 x 1080 (1.6 mp)
Electronic Shutter Speed	Minimum exposure: 43 µs Maximum exposure: 1 ms (with internal illumination) Maximum exposure: 200 ms (with external illumination)
Image Acquisition at Full Resolution	Maximum: 45 Hz
Lens Type	• 6.2 mm (3 pos or LLM) with IR blocking filter • 16 mm (manual or LLM) with IR blocking filter • 6.2 mm UV, 6.2 mm • 16 mm IR

LED and Laser Wavelengths

The following table shows LED types and the related peak wavelengths.

PID	LED	Wavelength
DM150-LED-WHT	White	Chromaticity coordinates acc. to CIE 1931 • Cx 0.34 (typ.) • Cy 0.33 (typ.)
DM150-LED-BLU	Blue	465 nm
DM150-LED-RED	Red	617 nm
DMA-KIT-IR-62	IR	820 nm
DMA-KIT-IR-16	IR	850 nm

Regulations and Conformity

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

DataMan 80 readers have Regulatory Model numbers 50209 and 50181 and meet or exceed 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.

Safety and Regulatory	
Manufacturer	Cognex Corporation One Vision Drive Natick, MA 01760 USA
CE	DataMan 80-USB: Regulatory Model 50209 DataMan 80-PoE: Regulatory Model 50181 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	
Korea KC	This device is certified for office use only and if used at home, there can be frequency interference problems. A급 기기(업무용 방송통신기자재): 이 기기는 업무용(A급) 전자파적합기기로 서 판매자 또는 사용자는 이 점을 주의하시기 바라며, 가정외의 지역에서 사 용하는 것을 목적으로 합니다. DataMan 80-USB: R-R-CGX-50209 DataMan 80-PoE: R-R-CGX-50181
TÜV	DataMan 80-USB: Regulatory Model 50209 DataMan 80-PoE: Regulatory Model 50181
	NRTL: TÜV SÜD SCC/NRTL OSHA Scheme for UL/CAN 61010-1.
	CB report available upon request. TÜV SÜD, IEC/EN 61010-1.
UK	Regulatory Model 50209 Regulatory Model 50181 This is a class A product. In a domestic environment, this product can cause radio interference, in which case the user is required to take adequate measures. This equipment complies with the essential requirements of the Electromagnetic Compatibility Regulations 2016. Declarations are available from your local representative.

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。

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 50209 Regulatory Model 50181	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。						

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.