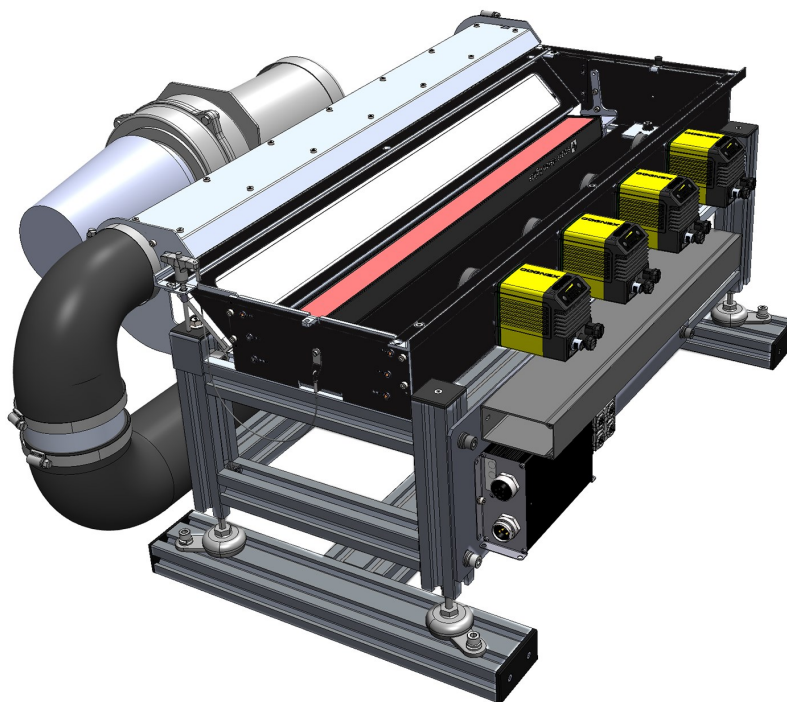


DataMan[®] Bottom-Side Maintenance Manual



2022 March 28
Revision: 1.0.0.219

Legal Notices

The software described in this document is furnished under license, and may be used or copied only in accordance with the terms of such license and with the inclusion of the copyright notice shown on this page. Neither the software, this document, nor any copies thereof may be provided to, or otherwise made available to, anyone other than the licensee. Title to, and ownership of, this software remains with Cognex Corporation or its licensor. Cognex Corporation assumes no responsibility for the use or reliability of its software on equipment that is not supplied by Cognex Corporation. Cognex Corporation makes no warranties, either express or implied, regarding the described software, its merchantability, non-infringement or its fitness for any particular purpose.

The information in this document is subject to change without notice and should not be construed as a commitment by Cognex Corporation. Cognex Corporation is not responsible for any errors that may be present in either this document or the associated software.

Companies, names, and data used in examples herein are fictitious unless otherwise noted. No part of this document may be reproduced or transmitted in any form or by any means, electronic or mechanical, for any purpose, nor transferred to any other media or language without the written permission of Cognex Corporation.

Copyright © 2021. Cognex Corporation. All Rights Reserved.

Portions of the hardware and software provided by Cognex may be covered by one or more U.S. and foreign patents, as well as pending U.S. and foreign patents listed on the Cognex web site at: cognex.com/patents.

The following are registered trademarks of Cognex Corporation:

Cognex, 2DMAX, Advantage, AlignPlus, Assemblyplus, Check it with Checker, Checker, Cognex Vision for Industry, Cognex VSOC, CVL, DataMan, DisplayInspect, DVT, EasyBuilder, Hotbars, IDMax, In-Sight, Laser Killer, MVS-8000, OmniView, PatFind, PatFlex, PatInspect, PatMax, PatQuick, SensorView, SmartView, SmartAdvisor, SmartLearn, UltraLight, Vision Solutions, VisionPro, VisionView

The following are trademarks of Cognex Corporation:

The Cognex logo, 1DMax, 3D-Locate, 3DMax, BGAll, CheckPoint, Cognex VSoC, CVC-1000, FFD, iLearn, In-Sight (design insignia with cross-hairs), In-Sight 2000, InspectEdge, Inspection Designer, MVS, NotchMax, OCRMax, PatMax RedLine, ProofRead, SmartSync, ProfilePlus, SmartDisplay, SmartSystem, SMD4, VisiFlex, Xpand

Portions copyright © Microsoft Corporation. All rights reserved.

Portions copyright © MadCap Software, Inc. All rights reserved.

Other product and company trademarks identified herein are the trademarks of their respective owners.

Table of Contents

Legal Notices	2
Table of Contents	3
Symbols	4
Precautions	5
About this Manual	6
About the DataMan Bottom-Side	7
DataMan Bottom-Side Variants	8
DataMan Bottom-Side Dimensions	9
DataMan Bottom-Side Routine Maintenance	11
Top Cover and Mirror	11
Camera Lens Cover	12
Barlight	12
Blower Motor	12
Service and Replace Procedures	13
Tools Required	13
Replacing a Reader	13
Replacing Barlight	16
Replace the Blower Air Filter	17
Additional Information	19
DataMan Bottom-Side System: Parts List	19
Base Units	19
Accessories	19
Spare Parts Critical	20
Spare Parts Non-Critical	20
Regulations/Conformity	21

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.

Precautions

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

- The system is intended to be supplied by a UL or NRTL listed power supply with a 24VDC output rated for at least 2A continuous and a maximum short circuit current rating of less than 8A and a maximum power rating of less than 100VA and marked Class 2 or Limited Power Source (LPS). Any other voltage creates a risk of fire or shock and can damage the components. Applicable national and local wiring standards and rules must be followed.
- 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 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.
- 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.
- 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.

About this Manual

The purpose of this manual is to describe proper maintenance procedures for DataMan Bottom Side equipped with DataMan 470 series readers.

About the DataMan Bottom-Side

The DataMan Bottom-Side is a DataMan 470 Reader-based system intended for use in logistics applications. The DataMan Bottom-Side reads 1D and 2D codes through a small gap between two conveyors as the parcel is traveling over the gap. The DataMan 470 Reader acquires images at a fixed-distance-based interval and stitches the sequence of images together. During the stitching process, the DataMan 470 Reader produces fast decode results.

The DataMan Bottom-Side offers the following advanced features:

- DataMan-based functionality and compatibility
- Lightweight design
- No dedicated PC
- Image stitching technology
- DataMan Multi-Reader Sync architecture
- High read performance
- Easy installation with a predefined kit

Choose from six standard modules based on speed and belt-width coverage requirements: high-speed applications use the DM474-based modules and low-speed applications use the DM475-based modules. Depending on the belt width, the number of readers increases in the solution Cognex offers.

DataMan Bottom-Side Variants

Specifications	DataMan 474			DataMan 475		
Number of Cameras	4	5	6	4	5	6
Algorithms and Technologies	1DMax™, 2DMax®, Hotbars®, PowerGrid®					
System Width	830 mm (32.6 in)	980 mm (38.6 in)	1130 mm (44.4 in)	830 mm (32.6 in)	980 mm (38.6 in)	1130 mm (44.4 in)
System Length	500 mm (19.7 in)					
Required under belt clearance (from conveyor top)	810 mm (31.8 in)			682 mm (26.8 in)		
Weight	11.2 kg (24.7 lbs)	13.3 kg (29.4 lbs)	15.5 kg (34.1 lbs)	11.2 kg (24.7 lbs)	13.3 kg (29.4 lbs)	15.5 kg (34.1 lbs)
Light Color	Integrated red bar light (625 nm)					
Air Knife Blower Accessory	Optional. Adds 110 mm (4.3 in) length and 140 mm (5.5 in) in width.					
Min. 1-D Module Size	12 mil (0.305 mm)			10 mil (0.254 mm)		
Min. 2-D Module Size	24 mil (0.609 mm)			20 mil (0.508 mm)		
Max. Belt Speed ¹	3.3 m/s (660 fpm)			2.0 m/s (400 fpm)		
Conveyor Belt Coverage	710 mm (28 in)	850 mm (33.5 in)	990 mm (39 in)	710 mm (28 in)	850 mm (33.5 in)	990 mm (39 in)
Communications	Ethernet and Serial					
Protocols	RS-232, TCP/IP, PROFINET, EtherNet/IP(TM), SLMP, Modbus TCP, NTP, SFTP, FTP, MRSJava Scripting enabled for custom protocols					
Power	24 VDC +/- 10%					
Power Consumption	2 A	2.25 A	2.5 A	2 A	2.25 A	2.5 A
Operating Temperature	0 – 40 °C (32 – 104 °F)					
Storage Temperature	-20–80 °C (-4 – 176 °F)					
Operating and Storage Humidity	< 95% non-condensing					
Protection	IP67 with cables attached					
RoHS Certified	Yes					
Approvals (CE, UL, FCC)	Yes					

For more information about the DataMan 470 Series Readers, refer to the *DataMan 470 Series Reference Manual*.

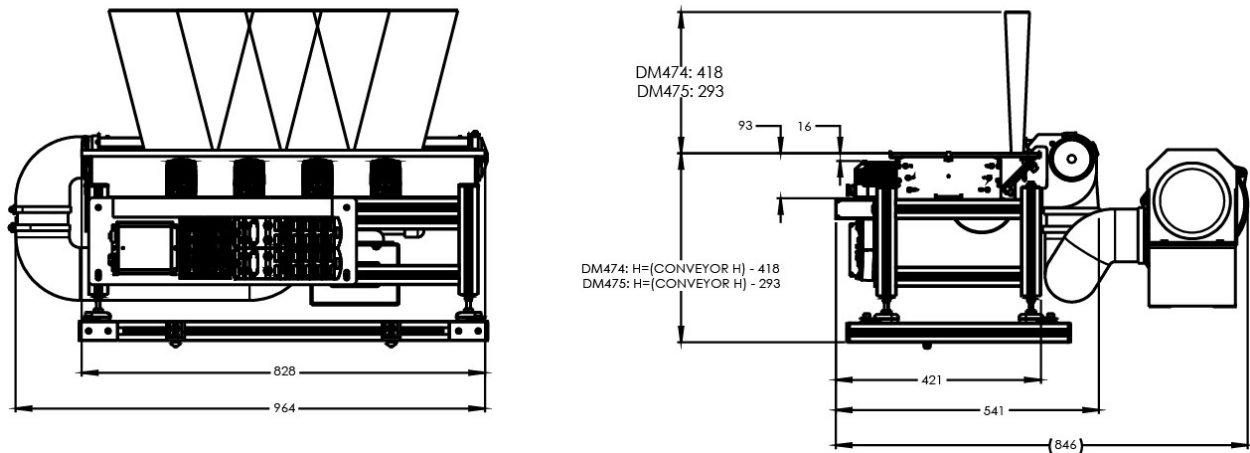
¹ Actual specification may vary by application.

DataMan Bottom-Side Dimensions

Note: Dimensions are in millimeters and are for reference purposes only. The field of view cone visible in the drawings is the projected FoV (not part of the physical setup).

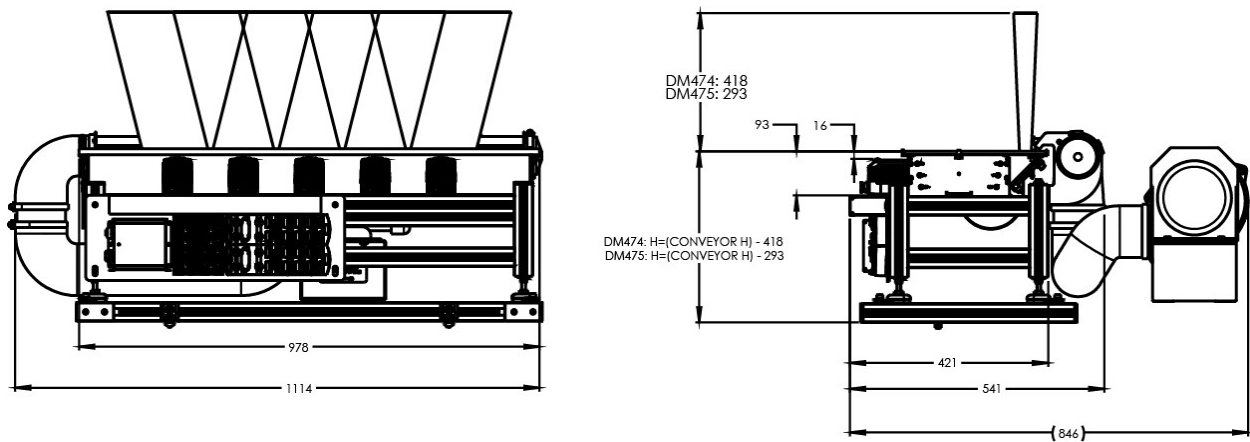
4-camera system:

4 CAMERA



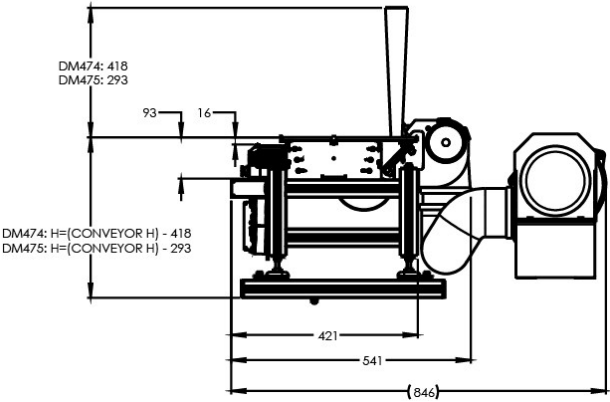
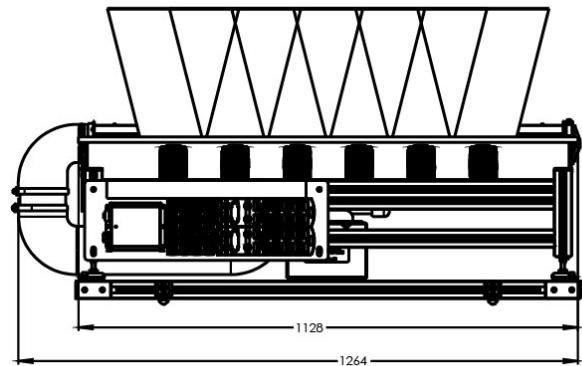
5-camera system:

5 CAMERA

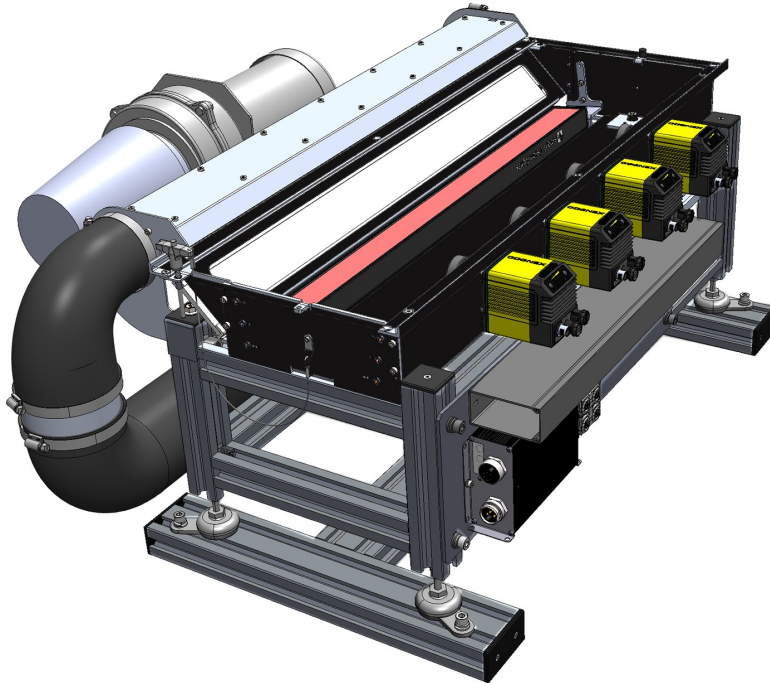


6-camera system:

6 CAMERA



DataMan Bottom-Side Routine Maintenance



Recommended frequency of inspection and cleaning methods:

Frequency	Task
Every Shift	Operations to inspect the top cover and mirror, for excessive dust or any other debris.
Every 14 days	Inspect the camera lens covers for a dust coating.
	Inspect the light for a dust coating.
Every 3 months	Clean blower motor air filter.

Top Cover and Mirror

The protective top cover and mirror slide out from the side with the removable pin.

Note: The pin can be configured to sit on both sides of the system to allow flexibility and provide easy access.

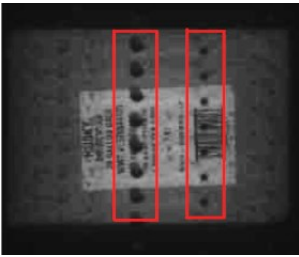


The top cover catching most of the debris requires operations to clean it more frequently.

Inspect the top cover and mirror for dust and debris at the **beginning of each shift**.

Clean as needed.

Use a no-abrasive cleaner with a microfiber cloth.



Images showing repeating patterns indicate dust or debris is blocking the camera view.

1. Wipe down the top cover causing the artifacts.
2. If wiping the top cover does not remove the artifacts, clean the mirror.
3. If cleaning the mirror does not remove the artifacts, clean the camera lens covers.

Camera Lens Cover



Inspect the camera lens covers every **14 days**.

Only clean the lens cover if needed.

Use a feather duster or low-pressure, non-canned air can to blow off the dust.

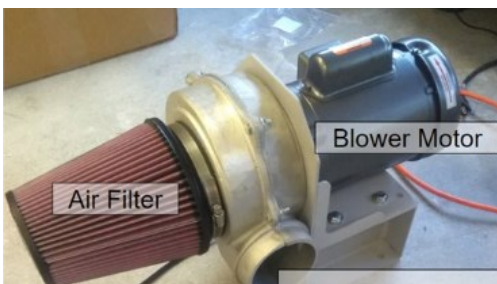
Barlight



Inspect the barlight for dust coating every **14 days**.

Use a feather duster or compressed air. Canned air is acceptable.

Blower Motor



To clean the blower motor air filter, blow compressed air on the surface of the filter every **3 months**. Depending on the concentration of dust in the installation environment, more frequent cleaning may be necessary.

CAUTION: Unplug the motor before cleaning.

Note: Power down the blower motor to relieve the suction in the tubing during cleaning.

Service and Replace Procedures

Tools Required

You need the following tools:

- Metric Allen wrench sets: 2.5 mm, 5 mm, and 6 mm sizes. T-handles are recommended.
- Cable cutter
- Phillips screwdriver
- Pliers
- 13 mm wrench
- 17 mm wrench

Replacing a Reader

If you determine that you have a faulty reader you need to replace, you can mount DataMan 470 readers onto the camera plate with 2 M4 locating pins and 4 M3 screws.

⚠ WARNING: All cable connections are "keyed" to fit the connectors of the DataMan 470. Do not force the connectors or damage may occur.

ⓘ Note: After replacing a reader recalibrate the system.

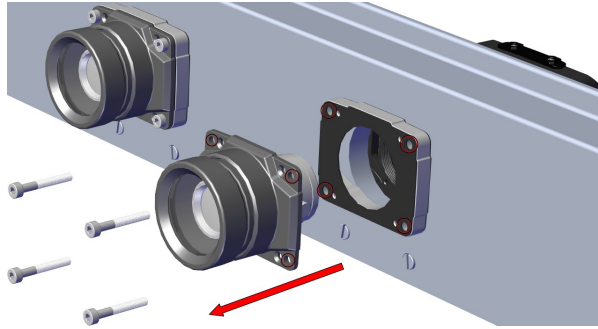
ⓘ Note: If you replace the whole system (core module), start the installation from the beginning of the *DataMan Bottom-Side Installation and Commissioning Manual*.

1. Remove the cables from the reader.

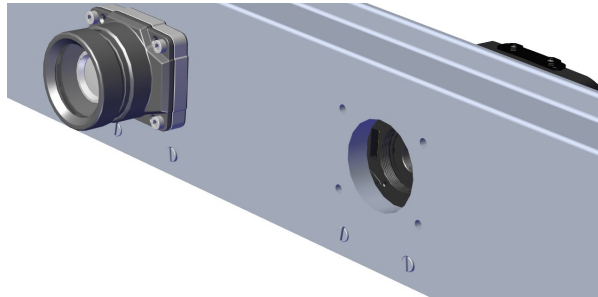


- a. Green cable (top in the image): Ethernet
- b. Grey cable (middle in the image): Light (if applicable)
- c. Grey (bottom in the image): Power and I/O

- Remove the 4 M3 screws from the camera plate that attach the reader and the lens cover to the mounting plate.



- Remove the lens and the lens cover from the mounting plate.



- Remove the faulty reader.

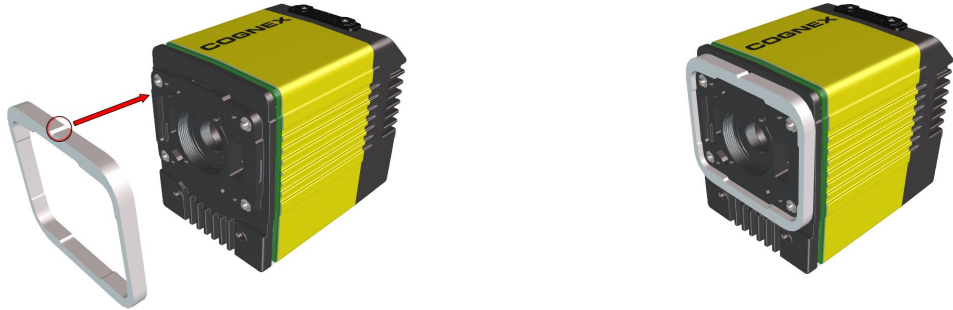
Note: Do not re-use the old M4 locating pins and gasket from the faulty reader. The new reader comes with new M4 pins and gasket.

- Remove the SD card from the new reader and replace it with the SD card from the faulty reader.

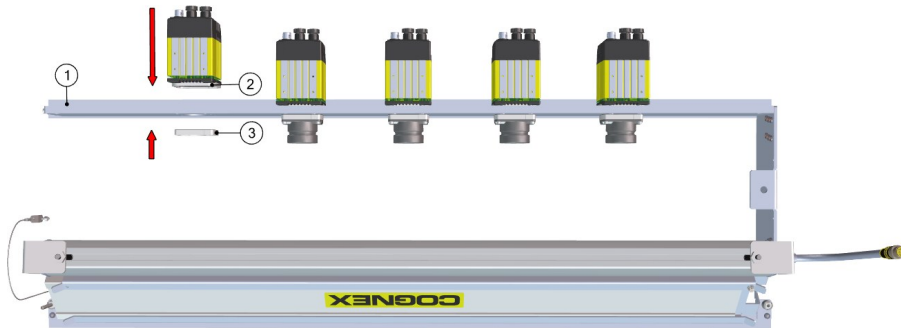
CAUTION: Power down the reader before removing or replacing an SD card. Damage can occur.



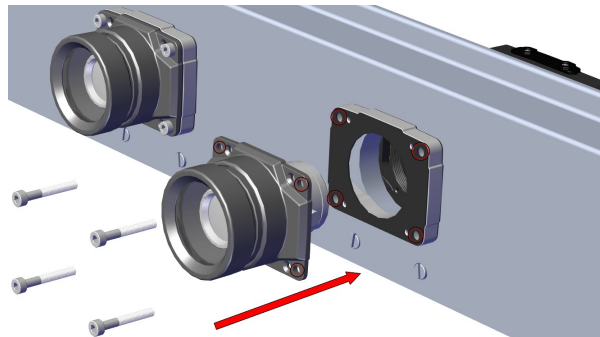
6. Attach the gasket to the housing of the new reader with the V-shaped incision on top.



7. Insert the camera plate (1) into the gap between the gasket (2) of the new reader and the spacer (3).

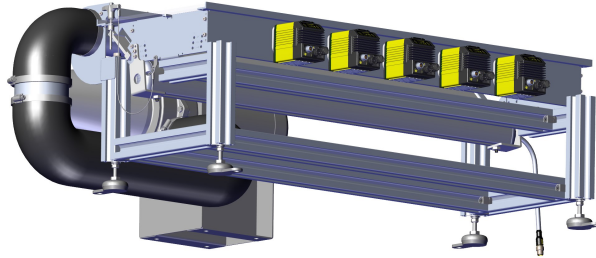


8. With the rubber side facing the plate, attach the spacer and the lens cover with 4 M3 screws to the camera plate.

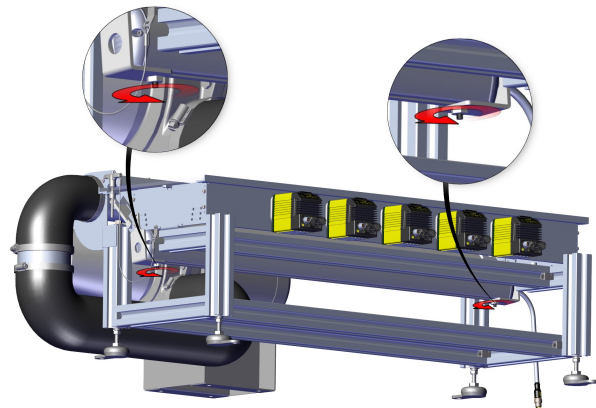


Replacing Barlight

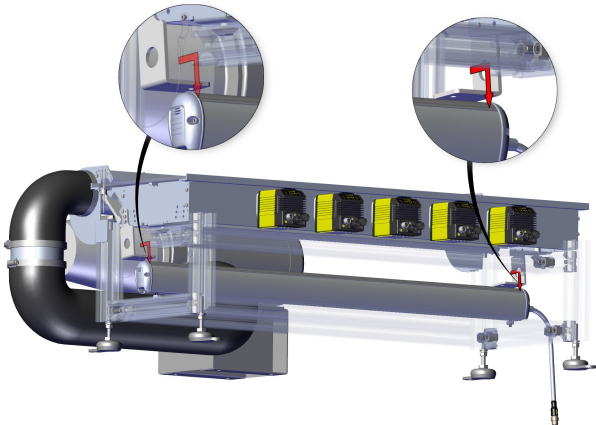
1. Disconnect the barlight cables.



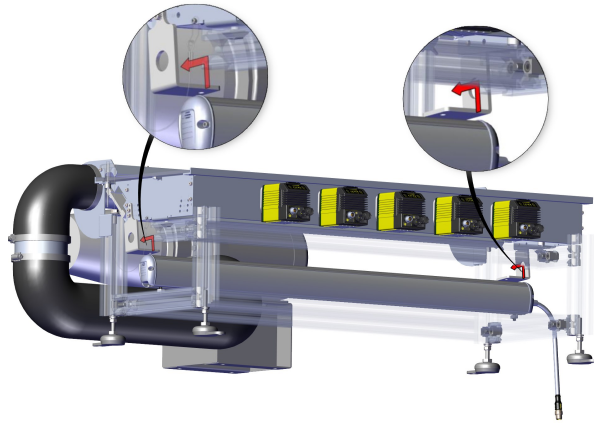
2. Remove the T-nuts.



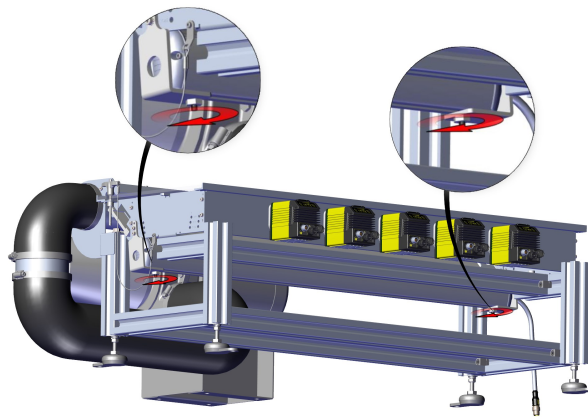
3. Take out the barlight.



4. Insert the new barlight.



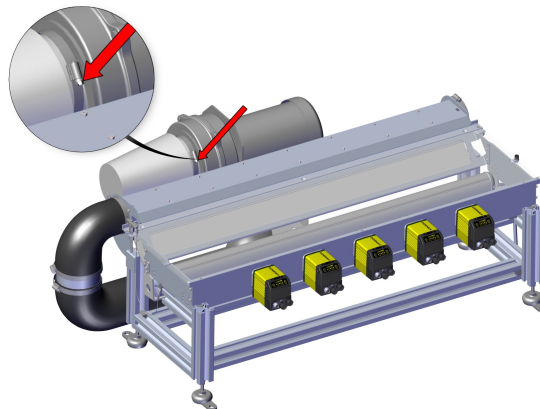
5. Replace and tighten the T-nuts.



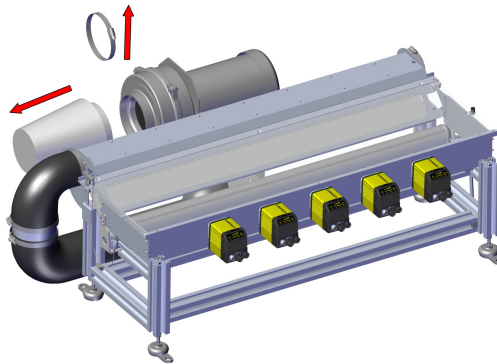
6. Reconnect the barlight cables.

Replace the Blower Air Filter

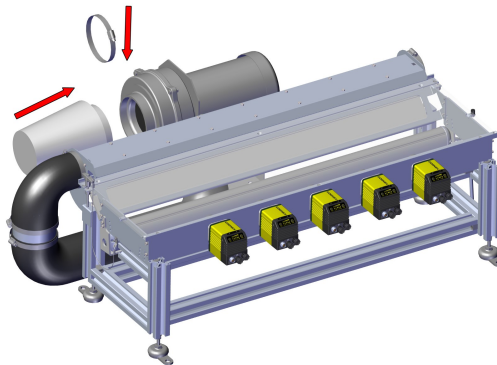
1. To power down the fan, disconnect the power cable and wait until the fan stops completely.
2. Release the hose clamp around the blower air filter.



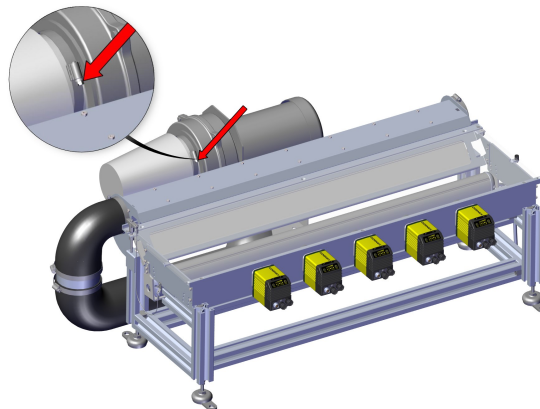
3. Remove the blower air filter and the hose clamp.



4. Connect the new blower air filter to the blower unit, and fasten with the hose clamp.



5. Tighten the screw of the hose clamp.



6. Reconnect the power cable and power on the fan.

Additional Information

DataMan Bottom-Side System: Parts List

Base Units

Description	Product ID	Image
DataMan Bottom Side 474X – 4 Readers	DMBS-474X-4-P	
DataMan Bottom Side 475X – 4 Readers	DMBS-475X-4-P	
DataMan Bottom Side 474X – 5 Readers	DMBS-474X-5-P	
DataMan Bottom Side 475X – 5 Readers	DMBS-475X-5-P	
DataMan Bottom Side 474X – 6 Readers	DMBS-474X-6-P	
DataMan Bottom Side 475X – 6 Readers	DMBS-475X-6-P	

Accessories

Description	Product ID	Image
Blower Manifold	DMBS-BLOWER-4 DMBS-BLOWER-5 DMBS-BLOWER-6	
Blower Motor	DMBS-BLWMOTOR-US DMBS-BLWMOTOR-EU DMBS-BLWMOTOR-CN DMBS-BLWMOTOR-JP DMBS-BLWMOTOR-KR	
Wheel Encoder	LST-ENCODER-000	
Vision Pro Dongle	VPRO-LOGST-WB	
Frame	DMBS-FRAME-2-4-474-xxxx DMBS-FRAME-2-4-475-xxxx DMBS-FRAME-2-5-474-xxxx DMBS-FRAME-2-5-475-xxxx DMBS-FRAME-2-6-474-xxxx DMBS-FRAME-2-6-475-xxxx	
Frame Floor Fixation Kit	LGM-FRAME-FIX-CC LGM-FRAME-FIX-WD LGM-FRAME-FIX-MG LGM-FRAME-FIX-IB	
Power I/O panel	DMBS-CIO-4 DMBS-CIO-5 DMBS-CIO-6	

Spare Parts Critical

Description	Product ID	Image
Wheel Encoder	LST-ENCODER-000	
Vision Pro Dongle	VPRO-LOGST-WB	
Calibration Target	DMBS-CALIB-4	

Spare Parts Non-Critical

Description	Product ID	Image
DataMan 474/475 Readers	DMBS-474X-1500-M-P DMBS-475X-1500-M-P	
Barlight for DataMan Bottom-Side	IVSL-DMBS4-625-P IVSL-DMBS5-625-P IVSL-DMBS6-625-P	
Protective Cover	DMBS-COVER-4 DMBS-COVER-5 DMBS-COVER-6	
Logistics Mirror	DMBS-MIRROR-4 DMBS-MIRROR-5 DMBS-MIRROR-6	

Regulations/Conformity

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
	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 2014/35/EU and 2006/42/EC. Declarations are available from your local representative.
EU RoHS	Compliant to the most recent applicable directive.
EU REACH	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.
Korea 	This device is certified for office use only and if used at home, there can be frequency interference problems.
TÜV	NRTL: TÜV SÜD SCC/NRTL OSHA Scheme for UL/CAN 61010-1. Elements of this design were evaluated by the NRTL to conform to the requirements of UL73 and CSA C22.2 no.68 Motor Operated Appliances as well as UL/CAN 61010-1.
	TÜV SÜD IEC/EN 61010-1. CB report available upon request.

