

DM3610

PRODUCT REFERENCE GUIDE



Dimensioner

 **DATALOGIC**

Datalogic

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This manual refers to software version 1.9 and later.

Patents

See www.patents.datalogic.com for patent list.

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PREFACE

ABOUT THIS MANUAL

This Product Reference Guide (PRG) is provided for users seeking advanced technical information including connection, programming, maintenance and specifications. Other publications associated with this product can be downloaded free of charge from the website listed on the back cover of this manual.

Manual Conventions

The following conventions are used in this document:



NOTE This symbol draws attention to details or procedures that may be useful in improving, maintaining, or enhancing the performance of the hardware or software being discussed.



WARNING This symbol identifies a hazard or procedure that, if incorrectly performed, could cause personal injury or result in equipment damage. It is also used to bring the user's attention to details that are considered **IMPORTANT**.



LASER CAUTION This symbol alerts the user they are about to perform an action involving possible exposure to laser light radiation.




HIGH VOLTAGE This symbol alerts the user they are about to perform an action involving, either a dangerous level of voltage, or to warn against an action that could result in damage to devices or electrical shock.



ESD CAUTION This symbol identifies a procedure that requires you take measures to prevent Electrostatic Discharge (ESD) e.g., use an ESD wrist strap. Circuit boards are most at risk. Please follow ESD procedures.

SUPPORT THROUGH THE WEBSITE

Data logic provides several services as well as technical support through its website. Log on to www.datalogic.com.

For quick access, from the home page click on the search icon , and type in the name of the product you're looking for. This allows you access to download Data Sheets, Manuals, Software & Utilities, and Drawings.

Hover over the Support & Service menu for access to Services and Technical Support.

REFERENCE DOCUMENTATION

The documentation related to the DM3610 management is listed below:

- AV7000 Linear Camera Reference Manual
- BM100 Backup Module Reference Manual
- CBX Connection Box Installation Manual
- DC3000 Two Head Dimensioning System Reference Guide

WARRANTY

Datalogic warrants that the Products shall be free from defects in materials and workmanship under normal and proper use during the Warranty Period. Products are sold on the basis of specifications applicable at the time of manufacture and Datalogic has no obligation to modify or update Products once sold. The Warranty Period shall be **two years** from the date of shipment by Datalogic, unless otherwise agreed in an applicable writing by Datalogic.

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PATENTS

See www.patents.datalogic.com for patent list.

This product is covered by one or more of the following patents:

Utility patents: US9625709.

COMPLIANCE

Electrical Safety

This product conforms to the applicable requirements contained in the European Standard for electrical safety EN-60950 at the date of manufacture.

Laser Safety

The following information is provided to comply with the rules imposed by international authorities and refers to the correct use of the DM3610 dimensioner.

Standard Regulations

This dimensioner uses a low-power laser diode. Avoid staring at the beam as one would with any very strong light source, such as the sun.

Take care when installing the laser device to avoid inadvertent laser beam contact with the eye of an observer, including through reflective surfaces.

This product conforms to the applicable requirements of both EN60825-1 and CDRH 21 CFR1040 at the date of manufacture. The DM3610 uses a visible laser diode (red) 658 nm typical, Collimated < 1.5mR, <9.6mW peak power, <1.0mW Average power, Class 3R (IEC60825-1), Class II (CDRH 21CFR1040), in the dimensioning process.

There is a safety device which allows the laser to be switched on only if the motor is rotating above the threshold for its correct scanning speed.



Use of controls or adjustments or performance of procedures other than those specified herein may result in exposure to hazardous visible laser light.

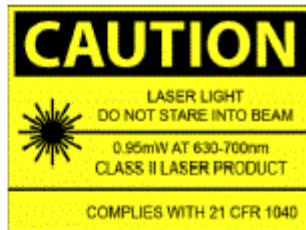
Dimensioner Warning Labels

Warning labels indicating exposure to laser light and the device classification are applied onto the body of the dimensioner.

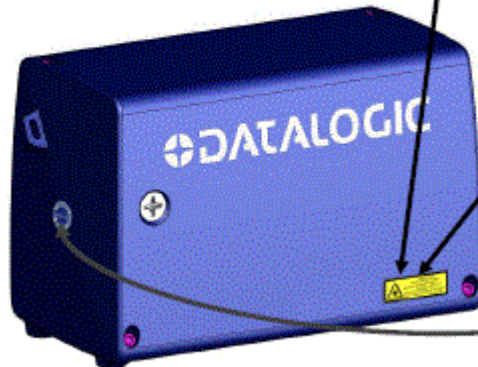
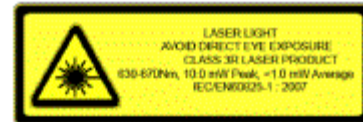


FRONT VIEW

↓ AVOID EXPOSURE - LASER RADIATION IS EMITTED FROM THIS APERTURE ↓



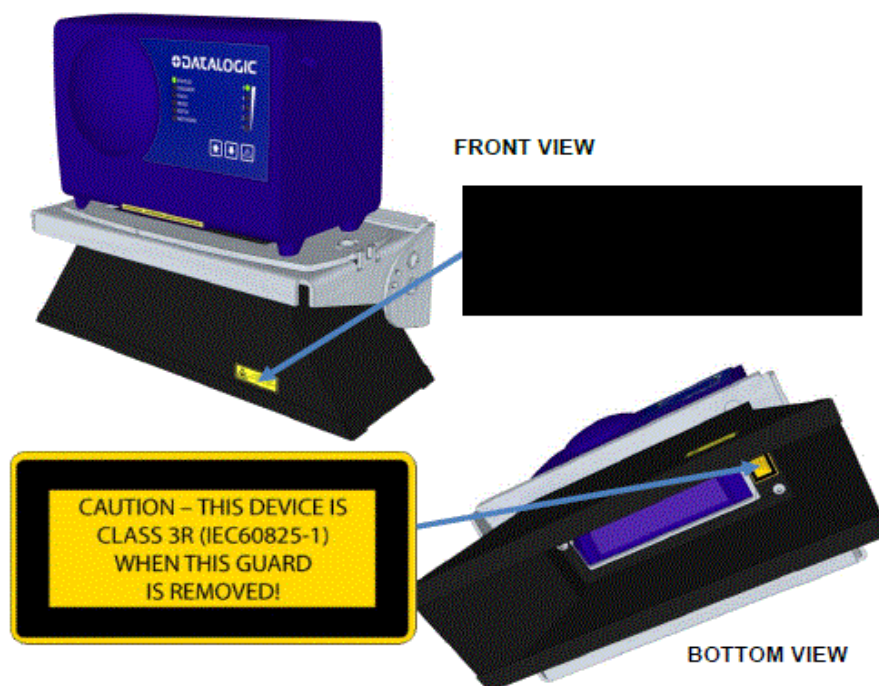
BACK VIEW



NOTE Warning label used depends on specific product configuration.

GFC-3610 Laser Guard Adapter Warning Labels

Additional warning labels indicating exposure to laser light and the device classification are applied onto the optional **GFC-3610 Laser Guard Adapter**.



LASER CAUTION



The DM3610 Dimensioning System is a Class 3R laser product without the GFC-3610 Laser Guard Adapter installed. Operators working around Class 3R laser products should follow safety precautions outlined in the IEC60825-1 laser safety standard for Class 3R laser products. By installing the adapter onto the DM3610 dimensioning system the laser product class is now Class 1. A Class 1 laser is safe under all conditions of normal use. This means the maximum permissible exposure (MPE) cannot be exceeded when viewing a laser with the naked eye. As a best practice rule, operators should always avoid direct eye exposure and minimize unintentional specular reflections to the laser beam whenever possible. The laser diode incorporated inside the DM3610 is a 630-670nm with a beam divergence of less than 1.5mRAD with a peak power of <math><8.5\text{mW}</math> (GFC-3610 Laser Guard Adapter Installed) or <math><10\text{mW}</math> (GFC-3610 Laser Guard Adapter uninstalled) and an average power of <math><1.0\text{mW}</math>.

NOTE



LASER CAUTION



Warning label used depends upon specific product configurations.

Disconnect the power supply when installing the device or during maintenance to avoid exposure to hazardous laser light.

There are no user serviceable parts inside the DM3610. Service should only be performed by Datalogic trained and certified technicians.

Power Supply

This product is intended to be installed by Qualified Personnel only.

This dimensioner is intended to be supplied by a UL/CE Listed power supply marked SELV (Separated Extra Low Voltage), output rated 24 VDC, minimum 4.0 Amp.

UL Listing



CE Compliance

CE marking states the compliance of the product with essential requirements listed in the applicable European directive. Since the directives and applicable standards are subject to continuous updates, and since Datalogic promptly adopts these updates, therefore the EU declaration of conformity is a living document. The EU declaration of conformity is available for competent authorities and customers through Datalogic commercial reference contacts. Since April 20th, 2016 the main European directives applicable to Datalogic products require inclusion of an adequate analysis and assessment of the risk(s). This evaluation was carried out in relation to the applicable points of the standards listed in the Declaration of Conformity. Datalogic products are mainly designed for integration purposes into more complex systems. For this reason it is under the responsibility of the system integrator to do a new risk assessment regarding the final installation.



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 adequate measures.

EAC Compliance

Customs Union:

The CU Conformity certification has been achieved; this allows the Product to bear the Eurasian mark of conformity.

Bureau Of Indian Standards (BIS)

Self Declaration – Conforming to IS 13252 (Part 1):2010, R-41009288

FCC Compliance



Modifications or changes to this equipment without the expressed written approval of Datalogic could void the authority to use the equipment.

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 which may cause undesired operation.

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/her own expense.

CHAPTER 1

INTRODUCTION

SYSTEM OVERVIEW

The DM3610 Dimensioning System provides parcel dimension data. The DM3610 is a compact overhead, laser-based automatic dimensioning unit. It measures the length, width and height of packages as they move along a conveyor. It accurately dimensions cuboidal conveyable packages, which pass under the unit one at a time.

The DM3610 mounts easily overhead and does not require a break in the conveyor. The unit is lightweight and completely self-contained. The system includes:

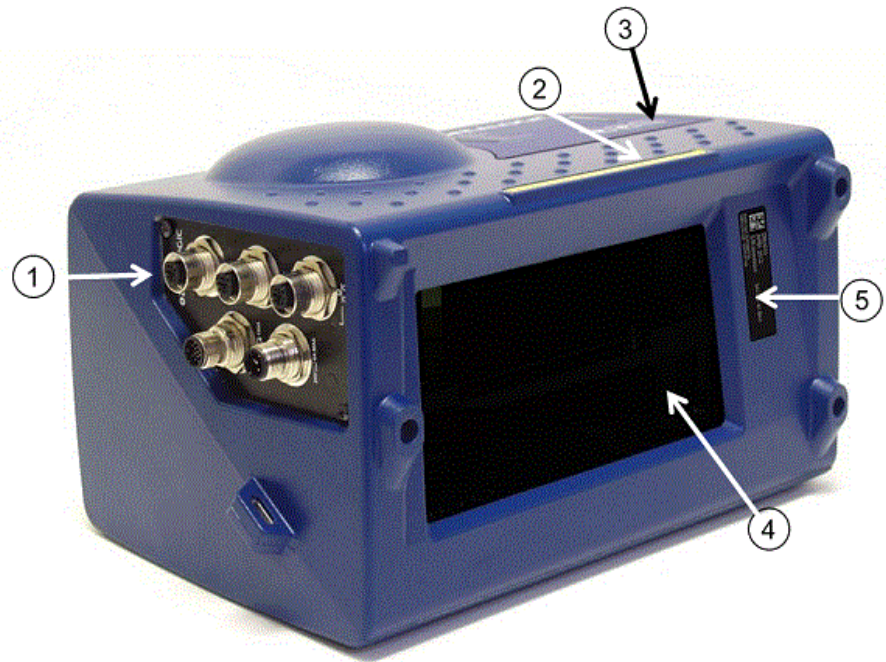
- DM3610 Dimensioner that determines all of the box dimensions
- CBX Connection Box
- Tachometer
- Photoelectric sensor (as needed)
- Web-based user interface software

The DM3610 also provides on-line diagnostics and monitoring.

WARNING



Due to the complex and application-specific nature of dimensioning certified dimensioning installations, the DM3610 must be installed, setup and serviced by a trained and authorized Datalogic technician. There are no user serviceable components inside the DM3610. Training is available through specific Service Programs and Maintenance Agreements. See our website at www.datalogic.com.



- 1 Connector Panel
- 2 Laser Safety Label
- 3 Control Panel
- 4 Laser Exit Window
- 5 Serial Number Tag



- 1 LED Status Indicators
- 2 Restore Button
- 3 Backup Button
- 4 Recovery Mode Button
- 5 Dimishing Status LEDs



- 1 I/O
- 2 Power 24V---4AMax
- 3 Host
- 4 Ethernet Port 1
- 5 Ethernet Port 2

DIMENSIONING SYSTEM BENEFITS

The DM3610 offers unparalleled dimensioning performance:

- Accurate dimensioning at high speed – Provides length and width accuracy +/- 5mm [0.2"] and height accuracy +/-2mm [0.1"] at belt speeds up to 3.3m/s [650FPM] (application dependent).
- Easy setup – Exclusive "Find-Belt" software functionality enables automated setup and plug-and-play operation
- Reliability – Uses a solid state laser diode and phase-shift technology

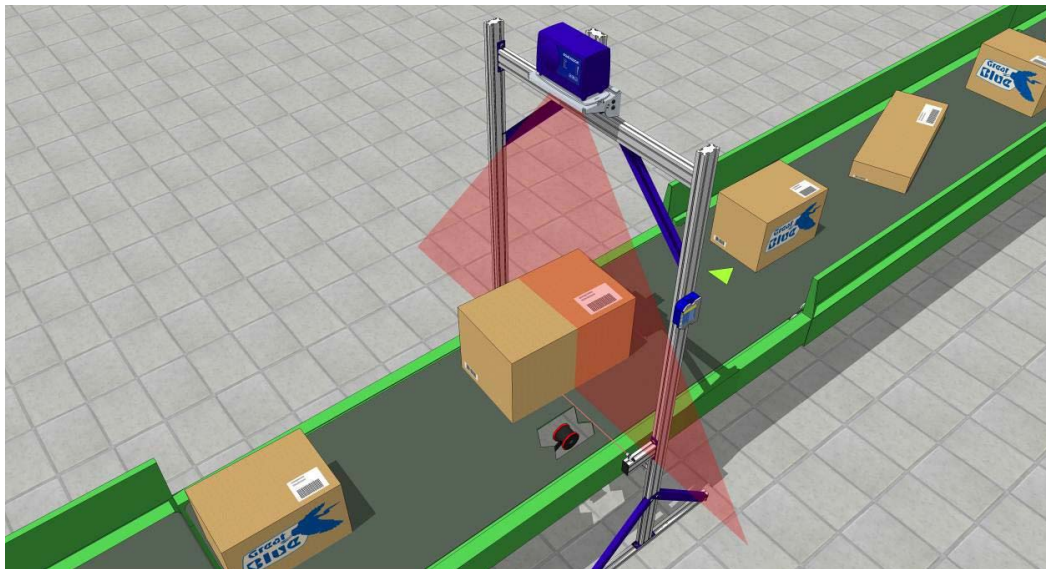
APPLICATIONS

The DM3610 dimensioning system is specifically designed for industrial applications and for all cases requiring accurate dimensioning performance such as:

- Singulated (cuboidal)
- Irregulars (non-cuboidal) – double head systems currently available
- Dimension-Weighing-Scanning (DWS) Systems

Can process a maximum package count of 20.

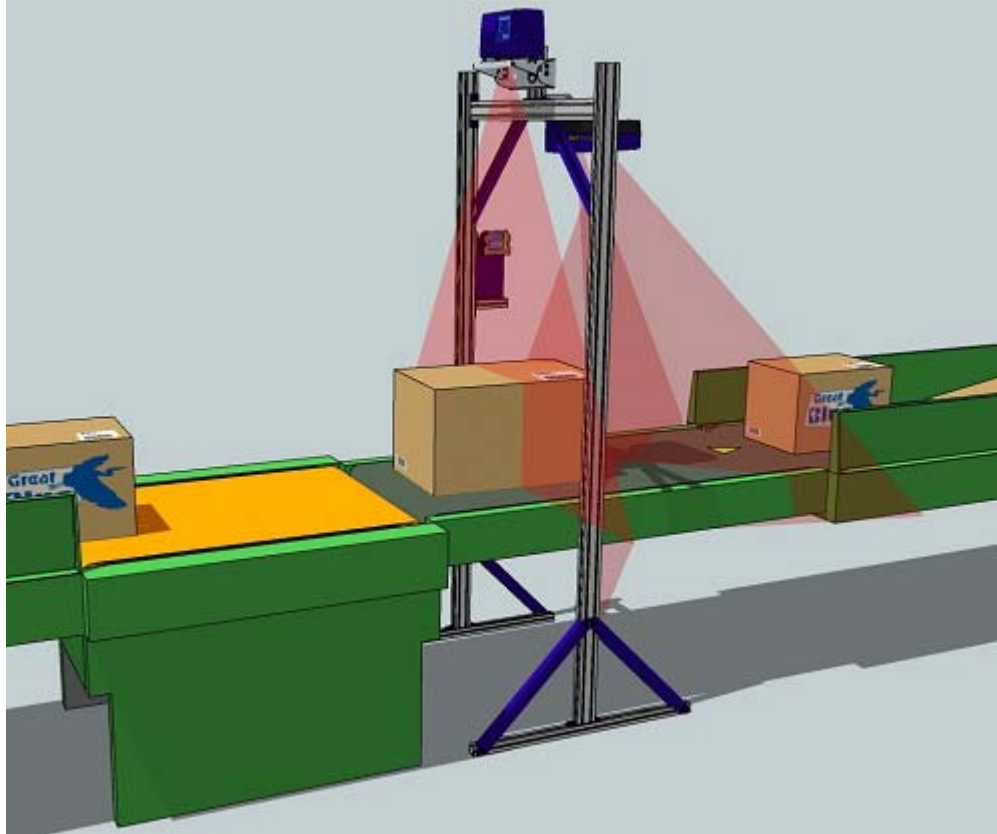
Typical Application



In certain applications a Photoelectric Sensor is not required. Contact your Datalogic Application Engineer for clarification. An operational description is provided.

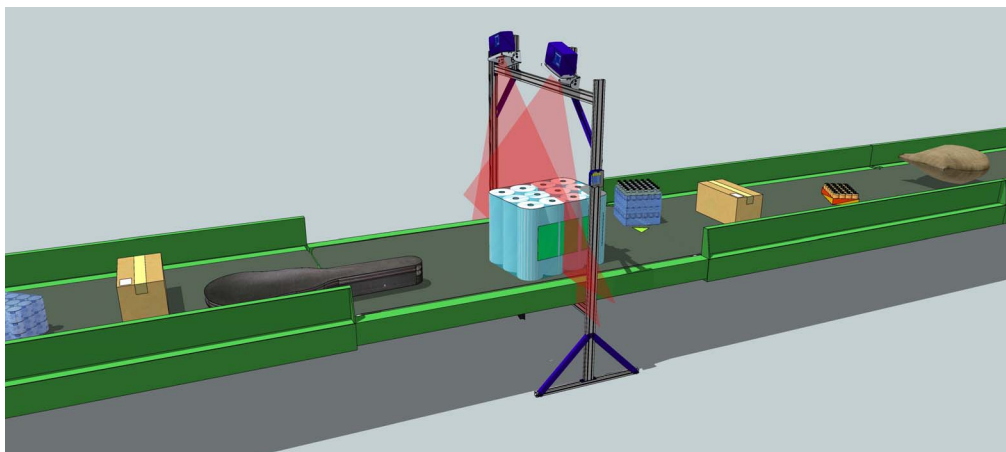
DM3610 in DWS Systems

The DM3610 Dimensioning System is often used in DWS systems that perform product dimensioning, weighing, and bar code scanning. Often, the dimensioner is combined with either a Datalogic laser scanner or camera to scan products for bar codes. The decoded bar code information is combined with the weight and dimension data, which is then transmitted to a HOST computer.



Irregular Dimensioning System

The DM3610 system is also available in a configuration that enables it to dimension 'irregular shaped' (non-cuboidal) products and packages. Double head systems are currently available.

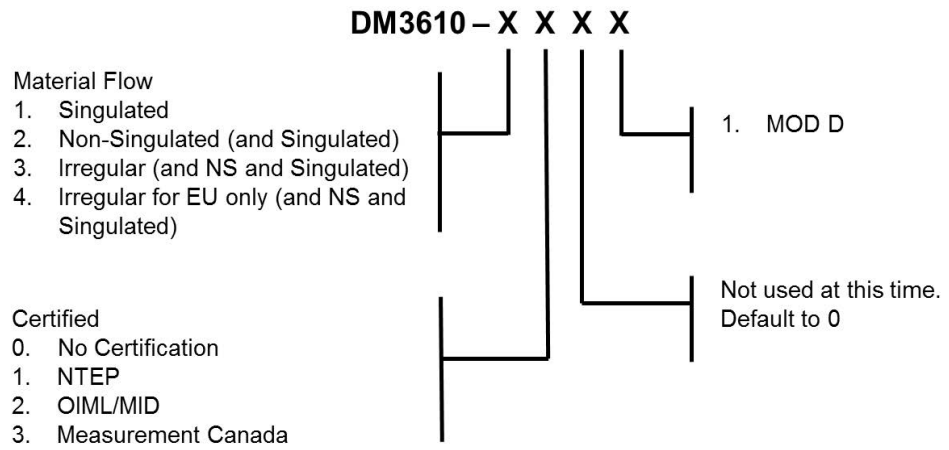


Model Description

The DM3610 Dimensioner is available in versions that differ depending on the type of material flow, certification, and custom:



Model 4200 (certified OIML/MID not MOD D is intended for applications where box dimensions exceed either 1200 mm of width or 900 mm of height.



ACCESSORIES, OPTIONS AND SPARE PARTS

The following accessories are available on request for DM3610:

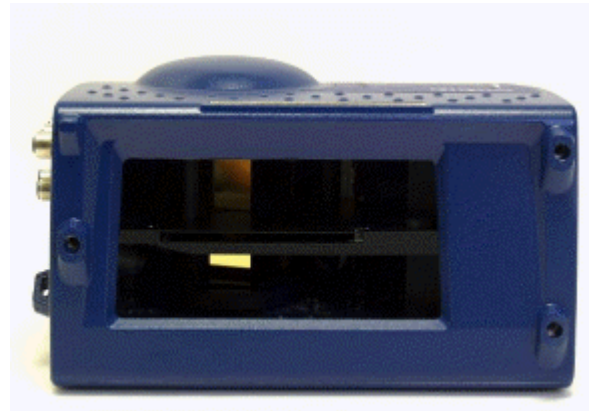
Name	Description	Part Number
Mounting Bracket	BK-3610 MOUNTING BRACKET KIT, DM3610	93ACC0057
	BK-3610-2 MH MOUNTING BRACKET KIT,DM3610	93ACC0114
Power Supply	PG-100-K01 PWR SUPPLY 60W KIT DM36 (EU)	93ACC0059
	PG-100-K02 PWR SUPPLY 60W KIT DM36 (UK)	93ACC0060
	PG-100-K03 PWR SUPPLY 60W KIT DM36 (US)	93ACC0058
Calibration Kit	DIM-CAL-IMP-DM3610 DIM CAL KIT IMPERIAL	93ACC0061
	DIM-CAL-MET-DM3610 DIM CAL KIT METRIC	93ACC0062
Certification Kit	DIM-CERT-K01-DM3610 NTEP CERT KIT	93ACC0063
	DIM-CERT-K02-DM3610 OIML CERT KIT	93ACC0064
	DIM-CERT-K03-DM3610 MC CERT KIT	93ACC0065
Cables to CBX	CAB-DS01-S M12-IP67 TO CBX 1M	93A050058
	CAB-DS03-S M12-IP67 TO CBX 3M	93A050059
	CAB-DS05-S M12-IP67 TO CBX 5M	93A050060
Ethernet Adapter Cable	CAB-ETH-M01 M12-IP67 ETHERNET CABLE (1M)	93A051346
	CAB-ETH-M03 M12-IP67 ETHERNET CABLE (3M)	93A051347
	CAB-ETH-M05 M12-IP67 ETHERNET CABLE (5M)	93A051348
CBX100 with BM100	CBX100 ALL-IN-ONE +BM100	93A301076
80/20	80/20 ADAPTERS FOR CBX	1000071630
BA200	BOSCH ADAPTERS FOR CBX	93ACC1822
Photoelectric Sensor and Cable	KIT,S60 NPN PHOTOCELL,R3 REFL/BRKT/HDWR	93ACC1894
	KIT,S60 PNP PHOTOCELL,R3 REFL/BRKT/HDWR	93ACC1895
Replacement Cable	CV-A1-22-B-05 SE 4PIN CABLE 5M	95ACC1490
Tachometer, 12-Inch	TACH,PROGR,W/20FT CAB,8-30VDC	1000019875
Tachometer, 30 cm	OEK-1 OPTICAL ENCODER KIT, W/10M CABLE	93ACC1600
CD141 Remote Display	40 CHAR DISPLAY, CERT	93ACC0070
Cable for CD141	CS-A1-02-G-03 4 POLI DRITTO (STRAIGHT POLE)	95A251380
GFC-3610 Laser Guard Adapter	GFC-3610 CLASS 1 EU ADAPTER,DM3610	93ACC1896



Dimensioning Solution kits are available which include: Dimensioner Mounting Bracket, Power Supply and Connection Box with mounting hardware, and communication cables.

DM3610 Dimensioning Unit

The DM3610 dimensioning unit is designed with industrial and manufacturing applications in mind. The DM3610 is designed for easy setup and operation.



DM3610 Versions

The DM3610 is available in several versions:

- **DM3610-1000 STD NLFT** (for applications not requiring Legal-for-Trade certification)
- **DM3610-1100 SING NTEP** (for NTEP certified singulated applications with “non-touching” packages)
- **DM3610-1200 SING OIML/MID** (for OIML certified singulated applications with “nontouching” packages)
- **DM3610-1201 SING OIML/MID MOD D**
- **DM3610-1300 SING MC** (for Measurement Canada certified singulated applications with “non-touching” packages)
- **DM3610-2100 NONSING NTEP** (for NTEP certified non-singulated applications with “touching” packages)
- **DM3610-2200 NONSING OIML/MID** (for OIML certified non-singulated applications with “touching” packages)
- **DM3610-2201 NONSING OIML/MID MOD D**
- **DM3610-2300 NONSING MC** (for Measurement Canada certified non-singulated applications with “touching” packages)
- **DM3610-3100 IRREG NTEP** (for NTEP certified applications running non-cuboidal (irregular) items)
- **DM3610-3200 IRREG OIML/MID** (for OIML certified applications running non-cuboidal (irregular) items)
- **DM3610-3201 MULTI-HEAD OIML/MID MOD D**
- **DM3610-3300 IRREG MC** (for Measurement Canada certified applications running noncuboidal (irregular) items)
- **DM3610-4200 MULTI-HEAD OIML/MID MOD F**

Performance for DM3610 Dimensioner Versions (see also chapter 8, Technical Features).

DM3610 Versions	Conveyor Speed	Convey or Width	Package Length		Package Width		Package Height	
			Min	Max	Min	Max	Min	Max
DM3610-1000 Standard non-legal for trade	3.3 m/s [650 fpm]	1200/ 1500mm [48"/60"]	50mm [2.4"]	2500mm [98"]	50mm [2.4"]	1200/ 1500mm [48"/60"]	20mm [1.2"]	1000/ 900mm [40"/32"]
DM3610-1100 Singulated induct NTEP	650 fpm	48"/60"*	2.4"	98"	2.4"	48" / 60"*	1.2"	40" / 32"*
DM3610-1200 Singulated OIML /MID	3.15 m/s	1200mm	50mm	2500mm	50mm	1200mm	20mm	1000mm
DM3610-1300 Singulated MC	3.2 m/s	1220mm	60mm	2450mm	60mm	1220mm	60mm	900mm
DM3610-2100 Non-Singulated induct NTEP	650 fpm	48"/60"*	2.4"	98"	2.4"	48" / 60"*	1.2"	40" / 32"*
DM3610-2200 Non-Singulated OIML / MID	3.15 m/s	1200mm	50mm	2500mm	50mm	1200mm	20mm	1000mm
DM3610-2300 Non-Singulated MC	3.2 m/s	1220mm	60mm	2450mm	60mm	1220mm	60mm	900mm
DM3610-3000 Multi-Head non-legal for trade, use with DC3000-x000	3.3 m/s [650 fpm]	1600mm [63"]	50mm [2.4"]	2500mm [98"]	50mm [2.4"]	1600mm [63"]	50mm [1.2"]	1000mm [40"]
DM3610-3100 Multi-Head NTEP, use with DC3000- x100	650 fpm	63"	2.4"	98"	2.4"	63"	1.2"	40"
DM3610-3200 Multi-Head OIML /MID, use with DC3000-x200	3.15 m/s	1200mm	50mm	2500mm	50mm	1200mm	20mm	1000mm
DM3610-3300 Multi-Head MC, use with DC3000- x300	Not Certified							
DM3610-4200 Multi-Head OIML /MID, use with DC3000-x200	3.15 m/s	1600mm	50mm	2500mm	50mm	1600mm	20mm	1000mm

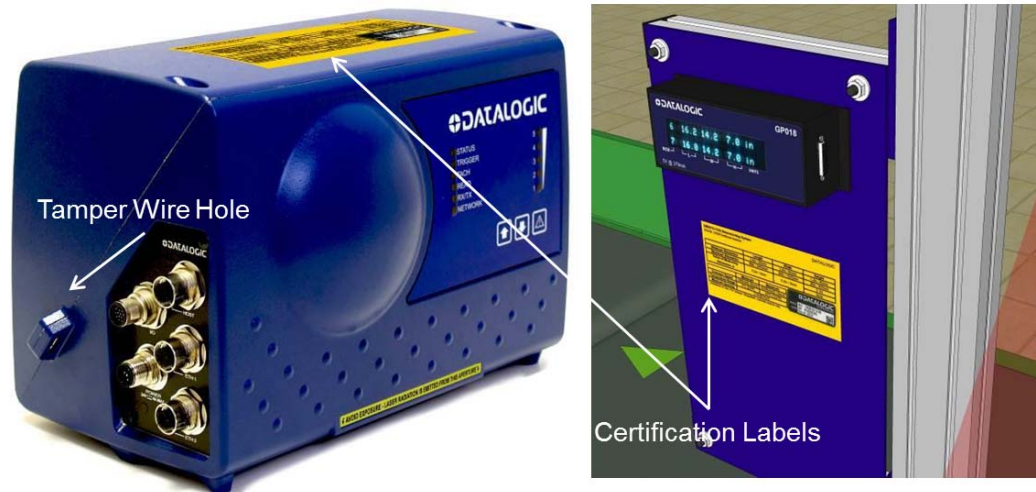
* = 1.2 to 40.0 in height is tested to 48.0 in width for a Single Head; 1.2 to 32.0 in height is tested to 60.0 in width for a Single Head.

DM3610 Certified Dimensioning

The DM3610 has been certified for legal-for-trade applications including:

- **NCWM/NTEP** (National Conference On Weights and Measure)
- **OIML R129** (International Organization of Legal Metrology)
- **MID** (Measuring Instruments Directive)
- **Measurement Canada**

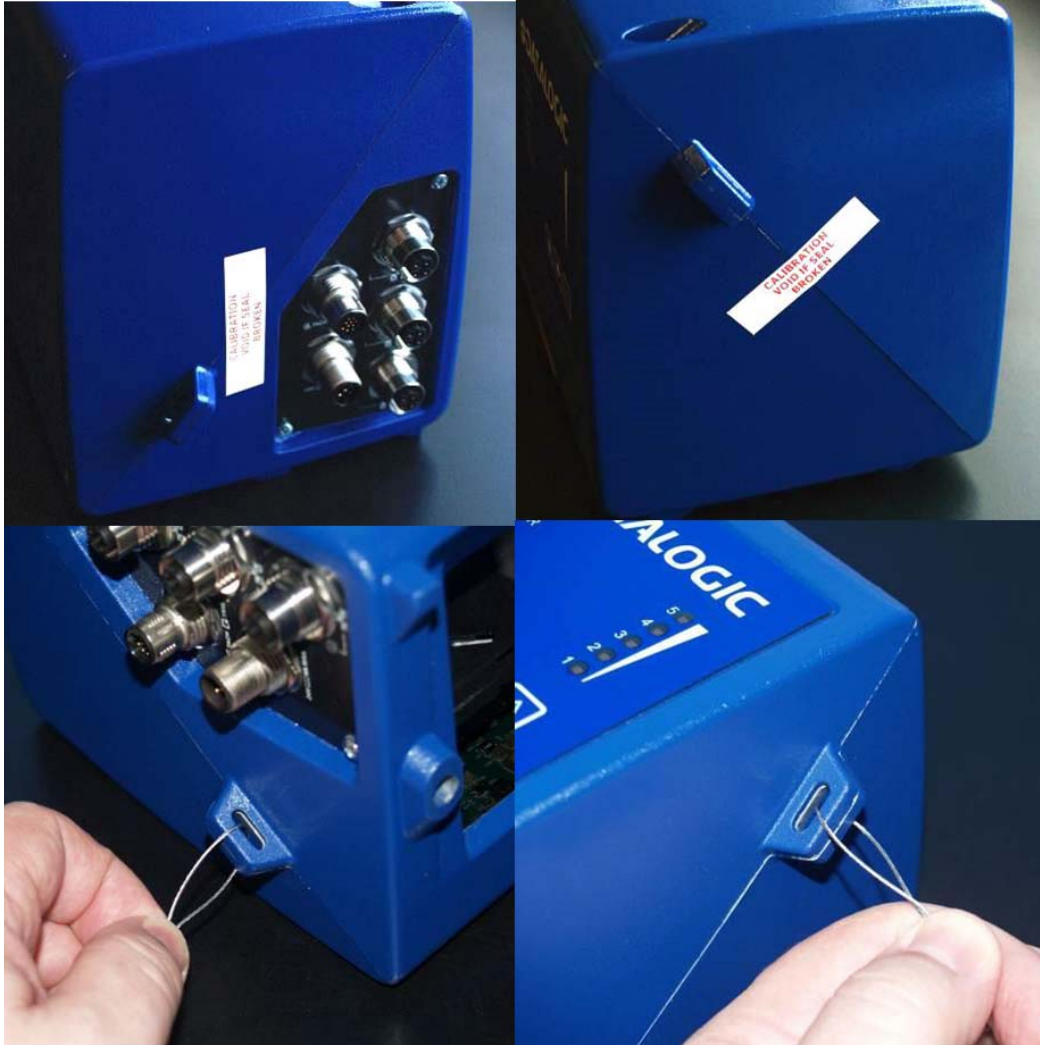
A certification label is applied to the top of the DM3610, and in some cases another is mounted on a steel plate on the mounting structure.



Certification Sealing

The DM3610 Dimensioner may require sealing in legal-for-trade applications. Specific sealing requirements vary based on national laws. In some cases, a paper or wire tamper-proof seal is applied across the seam in the DM3610 housing. These seals may be applied after certification by a field inspector or, in some cases, at the factory. Examples of these types of seals are shown below.

If required, adhesive-backed, paper tamper-proof seals may bridge the seam between the two halves of the housing, on opposite sides of the device.



If required, two wire tamper seals can be placed through the tamper wire holes on each side of the device housing.

Standard DM3610 Solution Kits

Datalogic offers several Dimensioning Solution Kits to make it easy for you to order and purchase exactly what you need for your Dimensioning system. Each kit includes everything you need to complete your system. We offer the five listed below for the DM3610.

Part Number	Description
DMR010000-11050600	DMS100-100 DIM SOLU 1HD STD
Components	
932702000	DM3610-1000 STD NLFT
93ACC0057	BK-3610 MOUNTING BRACKET KIT, DM3610
93ACC0058	PG-100-K03 POWER SUPPLY 60W KIT (US)
920000080	KIT,HDWR,ADPTR,80/20,P/S K03740452
93A301076	CBX100 ALL-IN-ONE +BM100
93A050060	CAB-DS05-S M12-IP67 TO CBX 5M
93A051348	CAB-ETH-M05 M12-IP67 ETHERNET CAB. (5M)
DMR020000-11050600	DMS-100-1110 DIM SOLU 1HD SING NTEP
Components	
932702020	DM3610-1100 SING NTEP
93ACC0057	BK-3610 MOUNTING BRACKET KIT, DM3610
93ACC0058	PG-100-K03 POWER SUPPLY 60W KIT (US)
920000080	KIT,HDWR,ADPTR,80/20,P/S K03740452
93A301076	CBX100 ALL-IN-ONE +BM100
93A050060	CAB-DS05-S M12-IP67 TO CBX 5M
93A051348	CAB-ETH-M05 M12-IP67 ETHERNET CAB. (5M)
DMR030000-12050600	DMS100-120 DIM SOLUT 1HD SING OIML/MID
Components	
932702030	DM3610-1200 SING OIML/MID
93ACC0057	BK-3610 MOUNTING BRACKET KIT, DM3610
93ACC0059	PG-100-K01 POWER SUPPLY 60W KIT (EU)
920000080	KIT,HDWR,ADPTR,80/20,P/S K03740452
93A301076	CBX100 ALL-IN-ONE +BM100
93A050060	CAB-DS05-S M12-IP67 TO CBX 5M
93A051348	CAB-ETH-M05 M12-IP67 ETHERNET CAB. (5M)
DMR040000-12050700	DMS100-121 DIM SOLUT 1HD SING OIML/MID MOD D ((self stamping/cert.))
Components	
932702031	DM3610-1201 SING OIML/MID MOD D
932702030	DM3610-1200 SING OIML/MID
93A050060	CAB-DS05-S M12-IP67 TO CBX 5M
93A051348	CAB-ETH-M05 M12-IP67 ETHERNET CAB. (5M)
93A301076	CBX100 ALL-IN-ONE +BM100
93ACC0057	BK-3610 MOUNTING BRACKET KIT, DM3610
93ACC0059	PG-100-K01 POWER SUPPLY 60W KIT (EU)
920000080	KIT,HDWR,ADPTR,80/20,P/S K03740452
93ACC1822	BA200 BOSCH ADAPTERS
DMR050000-11050600	DMS100-130 DIM SOLU 1HD SING MC
Components	
932702040	DM3610-1300 SING MC
93ACC0057	BK-3610 MOUNTING BRACKET KIT, DM3610
93ACC0058	PG-100-K03 POWER SUPPLY 60W KIT (US)
920000080	KIT,HDWR,ADPTR,80/20,P/S K03740452
93A301076	CBX100 ALL-IN-ONE +BM100
93A050060	CAB-DS05-S M12-IP67 TO CBX 5M
93A051348	CAB-ETH-M05 M12-IP67 ETHERNET CAB. (5M)

DATALOGIC PHOTOELECTRIC SENSOR

The optional **Datalogic Photoelectric Sensor** is used in DM3610 system to detect the presence of an item in the dimensioning area.

The photoelectric sensor is used in singulated systems where the packages are separated by an open space between the trailing edge of one package and the leading edge of the next. The photoelectric sensor enables a programmable transmit point at a defined distance from the sensor. Without the photoelectric sensor, the DM3610 can be run in continuous trigger mode (see Modify Settings | Tach/Trigger/Transmit in chapter 4).

Depending on the application, these devices may need to be configured differently. While the photoelectric sensor and tachometer work well with belt conveyors, a special configuration is needed for tilt-tray and cross-belt sorter applications. A sample sensor is shown below.



TACHOMETER

The tachometer provides a continuous pulse to the system, which provides feedback on conveyor speed and can be used to help track the package position along the length of the conveyor. A tachometer is required for certified systems, but is optional for non-certified. For non-certified systems, an internal *tach* signal can often be used.



CBX INDUSTRIAL CONNECTION BOX

CBX Series are industrial connection boxes that can be used to connect the external display, tachometer, photoelectric sensor, serial devices, relays, or other peripherals. The CBX 510 is often used with DM3610 systems. (See chapter 5, Dimensioning Features.)



REMOTE DISPLAY

In all legal-for-trade applications, the DM3610 certified dimensioning system is required to have at least one remote display per site for inspection purposes. The number of displays required per site varies according to certification type.

The Datalogic CD141 Remote Display is a 2 line x 20 character display. The display shows the dimensions for the most recent two boxes (with the most recent box on the lower line). The display shows:



Legend:

- **BOX** displays box number (0 to 9)
- **L** displays longest horizontal dimension (length)
- **W** displays shortest horizontal dimension (width)
- **H** displays height
- **UNITS** displays Metric (mm) or Imperial (in) dimension units used

CALIBRATION BOXES

The DM3610 system requires at least one set of calibration boxes, which aid in system setup and calibration. Two boxes and two margin spacers come with the system in calibration kits in your choice of Metric or Imperial configuration and in the following sizes:

	Metric	Imperial
L	900 mm	36"
W	400 mm	15"
H	400 mm	15"

	Metric	Imperial
L	80 mm	3"
W	60 mm	2"
H	40 mm	1.5"

	Metric	Imperial
L	500 mm	18"
W	300 mm	12"
H	150 mm	6"

For information on using this kit for calibration, see Dimensioner Calibration in Chapter 5.

WHAT YOU NEED TO KNOW ABOUT YOUR APPLICATION

To assure you get optimal performance out of your DM3610 Dimensioning System, it must be installed to meet the complete needs of your application. Therefore, take the time to know the details of your application. The better you know your application, the easier it is to apply the DM3610's capabilities to meet your application's requirements.

Below is what you will need to know before you can begin installation:

Conveyor Specifications

- Conveyor type: Belt, tilt-tray, cross belt, other?
- What is the conveyor width?
- What is the conveyor speed?
- Does conveyor speed vary or is it constant?
- Will bar code scanning also take place?
- Where is the dimensioning area to be located on your conveyor?

Product and Dimensioning Specifications

- Are the packages being transported always singulated (not touching) or non-singulated (possibly touching)?
- Are products always cuboidal (box shaped), non-cuboidal (irregular shaped), side-by-side or is there a mixture?
- Is side-by-side object dimensioning (non-singulated) required?
- How many different product sizes may be involved?
- Are products justified: toward/away from dimensioner/reader, centered, or variable?

Application Specifications

- What will be done with the dimensioning information?
- How will this information be used in your application?
- What are your communication requirements?

While it is nearly impossible to cover all application configurations, the next several pages provide the basics on determining how to mechanically install your DM3610. If you need additional assistance, feel free to contact your sales representative or customer service.

CHAPTER 2

MECHANICAL INSTALLATION

ESD CAUTION



Electrical Installation by Qualified Service Technicians Only! Procedures may involve exposure to high-voltage. A trained and authorized technician must perform these procedures. Do not attempt to perform any electrical installation procedures unless you are a trained technician.

The DM3610 contains electronics that may be affected by electrostatic discharge (ESD). To prevent personal injury or damage to the unit, please follow the safety precautions and warnings found in the [References](#) section at the beginning of this manual. Failure to follow these precautions may void your warranty.

PREPARING FOR MECHANICAL INSTALLATION

WARNING



The application-specific drawings and documents provided by Datalogic supersede any contradictory content in this manual.

Before mounting any components, please do the following:

- Read all instructions before beginning your installation.
- Define and confirm the accuracy of your application's requirements and structure position, especially the height of the conveyor from the floor.
- Review all installation-specific drawings provided with your equipment.
- Review and plan the mechanical installation of all devices used in your application.
- Be sure to allow adequate clearance for maintenance.
- Review and plan the power requirements for your application.
- Check the contents of the shipping cartons against the packing list.
- Record all product serial numbers.
- Route wires carefully to reduce or minimize electrical noise. When power and communication wiring must cross, make their intersection perpendicular.
- Proper grounding limits the effects of noise due to Electromagnetic Interference (EMI).
- Consider where you are mounting the various devices and the cabling requirements for each

NOTE



Refer to the Reference Documentation for details on connecting your DM3610 dimensioner to other devices in the system.

UNPACKING INSTRUCTIONS

Verify that the DM3610 dimensioner and all the parts supplied with the equipment are present and intact when opening the separate DM3610 and mounting bracket packaging (2 boxes); the list of parts includes:

Box #1:

- DM3610 dimensioner and mounting screws

Box #2

- Universal Mounting Bracket (UMB) (or Multi-Head Bracket)
- UMB Mounting Plate (attached to UMB)
- UMB Mounting Disk and screws



The DM3610 packaging is designed to protect the unit(s) during shipment. Do not throw the packaging away. Save all packing material in case you need to transport your unit(s).



INSTALLATION SEQUENCE



To complete mechanical installation and setup, you must:

Everything should be MECHANICALLY INSTALLED before performing any ELECTRICAL INSTALLATION. See Chapter 3 for electrical installation details.

- Review the details of your application's requirements
- Erect mounting structure or other supporting structures
- Determine and mark the Universal Mounting Bracket (UMB) location
- Mount the UMB Mounting Plate to the UMB (if not already installed)
- Mount the UMB to the mounting structure
- Mount the DM3610 and Adapter (optional) to the UMB
- Mount the photoelectric sensor to the mounting structure (optional)
- Mount the tachometer to the mounting structure (optional)
- Mount the Remote Display to the mounting structure (required for Legal-for-Trade installations, dependent on requirements)
- Mount the CBX connection box to the mounting structure Complete electrical installation
- Align the DM3610 for proper operation
- Calibrate the DM3610 (See See "Modify Settings | Dimensioning | Calibration" on page 81)
- Configure the DM3610 (See See "Modify Settings | Configuration" on page 75)
- Check DM3610 operations (See See "Checking the Operation of the Replacement DM3610" on page 144)

MECHANICAL INSTALLATION



The application-specific drawings and documents provided by Datalogic supersede any contradictory content in this manual

Because the DM3610 is a measuring device, calibration and proper usage of this device are necessary for proper operation. It is therefore essential that the unit be mounted exactly as detailed on that drawing to retain proper calibration. The critical parameters are:

- Minimal vibration of unit on mounting structure - any movement of the DM3610 due to vibration/swaying of the mounting structure will directly impact the dimensioning accuracy.
- Mounting height above the conveyor.
- The DM3610 scan line must be perpendicular to conveyor travel.
- If used, the photoelectric sensor's beam path must be parallel to the DM3610 scan line.
- Tachometer assembly mounted on the same conveyor belt that the DM3610 scan line is on, to insure proper speed indication
- The DM3610 scan line should be located at least 7 - 8 cm [3 inches] away from any other scan pattern on the conveyor belt, to eliminate the possibility of reflections interfering with dimensioning accuracy.

DIMENSIONS AND CLEARANCES

The overall dimensions of the DM3610 are provided in Chapter 1 and 8, Technical Features. The DM3610 is a sealed, unventilated unit. Mounting the unit with 300 mm [12"] of clearance (front, top, and sides) is recommended for ease-of-access and cooling.



For installation, maintenance and service reasons, approximately 300 mm (12 inches) of clearance is recommended.

Physical Support Requirements

For details on the weight of the DM3610, see chapter 8, Technical Features. Multiple-head systems may include further details on the physical support requirements with any application-specific documentation provided.

Vibration Limitations

The DM3610 is designed and tested to withstand continuous sine wave vibrations between 10 and 500 hertz (limited to a displacement of 0.40 mm [0.0157 inches] for frequencies between 10 and 50 Hz and limited to 2 G acceleration for frequencies between 50 and 500 Hz).

General Mounting Guidelines

It is important that you follow these general precautions when installing, setting up, operating, maintaining, troubleshooting, or replacing any Datalogic products, parts or related equipment.



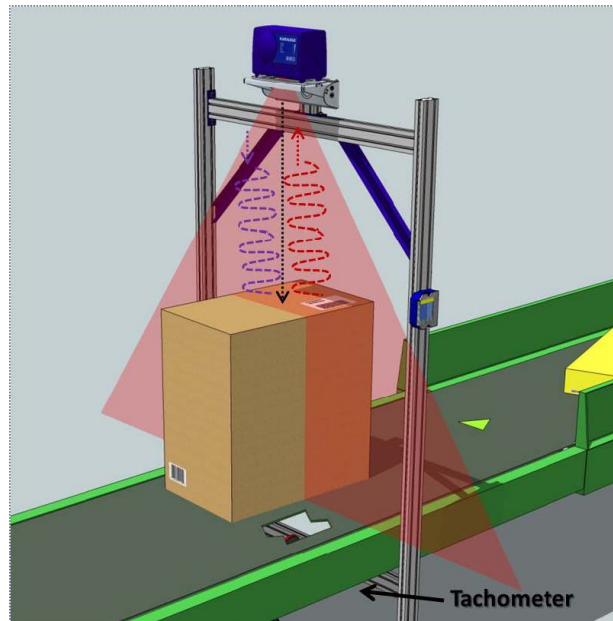
The DM3610 uses a visible laser diode (red) 658 nm typical, Collimated < 1.5mR, <9.6mW peak power, <1.0mW Average power, Class 3R (IEC60825-1), Class II (CDRH 21CFR1040), in the dimensioning process. Avoid staring at the laser light source. While laser light does not constitute a health hazard, staring at the laser for prolonged periods could result in eye damage.

As you plan and install your DM3610 dimensioning system application, be sure to keep the following guidelines in mind:

- All mounting structure assembly and equipment installation can be performed by one installer.
- Determine the proper orientation and position of the DM3610.
- Leave adequate clearances (approximately 300 mm [12 inches]) for wiring.
- Route wires carefully to reduce or minimize electrical noise. When power and communication wiring must cross, make their intersection perpendicular.
- Proper grounding limits the effects of noise due to Electromagnetic Interference (EMI).

CONVEYOR CONSIDERATIONS

In the process of dimensioning a package, the DM3610 is measuring the distance between the package and itself. Therefore, any motion of the package other than that in the conveyor direction will impact dimensioning accuracy. Consider the following:



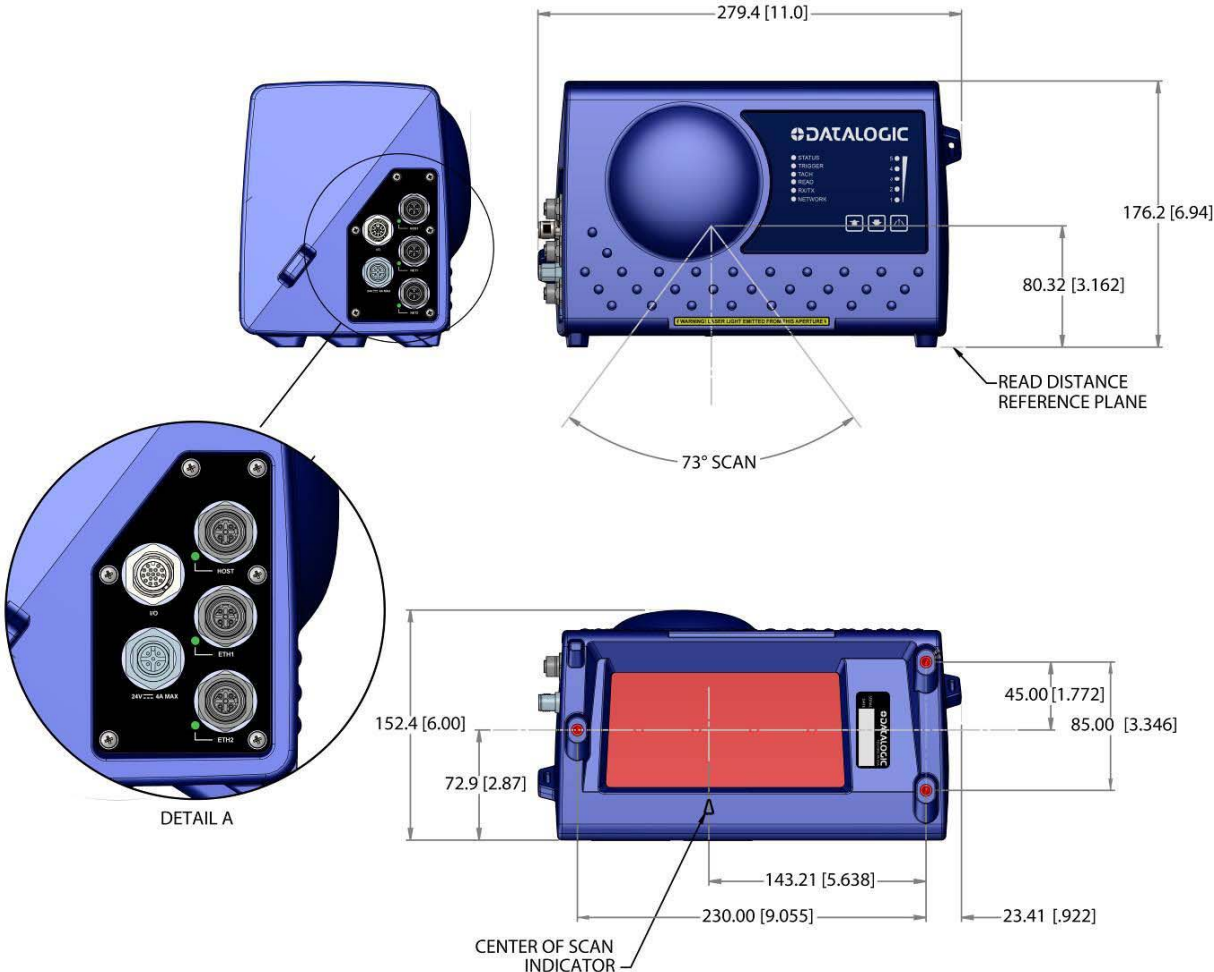
- Make sure the DM3610 is mounted at least 300 mm [12 inches] plus the longest box away from any belt transitions. This applies to both packages entering and leaving the system. This means the DM3610 requires a conveyor belt length of at least 600 mm [24 inches] plus twice the longest box to ensure box stability under the system.
- The DM3610 should be placed so packages are not sliding accelerating/decelerating when they pass under the scan line.
- Belt seams that elevate packages above the normal belt surface will impact dimensioning accuracy.

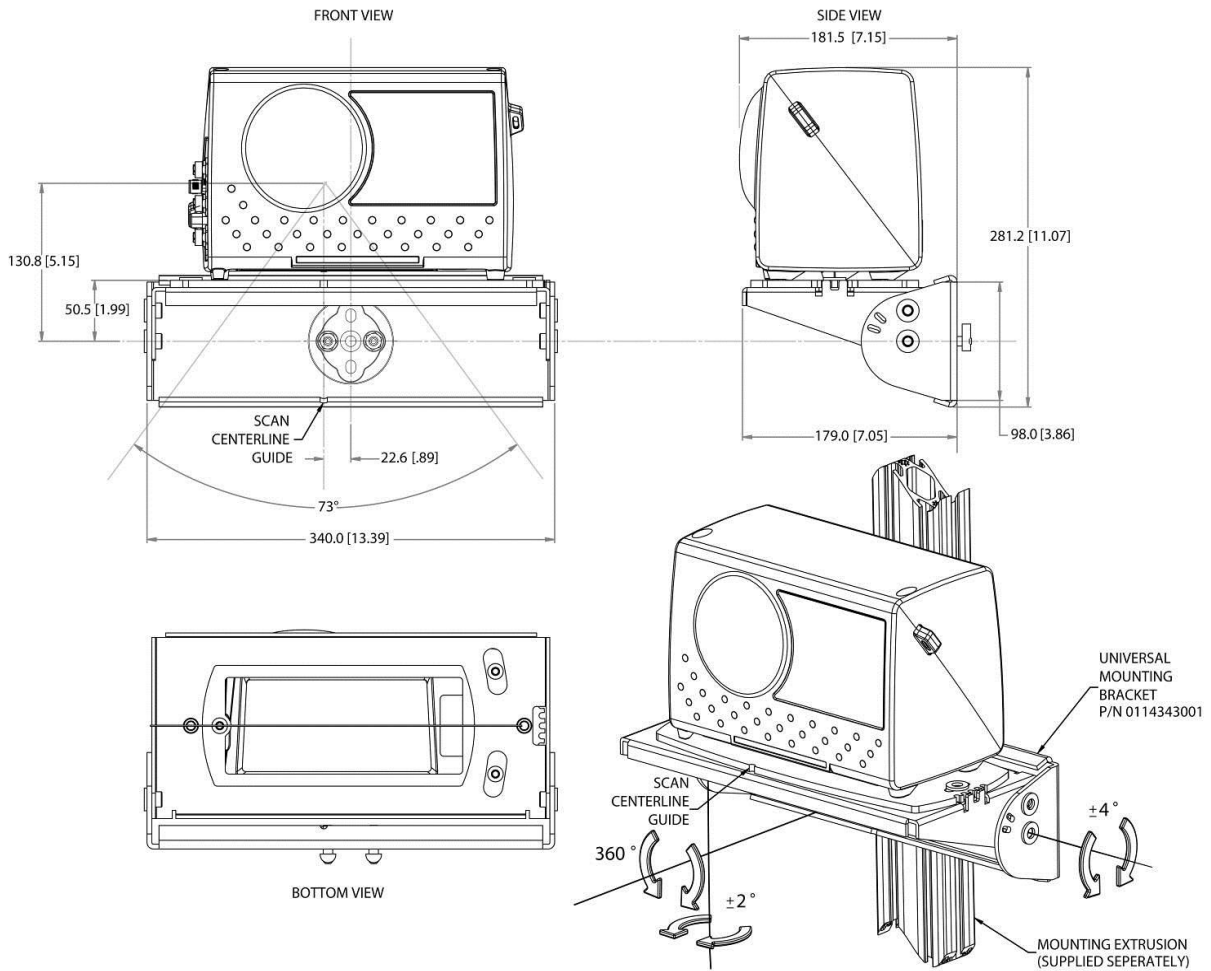
Mounting Structure Considerations

Your first task is to mount your DM3610 unit. You can provide your own mounting structure or Datalogic can design one for you. We recommend using a Datalogic mounting structure for standard applications.

Your mounting structure must provide the following capabilities:

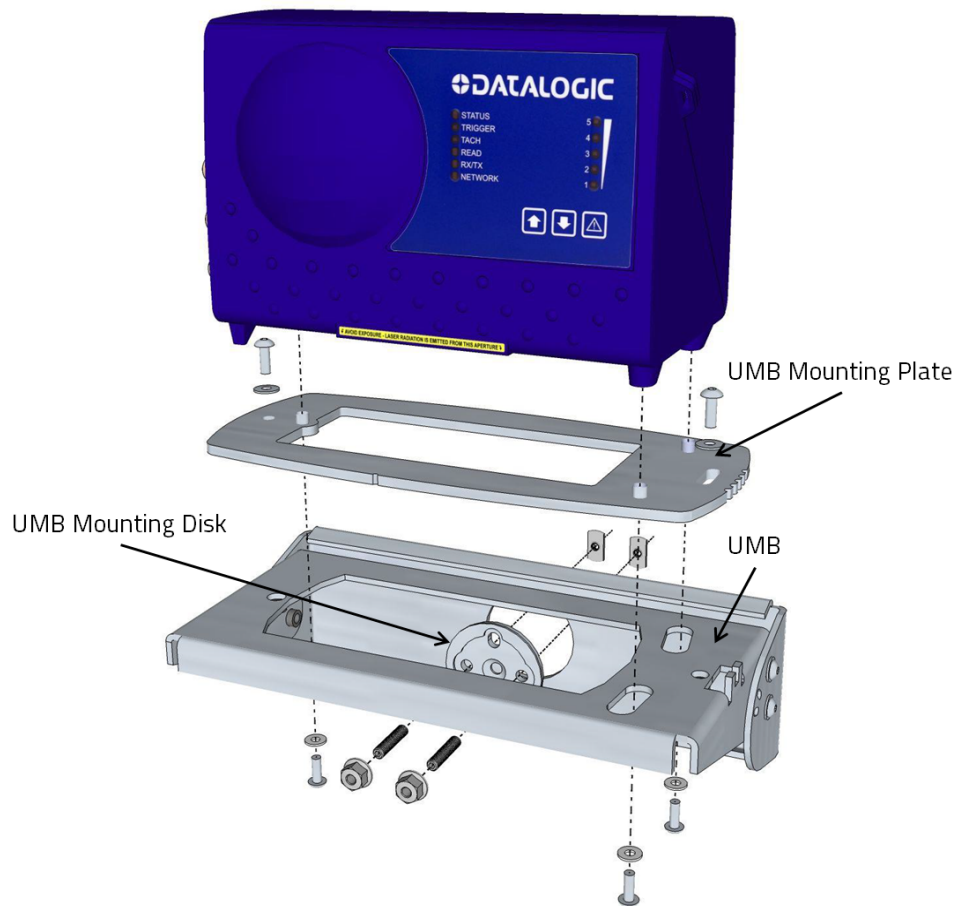
- It is adjustable enough for you to move your DM3610 unit to the optimum position for proper dimensioning.
- It is able to hold 16 kg [36 lbs] (three times the weight of the DM3610).
- It allows a technician access to the DM3610 while it is mounted.
- It must be as vibration free as possible so as not to affect the dimensioning accuracy.
- It is constructed of steel or aluminum.
- It provides approximately 300 mm [12 inches] minimum clearance on all sides. This clearance is necessary to provide proper ventilation, allow access to all panels of the DM3610, and allow room for proper servicing.





MOUNTING THE DIMENSIONER WITH THE STANDARD UNIVERSAL MOUNTING BRACKET (UMB)

The Standard Universal Mounting Bracket (UMB) allows you to install and make fine adjustments to the position of the DM3610. The bracket assembly includes the UMB, UMB Mounting Plate, and UMB Mounting Disk.

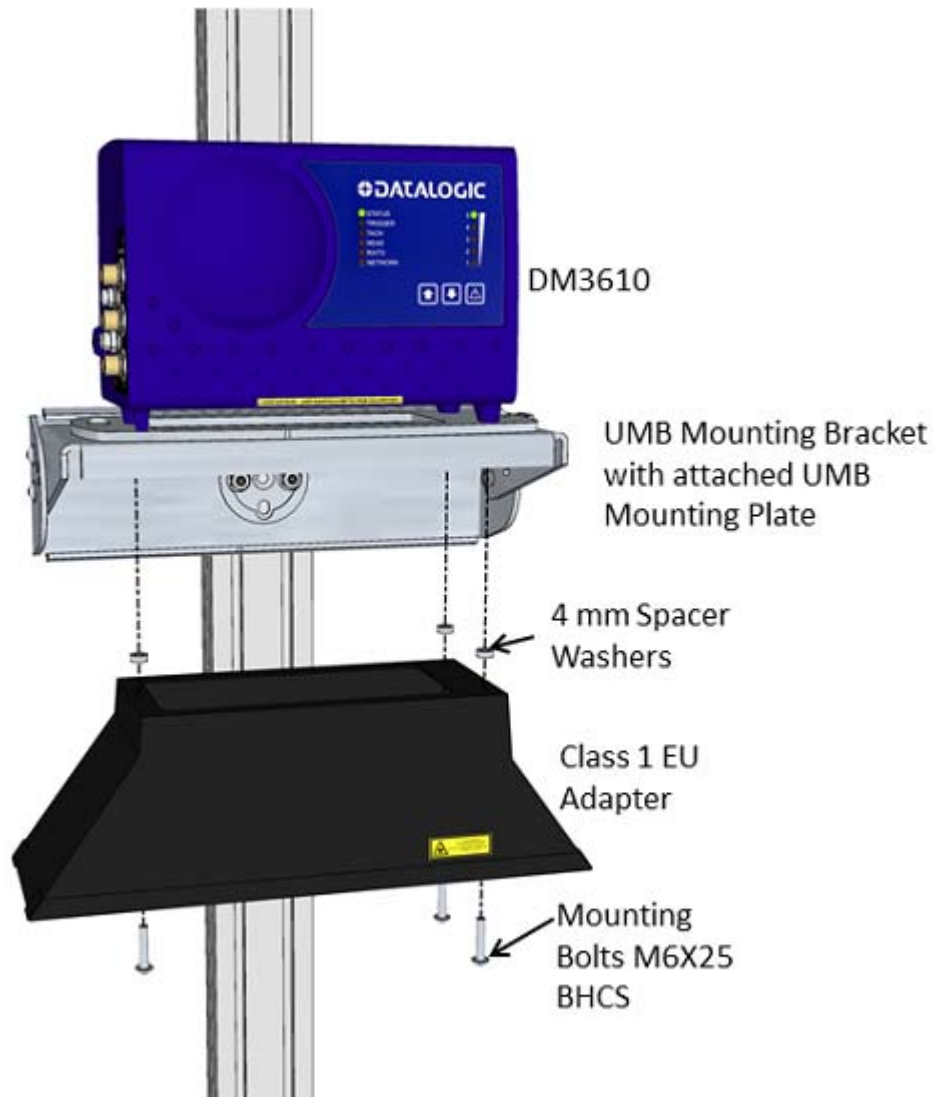


1. Mount the UMB Mounting Plate to the UMB, if it has not yet been attached.
2. Mount the UMB to the mounting structure using the UMB Mounting Disk and hardware provided. Hardware is provided for standard Bosch or 80/20 mounting structure extrusion.
3. Mount the DM3610 to the UMB Mounting Plate and UMB.

Mounting the Optional GFC-3610 Laser Guard Adapter

The optional GFC-3610 Laser Guard Adapter is mounted below the standard and multi-head style UMB Mounting Brackets.

When mounting the GFC-3610 Laser Guard Adapter to the standard UMB, the mounting bolts included with the GFC-3610 Laser Guard Adapter pass through the adapter, spacers (included with adapter), UMB mounting plate, and into the mounting holes on the bottom of the DM3610, as shown below.



The bolts and washers provided with the DM3610 should be discarded and replaced with those provided with the GFC-3610 Laser Guard Adapter.

Using this adapter allows the device to meet Class I requirements.

TYPICAL INSTALLATION CONSIDERATIONS

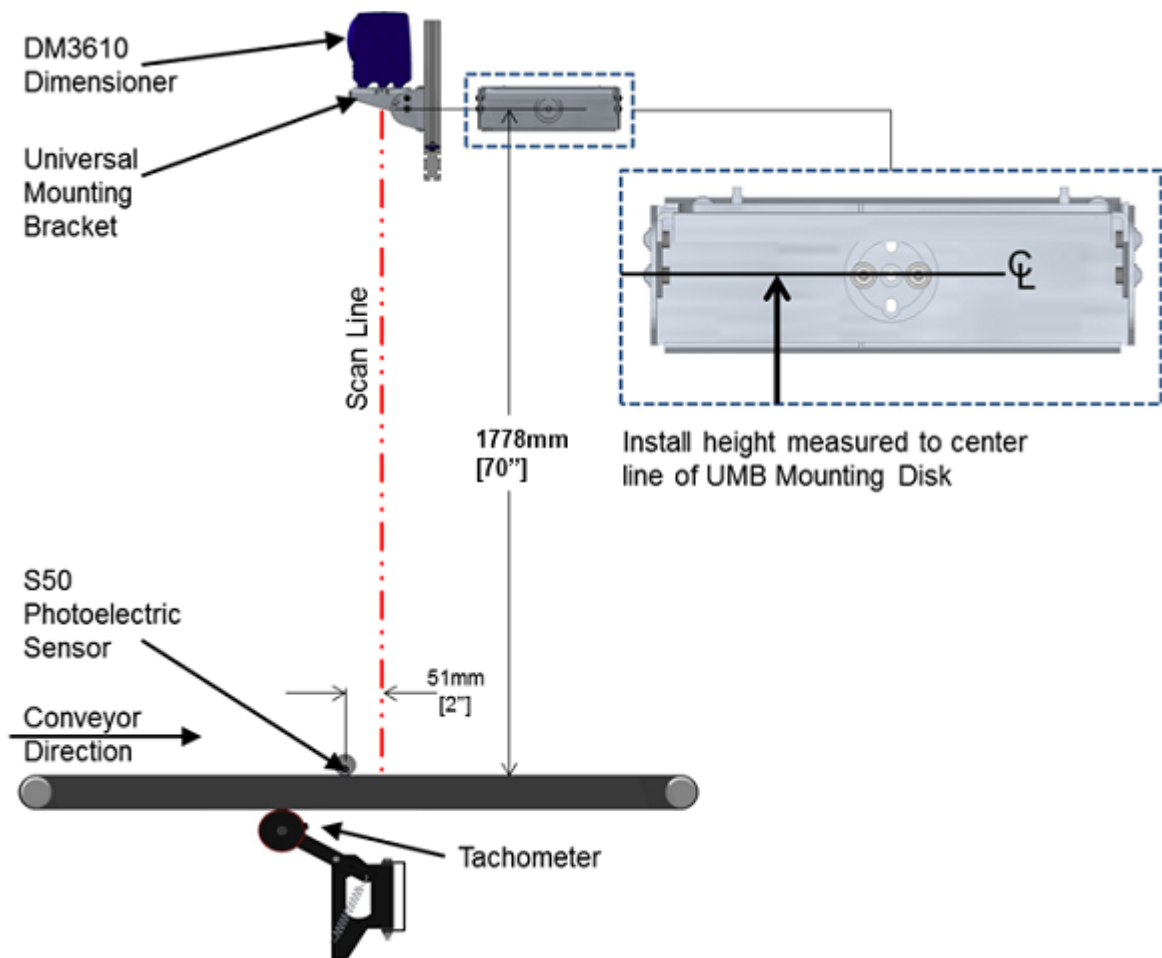
You must mount the following components of the DM3610 system before you power it on:

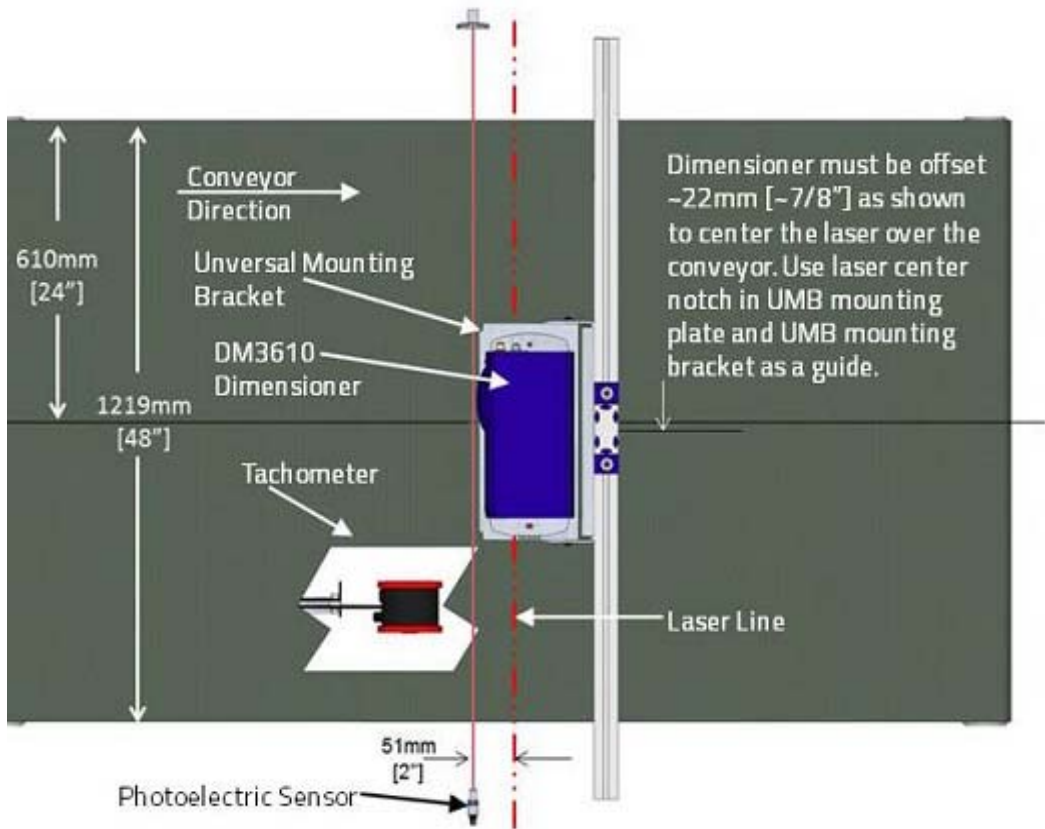
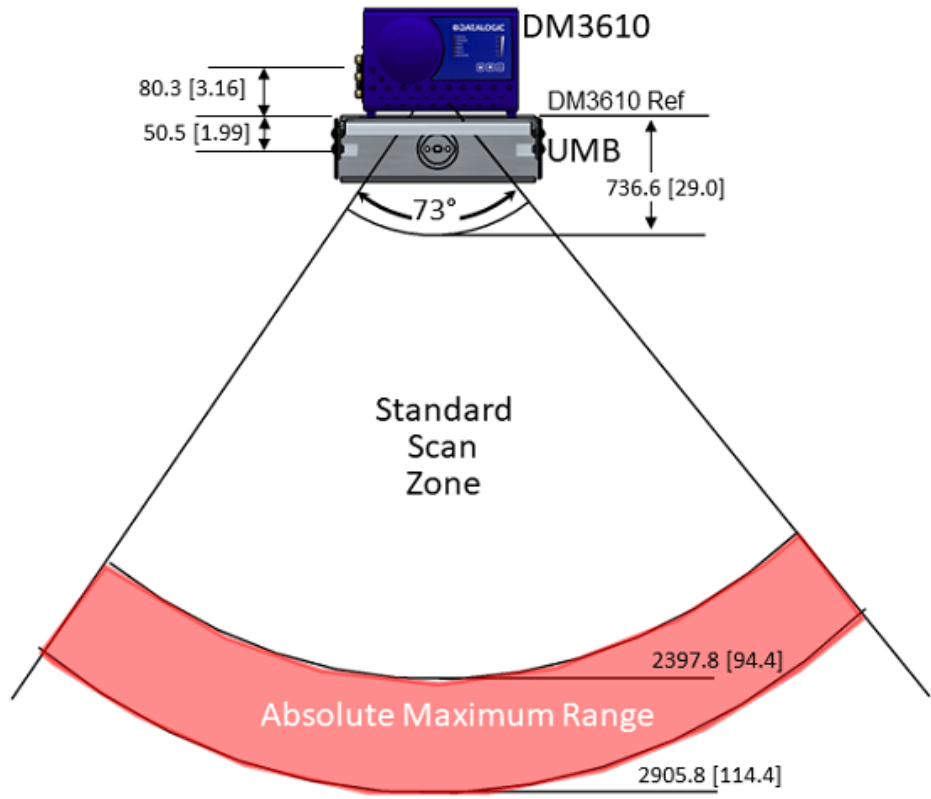
- DM3610
- CBX100 Connection Box
- Tachometer (if used)
- Photoelectric Sensor (if used)



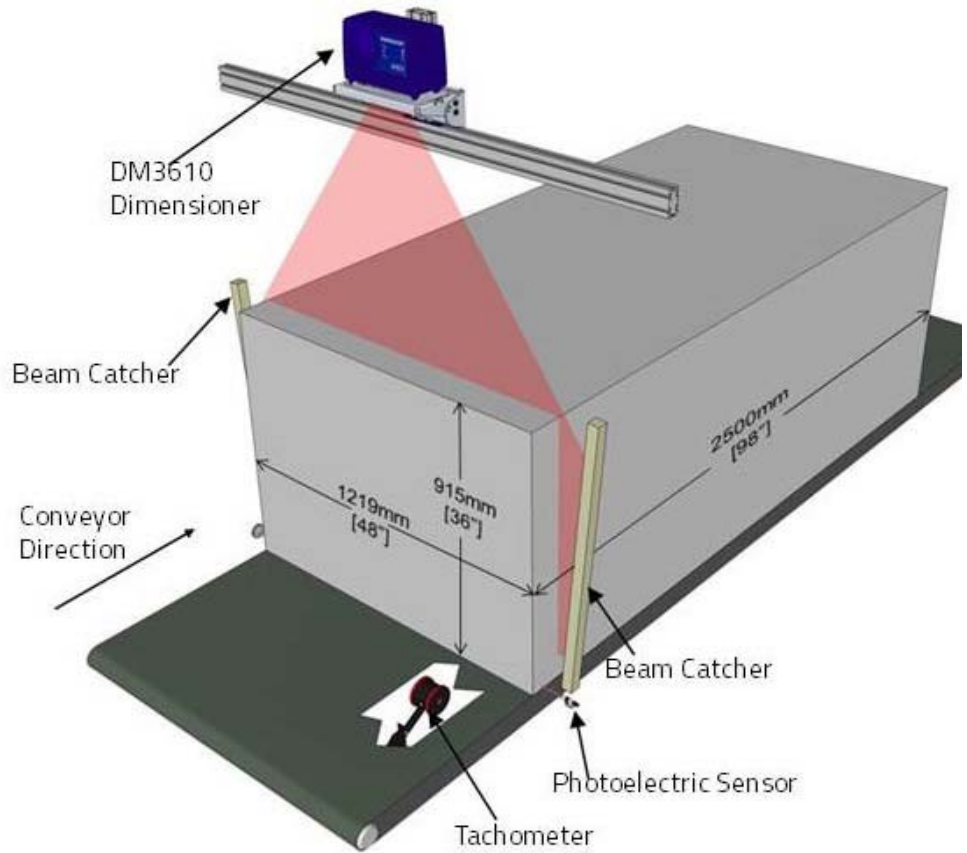
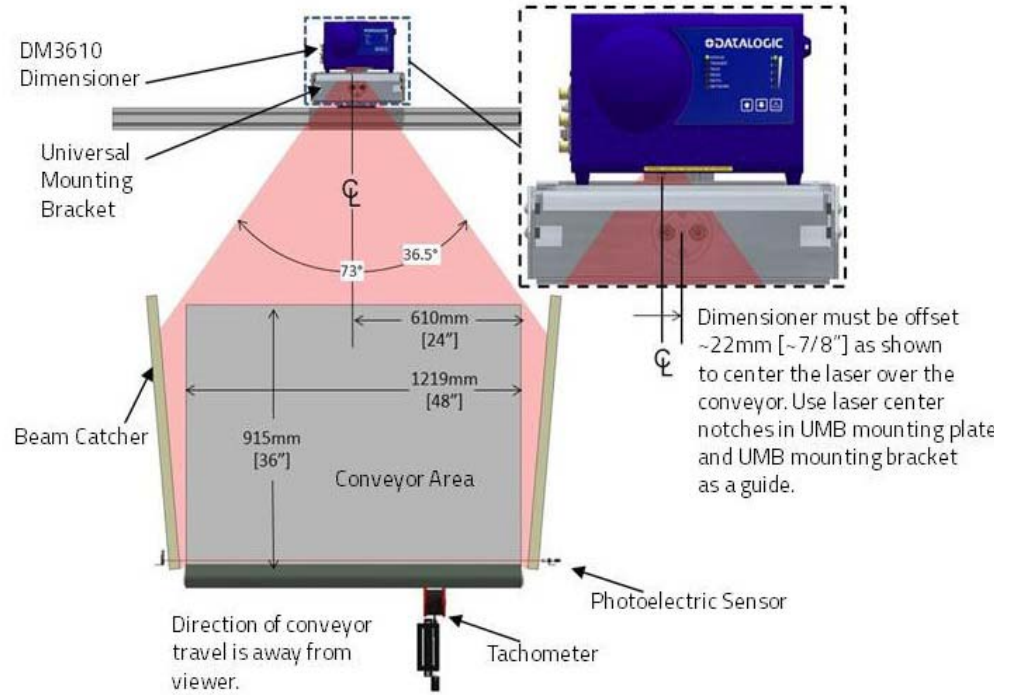
A photoelectric sensor is typically used for DM3610 singulated, nontouching applications. The photoelectric sensor is an object-sensing trigger device. A tachometer is used to measure conveyor speed. (Your installation may use other devices.) A photoelectric sensor is not required for DM3610 applications unless your system requires a defined transmit point.

All DM3610 series dimensioning units must always be mounted above the conveyor. The following diagrams show different views of a typical system installation. They give you an idea of what your system will look like when you mount all your components.





The Conveyor width of 48" is an example. The laser exit point of the DM3610 should be positioned at the center of the conveyor.



MOUNTING STRUCTURE ASSEMBLY

When using the standard mounting structure provided by Datalogic, assemble as defined in the application information provided with the structure.

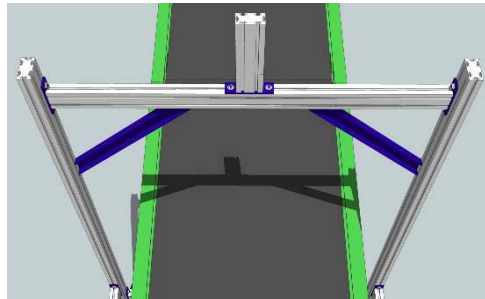


This manual addresses standard DM3610 installation. The information provided here may be superseded by any application specific drawings provided by Datalogic.

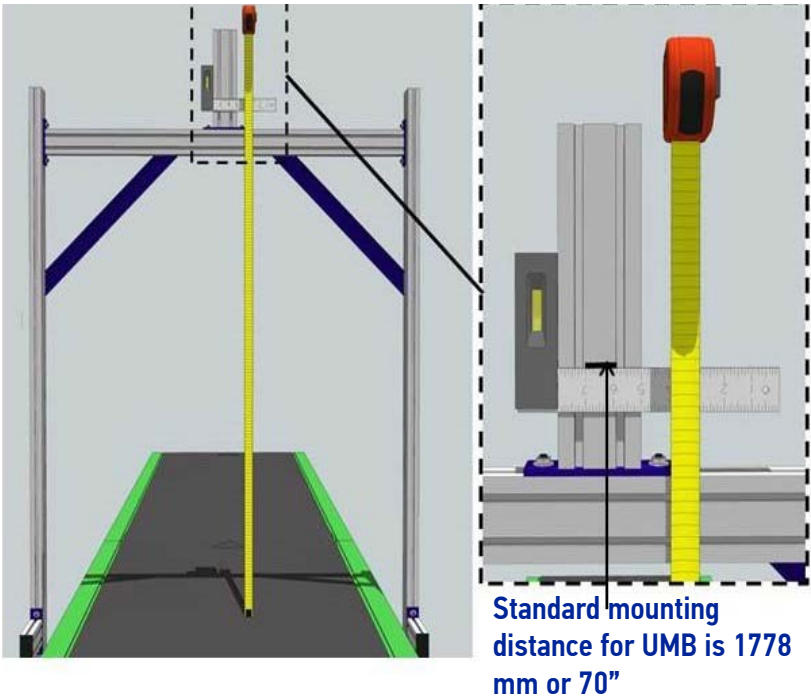
Depending on your specific installation, Beam Catchers may be needed to avoid false dimensioning data points.

Prepare the Mounting Structure and Universal Mounting Brackets

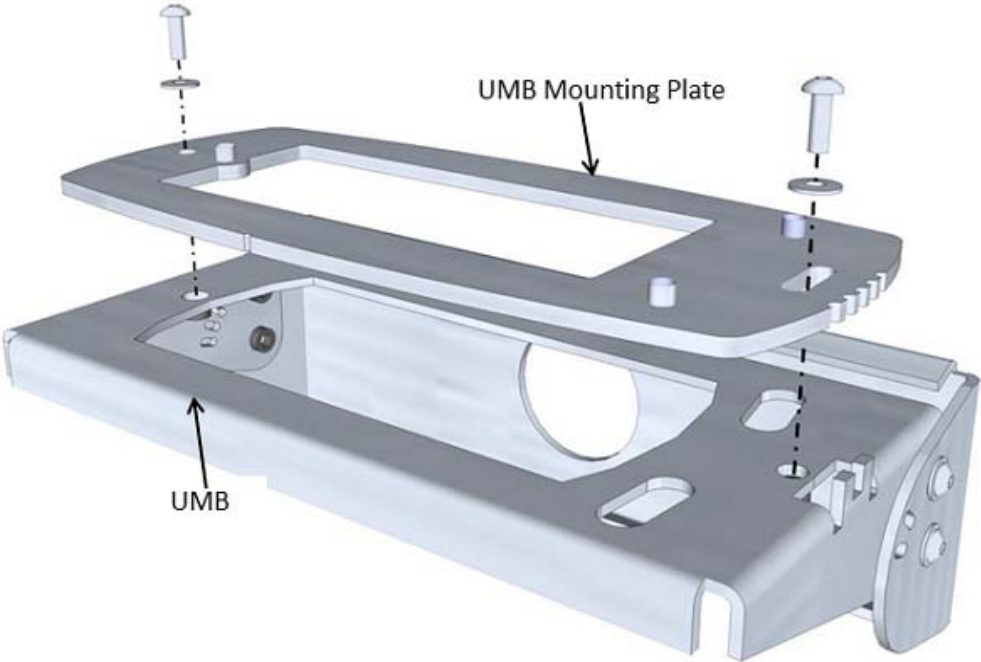
1. In standard installations, the DM3610 Universal Mounting Bracket (UMB) is mounted to a short upright mounting support (from mounting structure extrusion). Install the mounting support approximately centered over the conveyor belt as shown below.



2. Using a tape measure and marker or pencil, make an installation mark on the upright where the center of the Universal Mounting Bracket (UMB) disks will be located. Base your installation marks on application drawings provided with your system if available.
3. at 1778mm [approx. 70"] above the conveyor surface, as shown below. This measurement is used for positioning the Universal Mounting Bracket (UMB). The final height of the base of the DM3610 will be 51mm [2"] higher than this point.

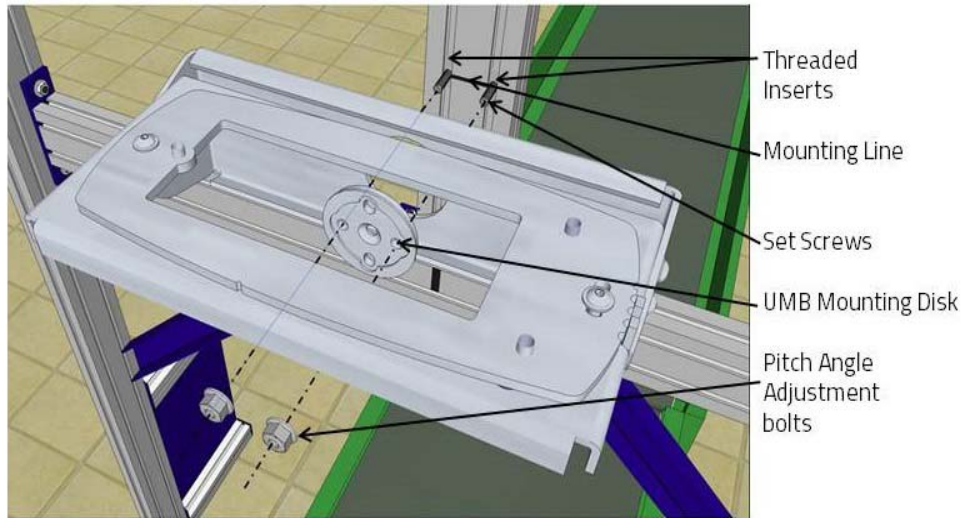


- 4. If the UMB Mounting Plate is not yet attached to the UMB, attach it now with the screws provided.

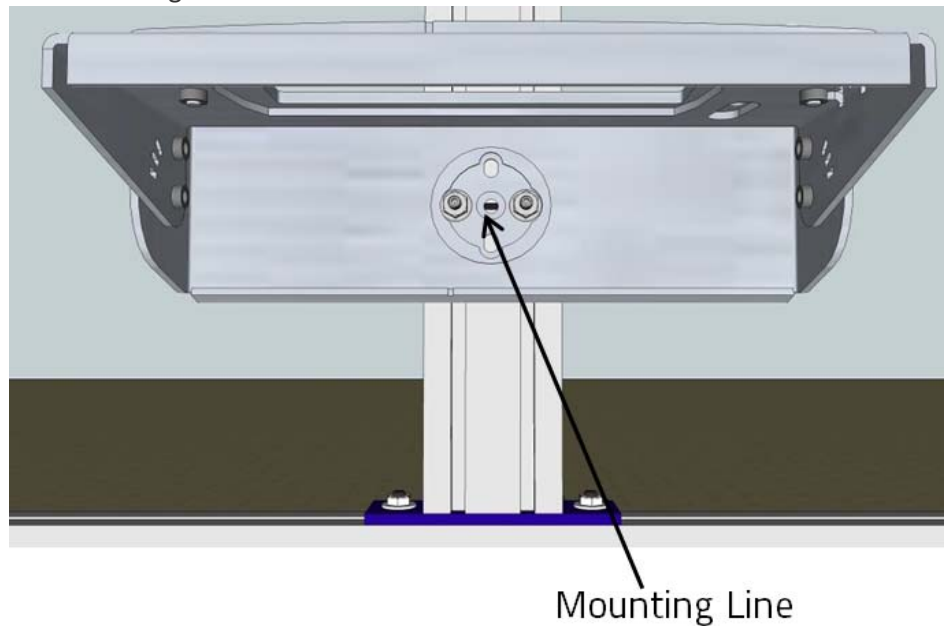


Mounting Structure and Universal Mounting Bracket

1. The UMB is fastened to the mounting structure with the UMB Mounting Disk, threaded inserts, set screws, and matching nuts. Place the threaded inserts into the mounting extrusion tracks one at a time and secure them at the mounting mark with the set screws provided.

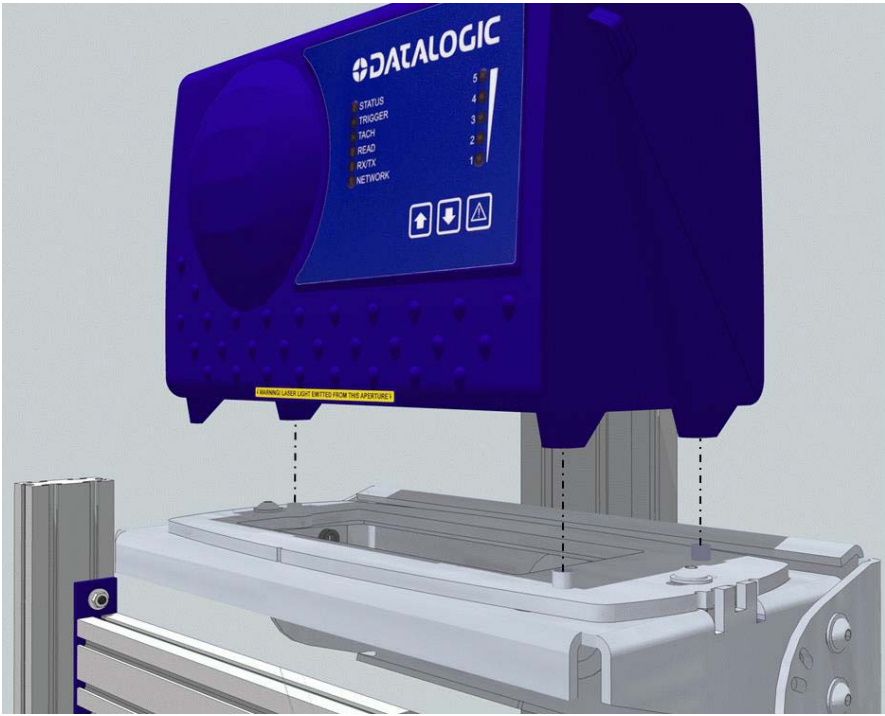


2. Adjust the UMB so that the installation mark is at the center slot of the UMB Mounting Disk.



DO NOT over-tighten hardware that holds the UMB in-place.

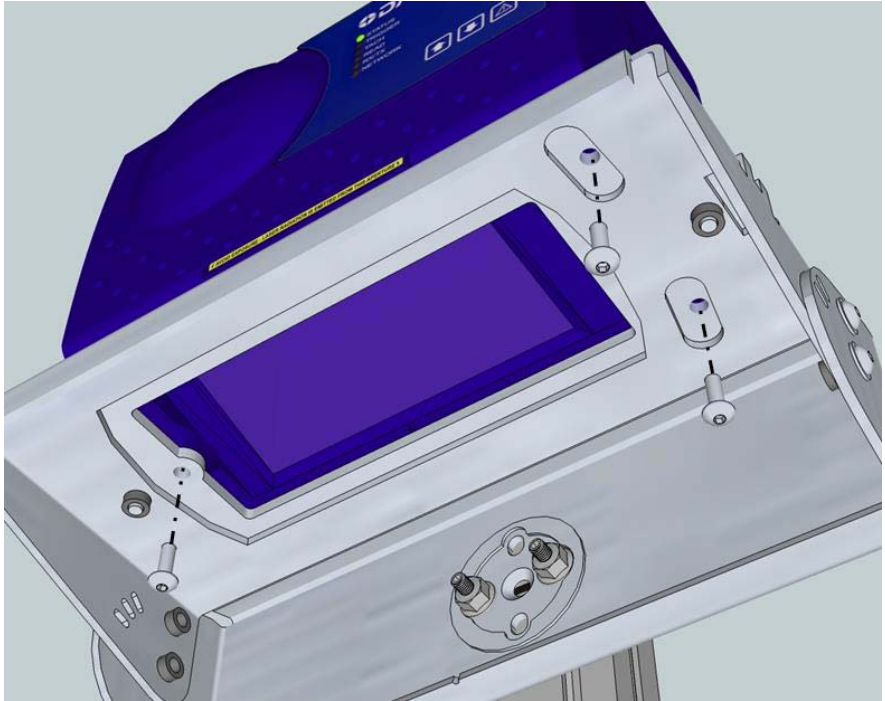
3. Set the DM3610 dimensioner on top of the UMB assembly, placing the feet of the DM3610 over the positioning posts on the UMB Mounting Plate.



- 4. Secure the DM3610 with the three mounting screws provided. The mounting screws pass through the positioning posts and into the feet of the DM3610.



If you are using the optional Class 1 EU Adapter, attach it now using the screws and spacers provided.

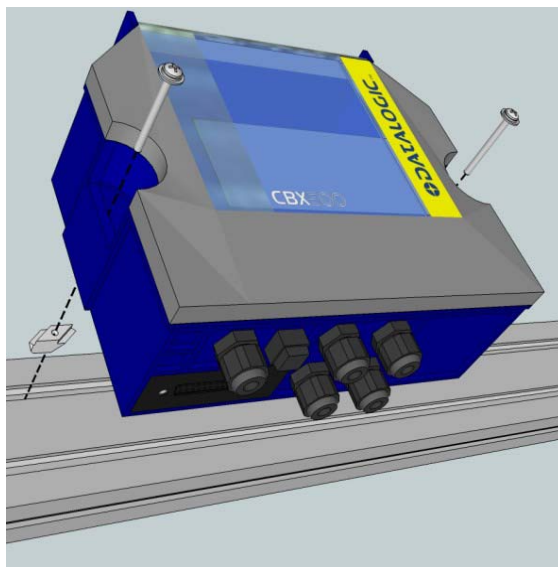


When viewing from conveyor downstream, in standard configuration the connector panel will be facing to the RIGHT side of the conveyor.

Mounting the CBX Connection Box

Mount the CBX to the mounting structure in a location to facilitate easy access to wiring. Secure the CBX with the bolts and drop-in T-nuts provided.

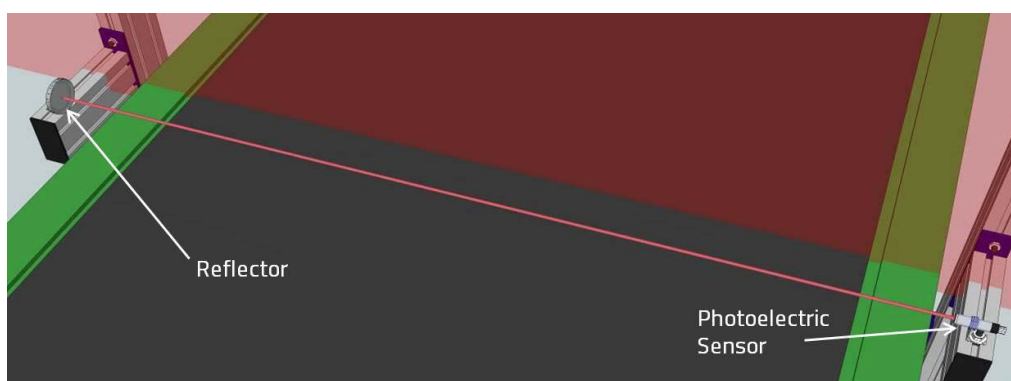
When mounting CBX to a fixed surface, the stencil included in the package can be used to drill the appropriate mounting holes.



Mounting the Datalogic Photoelectric Sensor

The standard DM3610 hardware trigger is a Datalogic photoelectric sensor. It works by emitting a light beam that is returned by a simple reflector. When a package breaks the path of light, the trigger signal is activated.

In order for photoelectric sensor to work properly, make sure the following things are done when mounting the trigger photoelectric sensor.



Mounting supports may differ from the extrusion shown in the image above.



- Mount the photoelectric sensor so it is parallel to and 50 to 150mm [2 to 6] inches upstream from the DM3610 laser.

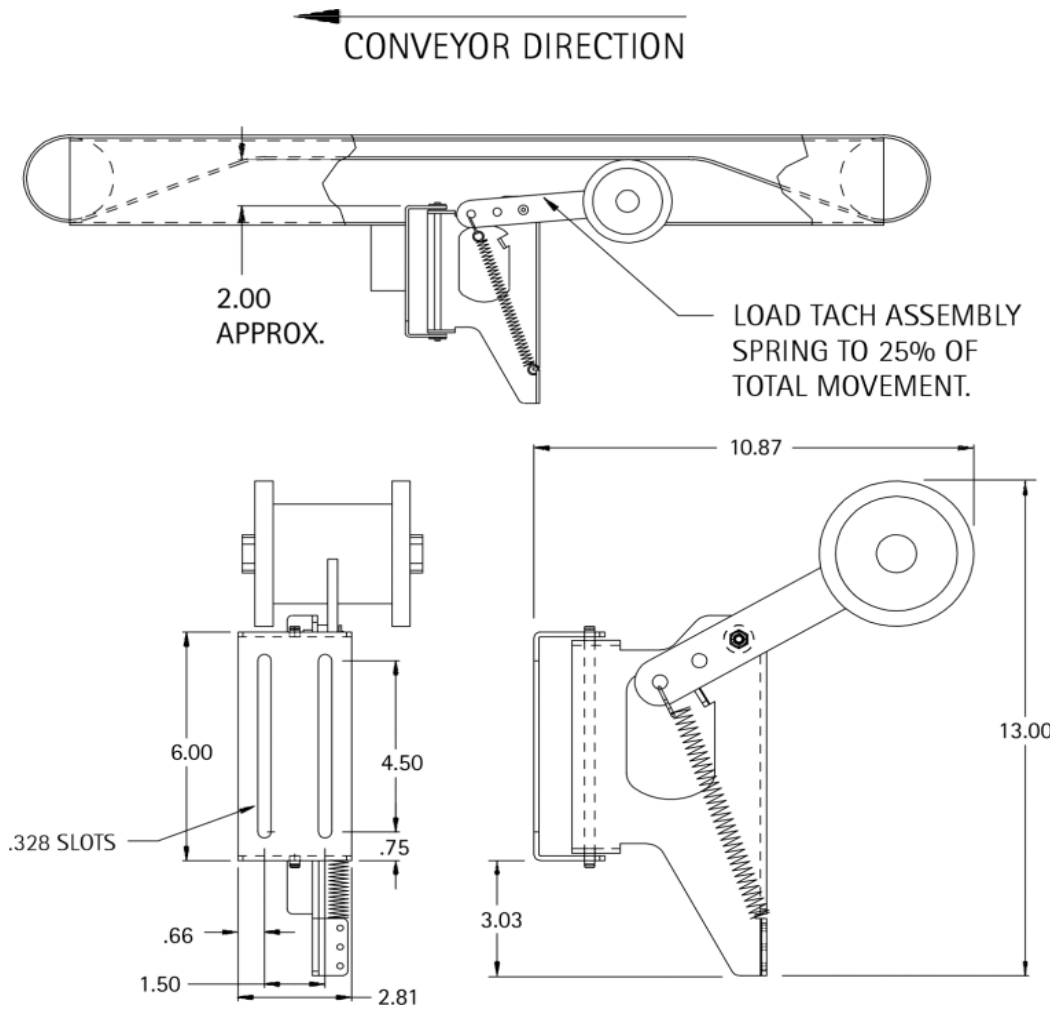
The distance from the photoelectric sensor to the DM3610 laser line must be entered in the Modify Settings | Tach/Trigger/Transmit window of the User Interface in the Trigger Reference Point text field. See chapter 4, User Interface.

- Mount the reflector directly opposite the emitter on the other side of the conveyor.
- The emitter must be mounted so the light exit window is perpendicular to the conveyor, facing the reflector.

Mounting the Tachometer

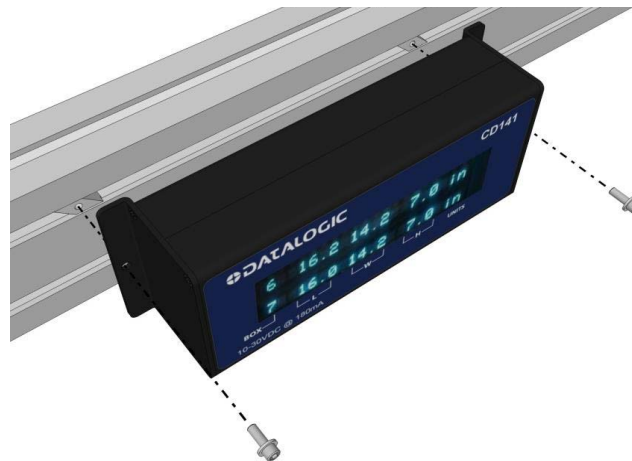
The tachometer (tach) outputs a set number of pulses for each wheel rotation. This tells the DM3610 the precise conveyor speed, allowing it to determine the exact package position. Because the exact layout of many conveyors is unique, it is impossible to give exact directions for tachometer mounting. Follow the guidelines below as closely as possible:

- Mount tach on the conveyor section where dimensioning is performed.
- Mount tach on the underside of the conveyor, away from areas where the conveyor bows downward. A good place to mount the tach is on one end of the conveyor, close to the drive shaft.
- Make sure tach assembly angles in the same direction that the underside of the conveyor travels.
- The tach must make good contact with the conveyor.
- The anti-static brush provided with the tach must be installed to assure proper operation.
- Use the tachometer mounting kit to make tachometer mounting and setup easier.



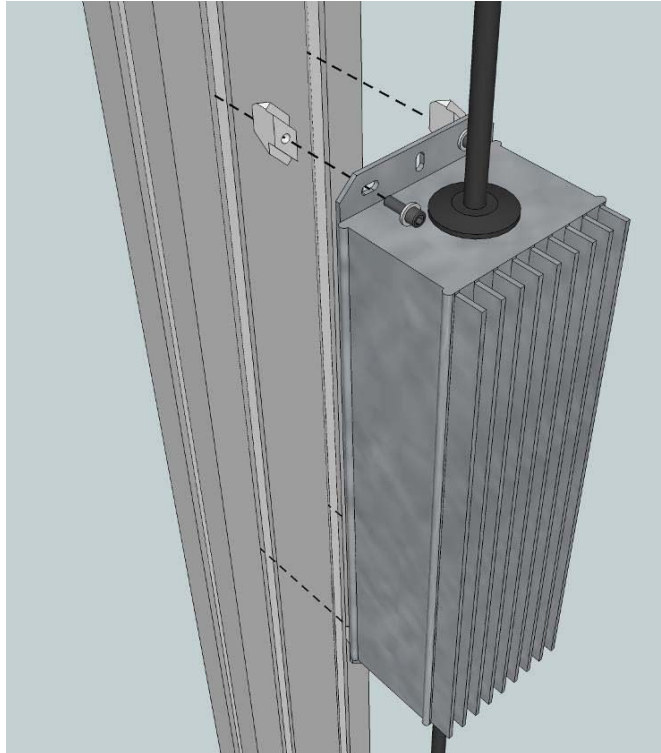
Mounting the Remote Display

The remote display should be mounted for easy visibility. It is used to display DM3610 certification mode data (box length, width, height) in both inches and centimeters. Interconnections to the DM3610 are covered in chapter 3, Electrical Installation.



Mounting the Power Supply

Mount the power supply in a location on the structure where its cables can reach both the DM3610 and a power source. Secure the power supply to the mounting structure using the supplied hex screws and drop-in T-nuts as shown below.

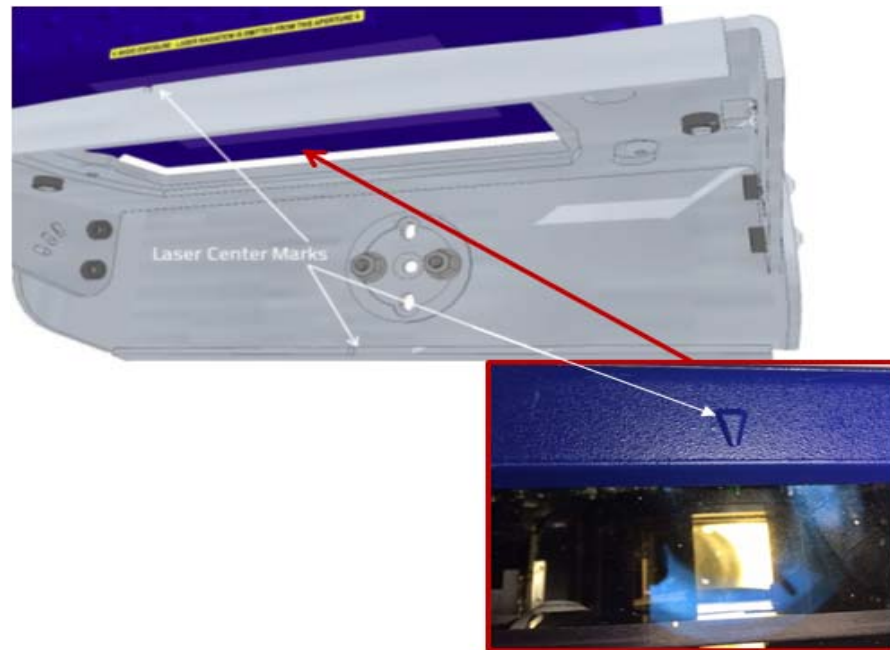


ALIGNING DM3610 DIMENSIONING SYSTEM

For the DM3610 to function properly and provide accurate dimensioning information, the unit must be carefully aligned.

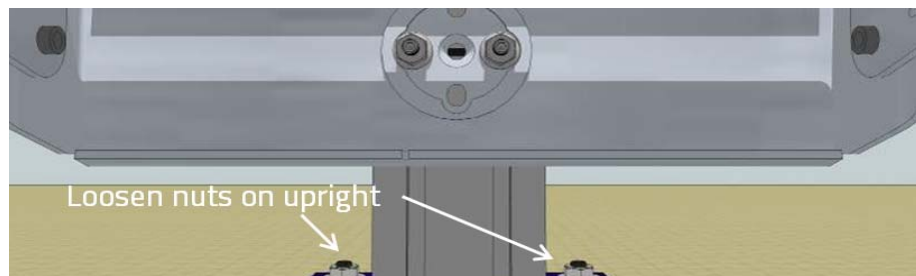
Centering the Dimensioner

Laser center marks on the UMB, UMB Mounting Plate, and underside of the DM3610 help you align the laser over the center of the conveyor.



Center the dimensioner over the conveyor:

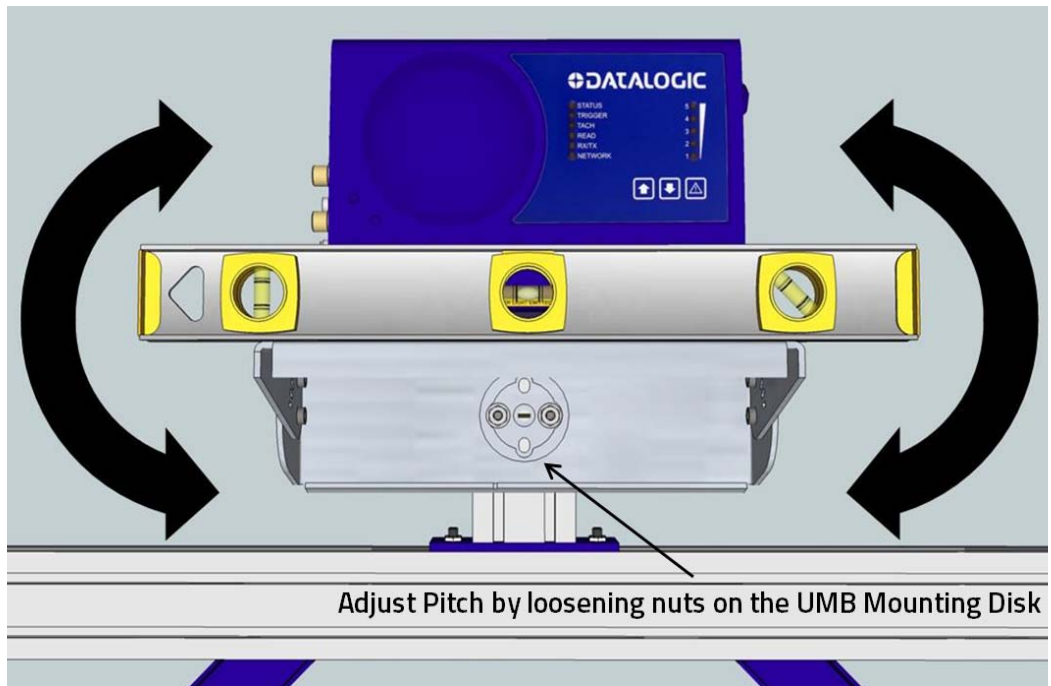
1. If the mounting structure is exactly centered over the conveyor, you can measure and mark the center of the mounting structure cross piece. If the structure is not centered, you may need to drop a plumb bob from the laser center notch in the UMB to the conveyor to align with the center of the conveyor.
2. Slightly loosen the nuts securing the mounting structure upright.



3. Align the laser center marks on the UMB or DM3610 with the center mark on the mounting structure cross piece or the center of the conveyor by sliding the upright along the mounting structure cross piece.
4. Re-tighten the nuts securing the uprights when the laser center marks have been aligned with the center of the conveyor.

Adjusting the Pitch

1. Use a bubble level or angle meter to determine the angle of the conveyor surface.
2. Adjust the UMB so the DM3610 is set to the same angle as (parallel to) the conveyor. This will allow the DM3610 to report the same dimensions whether the box is sent down the left or right side of the conveyor. This will be confirmed in a step later on in this document.



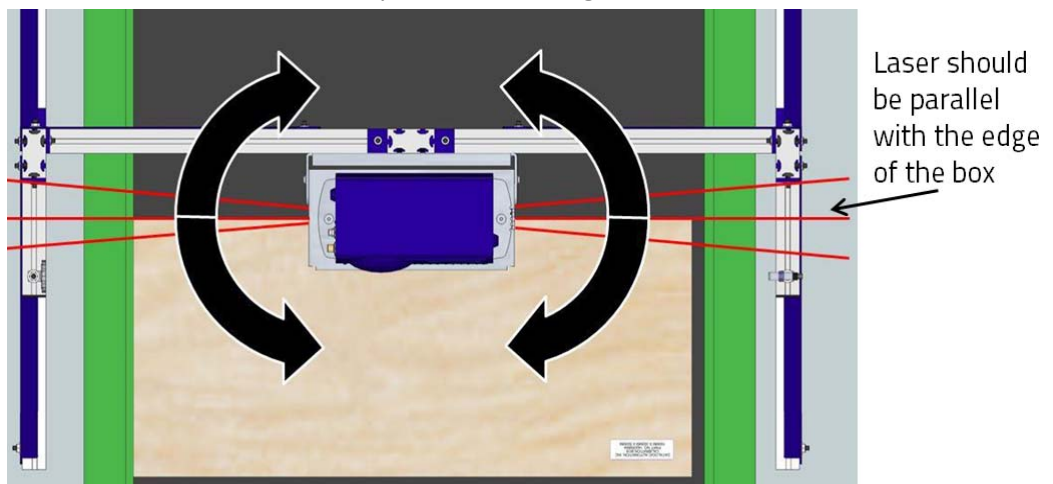
3. Slightly loosen the nuts on the UMB Mounting Disk on the UMB to adjust the pitch angle.



Take care to only loosen the nuts and not the two set screws that anchor the UMB to the mounting structure

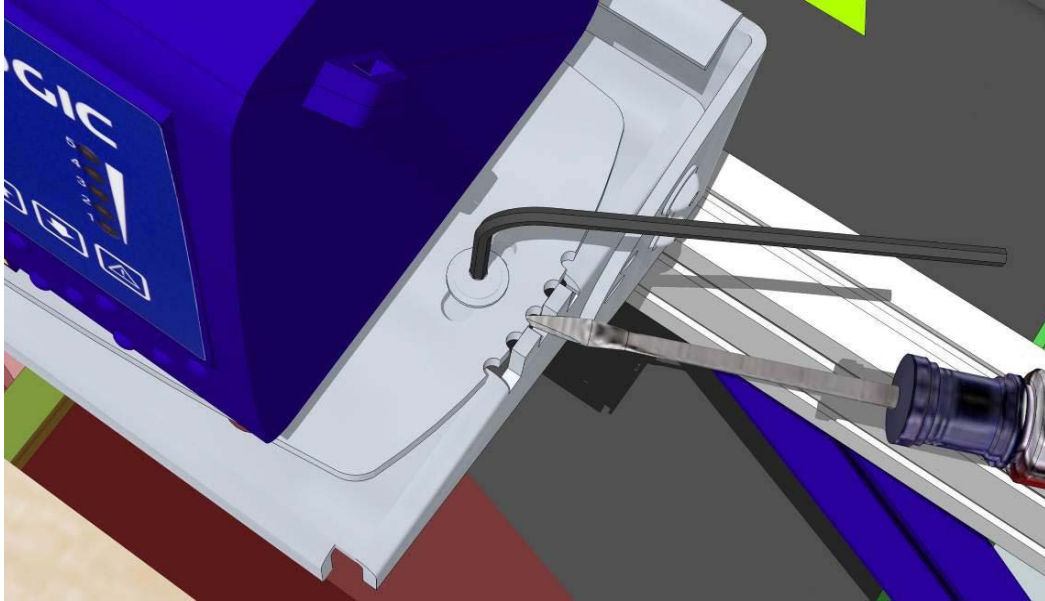
Adjusting the Tilt

1. With the DM3610 powered up and the laser active, set the largest test box (see Calibration Kit in chapter 1, Introduction) perpendicular to the conveyor with its edge even with the edge of the conveyor.
2. While keeping the test box aligned with the conveyor, adjust its position until the laser is just touching the edge of the box. The goal is to adjust the alignment of the DM3610 until the laser is parallel to the edge of the test box.



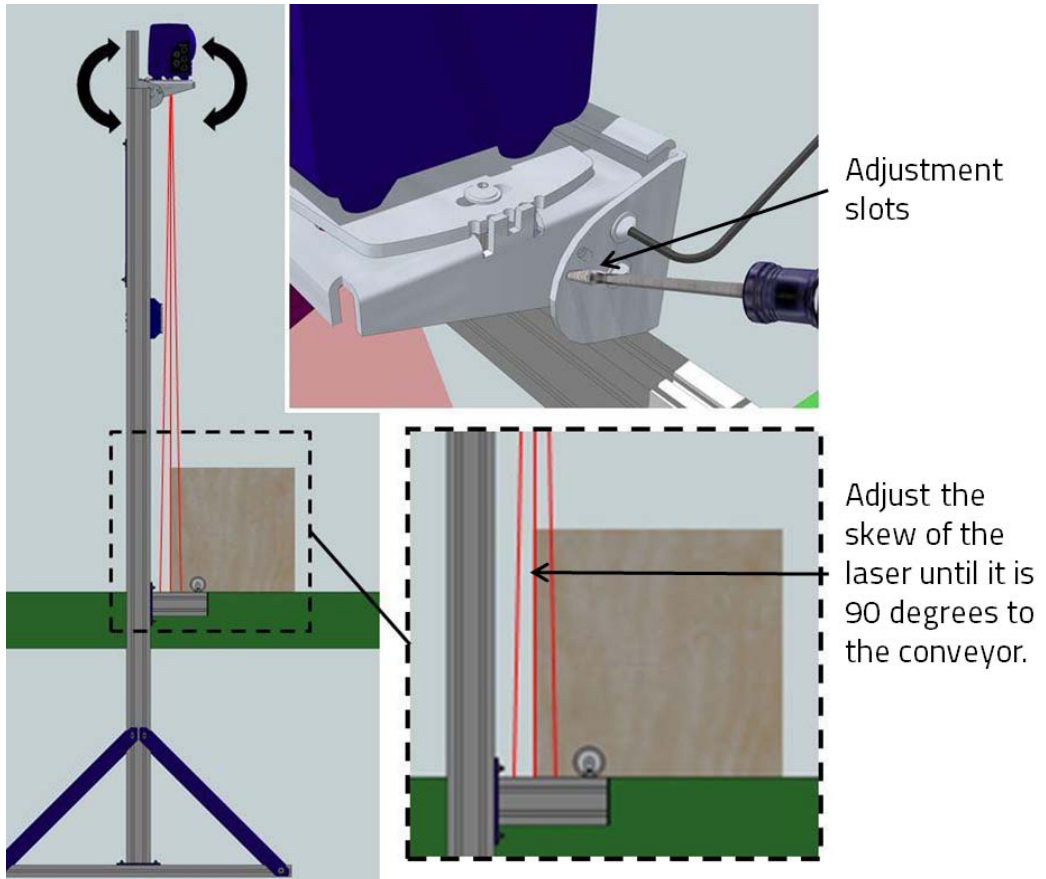
3. To adjust the laser tilt, loosen the screws securing the UMB Mounting Plate to the UMB and using a flathead screwdriver carefully pry the plate back and forth until

the laser is exactly parallel to the edge of the test box. When adjusted correctly, tighten the UMB Mounting Play screws.



Adjusting the Skew

To adjust the laser skew, loosen the screws securing the front of the UMB to its back (makes sure to loosen on both sides) and use a flathead screwdriver to carefully pry the front of the UMB up and down using the adjustment slots until the laser is exactly 90° to the conveyor. Again, use the edge of the box as a guide. When adjusted correctly, tighten the UMB screws.



Adjust Photoelectric Sensor Alignment

With the DM3610 laser aligned, measure the distance from the photo sensor to the DM3610 scan line. Enter the distance into the Trigger Reference Point parameter field in the DM3610 User Interface (see chapter 4, User Interface). The photoelectric sensor should be set up 50 to 150mm [2 to 6"] from the DM3610 laser line.

CALIBRATION AND SETUP

After the DM3610 dimensioning system has been installed, it must be calibrated and configured for precise package dimensioning. See chapter 5, Dimensioning Features for complete procedures for calibrating your system.

CHAPTER 3

ELECTRICAL INSTALLATION

ESD CAUTION



The DM3610 contains electronics that may be affected by electrostatic discharge (ESD). To prevent personal injury or damage to the unit, please follow the safety precautions and warnings found in the introduction of this manual. Failure to follow these precautions may void your warranty.

HIGH VOLTAGE



Electrical Installation by Qualified Service Technicians Only! A trained technician must perform any procedures involving potential exposure to high voltage electricity. Do not attempt to perform any electrical installation procedures unless you are a trained technician.

NOTE



Refer to the Reference Documentation for details on connecting your DM3610 dimensioner to other devices in the system.

PREPARING FOR ELECTRICAL INSTALLATION

Before mounting any components, please do the following:

- Read all instructions before beginning your installation.
- Observe all electrical safety requirements discussed in the Introduction to this manual.
- Define and confirm the accuracy of your application's requirements.
- Review all installation-specific drawings.
- Review and plan the power requirements for your application.
- Review and plan the communications requirements for your application.

WARNING



The content of this manual may be superseded by any customer-specific documentation provided by Datalogic. Before proceeding with any installation procedures, be sure to review ALL documentation, especially content that contains details specific to your installation.

INSTALLATION SEQUENCE



Everything should be **MECHANICALLY INSTALLED** before performing any **ELECTRICAL INSTALLATION**. See chapter 2 for mechanical installation details

Most DM3610 applications are shipped with the CBX connection box and all the necessary cabling required to electrically install the system. If your system requires custom-length cables or other special wiring, documentation specific to these requirements has been provided in your shipment. This special documentation supersedes any contradictory content in this manual.

To reduce the possibility of damage to the unit, check all cabling between the DM3610 and other devices for accuracy.

To install a DM3610 Dimensioner, follow this sequence:

- Complete mechanical installation (*See chapter 2.*)
- Complete electrical installation. (See wiring illustrations provided in this chapter.)
- Observe all electrical safety requirements outlined in this chapter.
- Ground the mounting structure to protective earth (PE) ground.
- If used, wire the photoelectric sensor (or other trigger) to the CBX.
- Wire the tachometer to the CBX (if used).
- Wire serial ports to the CBX if needed.
- Connect the M12 end of the Ethernet cable to the DM3610 HOST port and network switch as required by your application.
- Wire the Remote Display to the CBX (if used).
- Connect the DM3610 to its power supply
- Connect the power supply to the power source.
- Setup / check DM3610 operations (*See chapter 5.*)
- Connect the DM3610 to the host.

Installation Guidelines and Precautions

It is important that you follow these general precautions when installing, setting up, operating, maintaining, troubleshooting or replacing any Datalogic products, parts or related equipment. As you plan and install your DM3610, be sure to keep the following guidelines in mind:

- Determine the DM3610 is in the proper location as outlined in Chapter 2.
- Leave adequate clearances (approximately 200-300 mm [8-12 inches]) for wiring.
- Route wires carefully to reduce or minimize electrical noise.
- When power and communication wiring must cross, make their intersection perpendicular. Avoid running power and data wiring parallel to each other. If possible, maintain one of the following separations between the power and data wiring:
 - 300 mm [12 inch] gap
 - use steel conduit and 25 mm [1 inch] gap
 - 6.5 mm [0.25 inch] of aluminum

ESD CAUTION



To assure no ESD damage will occur, be sure to observe the precautions outlined in the introduction to this manual.

WARNING



When planning your installation wiring, remember all power connections must be quick-disconnect. For PERMANENTLY CONNECTED EQUIPMENT a readily accessible disconnect device must be incorporated in the building installation wiring. For PLUG-GABLE EQUIPMENT the socket-outlet must be installed near the equipment and must be easily accessible.

IMPORTANT



Ground the mounting structure to safety ground (protective earth ground (PE)). See wiring recommendations for safety ground.

DM3610 Connector Panel

After completing mechanical installation, use this section to properly wire your DM3610 for optimal performance in your application. DM3610 wiring connections are made to the connector panel and through the CBX100 connection box (connected to the I/O port of the DM3610). In most dimensioning applications, the cable connections to the DM3610 will include:

1. I/O (Connects directly to the 25-pin D type connector on the CBX100)
2. POWER 24V – – 4A MAX (Power)
3. HOST (Host Computer)
4. ETH 1 (Ethernet)
5. ETH 2 (Ethernet)



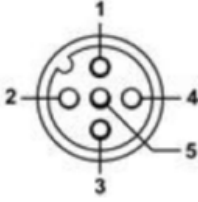
Route wiring to the DM3610's connector panel through the wiring channels (if available) on the Datalogic mounting structure when running interconnecting cables between other devices and the dimensioner.



Power Connector Pin-Out Table

A recommended power supply and cabling is available either as an accessory or included in the Dimensioning Solution kit. However, if your installation requires custom power supply wiring, the pin-outs of the unit power connector are provided below for your convenience.

DM3610 Power Connector Pin-outs – Top Row of Connectors

24 ... 4A MAX	POWER INPUT	
	Connector (shown)	Mating Connector
	5-Pin M12 Type Male	5-Pin M12 Type Female
Male 5-Pin M12-Type	PIN	FUNCTION
	1	+24VDC
	2	N/C
	3	DC RETURN
	4	N/C
	5	Protective Earth (Chassis)



When using the DM3610 Dimensioner, no power supply is required for the CBX100 connection box. All power and some communication options are fed to the CBX100 through the DM3610's 17-pin I/O connector to the CBX100 25-pin connector.

Chassis ground needs to be connected! Use cable CS-A1-03.

Power Connection

HIGH VOLTAGE



While performing the following wiring connection procedures, be sure to follow all safety procedures regarding high-voltage as outlined in the introduction to this manual. No power should be applied to any device until all wiring is completed and checked for accuracy.

WARNING



When planning your installation wiring, remember all power connections must be quick-disconnect.

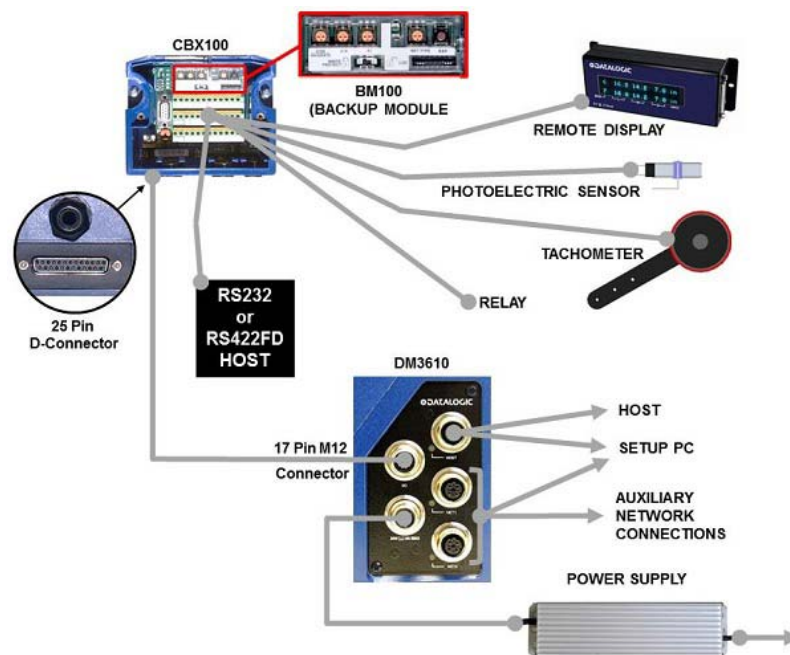
The socket-outlet must be installed near the DM3610. The outlet must be a readily accessible disconnect device.

IMPORTANT



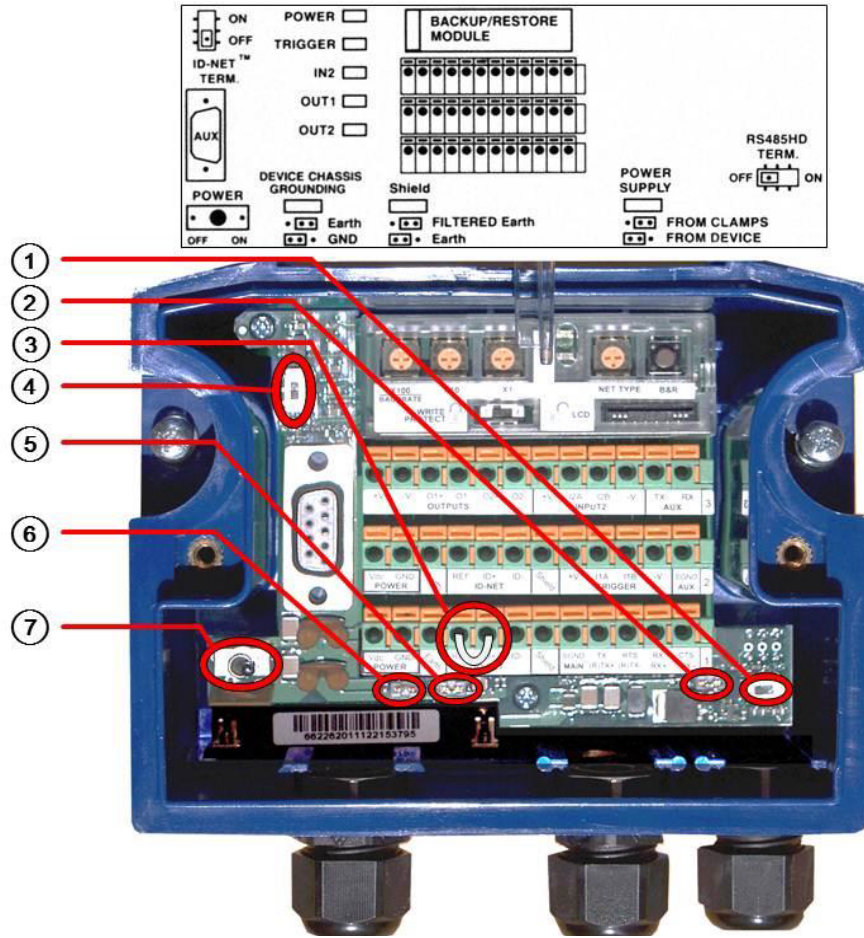
Ground the DM3610 to safety ground (protective earth ground (PE)). See wiring recommendations for safety ground.

The CBX100 connection box provides flexible connectivity to a range of I/O devices as well as serial hosting. The DM3610 connects to the CBX100 via its I/O port using a single 17-pin M12 to 25-pin D cable. The CBX100 also provides space for an optional BM100 backup module (recommended) for parameter storage, allowing quick replacement and configuration of the DM3610.



CBX100 Connection Box Initial Configuration

Complete installation information is available in the *CBX100 Installation Manual* available at www.datalogic.com. Please verify that the CBX100 connection box is configured for the DM3610 application as follows:



Reference the image and diagram above:

1. Set RS485HD TERM switch to OFF
2. Set POWER SUPPLY jumper to FROM DEVICE.
3. Insert jumper wire in pin block from REF to ID+ (one jumper in either block is sufficient).
4. Set ID-NET TERM switch to OFF.
5. Set Shield jumper to FILTERED Earth.



This jumper indicates to the DM3610 that the CBX100 is connected. It also indicates that the DM3610 should supply 24VDC to the CBX100.

6. Set DEVICE CHASSIS GROUNDING to Earth.
7. Set POWER switch to ON.

Photoelectric Sensor Connections

Standard DM3610 singulated applications may use a Datalogic photoelectric sensor as its trigger device. The photoelectric sensor is only required if dimension data is transmitted at a certain transmit point. The photoelectric sensor is wired directly into the CBX100.

If your application uses a trigger other than the one specified by Datalogic, follow the appropriate wiring diagram to assure proper wiring.



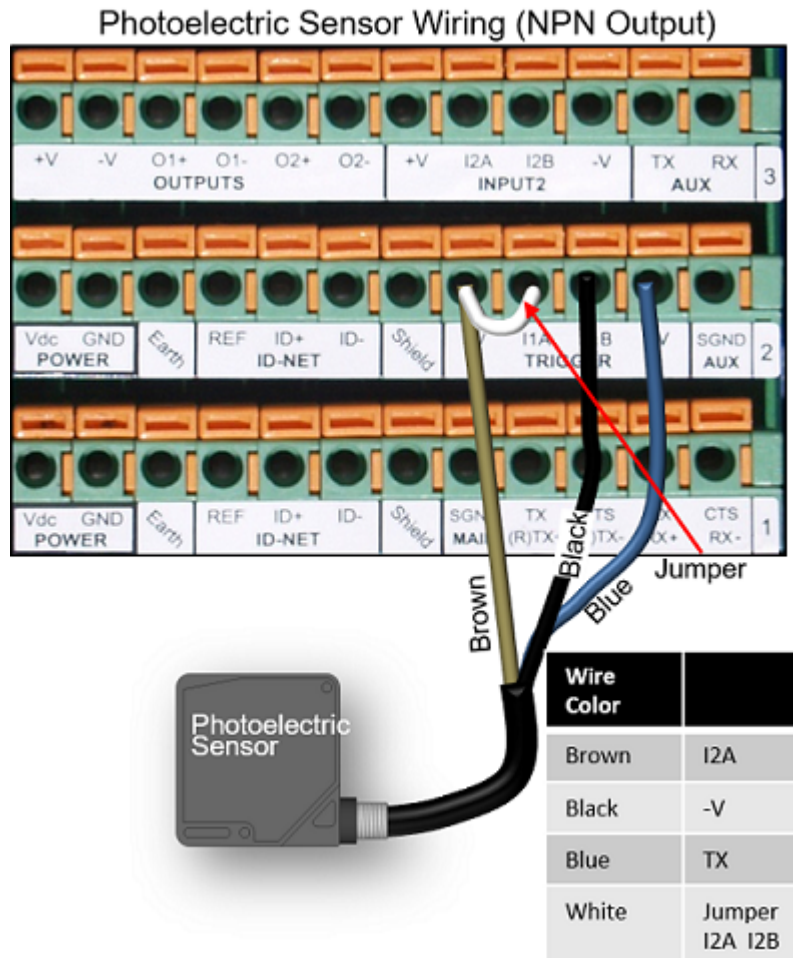
To confirm the photoelectric sensor is functioning properly, watch the TRIG LED while the photoelectric sensor's beam is blocked. The Datalogic photoelectric sensor also includes a status LED.



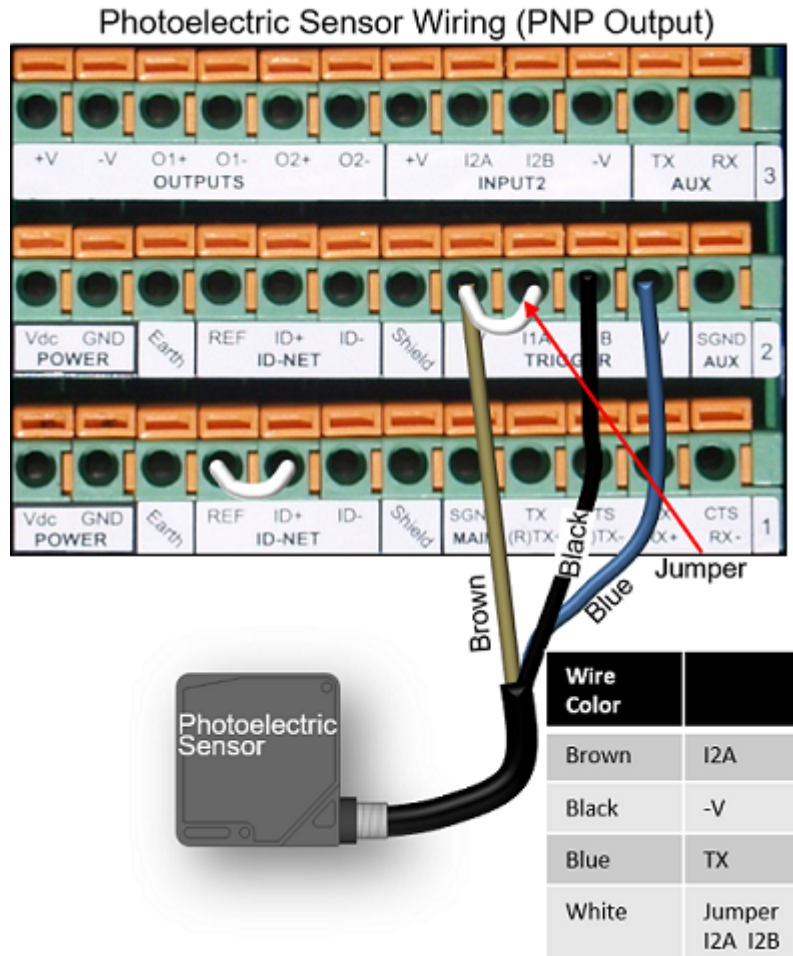
You must use shielded interface cables with this product. To maintain FCC compliance, the cable shield must make a 360-degree connection to the shielded mating connector.

Photoelectric Sensor Standard Wiring (NPN Output)

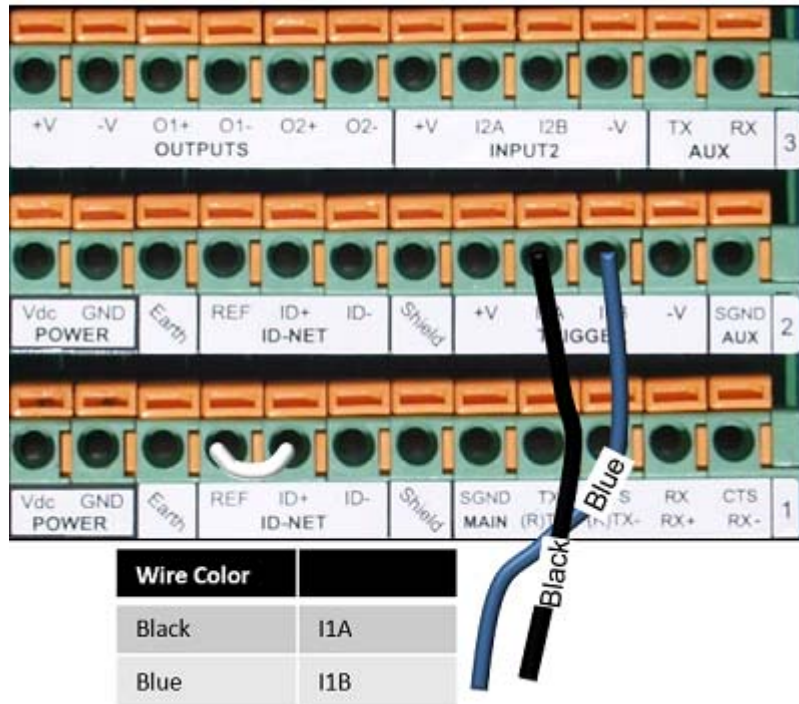
The following diagram illustrates standard/recommended wiring of the Photoelectric Sensor in a DM3610 application.



Photoeye Sensor Wiring (PNP Output)



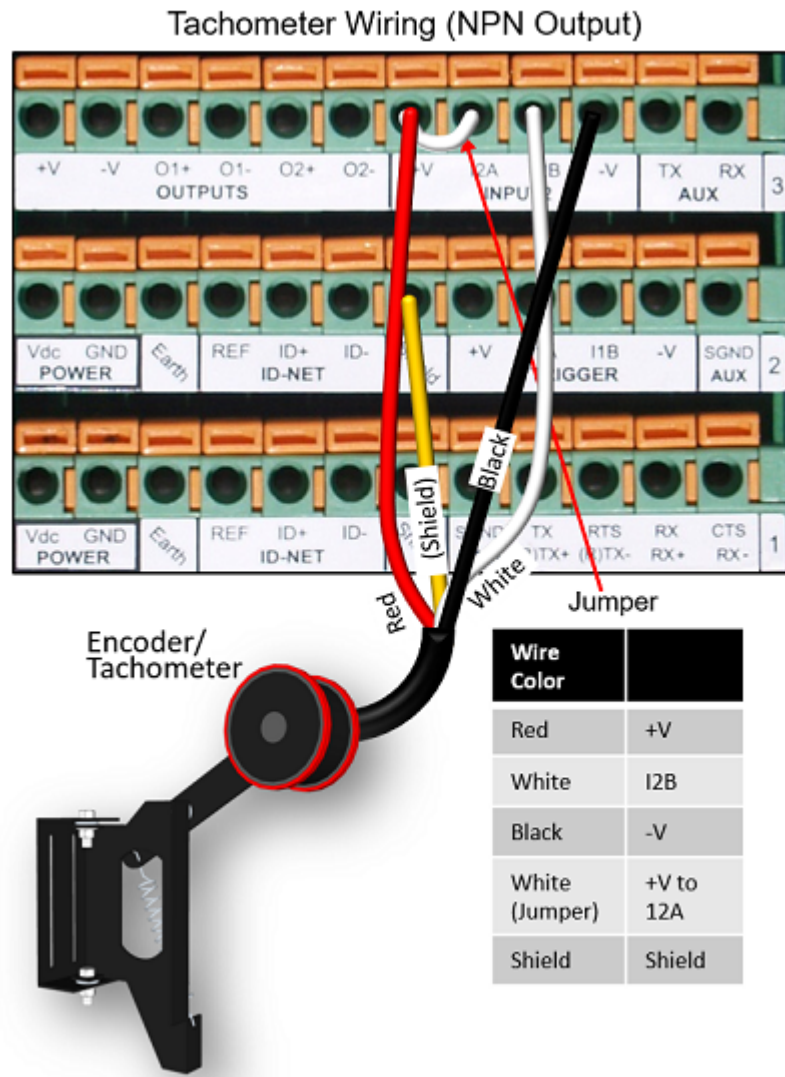
24VDC Output



Tachometer Wiring

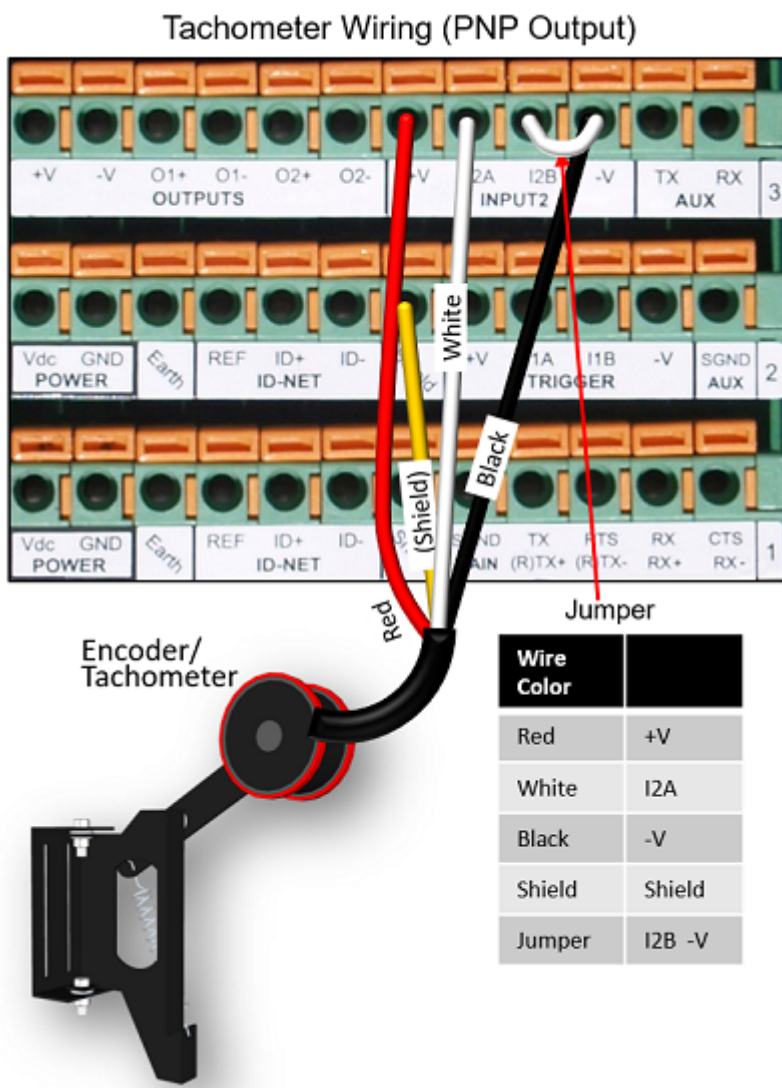
DM3610 applications over a conveyor belt use an accessory tachometer and mounting kit. Use the cable provided with the tachometer to connect to the CBX100 pin block as shown below.

Standard Tachometer Wiring (NPN Output)



Some tachometers may have a different color coding:
 (+V) Red or White/Orange
 (Signal) White or White/Blue
 (Ground) Black or Orange/White

Tachometer Wiring (PNP Output)



Some tachometers may have a different color coding:

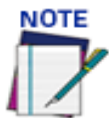
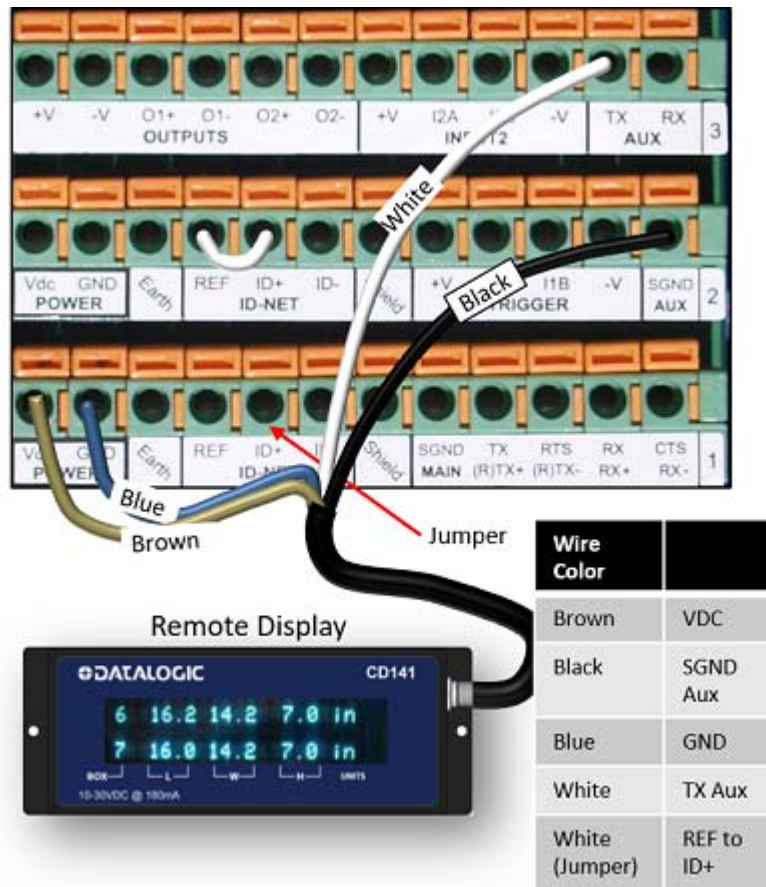
(+V) Red or White/Orange

(Signal) White or White/Blue

(Ground) Black or Orange/White

Remote Display Wiring

A Datalogic CD141 40-Character Remote Display is required for some certified dimensioning applications. The display is wired directly to the CBX100 pin block as shown below.



NOTE Make sure to set the communication parameters to 9600, 8, None, 1

Serial Communication Wiring

The DM3610 provides serial RS232/422 communications to other devices through the CBX100.

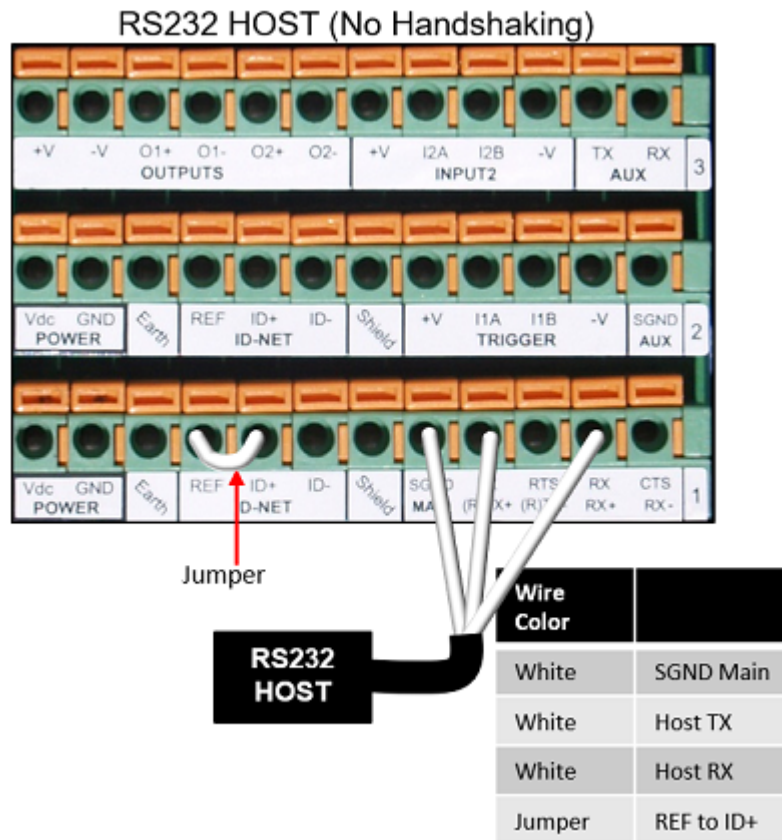
- RS232 provides point-to-point communications at distances up to 15 meters [50 feet].
- RS422 provides point-to-point communications at distances up to 1200 meters [3940 feet]

The following wiring diagrams illustrate the different types of serial communications available via the CBX100 pin block. It is very important that you make the proper pin connections.

RS232 with No Handshaking

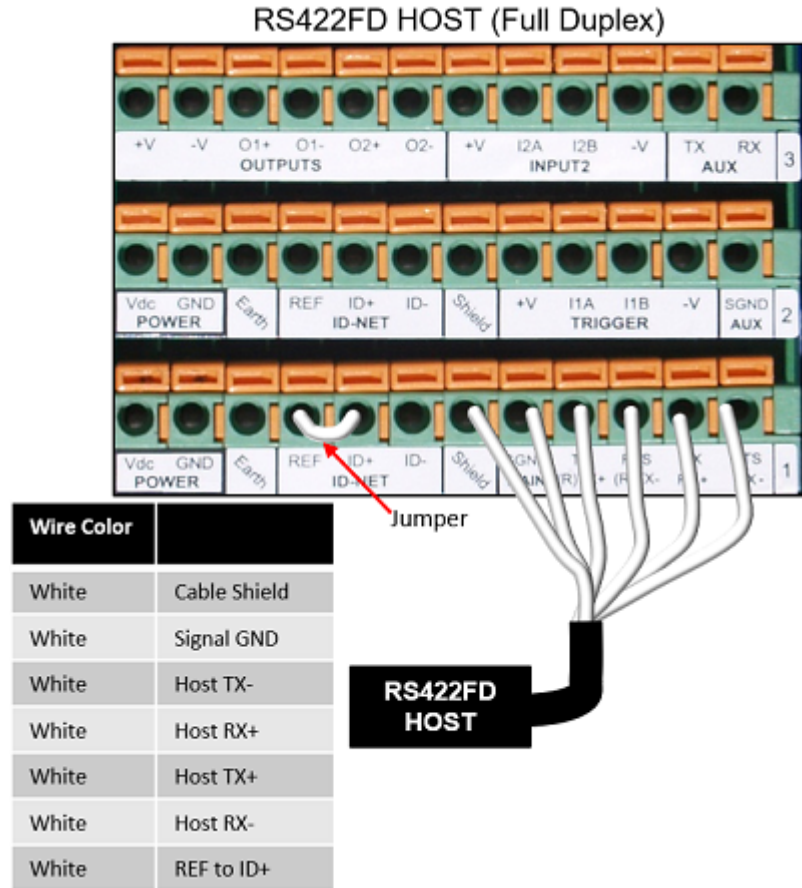
Use RS232 for a direct connection to a controller, personal computer, or other device. RS232 provides point-to-point communications at distances up to 15 meters [50 feet]. If longer cable lengths are needed, use RS422.

Use the following illustration as a guide when you want to connect your DM3610 to a device using RS232 communication with no handshaking.



RS422FD HOST (Full Duplex)

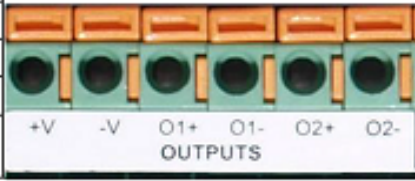
Use RS422 for a direct connection to a controller, personal computer, or other device. RS422 provides point-to-point communications at distances up to 1200 meters [3940 feet]. Full duplex wiring supports a four wire, double twisted pair RxD/TxD. The Signal GND and shield cables are also required as shown.



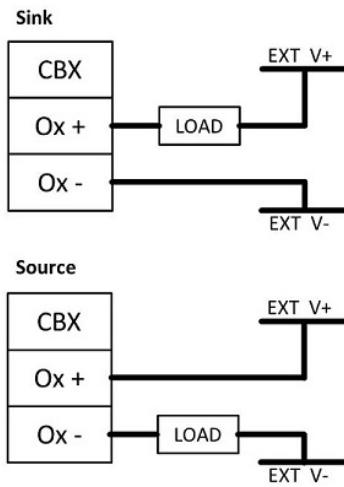
Relay Configuration

The CBX100 includes an OUTPUTS block for wiring relays as needed for external accessories. The DM3610 User Interface Modify | Relays window includes options for outputs 1 and 2 including Life Light, Trigger Output, Error Light, Ready Light, Good Dim, and No Dim. Schematics for Isolated and Non-Isolated relays are provided below.

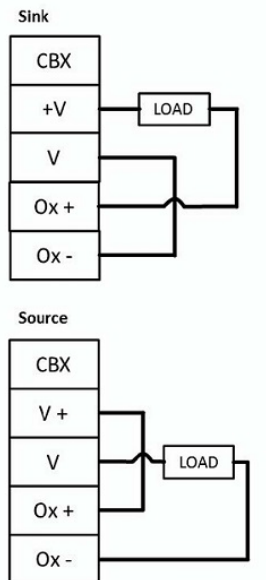
Outputs 1 and 2	
Maximum Voltage 30 V	
Collector current [pulse] 130 mA Max.	
Connector Current (continuous) 40 mA Max.	
Saturation Voltage (VCE) 1 V at 10 mA Max.	
Maximum Power Dissipation 90 mW at 50 degrees C (Ambient temperature)	



Isolated Relay

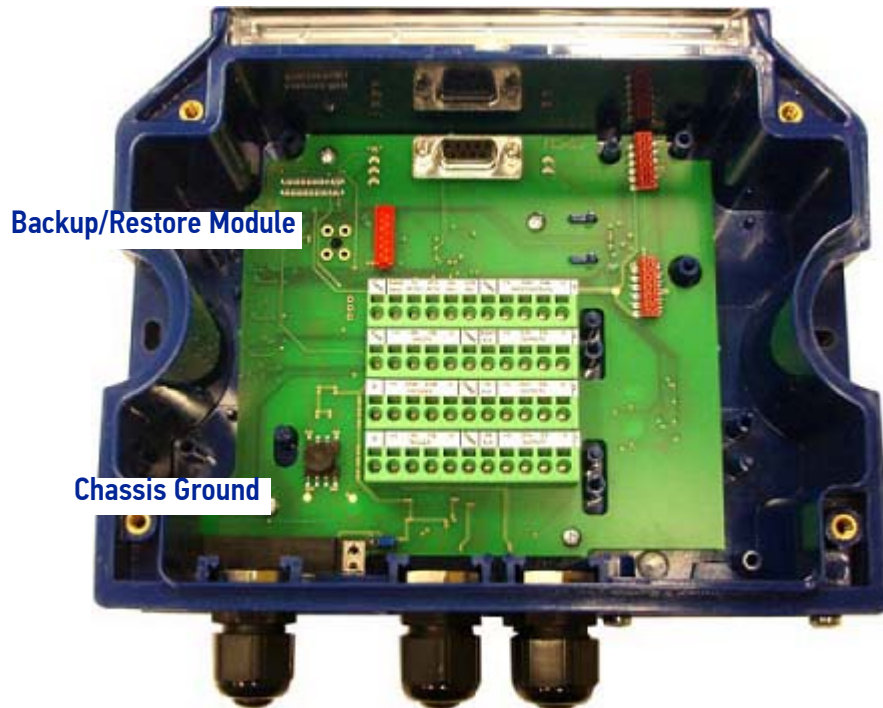


Non Isolated Relay



CBX510

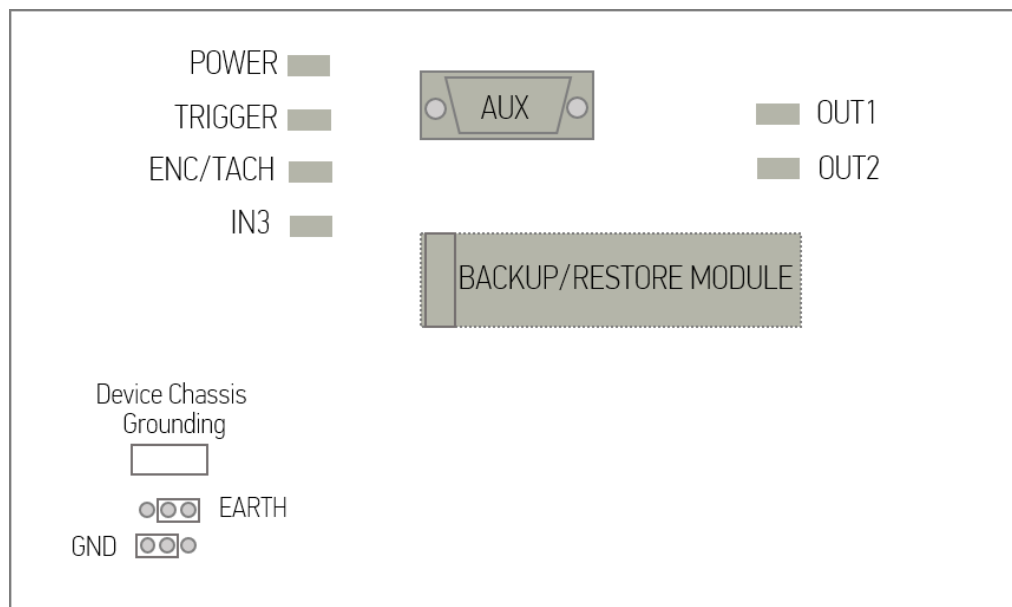
Some DM3610 applications may required more connections, therefore a CBX 510 may be required. Please verify that the CBX510 connection box is configured for the application as follows:



CBX 510 Interior Diagram



If you are terminating more than one wire in a single terminal, cut off any tinned ends and twist the wires together before inserting them into the terminal.



Photoelectric Sensor Connections to CBX510

Barcode scanning applications may use a Datalogic photoelectric sensor as a trigger device. The photoelectric sensor is wired directly into the CBX510 terminal block.

If your application uses a trigger other than the one specified by Datalogic, follow the appropriate wiring diagram to assure proper wiring.

WARNING



You must use shielded interface cables with this product. To maintain FCC compliance, the cable shield must make a 360-degree connection to the shielded mating connector.

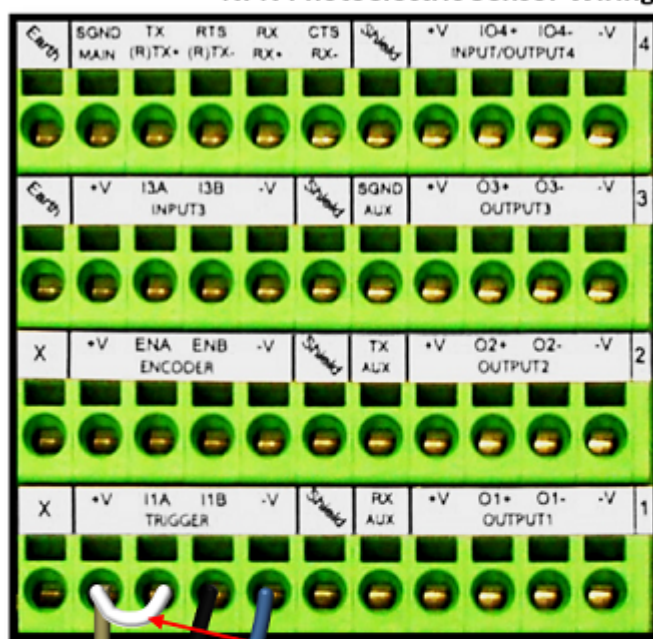
NOTE



To confirm the photoelectric sensor is functioning properly, watch the TRIGGER LED in the CBX and also on the camera while the photoelectric sensor's beam is blocked. The Datalogic photoelectric sensor also includes a status LED.

The following diagrams illustrate standard recommended wiring of the Photoelectric Sensor to the CBX510 terminal block.

Photoelectric Sensor to CBX510 (NPN)

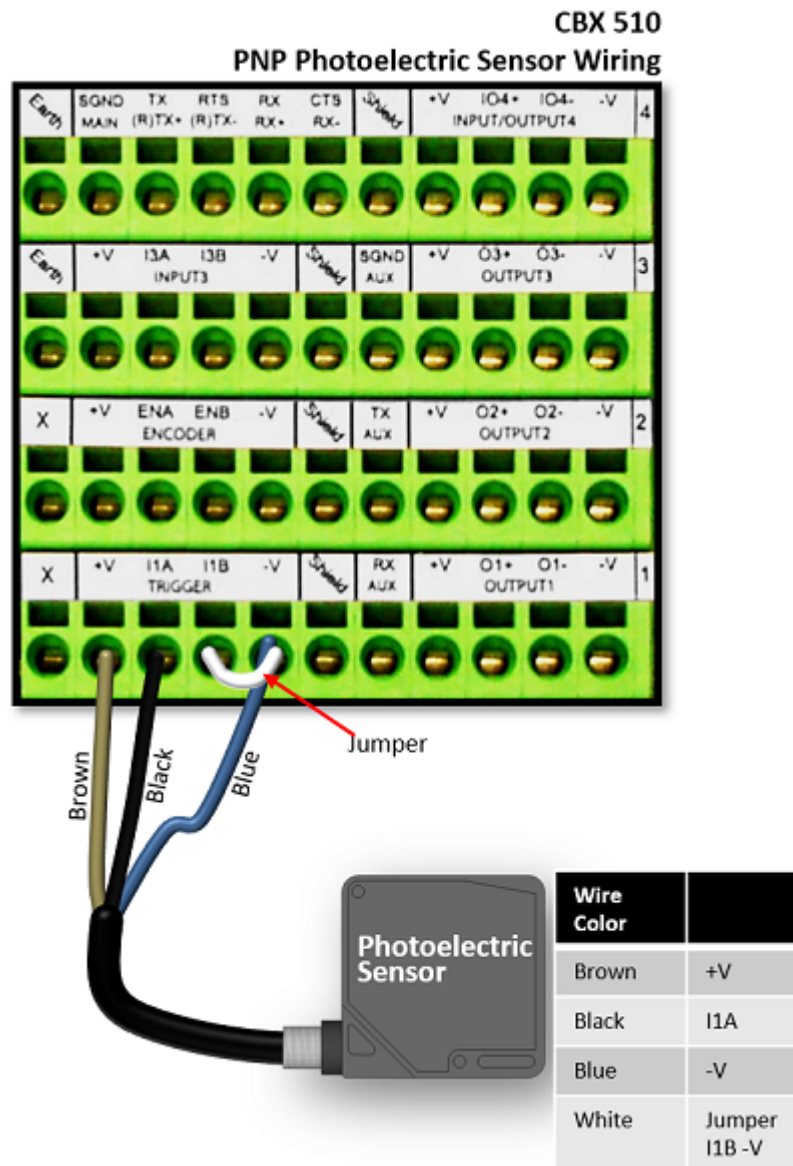


Brown
Black
Blue
Jumper



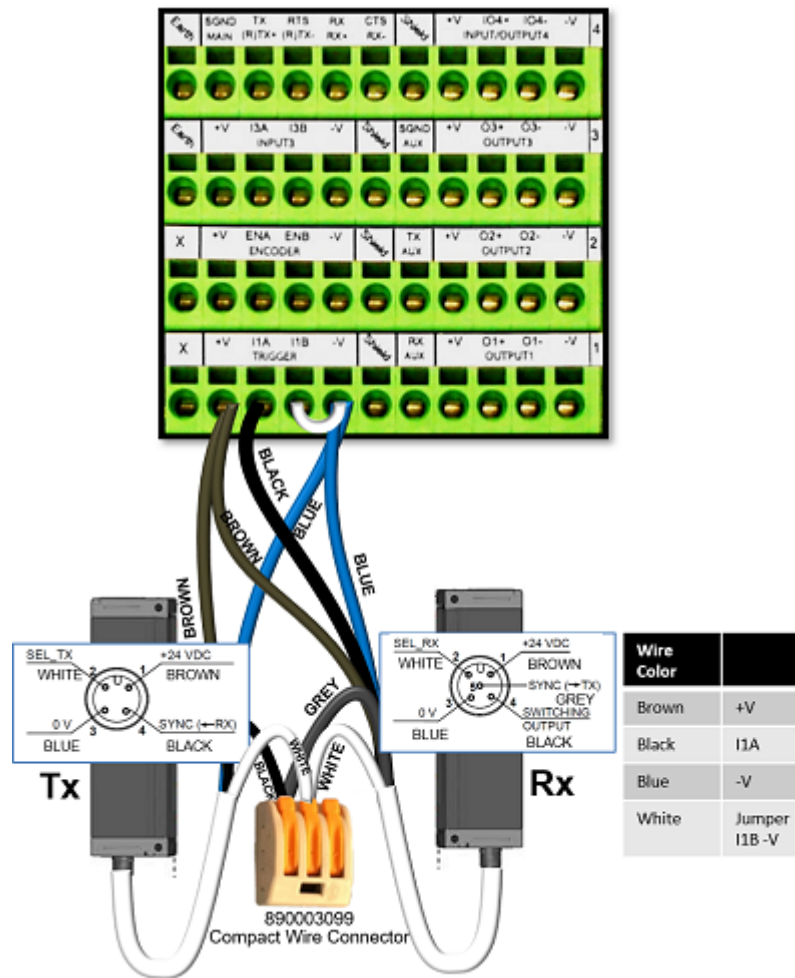
Wire Color	
Brown	+V
Black	I1B
Blue	-V
White	Jumper I1A +V

Photoelectric Sensor to CBX510 (PNP)



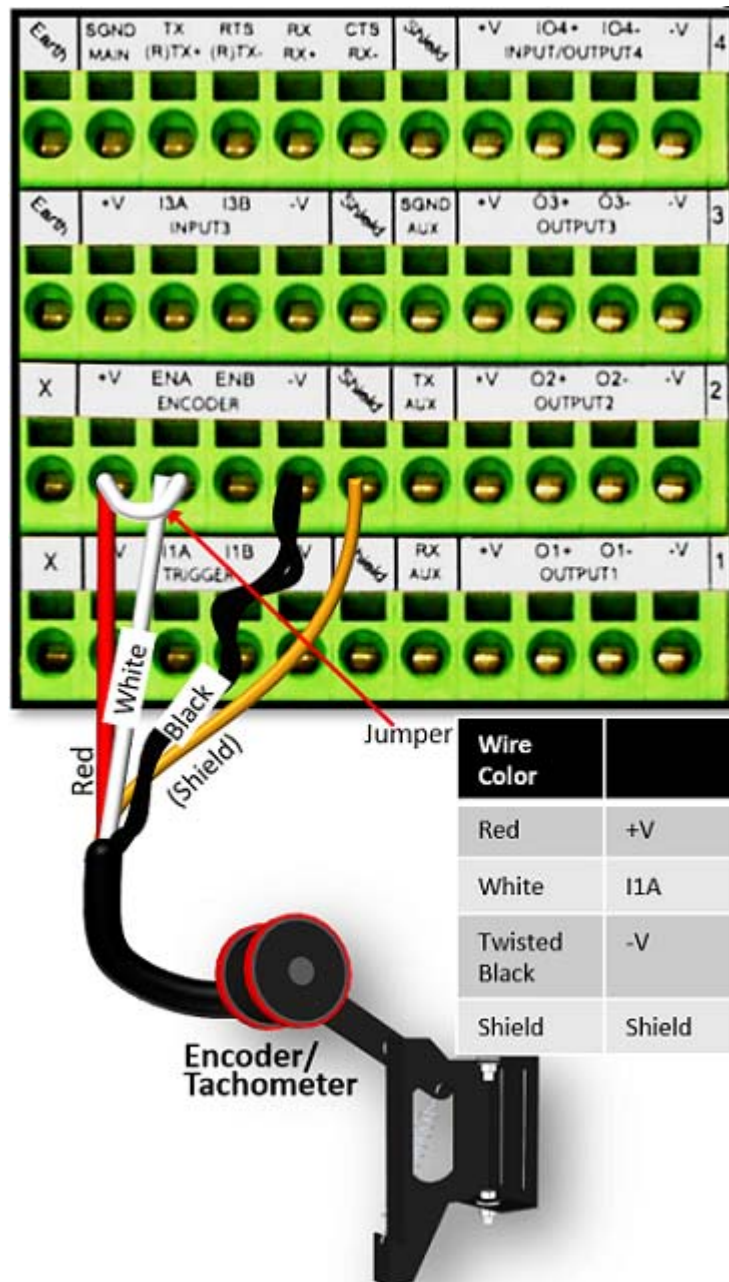
AS1 Area Sensor to CBX510 Connections

The **AS1** area sensors can detect and provide trigger for very small or irregularly shaped objects.



Encoder/Tachometer Wiring to CBX510

Encoder/Tachometer Wiring for NPN Output to CBX510



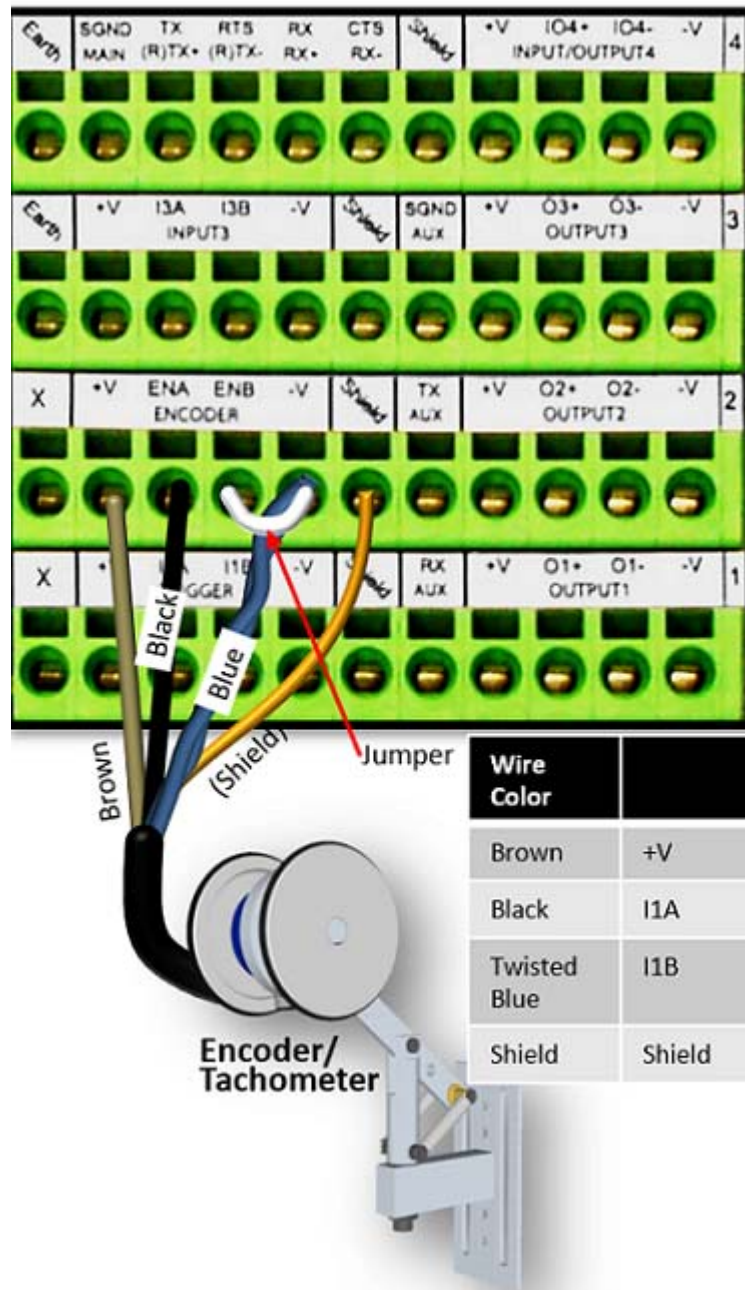
NOTE Some Photcraft tachometers may have a different color coding:

(+V) Red or White/Orange

(Signal) White or White/Blue

(Ground) Black or Orange/White

Encoder/Tachometer Wiring for PNP Output to CBX510



Some Photocraft tachometers may have a different color coding:

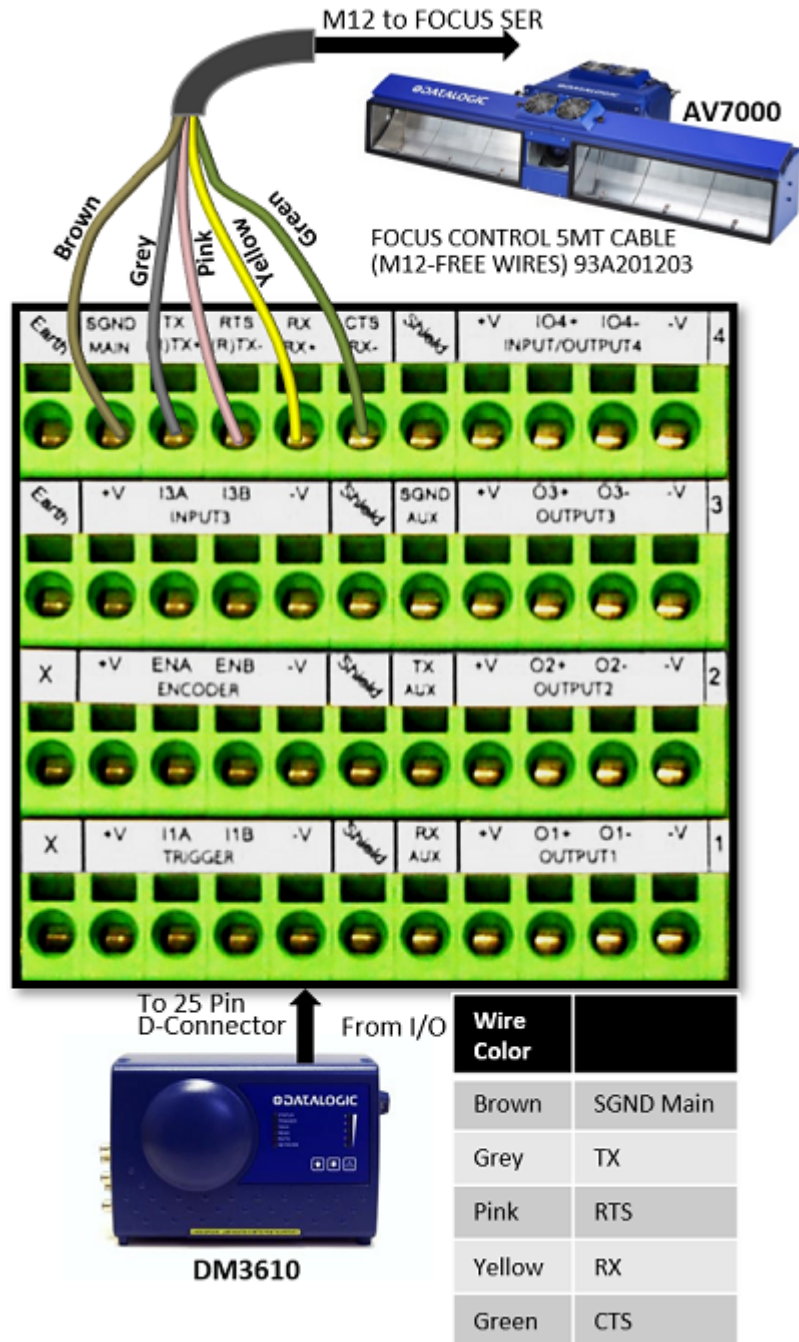
(+V) Red or White/Orange

(Signal) White or White/Blue

(Ground) Black or Orange/White

Wiring from DM3610 CBX510 to AV7000 FOCUS SER

When using a DM3610 dimensioner for focusing, the DM3610's CBX box must be wired to the focus serial (FOCUS SER) port of the master AV7000 using a flying lead to M12 cable (FOCUS CONTROL 5MT CABLE (M12-FREE WIRES) 93A201203.)



Digital Output Configuration from CBX510

The CBX510 includes an OUTPUTS block for wiring relays as needed for external accessories.

Schematics for Isolated and Non-Isolated digital outputs are provided below.

Outputs 1 - 3

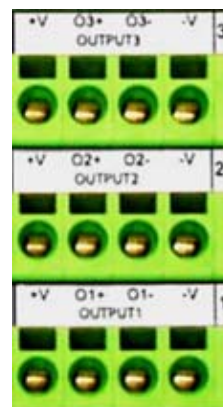
Maximum Voltage 30 Vdc

Collector Current (pulse) 130 mA Max.

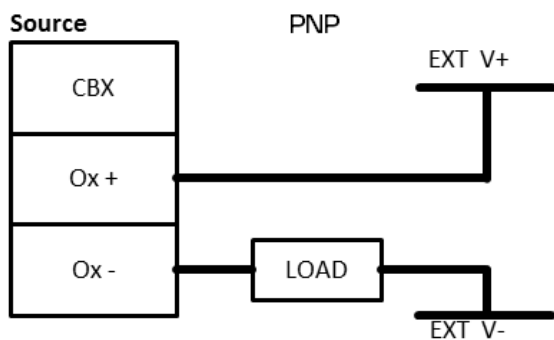
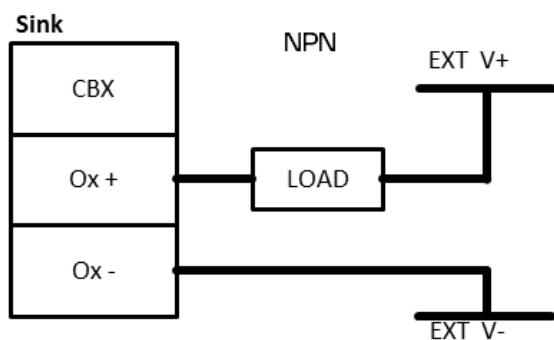
Collector Current (continuous) 40 mA Max.

Saturation Voltage (VCE) 1 V at 10 mA Max.

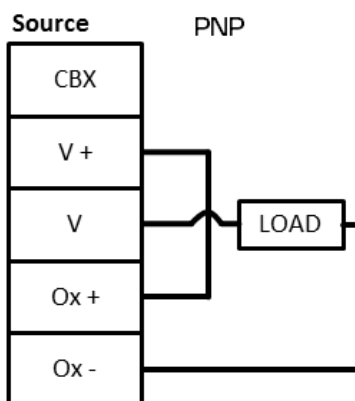
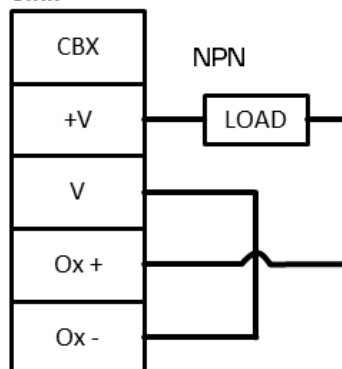
Maximum Power Dissipation 90 mW at 50°C (Ambient temperature)



Unpowered (ISOLATED) Output

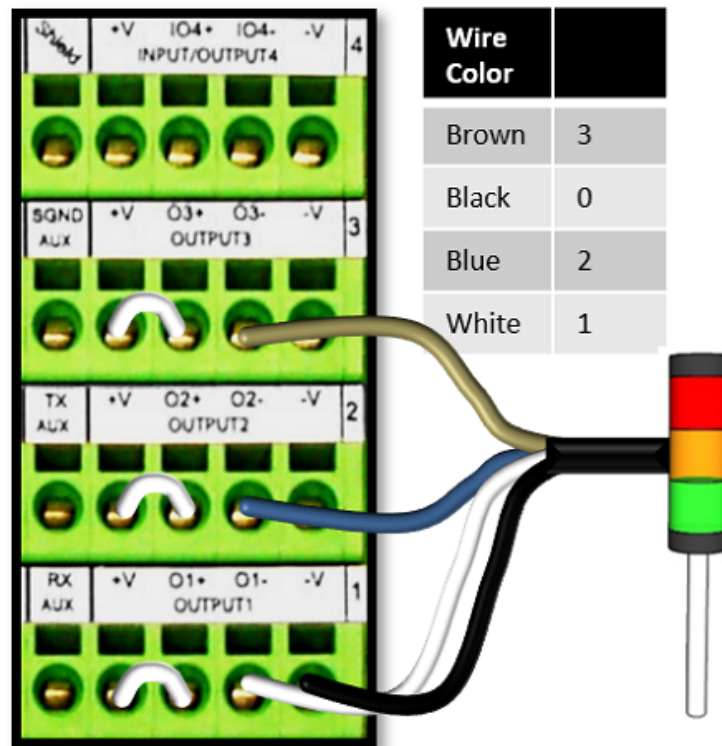


Powered (NON-ISOLATED) Output Sink



Connecting a Stack Light

When using a tri-color stack light it must be wired as follows:



Connecting A PC to the DM3610 Host Port

During initial setup, a PC (laptop) may be connected to the DM3610 with an M12 to RJ45 cable. Screw the M12 connector to the HOST port of the DM3610 and plug the RJ45 into the Ethernet port of your PC. If the HOST port is in use, ETH 1 or ETH 2 ports can be used. For information on connecting to the DM3610 User Interface, see Chapter 4.

CHECK DM3610 INSTALLATION

After completing the installation of your DM3610:

- Confirm that the DM3610 and CBX100 have been properly installed mechanically and electrically. Use the Installation Sequence at the beginning of this chapter and your application specifications to check your installation.
- All interconnections should match the drawing in Appendix A as is applicable to your system's configuration. (These drawings are superseded by any customer-specific documentation provided by Datalogic.)
- The next step is to configure the parameters to meet the needs of your application. Details on using the DM3610 User Interface are provided in Chapter 4.

CHAPTER 4

USER INTERFACE

GETTING STARTED

The DM3610 Dimensioner is designed for ease-of-setup. The DM3610 User Interface is a browser-based application. It is the tool you will use to define operating parameters, determine dimension quality, construct output messages, and view diagnostics. The DM3610 User Interface enables you to easily configure, fine-tune, and monitor your DM3610's operations.

The DM3610 User Interface provides ease-of-use for any operator level. A beginner operator follows basic setup procedures for a standard configuration. More experienced operators may use the advanced setup features that allow access to more complex options.

Prerequisites

Before setting up your DM3610 you will need the following:

Computer:	Laptop
Browsers:	Internet Explorer 8 (or later) Firefox 18.0 (or later) Chrome 24.0.1312 (or later)
Java:	Version 7, Update 9 (or later)

Starting the User Interface

To access the DM3610 User Interface follow these steps:

1. Connect your computer to the DM3610 using either the CAB-ETH-M0x M12-IP67 ETHERNET CABLE or CBL-1534-0.2 ADAPT.CABLE ETH M12-TO-RJ45F. If the HOST port is taken, ETH 1 or ETH 2 can be used.
2. Turn on your computer.
3. Configure your PC's IP Address to be in the same network as the DM3610's IP Address.

Example: If the DM3610 IP Address is 192.168.3.101, set your PC's IP Address to 198.168.3.1 (make the last octet different than the DM3610's last octet).

- Open a web browser and enter the IP address for your DM3610 unit. If the correct IP address is entered, the DM3610 Login screen will appear (If you don't know the IP address, see **IP Address Discovery**.) The default IP address for all DM3610 units is: 192.168.3.100

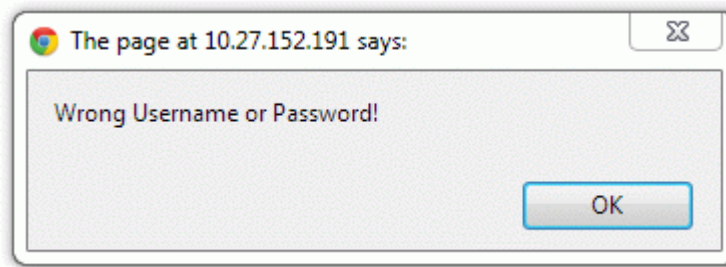
User ID
 Password
 Language

- Enter the **User ID DM3610** and **Password DM3610** for your system in the fields provided.
- Select a language from the **Language** drop-down list.
- Click **Log On**.

If the **user name and password are valid**, the application enables all functions available to the user and displays the main window.



If the **user name and password are not valid**, the application displays a results box with the message, "Wrong User Name or Password!" Click **OK** to return to the Log On window and enter the correct user name and password.



To log out of the DM3610 User Interface:

Click at the upper right corner of the User Interface window to Log Out. When logged out, the **Log On** window will appear.



IP ADDRESS DISCOVERY

To discover the IP address of the dimensioner:

1. Power down the DM3610 (disconnect power).
2. Connect Laptop to the HOST port of the DM3610 with an M12 to RJ45 adapter cable.



3. Hold down the "!" key on the DM3610 unit while applying power to the DM3610.
4. As the dimensioner starts up, continue holding down the "!" key on the control panel. The Status LED will alternate between green and red, but continue holding the "!" key until the Status LED remains solid red (about seven seconds).
5. Open a web browser and enter the default IP address (192.168.3.100).
6. A window opens with information about your system including the units IP address.

```

Bootloader Version:      1.1(3)
System Username is:     DM3610
System Password is:     DM3610
System IP Address is:   10.0.40.25
Show Message Log:       MSGLOG
Boot Application code:  BOOTAPP
Clear Parameters in FLASH: CLEARPARAM
Test DDR RAM:           TESTRAM
Reboot scanner:         REBOOT
Kernel to Upload:        No file selected.
                                                                    

```

7. **Power down** or click **Reboot** as shown above, to exit this feature. Once rebooted the DM3610 uses the site application IP address.

Change Your PCs IP Address

To change the IP Address, follow these steps:

1. Click the Start window and enter Change Network Adapter.
2. Select Network & Internet.
3. Under Change your network settings, select Change adapter options.
4. Right-click on the correct Ethernet Connection and then select Properties.
5. Select the Networking tab. Under This connection uses the following items, click Internet Protocol Version 4 (TCP/IPv4), and then click Properties.
6. Select Use the following IP address.
7. In the IP address field, type the first 3 octets of the IP address of the DM3610 unit.
8. For the last octet, type a number that differs from the last octet in the DM3610's IP address. The actual number used is not important as long as it does not match that of the DM3610.
9. Example: If the DM3610 IP Address is 192.168.3.101, set your PC's IP Address to 192.168.3.1.
10. In the Subnet mask field, type 255.255.255.0
11. In the Default gateway field, type 0.0.0.0
12. Click Okay.
13. Open a web browser and enter the IP address for your DM3610 unit. If the correct IP address is entered, the DM3610 Login screen will appear (If you don't know the IP address, see IP Address Discovery.)
14. The default IP address for all DM3610 units is: 192.168.3.100

USER INTERFACE BASICS

User Interface Menu Tree

The functions that you can select are displayed in a menu tree on the left-hand side of the User Interface. The function list is organized much like the hierarchy of a file system, where you can expand items that begin with a plus sign (+) to further sub-levels until you find a function of interest.




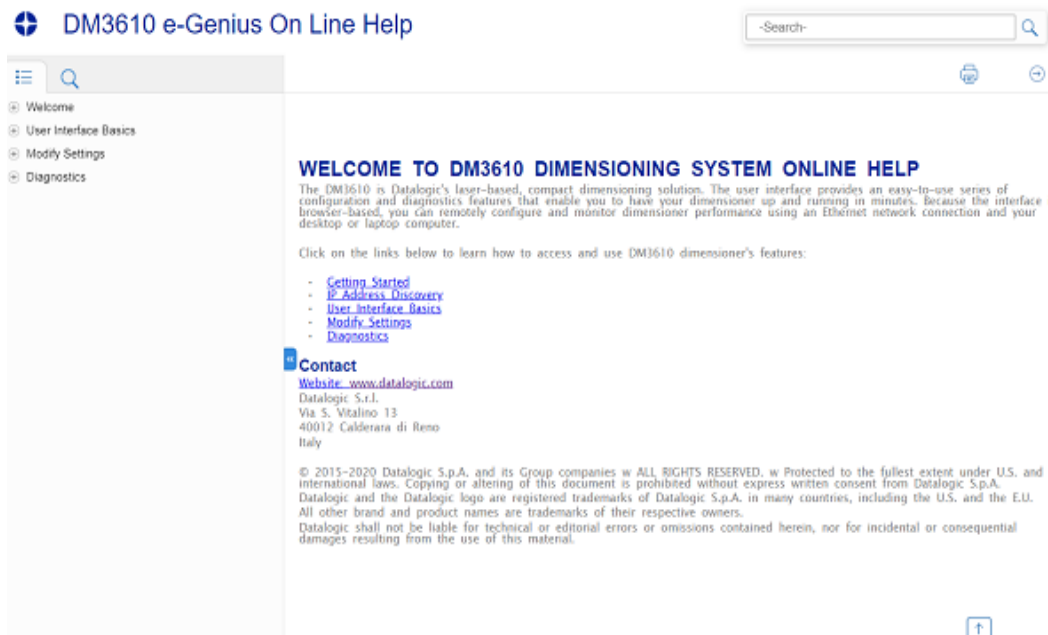
Sub-levels appear indented below the items from which they are expanded. Items that are expanded are preceded by a minus sign (–). You can expand no further when an item displays neither a plus or minus sign.

The User Interface menu tree appears with no items expanded. Click the folders to display the active window for the setup function and/or expand the folders to view any additional setup features.

Getting Help

The **User Interface** provides complete online help. To display help for a current window:

1. Click the Help icon  displayed at the top right of the screen. A help window appears, providing you with information and an index of topics associated with the current application window.



2. Click on a topic of interest to display more detailed information.

You can use the menus or buttons in the help window to navigate to other topics of interest, or from the **File** menu in the help window, you can choose **Exit** to quit from Help.

MODIFY SETTINGS

Use The **Modify Settings** menu selections during initial setup to configure your Dimensioner. If necessary you can later make modifications to the dimensioner's configuration using the same menu selections.

- “Modify Settings | Configuration” on page 75
- “Modify Settings | Dimensioning” on page 77
- “Modify Settings | Dimensioning | Settings” on page 78
- “Modify Settings | Dimensioning | Calibration” on page 81
- “Modify Settings | Dimensioning | Side-by-Side Detection” on page 84
- “Modify Settings | Tach/Trigger/Transmit (Single Head System)” on page 86
- “Modify Settings | Network” on page 91
- “Message Definition #N” on page 95
- “Serial | Main/Aux” on page 105
- “Message Definition Main/Aux” on page 107
- “Modify Settings | Relay” on page 116
- “Modify Settings | Save / Retrieve” on page 118

MODIFY SETTINGS | CONFIGURATION

Use configuration to identify and configure a DM3610 Dimensioner. This function provides access to dimensioner information, as well as configuration options (control panel and network access).

To set the dimensioner Configuration:

1. In the menu tree under **Modify Settings**, click **Configuration**. The **Configuration** window opens.

The screenshot shows a web-based configuration interface for a dimensioner. It is divided into several sections:

- Dimensioner Information:** Contains fields for Dimensioner Name (HD 1), Dimensioner Model (DM3610-4200 MULTI HEAD OIML/MID), Serial Number (A14B00130), Software Name/Revision (DM3610_RELEASE 1.9(6)), DSP Software Name/Revision (DM3610_DSP 1.5(2)), FPGA Device Id/Revision (0x3c40 3.18(21)), and LFT Library Name/Revision (DM3610_LFT 1.5(2)).
- Configuration Options:** Includes a Units dropdown menu set to IMPERIAL.
- Control Panel Options:** Includes a checkbox for Enable Control Panel Buttons, which is checked.
- Network Access Options:** Includes fields for Username (DM3610), New Password (masked with asterisks), and Confirm Password (masked with asterisks).

At the bottom right, there are buttons for Update and Reset.

2. Enter the appropriate information in the form as described below.

Dimensioner Information

Dimensioner Name

Enter a user-defined dimensioner name (up to 15 characters) to identify each dimensioner when there are multiple dimensioners within the same building or application.

Dimensioner Model

Displays the dimensioner model (DM3610-1000, DM3610-1100, etc.) See “DM3610 Versions” on page 8.

Serial Number

Displays the 9 character Datalogic serial number of the dimensioner to which the user interface has established a connection.

Software Name/Revision

Displays the name and revision number of the DM3610 application software.

DSP Software Name/Revision

Displays the name and revision number of the Digital Signal Processor (DSP)

FPGA Device Id/Revision

Displays the FPGA (field-programmable gate array) device name and revision number.

LFT Library Name/Revision

Displays the name and revision of the Legal For Trade (Certified Dimensioning) component of the DM3610 application software.

Configuration Options

Units

Select **Imperial** or **Metric** from the drop-down list. This setting affects the user interface only and not the dimensioning output. To change the dimensioning output, see **Modify Settings | Dimensioning | Settings**.

Control Panel Options

Enable Control Panel Buttons

This check box is selected to activate the Control Panel Buttons on the front of the DM3610. De-select this check box to deactivate.

Network Access Options

Use these fields to change the unit's username and password.

Username

Enter a new username.

New Password

Enter a new password.

Confirm Password

Enter the new password again.

3. When you have finished making changes, click **Update** to save or click **Reset** to revert to the previously saved values.

MODIFY SETTINGS | DIMENSIONING

Use the **Modify Settings | Dimensioning** menu selections to setup and calibrate the DM3610 for certified or non-certified installation.

The menu selections include:

- “Modify Settings | Dimensioning | Settings” on page 78
- “Modify Settings | Dimensioning | Calibration” on page 81



The following option is only available in a two-headed system with certification mode turned on.

- “Modify Settings | Dimensioning | Side-by-Side Detection” on page 84

Modify Settings | Dimensioning | Settings

Use the Dimensioning | Settings to turn certification mode on or off, set dimension resolution, and define package size requirements.

To adjust the settings of the dimensioner:

1. In the tree menu under **Modify Settings**, navigate to **Dimensioning | Settings**. The **Settings** window opens.

2. Enter the appropriate information in the form as described below.

Outputs

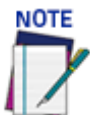
DIM-in-Head Enabled

Select **On** or **Off** from the drop-down list. If **On** is selected, usually for a single head system, the DM3610 is using the scan point data to calculate the object dimensions within the head itself and sends the Length/Width/Height to the host.

If **Off** is selected, usually for a multiple head system, the DM3610 is not calculating dimensions, but transmits scan point data to a remote device over the network. This data can be used when dimensioning irregular shaped objects.

Units

Select **inch** or **mm** from the drop-down list. Once the window is updated, the dimensions displayed on this window will be displayed in the unit type selected.



Changing the units on this window will not affect other windows in this user interface. To change the measurement units globally for the interface, see [Modify Settings | Configuration](#). To change the measurement units transmitted to the host, see [Network or Serial | Message](#).

Length Reporting

Select **Longest Side**, **Direction of Travel**, or **Descending order** from the drop-down list.

Longest Side: The system assigns the length as the larger of the two parcel measurement axes that are parallel to the surface of the conveyor. The height is the measurement axis that is perpendicular to the conveyor surface.

Direction of Travel: The "length" will always be defined as that parallel with the package direction of travel on the conveyor.

Descending Order: The "length" is the largest value, then width, and the smallest value is height. This definition results in the same L, W, H assignment of the measurements regardless of the parcel's orientation when measured.

Certification Mode

Select **On** or **Off** from the drop-down list. Turn certification mode on for certified / Legal-for-Trade applications. Turning certification mode on causes many of the input fields in the Dimensioning Settings, **Dimensioning Calibration, Configuration, and Tach/Trigger** windows to be grayed out.



Only available with Legal For Trade certified DM3610's. It is identified in the Configuration | Dimensioner Model.

Understanding Resolutions

The options for both **Short and Tall Height Resolutions** are either in metric or imperial depending on the Dimensioning Units your system uses.

If **Short Height Resolution and Tall Height Resolution** are set to 0.1 inches, measurements are given at those intervals: 1.2 inches, 1.3 inches, 1.4 inches, 1.5 inches, and so on. But if it is set to 0.2 inch, measurements are given at those intervals: 2.4 inches, 2.6 inches, 2.8 inches, 3.0 inches, and so on.

If it is set to 2 mm, measurements are given at those intervals: 20 mm, 22 mm, 24mm, 26 mm, 28 mm, and so on. But if it is set to 5mm, measurements are given at those intervals: 50 mm, 55 mm, 60 mm, 65 mm, 70 mm, and so on.

Resolution (d) also impacts the minimum package size.

For NTEP systems, the minimum size is 12 x 'd'. So, if Short Height Resolution (d) is 0.1 inch, the Minimum Package Height is 1.2 inch. If Short Height Resolution (d) is 0.2 inch, the Minimum Package Height is 2.4 inch.

For OIML systems, the minimum size is 10 x 'd'. So, if Short Height Resolution (d) is 2 mm, the Minimum Package Height is 20 mm. If Short Height Resolution (d) is 5 mm, the Minimum Package Height is 50 mm.

Short Height Resolution (d) must be less than or equal to Tall Height Resolution (d). You will get a warning if it is not so.

The purpose of the Short/Tall Resolution split is to provide for the higher resolution at lower package heights.

Length, Width Resolution (d)

Select the dimensioning length/width resolution from the choices provided in the drop-down list. Dimension (d) represents the smallest interval between two consecutive values used in the dimension calculations. For NTEP, the minimum object dimension that may be reported is 12 x d. For OIML, the minimum object dimension reported is 10 x d.

Short Height Resolution (d)

Select the dimensioning short height resolution from the choices provided in the drop-down list. Options are:

Inches	Millimeters
0.1 inch	10 mm
0.2 inch	20 mm
0.5 inch	5 mm
	2 mm

Tall Height Resolution (d)

Select the dimensioning height resolution from the choices provided in the drop-down list. Options are:

Inches	Millimeters
0.1 inch	10 mm
0.2 inch	20 mm
0.5 inch	5 mm
	2 mm

Height Switch Point

Enter a value in inches or millimeters, that specifies at what height the resolution switches from Short Height Resolution to Tall Height Resolution.

Bounding Box

Select the Bounding Box option from the drop-down list. Options are:

Disabled: No Bounding Box is applied

NoDim Packages: If parcels are not square, a bounding box will still provide Length, Width and Height information

Touching Packages: If parcels are touching, a bounding box will still provide measurements around all touching packages

NoDim Packages and Touching Packages: If parcels are not square and may be touching, a bounding box will still provide maximum Length, Width and Height information.

Package Size Options

Minimum Package Size:

Length (mm)/(inch)

Width (mm)/(inch)

Height (mm)/(inch)

Enter the minimum package size length, width, and height in inches or millimeters as indicated. Any package below these minimums will be designated as a NoDim. Minimum units must be greater than the (d) value (*See above*).

This value is associated with certified dimensioning. The min is = to d x (length, width resolution) and d x (height resolution) and d x (height resolution (D)). These two items are found under output options.

Maximum Package Size

Length (mm)/(inch)

Width (mm)/(inch)

Height (mm)/(inch)

Enter the maximum package size length, width, and height in inches or millimeters as indicated. Any package above these maximums will be designated as a NoDim.

Discard Package Size

Length/Width (mm)/(inch)

Height (mm)/(inch)

Enter the minimum length/width and height below which a dimension result will be ignored. This accounts for possible anomalies on the belt surface.

Size Correction

Length (mm)/(inch)

Width (mm)/(inch)

Height (mm)/(inch)

Enter Length, Width, and/or Height adjustment values in the fields provided. This option allows the user to make small adjustments (plus or minus) to the length, width, and height of the dimension results. This is helpful if the system is, for example, always measuring a little short in height and you want to tack on 2.5mm [0.1 inch] or so to better “center” the results.

- When you have finished making changes, click **Update** to save or click **Reset** to revert to the previously saved values.

Modify Settings | Dimensioning | Calibration

Use the **Dimensioning | Calibration** window to calibrate an installed DM3610 dimensioner.

To calibrate the dimensioner:

1. In the tree menu under **Modify Settings**, navigate to **Dimensioning | Calibration**. The **Calibration** window opens.



Dim-In-Head must be enabled, for the following options to appear.

Belt Analysis	
Side Margins	0 in <input type="button" value="Find Belt"/> <input type="button" value="Use Belt"/>

Dimensioning Area		
	Current	Find Belt
Scan Points (100-1000)	500	0
Field of View (2-73°)	47	0
Angle Offset (0-40°)	19.5	0
Scanner Height	52.65625 in	0 in
Left Ignore	14.0625 in	0 in
Right Ignore	15.875 in	0 in



If Dim-In-Head is disabled, only the following options to appear.

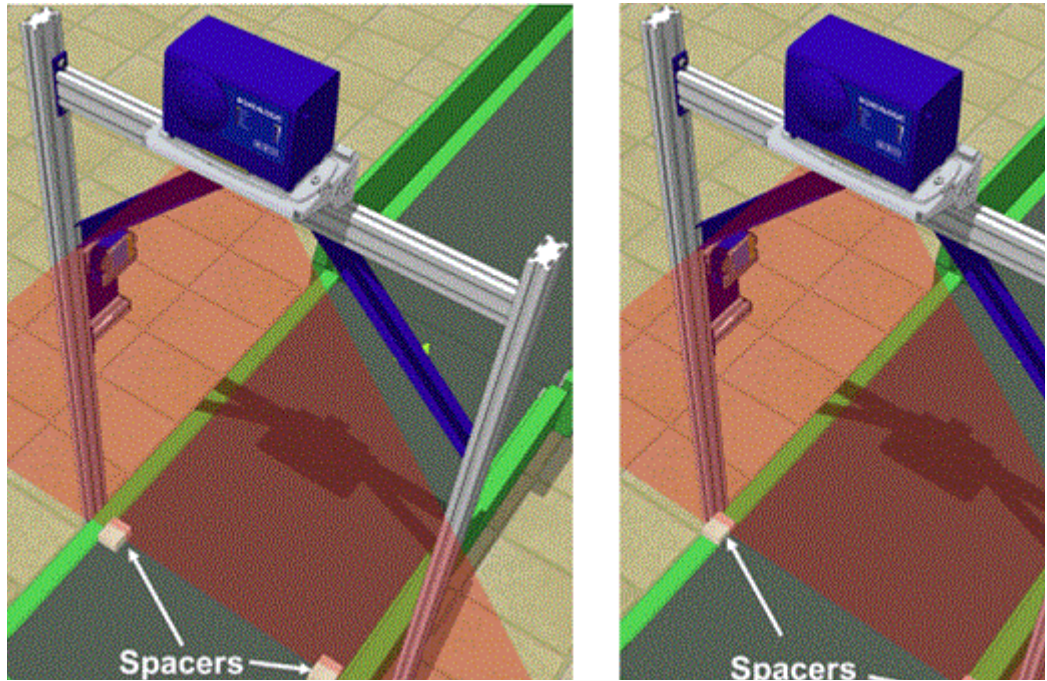
Dimensioning Area	
Scan Points (100-1000)	1000
Field of View (2-73°)	49
Angle Offset (0-40°)	33

2. Enter the appropriate information in the form as described below.

Belt Analysis **Side Margins**

Side margins equal the width of spacers (wooden blocks shown in the drawing below) that help the dimensioner find the edges of the conveyor belt.

If the spacers (shipped with your DM3610) are placed inside the belt width, the spacer width must be entered into the **Side Margins** text field. For example, if 3-inch spacers are used, the **Side Margins** field value must be 3. The spacers must be the same width. If the spacers can be placed outside the edge of the belt, or if side rails are present, a "0" must be entered into the **Side Margins** text field for the spacer width. See Chapter Five for details on procedural steps.



Find Belt

Click Find Belt to automatically determine the scan points, field of view, angle offset, scanner height, left ignore, and right ignore.



When Find Belt is clicked, the system calculates the dimensioner's position over the conveyor. If the system determines that the dimensioner is not centered on the belt, it will return this message:

WARNING: DM3610 mounting misses belt center by more than 1". Recommend remounting. If the system determines that the mounting height compared

to the system's maximum package size (See Modify Settings | Dimensioning | Settings in chapter 4) does not allow the system to adequately dimension the package, it will return this message:

WARNING: FINDBELT calculated FOV > 73°. Confirm Maximum Package Height setting and check DM3610 mounting height. If the system determines that the mounting height is above 1727mm [68"], it will return this message:

WARNING: FINDBELT calculated Scanner Height > 68". Recommend mounting DM3610 lower. The Find Belt calculation measures the dimensioner height from the bottom of the DM3610 housing to the belt. Maximum height to this point for best results is 1727mm [68"].

Use Belt

Click **Use Belt** to transfer the "found" or calculated values to the **Dimensioning Area** fields.

Dimensioning Area

Scan Points (100- 1000)

This is the number of points across the laser scan line.

Field of View (2-73°)

The coverage angle of the dimensioner's laser. This is the total swing angle of coverage for the laser from left to right. This is adjusted automatically with the Find Belt option.

Belt Analysis

Angle Offset (0-40°)

The angle offset of the dimensioner's laser. The correct angle offset leads to a scan line centered on a particular point on the belt so that when the field of view is expanded or contracted, this central point does not change. The scan line expands and contracts about it and the left and right extremities of the scan line are of equal distance from this point for any field of view. This is adjusted automatically with the Find Belt option.

Scanner Height

The distance from the scanner to conveyor belt surface. This is adjusted automatically with the Find Belt option.

Left Ignore

The distance from the center of the scan line to the left edge of the belt. Scan points beyond this distance will be ignored. This is adjusted automatically with the Find Belt option.

Right Ignore

The distance from the center of the scan line to the right edge of the belt. Scan points beyond this distance will be ignored. This is adjusted automatically with the Find Belt option.

3. When you have finished making changes, click **Update** to save or click **Reset** to revert to the previously saved values.

Modify Settings | Dimensioning | Side-by-Side Detection

Use the **Dimensioning | Calibration** window to calibrate an installed DM3610 dimensioning system for better Side-by-Side Detection. See “DM3610 Side-by-Side Detection” on page 186

In a “singulated” material handling system, parcels are separated by at least the minimum spacing distance along the direction of travel; there is at most one parcel across the conveyor at any time; and therefore there is only one parcel present during a trigger cycle. A trigger is typically generated by a photoeye or a hardware signal from the sorter.

In a singulated system, a Side-by-Side (SBS) is an error condition in which these conditions are violated. The end-user wants to know when this happens (when their parcel flow has inadvertently become “non-singulated,” as it can lead to lost product), and our systems can tell them this by means of an SBS indicator in the Serial or Ethernet “host message.”



The Dimensioner is capable of side-by-side detection and there are standard settings which allow it to be configured to accommodate most conditions. However in some systems, packages are such that optimum performance is not achieved. The parameters defined in Side-by-Side Detection/Advanced Settings are intended for “Datalogic engineering” use only to better configure your system. If you experience difficulties with Side-by-Side Detection, we recommend you contact Datalogic Technical Support to help you resolve the issue.

It is much more difficult to make SBS determinations when two (or more) parcels are touching or nearly touching. By enabling “Advanced Settings” in the **Dimensioning | Side-by-Side Detection** e-Genius page, various additional/non-default methods (e.g. corner counting, histogramming, etc.) can be enabled to help aid in making SBS determinations.

The parameters defined under Advanced Settings are intended for “Datalogic Engineering” use only. The details of these settings are outside the scope of this document. There are, however, various “Default” options that can start you off in the right direction:

Default (Strict): enables advanced SBS settings that aim to detect SBS conditions with minimal gap, height differential, and shift/offset. This is a good starting point if the parcels in your application are “good cuboidals” only.

1. In the menu under **Modify Settings**, navigate to **Dimensioning | Side-by-Side Detection**. The **Side-by-Side Detection** window opens.

Default (Strict) options are shown below:

Advanced Settings	
MAP	0
CORNERS	1
MINDIST	0.5
CORNDIST	1.5
MAXCORN	8
TRAPEZOID	1
SLOPETHRESHHI	7.5
SLOPETHRESHLO	2
<input type="button" value="Default (Strict)"/> <input type="button" value="Default (Loose)"/> <input type="button" value="Default (Off)"/>	

Exclusion List						
Box#	Length (in)	Width (in)	Height (in)	Tolerance (in)	Count	Last Access
1	0	0	0	0		

Default (Loose): enables advanced SBS settings that aim to detect SBS conditions, while minimizing false positives. This is a good starting point if the parcels in your system are more diverse, i.e. not only good cuboidals.

Advanced Settings

MAP	0
CORNERS	1
MINDIST	0.5
CORNDIST	4.5
MAXCORN	8
TRAPEZOID	0

Default (Strict) Default (Loose) Default (Off)

Exclusion List

Box#	Length (in)	Width (in)	Height (in)	Tolerance (in)	Count	Last Access	
1	0	0	0	0			Remove Add

Update Reset

Default (Off): disables all advanced SBS settings.

Advanced Settings

MAP	0
CORNERS	0

Default (Strict) Default (Loose) Default (Off)

Exclusion List

Box#	Length (in)	Width (in)	Height (in)	Tolerance (in)	Count	Last Access	
1	0	0	0	0			Remove Add

Update Reset

Exclusion List

In the Side-by-Side settings window, the DM3610 allows you to populate an **Exclusion List** with known parcel sizes. Any parcel within the “tolerance” of these sizes will not be subject to the various SBS checks. This can be very useful if certain parcels frequently cause false positives, e.g. certain “L-shaped” boxes.

A similar Exclusion List is available in the AV7000 camera system, but by barcode content instead of parcel size.

Up to 25 entries can be made in this table. To be a valid entry, Tolerance must be greater than zero, and one or more of Length, Width, or Height must be greater than zero.

Only when all entries are valid will the web-page provide room at the end of the list for the addition of a new entry.

Exclusion List

Box#	Length (in)	Width (in)	Height (in)	Tolerance (in)	Count	Last Access	
1	0	0	0	0			Remove Add

- 2. When you have finished making changes, click **Update** to save or click **Reset** to revert to the previously saved values.

Modify Settings | Tach/Trigger/Transmit (Single Head System)

Use Tach/Trigger/Transmit to set up the tachometer and trigger source. A range of settings are definable based on use of hardware or software sources.

To set up tachometer and trigger sources:

1. In the menu tree under **Modify Settings**, navigate to **Tach/Trigger/Transmit**. The **Tach/Trigger/Transmit** window opens.
2. Enter the appropriate information in the form as described below.

Tachometer

Tach Source

Select **Hardware/External**, **Constant/Internal**, or **Computed Tach** from the drop-down list.

IF Hardware External

Used for external hardware tachometer. When this tachometer mode is used, you must also set the number of pulses per centimeter (inch) generated by the tachometer.

Bidirectional

Select if your system is a “bidirectional” system, where the conveyor can go forward or reverse.

Pulse per cm [in]

Enter the number of tachometer pulses used per cm [in] traveled.

Pulses Per Inch	Pulses Per cm
16	6.3
20	7.9

Tach Scale Factor F/R

Enter a Tach Scale Factor to calibrate the tachometer actual to expected tachometer pulses/ inch or cm.

Options for forward “F” and reverse “R” appear when Bidirectional is selected. When Bidirectional is not selected, just one “Tack Scale Factor” appears.

For example: If you notice that the length (in the direction of travel) of your package is too short and you have a tachometer pulse of 16 pulses per inch, enter a Tach Scale Factor of less than 1.0. If you enter 0.97 your effective pulses per inch become 15.52 pulses per inch. If, however, your package is too long, enter Tach Scale Factor greater than 1.0. Adjust by small increments.

Energy Saving Mode

Select **Disabled**, **Turn Off Laser**, or **Turn Off Motor** from the drop-down list. If **Turn Off Laser** or **Turn Off Motor** are selected, the command will be executed after a specified number of seconds (see below).

Energy Saving time (secs)

If **Energy Saving Mode** is enabled, enter the number of seconds the scanner should wait after the conveyor stops before it turns off the laser or motor as specified by the Energy Saving Mode selection.

IF Constant/Internal

Specify the tach rate to be used (from .05-3.05 m/sec. [from 10-600 ft./min] if no external hardware is used.

Bidirectional

Select if your system is a “bidirectional” system, where the conveyor can go forward or reverse.

Pulse per cm [in]

Enter the number of tachometer pulses used per cm [in] traveled.

Pulses Per Inch	Pulses Per cm
16	6.3
20	7.9

Tach Scale Factor F/R

Enter a Tach Scale Factor to calibrate the tachometer actual to expected tachometer pulses/ inch or cm.

Options for forward “F” and reverse “R” appear when Bidirectional is selected. When Bidirectional is not selected, just one “Tack Scale Factor” appears.

For example: If you notice that the length (in the direction of travel) of your package is too short and you have a tachometer pulse of 16 pulses per inch, enter a Tach Scale Factor of less than 1.0. If you enter 0.97 your effective pulses per inch become 15.52 pulses per inch. If, however, your package is too long, enter Tach Scale Factor greater than 1.0. Adjust by small increments.

Speed

Enter the actual measured speed of your conveyor belt in cm/sec or fpm (feet per minute)

Computed Tach

Bidirectional

Select if your system is a “bidirectional” system, where the conveyor can go forward or reverse.

Pulse per cm [in]

Enter the number of tachometer pulses used per cm [in] traveled.

Pulses Per Inch	Pulses Per cm
16	6.3
20	7.9

Tach Scale Factor F/R

Enter a Tach Scale Factor to calibrate the tachometer actual to expected tachometer pulses/ inch or cm.

Options for forward “F” and reverse “R” appear when Bidirectional is selected. When Bidirectional is not selected, just one “Tack Scale Factor” appears.

For example: If you notice that the length (in the direction of travel) of your package is too short and you have a tachometer pulse of 16 pulses per inch, enter a Tach Scale Factor of less than 1.0. If you enter 0.97 your effective pulses per inch become 15.52 pulses per inch. If, however, your package is too long, enter Tach Scale Factor greater than 1.0. Adjust by small increments.

Computed Tach Type

There are two options available: **Start-End** and **Start-Start**. In both cases, the user specifies the Length between either a start and end trigger (Start-End) or between one start trigger and the next (Start-Start). From this information the dimensioner will compute the belt speed and generate an internal tach signal.

Select **Start-End** or **Start-Start** from the drop-down list.

Start-End: Length between a start and end trigger

Start-Start: Length between one start trigger and the next start trigger

Computed Tach Length

Enter a length based on the Computed Tach Type selected.

Transmit
Transmit Edge

Select **Leading Edge** or **Trailing Edge** from the drop-down. This input is only visible when DIM-in_Head Enabled is set to On. Specifies which edge of the package (leading or trailing) is used to reference the transmit point.

Transmit Point

Specifies the distance from the Transmit Edge to the Transmit Point. Enter a valid distance.

Single Transmit for SBS (Only for Continuous Trigger)

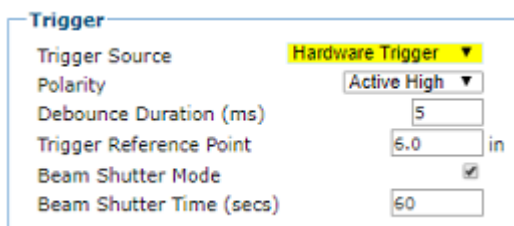
Select the check-box to enable. When checked, objects that are conveyed Side-by-Side will be combined into a single (Network/Serial) message. When unchecked, a (Network/Serial) message will be sent for each object that can be separated, even if they are conveyed Side-by-Side.

Trigger
Trigger Source

Select **Hardware Trigger**, **Software Trigger**, or **Continuous Trigger** from the drop-down list.

IF HARDWARE TRIGGER

Hardware trigger can come from either a photoelectric sensor, or a 24V DC contact closure.



Polarity

Select **Active High** or **Active Low** from the drop-down list.

Active High: The trigger is active when the input signal is high

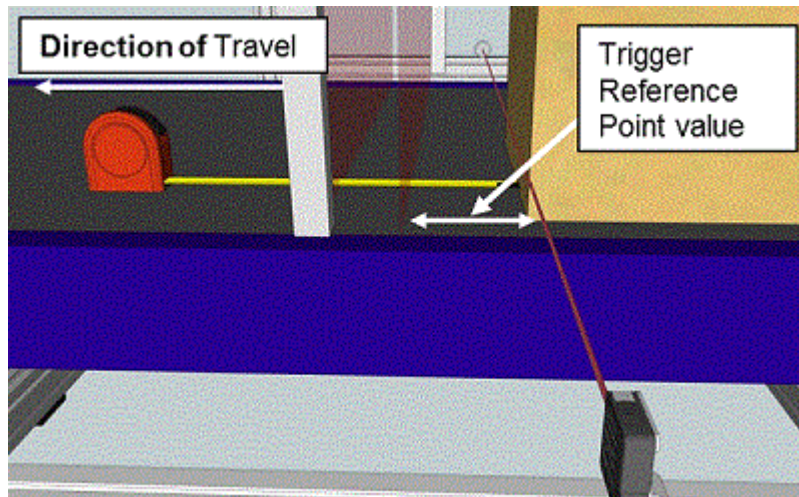
Active Low: The trigger is active when the input signal is low.

Debounce Duration (ms)

Enter the minimum number of milliseconds required for detection of a change in the hardware trigger status. If not set correctly, the DM3610 could receive false triggers.

Trigger Reference Point

Enter the distance from your trigger source to the DM3610 laser scan line.



Beam Shutter Mode

Select the check box to enable. The Beam Shutter option can be used to increase the overall laser diode life when used in high ambient temperature applications (over 35° C); reduce power consumption; and to turn off the laser for safety purposes.

Beam Shutter Time (secs)

Enter the number of seconds to wait after the last trigger cycle before shutting off the laser beam. Click the check-box to enable. The Beam Shutter option can be used to increase the overall laser diode life when used in high ambient temperature applications (over 35° C); reduce power consumption; and to turn off the laser for safety purposes.

IF SOFTWARE TRIGGER

Select Host - 1, Host - 2, Net - 1, or Net - 2 from the drop-down list. The software trigger can be any "host port" either serial or network based.

Trigger	
Trigger Source	Software Trigger ▼
Software Trigger	Serial AUX ▼
Start Char	S
End Char	E
Trigger Reference Point	6.0 in
Beam Shutter Mode	<input checked="" type="checkbox"/>
Beam Shutter Time (secs)	60

Start Char

Define the ASCII characters that, when received, will start trigger for the reader.

End Char

Define the ASCII characters that, when received, will end trigger for the reader.

Trigger Reference Point

Enter the distance from your trigger source to the DM3610 laser scan line.

Beam Shutter Mode

Select the check box to enable. The Beam Shutter option can be used to increase the overall laser diode life when used in high ambient temperature applications (over 35° C); reduce power consumption; and to turn off the laser for safety purposes.

Beam Shutter Time (secs)

Enter the number of seconds to wait after the last trigger cycle before shutting off the laser beam. Click the check-box to enable. The Beam Shutter option can be used to increase the overall laser diode life when used in high ambient temperature applications (over 35° C); reduce power consumption; and to turn off the laser for safety purposes.

IF CONTINUOUS TRIGGER

When selected, the dimensioner is always in trigger mode and immediately transmits the dimensions of any package seen.



Due to various processing time requirements, the transmit time will vary in continuous mode.

3. When you have finished making changes, click **Update** to save or click **Reset** to revert to the previously saved values.

MODIFY SETTINGS | NETWORK

Use the **Modify Settings | Network Settings** to specify network settings (including the IP address) for the dimensioner. Net Host Connection 1 and Net Host Connection 2 (including the IP address) define two network connections for sending messages. The Connection Type and Message Format for each port can be set independently. Message formatting is the same as for the serial port. The menu selections include:

- “Modify Settings | Network | Network Settings” on page 92
- “Message Definition #N” on page 95

Modify Settings | Network | Network Settings

Use the Modify Settings | Network | Network Settings to specify network settings (including the IP address) for the dimensioner.

Net Host Connection 1 and **Net Host Connection 2** define two network connections for sending messages. The **Connection Type** and **Message Format** for each port can be set independently. Message formatting is the same as for the serial port.

To adjust the network settings of the dimensioner:

1. In the tree menu under **Modify Settings**, navigate to **Network | Network Settings**. The **Network Settings** window opens.

The screenshot shows the Network Settings window with the following fields and values:

- IP Address 1:** 192, 168, 3, 123
- Net Mask 1:** 255, 255, 255, 0
- Gateway IP Address:** 10, 27, 20, 1
- Enable IP Address 2:**
- IP Address 2:** 10, 27, 20, 25
- Net Mask 2:** 255, 255, 255, 0
- Net Host Connection 1:** Connection Type: TCP/IP Server, Message Format: Datalogic Message, Port: 3001
- Net Host Connection 2:** Connection Type: TCP/IP Server, Message Format: Datalogic Message, Port: 3002
- WebSentinel PLUS Port:** 51232
- Telnet Port:** 23
- Data Transmit:** 0, 0, 0, 0 (top row); 10001 (bottom row)

Buttons: Update, Reset

2. Enter the appropriate information in the form as described below.

Network Port #1

IP Address 1

An IP address specifies a unique host ID for the dimensioner on a particular TCP/IP network. Consult your network administrator for a valid IP address for the reader.



If you choose to enable a second IP address, the local IP address must be entered in the IP Address 1 text fields. The Host IP address must then be entered in the IP Address 2 text fields. This is because the Gateway Address is associated with IP address 2.

Net Mask 1

A net mask modifies a standard IP address into subnets. A default net mask should be valid in most cases (255.255.255.0). Consult your network administrator for the net mask value.

Gateway IP Address 1

A gateway allows the dimensioner to reach other systems not on the local network and remote systems to reach the dimensioner. If the dimensioner requires external connectivity, consult your network administrator for a valid gateway address.

Network Port #(n) Ports 2 - 4

Static Host

When Enable DHCP is not selected, you must specify unique IP Address information.

Enable IP Address (n)

Check this box to enable an optional second IP address for the unit. When checked, **IP Address 2** and **Net Mask 2** fields become active. **IP Address 2** Enter a secondary IP address for the unit.



If you choose to enable a second IP address, the local IP address must be entered in the IP Address 1 text fields. The Host IP address must then be entered in the IP Address 2 text fields. This is because the Gateway Address is associated with IP address 2.

Net Mask (n)

Enter a secondary Net Mask for the unit.

Gateway IP Address (n)

A gateway allows the reader to reach other systems not on the local network and remote systems to reach the reader. If the reader requires external connectivity, consult your network administrator for a valid gateway address.

Net Host Connection (n)



There are two different Net Host Connections, independent of each other.

Select a connection type from the drop-down list:

TCP/IP Server: As a TCP/IP server, a Port # must be specified. In this case it is the TCP/IP client's responsibility to initiate a connection.

TCP/IP Client: As a TCP/IP client, aside from the Port #, the Remote IP Address of the TCP/IP server which is to receive messages must be specified.

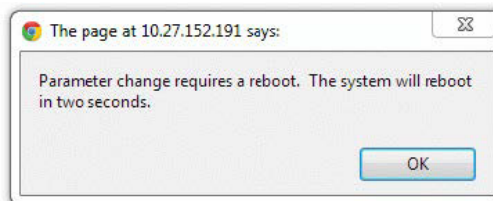
When used, a **Reconnect Time** must be entered in the field provided. The **Reconnect Time** specifies the interval (in seconds) at which the reader attempts to establish a connection.

A remote IP address must also be entered in the fields provided.

UDP Messaging (User Datagram Protocol): In some instances, it may be desirable to use a connection-less UDP message to send data. In this case, only the Port # and Remote IP Address of the receiver need to be specified.



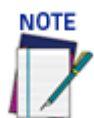
Selecting a new Net Host Connection Type and clicking Update will cause the DM3610 to reboot. A reboot message is displayed. Click OK to return to the Log On window.



Message Format

Select a Message Format from the drop-down list:

Custom Message: This selection may only be available when custom dimensioner software has been developed and installed for your system by Datalogic.



When Custom Message is selected, editable fields in the Message Definition #n window may be defined by the custom software installed.

Standard Message: When Standard Message is selected, the system uses a message format as defined by the standard DM3610 software.



When Standard Message is selected, no user input is permitted in the Message Definition #n window. The fields will be grayed out.

User Defined Message: This selection allows the user to define messages used. Messages can be defined in the Message Definition #n window.

Camera Message: This selection is intended to ease set-up of tunnels containing both AV7000 Cameras and DM3610 Dimensioners. This feature is built around a camera message that is sent from a DM3610 to an AV7000 camera. **Camera Message** sets the **Connection Type, Port** (5961), and **Remote IP** to broadcast the camera message out of Network Port #2. For Network

Port #2 of the DM3610 to the Focus net port of the AV7000.



When Camera Message is selected, the Connection Type is set to UDP Messaging, and no user input is permitted in the Message Definition #n window with the exception of Protocol Index.

Datalogic Message: This is a message sent to the SC5000 controller for Hybrid applications which integrate DM3610 into a tunnel where the SC5000 is the Master controller.



When Datalogic Message is selected, no user input is permitted in the Message Definition #n window with the exception of Protocol Index. However, unlike the Camera Message, the Connection Type is configurable.

WebSentinel PLUS Port

Datalogic's WebSentinel PLUS product may connect to this port to receive diagnostic.

Enter a Telnet port ID. Telnet is a network protocol that allows a user on one computer to log on to another computer remotely.

Data Transmit (Two-Head System only)

When **DIM-in-Head Enabled** is set to Off in **Modify Settings | Dimensioning | Settings** scan line data can be sent to this IP address and port for use in dual headed configurations. The data is sent to the DC3000 where the DC3000 provides length, width and height to the host. The various modes of this data transmission can be set using the Transmit Type selection on the Tach/Trigger/Transmit page.



The Data Transmit IP Address must be kept at its default of 0.0.0.0 if you do not need to transmit scan line data for off-line analysis and troubleshooting.

3. When you have finished making changes, click **Update** to save or click **Reset** to revert to the previously saved values.

Message Definition #N

Use the **Modify Settings | Network | Message Definition #n** to define messages when User Defined Messages has been selected in the Network Settings window. Available user interaction with this form will vary depending on the Message Format selected in **Modify Settings | Network | Settings**.

To define the appearance of dimensioner messages:

1. In the tree menu under **Modify Settings**, navigate to **Network | Message Definition #n**. The **Message Definition #n** window opens.

The screenshot shows the 'Message Definition #N' window with the following sections:

- Framing:** Header (text field: \02), Trailer (text field: \0d\0a), Sequence (dropdown: No Sequence No.), Check Digits (dropdown: CRC), Separator (text field: ;).
- Protocol Index:** Protocol Index Type (dropdown: Disabled).
- Messages:**
 - Include Aux Input 1, 2, 3 (checkboxes).
 - Dim, NoDim, Side-by-Side (dropdowns: Send Dimensions).
 - Dimensions Format (dropdown: LWH), Field Width (text field: 4).
 - Dimension Units (dropdown: mm), Precision (text field: 0).
 - Field Delimiter (text field: ;).
 - Omit Decimal (checkbox).
 - Lead Padding, Trail Padding (text fields).
 - Append Units, Append Ready Status, Append NoDim Status, Append Alibi Info (checkboxes with Separator text fields).
 - Append Side-by-Side, Append Volume, Append Box Corners, Append Angle (checkboxes).
 - Heart Beat Message (text field).
 - Heart Beat Time Out (0-60,000 ms) (text field: 0).

Buttons: Update, Reset.

2. Enter the appropriate information in the form as described below.



When Standard is selected in Modify Settings | Serial | Port #n, the system uses a message format as defined by the standard software. When selected, most input fields are not available.



User defined or Custom must be selected in Network Settings for the Net Host Connection in order for these options to be available for editing.

Net Host Connection 1

Connection Type

Message Format

Port

Net Host Connection 2

Connection Type

Message Format

Port

If you are using a Custom Message. Not all user defined options are configurable. They may be hard-coded by Datalogic software.

Framing

Define the message framing.



The Header and trailer must match the source header and trailer.

Header

Enter a character string for the header (ASCII or Hex). These characters will be sent at beginning of every message. Up to 25 characters are allowed.

Trailer

Enter a character string for the trailer. These characters will be sent to terminate every message.

Sequence

Select No Sequence No., 1 Digit Sequence No., 2 Digit Sequence No., or 3 Digit Sequence No. from the drop down list. When a digit sequence is selected, a sequence number consisting of the specified number of digits is inserted just after the header. Enter the sequence number in the Separator field provided. The Separator is the delimiter found after the sequence number.

Check Digits

Select **BCC** or **CRC** from the drop-down list. When enabled, a two-character hexadecimal check character is inserted just prior to the trailer. Enter the separator character in the Separator field provided.

Separator

Enter a character to use as a separator before the Check Digits.

Protocol Index/ Aux Message

Protocol Index is used to get a message from external equipment. External equipment may be third party equipment, such as a scale or sorter or a Datalogic product. The message can then be attached to the message output from the dimensioner system.

Type

Select Disabled, Fixed Length, Variable Length, or Length in Message from the drop-down list.

Disabled: Protocol Index functions are not displayed.

Fixed Length: The Protocol Index string has a fixed length specified in the Length field.

Variable Length: The length of the Protocol Index string received by the dimensioner system is variable.

Length in Message: The first byte after the Header indicates the length of the Protocol Index string received by the dimensioner system.

Length

Enter the number of characters expected when **Fixed Length** is selected.

Header

Enter a Header to be defined and transmitted as a block preceding the Protocol Index string sent by the Host.



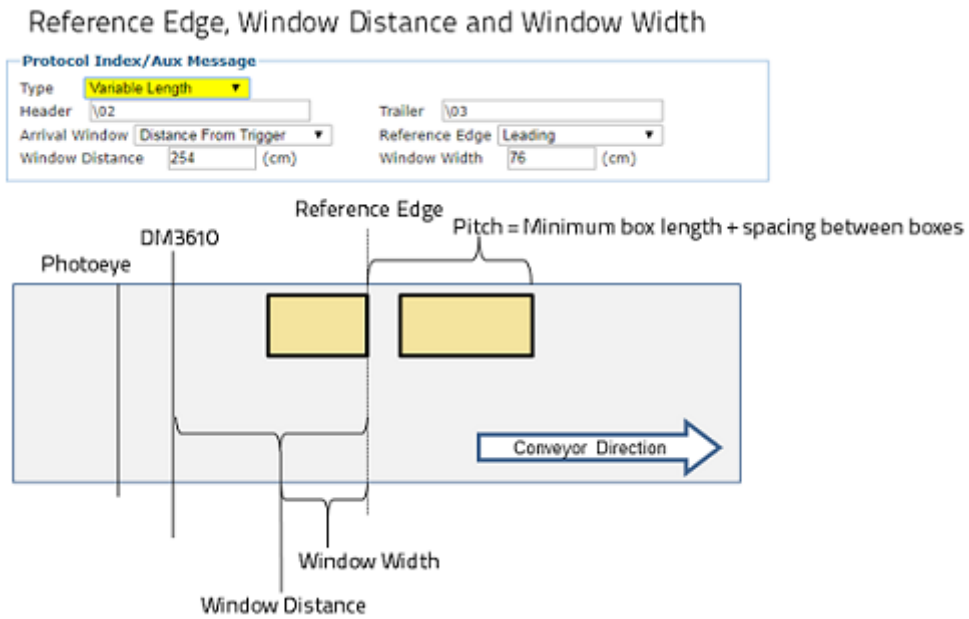
All Protocol Index Type selections must include a header.

Trailer

Enter a Trailer to be defined and transmitted as a block following the Protocol Index string sent by the Host.



If Variable Length is selected as the Protocol Index Type, it must include a trailer. A trailer is not necessary for the other selections. If Fixed Length or Length in Message include an optional Trailer and it does not occur in the correct place, the received string is discarded.



Arrival Window

Select While in Trigger, Distance from Trigger, or Distance from Scan Line from the drop-down list.

While in Trigger: The Protocol Index string must arrive while the trigger is active (e.g. while the photo-eye is blocked).

Distance from Trigger: The Protocol Index string must arrive during a window relative to the trigger source, e.g. photo-eye (reference edge, window distance, and window width are configurable).

Distance from Scan Line: The Protocol Index string must arrive during a window relative to the scan line (reference edge, window distance, and window width are configurable).

Reference Edge

Select **Leading** or **Trailing** from the drop-down list when **Distance from Trigger** or **Distance from Scan Line** selections are used.

Window Distance

Enter the distance (cm [in]) from the Arrival Window’s reference point (i.e. Trigger or Scan Line) to the desired location of the arrival window (receiving point) for the **Protocol Index** string. This is used together with the **Window Width** parameter to assign the **Protocol Index** information to the correct package.

Window Width

Enter the smallest possible distance (cm [in]) between system packages in the field provided when **Distance from Trigger** or **Distance from Scan Line** selections are used. Specifies the length that an electronic window opens to receive the protocol index message. This specifies the minimum distance between two consecutive packages. It is used to compensate for imprecision in the Distance from Protocol Index to Trigger Source (Window Width) by virtually

lengthening the package. This parameter implies that if two consecutive packages are placed on the conveyor at a distance less than the minimum, a **Protocol Index** assignment error will occur.

Messages

Include Aux Input 1, 2, or 3

These options identify the Protocol Index source and how the information appears in the DM3610 message. Select the check box(es) to enable. This will include a received protocol index message in this outgoing message. Additional inputs appear when enabled.

Include Aux Input 1	<input checked="" type="checkbox"/>	Separator	;
		Source	Aux Serial Port
		No Aux Input Msg	??????????????

Separator

Enter a character to use as a separator before the Aux Input (Protocol Index message).

Source

Select **Serial Port 1, 2 or 3**, or **Network Port 1 or 2** from the drop-down list. This is the port by which the protocol index message is received.

No Aux Input Msg

Enter a filler message to replace the protocol index message (Aux Input) if none is received from the external device (i.e.: scale, etc.).

Dim

Select **None**, **Send Dimensions**, or **User Defined** from the drop-down list.

None: No dimension data is sent in the message.

end Dimensions: This selection sends the package dimensions in the message.

User Defined: When selected, a text field is provided for entry of a user defined message.

Dim	User Defined	
-----	--------------	--

No Dim

Select None, Send Dimensions, or User Defined from the drop-down list. In LFT applications the parcel may not meet the requirements for certification; however the unit may identify a dimension to the parcel. In this condition a measurement may be transmitted. The DM3610 may provide a length, width, and height for the package for uses such as volume determinations.

None: No dimension data is sent in the message.

Send Dimensions: This selection sends the package dimensions in the message. This is used in cert mode when non-cuboidal packages are measured (but do not meet cert mode requirements) and the dim data is still useful.

User Defined: When selected, a text field is provided for entry of a user defined message.

Side-by-Side

Select **None**, **Send Dimensions**, or **User Defined** from the drop-down list. This must be selected for a side-by-side message to be appended to the host message.

None: No dimension data is sent in the message.

Send Dimensions: This selection sends the package dimensions in the message.

User Defined: When selected, a text field is provided for entry of a user defined message.

Side by Side	Use	!!!!,!!!!,!!!!
--------------	-----	----------------

Dimensions Format

The Length Reporting option under **Modify Settings > Settings >** determines which side is identified as the length. Select in what order you would like the Length, Width, and Height measurements to appear in the message L=Length / W=Width / H=Height.

Field Width

Select the field width of the minimal number of characters for length, width, and height from the drop-down list. 2 to 7 characters are available. If the value has fewer characters than the field width, it will be padded with zeros on the left.

For example:

If Precision is set at 1 (1 decimal place), field width is set at 5, and the Omit Decimal is not selected, the dimension is 12.3, then the returned value in the host message will be **012.3**.

If Precision is set at 2 (2 decimal place), field width is set at 7, and the dimension is 12.3, then the returned value in the host message will be **0012.30**.



The decimal place is considered a character.

Dimension Units

Select **in** (inches), **mm** (millimeters), or **cm** (centimeters) from the drop down list. This information is placed in the output message after the dimensioning data, if the append units box is selected.

Precision

Select 0, 1, or 2 from the drop-down list. This is the number of digits appearing after the decimal point.

Field Delimiter

Enter a character to be used as a delimiter between length, width, and height fields. A semicolon is often used to separate data.

Omit Decimal

Select this check box to remove the decimal point character from the message. Only the decimal point character is removed, and digits before and after the decimal point remain. This does not change the precision option.

Lead Padding

Enter characters to precede the length, width, and height field. If this box is selected, you must assume decimal position.

Trail Padding

Enter characters to follow the length, width, and height field.



For each “Append” check box, the information is included in the host message after the separator you define.

Append Units

Select the check box to enable. When checked, a Separator text field is revealed. Enter a separator character in the text field provided. A unit abbreviation (mm, cm, or in) will be appended after the separator.

Append Ready Status

Select the check box to enable. When checked, a Separator text field is revealed. Enter a separator character in the text field provided. **NOTREADY** or **READY** will be appended after the separator. **NOTREADY** indicates that this package result is not legal-for-trade, or under **Modify Settings > Dimensioning > Settings Certification Mode** is set to off.

Append NoDim Status

Select the check box to enable. When checked, a Separator text field is revealed. Enter a separator character in the text field provided. If the package is a NoDim, a reason code is appended after the separator.

For example:

NODIM_BOX_STACKED, NODIM_BOX_SIDES_TO_NOISY

A NoDim reason indicates that this package result is not legal-for-trade. If the **Numeric** check box is selected, the numeric equivalent of the NoDim Status will be appended. The numeric values are shown below.



A NoDim may still have dimensions for the package transmitted. It indicates that the package does not meet the requirements to be considered a valid certified dimension. A bounding box dimension is transmitted.

Append Side-by-Side

Select the check box to enable. When checked, a Separator text field is revealed. Enter a separator character in the text field provided. If there is a side-by-side condition detected, "SBS" will be appended after the separator.

Append Alibi Info (Only shown in some Legal for Trade Models)

Select the check box to enable. When checked, a Separator text field is revealed. Enter a separator character in the text field provided. Alibi storage information is appended after the separator. Only shown in OIML applications.

Format:

MM:MM:MM:SS:SS:SSYYYYMMDDhhmmss-nnnnnnnnnn

Where MM:MM:MM:SS:SS:SS is the MAC address, YYYYMMDDhhmmss is the date/time, and nnnnnnnnnn is the 10 digit sequence number

Examples:

```
\020150;0100;0105;mm;READY;;00:0e:13:05:00:0720161121144823-
0000000001;5D3C
\020155;0100;0100;mm;READY;;00:0e:13:05:00:0720161121144831-
0000000002;7416
```

Append Volume

Select the check box to enable. When checked, Volume Units, Volume Field Width, and Volume Precision drop-down boxes are revealed.

Separator	<input type="text"/>
Volume Units	<input type="text" value="in<sup>3</sup>"/>
Volume Field Width	<input type="text"/>
Volume Precision	<input type="text" value="0"/>

Separator

Enter a separator character in the text field provided. This character is inserted between the Append Volume data.

Volume Units

Select cubic Volume Units from the drop-down list. Selections include in³ (inches cubed), ft³ (feet cubed), cm³ (centimeters cubed), and dm³ (decimeters cubed).

Volume Field Width

Select a Volume Field Width of 2 to 8 from the drop-down list. This represents the number of characters available for the field width. If the value has fewer characters than the field width, it will be padded with zeros on the left.

Volume Precision

Select a Volume Precision of 0 to 3 from the drop-down list. This is the number of digits appearing after the decimal point.

For example:

If **Volume Precision** is set at 1 (1 decimal place), **Volume Field Width** is set at 5, and the volume is 25.8 cm³, then the returned value in the host message will be **025.8**

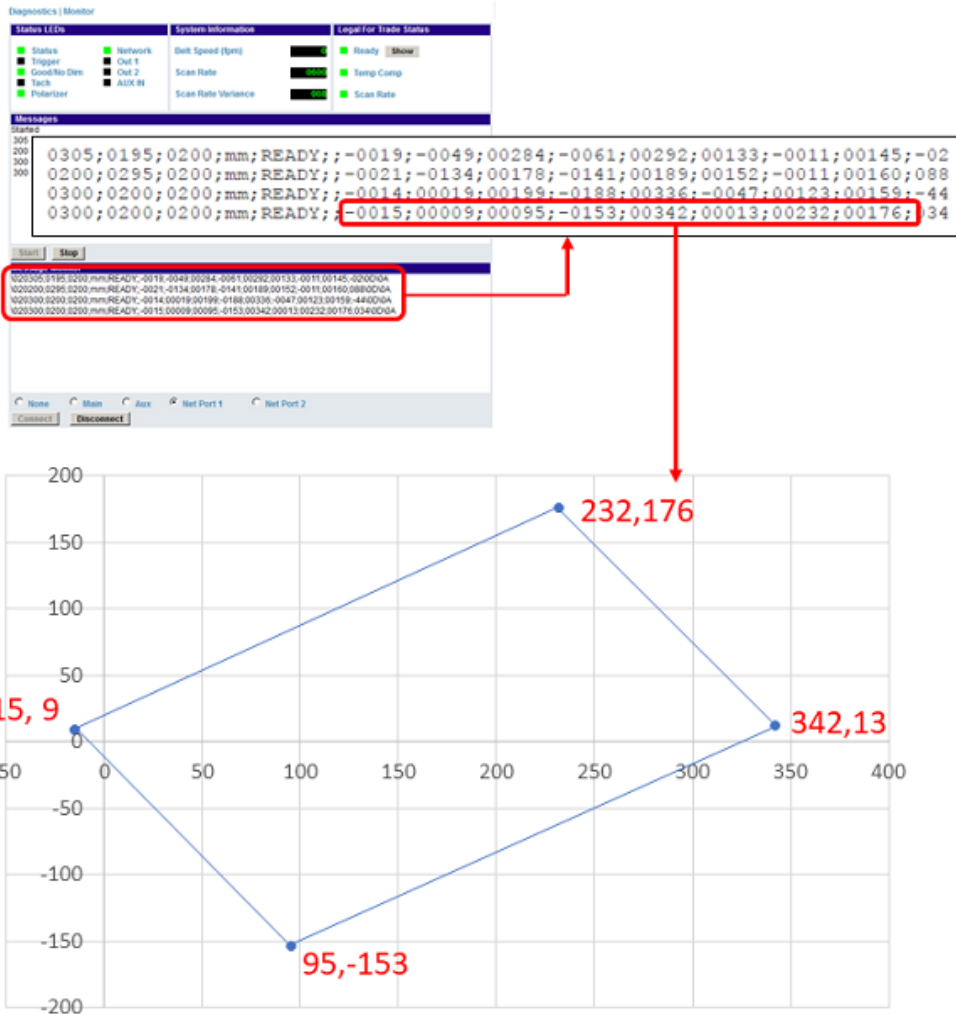
If **Volume Precision** is set at 2 (2 decimal place), **Volume Field Width** is set at 8, and the volume is 25.8 cm³, then the returned value in the host message will be **00025.80**

Append Box Corners

Select the check box to enable. When checked, **Separator, Offset X By Trigger, Flip Y Offset, Field Width, Precision, X Offset, and Y Offset** selections are revealed. This information can be used to identify the position of the box on the conveyor, for a printer applicator or similar device.

Separator	<input type="text"/>
Offset X By Trigger	<input type="checkbox"/>
Flip Y Offset	<input type="checkbox"/>
Field Width	<input type="text"/>
Precision	<input type="text" value="0"/>
X Offset	<input type="text" value="0"/>
Y Offset	<input type="text" value="0"/>

Example:



Separator

Enter a separator character in the text field provided to be placed before each corner and before the angle (if selected).

Offset X By Trigger

Select the **Offset X By Trigger** check box to enable. (X is downstream). **When selected**, a hardware or software trigger will indicate where the X position of the box corners begins.

If not selected, the X offset is indicated by the leading package corner (ie, the leading corner will be given an X value of 0 (zero) and all other package corners will be offset based on the leading corner).

Flip Y Offset

Select the **Flip Y Offset** check box to enable. (Y is across the conveyor). When selected, this option changes which side of the system’s origin point has positive Y coordinates and negative Y coordinates.

Field Width

Select a **Field Width** from the drop-down box. This represents the number of characters each corner has to display its value.

Precision

Select a **Precision** level from the drop-down box. This is the number of decimal places to display for each value.

X Offset

Enter the **X Offset** in the field provided. This is a constant distance (mm [in]) in the X direction (along the conveyor) added to each X package corner position.

Y Offset

Enter the **Y Offset** in the text field provided. This is a constant distance (mm [in]) in the Y direction (across the conveyor) added to each Y corner position.

Append Angle

Select the check box to enable. When checked, Separator, Angle Terminal Side, Flip Angle Direction, and Angle Range selections are revealed.

Separator	<input type="text"/>
Angle Terminal Side	Longest Side ▾
Flip Angle Direction	<input type="checkbox"/>
Angle Range	-90° to 90° ▾

Example: We have inducted a 300x200x200mm box four times, at different angles. Per the messages, these angles were -2°, 88°, -44°, and 34°:

```
0305;0195;0200;mm;READY;;-0019;-0049;00284;-0061;00292;00133;-0011;0014;-02
0200;0295;0200;mm;READY;;-0021;-0134;00178;-0141;00189;00152;-0011;0016;088
0300;0200;0200;mm;READY;;-0014;00019;00199;-0188;00336;-0047;00123;0015;-44
0300;0200;0200;mm;READY;;-0015;00009;00095;-0153;00342;00013;00232;0017;034
```

Separator

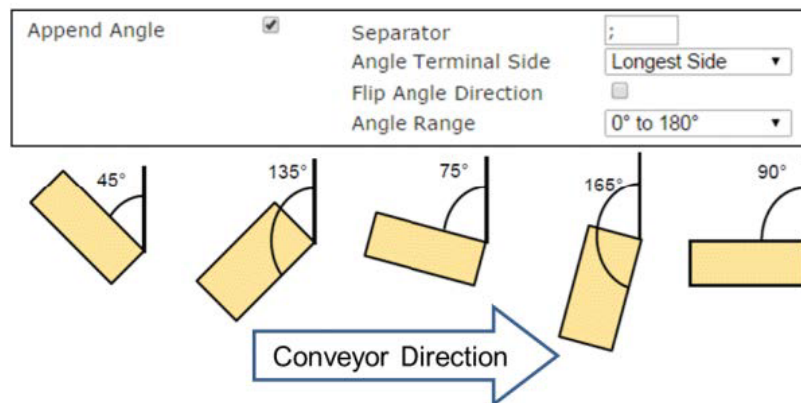
Enter a **Separator** character in the text field provided.

Angle Terminal Side

Select **Longest Side**, **Shortest Side**, or **Adjacent Side** from the **Angle Terminal Side** drop-down box. The angle will always be measured as the relation between one of the sides to the scan line.

Longest Side: The measured angle is the corner that the longest side makes with the horizontal scan line.

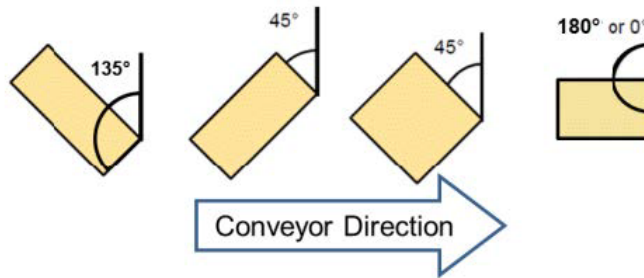
Angle calculation from leading package corner to Longest Side



Shortest Side: The measured angle is the corner that the shortest side makes with the horizontal scan line.

Angle calculation from leading package corner to Shortest Side

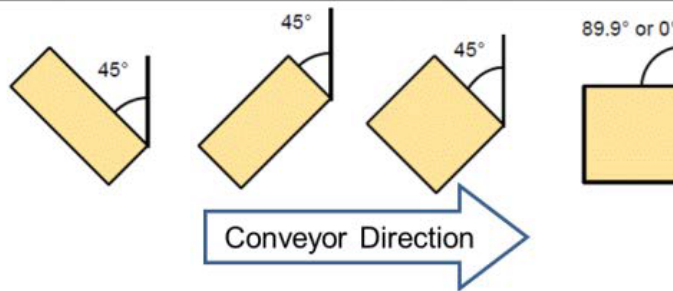
Append Angle	<input checked="" type="checkbox"/>	Separator	:
Angle Terminal Side		Angle Terminal Side	Shortest Side
Flip Angle Direction	<input type="checkbox"/>	Flip Angle Direction	<input type="checkbox"/>
Angle Range		Angle Range	0° to 180°



Adjacent Side: The measured angle is the corner that the counterclockwise side makes with the horizontal scan line.

Angle calculation from leading package corner to Adjacent Side

Append Angle	<input checked="" type="checkbox"/>	Separator	:
Angle Terminal Side		Angle Terminal Side	Adjacent Side
Flip Angle Direction	<input type="checkbox"/>	Flip Angle Direction	<input type="checkbox"/>
Angle Range		Angle Range	0° to 90°



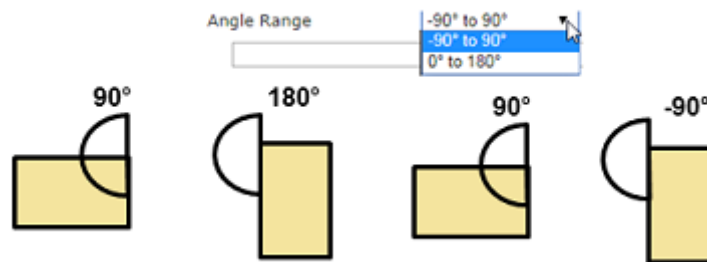
Flip Angle Direction

Select the **Flip Angle Direction** check box to flip the angle direction. When selected, the way the box is measured over the center of the belt is flipped 180 degrees.

Angle Range

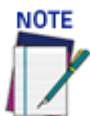
Select an **Angle Range** from the drop-down box. This function dictates the range that the angles will be produced on.

Angle Range



Heart Beat Message

Enter a heart beat message in milliseconds if desired. If no other message is sent for the time period specified in **Heart Beat Time Out**, the specified heart beat message string is sent.



A time-out of zero disables the heart beat message.

Heart Beat Time Out (0-30,000 ms)

Enter an interval for heart beat time out in milliseconds.

0 = Disable Heart Beat Message,
1-30,000 = Delay before sending Heart Beat Message

3. When you have finished making changes, click **Update** to save or click **Reset** to revert to the previously saved values.

Serial | Main/Aux

Use the **Modify Settings | Serial | Main/Aux** to define the format of messages the dimensioner sends

To adjust the Serial settings of the dimensioner:

1. In the tree menu under **Modify Settings**, navigate to **Serial | Main**. The **Serial Main/Aux** window opens.

The screenshot shows the 'Serial Main/Aux' configuration window. It is divided into several sections:

- Baud Rate:** A group of radio buttons with options: 600, 1200, 2400, 4800, 9600, 19200, 38400, 57600, and 115200. The 9600 option is selected.
- Data Bits:** A group of radio buttons with options: 7 Bits and 8 Bits. The 8 Bits option is selected.
- Stop Bits:** A group of radio buttons with options: 1 Bits and 2 Bits. The 2 Bits option is selected.
- Parity:** A group of radio buttons with options: None, Even, and Odd. The None option is selected.
- Mode:** A group of radio buttons with options: RS-232 and RS-422. The RS-232 option is selected.
- Message Format:** A dropdown menu currently showing 'Legal for Trade Display'. To its right is the text 'External display device for Certified dimensioning'.

At the bottom right of the window are two buttons: 'Update' and 'Reset'.



The Message format and definition are the same for Serial Main and Aux Ports.

2. Enter the appropriate information in the form as described below.

Baud Rate

Select a baud rate from the options provided (bits per second).

Data Bits

Select the number of data bits from the options provided (bits per character).

Stop Bits

Select the number of stop bits from the options provided.

Parity

Select a parity option of **None**, **Even**, or **Odd**.

Mode

Select a mode of **RS232** or **RS422** If Modifying settings of Main Select a mode of **RS232** or **RS422** to indicate the type of communications used.

If Modifying settings of Aux Select a mode of **RS232 Direct** or **RS232 Backup Module**. **RS232 Backup Module** (default) indicates that communications go through a CBX100 connection box with an installed BM100 backup module. The BM100 is optional.



If the BM100 backup module is selected, and there is no BM100 in the CBX box connected, the serial message is not transmitted.

RS232 Direct indicates communications are going through a CBX100 connection box without a backup module installed.

Message Format

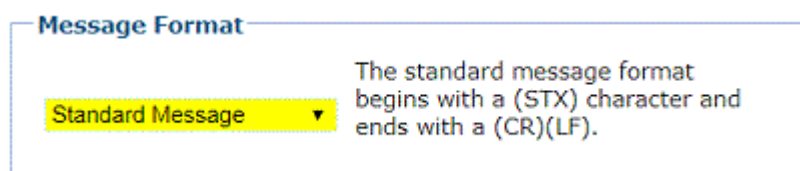
Select a message format from the drop-down list:

Custom Message: Custom messaging is enabled here if your application uses custom software.

Standard Message: The standard message format begins with a (STX) character and ends with a (CR)(LF).



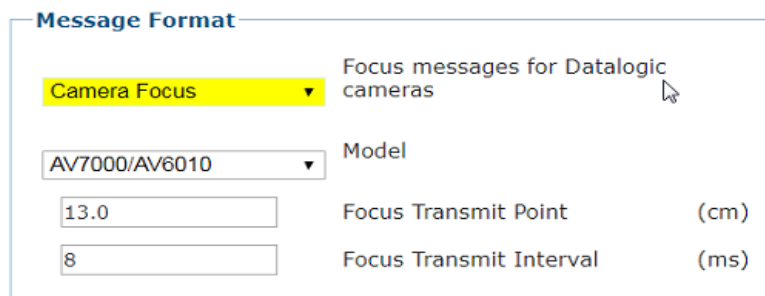
When Standard Message is selected, no user input is permitted.



User-Defined Message: Use the Message Definition #n form to specify your message format.

Legal for Trade Display: Select this option to use an external display device for certified dimensioning.

Camera Focus: Select this option when sending focus data from the DM3610 to a Datalogic camera barcode reader.



Model

Select AV7000/AV6010 of NVS9000 from the drop-down list.

Focus Transmit Point

Enter the distance from the DM3610 scan line to the point at which the package focus message is sent. The Focus Transmit Point identifies how far from the DM3610 scan line the DM3610 will start sending the focus data to the Datalogic camera. This delay time is needed in order for the DM3610 to provide a smooth, continuous focus signal.

Focus Transmit Interval:

Enter the interval in milliseconds at which the focus message is transmitted for the package. The Focus Transmit Interval is the frequency in which the DM3610 sends out the focusing data. In this example the DM3610 will send out a focus message every 8 millisecond

Datalogic Message: Select this option when sending focus data to other Datalogic products.

- When you have finished making changes, click **Update** to save or click **Reset** to revert to the previously saved values.

Message Definition Main/Aux

Use the **Modify Settings | Serial | Message Definition #n** to define messages when User Defined Messages has been selected in the Serial Port window. Available user interaction with this form varies depending on the Message Format selected in **Modify Settings | Serial | Port**.



When **Legal For Trade or Camera Focus** is selected in **Modify Settings | Serial | Port #n**, the message definition will not appear.

To define the appearance of dimensioner messages:

1. In the tree menu under **Modify Settings**, navigate to **Serial | Message Definition Main (or Aux)**. The Message Definition Main (or Aux) window opens.

2. Enter the appropriate information in the form as described below.



When **Standard or Datalogic** is selected in **Modify Settings | Serial | Port #n**, the system uses a message format as defined by the standard software. When selected, most input fields are not available.

Framing

Define the message framing.



The Header and trailer must match the source header and trailer.

Header

Enter a character string for the header (ASCII or Hex). These characters will be sent at

beginning of every message. Up to 25 characters are allowed.

Trailer

Enter a character string for the trailer. These characters will be sent to terminate every message.

Sequence

Select No Sequence No., 1 Digit Sequence No., 2 Digit Sequence No., or 3 Digit Sequence No. from the drop down list. When a digit sequence is selected, a sequence number consisting of the specified number of digits is inserted just after the header. Enter the sequence number in the Separator field provided. The Separator is the delimiter found after the sequence number.

Check Digits

Select **BCC** or **CRC** from the drop-down list. When enabled, a two-character hexadecimal check character is inserted just prior to the trailer. Enter the separator character in the Separator field provided.

Separator

Enter a character to use as a separator before the Check Digits.

Protocol Index/ Aux Message

Protocol Index is used to get a message from external equipment. External equipment may be third party equipment, such as a scale or sorter or a Datalogic product. The message can then be attached to the message output from the dimensioner system.

Type

Select Disabled, Fixed Length, Variable Length, or Length in Message from the drop-down list.

Disabled: Protocol Index functions are not displayed.

Fixed Length: The Protocol Index string has a fixed length specified in the Length field.

Variable Length: The length of the Protocol Index string received by the dimensioner system is variable.

Length in Message: The first byte after the Header indicates the length of the Protocol Index string received by the dimensioner system.

Length

Enter the number of characters expected when **Fixed Length** is selected.

Header

Enter a Header to be defined and transmitted as a block preceding the Protocol Index string sent by the Host.



All Protocol Index Type selections must include a header.

Trailer

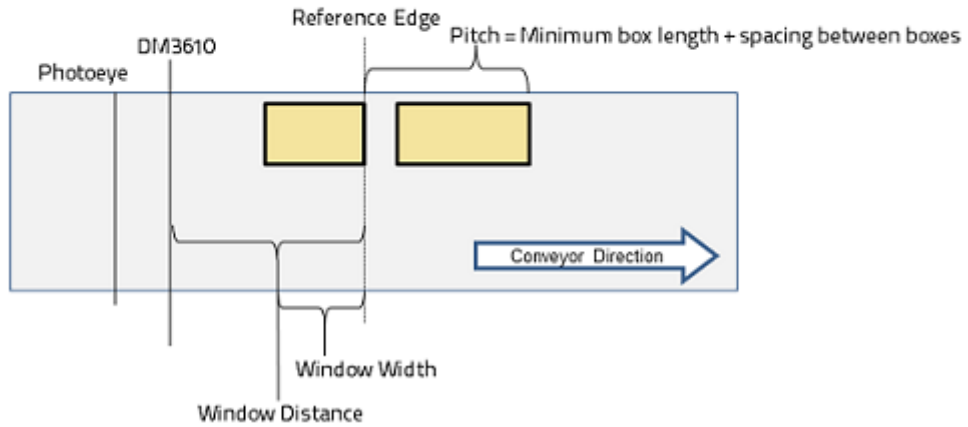
Enter a Trailer to be defined and transmitted as a block following the Protocol Index string sent by the Host.



If Variable Length is selected as the Protocol Index Type, it must include a trailer. A trailer is not necessary for the other selections. If Fixed Length or Length in Message include an optional Trailer and it does not occur in the correct place, the received string is discarded.

Reference Edge, Window Distance and Window Width

Protocol Index/Aux Message	
Type	Variable Length
Header	\02
Trailer	\03
Arrival Window	Distance From Trigger
Window Distance	254 (cm)
Reference Edge	Leading
Window Width	76 (cm)



Arrival Window

Select While in Trigger, Distance from Trigger, or Distance from Scan Line from the drop-down list.

While in Trigger: The Protocol Index string must arrive while the trigger is active (e.g. while the photo-eye is blocked).

Distance from Trigger: The Protocol Index string must arrive during a window relative to the trigger source, e.g. photo-eye (reference edge, window distance, and window width are configurable).

Distance from Scan Line: The Protocol Index string must arrive during a window relative to the scan line (reference edge, window distance, and window width are configurable).

Reference Edge

Select **Leading** or **Trailing** from the drop-down list when **Distance from Trigger** or **Distance from Scan Line** selections are used.

Window Distance

Enter the distance (cm [in]) from the Arrival Window’s reference point (i.e. Trigger or Scan Line) to the desired location of the arrival window (receiving point) for the **Protocol Index** string. This is used together with the **Window Width** parameter to assign the **Protocol Index** information to the correct package.

Window Width

Enter the smallest possible distance (cm [in]) between system packages in the field provided when **Distance from Trigger** or **Distance from Scan Line** selections are used. Specifies the length that an electronic window opens to receive the protocol index message. This specifies the minimum distance between two consecutive packages. It is used to compensate for imprecision in the Distance from Protocol Index to Trigger Source (Window Width) by virtually lengthening the package. This parameter implies that if two consecutive packages are placed on the conveyor at a distance less than the minimum, a **Protocol Index** assignment error will occur.

Messages

Include Aux Input 1, 2, or 3

These options identify the Protocol Index source and how it information appears in the DM3610 message. Select the check box(es) to enable. This will include a received protocol index message in this outgoing message. Additional inputs appear when enabled.

Include Aux Input 1	<input checked="" type="checkbox"/>	Separator	:
		Source	Aux Serial Port
		No Aux Input Msg	????????????

Separator

Enter a character to use as a separator before the Aux Input (Protocol Index message).

Source

Select **Serial Port 1, 2 or 3**, or **Network Port 1 or 2** from the drop-down list. This is the port by which the protocol index message is received.

No Aux Input Msg

Enter a filler message to replace the protocol index message (Aux Input) if none is received from the external device (i.e.: scale, etc.).

Dim

Select **None**, **Send Dimensions**, or **User Defined** from the drop-down list.

None: No dimension data is sent in the message.

Send Dimensions: This selection sends the package dimensions in the message.

User Defined: When selected, a text field is provided for entry of a user defined message.

Dim User Defined ▾

No Dim

Select None, Send Dimensions, or User Defined from the drop-down list. In LFT applications the parcel may not meet the requirements for certification; however the unit may identify a dimension to the parcel. In this condition a measurement may be transmitted. The DM3610 may provide a length, width, and height for the package for uses such as volume determinations.

None: No dimension data is sent in the message.

Send Dimensions: This selection sends the package dimensions in the message. This is used in cert mode when non-cuboidal packages are measured (but do not meet cert mode requirements) and the dim data is still useful.

User Defined: When selected, a text field is provided for entry of a user defined message.

Side-by-Side

Select **None**, **Send Dimensions**, or **User Defined** from the drop-down list. This must be selected for a side-by-side message to be appended to the host message.

None: No dimension data is sent in the message.

Send Dimensions: This selection sends the package dimensions in the message.

User Defined: When selected, a text field is provided for entry of a user defined message.

Side by Side Use ▾

Dimensions Format

The Length Reporting option under **Modify Settings > Settings >** determines which side is identified as the length. Select in what order you would like the Length, Width, and Height measurements to appear in the message L=Length / W=Width / H=Height.

Field Width

Select the field width of the minimal number of characters for length, width, and height from the drop-down list. 2 to 7 characters are available. If the value has fewer characters than the field width, it will be padded with zeros on the left.

For example:

If Precision is set at 1 (1 decimal place), field width is set at 5, and the Omit Decimal is not selected, the dimension is 12.3, then the returned value in the host message will be **012.3** If Precision is set at 2 (2 decimal place), field width is set at 7, and the dimension is 12.3, then the returned value in the host message will be



The decimal place is considered a character.

Dimension Units

Select **in** (inches), **mm** (millimeters), or **cm** (centimeters) from the drop down list. This information is placed in the output message after the dimensioning data, if the append units box is selected.

Precision

Select 0, 1, or 2 from the drop-down list. This is the number of digits appearing after the decimal point.

Field Delimiter

Enter a character to be used as a delimiter between length, width, and height fields. A semicolon is often used to separate data.

Omit Decimal

Select this check box to remove the decimal point character from the message. Only the decimal point character is removed, and digits before and after the decimal point remain. This does not change the precision option.

Lead Padding

Enter characters to precede the length, width, and height field. If this box is selected, you must assume decimal position.

Trail Padding

Enter characters to follow the length, width, and height field.



For each “Append” check box, the information is included in the host message after the separator you define.

Append Units

Select the check box to enable. When checked, a Separator text field is revealed. Enter a separator character in the text field provided. A unit abbreviation (mm, cm, or in) will be appended after the separator.

Append Ready Status

Select the check box to enable. When checked, a Separator text field is revealed. Enter a separator character in the text field provided. **NOTREADY** or **READY** will be appended after the separator. **NOTREADY** indicates that this package result is not legal-for-trade, or under **Modify Settings > Dimensioning > Settings Certification Mode** is set to off.

Append NoDim Status

Select the check box to enable. When checked, a Separator text field is revealed. Enter a separator character in the text field provided. If the package is a NoDim, a reason code is appended after the separator.

For example:

NODIM_BOX_STACKED, NODIM_BOX_SIDES_TO_NOISY

A NoDim reason indicates that this package result is not legal-for-trade. If the **Numeric** check box is selected, the numeric equivalent of the NoDim Status will be appended. The numeric values are shown below.



A NoDim may still have dimensions for the package transmitted. It indicates that the package does not meet the requirements to be considered a valid certified dimension. A bounding box dimension is transmitted.

Append Side-by-Side

Select the check box to enable. When checked, a Separator text field is revealed. Enter a separator character in the text field provided. If there is a side-by-side condition detected, “SBS” will be appended after the separator.

Append Alibi Info (Only shown in some Legal for Trade Models)

Select the check box to enable. When checked, a Separator text field is revealed. Enter a separator character in the text field provided. Alibi storage information is appended after the separator. Only shown in OIML applications.

Format:

MM:MM:MM:SS:SS:SSYYYYMMDDhhmmss-nnnnnnnnnn

Where MM:MM:MM:SS:SS:SS is the MAC address, YYYYMMDDhhmmss is the date/time, and nnnnnnnnn is the 10 digit sequence number.

Examples:

\020150;0100;0105;mm;READY;;00:0e:13:05:00:0720161121144823-000000001;5D3C

\020155;0100;0100;mm;READY;;00:0e:13:05:00:0720161121144831-
0000000002;7416

Append Volume

Select the check box to enable. When checked, Volume Units, Volume Field Width, and Volume Precision drop-down boxes are revealed.

Separator	<input type="text"/>
Volume Units	<input type="text" value="in<sup>3</sup>"/>
Volume Field Width	<input type="text"/>
Volume Precision	<input type="text" value="0"/>

Separator

Enter a separator character in the text field provided.

Volume Units

Select cubic Volume Units from the drop-down list. Selections include in³ (inches cubed), ft³ (feet cubed), cm³ (centimeters cubed), and dm³ (decimeters cubed).

Volume Field Width

Select a Volume Field Width of 2 to 8 from the drop-down list. This represents the number of characters available for the field width. If the value has fewer characters than the field width, it will be padded with zeros on the left.

Volume Precision

Select a Volume Precision of 0 to 3 from the drop-down list. This is the number of digits appearing after the decimal point.

For example:

If **Volume Precision** is set at 1 (1 decimal place), **Volume Field Width** is set at 5, and the volume is 25.8 cm³, then the returned value in the host message will be **025.8**

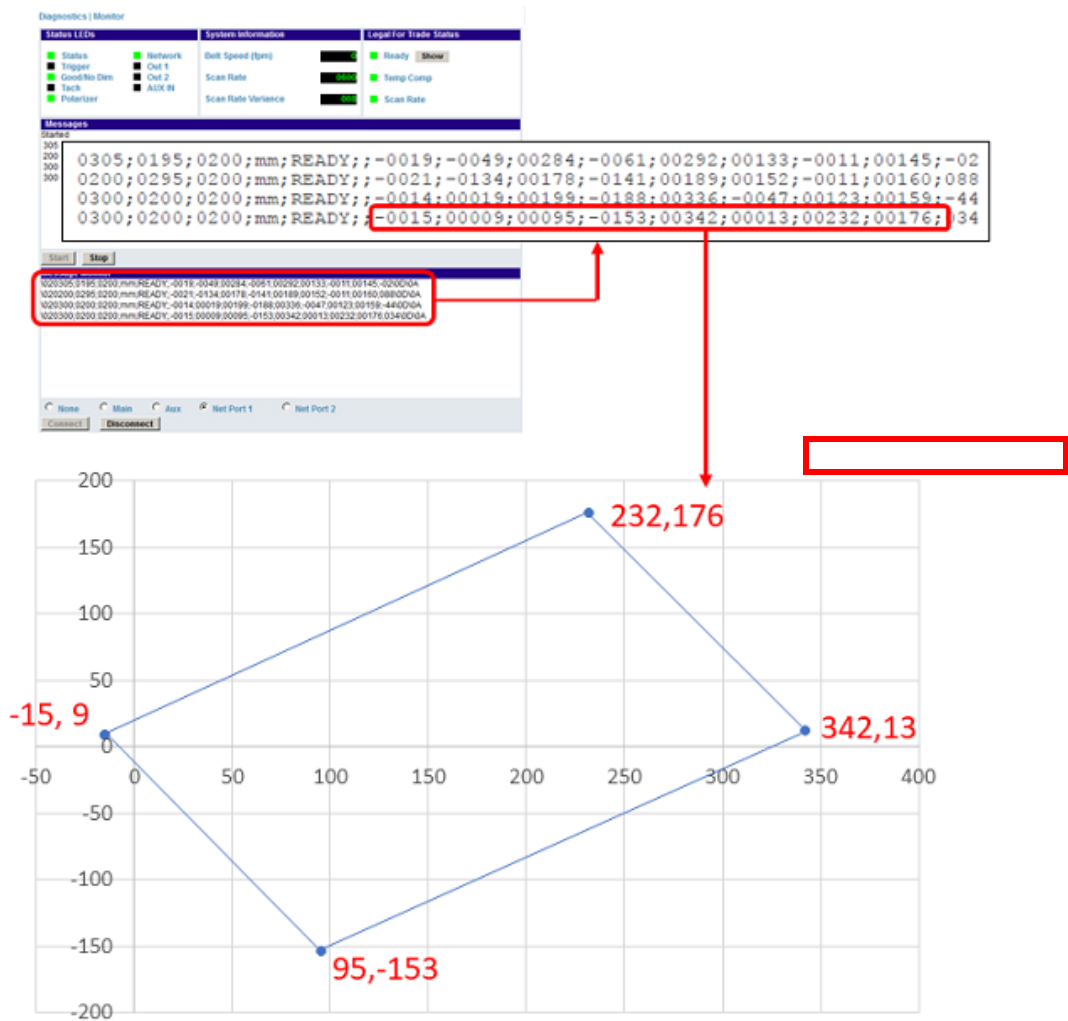
If **Volume Precision** is set at 2 (2 decimal place), **Volume Field Width** is set at 8, and the volume is 25.8 cm³, then the returned value in the host message will be **00025.80**

Append Box Corners

Select the check box to enable. When checked, **Separator, Offset X By Trigger, Flip Y Offset, Field Width, Precision, X Offset, and Y Offset** selections are revealed. This information can be used to identify the position of the box on the conveyor, for a printer applicator or similar device.

Separator	<input type="text"/>
Offset X By Trigger	<input type="checkbox"/>
Flip Y Offset	<input type="checkbox"/>
Field Width	<input type="text"/>
Precision	<input type="text" value="0"/>
X Offset	<input type="text" value="0"/>
Y Offset	<input type="text" value="0"/>

Example:



Separator

Enter a separator character in the text field provided to be placed before each corner and before the angle (if selected).

Offset X By Trigger

Select the **Offset X By Trigger** check box to enable. (X is downstream)

When selected, a hardware or software trigger will indicate where the X position of the box corners begins.

If not selected, the X offset is indicated by the leading package corner (ie, the leading corner will be given an X value of 0 (zero) and all other package corners will be offset based on the leading corner).

Flip Y Offset

Select the **Flip Y Offset** check box to enable. (Y is across the conveyor)

When selected, this option changes which side of the system’s origin point has positive Y coordinates and negative Y coordinates.

Field Width

Select a **Field Width** from the drop-down box. This represents the number of characters each corner has to display its value.

Precision

Select a **Precision** level from the drop-down box. This is the number of decimal places to display for each value.

X Offset

Enter the **X Offset** in the field provided. This is a constant distance (mm [in]) in the X direction (along the conveyor) added to each X package corner position.

Y Offset

Enter the **Y Offset** in the text field provided. This is a constant distance (mm [in]) in the Y direction (across the conveyor) added to each Y corner position.

Append Angle

Select the check box to enable. When checked, Separator, Angle Terminal Side, Flip Angle Direction, and Angle Range selections are revealed.

Separator

Angle Terminal Side

Flip Angle Direction

Angle Range

Example: We have inducted a 300x200x200mm box four times, at different angles. Per the messages, these angles were -2°, 88°, -44°, and 34°:

```
0305;0195;0200;mm;READY;;-0019;-0049;00284;-0061;00292;00133;-0011;00145;-02
0200;0295;0200;mm;READY;;-0021;-0134;00178;-0141;00189;00152;-0011;00160;088
0300;0200;0200;mm;READY;;-0014;00019;00199;-0188;00336;-0047;00123;00159;-44
0300;0200;0200;mm;READY;;-0015;00009;00095;-0153;00342;00013;00232;00176;034
```

Separator

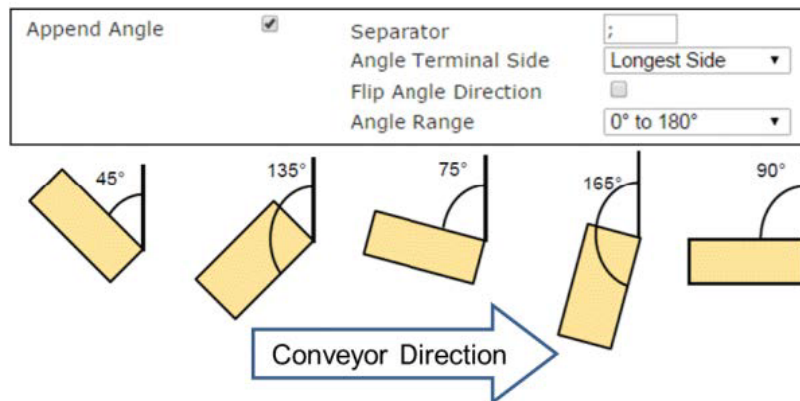
Enter a **Separator** character in the text field provided.

Angle Terminal Side

Select **Longest Side**, **Shortest Side**, or **Adjacent Side** from the **Angle Terminal Side** drop-down box. The angle will always be measured as the relation between one of the sides to the scan line.

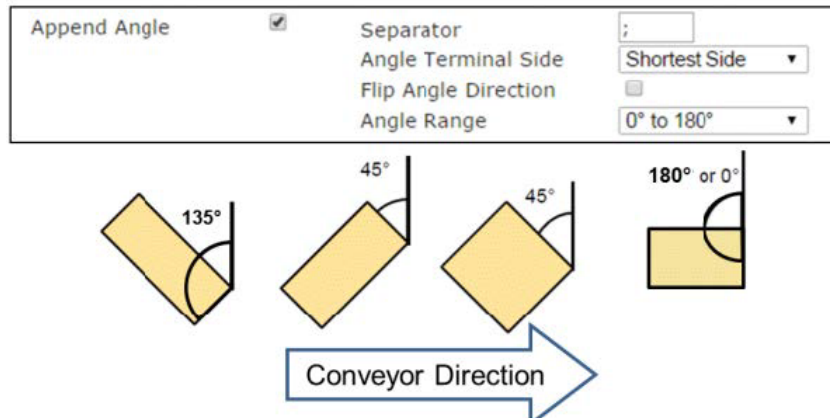
Longest Side: The measured angle is the corner that the longest side makes with the horizontal scan line.

Angle calculation from leading package corner to Longest Side



Shortest Side: The measured angle is the corner that the shortest side makes with the horizontal scan line.

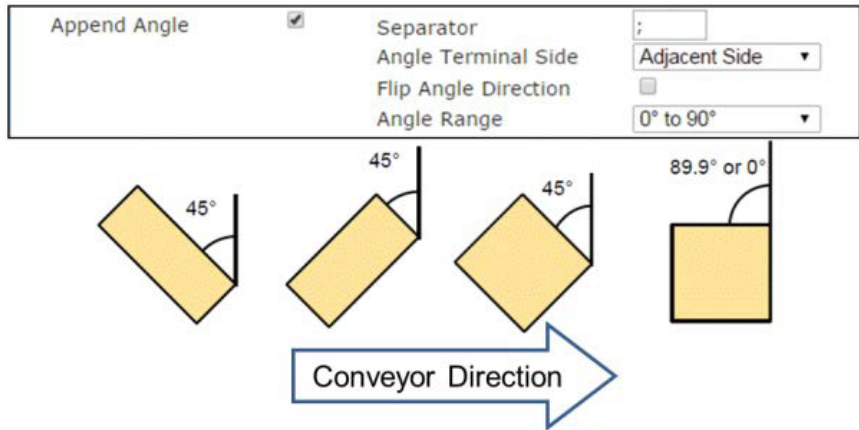
Angle calculation from leading package corner to Shortest Side



Adjacent Side: The measured angle is the corner that the counterclockwise side makes

with the horizontal scan line.

Angle calculation from leading package corner to Adjacent Side

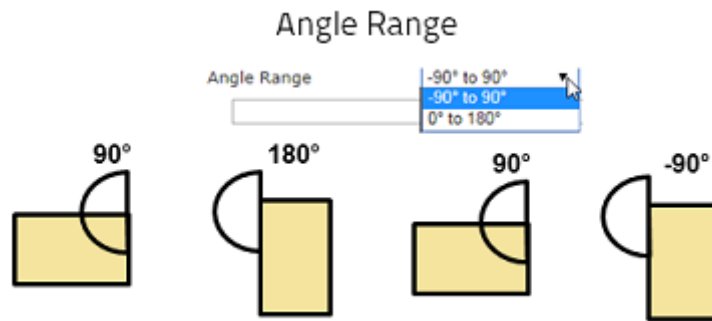


Flip Angle Direction

Select the **Flip Angle Direction** check box to flip the angle direction. When selected, the way the box is measured over the center of the belt is flipped 180 degrees.

Angle Range

Select an **Angle Range** from the drop-down box. This function dictates the range that the angles will be produced on.



Heart Beat Message

Enter a heart beat message in milliseconds if desired. If no other message is sent for the time period specified in **Heart Beat Time Out**, the specified heart beat message string is sent.



A time-out of zero disables the heart beat message.

Heart Beat Time Out (0-30,000 ms)

Enter an interval for heart beat time out in milliseconds.

- 0** = Disable Heart Beat Message,
- 1-30,000** = Delay before sending Heart Beat Message

3. When you have finished making changes, click **Update** to save or click **Reset** to revert to the previously saved values.

MODIFY SETTINGS | RELAY

Use the Relay to configure output and auxiliary relays.

To configure the relays:

1. In the menu tree under **Modify Settings**, click **Relay**. The **Relay** window opens.

The screenshot shows the Relay configuration window with three main sections:

- OUT 1 Configuration:** Includes a dropdown menu set to 'Used as output', a dropdown menu set to 'Good Dim', and a dropdown menu set to 'Active High'.
- OUT 2 Configuration:** Includes a dropdown menu set to 'Not in use'.
- AUX IN Configuration:** Includes a dropdown menu set to 'Used as input' and a dropdown menu set to 'Active High'.

 To the right of these sections is a field for 'Output Signal Duration (ms)' set to '500'. At the bottom right are 'Update' and 'Reset' buttons.

2. Enter the appropriate information in the form as described below.

OUT 1(2) Configuration

Select **Not in use**, **Used as input**, or **Used as output** from the drop-down list.

Not in use: This relay will not be used.

Used as input: The Used as input selection is not currently available.

Used as output: When Used as output is selected, other user-defined options become available including output type, Active High/Low, and Output Signal Duration (ms).

This screenshot shows the Relay configuration window with the 'OUT 1 Configuration' dropdown menu open. The menu lists the following options:

- Side-by-Side
- Custom Output
- Life Light
- Trigger Output
- Error Light
- Ready Light
- Good Dim
- No Dim
- Side-by-Side
- Active High

 The 'Side-by-Side' option is highlighted. The 'Output Signal Duration (ms)' field remains at '500'.

Output Type

Select an output type from the drop-down list. Options include:

Custom Output: Used for applications involving custom software to select a customized output option.

Life Light: Always on while the reader is operating.

Trigger Output: Echoes the status of the trigger signal.

Error Light: Active in the event of an error condition (see later section on errors currently detected).

Ready Light: Indicates the system is ready to produce Legal-for-Trade dimension results.

Good Dim: Active if a GoodDim condition was detected.

No Dim: Active if a NoDim condition was detected.

Side by Side: Active if a Side-by-Side condition is detected.

Active High/Active Low

Select Active High or Active Low from the drop-down list.

Output Signal Duration (ms)

Enter a duration in milliseconds for the signal duration. The length of time that the DM3610 will hold the relay in the defined state.

AUX IN Configuration

Select **Not in use** or **Use as input** from the drop-down list.

Not in use: This relay will not be used.

Used as input: When Used as input is selected, other user-defined options become available including input type and Active High/Low



The screenshot shows a configuration window titled "AUX IN Configuration". It contains three dropdown menus. The first dropdown menu is highlighted in yellow and shows "Used as input". The second dropdown menu shows "Custom Input". The third dropdown menu shows "Active Low".

Input Type: Currently, only Custom Input is available.

Active High/Active Low: Select Active High or Active Low from the drop-down list.

3. When you have finished making changes, click **Update** to save or click **Reset** to revert to the previously saved values.

MODIFY SETTINGS | SAVE / RETRIEVE

Use **Save/Retrieve** to save all the settings to the dimensioner and backup the settings to the backup module and/or file.

To use the **Save/Retrieve** functions:

1. In the tree menu under **Modify Settings**, navigate to **Save/Retrieve**. The **Save/Retrieve** window opens.

2. Enter the appropriate information in the form as described below.

Save/Retrieve

Select an action and location (To or From) from the corresponding drop-down lists:

Save / To File

Use to download the file to your computer. Depending on your browser's settings, when you click **OK** a dialog box may open and ask you to provide a store location for the file. The file may be immediately downloaded to the computer's downloads folder.

Save / To Backup Module

Use to save the current set of dimensioner parameters to the backup module as a backup copy. Click **OK** to execute the command.



This option is only shown when the Aux Serial Port is set to RS232 Backup Module.

Retrieve / From File

Use to retrieve a parameters set from a specific file name and location on your computer. Click **Choose File** to navigate to the parameter file you wish to retrieve.

Retrieve / From Backup Module

Use to retrieve the parameters stored in the dimensioner's backup module. This is especially useful when it becomes necessary to load previously saved parameters to a replacement dimensioner module. Click **OK** to execute the command.



The Backup Module is optional.

Default

Use to return the dimensioner's parameters to the hard-coded "default" values built into the dimensioner software.



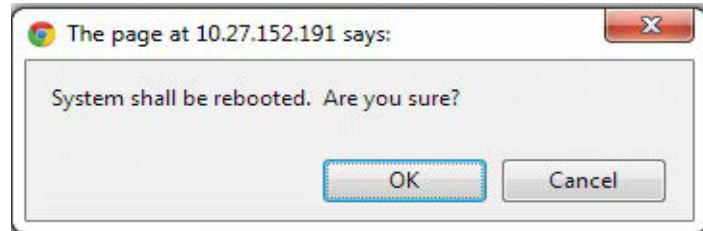
Selecting Default will return your dimensioner to the default factory settings. It is recommended that you ALWAYS Save current parameters to a file or the backup module before using the default function.

Diagnostic Data

Click the DM3610 Scan Line Processing (SLP) utility link to download the diagnostic utility file: slpLite.exe. Find the utility file in the downloads folder and double-click it to open the utility. Advanced users may use this utility to troubleshoot their DM3610 system.

Reboot DM3610

Click **Reboot** to re-initialize the scanner. A warning dialog appears. Click **OK** to reboot, or click **Cancel** to return to the **Save/Retrieve** window.



DIAGNOSTICS

Use the Diagnostics menu tree selections to monitor your dimensioning system performance, view system messages, update the dimensioner firmware, and access Online help. The Diagnostic windows include:

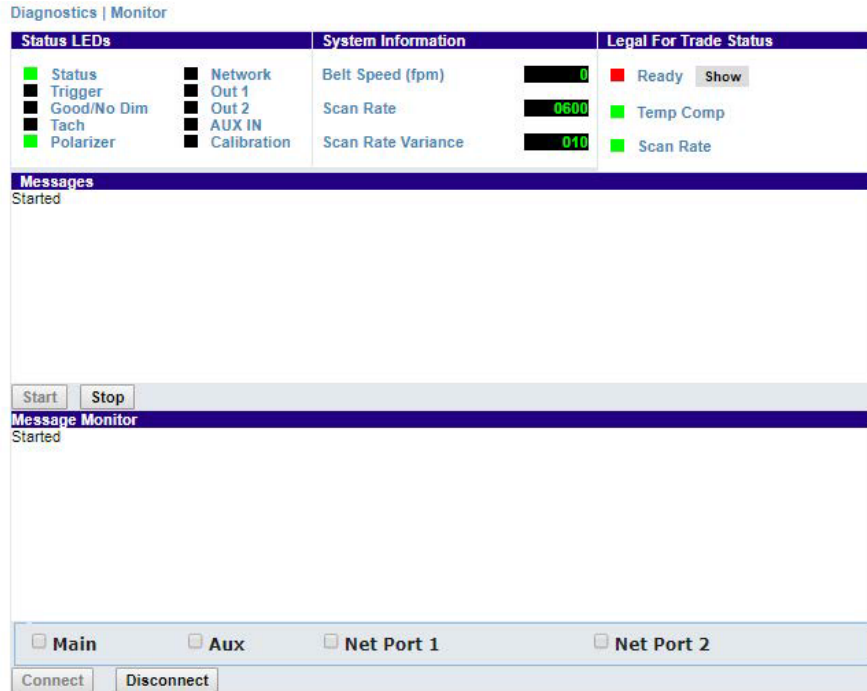
- “Diagnostics | Monitor” on page 121
- “Diagnostics | DimView” on page 123
- “Diagnostics | Log Viewer” on page 127
- “Diagnostics | Focus Setup” on page 130
- “Diagnostics | Audit and Alibi” on page 131
- “Diagnostics | Update Firmware” on page 132
- “Diagnostics | Help” on page 133

Diagnostics | Monitor

Use the Diagnostics | Monitor as the primary tool to monitor the dimensioner's operation and system information in real-time. Status indicators and vital statistics appear on a single screen, enabling you to effectively and efficiently detect and troubleshoot any problems that may occur.

To View the Monitor:

1. In the tree menu under **Diagnostics**, click **Monitor**. The **Monitor** window opens.



2. View system information and interact with the Monitor as described below.

Status LEDs



Status – **GREEN** to indicate the overall "health" of the reader. (If **RED**, troubleshooting is required.)

Trigger – **GREEN** indicates the trigger input. The LED is activated upon trigger input regardless of trigger source (including software trigger).

Good/No Dim – **GREEN** indicates a good (valid) dimension has been calculated. **RED** indicates a no-read (or incomplete decode).

Tach – **GREEN** indicates the tachometer input. The LED is activated upon tachometer input regardless of tachometer source and indicates a non-zero belt speed.

Polarizer In – Indicates that the dimensioner's polarizer is in place. A polarizer filter is not used in some models of the DM3610.

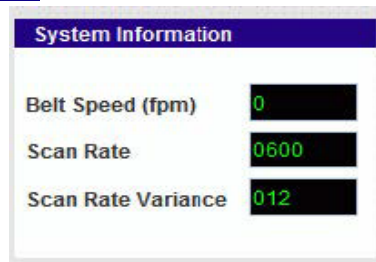
Network – **GREEN** indicates a network host connection has been made. **RED** indicates a problem with the reader network.

OUT 1(2) – Indicates the status of the programmable relay

AUX IN – Indicates the status of the auxiliary input relay

Calibration – Normally OFF. **RED** indicates a probable error and potential for poor calibration.

System Information



Belt Speed – The conveyor speed is displayed in feet per minute (fpm) or meters per second (m/s)

Scan Rate – The laser scan rate is displayed in scans per second.

Scan Rate Variance – A measure of the stability of the scan rate. When this settles at a lower value it indicates a stable scan rate.

Legal for Trade Status



Ready – **GREEN** indicates the system settings meet Legal for Trade requirements. **RED** indicates that a system setting or performance does not meet Legal-for-Trade requirements. Click Show to display status details in the Message pane.



There are some DM3610 models that are not LFT units. These models will still have the Ready lamp show red when the Show button is pressed and it will provide the following message: Started Legal for Trade: NOT-READY, status=0x1 CERT mode off. Since there is not option to select the Certification Mode in Dimensioning Settings, a red Ready status should be ignored.

Temp Comp –The DM3610 has a temperature compensation control loop that continuously monitors input signals (the phase reference signal amplitude for example) and makes adjustment (such as adjusting an amplifier gain) in order to maintain accurate dimension results over the 0 to 50 degree operating temperature range.

When the Temp Comp LED is **GREEN**, this indicates that the control loop is operating correctly and all input conditions being monitored are within tolerance of their setpoint.

When the Temp Comp LED is **RED**, one or more of these inputs are not within tolerance and the system is not in a state that permits it to produce accurate dimensions. When **RED**, any packages dimensioned will be marked as NoDim and system will be in its Not Ready state and not capable of producing Legal-for- Trade results

Scan Rate – **GREEN** indicates that the scan rate is within the required tolerance. **RED** indicates that the scan rate is out of tolerance and during this time scan lines will be discarded.

Messages

Displays diagnostic messages and dimension results. Click **Stop** to pause the message flow, and click **Start** to begin or unpause the message flow.

Message Monitor

Displays the outgoing host message from the port selected below.

Option Buttons Select an option button for None, Main, Aux, Serial Port 2, Net Port 1, or Net Port 2 to view messages for that connection.

Connect/Disconnect

Click **Connect** to establish communications between the Monitor page and the DM3610, or **Disconnect** to terminate communications.

Diagnostics | DimView

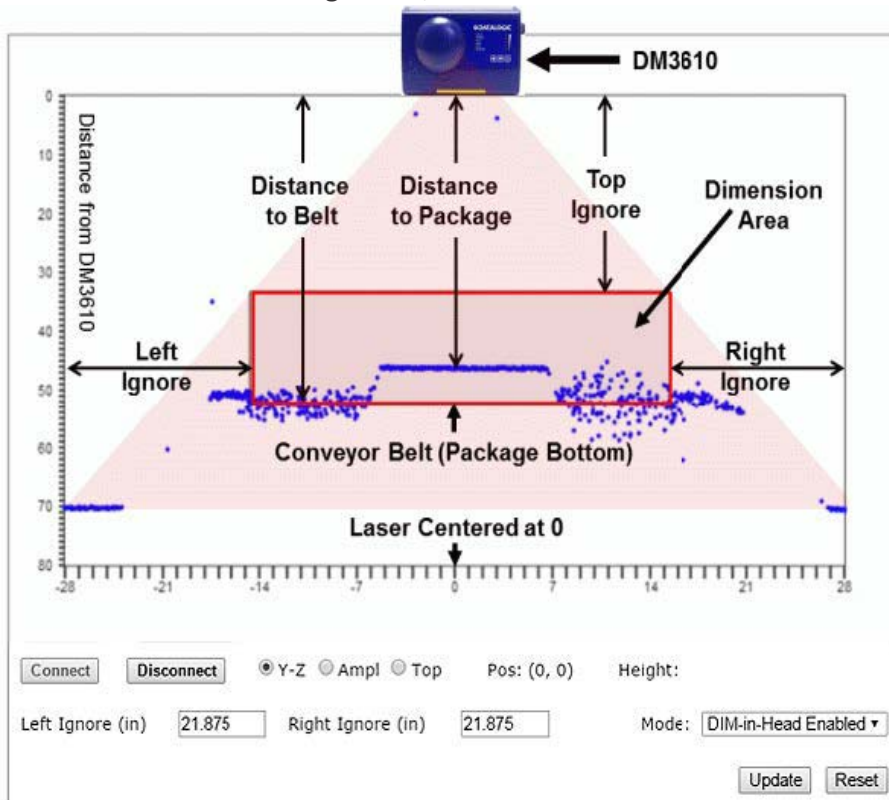
Use the **Diagnostics | DimView** to view a graphical representation of the dimension point information captured for a package.



With a single DM3610 the Dim View menu selection is performed in the DM3610 head. In a dual headed system the Dim View is performed in the DC3000.

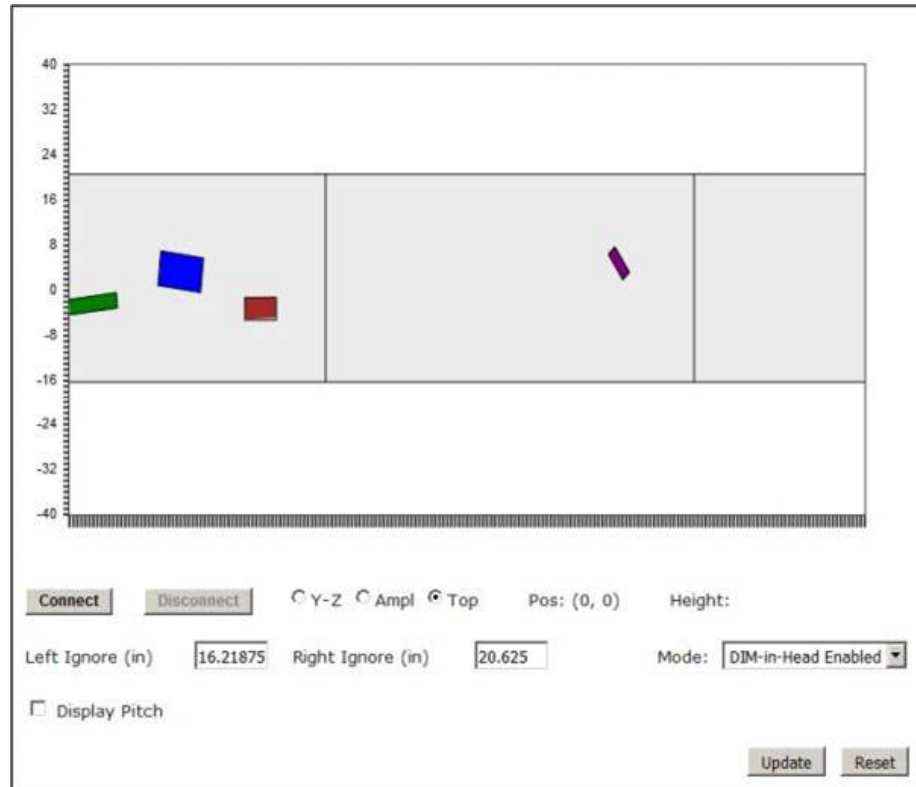
The DimView monitor is explained in the image below:

1. In the menu tree under **Diagnostics**, click DimView. The **DimView** window opens.



2. Click **Connect** to activate the **DimView** monitor, or click **Disconnect** to deactivate.

The image below shows a cartoon view of packages moving from right to left.



If the conveyor is stopped and the Model is set to Dim-in-Head Enabled, you will see the following message.



3. Select a mode from the **Mode drop-down** list. Mode option results are as follows:



These options are not available when Certification mode is on.

If you switch from Dim-in-Head Enabled to one of the other selections, your system will no longer be dimensioning packages. Remember to change the option back before leaving the page.

Mode Selection

No Transmit

When selected, no scan line data is transmitted. See Tach/Trigger/Transmit.

Trigger Based Scans

When Selected scan lines are transmitted at a slow rate, but when a trigger source is active scan lines are sent at the full rate. This mode is useful when using Diagnostics | DimView. The system defaults to this mode when Dim-in-Head Enabled is turned off. See Tach/Trigger/Transmit.

Dim-in-Head Enabled

If selected, the DM3610 will use the scan point data to calculate the object dimensions within the head itself. See Dimensioning Settings.



If you switch from Dim-in-Head Enabled to one of the other selections, your system will no longer be dimensioning packages. Remember to change the option back before leaving the page.

Calibration Scans

When selected, this behaves like Trigger Based Scans but provides additional debugging capability to an advanced user. See Tach/Trigger/Transmit.

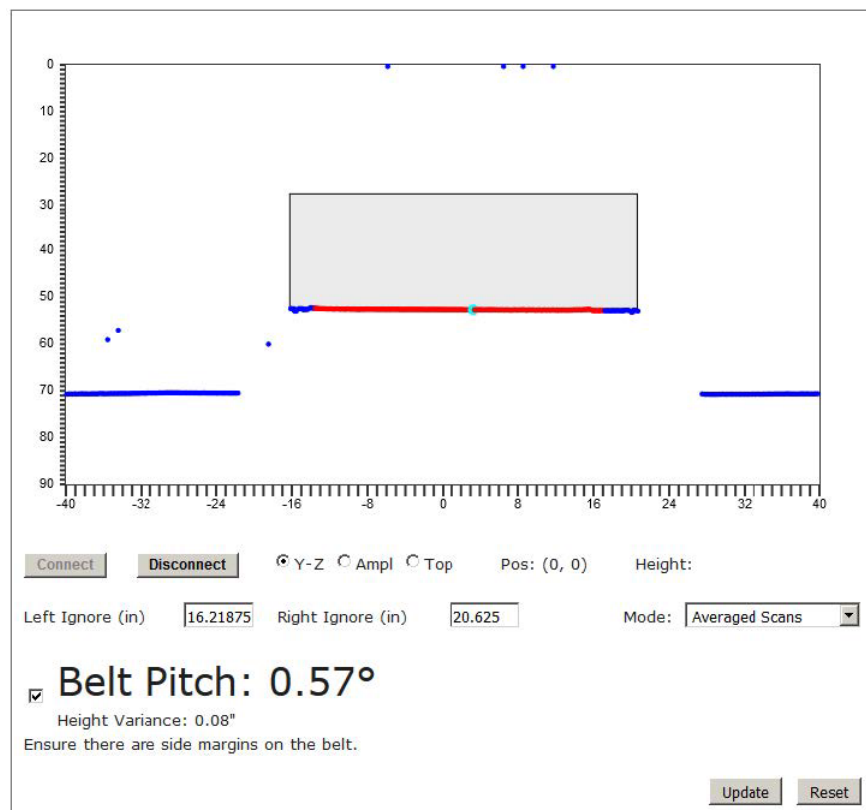


This is only used by Datalogic production.

Average Scans

When selected, this behaves like Trigger Base Scans, except that it averages scan line data over time. This mode is useful when using Diagnostics | Dim View as it smooths away image noise. See Tach/Trigger/Transmit.

4. When you have selected a mode, click **Update** to activate it or click **Reset** to revert to the previously active mode.
5. Fine-tune Left Ignore and Right Ignore. DimView provides the ability to visually see, on the Y-Z plot, the impact of changing the Left and Right Ignore values. It is a valuable tool to use for fine-tuning the Left and Right Ignore values. You can ensure that, for example, sidepans, beamcatchers, and other objects are left outside the dimensioning area (gray rectangle). Left Ignore: Enter the distance from the center of the scan line to the left edge of the belt. Scan points beyond this distance will be ignored. Right Ignore: Enter the distance from the center of the scan line to the right edge of the belt. Scan points beyond this distance will be ignored.
6. Click Display Pitch, this will guide you to properly level the DM3610. Red points indicate the section of the conveyor that the program is checking. "Belt Pitch" appears and expands to a larger font, so that an installer can set their laptop on the conveyor and by standing up, physically adjusting the mounting until he/she gets it as close to 0° as possible (can see it from farther away). Height Variance will indicate if the belt is crowned, bowed, has bumps, etc. that may make it unacceptable for dimensioning.



Diagnostics | Log Viewer

Use the **Diagnostics | Log Viewer** to review the performance logs saved by the dimensioner.

To View the Log Viewer:

1. In the menu tree under **Diagnostics**, click **Log Viewer**. The **Log Viewer** window opens.
2. The two most commonly viewed logs are **Counters** and **Message Logs**, which are available by selecting one of the buttons.

Counters

DM3610 Log Viewer

Scan Rate(var): 0600(009)	Belt Speed:	0
Tach Count:	1833	
Throttle Scans:	1	

Triggers:	1	Good Dims:	0
No Dims:	0	Mult Dims:	0
SBS Dims:	0		

Lost Dims:	0	Missed Tx:	0
------------	---	------------	---

Scans:	39	Boxes:	0
--------	----	--------	---

Scan Ints:	15540	Aux Input:	1
Queue Size:	1024	Bad Scan:	0
Full Scans:	0	Mem Full:	0
Scans Trunc:	0	Max Trunc:	0
Laser Faults:	0		

ARM Restarts:	0	DSP Restarts:	0
---------------	---	---------------	---

Counters Message Log Clear Focus Data

Command

Send Command

Use this field to enter and send commands (example: DISP ENET)

Message Log

DM3610 Log Viewer

```

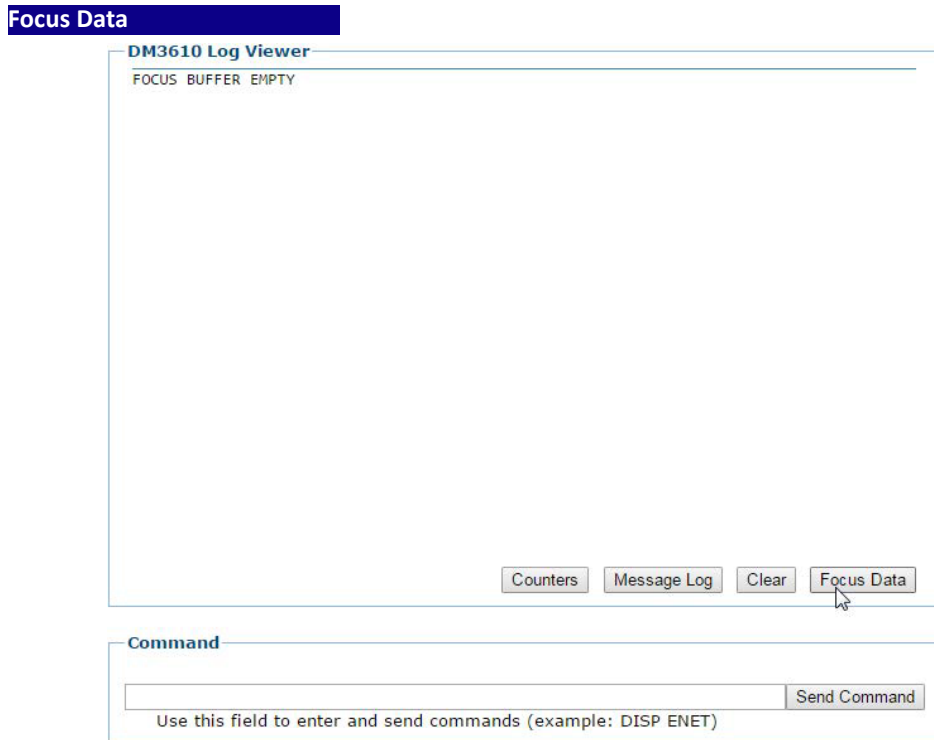
0-00:00:00.000: DM3610 software DM3610_RELEASE initializing.
0-00:00:00.004: Invalid Laser ID 0.
0-00:00:00.004: Laser #1 Module Serial 0.
0-00:00:00.049: DSP A: '2ED5F1A33D0D50CE8919FF11D58263A7'.
0-00:00:00.100: FPGA A: 'B4932BB6A16446E0356693A8F3427312'.
0-00:00:00.105: Lib A: 'DACFBC69E3EFF6855B706C6611FA61F7'.
0-00:00:00.105: Reset Clock Chip
0-00:00:00.305: Configure Clock Chip (0)
0-00:00:01.467: FPGA Load Complete
0-00:00:02.467: FPGA device id: 3c40.
0-00:00:02.467: FPGA version: 3.0(21).
0-00:00:02.489: TEMPCOMP polarizer 1, pres 265, loose-tol 8, tight-tol 3
0-00:00:02.489: Initial APD DAC = 805 (ref 790), polarizer in, ref-temp 32, curr-temp 37
0-00:00:02.606: Sysdata ptr = 8801d500, size=53670148
0-00:00:02.623: ArmDSP_Memory bff0 (8801d500), Sys_data 8801d500, Sys_VarPtr 8801d500
0-00:00:02.682: TX Port 0 Started.
0-00:00:02.682: TX Port 1 Started.
0-00:00:02.685: Configure BM100 AUX PORT
0-00:00:02.719: Reset Clock Chip
0-00:00:02.719: Mac Address: 00:0E:13:05:00:07
0-00:00:02.721: DM3610 Software Started.
0-00:00:05.721: DSP Loaded and Started.
0-00:00:05.721: MinRangeBuff 0
0-00:00:08.241: SD Interface initialized successfully
    
```


Counters Message Log Clear Focus Data

Command

Send Command

Use this field to enter and send commands (example: DISP ENET)



Focus Data provides similar functionality to Focus Setup (see “Setting Up a DM3610 Dimensioner as Focusing Device for Datalogic Cameras” on page 152).



The focus data options is a function that is used by production in order to view/calibrate focusing select Diagnostics/Focus Setup.

You can also enter a log request in the Command field.

For example: DISPENET will provide Ethernet data (No space is required between DISP and ENET as shown in the DM3610 Log Viewer above).

The log view field remains empty until you select a button or enter a command. To determine which log is currently being shown in the log viewer, the log's name is shown just below the words log view in the window.

To use commands to view a log:

1. Enter a command in the Log Viewer Command field without using spaces (i.e., DISPCOUNTS, DISPMSGLOG, etc.)

Common Commands	Definition
CLEARALL	Clears all information from the Message Monitor
DISPCOUNTS	Display the System Counter log view
DISPENET	Display the Ethernet interface status, including MAC address.
DISPMSGLOG	Display the Message log view.

2. Click **Send Command**.
3. **Log Viewer** displays the most current information for the log you requested.
4. Click **Clear** to empty the **Log Viewer**.

Diagnostics | Focus Setup

The Focus Setup function is used to define focus offset when using the DM3610 Dimensioner to provide focus data for a Datalogic camera, including the AV500/900, AV7000, NVS9000, and AV6010.

To access Focus Setup:

In the menu tree under **Diagnostics**, click **Focus Setup**. The **Focus Setup** window opens.



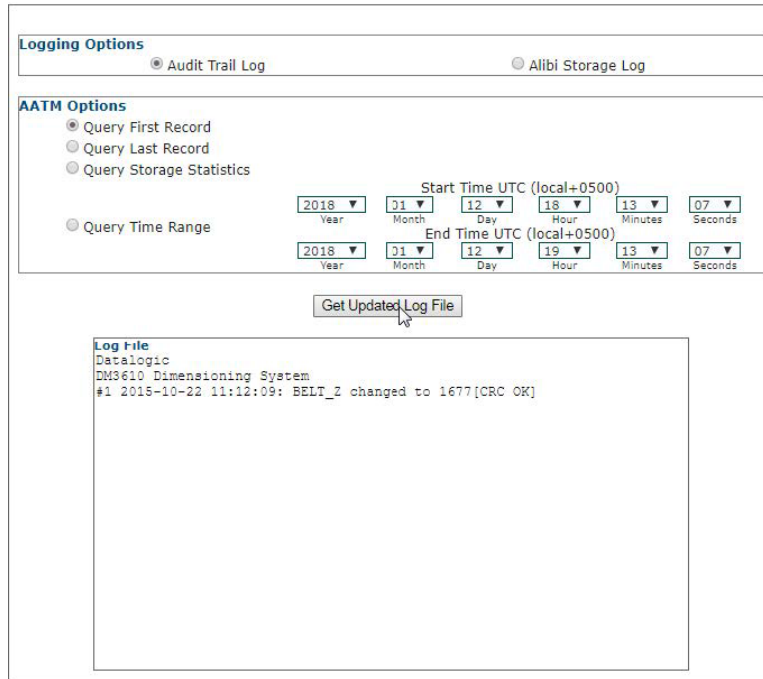
For instructions on using Focus Setup in systems using Datalogic cameras, see the camera reference guide for details.

Diagnostics | Audit and Alibi

Use **Audit and Alibi** to search for and view system audit trail and alibi logs. Audit and Alibi is used in a certified DM3610 systems to record any activity that takes place with any menu changes. The log files allow an inspector to review the data and determine whether the DM3610 has been tampered with.

To View Audit and Alibi:

1. In the menu tree under **Diagnostics**, click **Audi and Alibi**. The **Focus Audi and Alibi** window opens.



2. View system information and interact with the Monitor as described below.

Logging Options (Dimensioning-specific)

Audit Trail Log Opens the Audit Trail Log for view in the Log File section of the screen. Results are scrollable.

Alibi Storage Log Opens the Alibi Storage Log for viewing in the Log File section of the screen. Results are scrollable.

AATM Options (Alibi and Audit Trail manager)

Query First Record: Displays the first record when selected.

Query Last Record: Displays the last record when selected.

Query Storage Statistics: Displays the storage space used and the remaining space available.

Query Time Range: Select a Start Time and End Time by defining the Year, Month, Day, Hour, Minutes and Seconds for each.



For accurate Alibi and Audit management, the dimensioner clock is set to GMT (Greenwich Mean Time) at the factory and should never be changed.

Get Update Log File

After making the desired selection from the option buttons, click **Update** to view the log in the Log File area of the screen.

Diagnostics | Update Firmware



Use **Diagnostics | Update Firmware** to reload the dimensioner firmware.

This function should only be performed under the guidance of Datalogic Technical Support.

To Extract Image:

1. In the menu tree under **Diagnostics**, click **Update Firmware**. The **Update Firmware** window opens.



2. Click **Extract Image**. The software can be extracted from the DM3610 in case it will need to be re-installed.
3. In Save as window, save the image (*.as) files to your computer. The graphic on screen indicates Extract Image is in-process.
4. A message will appear when Extract Image is complete.



To Burn Flash:

Cert mode must be off to install software.

The appearance of these functions may vary from browser to browser.

1. Click **Choose File**. In the browse window, select an image file (*.as) to burn to flash.
2. Click **Burn Flash**. Image below indicates Burn Flash is in-process.

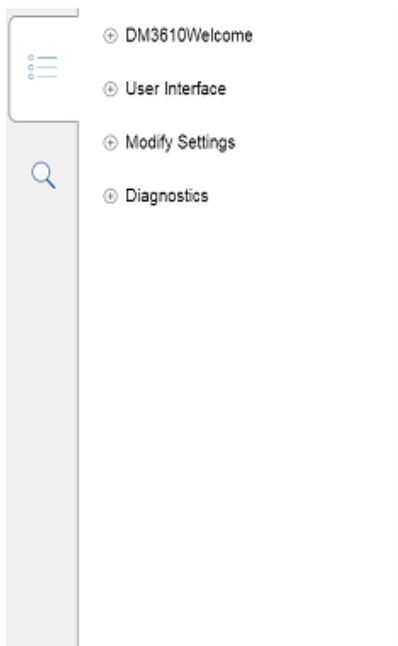


3. A message will appear when **Burn Flash** is complete.

Diagnostics | Help

Click **Diagnostics | Help** opens the full Online help system for the DM3610 User Interface. You can use the Contents, Index, and Search options of the Online help system to find information about and procedures for configuring and using the DM3610.

DM3610 e-Genius User Interface



WELCOME TO DM3610 DIMENSIONING SYSTEM ONLINE HELP

The DM3610 is Datalogic's laser-based, compact dimensioning solution. The user interface provides an easy-to-use series of configuration and diagnostics features that enable you to have your dimensioner up and running in minutes. Because the interface is browser-based, you can remotely configure and monitor dimensioner performance using an Ethernet network connection and your desktop or laptop computer.

Click on the links below to learn how to access and use DM3610 dimensioner's features:

- [Getting Started with the User Interface](#)
- [IP Address Discovery](#)
- [User Interface Basics](#)
- [Modify Settings](#)
- [Diagnostics](#)

Contact

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CHAPTER 5

DIMENSIONING FEATURES AND PROCEDURES

This chapter provides details on how the DM3610 Dimensioning System functions during normal operation. It also helps familiarize the use with status indicator LEDs, Control Panel operation, system calibration, and how the DM3610 can be easily and quickly be replaced with a new unit if necessary.



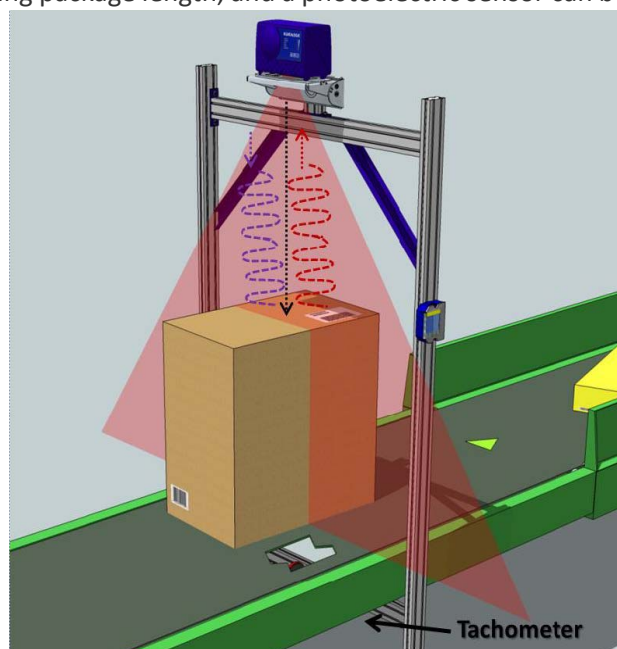
The procedures outlined in this chapter should only be performed by a Datalogic trained technician.

Training is available through specific Service Programs and Maintenance Agreements. See our website at www.datalogic.com.

HOW THE DM3610 DIMENSIONER WORKS

The DM3610 uses a modulated laser and rotating mirror wheel to take height range at close intervals. The phase shift between the transmitted laser and its subsequent reflection is used to calculate the distance to the object being scanned. Successive scans on a package passing through the scan line are used to define the edges of the package, and therefore length and width.

A high resolution conveyor tachometer is used to measure the speed of the conveyor as an aid in calculating package length, and a photoelectric sensor can be used as a trigger.

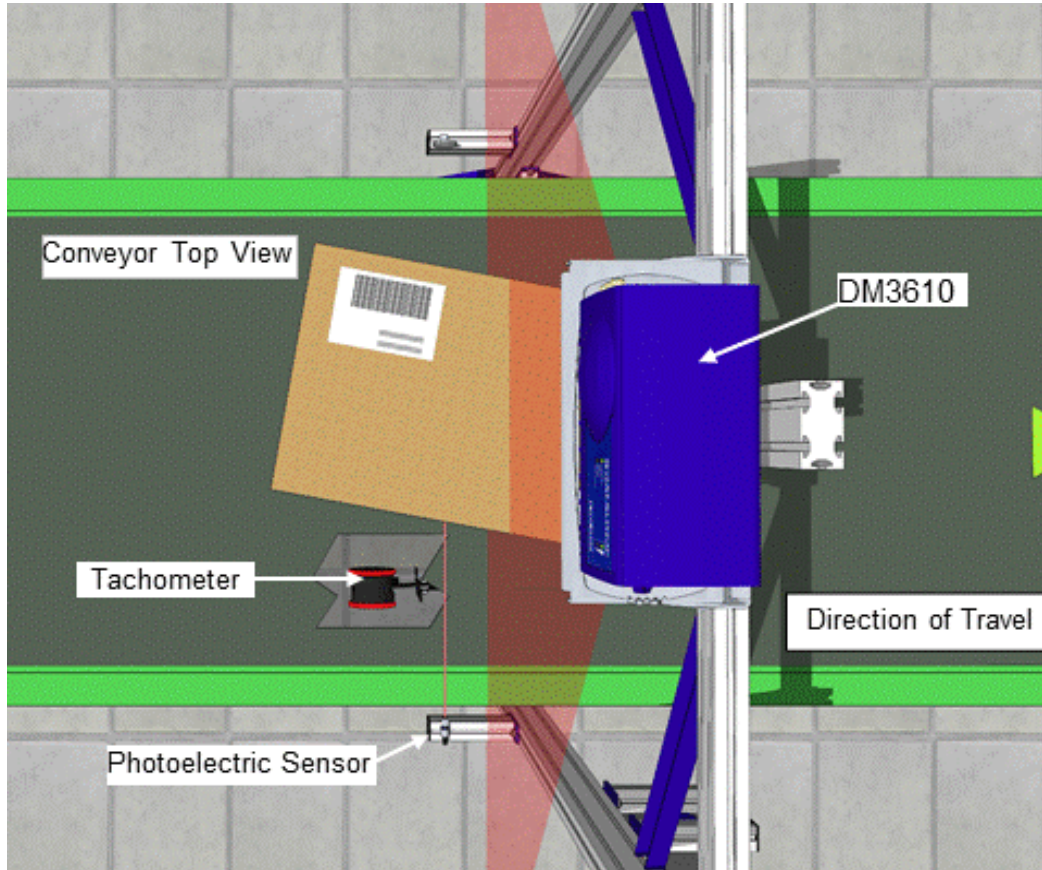


HOW THE DM3610 DIMENSIONS PACKAGES

The following steps explain how the DM3610 dimensions packages:

Step 1

As a package approaches the DM3610, it breaks the beam of the photoelectric sensor (if present). The tachometer connected to the DM3610 continually provides digital pulses so that the DM3610 can accurately measure the speed of the conveyor, sending a constant number of tachometer pulses per unit of measure. This tracks the position of the package as it moves through space. If no photoelectric sensor is present, a non-zero scan of the DM3610 acts as the trigger.



When the package intersects the modulated laser scan line of the DM3610, the phase shift determines the distance at a multitude of specific points across the field. The software then calculates the height measurement of the object.

Step 2:

The height measurements taken with each scan line, are then repeated on successive scans as the package moves under the dimensioner's laser. The resulting height data is used in conjunction with the tachometer counts to create a profile of the package.

Step 3:

The DM3610 discards the data outside the edges of the packages. The height measurement of the package is obtained by averaging all of the height sample points on top of the box.

Step 4:

The edge points are then processed by an algorithm that filters and arranges them into components of four straight lines (the four sides of the package) and correlates this with the conveyor speed determined by the tachometer, to determine the length, width, height and volume of the package.

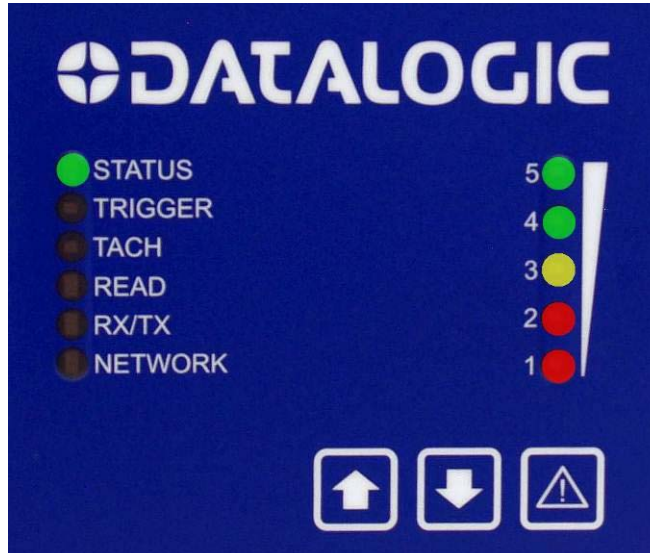
Step 5:

An algorithm connects the edge points to create the outline of the package.

This sequence explains the data gathered for the DM3610 to use in determining the dimensions of a package.

LED INDICATORS

The DIM3610 has twelve (12) LEDs on the control panel.



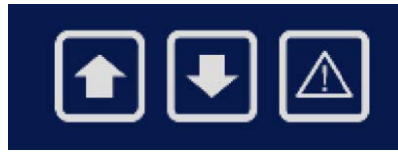
The indicators have the following functions:




LED	Description
STATUS	Solid GREEN indicates the overall good health of the unit. (If RED , see chapter 8, Troubleshooting.) Flashing GREEN indicates that the laser has been shut off using the "!" button on the control panel.
TRIGGER	Indicates the trigger input. The LED is activated upon trigger input regardless of trigger source (incl. software trigger).
TACH	Indicates a non-zero belt speed, i.e.: the belt is in motion.
READ	Flashes red or green based upon the software criteria. READ = Dimension
RX/TX	LED for serial port 1. GREEN = Transmitting data RED = Receiving data
NETWORK	Flashes red or green to indicate connection status. GREEN indicates at least one active host connection. RED indicates an internal software error or no MAC address found

Bar Graph LEDs

LED	Description	
BAR GRAPH LEDs (LEDs 1-5)	Power Up: LEDs #3,#5 and #1 go on for a second or two, then LEDs #2 and #4 join in, then they all go out. Dimension quality indicators flash once for each package (except NODIM)	
	Ready status good dimensions: 5 LEDs	Ready status, dimensions with NoDim and reason codes: 3 LEDs
	Not Ready status, good dimensions: 2 LEDs	NODIM with no dimensions: 0 LEDs
	Flashes when a parameter save/retrieve operation is initiated by the arrow buttons on the control panel.	
	Press arrow once Waiting for Confirm. (if not pressed correctly the second all LED's will flash)	Fast twinkle, 5 LEDs
	Press arrow again Confirm Noted	Light consecutively, LEDs 5 to 1 (save) or 1 to 5 (retrieve)
	Transmit/Receive	YELLOW on solid, 1 LED (#3)
	Operation Successful	GREEN on for 2 seconds, 2 LEDs (#4 and #5)
	Operation Failed	RED on for 2 seconds, 2 LEDs (#1 and #2)
	When firmware is being updated, Bar Graph LEDs #1, 2, 4, and 5 stay on while #3 blinks.	
	Bar Graph LEDs stay 0 when is pressed during the laser shutoff or turn on procedure.	
	When is pressed for 5 seconds to toggle the laser on or off, the Bar Graph LEDs 1-5 stay on. LEDs 1-5 go out to indicate the laser has now been turned off or on. Used for recover mode. Hold the button, power up. Keep holding the button and the status LED will go Green and in another second will turn Red. This indicates that the DM3610 is in the recovery mode.	

CONTROL PANEL BUTTONS





Ref	Button	Description
	Restore	Restores parameters from CBX100 backup module to DM3610 <ul style="list-style-type: none"> • Button must be pressed twice to initiate action • See below for procedure
	Backup	Downloads parameters from DM3610 to CBX100 backup module <ul style="list-style-type: none"> • Button must be pressed twice to initiate action • See below for procedure
	<p>!</p> <p>Laser Shutoff</p> <p>Recovery</p>	<p>Used for both laser shutoff and recovery</p> <p>You can hold ! To perform laser shutoff. Then hold it again to output a fixed point or short duration line at the center of its field of view (as an aide an angling the unit properly). Then again to turn the laser on.</p> <ul style="list-style-type: none"> • Hold in to perform laser shutoff • Hold in while cycling power. In the browser, navigate to default IP 192.168.3.100. The browser displays software version and current IP address for the unit.



DM3610's control panel buttons can be enabled/disabled through the User Interface on the Modify Settings | Configuration window. (See Chapter 4, User Interface.)

CONTROL PANEL BACKUP AND RESTORE PROCEDURE



To backup parameters from DM3610 to the CBX100 backup module:

1. Make sure the BM100 write protect switch is in the unlocked position.
2. Press and hold  for approximately three seconds. When you release the button you will notice the Bar Graph LEDs (1 - 5) flashing quickly.
3. Press  again for approximately three seconds. If the download initiation is successful, the Bar Graph LEDs will cycle (5-1) then LED 3 (yellow) will light indicating the parameters are being transmitted to the BM100. Next, LEDs 4 & 5 will light for 2 seconds, and when they turn off, the backup is complete.

If the Bar Graph LEDs never cycle (5 to 1) then the parameter backup is not complete and the parameters were not saved. You must repeat step 1 and 2 again.

- Once parameters have been saved, you can protect the parameters by placing the backup module's write protect switch in the lock position.

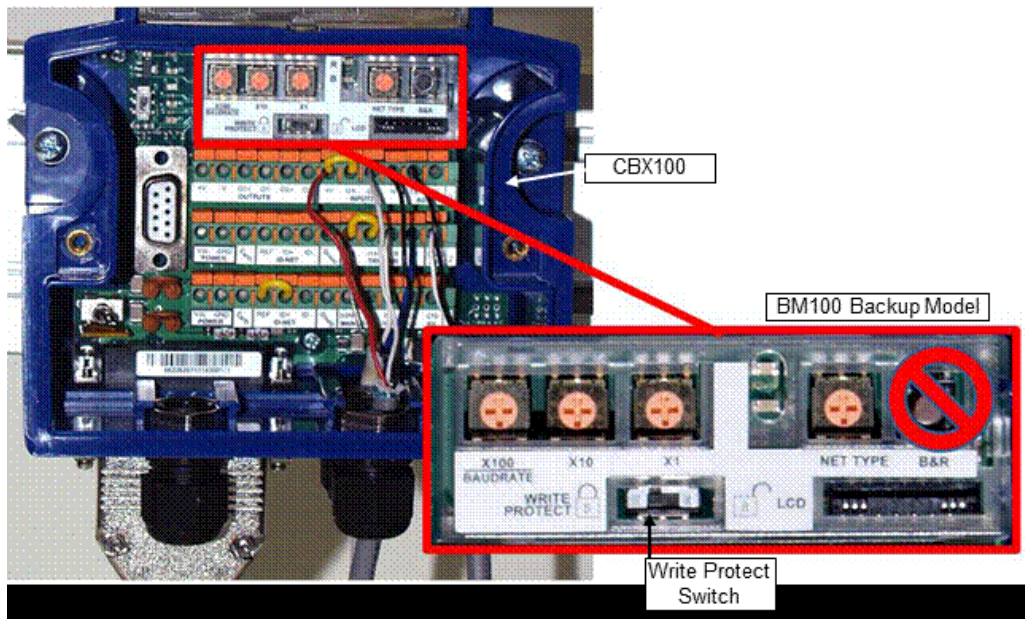
Restore Parameters from the CBX100 Backup Module to the DM3610

- On the DM3610 interface panel, press and hold  for approximately three seconds. When you release the button you will notice the Bar Graph LEDs (1-5) flashing quickly.
- Press  again for approximately three seconds. If the action was successful, the Bar Graph LEDs (1 to 5) will cycle sequentially, and then LED 3 (yellow) will light indicating the parameters are being retrieved from the BM100. Next, LEDs 4 & 5 will light for 2 seconds, and when they turn off, the retrieval is complete. If, however, the Bar Graph LEDs never cycle (1 to 5) with an upward motion, the parameters were not retrieved and you must repeat step 1 and 2 again.



Please note that the B&R button on the backup module inside the CBX100 should not be used.

Be aware! If the LEDs flash simultaneously, but do not cycle sequentially your back may not have been successful!



If the parameters were saved to a file on your PC hard drive or on a network using the DM3610 User Interface, they can be retrieved and uploaded to the DM3610. See Modify Settings | Save/Retrieve in Chapter 4.

REPLACING AN INSTALLED DM3610

If you ever need to replace your DM3610, the following procedure will allow you to do so with the least interruption to operations.



This process should be performed by a certified Datalogic field service technician or a Datalogic trained and certified customer technician.

Prerequisites:

- Product Specification or Product requirements document
- A PC equipped with a web browser like Mozilla Firefox or Internet Explorer (Not needed if only using Interface panel buttons for parameter backup and retrieval)
- Set of Metric Hex wrenches

Saving the Parameter Data to the Backup Module

DM3610 parameters should be saved to the backup module as the final step of the setup procedure. However, if you feel this may not have been completed, you should save DM3610 parameters to the backup module now if possible. DM3610 parameters should be saved to the backup module and to a file on your computer or network for each installed unit.



There are three buttons on the DM3610 interface panel. The down arrow button is used to save the parameter file to the backup module (BM100), which is installed inside the CBX100 Interface Box. The BM100 is optional so some locations may not have one installed. If no BM100, Use a PC to backup your parameters.



Please do not use the B & R button on the backup module!

Be aware! If the LEDs flash simultaneously, but do not cycle sequentially your back may not have been successful!

To Save the Parameters to the Backup Module:

1. Make sure the BM100 write protect switch is in the unlocked position
2. Press and hold  for approximately three seconds. When you release the button you will notice the Bar Graph LEDs (1-5) flashing quickly.
3. Press again  for approximately three seconds.

If the download initiation is successful, the Bar Graph LEDs will sequentially cycle (5 to 1), and then LED 3 (yellow) will light indicating the parameters are being transmitted to the BM100. Next, LEDs 4 & 5 will light for 2 seconds, and when they turn off, the save is complete.

If the Bar Graph LEDs never cycle (5 to 1) then the parameters were not saved and you must repeat step 1 and 2 again.



The parameters can also be saved to a file on your PC hard drive or to a network through the DM3610 User Interface. See Modify Settings | Save/Retrieve in chapter 4.

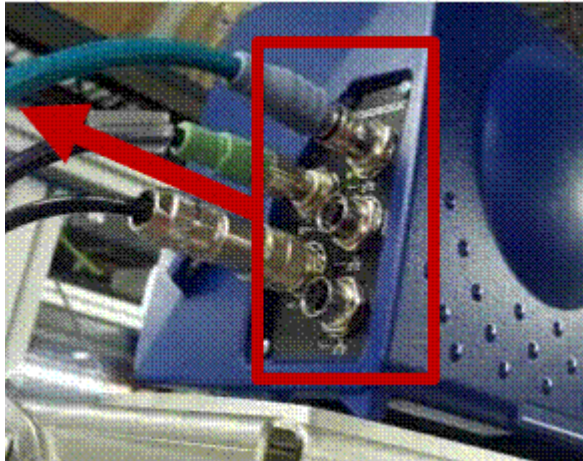
If the unit is still able to provide dimension information, run the calibration kit boxes through the system to determine whether the current unit is still in calibration. If the correct dimensions are not returned by the unit, make adjustments to the settings to correct the issue, and then record the parameters.

Please make note of the IP address of the unit. You will need to switch back to this after you restore the parameters if the IP address is other than the default.

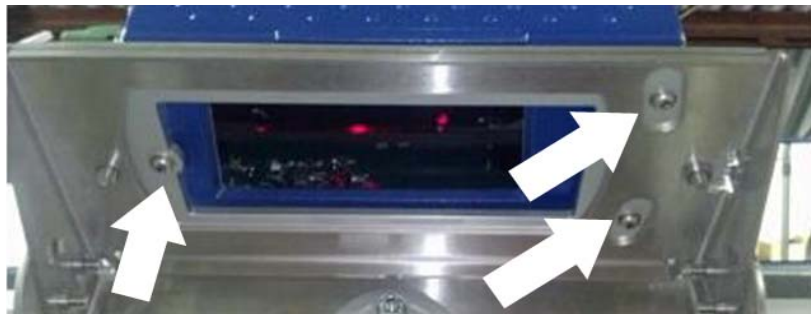
To find the unit's IP address, in the user interface menu tree under Modify Settings, navigate to Network | Settings. The unit's IP address is displayed in the IP Address 1 text fields. You can also use the Recovery mode to identify the IP address.

Removing the Existing DM3610

1. Remove power from the DM3610.
2. Label and then disconnect all cables from the side panel. It is good practice to label all the cables so they can easily be reconnected to their original location.



3. Remove the three bolts on the bottom of the Universal Mounting Bracket (UMB) show below using a 4mm Allen Wrench.





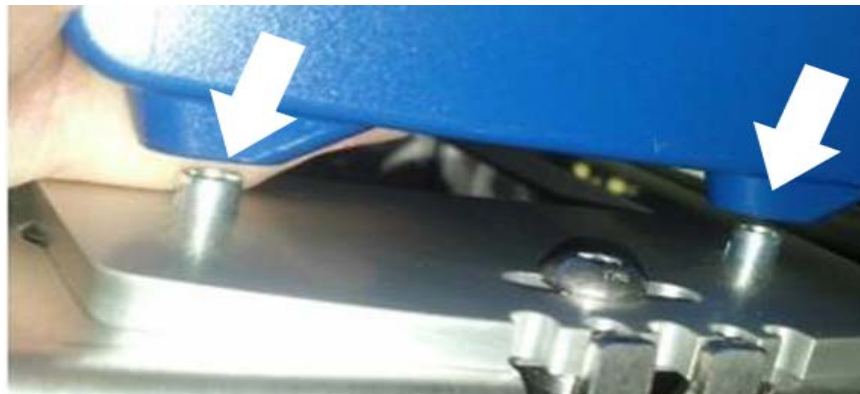
4. Once these screws are removed, lift the unit straight up and off the three hollow Spirol™ spring dowels. These dowels are used to ensure each unit is mounted in exactly the same place.
5. Place the three screws you just removed in the hollow Spirol™ spring dowels from the top while unpacking the new unit so they don't get misplaced.

Installing the Replacement DM3610

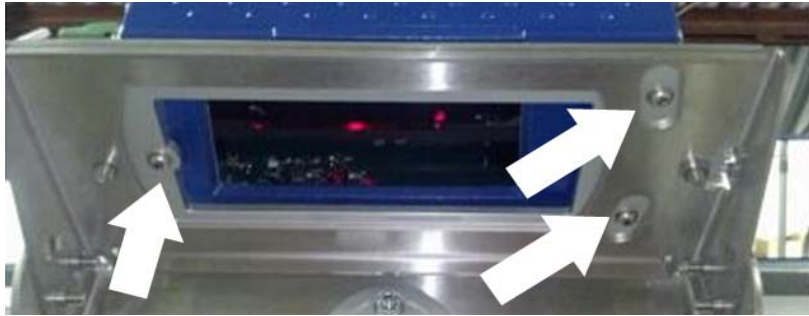


It is important to avoid getting finger prints on the exit glass while installing the unit.

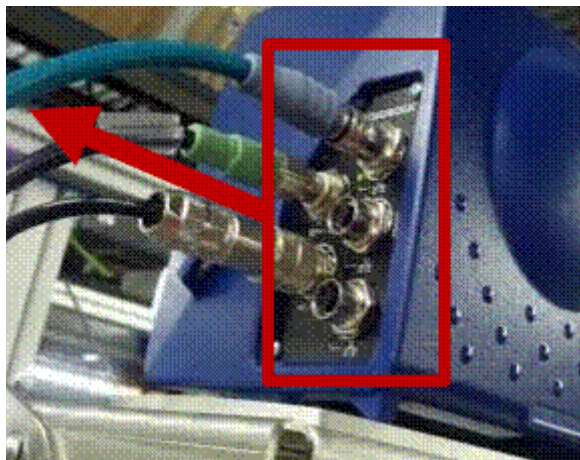
1. Remove the three screws from the hollow Spirol™ spring dowel holes (if you placed them there at the end of the removal operation).
2. Place the new DM3610 on the three hollow Spirol™ spring dowels as shown below.



3. Once all three pins are aligned and the replacement DM3610 is resting flat on the UMB mounting plate, insert the three screws using a 4mm Allen wrench as shown below.





4. Reconnect all the cables on the side panel as they were previously installed.



5. Reconnect the power to the DM3610.

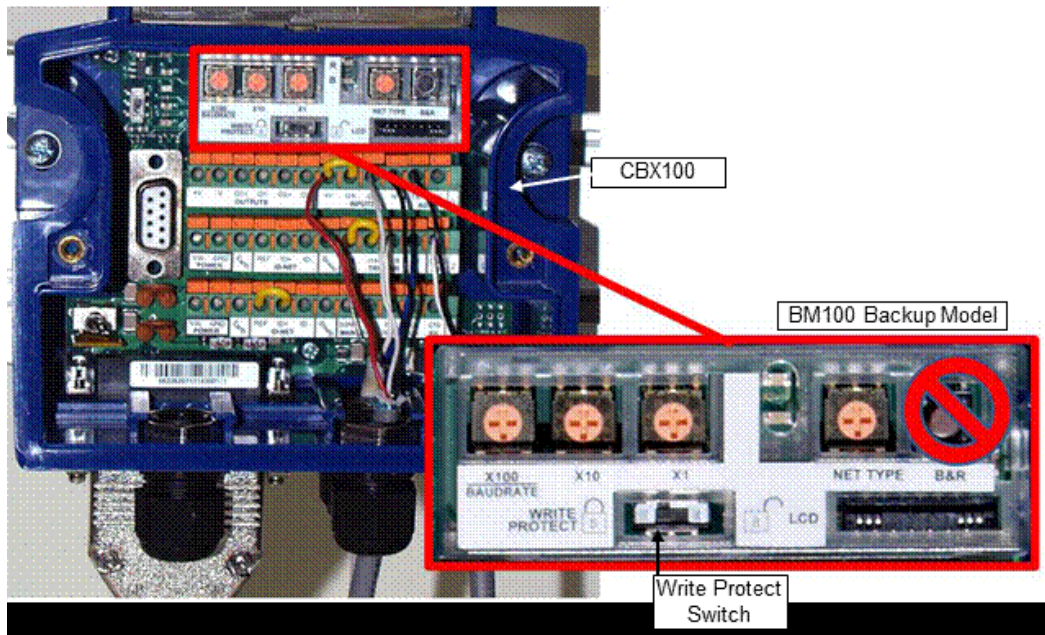
Restoring the Parameter Data from the Backup Module

1. On the DM3610 interface panel, press and hold  for approximately three seconds. When you release the button you will notice the Bar Graph LEDs (1-5) flashing quickly.
2. Press  again for approximately three seconds. If the action was successful, the Bar Graph LEDs (1 to 5) will cycle, and then LED 3 (yellow) will light indicating the parameters are being retrieved from the BM100. Next, LEDs 4 & 5 will light for 2 seconds, and when they turn off, the retrieval is complete. If, however, the Bar

Graph LEDs do not cycle (1 to 5) with an upward motion, the parameters were not retrieved and you must repeat step 1 and 2 again.



Please do not use the B & R button on the backup module inside the CBX100.



If the parameters were saved to a file on your PC hard drive or on a network using the DM3610 User Interface, they can be retrieved and uploaded to the DM3610. See “Modify Settings | Save / Retrieve” on page 118.

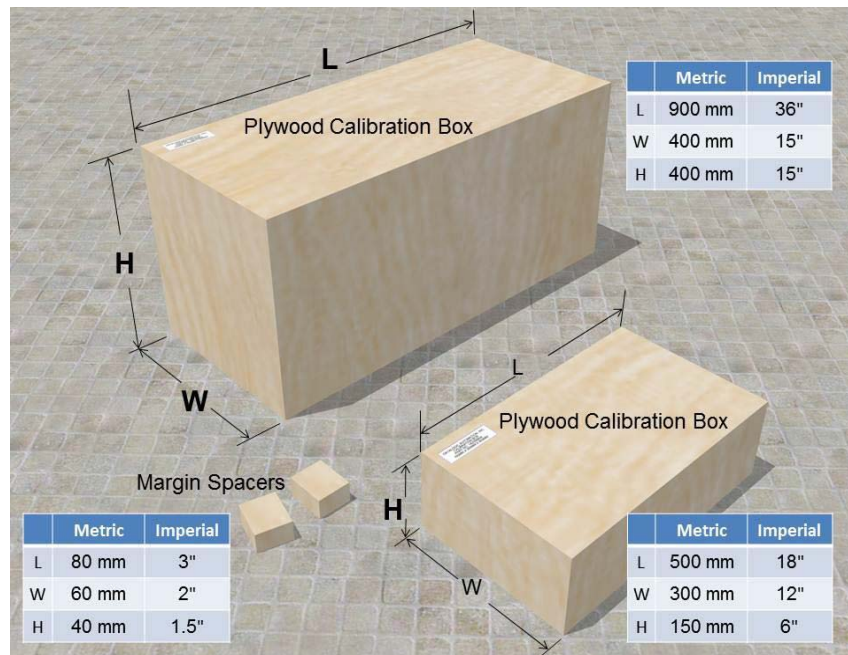
Checking the Operation of the Replacement DM3610

Once the replacement unit is in place and the previously saved parameters have been uploaded, check the calibration of the unit by running some test boxes through the system. If the calibration is not within tolerances, follow the Dimensioner Calibration steps to calibrate it.

DIMENSIONER CALIBRATION

Now that you understand how the dimensioner “sees” objects on the belts, let’s look at how the system is able to relate the point data to real world measurements.

After the dimensioner is installed, it needs to be calibrated to its installed position over the conveyor so that its engineering units of measurement can be converted to real world units (e.g., mm/inches). Once its position in relation to the conveyor has been established, test boxes of known dimensions are run through the system and various factors are adjusted until the system is able to measure the test boxes within +/- 5mm [0.2”] tolerance. To facilitate calibration, a Calibration Kit is available from Datalogic in either Metric or Imperial versions.



Static Calibration

The process of static calibration locates the dimensioner in space above the conveyor. It is important that the dimensioner is properly installed (See chapter 2, Mechanical Installation) on a sturdy mounting structure with minimal vibration or sway. Any movement of the structure will negatively affect the accuracy of the dimension data.

Many of the settings necessary for calibration are determined automatically using the **Find Belt** command in the User Interface, including:

- Left/right limits of the DM3610 coverage
- DM3610 mounting height
- Scan Points
- Field of view
- Angle Offset

To begin calibration:

1. Apply power to the DM3610.
2. Establish a connection to the DM3610 User Interface and log on as discussed in chapter 4.
3. Using the menu tree, navigate to Modify Settings | Dimensioning | Settings.

- For calibration purposes, enter the height of the maximum package size that will be run through your dimensioning system in the text field provided.

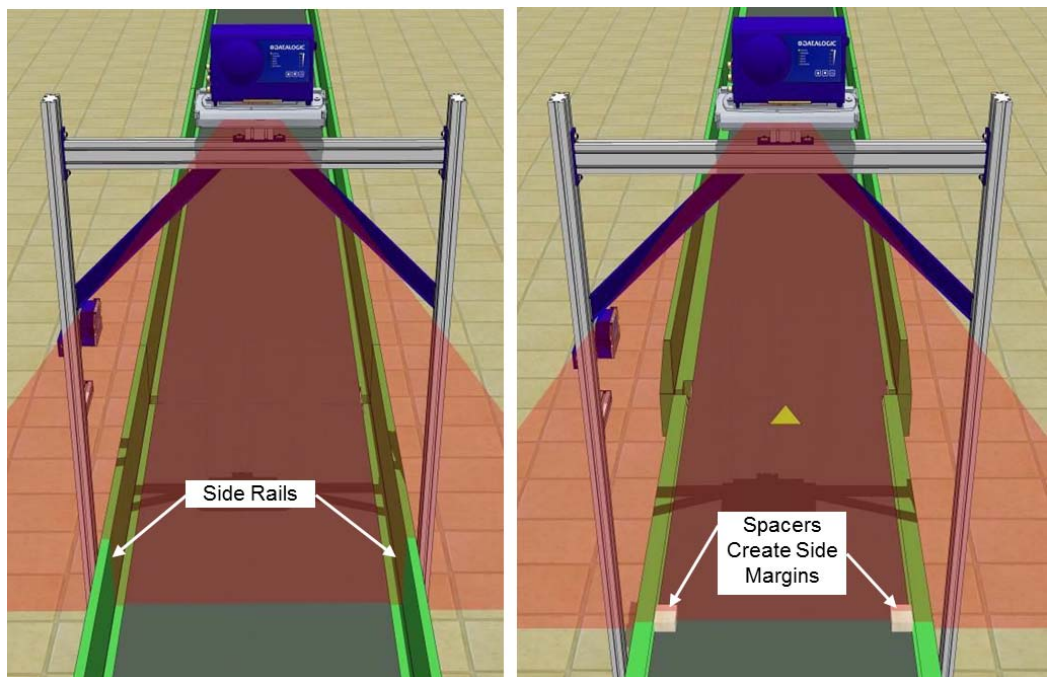
Outputs	
DIM-in-Head Enabled	On
Units	mm
Length Reporting	Direction of Travel
Certification Mode	Off
Length, Width Resolution (d)	5 mm
Height Resolution (d)	5 mm

Package Size Options		
Minimum Package Size	Length (mm)	50.0
	Width (mm)	50.0
	Height (mm)	50.0
Maximum Package Size	Length (mm)	2500.0
	Width (mm)	1200.0
	Height (mm)	600.0
Discard Package Size	Length/Width (mm)	12.7
	Height (mm)	12.7
Size Corrections	Length (mm)	0
	Width (mm)	1.27
	Height (mm)	0

- Click Update to save your changes.

Defining the Belt Width

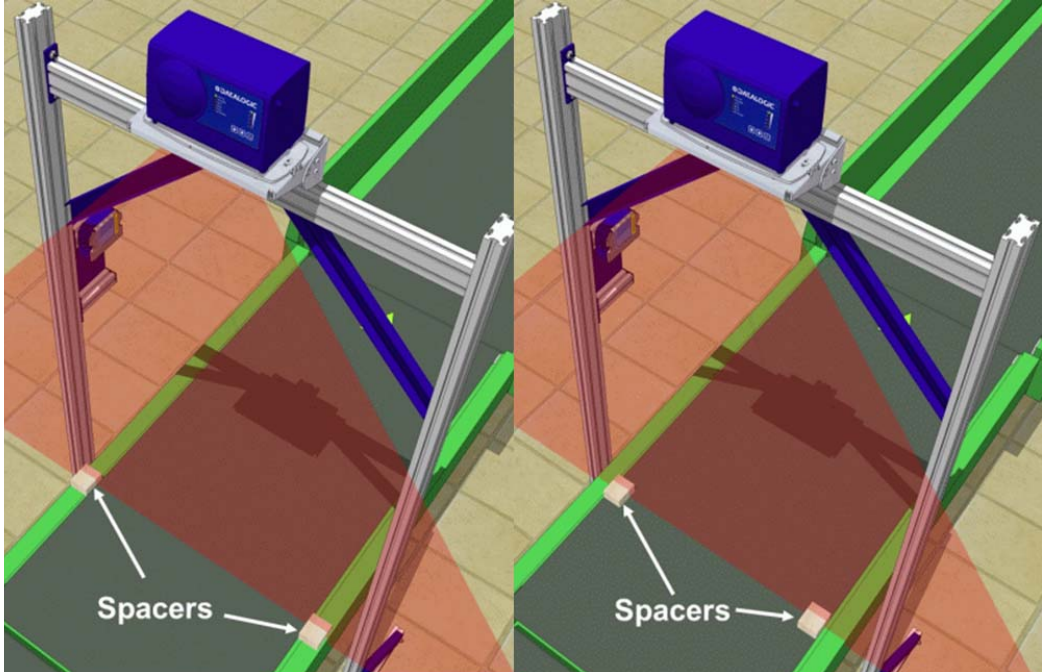
When calibrating your dimensioner, you must help the dimensioner find the width of the conveyor belt. If the conveyor does not have side rails, and there is no transitional edge past the edge of the conveyor belt, it will be necessary to place spacers on the left and right side of the conveyor belt. The side margins allow the DM3610 to identify the non-dimensioning area or “ignores” to the right and left side of the belt.



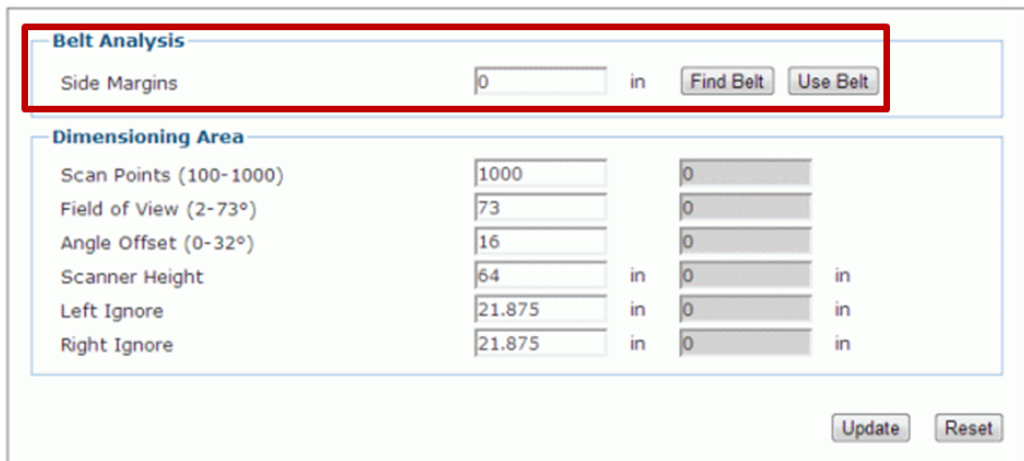
Since there is only one field in the User Interface to enter the size of the side margins, the two spacers creating the side margins must be the same width and height.

To define the belt width using margin spacers:

1. With the DM3610 powered up and access to the User Interface with a computer, place the spacers at the edge of the conveyor belt within the dimensioner’s laser line. If space allows, the spacer can be placed outside the edges of the belt, if not, place the spacers along the edges of the belt as shown below.



2. In the User Interface, navigate to Modify Settings | Dimensioning | Calibration.
3. enter the width of the spacers in the Side Margins text field.



If the spacers are placed outside the edges of the conveyor belt, enter a value of 0 (zero) in the **Side Margins** text field. This also applies if the conveyor has side rails.

If the spacers are placed on top of the conveyor belt aligned with the edges of **the belt**, enter the width of the spacers in the **Side Margins** text field.



Since the Side Margins text field only allows one value, the spacers must have the exact same width.

- Click Find Belt. When clicked, the dimensioner runs calculations to provide the Scan Points, Field of View, Angle Offset, Scanner Height, Left Ignore, and Right Ignore in the grayed fields included in the Dimensioning Area of the window.

Belt Analysis				
Side Margins	<input type="text" value="3"/>	in	<input type="button" value="Find Belt"/> <input type="button" value="Use Belt"/>	
Dimensioning Area				
Scan Points (100-1000)	<input type="text" value="1000"/>		<input type="text" value="590"/>	
Field of View (2-119°)	<input type="text" value="73"/>		<input type="text" value="59"/>	
Angle Offset (0-32°)	<input type="text" value="16"/>		<input type="text" value="20.6"/>	
Scanner Height	<input type="text" value="64"/>	in	<input type="text" value="52.375"/>	in
Left Ignore	<input type="text" value="21.875"/>	in	<input type="text" value="14.71875"/>	in
Right Ignore	<input type="text" value="21.875"/>	in	<input type="text" value="15.4375"/>	in
<input type="button" value="Update"/> <input type="button" value="Reset"/>				

WARNING



When Find Belt is clicked, the system calculates the dimensioner’s position over the conveyor. If the system determines that the dimensioner is not centered on the belt, it will return this message:

WARNING: DM3610 mounting misses belt center by more than 1". Recommend remounting.

If the system determines that the mounting height compared to the system’s maximum package size (See Modify Settings | Dimensioning | Settings in chapter 4) does not allow the system to adequately dimension the package, it will return this message:

WARNING: FINDBELT calculated FOV > 73°. Confirm Maximum Package Height setting and check DM3610 mounting height.

If the system determines that the mounting height is above 1778mm [70"], it will return this message:

WARNING: FINDBELT calculated Scanner Height > 68".

Recommend mounting DM3610 lower. The Find Belt calculation measures the dimensioner height from the bottom of the DM3610 housing to the belt. Maximum height to this point for best results is 1778mm [70"].

- Click Use Belt to use the data calculated by Find Belt when dimensioning packages. When the use Belt button is pressed the DM3610 moves the "Find Belt" data from the right column to the left column. it will highlight in yellow any parameter that is different than the previously saved parameter.

Belt Analysis

Side Margins in

Dimensioning Area

Scan Points (100-1000)	<input style="background-color: yellow;" type="text" value="590"/>		<input type="text" value="590"/>		
Field of View (2-119°)	<input style="background-color: yellow;" type="text" value="59"/>		<input type="text" value="59"/>		
Angle Offset (0-32°)	<input style="background-color: yellow;" type="text" value="20.6"/>		<input type="text" value="20.6"/>		
Scanner Height	<input style="background-color: yellow;" type="text" value="52.375"/>	in	<input type="text" value="52.375"/>	in	
Left Ignore	<input style="background-color: yellow;" type="text" value="14.71875"/>	in	<input type="text" value="14.71875"/>	in	
Right Ignore	<input style="background-color: yellow;" type="text" value="15.4375"/>	in	<input type="text" value="15.4375"/>	in	

6. Click **Update** to save the data in the system.

Dynamic Calibration

The final part of the calibration operation involves adjusting the system settings in the DM3610 User Interface to match the requirements of your application and then running test boxes through the system to test its accuracy.

To adjust system settings for your specific application:

1. Open the DM3610 User Interface and adjust the following items to match your application (See chapter 4, User Interface):
 - Tachometer
 - Trigger
 - Transmit Point
 - Communications
 - Relays
2. Configure the **Modify Settings | Dimensioning | Settings** window according to the application specifications. (See chapter 4, User Interface)

Outputs		
DIM-in-Head Enabled		On
Units		mm
Length Reporting		Direction of Travel
Certification Mode		Off
Length, Width Resolution (d)		5 mm
Height Resolution (d)		5 mm

Package Size Options		
Minimum Package Size	Length (mm)	50.0
	Width (mm)	50.0
	Height (mm)	50.0
Maximum Package Size	Length (mm)	2500.0
	Width (mm)	1200.0
	Height (mm)	600.0
Discard Package Size	Length/Width (mm)	12.7
	Height (mm)	12.7
Size Corrections	Length (mm)	0
	Width (mm)	1.27
	Height (mm)	0

Update Reset

WARNING



3. Start the conveyor.

Make sure the work area and conveyor are clear of people and debris. Warn others working in the area that you are starting the conveyor and that they should stand clear.

4. Navigate to the Diagnostics | Monitor window in the User Interface.

5. Run one of the calibration boxes through the system.

NOTE



It is important that the wooden calibration boxes are used for this step. If cardboard boxes are used, it can cause incorrect box dimensions.

6. Compare the dimensions reported by the DM3610 on the Monitor window with the actual size of the box.

7. The box run for this example is the 18 x 12 x 6 fox from the imperial measurement calibration kit.

Status LEDs	System Information	Legal For Trade Status
<ul style="list-style-type: none"> ■ Status ■ Trigger ■ Good/No Dim ■ Tach ■ Polarizer ■ Network ■ OUT 1 ■ OUT 2 ■ AUX IN 	<ul style="list-style-type: none"> Belt Speed (fpm) 110 Scan Rate 0600 Scan Rate Variance 019 	<ul style="list-style-type: none"> ■ Ready Show ■ Temp Comp ■ Scan Rate

Messages
Started 18.1 12.0 6.1 in;NOTREADY

➔

Messages
Started 18.1 12.0 6.1 in;NOTREADY

If the length of the box is within system tolerance, proceed to the next step. If however, length of the box is NOT within specification, you can make small adjustments to correct

the dimension in the Tach Scale factor input field found on the Modify Settings | Tach/Trigger/Transmit window.

The screenshot shows a configuration window with three main sections: Tachometer, Trigger, and Transmit. In the Tachometer section, the 'Tach Scale Factor' field is highlighted with a red box and a red arrow pointing to it. The Trigger section contains several settings, and the Transmit section has two settings. At the bottom right, there are 'Update' and 'Reset' buttons.

Section	Parameter	Value
Tachometer	Tach Source	Hardware/External
	Bidirectional	<input type="checkbox"/>
	Pulse per in	16
	Tach Scale Factor	1.000
	Energy Saving Mode	Turn off laser
Energy Saving Time (secs)	60	
Trigger	Trigger Source	Hardware Trigger
	Polarity	Active High
	Debounce Duration (ms)	5
	Trigger Reference Point	9.0 in
Transmit	Transmit Edge	Trailing Edge
	Transmit Point	60.0 in

8. If adjustments need to be made, change the Tach Scale Factor by fractional increments. For example, try changing the Tach Scale Factor from 1.000 to 0.998.
9. Click **Update** to save the change.
10. Run the test box through the system and continue to adjust the Tach Scale Factor until the dimensions fall within the requirements for your system. The height and width also need to be calibrated by making adjustments with **Dimensioning Settings Size Corrections**.

Setting Up a DM3610 Dimensioner as Focusing Device for Datalogic Cameras

The Focus Setup function is used to define focus offset when using the DM3610 Dimensioner to provide focus data for a Datalogic camera, including the AV500/900, AV7000, NVS9000, and AV6010.

WARNING



Though it is unlikely to happen, a DM3610 and RangeFinder cannot be installed and configured for focusing on the same system. This will cause system problems.

The DM3610 must be running software version 1_7_53 or greater, and must be installed at least 500 mm [20 in] from the nearest camera scan line.

DM3610 offset calculations are based on $\frac{1}{4}$ in. [6.35 mm] increments. Each whole number value in the **Focus Setup** window equals $\frac{1}{4}$ in, i.e.: a value of 4 equals 1 in. [25.4 mm]. The goal in setting up the DM3610 is to identify the zero value positions for focusing; i.e. the height to the conveyor belt or tray surface (for tilt-tray systems) and read area across the belt (right and left edges). Set DM3610 parameters to the following configuration for the calibration process.

NOTE



Remember to reset these parameters to the application specifications after the calibration is complete

System Orientation

WARNING



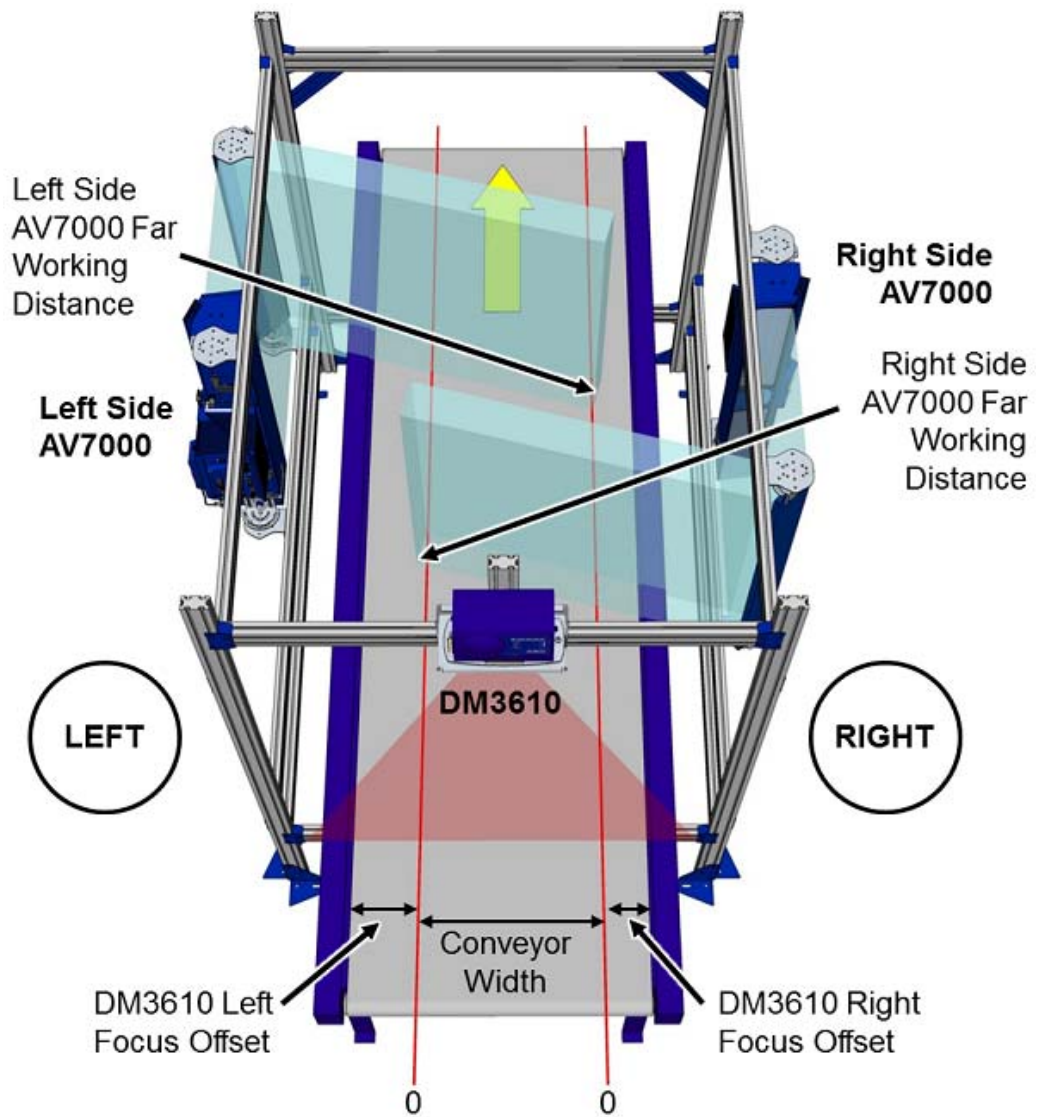
The dim line of the unit closest to the nearest camera scan line must be at least 500mm (20 in.) upstream.

Remember to reset these parameters to the application specification after the calibration is complete.

The examples used here are provided in Imperial units, if the system is configured for metric, the unit of measure will be mm.

The Far Working Distance of the right side camera coincides with the DM3610 Left Focus Offset and the Far Working Distance of the left side camera coincides with the DM3610 Right Focus Offset. These lines on the left and right are considered the 0 (zero) position. See the image below to better understand DM3610 / AV7000 system orientation.

The distance between the left and right focus offsets is considered the “Conveyor Width” and must be entered in the Conveyor Width field in **Global Settings | Operating Mode**.



The DM3610 Left and Right Offsets will not necessarily be the same, but are based on the Far Working Distance of the side AV7000 cameras. Reference the system application drawings for the prescribed Far Working Distance of each camera.

Preparation:

Before programming the Focus Offset, a few preliminary settings are required.

1. In the DM3610 e-Genius under Modify Settings, navigate to Serial | Main port which is wired to the AV7000. The Serial | Main window opens.
2. Make sure the selected Baud Rate matches that the AV7000 (AV7000 uses the main port, RS485 (RS422), at 115200).

3. Under Message Format, select Camera Focus from the Focus messages for Datalogic cameras drop-down list.
4. Click **Update** to save the changes.
5. Navigate to **Diagnostics | Focus Setup**. The **Focus Setup** window opens.



If you navigate away from the Focus Setup page, the Constant Tach setting will automatically reset to Hardware Tach. Reset it, to continue the focus setup process.

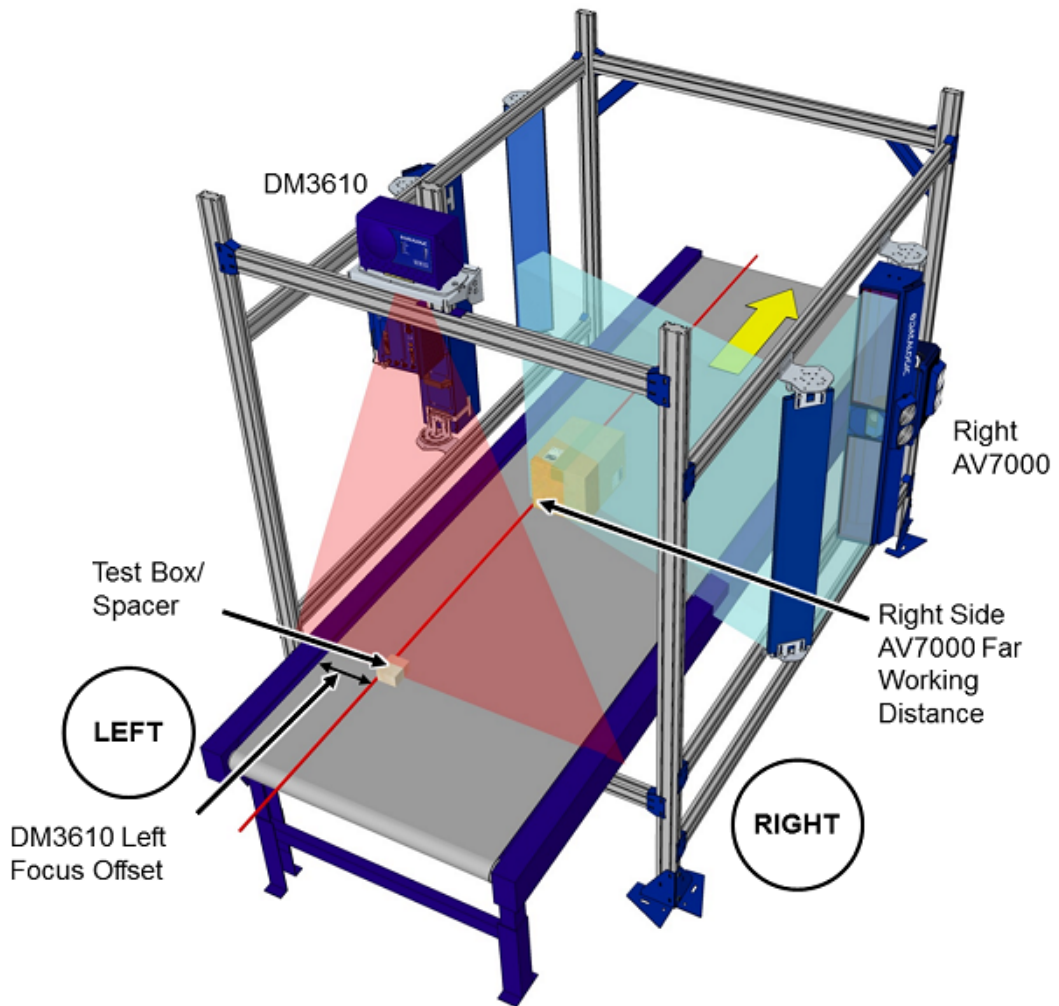
6. From the **Tachometer** drop-down list, select **Constant**.
7. Referencing the direction of conveyor travel, view the Dimensioners from an upstream position. Determine if the connectors located on the side of the unit face left or right. Reference the image below.



8. Select **Left** or **Right** from the **Connector Position** drop-down.
9. Enter a value of 0 (zero) in the **Left Offset**, **Right Offset**, and **Height Offset** fields.
10. Click **Update** to save the changes.

Adjusting DM3610 Left Focus Offset

1. Position a test box with a known width in the dimensioner line(s) so the RIGHT side of the box is at the LEFT far working distance as specified by the application's installation drawing. In this example we will be using a box with a 3" width.

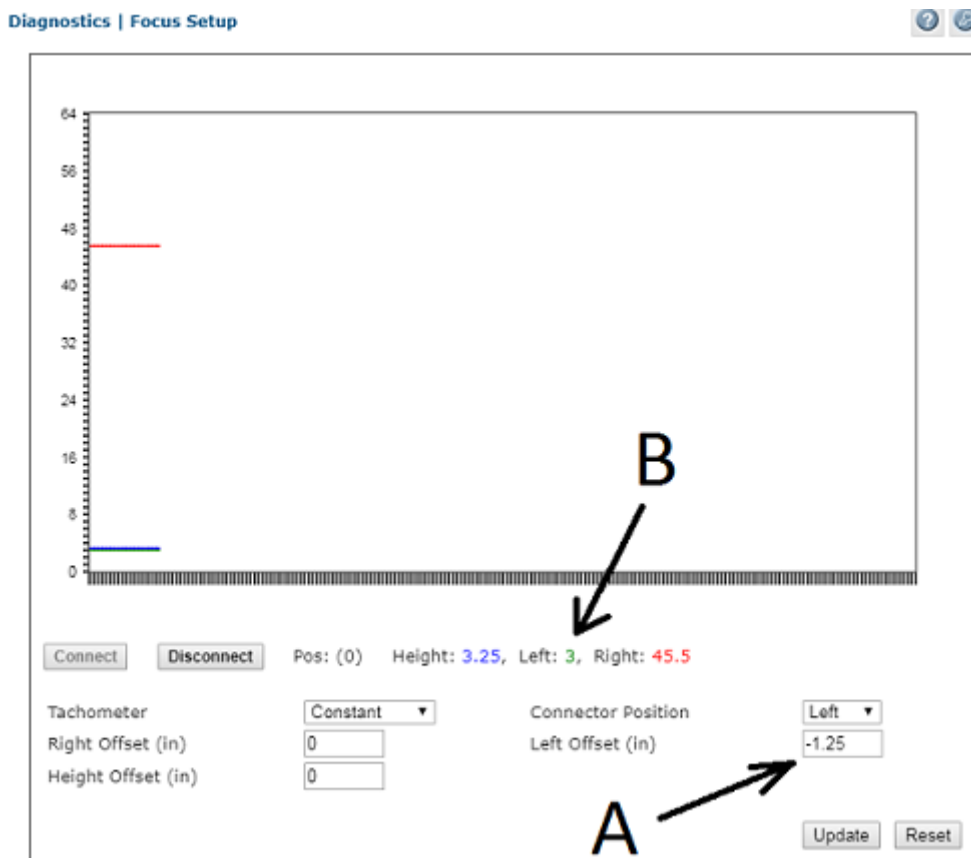


2. In the menu tree under Diagnostics, click Focus Setup. The Focus Setup Window opens.
3. View the displayed data and determine what the left position value is. In the displayed example above, the value is 4.25".



4. Subtract the width of the test box, in our example it is 3", from the value displayed for Left.

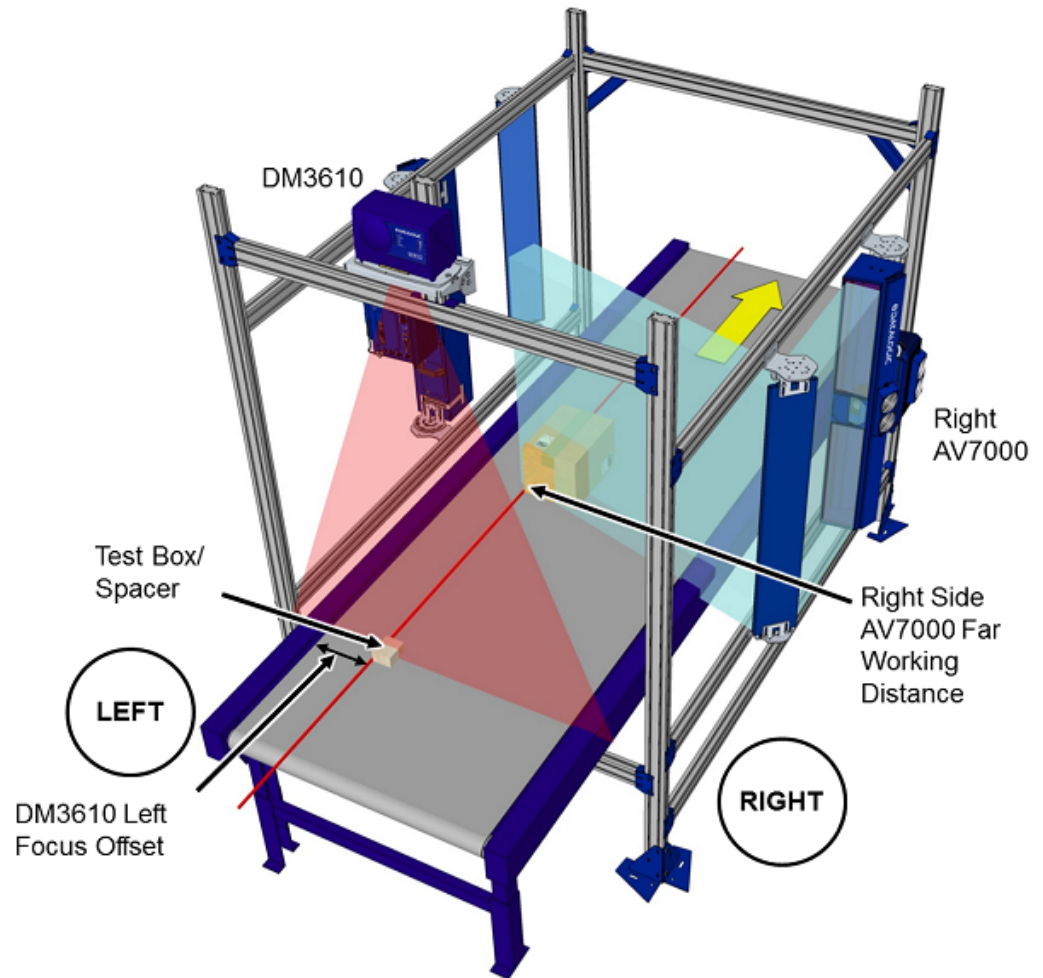
$$4.25 - 3 = 1.25$$
5. Enter the result as a NEGATIVE value in the Left Offset field. In this case you will enter -1.25.
6. The Left Position value (B in the following image) now reflects the Left Offset value (A in the following image) and is now 3.



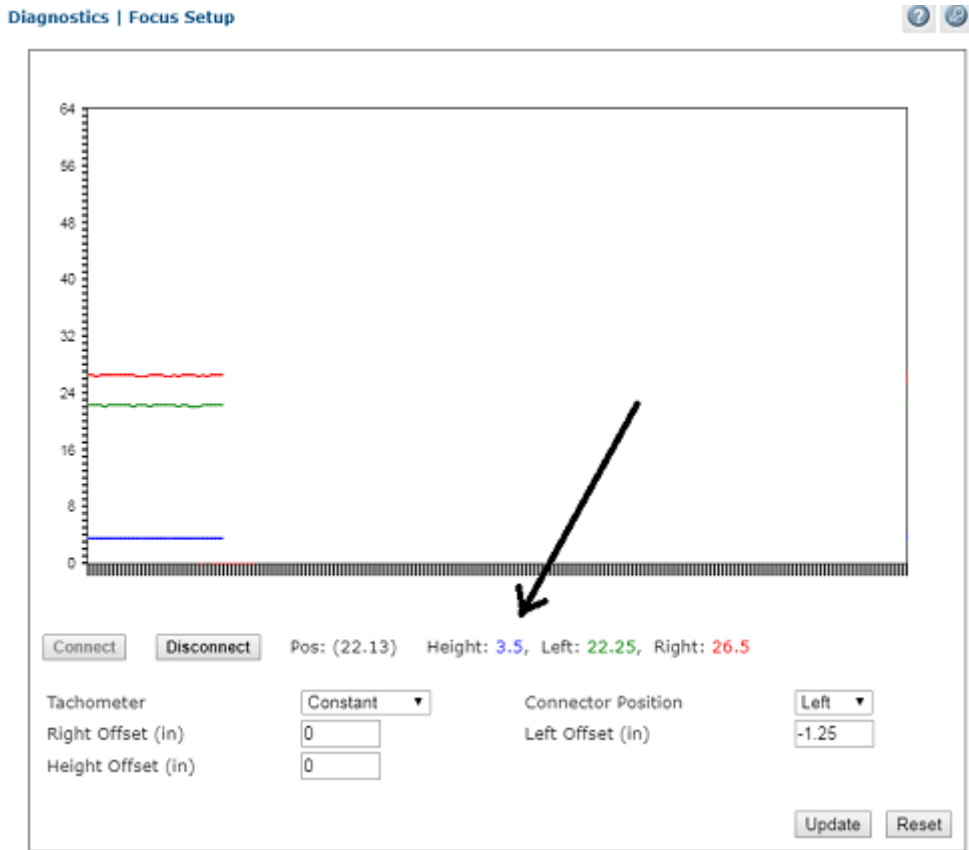
7. Click Update to save your changes.

Adjusting DM3610 Height Offset

1. Place the test box used for the Left Offset in the center of the dimensioning line so the known distance side is facing up.



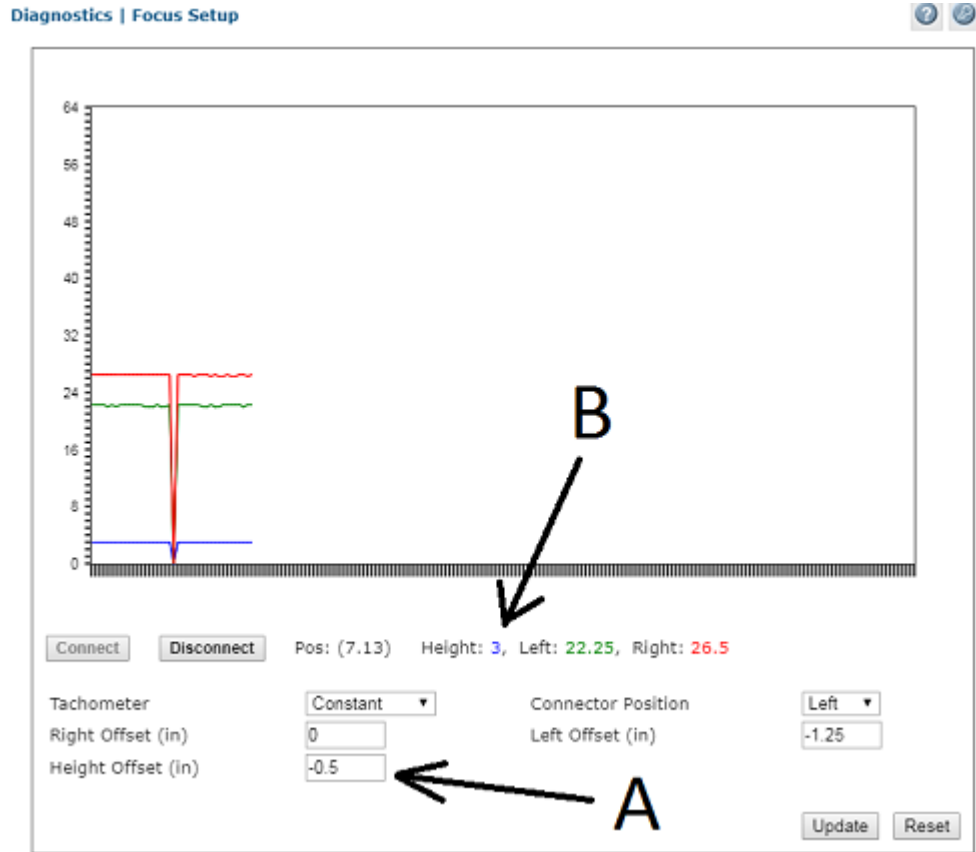
2. In the menu under Diagnostics, click Focus Setup. The Focus Setup window opens.
3. View the displayed data and determine the Height value as displayed by the DM3610. In the image below the 3" test box displays a height of 3.5.



4. Subtract the test box height from the displayed height.

$$3.5 - 3 = 0.5$$

5. Enter the result as a NEGATIVE value in the Height Offset field. In this case you will enter -0.5.



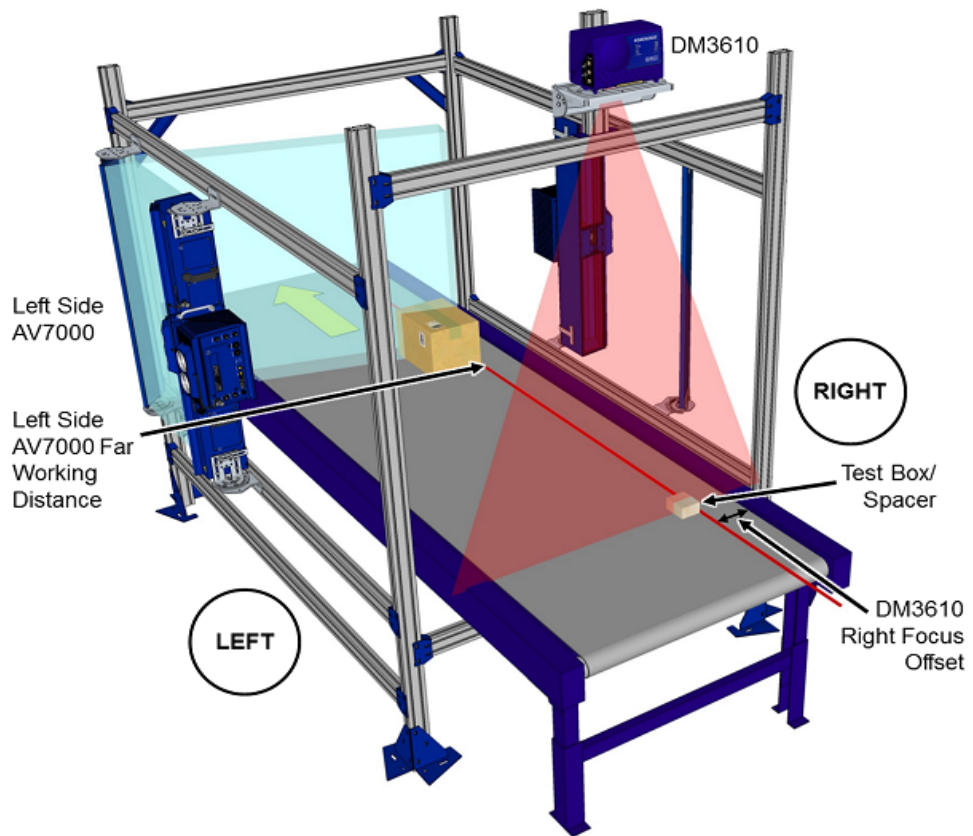
6. The Height Position value (B) now reflects the Height Offset value (A) and is now 3.
7. Click Update to save the changes.



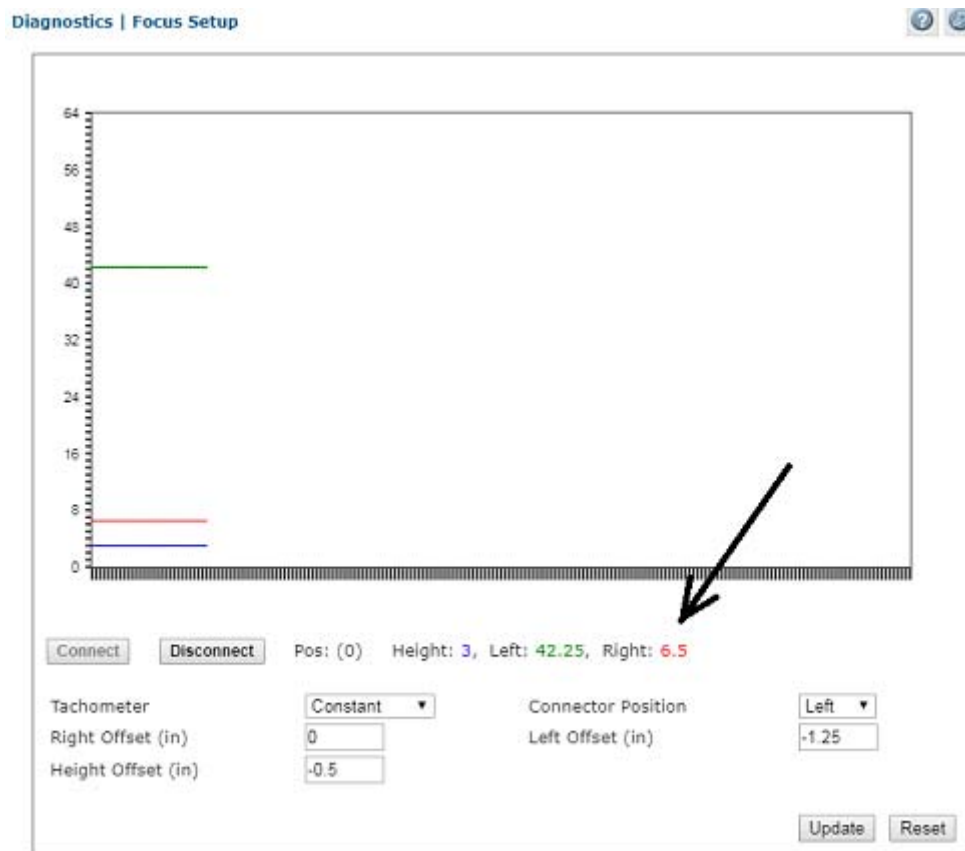
Adjusting DM3610 Right Focus Offset

When working with a DC3000 multi-head system, the test box must intercept all dimensioning lines.

1. Position the text box with a known width in the dimensioning line so the LEFT side of the box is at the RIGHT far working distance as specified by the application installation drawing In this example, we will be using a 3" width box.



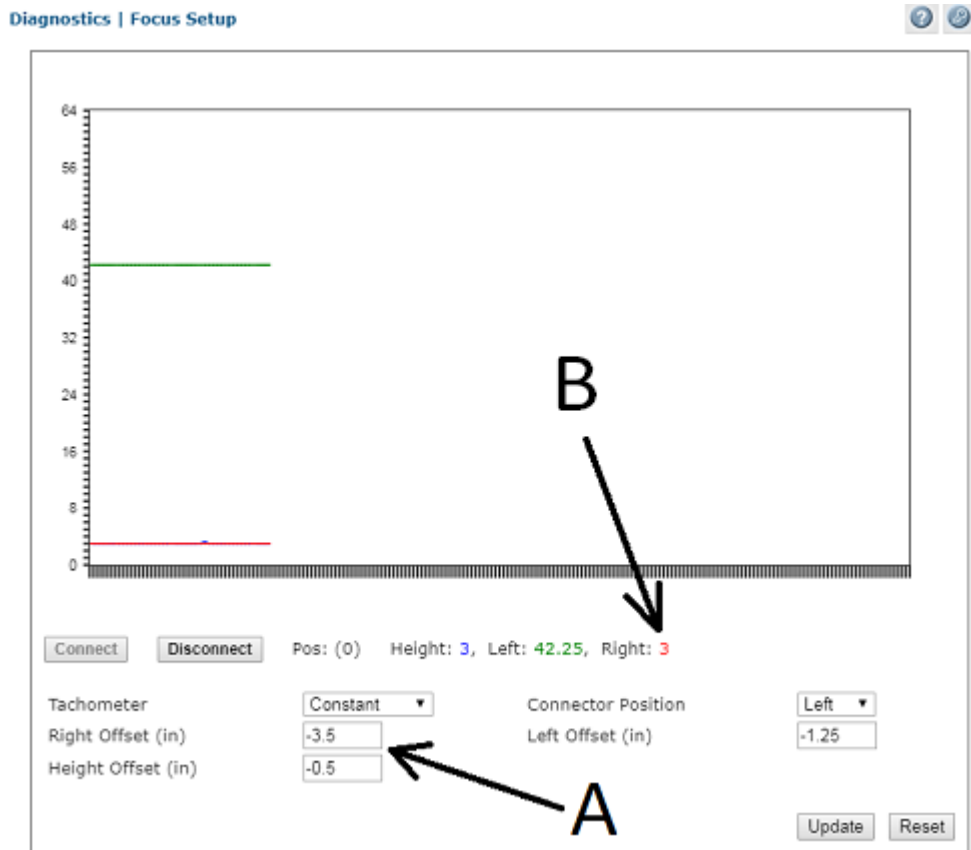
2. In the menu under Diagnostics, click Focus Setup. the Focus Setup window opens.



3. View the displayed data and determine what the RIGHT position value is. In our example the value is 6.5”.

4. Subtract the width of the test box from the value displayed for RIGHT.

$$6.5 - 3 = 3.5$$
5. Enter the result into the RIGHT OFFSET field as a negative value, in our example it is -3.5.
6. The Right Position value (B in the following image) now reflects the Right Offset value (A in the following image) and is now 3.



7. Click **Update** to save the changes.
8. Click the Tachometer drop-down and select Hardware.
9. Test the system by inducting a series of application objects and bar codes. Use the AV7000 imaging utility to verify that the cameras are focusing properly over the width and height of the conveyor.
10. Under Tachometer, select Hardware/External from the Tach Source drop-down list.
11. Click **Update**.

CHAPTER 6

MAINTENANCE

This chapter provides instructions for maintaining optimum performance during the life of your DM3610. It provides specific information on:

- Maintenance Procedures
- Exterior Cleaning
- Mounting Hardware Checks
- Wiring Connection Checks

Tools and Materials Required

Item	Description
Soft-bristle brush	For cleaning the DM3610's exterior
Clean, soft cloths	For cleaning the DM3610's exterior
Cleaning solutions	Mild detergent solution for cleaning the DM3610's exterior. 70% denatured alcohol, 30% de-ionized water solution for cleaning exit window
Soft cotton swabs or lint-free cloth	Use to clean DM3610 reader's exit window

WARNING



Due to the complex and application-specific nature of dimensioning / certified dimensioning installations, the DM3610 must be setup and serviced by authorized technicians trained by Datalogic. The maintenance procedures in this chapter may be performed by an end user technician. Training is recommended if the end user intends to do more than the maintenance procedures provided in this chapter. There are no user serviceable parts within the DM3610 Dimensioner. DO NOT OPEN THE UNIT. Opening the DM3610 may void its warranty. CAUTION: Proceeding with any setup, calibration, or service procedures without proper training may void the warranty. Training is available through specific Service Programs and Maintenance Agreements. See our website at www.datalogic.com.

CAUTION: RISK OF EXPLOSION IF BATTERY IS REPLACED BY AN INCORRECT TYPE. PROPERLY DISPOSE OF USED BATTERIES.

Maintenance Tasks

Perform the maintenance tasks on an “as needed” basis to assure proper operation of the DM3610. Task schedule frequency depends upon the application environment conditions. It only requires a few minutes to complete each maintenance task.

Exterior Cleaning



Shut down the DM3610 before performing this maintenance task. Do not stare into the DM3610's exit window at the laser light. Avoid direct eye exposure. The laser light level does not constitute a health hazard, however staring at the laser light for prolonged periods could result in eye damage.

Do not use any chemical on the DM3610 that is unsafe for plastics, such as benzene, acetone, or similar products.

The exterior cleaning procedure may be performed without removing the reader from the mounting structure.

1. Turn off the DM3610 by disconnecting the power source.
2. Clean the exterior (except the exit window) with a clean, soft-bristle brush. Be sure not to brush any dust, dirt, or debris onto the exit window.
3. Carefully remove any debris in or around the exit window.
4. Wipe the exterior (except the exit window) with a clean, soft cloth dampened slightly with a mild detergent solution.
5. The exit window should be cleaned after this task is completed.

Cleaning the Exit Window



Shut down the DM3610 before performing this maintenance task. Do not stare into the DM3610's exit window at the laser light. Avoid direct eye exposure. The laser light level does not constitute a health hazard, however staring at the laser light for prolonged periods could result in eye damage.

Do not use any chemical on the DM3610 that is unsafe for plastics, such as benzene, acetone, or similar products.

The exit window cleaning procedure may be performed without removing the reader from the mounting structure if it is possible to do so.

1. Turn off the DM3610 by disconnecting the power source.
2. Follow the exterior cleaning procedure before cleaning the exit window
3. Check the exit window surface for any dust, dirt, or smudges. If the window needs to be cleaned, proceed to Step 4.
4. Make a solution of seven parts denatured alcohol and three parts water.
5. Apply the cleaning solution to a cotton swab or lint-free cloth.
6. Apply the cleaning solution to the exit window.

7. Remove any streaks or remaining moisture from the exit window with a dry, soft, lint free cloth or lens paper.
8. Verify DM3610 operation.



Cleaning the Photoelectric Sensor

If your application uses the photoelectric sensor option as a hardware trigger, be sure to clean the photoelectric sensor periodically as outlined below.

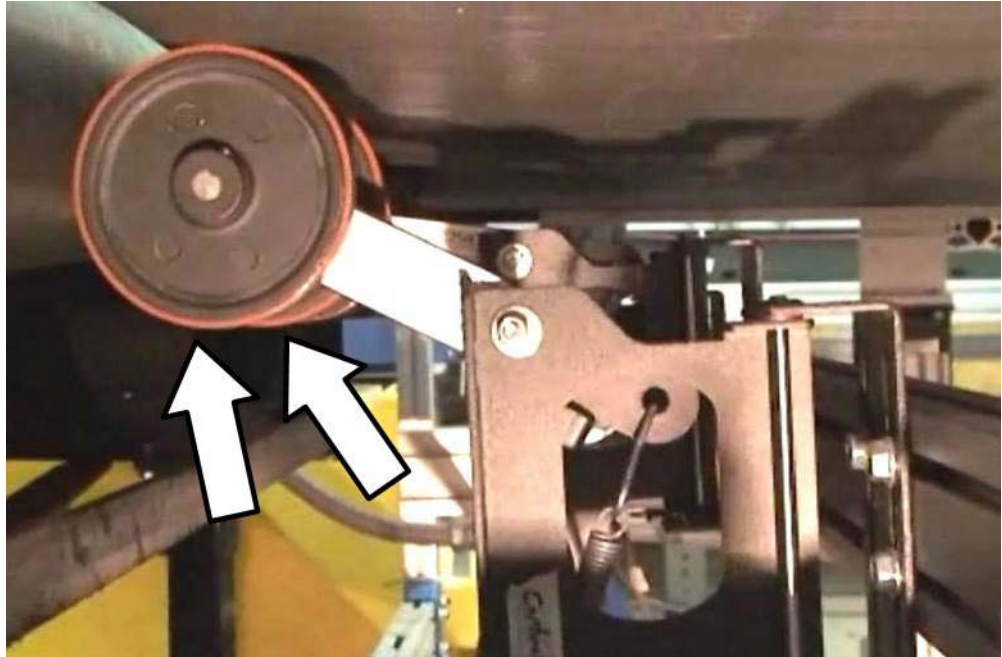
1. Turn off the product transport.
2. Clean the photoelectric sensor's lens using the denatured alcohol solution and a cotton swab or lens paper.
3. Clean the reflector using the denatured alcohol solution and a cotton swab or lens paper.
4. Verify photoelectric sensor operation.

Cleaning the Tachometer

If your application uses the tachometer option for tracking purposes, be sure to clean the tachometer wheels periodically as outlined below.

1. Turn off the product transport.
2. Using a clean, soft cloth, wipe the wheels of the tachometer clean using a mild detergent solution.
3. Before restarting the system, be sure the tachometer is making good contact with the product transport.

4. Verify tachometer operation.



Tighten Mounting Hardware

1. Check all DM3610 Dimensioner, CBX100 connection box, and power supply mounting hardware. Tighten as necessary. Do not over-tighten. Be sure not to disturb the equipment's alignment as it relates to the product transport.
2. Check the mounting hardware of the Photoelectric Sensor (if this option is being used). Tighten as necessary. Do not over-tighten.
3. Check the mounting hardware of the tachometer (if this option is being used). Tighten as necessary. Do not over-tighten.

Checking Dimensioning System Connections

Wiring connections to the DM3610 are made to the connector panel and CBX100. (See chapter 3, Electrical Installation.)

1. Turn off the DM3610 and disconnect the power from the unit.
2. Check all wiring connections to the connector panel. Tighten any loose connections as necessary. Do not over-tighten.
3. Check all wiring connections to the CBX100. Tighten any loose connections as necessary. Do not over-tighten.
4. Check all cabling/conduit for signs of wear/damage. Repair/replace any damaged cable connections as necessary.

Verify DM3610 Operation

If after performing maintenance, the DM3610 system continues to perform below the normal operations experienced with the system under normal daily conditions, contact Datalogic through the **Technical Support** page on our website at www.datalogic.com.

Verify Photoelectric Sensor Operation

1. Block the Photoelectric Sensor emitter beam to confirm it is aligned properly with the reflector.
2. Verify that the TRIGGER LED on DM3610 is green when photoelectric sensor beam is blocked.
3. If the photoelectric sensor's LED does not change status, adjust the photoelectric sensor so that it is properly aligned with the reflector.
4. If the TRIGGER LED on the DM3610 is not green when the photoelectric sensor's beam is blocked, check the cabling between the photoelectric sensor and CBX100 for damage.

Verify Tachometer Operation

1. Rotate the tachometer wheel.
2. The TACH LED on the DM3610's connector panel should flash indicating the tachometer is operational.
3. If the TACH LED does not flash when the tachometer wheel is rotated, check the cabling between the tachometer and the CBX100 for damage.

CHAPTER 7

TROUBLESHOOTING

TROUBLESHOOTING BASICS

WARNING



Due to the complex and application-specific nature of dimensioning / certified dimensioning installations, operational deficiencies of the DM3610 must be diagnosed and serviced by a trained and authorized Datalogic technician.

There are no user serviceable components or field replaceable units (FRUs) inside the DM3610. Training is available through specific Service Programs and Maintenance Agreements. See our website at www.datalogic.com.

NOTE



When contacting Datalogic Technical Support for help with a DM3610 Dimensioner, please be ready to share the unit serial number with the Datalogic technician. The unit's serial number tag is located on the bottom of the device, as shown below. Technical Support for Industrial Automation Products is available at www.datalogic.com



ERROR CODES AND RESOLUTIONS



The following error codes pertain will be considered a no-dim in a DM3610 using certified dimensioning. If the DM3610 is providing volume information only, some of these codes do not apply.

Error Code(s)	Possible Cause	Corrective Action
SUCCESS	N/A	None
BOX_BAD_HISTOGRAM	Parcels are not cuboidal and present non-squared corners to the DM3610	Run a calibration box to confirm whether the DM3610 is returning accurate dimensions
BOX_LONG_SIDE_VEC_ERR		
BOX_LONGEST_SIDES_ERR	Black parcel reflectivity is below DM3610's reflectivity minimum	Confirm that all parcels passing under the DM3610 are cuboidal
BOX_MAX_COSINE		
BOX_MAX_COSINE2	Parcels may be highly specular and may cause false transitions in the DM3610	Determine whether parcel material may be causing the problem. (i.e. Specular)
BOX_PEAK_VS_BORDER		
BOX_PEAK_VS_INTERNAL		Replace the DM3610
BOX_POINT_BORDER_DIST		
BOX_POINT_COUNT_ERR		
BOX_SHORT_SIDE_VEC_ERR		
BOX_SIDES_TOO_NOISY		
BOX_TOO_FEW_SIDE_POINTS		
BOX_NO_HISTPEAKS		

Error Code(s)	Possible Cause	Corrective Action
BOX_NODIM_UNKNOWN	<p>Parcels are not cuboidal and present non-squared corners to the DM3610</p> <p>Black parcel reflectivity is below DM3610's reflectivity minimum</p>	<p>Confirm the parcels are within the minimum/ maximum package size options set in 'Modify Settings Dimensioning Settings' on page 78.</p> <p>Run a calibration box to determine whether the DM3610 returns no dimensions or only dimensions for certain packages</p> <p>Run 'Diagnostics DimView' on page 123 in the user interface to determine whether the DM3610 detecting packages</p> <p>Replace the DM3610</p>
BOX_SAME_STORBOX_BAD	<p>Multiple parcels are in the DM3610 scanning area at the same time, and some may be misshapen</p>	<p>Confirm that there are no parcels side-by-side when they pass under the DM3610</p> <p>Run a calibration box to confirm whether the DM3610 is returning accurate dimensions</p> <p>Confirm that all parcels passing under the DM3610 are cuboidal</p> <p>Determine whether the parcel material may be causing the problem. (i.e. Specular)</p> <p>Replace the DM3610</p>

Error Code(s)	Possible Cause	Corrective Action
BOX_SIDE_LEN_TOO_SHORT	Parcels are smaller than the minimum package size settings found in 'Modify Settings Dimensioning Settings' on page 78.	<p>Run a calibration box to confirm whether the DM3610 is returning accurate dimensions</p> <p>Confirm that all parcels passing under the DM3610 are cuboidal</p> <p>Determine whether the parcel material may be causing the problem (i.e. Specular)</p> <p>Replace the DM3610</p>
BOX_TOL_FAIL_HEIGHT	Parcels being conveyed are less than the Minimum Package Size - Height settings found in 'Modify Settings Dimensioning Settings' on page 78	<p>Run a calibration box to confirm whether the DM3610 is returning accurate dimensions</p> <p>Run 'Diagnostics DimView' on page 123 in the user interface to determine whether the DM3610 is detecting packages</p> <p>Run the Find Belt calculation under 'Modify Settings Dimensioning Calibration' on page 81 in the user interface</p> <p>Replace DM3610</p>
BOX_TOL_FAIL_WIDTH	Parcels being conveyed under the DM3610 are less than the Minimum Package Size - Width settings found in 'Modify Settings Dimensioning Settings' on page 78	<p>Run a calibration box to confirm whether the DM3610 is returning correct dimensions</p> <p>Run 'Diagnostics DimView' on page 123 in the user interface to determine whether the DM3610 is detecting packages</p> <p>Run the Find Belt calculation under 'Modify Settings Dimensioning Calibration' on page 81 in the user interface</p> <p>Replace DM3610</p>

Error Code(s)	Possible Cause	Corrective Action
BOX_POINTS_NEAR_CORNERS	<p>Parcels are not cuboidal and present non-squared corners to the DM3610</p> <p>Black parcel reflectivity is below the DM3610's reflectivity minimum</p>	<p>Confirm that the parcels are within the min/max size settings found in 'Modify Settings Dimensioning Settings' on page 78</p> <p>Run a calibration box to determine whether the DM3610 returns no dimensions or only dimensions for certain packages</p> <p>Run 'Diagnostics DimView' on page 123 in the user interface to determine whether the DM3610 is detecting packages</p> <p>Replace DM3610</p>
BOX_SIDE_LEN_TOO_LONG	<p>Parcels are larger than the maximum package size settings found in 'Modify Settings Dimensioning Settings' on page 78</p>	<p>Run a calibration box to confirm whether the DM3610 is returning accurate dimensions</p> <p>Confirm that all parcels passing under the DM3610 are cuboidal</p> <p>Determine whether the parcel material may be causing the problem (i.e. Specular)</p> <p>Replace the DM3610</p>
BOX_STACKED	<p>Multiple parcels are in the DM3610 scanning area at the same time</p>	<p>Confirm that the packages are singulated when passing under the DM3610 scan line</p>
BOX_SYSTEM_FAULT	<p>Temperature compensation or scan rate fault. This is indicated on the user interface 'Diagnostics Monitor' on page 121.</p>	<p>Replace the DM3610</p>

Error Code(s)	Possible Cause	Corrective Action
BOX_TOL_FAIL_LENGTH	<p>Incorrect tachometer (encoder) signal</p> <p>Package rubbing on the side rail causing it to go slower through the DM3610 scan line</p> <p>Parcels are larger than the maximum package size settings found in 'Modify Settings Dimensioning Settings' on page 78.</p>	<p>On the user interface 'Diagnostics Monitor' on page 121 check the belt speed and confirm that it matches the actual belt speed</p> <p>Confirm that the parcels are within the min/max ignore range on the configuration page</p> <p>Run a calibration box to confirm whether the DM3610 is returning accurate dimensions</p> <p>Run 'Diagnostics Dim-View' on page 123 in the user interface to determine whether the DM3610 is detecting packages</p> <p>Run the 'Modify Settings Dimensioning Calibration' on page 81 in the user interface</p> <p>Replace the DM3610</p>
BOX_WRITE_ALIBI_FAIL	DM3610 Internal malfunction	Replace the DM3610

Error Code(s)	Possible Cause	Corrective Action
NODIM_BOX_NO_DATA	False object detection by photoelectric sensor	Check photoelectric sensor alignment
	Transmit point occurs before the system has had sufficient time to compute an object's dimensions	Parcels are larger than the maximum package size settings found in 'Modify Settings Dimensioning Settings' on page 78
	The DM3610 may not have completed a parameter change before a package is sent through the system	Adjust transmit point in 'Modify Settings Tach/Trigger/Transmit (Single Head System)' on page 88 Confirm accuracy of the Trigger Reference Point
	Scanner height may be incorrect	Adjust trigger debounce 'Modify Settings Tach/Trigger/Transmit (Single Head System)' on page 88 Run 'Diagnostics DimView' on page 123 to determine if the DM3610 is mounted to low
NODIM_BOX_SIDE_BY_SIDE	Multiple parcels are in the DM3610 scanning area at the same time	Correct material handling problem
	Debris on conveyor surface or surface has irregularities (bumps)	
Not READY	The DM3610 is mounted where the external temperature exceeds the unit's rated temperature	Confirm ambient temperature is within acceptable range Replace the DM3610
Legal for Trade: NOT-READY, Status = 0x800001	The DM3610 is mounted where the external temperature exceeds the unit's rated temperature	Confirm ambient temperature is within acceptable range Replace theDM3610
LFT_CERT_MODE_OFF	Certification mode is set in the off state	Turn on certification mode in 'Modify Settings Dimensioning Settings' on page 78

TROUBLESHOOTING

Error Code(s)	Possible Cause	Corrective Action
LFT_ALIBI_OPEN_FAIL	Alibi memory storage failed	Cycle power on the DM3610
LFT_ALIBI_WRITE_FAIL		Monitor to confirm that the problem does not reoccur
LFT_ALIBI_READ_FAIL		Replace the DM3610
LFT_AUDIT_OPEN_FAIL		
LFT_AUDIT_WRITE_FAIL		
LFT_AUDIT_READ_FAIL		
LFT_DSP_COMPONENT_INVALID	Internal memory failure	Confirm that the software has not changed
LFT_FPGA_COMPONENT_INVALID	May occur after software upgrade	Cycle power on the DM3610 Replace the DM3610
LFT_LIBRARY_COMPONENT_INVALID		
LFT_COMPONENT_SIGNATURE_FILE_FAIL		
LFT_PARAMETER_SET_INVALID		
LFT_CALIBRATION_PARAMETER_SET_INVALID		
LFT_CLOCK_FAULT LFT_CLOCK_DATE_FAULT	The internal Real Time Clock failed	Replace the DM3610
LFT_CONVEYOR_SPEED_FAULT	Tachometer signal is not present or is sporadic	Check tachometer mounting and connections Check tachometer's settings in 'Modify Settings Tach/Trigger/Transmit (Single Head System)' on page 88 Replace the DM3610
LFT_MOTOR_SPEED_FAULT	Scanning motor failed or is not regulated	Replace the DM3610

Error Code(s)	Possible Cause	Corrective Action
LFT_TEMP_COMP_FAULT	The DM3610 is determines that the ambient temperature is fluctuating and it is unable to compensate for the change	Confirm that the DM3610 is not mounted where there is a sudden and drastic change in temperature Replace the DM3610
LFT_UNIT_SKEW_FAULT	The DM3610 has determined that the left/right ignores are not where they were original calculated	Using the static calibrations steps, make sure that the DM3610 tilt, pitch, and skew mounting is correct 'Modify Settings Dimensioning Calibration" on page 81 Run both Static and Dynamic calibration on the DM3610
LFT_UNIT_HEIGHT_FAULT	The DM3610 is calculating that it is not level with the conveyor surface	Check that the DM3610 is mounted correctly above conveyor surface. If it is not, preform both the Static and Dynamic calibration If the mounting bracket is mounted in the correct orientation above the conveyor, replace the DM3610
LFT_INTERNAL_TACH_MODE	The DM3610 tachometer source is set to Constant/Internal in 'Modify Settings Tach/Trigger/Transmit(Single Head System)" on page 88	Change tachometer setting to Hardware/External in 'Modify Settings Tach/Trigger/Transmit (Single Head System)" on page 88
ID_SEND_BUFFER_ON_AUX_PORT Fail (11) (16)	No Backup Module in CBX connection box or Backup Module failed	Install or replace the Backup Module in the CBX connection box Change RS232 Mode in 'Serial Main/Aux" on page 105 to RS232 Direct.
BOX_BAD_JAC_CHOL	DM3610 Internal malfunction	This error may occur randomly.
BOX_BAD_CHOL		If the error continues to occur then replace DM3610
BOX_SIZE_CORRECTION_ERROR		

CHAPTER 8

TECHNICAL FEATURES

DM3610 DIMENSIONER FEATURES AND SPECIFICATIONS

ELECTRICAL FEATURES

Power Requirements	24VDC +/- 10%
Power Consumption	19 W Average (75 W Max) based on 600 scans/second
Communication Interfaces	Ethernet (TCP/IP), RS232/ RS422 (RS485 for custom only)
Inputs	(1) Tachometer, (1) Trigger, (2) SW programmable general purpose

OPTICAL FEATURES

Wavelength	Visible laser diode (red) 658 nm typical
Safety Class	Class 3R - IEC60825-1; Class 1 - CDHR with adapter

DIMENSIONING FEATURES

Dimensioning Accuracy	<ul style="list-style-type: none"> ▪ NTEP/ ± 0.20" for length and width and ± 0.10" for height ▪ OIML ± 5.0 mm for length and width, ±2.0 for height
Conveyor Speeds	Up to 3.15 m/s [620 fpm]
Box Size (maximum)	L 2500 mm [98"] x W 1200 mm [48"] x H 1000 mm [40"]
Box Size (minimum)	<ul style="list-style-type: none"> ▪ NTEP L 2.4" x W 2.4" x H 1.2" ▪ OIML L 50 mm x W 50 mm x H 20 mm

USER INTERFACE

Status Indicators	LEDs - STATUS, TRIGGER, TACH, READ, RX/TX, NETWORK, DIMENSION STATUS INDICATORS
Keypad	3 keys
Programming	On board HTML web server interface

ENVIRONMENTAL FEATURES

Temperature	Operating: 0° to 50° C [32° to 122° F] Storage: -20° to +70° C [-4° to +158° F]
Relative Humidity	10-90% non-condensing

PHYSICAL FEATURES

Overall Dimensions	L 279 mm [11.0"] x W 152 mm [6.0"] x H 175 mm [6.9"]
Mounting Dimensions	L 340 mm [13.39"] x W 182 mm [7.15"] x H 281 mm [11.07"]
Weight	5.5 kg [12 lbs.]
Enclosure	IP 65, Aluminum

OPTIONS AND WARRANTY

Options	Side-by-side package detection, irregulars, out-of-gauge detection
Service Options	Installation services and on-site training
Warranty	2-year limited, parts and labor

APPENDIX A: LEGAL FOR TRADE REQUIREMENTS

ABOUT THIS DOCUMENT

The DM3610 has been certified for legal-for-trade applications including:

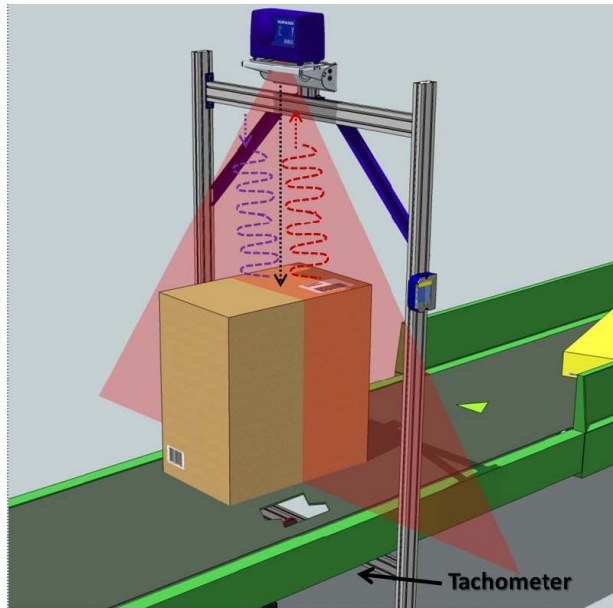
- NCWM/NTEP (National Conference on Weights and Measure)
- OIML R129 (International Organization of Legal Metrology)
- MID (Measuring Instruments Directive)
- Measurement Canada

This document outlines some system requirements for the DM3610 Dimensioner. The requirements outlined in this document include, but are not limited to the following:

- Object surfaces
- Object colors
- Object shapes
- Conveyor Types
- Conveyor Breaks
- Conveyor Speed
- System Mounting

HOW THE DM3610 WORKS

To find sizes of the scanned objects the DM3610 measures distances to points of an object surface. The distances are measured by calculating the time it takes for the laser light to go from the Dimensioner to the point on the scanned object surface, and back from that point to the Dimensioner.



The surface points of scanned objects are NOT being captured by a Dimensioner all at once, as by a camera. Like most laser scanners the DM3610 provides fast capture of only the intersection of the laser light plane with an object surface, which looks like a laser stripe on the object. Scanning of the complete object surface is provided by conveyor belt motion. Conveyor belt position is identified by a mechanical tachometer, which reports to the Dimensioner. Therefore it is critical that the scanned object does not move relative to the conveyor belt. If for any reason scanned objects slip, jump or shake relative to the conveyor belt, then the Dimensioner has no way to know the exact position of the scanned object and the dimensions will be compromised.

These principles of operation, common to most dimensioners, result in limitations to what can be dimensioned and what the conveyor systems and mounting structures can be, as well as the surface properties of the scanned objects.

Encoder Requirements

The DM3610 system must have an encoder/tachometer, or other speed detector to measure the object velocity. The speed detector is part of the metro logically-relevant measurement chain. For LFT applications, use only devices indicated in the relevant certificate.



An LFT DM3610 can not be set to internal tachometer.

DM3610 SYSTEM REQUIREMENTS

Conveyor Limitations

The dimensioning system must be installed on a continuous flat section of belt conveyor.

The section of conveyor dedicated to an LFT dimensioning system must be at least 2.5 times the length of the longest parcel to be measured by the system. The conveyor belt should be supported by a steel pan or other mechanical structures such that the flat-

ness is maintained. The system must be placed such that the longest parcel is fully supported by the appropriately flat conveyor for its full travel length through the dimensioning line(s).

We do not suggest the positioning of dimensioning systems where there are breaks in the conveyor, or transitions from one belt to the next. It is difficult to guarantee the complete mechanical requirements for these types of material handling systems. If the dimensioning system must be placed where these breaks exist, it is important for the two belts to be level and moving at the same speed. Uneven levels and inconsistent speeds can cause the object to move while the object is in the dimensioning area. Objects rotating, vibrating, swaying and slipping on the conveyor system and uneven transport surfaces reduce the accuracy and result in measured degradation of the DM3610 system.

Be aware that stops and starts of the conveyor can affect dimensioning performance too, e.g. if the objects on the conveyor rock, slide, or otherwise move in a different direction/speed from the conveyor stop/start.

DM3610 Mounting Requirements

The DM3610 mounting structure must be mounted on a solid platform/floor that does not vibrate or oscillate.

Particular attention has to be paid when the installation is on mezzanines whose structure is not rigid enough. A practical way to check for unacceptable vibration is to look for visible oscillation of the laser beam onto the conveyor surface.



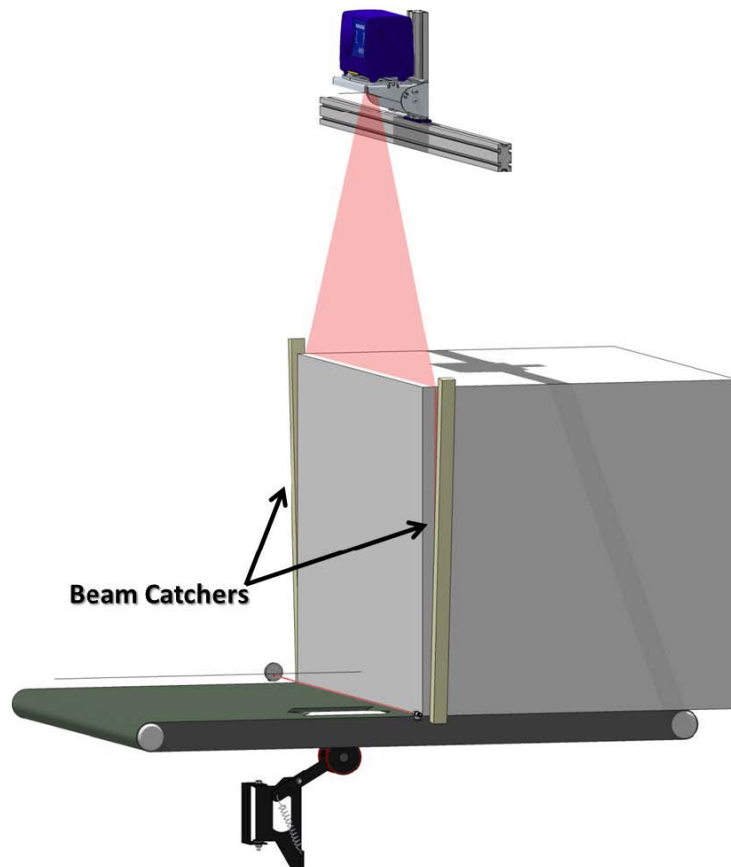
Beam Catchers

Another important requirement is to keep the laser beams inside the application area. Datalogic provides accessories called “beam catchers” to assist in containing the laser lines during system installation.

The DM3610 uses a so-called “phase method” variation of the time-of-flight (TOF) approach, and therefore has an “unambiguous range of distances” equal to 2.4 meters. This means that any distance larger than this range will be measured by modulo of 2.4 meters.

Height and width of the objects dimensioned by our customers usually are less than this limit, and there are no problems. However, the problems arise when the dimensioner can see remote stray objects at the sides of the conveyor belt, or can see remote stray objects through gaps in the conveyor.

Distances to those stray objects will be mapped inside the legitimate 2.4m range. Points of stray objects intermingle with points of legitimate scanned objects, causing confusion. The problem is exacerbated by the small amplitude of stray object reflections, leading to huge noise in the measured distances. The proper way to avoid reflections from the stray objects is to use “beam catchers”. These are obstacles which limit distances the Dimensioner laser light can travel to less than 2.4 meters. Dimensioner installation specialists must provide the appropriate “beam catchers.”



WHAT THE DM3610 CAN ACCURATELY MEASURE

DM3610 systems are able to measure Cuboidal (Single Head) and Irregular shaped objects (Double Head). Objects must be rigid. If they are not rigid, be aware that the dimension results may vary each time they are measured by the system. Objects must also be fully opaque, and within the DM3610’s minimum and maximum reflectivity limits.



The illustrations that follow show two head configurations. The same guidelines apply to single DM3610 systems.

Non-Rigid Objects

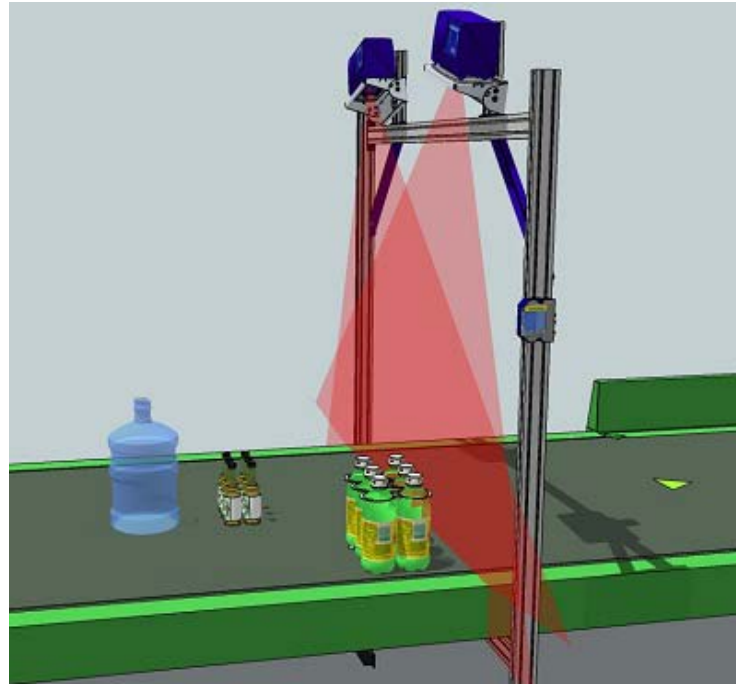
The DM3610 can measure non-rigid objects, shipping bags for example. It is important to note that the dimension results will be inconsistent, changing depending on how the object is placed on the conveyor, the position of the bag's contents, etc. It is the operator's responsibility to manage this in the LFT application.



Surfaces of Transparent Objects

As DM3610 dimensioning is based on finding object surface points by the reflection of laser light from a surface, transparent objects cannot be dimensioned properly. For example, an attempt to dimension a transparent bottle with transparent liquid inside would not be successful. In this case the laser light goes through the liquid inside the bottle, and reflects from the belt on which the bottle stands. Speed of light in the water is also slower than speed of light in the air, so the laser light travel time exceeds the

laser light travel time to the belt through the air. The bottom of the bottle would appear to be below the belt on which the bottle stands. See illustrations below.



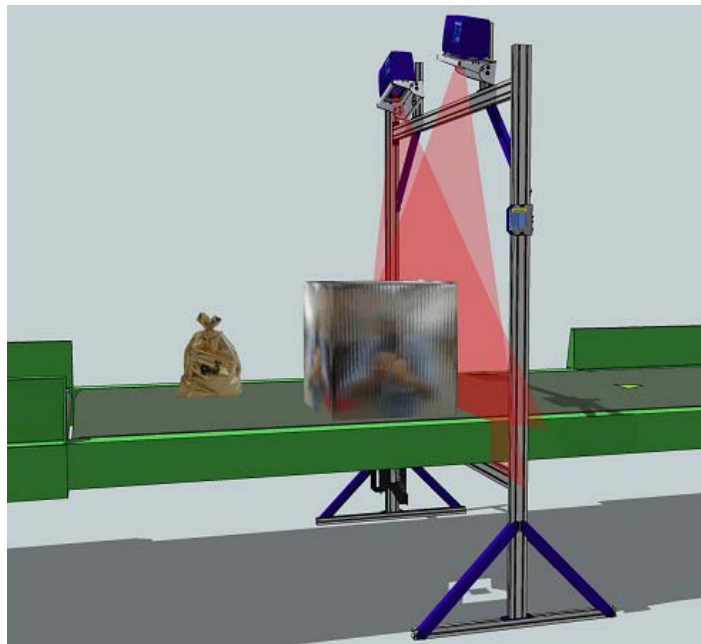
Mirror Like or Reflective Surfaces

Other materials that can have a negative effect on the dimensioning results are those that have surfaces with too much reflectivity.

If the Dimensioner's laser light hits a mirror-like surface, it is not necessarily reflected back to the Dimensioner, but can continue to travel further, until it hits some opaque object surface. Then the laser light goes back to the mirror-like surface, and from there it returns to the Dimensioner. In this case the Dimensioner is measuring the distance to that opaque surface, not the mirror like surface of the object to be dimensioned.

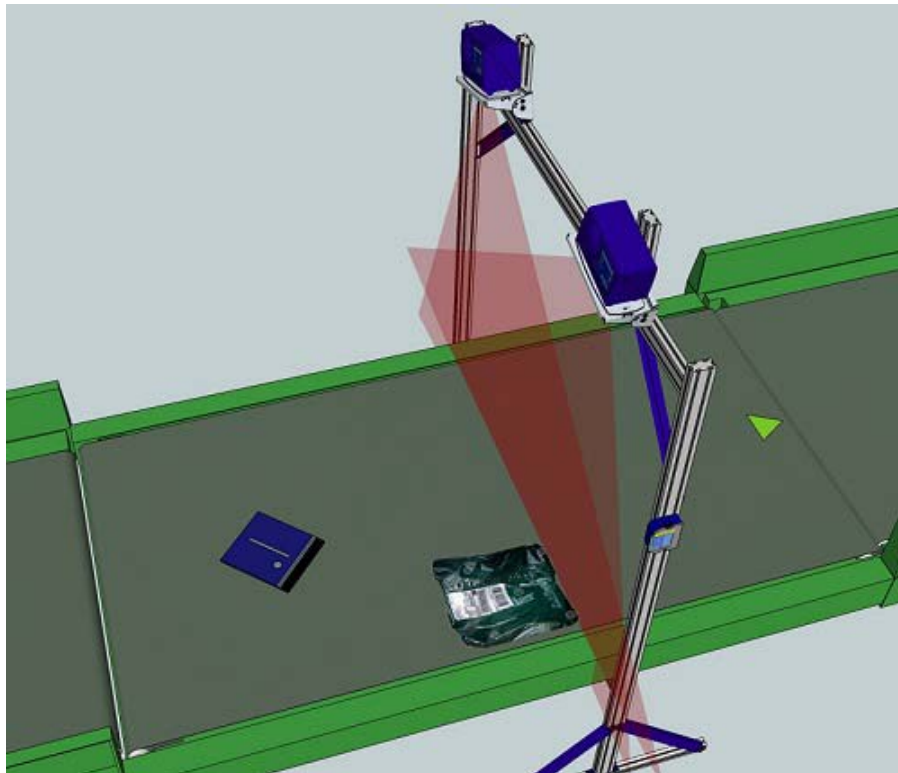
As stated by the DM3610's various LFT certificates, objects to be dimensioned must be opaque, which implies that not only transparent objects, but also highly-reflective objects may not be suitable for LFT measurement.

Mirrors themselves, cannot be scanned. Unfortunately, some objects, which are not considered mirrors, behave very much like mirrors. A prominent example of such an objects are shown here; a cube of corrugated aluminum and a shipping bag, both with shiny reflective surfaces.



Dark, Blue and Green Surfaces

If the surface of an object is not reflective enough, it may also have a negative impact on the dimensioning results. Normal ambient light consists of red, green and blue components. The DM3610 uses a red laser to measure distances. Blue, green and black objects generally absorb, rather than reflect, that red laser light. Objects with reflectivity below 10% may not be suitable for LFT measurement.



FINAL CONSIDERATIONS

Only when all the above requirements have been met will conditions be suitable for LFT applications.

When using the DM3610 for LFT applications, it is the responsibility of the user to observe all the applicable national laws. Datalogic can provide support with this, however this support does not substitute nor constitute legal advice.

It is the responsibility of the user to check local regulations and establish their internal Standard Operating Procedures (SOP) consistent and compliant with the national laws that allow LFT operation of the system in their region.

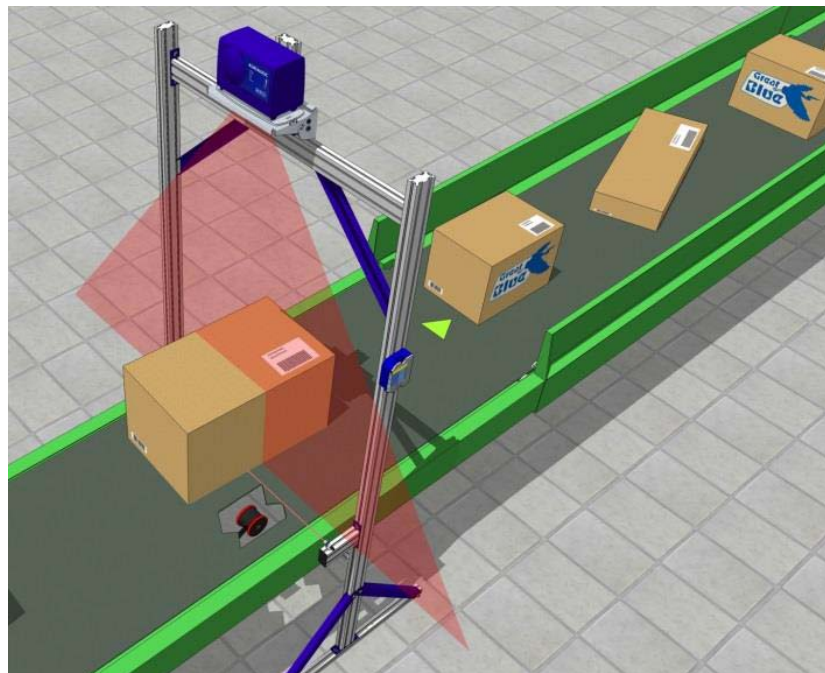
APPENDIX B: SIDE-BY-SIDE REQUIREMENTS

ABOUT THIS DOCUMENT

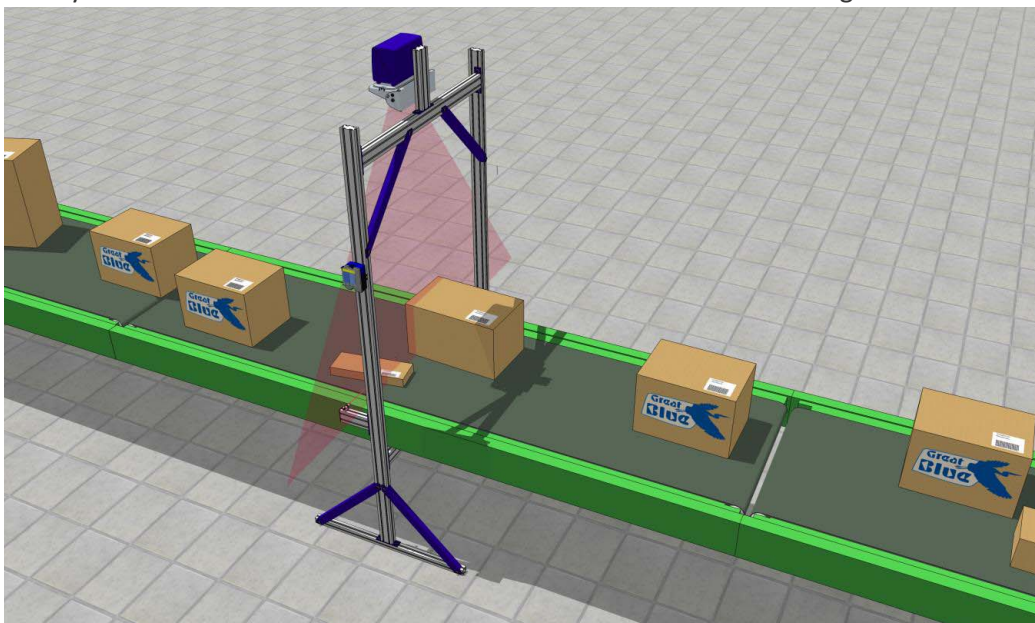
This document explains how to set up DM3610 side-by-side detection and some of the operational requirements for side-by-side conditions within DM3610 applications.

DM3610 SIDE-BY-SIDE DETECTION

In a “singulated” material handling system, parcels are separated by at least the minimum spacing distance along the direction of travel; there is at most one parcel across the conveyor at a time; therefore there is only one parcel present during a trigger cycle. A trigger is typically generated by a photoeye or a hardware signal from the sorter.



In a singulated system, a **Side-by-Side (SBS)** is an error condition in which these conditions are violated. The end-user wants to know when this happens (when their parcel flow has inadvertently become “non-singulated”), and Datalogic systems can tell them this by means of an SBS indicator in the Serial or Ethernet “host message.”



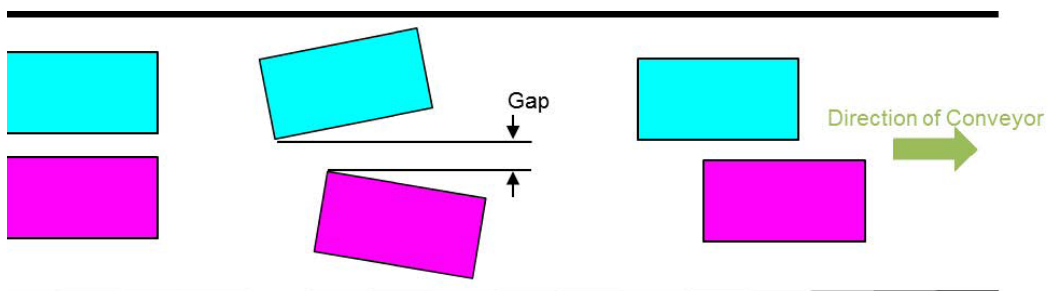
How Side-by-Side Detection Works

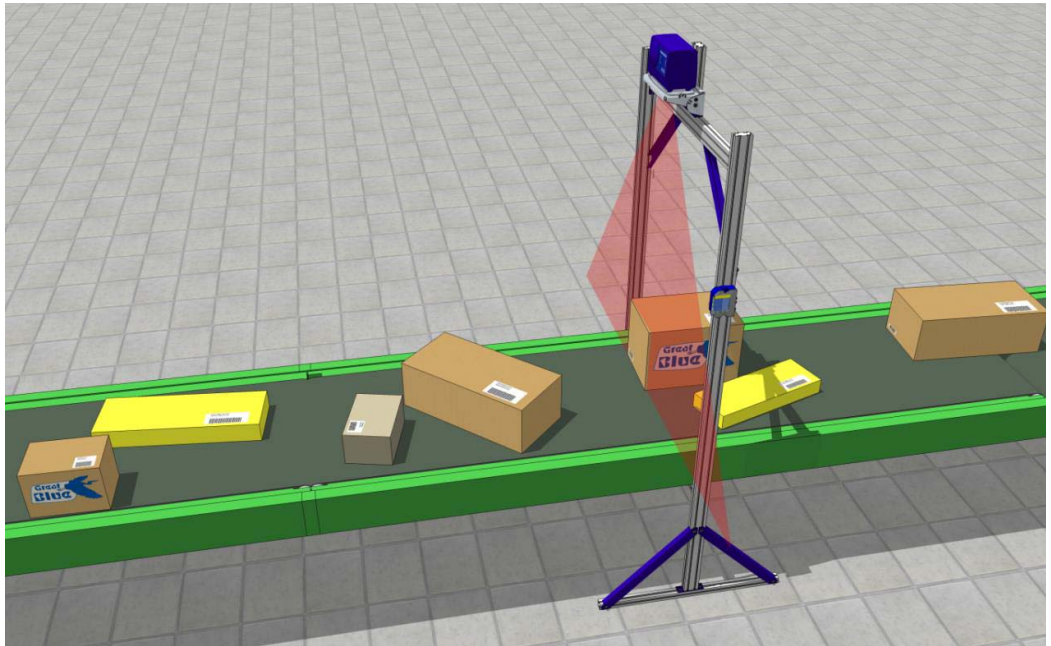
DM3610 Side-by-Side Detection relies on the parcels being “cuboidal”.

SBS parcels can be identified in one of three ways:

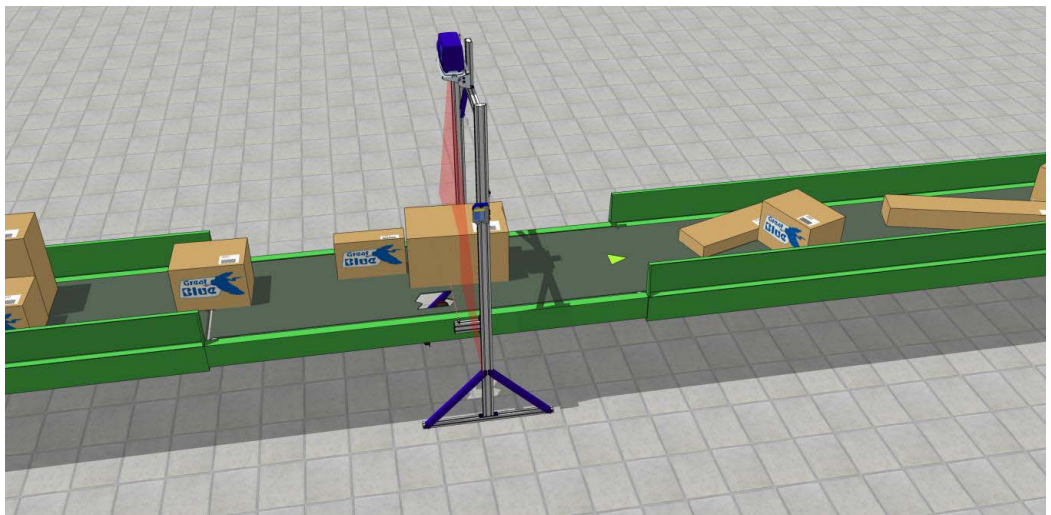
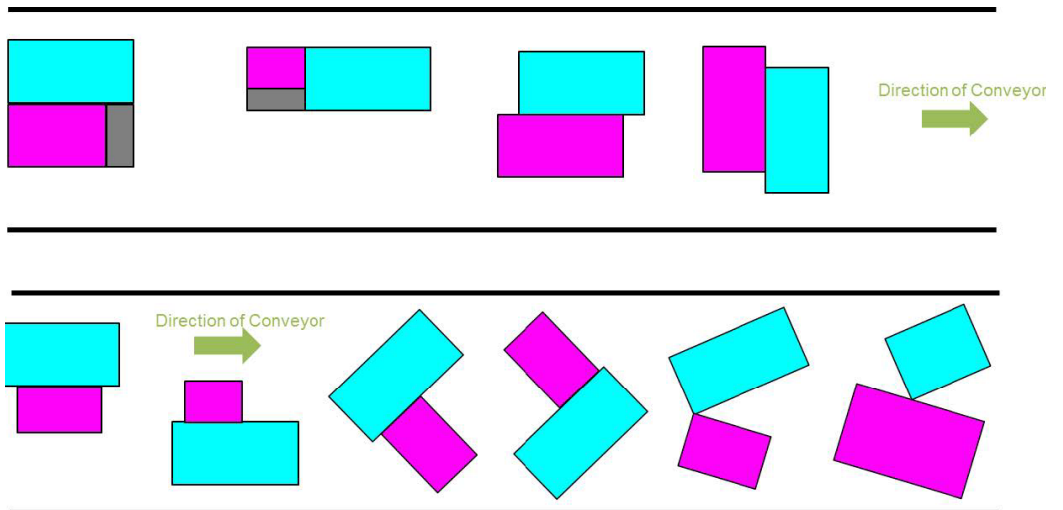
- If there is enough **GAP** between parcels
- If parcels are touching, is there a **SHIFT/OFFSET** between them
- If parcels are touching, is there a **HEIGHT DIFFERENTIAL**

Examples of Gap

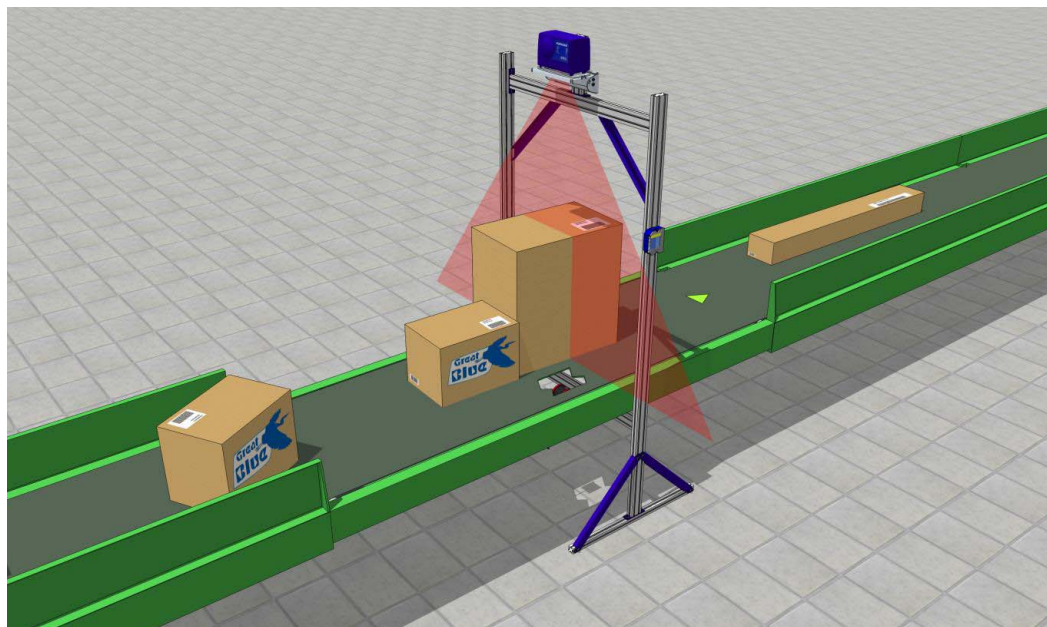
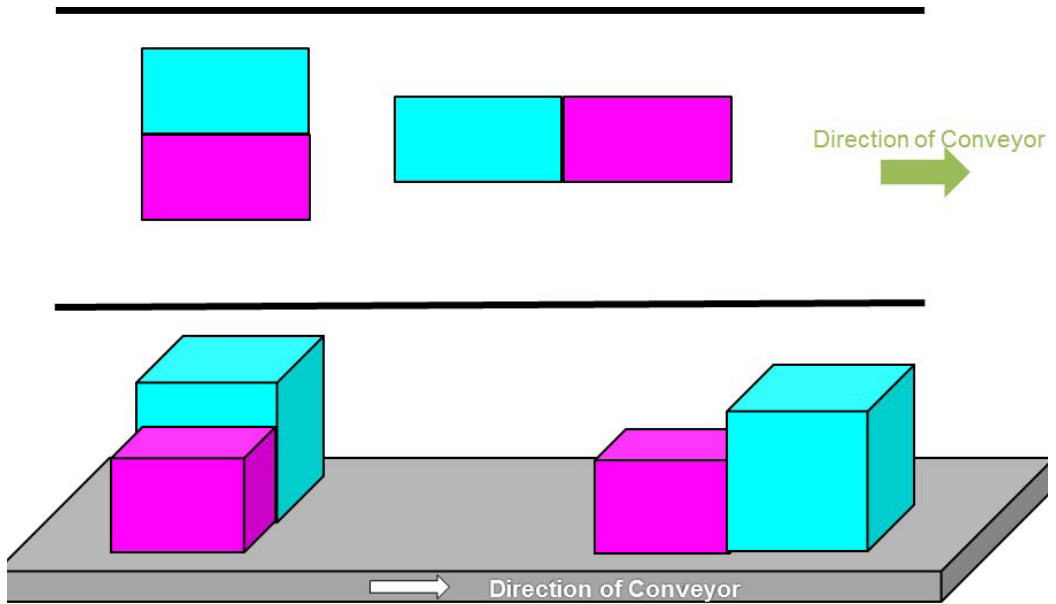




Examples of Shift/Offset



Examples of Height Differential



The amount of gap, height differential, or shift/offset needed to detect an SBS condition can vary, as there are infinite permutations of parcel sizes, positions, orientations, and shapes, along with environmental conditions. As such Datalogic makes no guarantees about exact numbers.

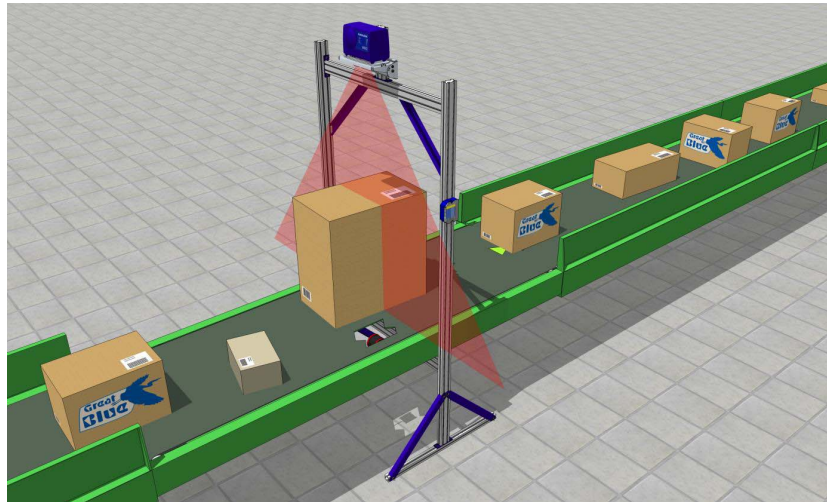
If there is little or no gap, height differential, or shift/offset, it is understood that there is nothing that can be done by the system. In these cases, the hope is that a multiple barcode read will indicate the problem to the end user.

LIMITATIONS OF USE

The Appendix A: *DM3610 LFT Requirements* describes in detail the DM3610's principles of operation and the necessary conditions for / limitations on accurate parcel dimensioning. These principles and conditions/limitations apply equally to accurate side-by-side detection. Some of these topics – parcel shape, reflectively and motion – are discussed below.

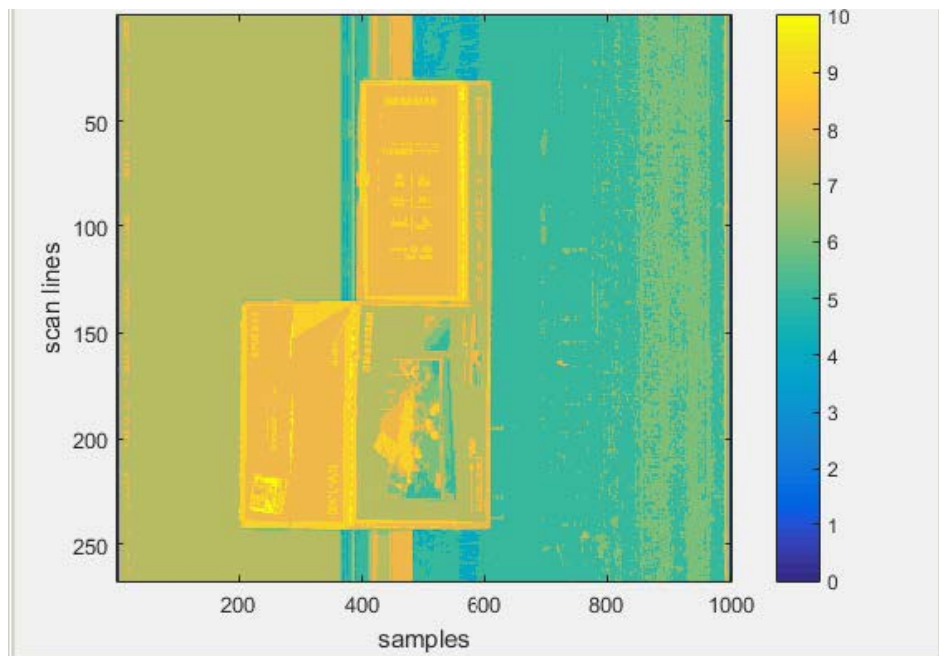
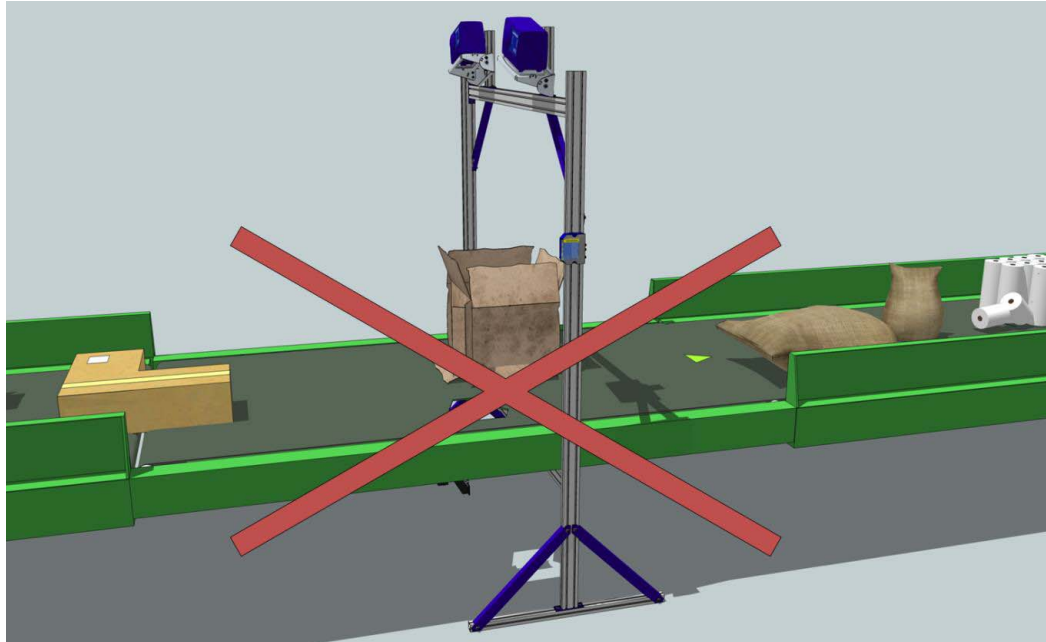
Parcel Shape

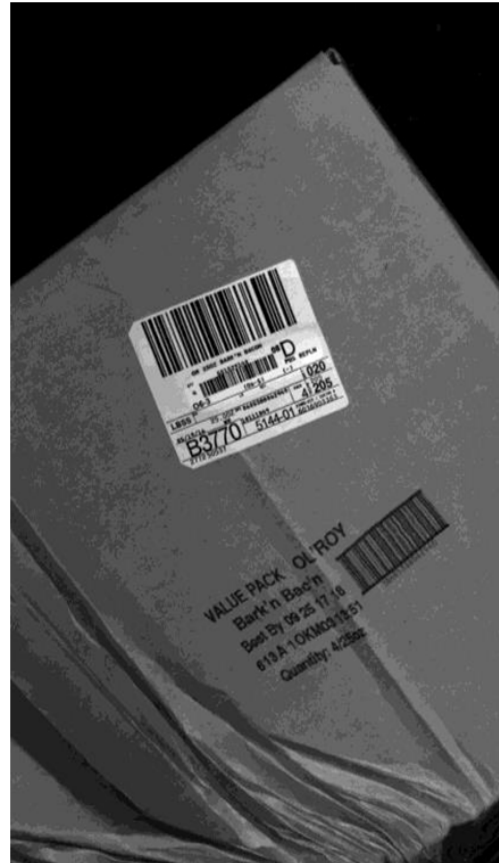
A “DIM-in-Head” system consists of a standalone DM3610 mounted over the center of the conveyor. The dimensioning computations and SBS determinations are done entirely within the DM3610, which is known as the “head.” These systems are meant for **cuboidal parcels only**.





The DM3610 “DIM-in-Head” system cannot accurately make SBS determinations on “non-cuboidal” or “irregular” objects. Non-cuboidal/irregular objects can present as all manner of shapes that would confuse the SBS algorithms into flagging a false positive. Because of this they are not officially supported. Examples of Unsupported Parcels include but are not limited to Bags, partially Open or Open Boxes, Open Totes, Damages or Crushed Boxes, L-Shaped Boxes, etc.





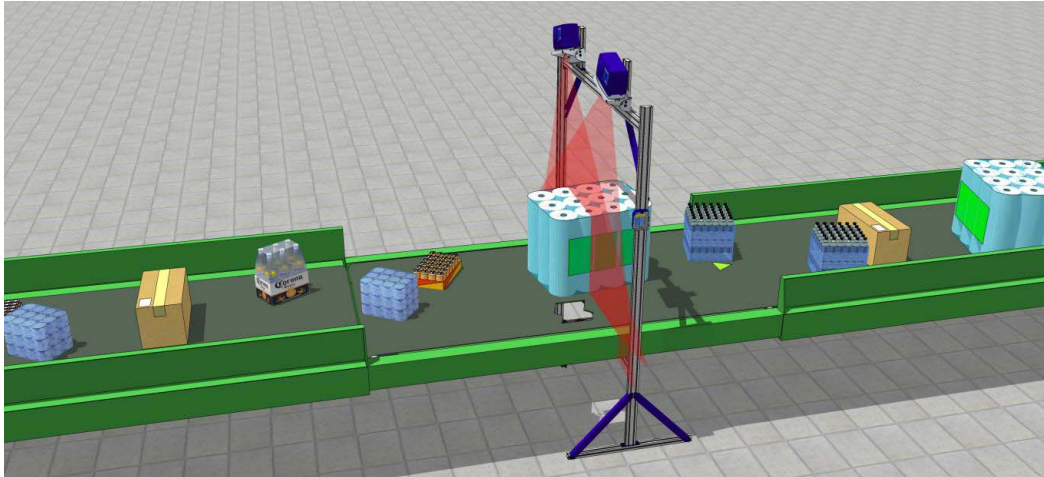
Even if the SBS determination is a false positive, there are many scenarios in which this could be viewed as a benefit. For example, this can serve as an indication of a damaged parcel that would otherwise go undetected.

False Positives can help identify Loose Items or Damaged Packages.



Multi-Head Systems Only

The standard multi-head system (two x-rotated DM3610s and a DC3000 controller) was designed and certified for irregularly shaped parcels and, as such, can handle dimensioning and SBS condition determinations on **both cuboidal and “near-cuboidal” objects**, e.g. shrink-wrapped cases of “retail” items.



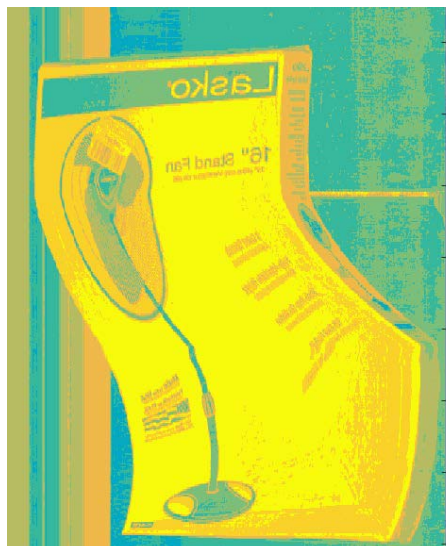
Reflectivity

Very dark black, blue, or green parcels (too low reflectivity) and very shiny or mirror-like parcels (too high reflectivity) can negatively impact the performance of the SBS detection, causing false positives. It is also understood that performance on transparent parcels (e.g. sparsely decorated cases of water bottles) will vary and, in many cases, not work at all.



Motion

Parcels must be conveyed in a consistent manner to prevent spinning/bouncing/sliding/slipping/shifting/rocking/rolling/wobbling while being scanned. Otherwise, determining parcel dimensions, as well as SBS conditions, can be negatively impacted.



SIDE-BY-SIDE DETECTION ACCURACY

Side-by-Side detections can be classified as one of the following:

- A **true positive** is one that detects a SBS condition when a SBS condition is present.
- A **true negative** is one that does not detect a SBS condition when a SBS condition is absent.
- A **false positive** is one that detects a SBS condition when a SBS condition is absent.
- A **false negative** result is one that does not detect a SBS condition when a SBS condition is present.

The goal is to maximize true positives/negatives while minimizing false positives/negatives. However, this is ALWAYS a balancing act, especially in certain environments/applications, e.g. those with very diverse parcel flow.

In some applications the desired minimum gap, height differential, or shift/offset is not always achievable. Or the “limitations of use” cannot be met in a certain application. Whatever the case may be, Datalogic personnel will work with you to maximize the performance of your system.

ADVANCED SETTINGS

Distinguishing SBS conditions with non-touching, amply-spaced parcels can be done with no special settings.

It is much more difficult to make SBS determinations when two (or more) parcels are touching or nearly touching. By enabling “Advanced Settings” in the **Dimensioning | Side-by-Side Detection** e-Genius page, various additional/non-default methods (e.g. corner counting, histogramming, etc.) can be enabled to help aid in making SBS determinations.

The parameters defined under Advanced Settings are intended for “Datalogic Engineering” use only. The details of these settings are outside the scope of this document. There are, however, various “Default” options that can start you off in the right direction:

- **Default (Strict):** enables advanced SBS settings that aim to detect SBS conditions with minimal gap, height differential, and shift/offset. This is a good starting point if the parcels in your application are “good cuboidals” only.

Advanced Settings

MAP	<input type="text" value="0"/>
CORNERS	<input type="text" value="1"/>
MINDIST	<input type="text" value="0.6"/>
CORNDIST	<input type="text" value="1.5"/>
MAXCORN	<input type="text" value="8"/>
TRAPEZOID	<input type="text" value="1"/>
SLOPETHRESHHI	<input type="text" value="7.5"/>
SLOPETHRESHLO	<input type="text" value="2"/>

Exclusion List

Box#	Length (in)	Width (in)	Height (in)	Tolerance (in)	Count	Last Access	
1	<input type="text" value="0"/>	<input type="text" value="0"/>	<input type="text" value="0"/>	<input type="text" value="0"/>	<input type="text"/>	<input type="text"/>	<input type="button" value="Remove"/> <input type="button" value="Add"/>

- **Default (Loose):** enables advanced SBS settings that aim to detect SBS conditions, while minimizing false positives. This is a good starting point if the parcels in your system are more diverse, i.e. not only good cuboidals.

Advanced Settings

MAP: 0
 CORNERS: 1
 MINDIST: 0.5
 CORNDIST: 4.5
 MAXCORN: 8
 TRAPEZOID: 0

Default (Strict) Default (Loose) Default (Off)

Exclusion List

Box#	Length (in)	Width (in)	Height (in)	Tolerance (in)	Count	Last Access
1	0	0	0	0		

Remove Add Update Reset

- **Default (Off):** disables all advanced SBS settings.

Advanced Settings

MAP: 0
 CORNERS: 0

Default (Strict) Default (Loose) Default (Off)

Exclusion List

Box#	Length (in)	Width (in)	Height (in)	Tolerance (in)	Count	Last Access
1	0	0	0	0		

Remove Add Update Reset

Exclusion List

In the Side-by-Side settings window, the DM3610 allows you to populate an **Exclusion List** with known parcel sizes. Any parcel within the “tolerance” of these sizes will not be subject to the various SBS checks. This can be very useful if certain parcels frequently cause false positives, e.g. certain “L-shaped” boxes.

A similar Exclusion List is available in the AV7000 camera system, but by barcode content instead of parcel size.

Up to 25 entries can be made in this table. To be a valid entry, Tolerance must be greater than zero, and one or more of Length, Width, or Height must be greater than zero.

Only when all entries are valid will the web-page provide room at the end of the list for the addition of a new entry.

Exclusion List

Box#	Length (in)	Width (in)	Height (in)	Tolerance (in)	Count	Last Access
1	0	0	0	0		

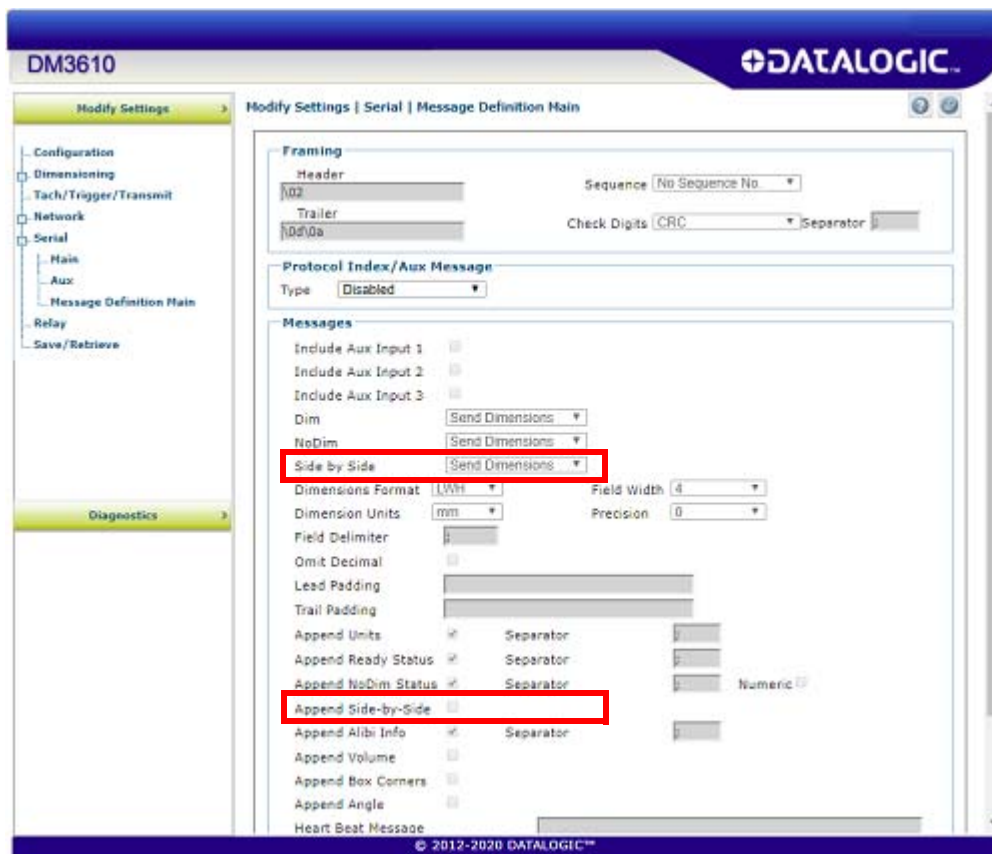
Remove Add

SIDE-BY-SIDE IN THE NETWORK/SERIAL MESSAGE

An SBS condition can be indicated to the end user in the “host message” transmitted by the DM3610 system.

If the Message Format is set to **User Defined Message** for a Network or Serial port, the “**Side-by-Side**” field allows the user to replace the dimensions with a user-defined field, e.g. “!!!!,!!!!,!!!!”

Also, the “**Append Side-by-Side**” check-box can be checked so that, if there is a Side-by-Side condition detected, the indicator “**SBS**” will be appended after the (configurable) separator.



The SBS indicator is also included, by default, within the “Camera Message” and “Datalogic Message” message formats that the DM3610 system sends to other Datalogic devices, e.g. the AV7000 camera system or the SC5000 system controller.

SBS is also considered as a No Dim reason. If “Append NoDim Status” is checked, and a SBS condition is detected, NODIM_BOX_SIDE_BY_SIDE (or 98) will be appended to the message. However this will be hidden from the end user if another, higher-priority NoDim reason also occurred.



NATIONAL TYPE EVALUATION PROGRAM

Certificate of Conformance

for Weighing and Measuring Devices

For:

Multiple Dimension Measuring Device
Model: DM3610 Series
Maximum: (see below)
Minimum: (see below)
d_{min}: (see below)

Submitted By:

Datalogic Automation, Inc.
511 School House Road
Telford, PA 18969
Tel: 215-721-5113
Contact: Anthony Romeo
Email: anthony.romeo@datalogic.com
Web site: www.datalogic.com

Standard Features and Options

Dynamic Dimensioning only

Standard Features: This system consists of a minimum amount of required equipment: one (1100 or 2100) or two (3100) DM3610 (dimensioner heads), one DC3000-xxxx controller (only required for multi-head configurations), one power supply, one tachometer, one photo-eye (optional) and one 2 line by 20 character display (optional).

DM3610 (Single and Dual Head)

Axis ID	d _{min} (in)	Minimum Dimension	Maximum Dimension	Minimum Velocity	Maximum Velocity
Length	0.2	2.4 in	98.0 in	Start / Stop	650 ft/min
Width	0.2	2.4 in	63.0 in *		
Height	0.1	1.2 in	40.0 in		

* For Single Head operation with a maximum dimensioning width of 48 in, the minimum height dimension is 1.2 in and the maximum height dimension is 40.0 in; with a maximum dimensioning width of 63 in, the minimum height dimension is 1.2 in and the maximum height dimension is 32.0 in.

DM3610 (Tilt Tray)

Axis ID	d _{min} (in)	Minimum Dimension	Maximum Dimension	Minimum Velocity	Maximum Velocity
Length	0.2	2.4 in	18.0 in	Start / Stop	620 ft/min
Width	0.2	2.4 in	18.0 in		
Height	0.1	1.2 in	18.0 in		

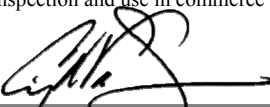
- Minimum Spacing: 1 inch (DM3610-1100 and DM3610-3100, singulated), none (DM3610-2100, non-singulated & touching) and the standard pitch of a tilt tray
- Width= shortest horizontal plane; Length= longest horizontal plane; Height= vertical plane (W&L may also be belt width & length)
- Minimum operating requirements and screen explanations: see the "Operation" section on page 2.

Options:

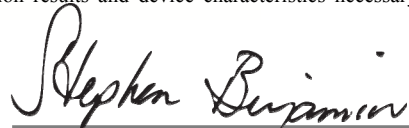
- System may be composed of equipment equal in function as stated in the Standard section. The photo eye is optional and is only used to control the message transmit distance and has no metrological significance. The power supply may be replaced with a similar power supply. The tachometer may be replaced by a tachometer of similar design. The 2 line by 20 character display may be replaced with a similar display.
- An optional bar code scanner(s) or camera(s) may be used with the DM3610 Series. An optional controller may be used to match the bar code data with the dimension data.

Temperature Range: -10 °C to 40 °C (14 °F to 104 °F)

This device was evaluated under the National Type Evaluation Program and was found to comply with the applicable technical requirements of "NIST Handbook 44: Specifications, Tolerances and Other Technical Requirements for Weighing and Measuring Devices." Evaluation results and device characteristics necessary for inspection and use in commerce are on the following pages.



Craig VanBuren
Chairman, NCWM, Inc.



Stephen Benjamin
Committee Chair, NTEP Committee
Issued: April 14, 2020

1135 M Street, Suite 110 / Lincoln, Nebraska 68508

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Datalogic Automation, Inc.

Multiple Dimension Measuring Device / DM3610 Series

Application: The DM3610-1100 and DM3610-2100 are used to calculate the dimensions of opaque cuboidal objects, and the DM3610-3100 is for opaque irregular (non-cuboidal) objects, in a dynamic (conveyor) scenario or Tilt Tray system. The DM3610 Series must work in conjunction with a tachometer. The tachometer generates a pulse signal with a frequency proportional to the speed of the conveyor, which in turn allows the device to calculate the correct measurement along the belt.

Identification: The required information appears on an adhesive badge attached to the top of the of the DM3610 Series housing.

Sealing: The DM3610 Series has a Category 1 physical seal and a Category 3 Audit Trail. The device is physically sealed by provisions for a wire seal.

Operation: The DM3610 Series is a dynamic dimensioning system that mounts over a conveyor system. Cuboidal objects must travel on the conveyor with a minimum 1 inch separation between objects for DM3610-1100 and DM3610-3100 or no spacing for DM3610-2100. For the Tilt Tray sorting system minimum spacing is not applicable due to the design of the system.

- User operation is via a web interface via any Ethernet port.
- Software Identification and version is displayed on the 2 line by 20 character display on power up or on the GUI.
- The 2 line by 20 character display shows dimensioning data for the most recent object. An error condition is indicated on the display.

Function	Software Versions	Head Model Number
Singulated	1.4(x) and newer	DM3610-1100
Non-Singulated/Touching	1.5(x) and newer	DM3610-2100
Irregulars	1.6(x) and newer	DM3610-3100

Test Conditions: This Certificate supersedes Certificate of Conformance Number 13-040PA7 and was issued to increase the maximum belt speed (belt velocity) to 650 ft/min and to reduce the d_{\min} value to 0.1 inch for irregular objects, matching the current d_{\min} of cuboidal objects. For the evaluation of the increased belt speed, a DM3610-1100 controller, with a single head was used to measure 3 test objects. Several length measurements were performed near maximum, near minimum, and near mid-range. For the reduced d_{\min} , a DC3000-1100 controller and two DM3610-3100 heads were used to measure 3 test objects of varying heights with a resolution of 0.1 inch. The emphasis of the evaluation was on operation and performance. No further testing was deemed necessary.

Certificate of Conformance Number 13-040PA7: This Certificate supersedes Certificate of Conformance Number 13-040PA6 and was issued to upgrade the certificate from “Provisional” to “Full”. The original certificate was issued when the “Multiple Dimension Measuring Devices” (MDMD) code in NIST Handbook 44 and NCWM Publication 14 checklist criteria for MDMD devices were under development. The MDMD code in Handbook 44 is no longer a “Tentative Code” and NCWM Publication 14 checklist criteria has been fully developed. NTEP has conducted further evaluation to make sure 2018 Handbook 44 and Publication 14 checklist criteria have been satisfied. Additional information from the certificate holder, data from the manufacturer and testing was done, reviewed and approved as needed. Previous test conditions are listed below for reference.

Certificate of Conformance Number 13-040PA6: This Certificate supersedes Certificate of Conformance 13-040PA5 and is issued to add 0.1 inch resolution to the height for a Tilt Tray system and to add a new profile for Tilt Tray systems. For the purpose of this evaluation, a DC3000-1100 controller and two DM3610-3100 heads, power supply, tachometer, photo-eye and 2 lines by 20 character display on a Tilt Tray sorter were submitted for field evaluation. The emphasis of the evaluation was on operation and performance. Several measurements were performed near maximum, near minimum, and near mid-range for the ranges listed. No further testing was deemed necessary.

Certificate of Conformance Number 13-040PA5: This Certificate supersedes Certificate of Conformance 13-040PA4 and is issued to add Tilt Tray sorting capability. For the purpose of this evaluation, a DC3000-1100 controller and two DM3610-3100 heads, power supply, tachometer, photo-eye and 2 lines by 20 character display on a Tilt Tray sorter were submitted for field evaluation. The emphasis of the evaluation was on operation and performance. Several measurements were performed near maximum, near minimum, and near mid-range for the ranges listed. No further testing was deemed necessary.

**Datalogic Automation, Inc.**

Multiple Dimension Measuring Device / DM3610 Series

Certificate of Conformance Number 13-040PA4: This Certificate supersedes Certificate of Conformance 13-040PA3 and is issued to increase Maximum Dimension width and height. For the purpose of this evaluation, a DC3000-1100 controller and two DM3610-3100 heads, power supply, tachometer, photo-eye (is optional and was only used to show its function) and 2 lines by 20 character display were submitted for evaluation. The emphasis of the evaluation was on operation and performance. Several measurements were performed near maximum, near minimum, and near mid-range for the ranges listed. No further testing was deemed necessary.

Certificate of Conformance Number 13-040PA3: This Certificate supersedes Certificate of Conformance 13-040PA2 and is issued to add an irregular singulated model. For the purpose of this evaluation, a DC3000-1100 controller, two DM3610-3100 heads, power supply, tachometer, photo-eye (is optional and was only used to show its function) and 2 line by 20 character display were submitted for evaluation. The emphasis of the evaluation was on operation and performance. Several measurements were performed near maximum, near minimum, and near mid-range for the ranges listed. No further testing was deemed necessary.

Certificate of Conformance Number 13-040PA2: This Certificate supersedes Certificate of Conformance 13-040PA1 and is issued to increase the temperature range and to add a non-singulated / touching model. For the purpose of this evaluation, a DM3610-2100, power supply, tachometer, photo-eye (is optional and was only used to show its function) and 2 line by 20 character display were submitted for evaluation. The emphasis of the evaluation was on operation, performance, and compliance with influence factor requirements. Several measurements were performed near maximum, near minimum, and near mid-range for the ranges listed. The device(s) were tested over a temperature range of -10 °C to 50 °C (14 °F to 122 °F). No further testing was deemed necessary.

Certificate of Conformance Number 13-040PA1: This Certificate supersedes Certificate of Conformance 13-040P and is issued to correct the minimum velocity stated on the table on Page 1. The device was initially tested at a speed of 1 foot per minute.

Certificate of Conformance Number 13-040P: For the purpose of this evaluation, a DM3610-1100, power supply, tachometer, photo-eye (is optional and was only used to show its function) and 2 line by 20 character display were submitted for evaluation. The emphasis of the evaluation was on device design, marking, operation, performance, and compliance with influence factor requirements. Several measurements were performed near maximum, near minimum, and near mid-range for the ranges listed. The device(s) were tested over a temperature range of -10 °C to 50 °C (14 °F to 122 °F). Measurements were also conducted with power supplies of 16 VDC and 24 VDC.

NOTE: This Certificate is issued as a provisional NTEP Certificate of Conformance (CC). This evaluation is based on the current draft checklist, procedures and technical policy contained in NCWM Publication 14 for this device type. When work on the NCWM Publication 14 section for this device is completed, the test report and this NTEP CC will be reviewed. If all current requirements have been met by this evaluation, the provisional status will be removed

Evaluated By: J. Morrison (OH) 13-040P, 13-040PA1, 13-040PA2, 13-040PA3; J. Gibson (OH), M. Kelley (OH) 13-040PA4; J. Morrison (OH) 13-040PA5, 13-040PA6; D. Flocken (NTEP) 13-040A7, 13-040A8

Type Evaluation Criteria Used: *NIST Handbook 44 Specifications, Tolerances, and Other Technical Requirements for Weighing and Measuring Devices*, 2018 Edition. *NCWM Publication 14 Weighing Devices*, 2018 Edition.

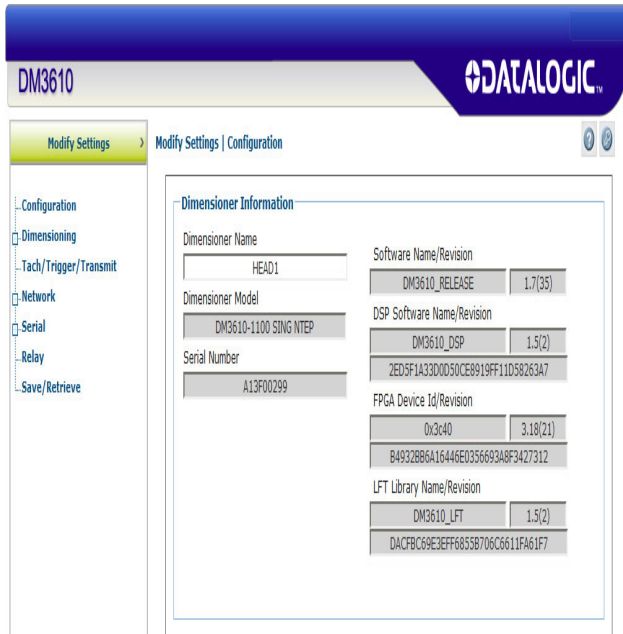
Conclusion: The results of the evaluation and information provided by the manufacturer indicate the device complies with applicable requirements.

Information Reviewed By: J. Truex (NCWM) 13-040P, 13-040PA1, 13-040PA2, 13-040PA3, 13-040PA4, 13-040PA5, 13-040PA6, 13-040A7; D. Flocken (NCWM) 13-040A8



Datalogic Automation, Inc.
Multiple Dimension Measuring Device / DM3610 Series

Examples of Device:



DM3610-1100 Software Configuration

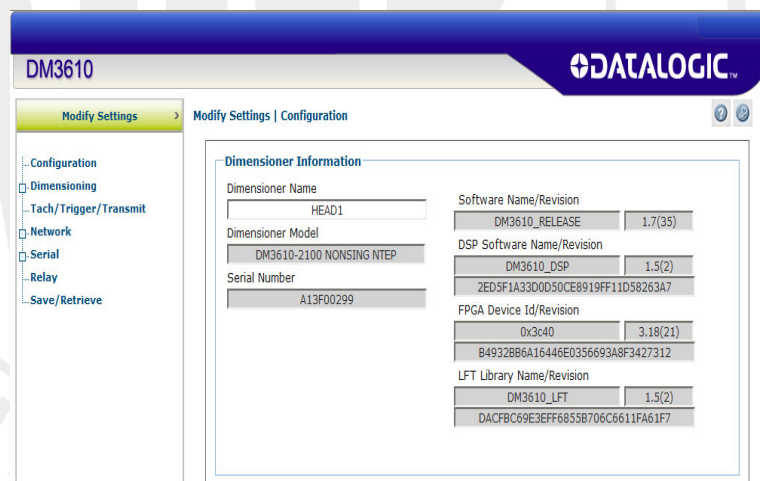
DM3610

DIMENSIONING SYSTEM



DATALOGIC™

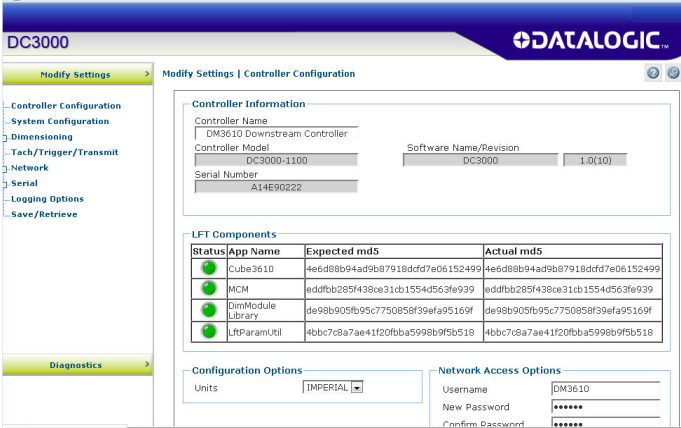
DM3610-2100 Dimensioner Head



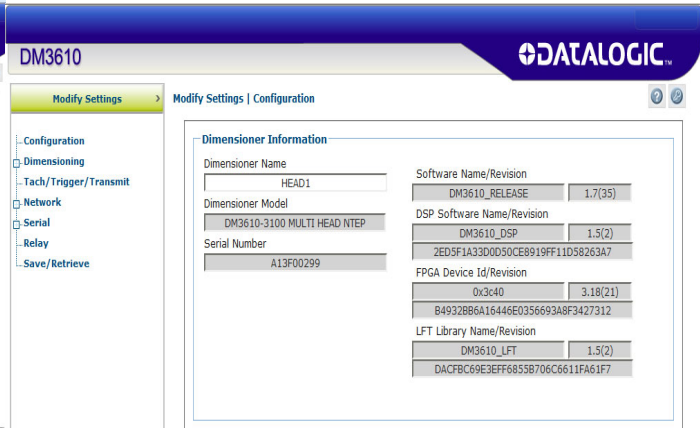
DM3610-2100 Software Configuration



Datalogic Automation, Inc.
Multiple Dimension Measuring Device / DM3610 Series



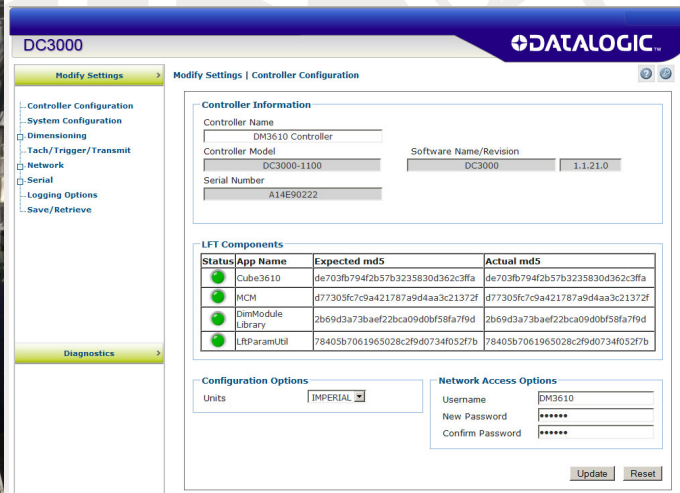
DC3000-xxxx Controller Configuration



DM3610-3100 Software Configuration



DM3610-3100 Tilt Tray system



DC3000-xxxx software configuration

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Project number 2330371
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OIML Member State
The Netherlands

Issuing authority NMI Certin B.V.
Person responsible: M. Boudewijns

Applicant and Manufacturer DATALOGIC s.r.l.
Via S.Vitalino 13
40012 Lippo di Calderara di Reno
Bologna
Italy

Identification of the certified type **A Multi-dimensional measuring instrument**
Type : DM3610-....

Characteristics See next page

This OIML Certificate is issued under scheme B.

This Certificate attests the conformity of the above identified Type (represented by the sample(s) identified in the OIML Test Report) with the requirements of the following Recommendation of the International Organization of Legal Metrology (OIML):

OIML R 129 - Edition 2000

This Certificate relates only to the metrological and technical characteristics of the type of measuring instrument covered by the relevant OIML International Recommendation above-identified. This Certificate does not bestow any form of legal international approval.

Important note: Apart from the mention of the Certificate's reference number and the name of the OIML Member State in which the Certificate was issued, partial quotation of the Certificate and of the associated OIML Type Evaluation Report(s) is not permitted, although either may be reproduced in full.

Issuing Authority

NMI Certin B.V., OIML Issuing Authority NL1
9 June 2020

Certification Board

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The conformity was established by the results of tests and examinations provided in the associated OIML Reports:

- No. NMI-13200217-01 dated 6 August 2013 that includes 64 pages;
- No. NMI-13200730-01 dated 3 April 2014 that includes 30 pages;
- No. NMI-15200081-01 dated 16 December 2015 that includes 35 pages;
- No. NMI-2330371-01 dated 9 June 2020 that includes 52 pages.

Characteristics of the multi-dimensional measuring instrument:

Measuring range	Single interval			
		Length	Width	Height
Maximum dimension	incremental encoder	see following tables	see following tables	
	PGD100 with sensor array	max ≤ 2200 mm		
Maximum conveyor speed v_{max}	3,15 m/s			
Electromagnetic environment class	E2			
Mechanical environment class	M3 (M2 for PGD100)			
Climatic environment	temperature range	-10 °C / +40 °C		
	humidity	non-condensing		
	intended location	closed		
Power supply voltage	22,5 – 26,5 V DC			
Method of operation	automatic			

Models DM3610-1200:

	Length	Width	Height
Maximum dimension	max ≤ 2500 mm	max ≤ 1200 mm	max ≤ 1000 mm
Minimum dimension	min ≥ 50 mm	min ≥ 50 mm	min ≥ 20 mm
Scale interval	d ≥ 5 mm	d ≥ 5 mm	d ≥ 2 mm
Limitations of use	rectangular and opaque objects		
Minimum spacing between successive objects	20 mm		
Software identification measurement head version	Version 1.4, 1.5, 1.6, 1.7, 1.8 or 1,9		

Models DM3610-2200:

Maximum dimension	Length	Width	Height
	max ≤ 2500 mm	max ≤ 1200 mm	max ≤ 1000 mm
Minimum dimension	min ≥ 50 mm	min ≥ 50 mm	min ≥ 20 mm
Scale interval	d ≥ 5 mm	d ≥ 5 mm	d ≥ 2 mm
Limitations of use	rectangular and opaque objects		
Minimum spacing between successive objects	0 mm (multiple objects)		
Software identification measurement head version	Version 1.5, 1.6, 1.7, 1.8 or 1,9		

Models DM3610-3200:

Maximum dimension	Length	Width	Height
	max ≤ 2500 mm	max ≤ 1200 mm	max ≤ 1000 mm
Minimum dimension	min ≥ 50 mm	min ≥ 50 mm	min ≥ 20 mm
Scale interval	d ≥ 5 mm	d ≥ 5 mm	d ≥ 2 mm
Limitations of use	rectangular, opaque and irregular objects		
Minimum spacing between successive objects	25 mm		
Software identification measurement head version	Version 1.6, 1.7, 1.8 or 1,9		
Software identification controller PC version	Version 1.0, 1.1, 1.2, 1.3 or 1.4		

Models DM3610-4200:

Maximum dimension	Length	Width	Height
	max ≤ 2500 mm	max ≤ 1600 mm	max ≤ 1000 mm
Minimum dimension	min ≥ 50 mm	min ≥ 50 mm	min ≥ 20 mm
Scale interval	d ≥ 5 mm	d ≥ 5 mm	d ≥ 2 mm
Limitations of use	rectangular, opaque and irregular objects		
Minimum spacing between successive objects	25 mm		
Software identification measurement head version	Version 1.7, 1.8 or 1,9		
Software identification controller PC version	Version 1.1, 1.2, 1.3 or 1.4		

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The Netherlands

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Software identification measurement head:

Version 1.4	DSP software	9769FD1C96438C5AB910F725545FFDB3
	FPGA software	61A92F0F152949924F17152E063A9236
	LFT library	94092F384948235EB4E70E30667D8991
Version 1.5	DSP software	305BED285D4E48F30701374A32ECEA96
	FPGA software	80DBC646A9232FC00E385CC0E26E10FE
	LFT library	A4244AF0ADD423EF3E5F7DB14CF09A3E
Version 1.6	DSP software	2ED5F1A33D0D50CE8919FF11D58263A7
	FPGA software	060ECB51C9D955E6B4A948D081BBD2C8
	LFT library	B446D385DF0F114E50BD688B2ED583C3
Version 1.7	DSP software	2ED5F1A33D0D50CE8919FF11D58263A7
	FPGA software	A1DF019DD27291700918BB30EC9CC344 or B4932BB6A16446E0356693A8F3427312
	LFT library	CA0F6B1978432C13AA6DB1F47D43DF5F or DACFBC69E3EFF6855B706C6611FA61F7
Version 1.8	DSP software	5EA157FC07310396BFBA0ED72F3E3EE7
	FPGA software	B4932BB6A16446E0356693A8F3427312
	LFT library	09F8EF9EE9F2A0DAAE823C0187F21F2E
Version 1.9	DSP software	5EA157FC07310396BFBA0ED72F3E3EE7
	FPGA software	B4932BB6A16446E0356693A8F3427312
	LFT library	9E01A2571EE39EB63E40D3AF032B66BD

Software identification controller PC:

Version 1.0	Cube3610	4e6d88b94ad9b87918dcfd7e06152499
	MCM	eddfbb285f438ce31cb1554d563fe939
	DimModule Library	de98b905fb95c7750858f39efa95169f
	LftParamUtil	4bbc7c8a7ae41f20fbbba5998b9f5b518
Version 1.1	Cube3610	0877c44162b68891ee25827634be98b6 or de703fb794f2b57b3235830d362c3ffa
	MCM	d77305fc7c9a421787a9d4aa3c21372f
	DimModule Library	a56aea4865cca3715527ec51f5fe025c or 2b69d3a73baef22bca09d0bf58fa7f9d
	LftParamUtil	5de0d9990f0e92f26de81fe148a723b8 or 78405b7061965028c2f9d0734f052f7b

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Version 1.2	Cube3610	50ec22851d65ca91f2608b42bf98decb or b8d0db21910f54a05e56b8063978de7e or 1879c2040590e74b947ff600e3219ae2
	MCM	d77305fc7c9a421787a9d4aa3c21372f
	DimModule Library	f69f9f7242f9fc86640d8821494e7157 or e4df456eb33fa1f8c81057287af8a3b0
	LftParamUtil	b434c70e98cded0adec9ca2fa09d9fe6 or b58d3f0e127731e853e9a8cdc61846e7
Version 1.3	Cube3610	f473570bffc1b7cc3d407c2db66630e8
	MCM	01beec057eba494562650740a09ef8d
	DimModule Library	2927f457e0866953572636a392c1744b
	LftParamUtil	5c9390ddb30c7238ddf9037fadd44bf
Version 1.4	Cube3610	9f136cf95594aa38616ed8a4749cb91f
	MCM	88b80abc0841e087cd31ef2be53417ec
	DimModule Library	e1dedbb10f1fc4660b98a32b41d94961
	LftParamUtil	2d953cfead1e74ee5ebb49ed844c8e3

Software:

- The identification numbers of each measuring head will be displayed through the web server interface of each measuring head;
- The identification numbers of the controller PC will be displayed through the web server interface of the controller PC.

Configurations:

- Measuring head(s):
 - Single measuring head without controller PC, or
 - Two measuring heads with a controller PC.
- Displacement sensor:
 - Incremental encoder for conveyor belt;
 - PGD100 with sensor array (2 – 16 sensors) for cross belt sorter or tilt tray sorter).



NOTICE OF CONDITIONAL APPROVAL

AVIS D'APPROBATION CONDITIONNELLE

Issued by statutory authority of the Minister of Industry for the following device model(s):

Émis en vertu du pouvoir statutaire du ministre de l'Industrie pour le(s) modèle(s) d'instrument suivant(s):

TYPE OF DEVICE

TYPE D'APPAREIL

Electronic Multiple Dimension Measuring Device

Appareil électronique de mesure multidimensionnelle

APPLICANT

REQUÉRANT

Datalogic Automation Inc.
 511 School House Rd.
 Telford, PA
 U.S.A / É-U
 18969

MANUFACTURER

FABRICANT

Datalogic Automation Inc.
 511 School House Rd.
 Telford, PA
 U.S.A / É-U
 18969

MODEL NUMBER(S) - NUMÉRO(S) DE MODÈLE(S)

DM3610-1300
 DM3610-2300

USE

- General Use
- Restricted Use

USAGE

- Usage général
- Usage restreint

SECTION 1 (including cover page) - Model Identification and Summary of Device Main Metrological Characteristics

NOTE: This approval applies only to devices, the design, composition, construction and performance of which are, in every material respect, identical to that described in the material submitted, and that are typified by samples submitted by the applicant for evaluation for approval in accordance with sections 14 and 15 of the *Weights and Measures Regulations*. The following is a summary of the principal features only.

SECTION 2 - Model(s) Identification and Summary of the Parameters and Limitations

The model(s) listed at the top of the following table is (are) approved according to the metrological characteristics indicated in the other corresponding columns of the table. Models produced for use in trade must comply, namely in terms of settings and use, with the metrological characteristics indicated in the table.

When values in columns are in imperial and in metric units, the device can be operated in dual units. If one of these units is in brackets, this unit selection is programmable and sealable; if it is not in brackets, the operator can select the unit through the keyboard.

PARTIE 1 (incluant la page couverture) - Identification du(des) modèle(s) et sommaire des caractéristiques métrologiques principales de l'appareil.

REMARQUE : Cette approbation ne vise que les appareils dont la conception, la composition, la construction et le rendement sont identiques, en tout point, à ceux qui sont décrits dans la documentation reçue et pour lesquels des échantillons représentatifs ont été fournis par le requérant aux fins d'évaluation, conformément aux articles 14 et 15 du *Règlement sur les poids et mesures*. Ce qui suit est une brève description de leurs principales caractéristiques.

PARTIE 2 - Identification du(des) modèle(s) et sommaire des paramètres-limites

Le(les) modèle(s) énuméré(s) dans la colonne 1 du tableau suivant, est (sont) approuvé(s) en fonction des paramètres indiqués dans les autres colonnes correspondantes du tableau. Le(les) modèle(s) construit(s) pour usage dans le commerce doit(vent) être réglé(s) et utilisé(s) selon les fonctions métrologiques indiquées dans le tableau.

Lorsque des valeurs sont indiquées en unités impériales et en unités métriques, l'appareil peut fonctionner dans les deux unités. Si une des unités est entre parenthèses, la sélection de l'unité est programmable et scellable; si elle est indiquée sans parenthèses, l'opérateur peut choisir l'unité au moyen du clavier.

SECTION 2- TABLE 1 - Device Main Metrological Characteristics
PARTIE 2 -TABLEAU 1 - Les caractéristiques métrologiques principales des appareils

Models / Modèles →	DM3610-1300 DM3610-2300								
Speed/Vitesse (v)	d			Min			Max		
	X	Y	Z	X	Y	Z	X	Y	Z
v ≤ 3.2 m/s (630 ft/pi / min)	5 mm (0.2 in /po)		5 mm (0.1 in /po)	60 mm (2.4 in /po)		60 mm (1.2 in /po)	2450 mm (98 in /po)	1220 mm (48 in /po)	900 mm (36 in /po)
Temperature limits / Limites de température:				-10 °C to/à 50 °C					
① Fixed Speed / Vitesse fixe ② Variable Speed / Vitesse variable ③ Unidirectional / Unidirectionnel ④ Bidirectional / Bidirectionnel				② ③					
Minimum speed of measurement/ Vitesse minimale de mesures:				0.02 m / s, 5 ft/pi / min					
Maximum speed of measurement/ Vitesse maximale de mesures:				3.2 m / s, 630 ft/pi / min					
Minimum spacing between objects/ Espacement minimal entre les objets									
Speed / Vitesse (v)				Distance between objects / distance entre les objets ① in the direction of travel / dans la direction du déplacement ② surrounding the objects / autour des objets ③ touching / en contact					
0.02 m/s to/à 3.2 m/s, 5 ft/pi / min to /à 630 ft/pi / min				① 25 mm , 1 in/po (DM3610-1300) ② 25 mm , 1 in/po (DM3610-2300)					
Type of device / Genre d'appareil									
① Cuboidal objects only / Seulement pour objets cuboïdaux ② Non-Cuboidal objects / Objets non-cuboïdaux ③ Palletized Freight / fret sur palette				①					
① Static measurement / Mesure statique ② In-motion measurement / Mesure en mouvement				②					
① Singulated measurement / Mesure singulière ② Touching objects / Objets qui se touchent ③ Non-singulated non-touching objects / Mesure non-singulière, objets qui ne se touchent pas				① DM3610-1300 ③ DM3610-2300					
Describe measurement axes / décrivez les axes de mesure: X,Y,Z X: Horizontal measurement longitudinal to the transport direction / Mesure horizontale longitudinale à la direction du transport Y: Horizontal measurement perpendicular to the transport direction / Mesure horizontale perpendiculaire à la direction du transport Z: Measurement perpendicular to the plane of the measuring surface/ Mesure perpendiculaire au plan de la surface de mesure Meaning of the codes used in model numbers and other information / Signification des codes utilisés dans le numéro de modèle et autres informations : The DM3610-1300 is for singulated measurement whereas the DM3610-2300 is for non-singulated, non-touching measurement. / L'appareil DM3610-1300 est utilisé pour les mesures singulières, tandis que l'appareil DM3610-2300 est utilisé pour les mesures non singulières et pour des objets qui ne se touchent pas.									

SECTION 3 - Device Description

If an "X" appears in table columns, it means that the function or the element is present while a "---" indicates that the element or the function is absent or that it is not applicable. A "*" indicates that more information is provided in the "Other" section

SECTION 3 - TABLE 2 - Display Features**PARTIE 3 - Description de l'appareil**

Le symbole "X" qui apparaît dans les colonnes des tableaux signifie que la fonction ou le dispositif est présent; alors que le symbole "---" signifie l'absence du dispositif ou de la fonction; ou que celui ou celle-ci ne s'applique pas. Le symbole "*" signifie que de plus amples renseignements sont disponibles à la section "Autre"..

PARTIE 3 - TABLEAU 2 - Caractéristiques de l'affichage

Models/Modèles →	DM3610-1300, DM3610-2300
General / Générales	
① Integrated display / Affichage intégré ② Separate indicator / Indicateur séparé	②
Indicator model if separate / Modèle de l'indicateur si séparé.	GP018
Indicator material if separate / Matériel de l'indicateur si séparé	Aluminium
Power Supply of indicator if separate/ Alimentation électrique de l'indicateur si séparé	The indicator is powered separately by mains power / L'indicateur est alimenté séparément par une alimentation principale
Operator's Display / Affichage destiné à l'opérateur	
Zero or ready / Zéro ou prêt	Ready condition ¹ / Condition « prêt » ¹
Tare (Type)	---
Sleep Mode/Mode sommeil ① Standby / Veille ② Shut-off / Arrêt	---
Dimensions as shown / présentation des dimensions	L, W, H L = Horizontal measurement longitudinal to the transport direction / Mesure horizontale longitudinale à la direction du transport W = Horizontal measurement perpendicular to the transport direction / Mesure horizontale perpendiculaire à la direction du transport H = Vertical dimension of the object / Dimension verticale de l'objet or/ou L = longest dimension of the object in horizontal plane/ la dimension la plus longue dans le plan horizontal W = shortest dimension of the object in horizontal plane / la dimension la plus courte dans le plan horizontal H = Vertical dimension of the object / Dimension verticale de l'objet
Type of display and number of digits for / Type d'affichage et nombre de chiffres pour: ① Gross/Brut ② Tare ③ Net	① Vacuum fluorescent display (VFD) Affichage fluorescent sous vide (AFSV) 40 digits (20 per line) - Dot Matrix / 40 chiffres (20 chaque ligne) - Matrice de points
Units /Unités	mm (in/po)

SECTION 3 - TABLE 2 - Display Features (continued)

PARTIE 3 - TABLEAU 2 - Caractéristiques de l'affichage
(suite)

Models/Modèles →	DM3610-1300, DM3610-2300
Metrological Annunciators / Voyants métrologiques: ① Ready condition / Condition "prêt ② Unit of measure / Unité de mesure ③ Tare Entered / Entrée de tare ④ Range Selection / Sélection de l'étendue ⑤ Measuring Device Selection / Sélection du dispositif de mesure ⑥ Other / Autres	---
Other/ Autres Note / remarque 1: A ready condition is one of the following / l'état "prêt" est une des conditions suivantes: -The word "DIM READY" is at the top of the display / L'expression « DIM READY » est en haut de l'écran -The word "DIM READY" with the previous measurements and object count number are displayed / L'expression « DIM READY » ainsi que les dimensions précédentes et le numéro de compte des objets précédents sont affichés -A measurement is only valid if it is accompanied by "DIM READY" at the top of the display / Une mesure est valide seulement si elle s'accompagne de l'inscription « DIM READY » dans la partie supérieure de l'afficheur	
Customers' Display / Affichage destiné aux clients	
NA / s.o.	
Keyboard and Operator Controls/ Clavier et boutons de contrôle destinés à l'opérateur	
NA / s.o.	

SECTION 3 - TABLE 3 - Measuring Element Features

PARTIE 3 - TABLEAU 3 - Caractéristiques des dispositifs de mesure

Models/Modèles →	DM3610-1300, DM3610-2300
General / Générales	
Power Supply / Alimentation électrique ① V AC / V c.a. ② V DC / V c.c. ③ AC-DC adapter / Adaptateur c.a.-c.c.	② 24 V DC / V c.c. ③ 120 - 240 V AC-DC adapter / Adaptateur c.a.-c.c.
Material / Matériau ① Housing / Boîtier ② Frame / Châssis ③ Sub-frame / Sous châssis ④ Measuring surface / surface de mesure	① Aluminium
Specific installation requirements / Exigences spécifiques pour l'installation	<p>The device is installed perpendicular above a conveyor belt. Before and after the instrument the conveyor must be straight and have a length equal to or greater than the certified horizontal (length) capacity of the device. /</p> <p>L'appareil est installé perpendiculairement au-dessus d'un convoyeur à courroie. Avant et après l'instrument, le convoyeur doit être droit et d'une longueur égale ou supérieure à la capacité horizontale certifiée (longueur) de l'appareil.</p>
Communication Ports/ Sorties de communication	X
Installation ① Permanent ② Mobile	①
Other features and additional information / Autres caractéristiques et informations	

SECTION 3 - TABLE 3 - Measuring Element Features
(continued)PARTIE 3 - TABLEAU 2 - Caractéristiques des dispositifs
de mesure (suite)

Models/Modèles →	DM3610-1300, DM3610-2300
Dimension determination / Détermination de la mesure	
Components / Composantes	1 DM3610 laser dimensioning head / tête de mesure au laser 1 Tachometer / Tachymètre Junction box (CBX 100) / Boîte de jonction (CBX 100) 1 Photo-eye (optional) / Cellule photoélectrique (en option)
Description	<p>The device is mounted perpendicularly over the belt conveyor system. A fan of light beams is generated across the conveyor, thus creating the measuring area. The measured object is then passed through these light beams. The information collected from the object passing through the fan of light together with the speed of the conveyor is used to calculate the dimensions of the object.</p> <p>For non-singulated, non-touching operation a bar code scanner is used to assign the measurements to the correct object. /</p> <p>L'appareil est monté perpendiculairement au-dessus d'un système de convoyeur à bande. Un éventail de faisceaux lumineux est projeté sur le convoyeur, ce qui crée la zone de mesurage. L'objet mesuré passe ensuite à travers ces faisceaux lumineux. Les données recueillies pendant que l'objet passe à travers le faisceau lumineux et la vitesse du convoyeur servent à calculer les dimensions de l'objet.</p> <p>Dans le cas des mesures non singulières ou des objets qui ne se touchent pas, un lecteur de codes à barres est utilisé pour associer les mesures au bon objet.</p>
Laser Class / Classe du laser	IEC 60825-1 class/ classe 3R *
Laser Power Output / Puissance de sortie du laser	< 9.6 mW (peak / crête)* < 1.0 mW (average / moyenne)*
Laser Wavelength / Longueur d'onde du laser	658 nm*
Other / Autres *The laser class, power and wavelength listed in this Notice of Approval are for informational purposes only and should not be used to determine appropriate safety precautions. / La classe du laser, la puissance de sortie du laser et la longueur d'onde qui sont indiquées dans l'avis d'approbation sont à titre d'information seulement. Cette information ne devrait pas être utilisée pour déterminer les précautions de sécurité appropriées.	

SECTION 4 - Sealing of Calibration and Configuration Parameters

Event Logger

The DM3610 is a Category 3 device with unlimited remote calibration and configuration capability and as such is sealed by means of an event logger audit trail and several physical seals.

Ready access to the contents of the event logger must be possible at all times. A hard copy printout of the contents of the event logger shall be available upon demand from the device or from an associated device on site.

Access to the event logger is through the DM3610 GUI. To enter:

- Connect a PC to the DM3610
- Using the PC's web browser enter the DM3610's IP address
- Select "*Modify Setting*", "*Dimensioning*"
- Ensure "*Certification Mode*" is set to "*On*"
- Press "*Update*"
- Select "*Diagnostic*", "*Audit and Alibi*"
- The audit trail can be queried by date
- The log information is now displayed and can be copied and pasted.

After initial inspection the "*Certification Mode*" must be set to "*On*"

Dimensioning Head

Two wire seals are threaded through loops on either side of the housing, preventing disassembly of the dimensioning head.

Tachometer

The wheels of the tachometer are sealed with a paper seal.

The dip switch access panel on the tachometer is sealed with a paper seal.

The connection from the tachometer to the junction box is sealed at both ends with a paper seal. This seal is affixed over top of a sealing paste that will be applied to the connector by the manufacturer.

PARTIE 4 - Scellage des paramètres d'étalonnage et de configuration

Enregistreur d'événements

DM3610 est un dispositif de catégorie 3 doté d'une capacité illimitée de configuration et de certification à distance et, pour cette raison, il est scellé au moyen d'un enregistreur d'événements et de plusieurs sceaux.

Le contenu de l'enregistreur d'événements doit être facilement accessible en tout temps. Un imprimé du contenu de l'enregistreur d'événements doit être disponible sur demande à partir de l'appareil ou d'un appareil relié qui est sur place.

L'accès à l'enregistreur d'événements se fait à travers l'interface graphique du DM3610. Pour entrer :

- Brancher un ordinateur personnel au DM3610
- Dans le navigateur Web de l'ordinateur, entrer l'adresse IP du DM3610
- Sélectionner «*Modify Setting*», «*Dimensioning*»
- Vérifier que le «*Certification Mode*» est réglé à «*On*»
- Appuyer sur «*Update*»
- Sélectionner «*Diagnostic*», «*Audit and Alibi*»
- Il est possible de consulter le registre électronique d'événements métrologiques par date
- Les renseignements du registre s'affichent alors; il est possible de les « copier-coller » ailleurs.

Après l'inspection initiale, le «*Certification Mode*» doit être réglé à «*On*».

Tête de mesure

Deux fils métalliques sont enfilés dans les boucles se trouvant de chaque côté de l'appareil pour empêcher le démontage de la tête de mesure.

Tachymètre

On scelle les roues du tachymètre avec un scellé de papier.

On scelle le panneau du commutateur DIP sur le tachymètre avec un scellé de papier.

La connexion entre le tachymètre et la boîte de jonction est scellée aux deux extrémités avec un sceau en papier. Le sceau est posé sur la pâte de scellage qui sera appliquée par le fabricant sur le connecteur.

SECTION 5 - Limitations / Specific Installation and Marking Requirements

Device must be affixed permanently and according to the manufacturer's specifications.

A bar code reader or similar ID technology is required when the device is certified for non-singulated operation in order to assign the measurements to the correct object (DM3610-2300).

The device will have two marking labels. One on the sensor head and a second located near the display. These marking labels are identical, however only the label on the sensor head is to be used for inspection purposes.

Specific marking requirements:

- “Only opaque non- reflective cuboidal objects shall be measured”.
- “Do not stack objects”.
- “Dimensions shown are those of the smallest hexahedron in which the object may be enclosed.”
- “Bar code must be present on objects and be visible to the bar code scanner array at all times” (*Non-Singulated / Non Touching mode of operation*)
- “Minimum distance between successive objects is 2.5 cm (1.0 inch)” (*Singulated and/or Non Touching mode of operation*)

SECTION 6 - Limitations and Use Requirements

The device shall only be used for the determination of freight, shipping and storage costs of objects based on their dimensions.

Ready access to the contents of the event logger must be possible at all times. A hard copy printout of the contents of the event logger shall be available upon demand from the device or from an associated device on site.

A measurement is only valid if it is accompanied by “DIM READY” at the top of the display and the transmitted measurements are only valid if accompanied by “READY” with no additional error codes. Any measurements accompanied by “DIM NOT READY” or transmitted with “NOT READY” or any error code, are not legal for trade and may not be used in a trade transaction.

PARTIE 5 - Les restrictions / exigences particulières d'installation et de marquage

L'appareil doit être fixé de façon permanente et conformément aux spécifications du fabricant.

Un lecteur de codes à barres, ou une technologie d'identification similaire, est nécessaire lorsque l'appareil est certifié pour les mesures non singulières pour associer les mesures au bon objet (DM3610-2300).

L'appareil comportera deux étiquettes de marquage. Une première sur la tête du capteur et la seconde, à proximité du dispositif d'affichage. Ces étiquettes de marquage sont identiques toutefois, seule l'étiquette apposée sur la tête du capteur sera utilisée aux fins d'inspection.

Exigences particulières relatives au marquage:

- « Seuls les objets cuboïdaux non réfléchissants et opaques doivent être mesurés. »
- « Ne pas empiler les objets. »
- « Les dimensions indiquées sont celles du plus petit hexaèdre pouvant contenir l'objet. »
- « Un code à barres doit être présent sur les objets et doit être visible au réseau de lecteurs de codes à barres en tous temps» (*mode d'opération non-singulière, objets qui ne se touchent pas*)
- « La distance minimale entre des objets successifs est de 2,5 cm (1,0 po)» (*mode d'opération unique et/ou sans contact*)

PARTIE 6 - Les restrictions/exigences d'utilisation

L'appareil ne doit être utilisé que pour déterminer les frais de transport, d'expédition et d'entreposage d'objets basés sur leurs dimensions.

Le contenu du registre des événements doit être facilement accessible en tout temps. Un imprimé du contenu du registre des événements doit être disponible sur demande à partir de l'appareil ou d'un appareil relié qui est sur place.

Une mesure est valide seulement si elle est accompagnée de la mention « PRÊT POUR LA MESURE » (*DIM READY*) au haut du dispositif d'affichage et les mesures transmises ne sont valides que si elles sont accompagnées de la mention « PRÊT » (*READY*) sans aucun code d'erreur. Toutes les mesures accompagnées de la mention « NON PRÊT POUR LA MESURE » (*DIM NOT READY*) ou transmises avec la mention « NON PRÊT » (*NOT READY*) ou tout autre code d'erreur ne sont pas légales pour le commerce et ne peuvent être utilisées dans une transaction commerciale.

SECTION 6 - Limitations and Use Requirements (cont.)

The device will be used in a manner where the customer is not present.

Specific device limitations:

- Only opaque non- reflective cuboidal objects shall be measured
- objects cannot be stacked

SECTION 7 - Terms and Conditions

This/these device type(s) has/have been assessed against and found to comply with the requirements of the *Terms and Conditions for the Approval of Multiple Dimension Measuring Devices (2006-03-16)* and the *Terms and Conditions for the Approval of Metrological Audit trail (2006-03-16)*.

This conditional approval will expire upon the adoption of the specifications related to these devices and no further devices will be authorized to be placed in service unless permitted by transitory measures announced at the time of the promulgation.

Devices installed, initially inspected, and verified under the authority of this conditional approval may require subsequent modifications by the applicant to comply with the adopted Specifications.

SECTION 8 - Photographs and Drawings**PARTIE 6 - Les restrictions/exigences d'utilisation (suite)**

L'appareil sera utilisé en l'absence du client.

Restrictions spécifiques à cet appareil :

- Seuls les objets cuboïdaux non réfléchissants et opaques doivent être mesurés.
- les objets ne peuvent être superposés

PARTIE 7 - Termes et conditions

Ce(s) type(s) d'appareil(s) a/ont été évalué(s) et jugé(s) conforme(s) aux exigences des *Conditions pour l'approbation des appareils de mesure multidimensionnelle (2006-03-16)* et des *Conditions pour l'approbation des registres électroniques des événements métrologiques (2006-03-16)*.

La présente approbation conditionnelle prendra fin lors de l'adoption de la norme relative à ces appareils et aucun autre appareil ne pourra être mis en service à moins qu'il en soit prévu autrement dans des mesures transitoires annoncées au moment de la promulgation.

Les appareils installés, soumis à une inspection initiale et vérifiés selon la présente approbation conditionnelle peuvent nécessiter des modifications subséquentes par le requérant afin de les rendre conformes à la norme adoptée.

PARTIE 8 - Photos et dessins

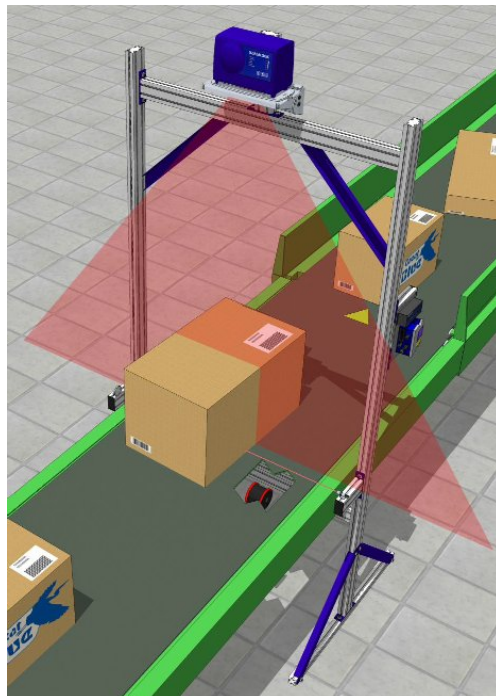
Typical Indicator / Indicateur typique

SECTION 8 - Photographs and Drawings (continued)

PARTIE 8 - Photos et dessins



Typical Sensor Head / Capteur typique



**Typical Dimensioning Arrangement /
Configuration de mesure typique**

SECTION 9 - Evaluated by

This device was evaluated by:

Justin Rae
Senior Legal Metrologist

Tested by Measurement Canada

SECTION 10 - Revision

NA

SECTION 11 - Approval

The design, composition, construction and performance of the device type(s) identified herein have been evaluated in accordance with regulations and terms and conditions established under the *Weights and Measures Act*. Approval is hereby granted accordingly pursuant to subsection 3(2) of the said Act.

The marking, installation and manner of use of trade devices are subject to inspection in accordance with regulations and terms and conditions established under the *Weights and Measures Act*.

Requirements relating to marking are set forth in sections 18 to 26 of the *Weights and Measures Regulations*, and in section 10 of the *Terms and Conditions for the Approval of Multiple Dimension Measuring Devices (2006-03-16)*

Installation and use requirements are set forth in Part V of the *Weights and Measures Regulations* and in section 14 of the *Terms and Conditions for the Approval of Multiple Dimension Measuring Devices (2006-03-16)* and in *Terms and Conditions for the Approval of Metrological Audit trail (2006-03-16)*.

A verification of conformity is required in addition to this approval. Inquiries regarding inspection and verification should be addressed to the local office of Measurement Canada

PARTIE 9 - Évalué par

Cet appareil a été évalué par:

Justin Rae
Métrologiste légal principal

Testé par Mesures Canada

PARTIE 10 - Révision

s.o.

PARTIE 11 – Approbation

a conception, la composition, la construction et le rendement du(des) type(s) d'appareil(s) identifié(s) ci-dessus, ayant fait l'objet d'une évaluation conformément au règlement et aux conditions établis aux termes de la *Loi sur les poids et mesures*, la présente approbation est accordée en application du paragraphe 3(2) de ladite Loi.

Le marquage, l'installation, et l'utilisation commerciale des appareils sont soumis à l'inspection conformément au règlement et aux conditions établis aux termes de la *Loi sur les poids et mesures*.

Les exigences de marquage sont définies dans les articles 18 à 26 du *Règlement sur les poids et mesures* et dans l'article 10 des *Conditions pour l'approbation des appareils de mesure multidimensionnelle (2006-03-16)*.

Les exigences d'installation et d'utilisation sont définies dans la partie V du *Règlement sur les poids et mesures*, à la parité 14 des *Conditions pour l'approbation des appareils de mesure multidimensionnelle (2006-03-16)* ainsi que dans les *Conditions pour l'approbation des registres électroniques des événements métrologiques (2006-03-16)*.

Une vérification de conformité est requise. Toute question sur l'inspection et la vérification de conformité doit être adressée au bureau local de Mesures Canada.

SECTION 12 - Signature and Date

Original copy signed by:

Ronald Peasley
Senior Engineer - Gravimetry
Engineering and Laboratory Services Directorate

Notice of Approval issued on: **2013-11-12**

PARTIE 12 - Signature et date

Copie authentique signée par :

Ronald Peasley
Ingénieur principal - Gravimétrie
Direction de l'ingénierie et des services de laboratoire

Avis d'approbation émis le : **2013-11-12**

Web Site Address / Adresse du site Internet:

<http://mc.ic.gc.ca>

NOTES

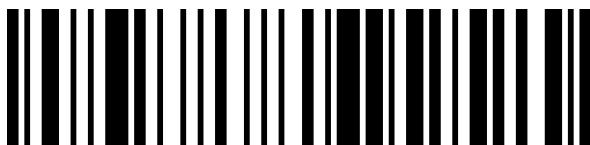
NOTES

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July, 2020