REFERENCE MANUAL

> DM3610

Dimensioner

◇DATALOGIC

❖DATALOGIC

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Bologna - Italy

DM3610 Reference Manual

Ed.: 04/2015

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CONTENTS

REFERENCES

REFERENCE DOCUMENTATION

The documentation related to the DM3610 management is listed below:

- CBX100 Connection Box Installation Manuals
- BM100 Backup Module Reference Manual

SUPPORT THROUGH THE WEBSITE

Datalogic provides several services as well as technical support through its website. Log on to **www.datalogic.com** and click on **PRODUCTS** and **SUPPORT & SERVICES** links for further information:

- **PRODUCTS – DIMENSIONER**

  Select your product from the links on the **Dimensioner** page. The product page describes specific Info, Features, Applications, Models, Accessories, and Downloads including documentation, software drivers, and utility programs.

- **SUPPORT & SERVICES – INDUSTRIAL AUTOMATION**

  Several links from the **Industrial Automation** list take you to additional services such as: Service Program which contains Maintenance Agreements and Warranty Extensions; Repair Centers; On-Line RMA Return Material Authorizations; Technical Support through email or phone; Downloads for additional downloads.

PATENTS

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

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

Utility patents: EP0652530B1; EP0851206B9; EP0851208B1; EP0851376B1; EP1363228B1; EP1607901B1; GB2440818B; JP3793585B2; JP4033958B2; US5903354; US5969823; US6061645; US6347740; US6442503; US6629639; US7586049; USRE36251.

Additional patents pending.

CONVENTIONS

WARNINGS or CAUTIONS: 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.

HIGH VOLTAGE CAUTION: 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.

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

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.

NOTES: 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.

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.

WARNING: 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 ⇓

CAUTION

LASER LIGHT
DO NOT STARE INTO BEAM

0.95mW AT 630-700nm
CLASS II LASER PRODUCT

COMPLIES WITH 21 CFR 1040

LASER LIGHT
AVOID DIRECT EYE EXPOSURE
CLASS 3R LASER PRODUCT
630-670Nm, 10.0 mW Peak, <1.0 mW Average
IEC/EN60825-1 : 2007

BACK VIEW

WARRANTY VOID IF BROKEN
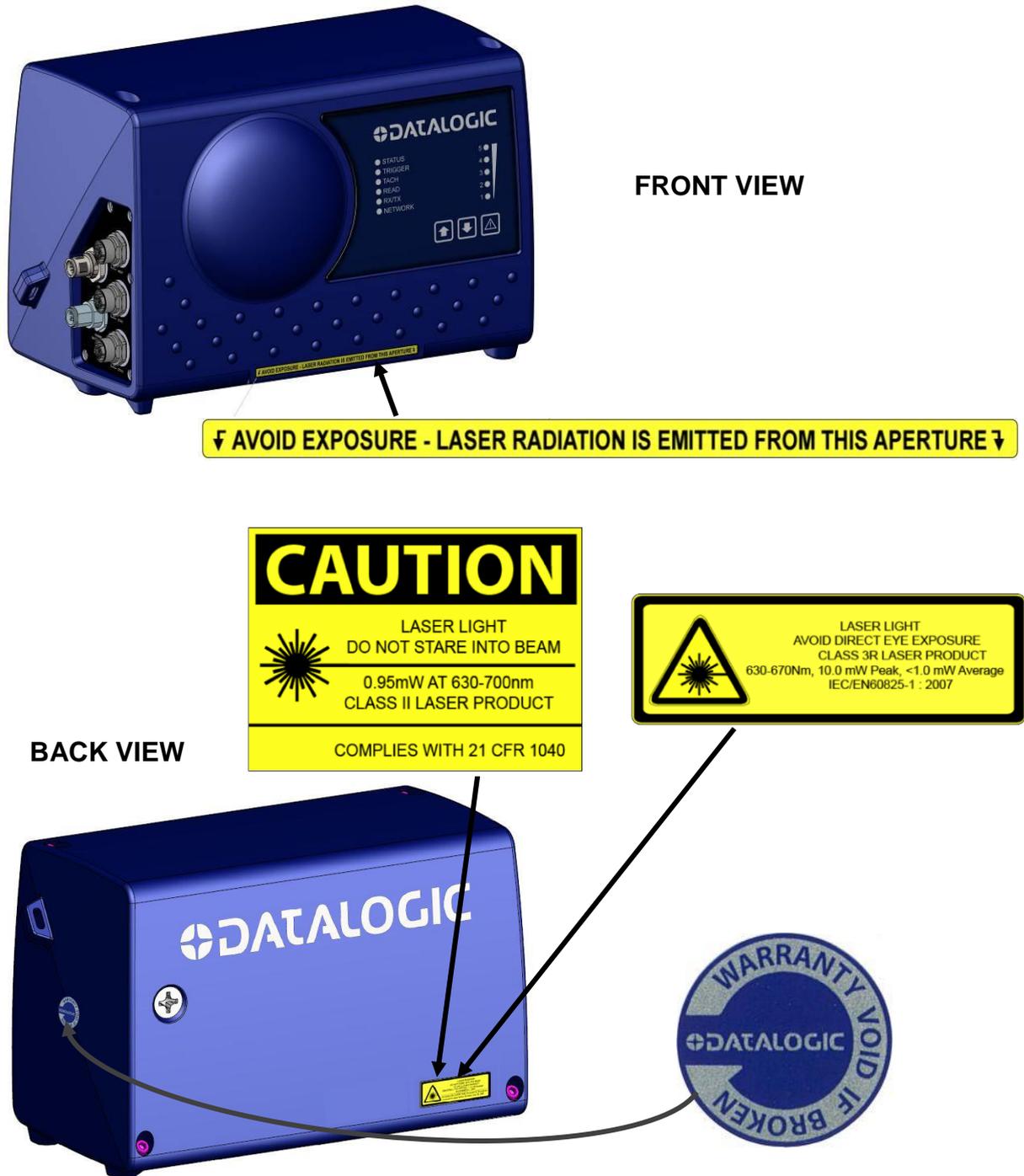
Figure 1: Warning, Device Class, and Warranty Labels on Dimensioner

CLASS 2 EU ADAPTER WARNING LABELS

Additional warning labels indicating exposure to laser light and the device classification are applied onto the optional **Class 2 EU Adapter**.

FRONT VIEW

> LASER RADIATION
> DO NOT STARE INTO THE BEAM
> CLASS 2 LASER PRODUCT
> 630-670Nm, <8.5 mW Peak, <1.0 mW Average
> [IEC60825-1 Ed.3(2014)]

> CAUTION – THIS DEVICE IS
> CLASS 3R (IEC60825-1)
> WHEN THIS GUARD
> IS REMOVED!

BOTTOM VIEW
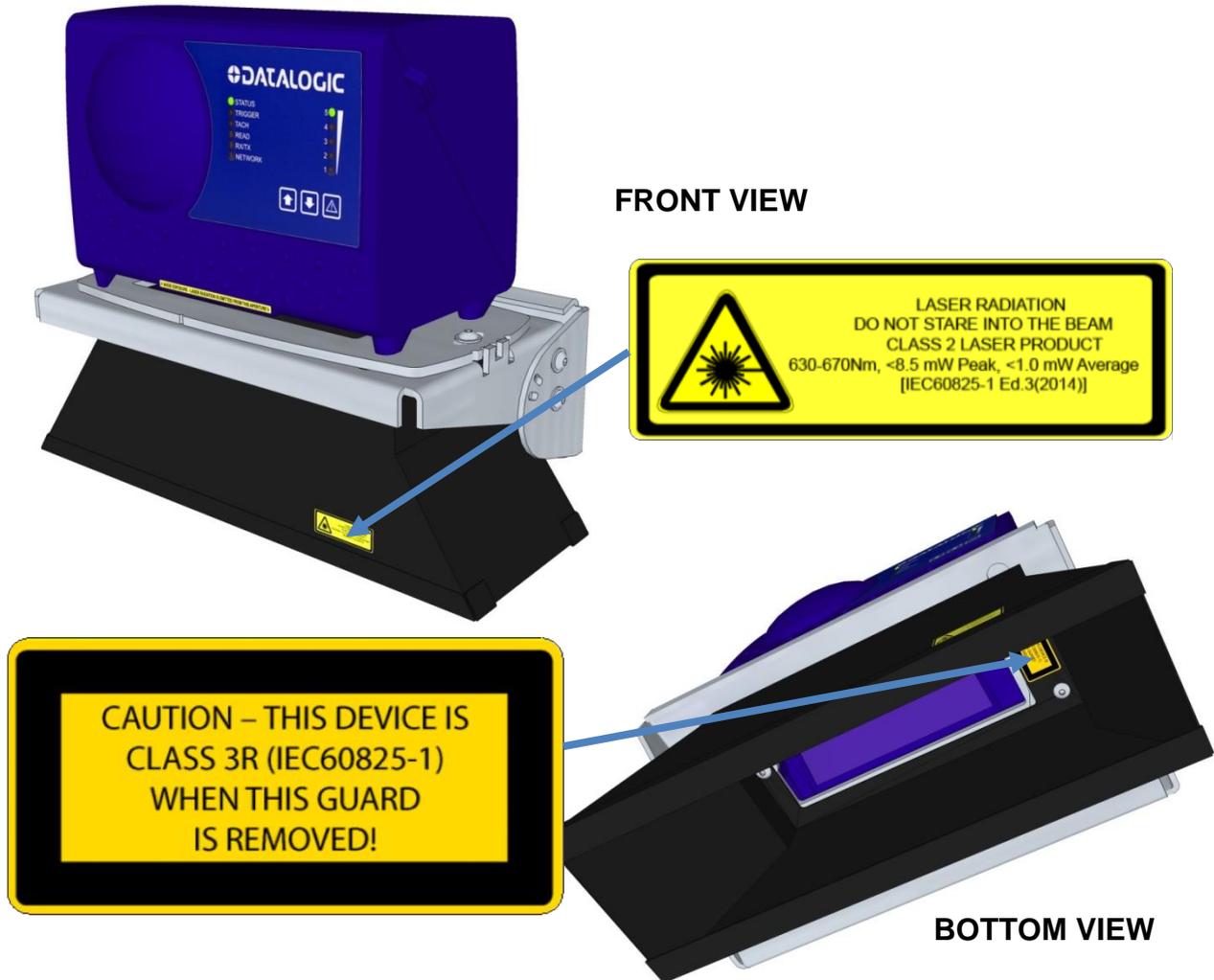
Figure 2: Warning and Device Class Labels on Class 2 EU Adapter

NOTE: Warning label used depends on specific product configuration.

WARNING: The DM3610 Dimensioning System is a Class 3R laser product without the Class 2 EU 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 Class 2 EU Adapter onto the DM3610 dimensioning system the laser product class is now Class 2 and operators should follow safety precautions outlined in the IEC60825-1 laser safety standard for Class 2 laser products. 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 (<8.5mW Class 2 EU Adapter Installed) or (<10.0mW Class 2 EU Adapter uninstalled) and an average power of <1.0mW.

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

WARNING: 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

UL Listing

CE COMPLIANCE

WARNING: 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.

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.

DM3610

Figure 3: DM3610

①　Connector Panel　　　④　Laser Exit Window

②　Laser Safety Label　　⑤　Serial Number Tag
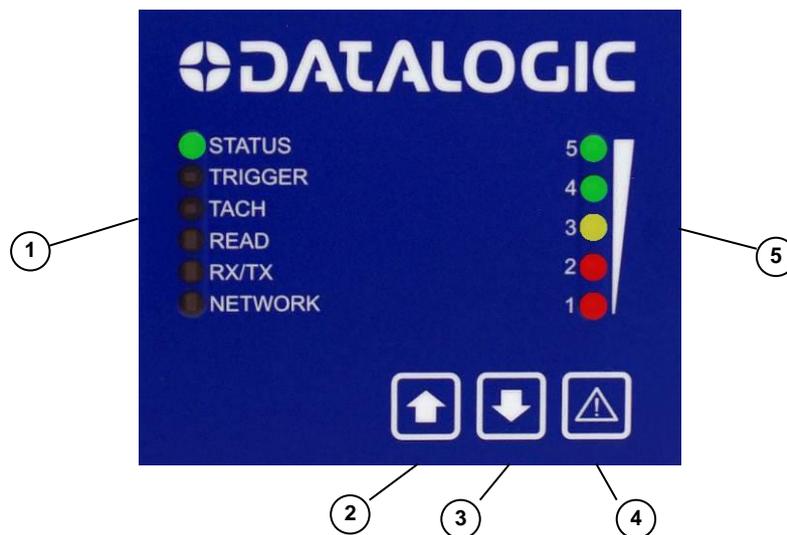
③　Control Panel

Figure 4: Control Panel

①　LED Status Indicators　　④　Laser Shutoff/Recovery Button

②　Restore Button　　　　　⑤　Bar Graph LEDs 1-5

③　Backup Button

Figure 5: Connector Panel

(1)	I/O	(4)	Ethernet Port 1
(2)	Power 24V⎓4A Max	(5)	Ethernet Port 2
(3)	Host		

1 INTRODUCTION

1.1 SYSTEM OVERVIEW

The DM3610 Dimensioning System provides product 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.

IMPORTANT: 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.

1.1.1 Dimensioning System Benefits

The DM3610 offers unparalleled dimensioning performance:

- Accurate dimensioning at high speed – Provides accuracy +/- 5mm [0.2"] at belt speeds up to 3.1 m/s [620 fpm] (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

1.2 APPLICATIONS

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

- Singulated (cuboidal)

- Non-Singulated (cuboidal, touching and non-touching) – *In development at release of this manual*

- Irregulars (non-cuboidal) – *In development at release of this manual*

- Dimension-Weighing-Scanning (DWS) Systems

- Scanning Tunnels (focusing and token generation) – *In development at release of this manual*

1.2.1 Typical Application
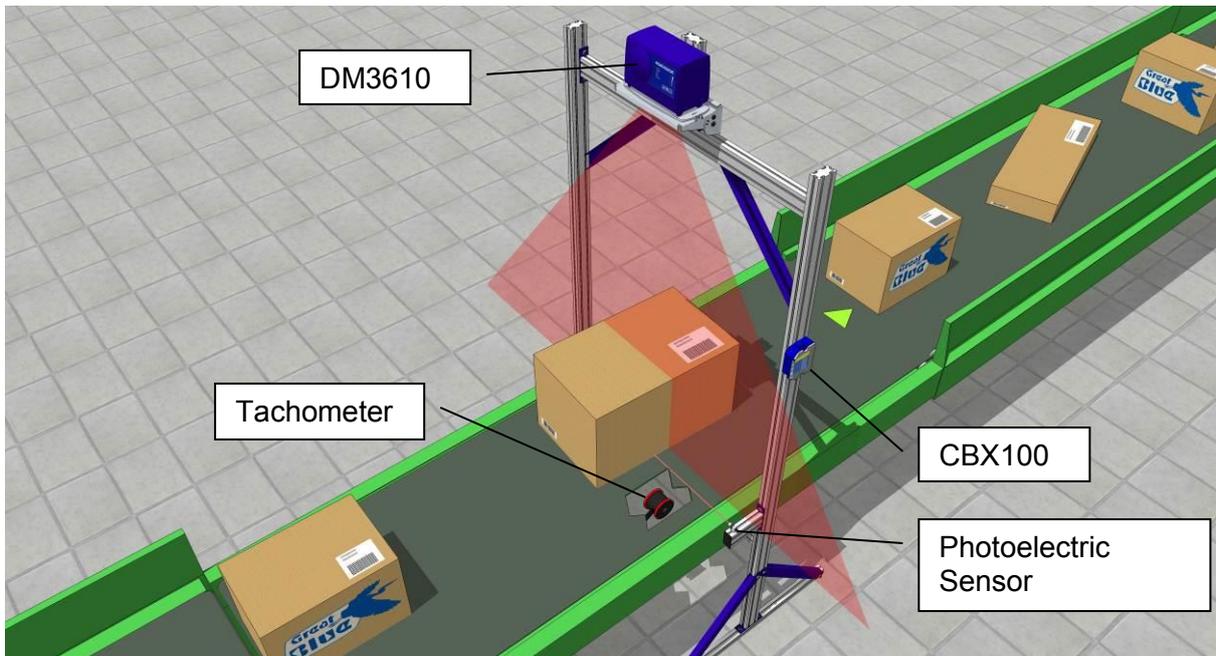
Figure 6: Typical DM3610 Installation (Singulated Version)

NOTE: In certain applications a Photoelectric Sensor is not required. Contact your Datalogic Application Engineer for clarification. An operational description is provided in *chapter 5* For product specifications, see *chapter 8*.

1.2.2 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.
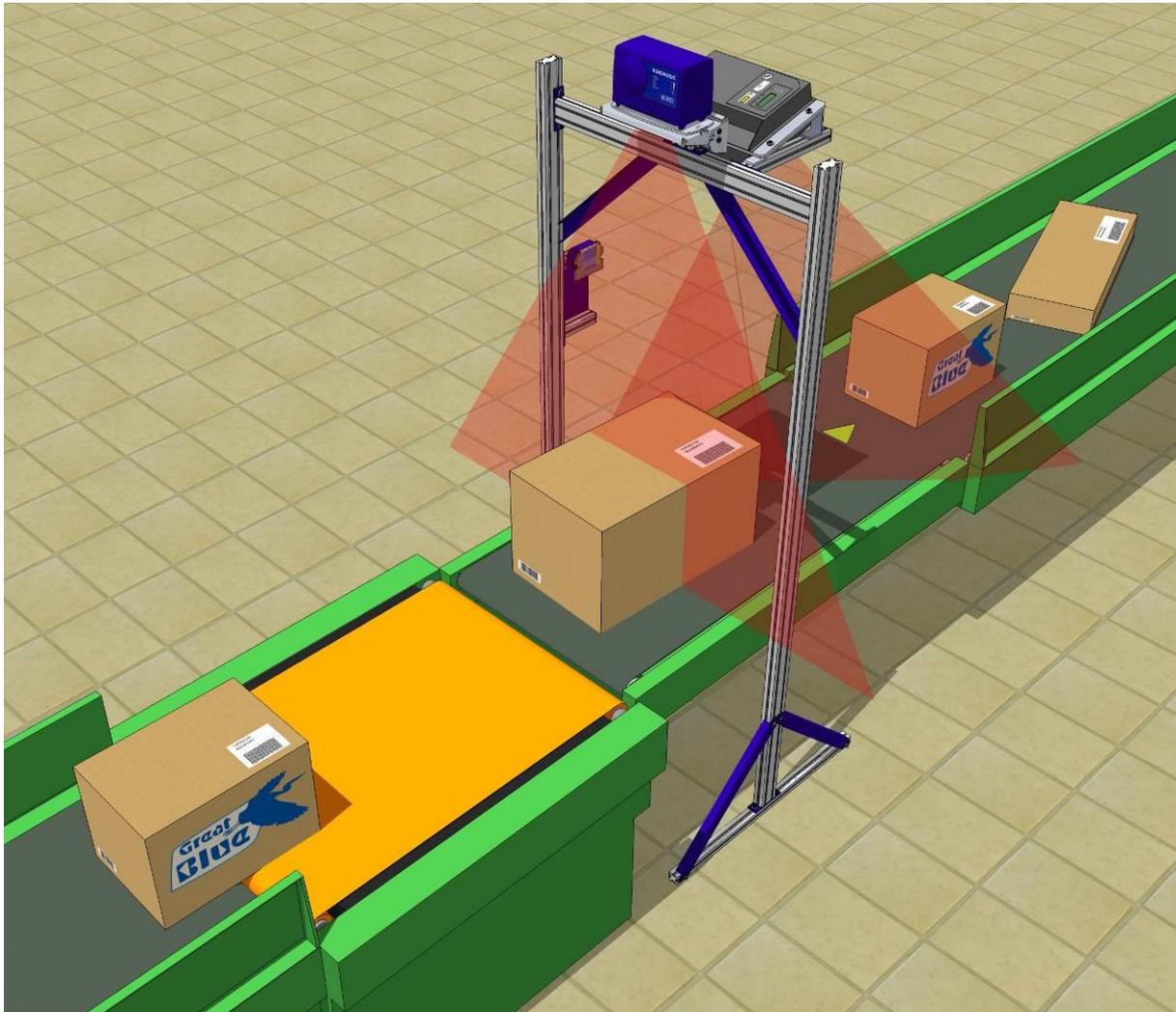
Figure 7: DM3610 in a Dimension-Weigh-Scan (DWS) System

1.2.3 Irregular Dimensioning System

The DM3610 system is also available in a configuration that enables it to dimension 'irregular shaped' (non-cuboidal) products and packages, however, *details and specifications were not available at the publication of this manual revision.*

1.3 MODEL DESCRIPTION

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

DM3610 – X X X X

Material Flow
1. Singulated
2. Non-Singulated (and Singulated)
3. Irregular (and NS and Singulated)

Certified
0. No Certification
1. NTEP
2. OIML/MID
3. Measurement Canada

Not used at this time.
Default to 0

Not used at this time.
Default to 0
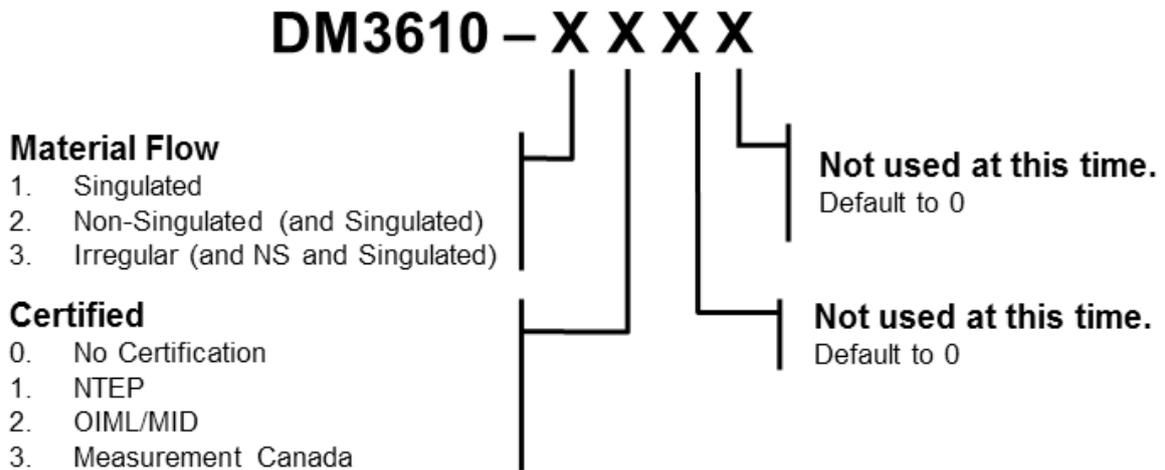
Figure 8: Model Description Key

1.4 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 100W KIT DM36 (EU)	**93ACC0059**
	PG-100-K02 PWR SUPPLY 100W KIT DM36 (UK)	**93ACC0060**
	PG-100-K03 PWR SUPPLY 100W 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 (recommended)	KIT,S60 NPN PHOTOCELL,R3 REFL/BRKT/HDWR	**93ACC1894**
	CV-A1-22-B-05 SE 4PIN CABLE 5M	**95ACC1490**
Tachometer, 12-Inch Wheel	TACH,PROGR,W/20FT CAB,8-30VDC	**1000019875**
Tachometer, 30 cm Wheel	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**
Class 2 EU Adapter	GFC-3610 CLASS 2 EU ADAPTER,DM3610	**93ACC1896**

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

1.4.1 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.

Figure 9: DM3610 Dimensioning Unit

1.4.2 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 "non-touching" packages)

- **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)

- **DM3610-2300 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)

- **DM3610-3300 IRREG MC** (for Measurement Canada certified applications running non-cuboidal (irregular) items)

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

DM3610 Versions	Conveyor Speed	Conveyor Width	Package Length		Package Width		Package Height	
			Min	Max	Min	Max	Min	Max
DM3610-1X00	3.1 m/s [620 fpm]	1200mm [48"]	60mm [2.4"]	2500mm [98"]	60mm [2.4"]	1200mm [48"]	30mm [1.2"]	900mm [36"]
DM3610-2X00	tbd	tbd	tbd	tbd	tbd	tbd	tbd	tbd
DM3610-3X00	tbd	tbd	tbd	tbd	tbd	tbd	tbd	tbd
NOTE: See your specifications for range of package sizes. *Not all version details were available at the release of this manual.* **NOTE:** Specifications may differ depending on local Legal-for-Trade requirements. See certification certificate for details.								

1.4.3   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.

Tamper Wire Hole

Certification Labels
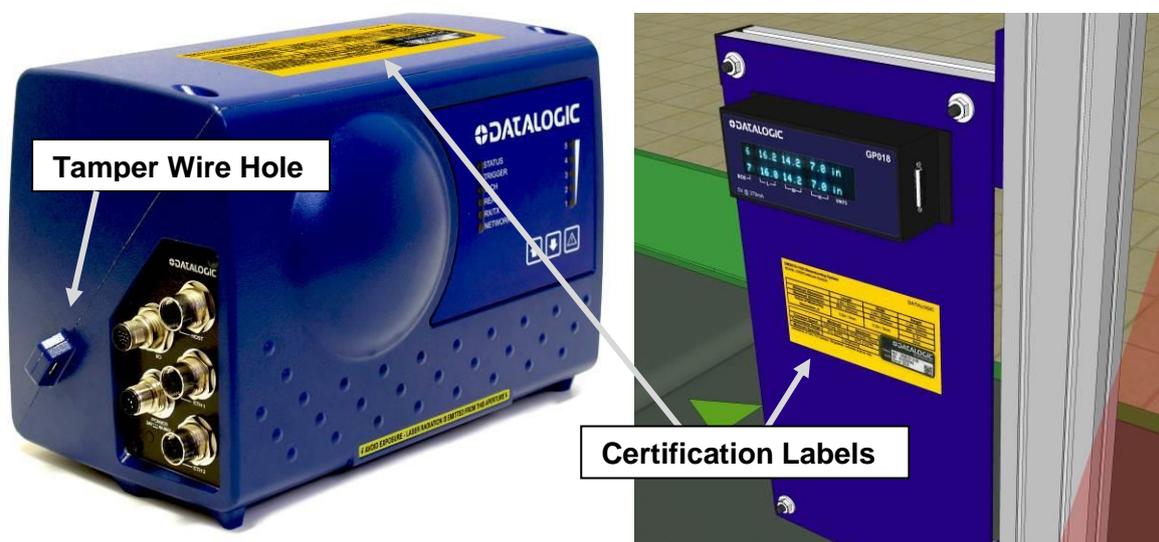
Figure 10: Certification Labels on DM3610 and displayed remotely

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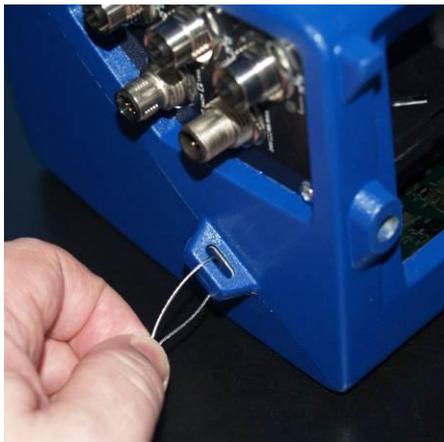
If required, two wire tamper seals can be placed through the tamper wire holes on each side of the device housing.

Figure 11: Sealing the DM3610 housing

1.5 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.

Figure 12: Photoelectric Sensors

1.6 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.

Figure 13: Tachometer, Mounting Bracket, and Cable

1.7 CBX INDUSTRIAL CONNECTION BOX

CBX Series are industrial connection boxes that can be used to connect the DM3610 to the external display, tachometer, photoelectric sensor, serial devices, relays, or other peripherals. The CBX100 All-in-One includes a BM100 backup module, which allows easy parameter restore and backup operations to and from the DM3610. The backup module also provides an easy way to upload existing parameters to a replacement DM3610 when necessary. *(See chapter 5, Dimensioning Features.)*

Figure 14: CBX100 Industrial Connection Box

1.8 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:

Figure 15: Dedicated Remote Display

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

1.9 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:

Plywood Calibration Box

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

Plywood Calibration Box

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

Margin Spacers

	Metric	Imperial
L	80 mm	3"
W	60 mm	2"
H	40 mm	1.5"
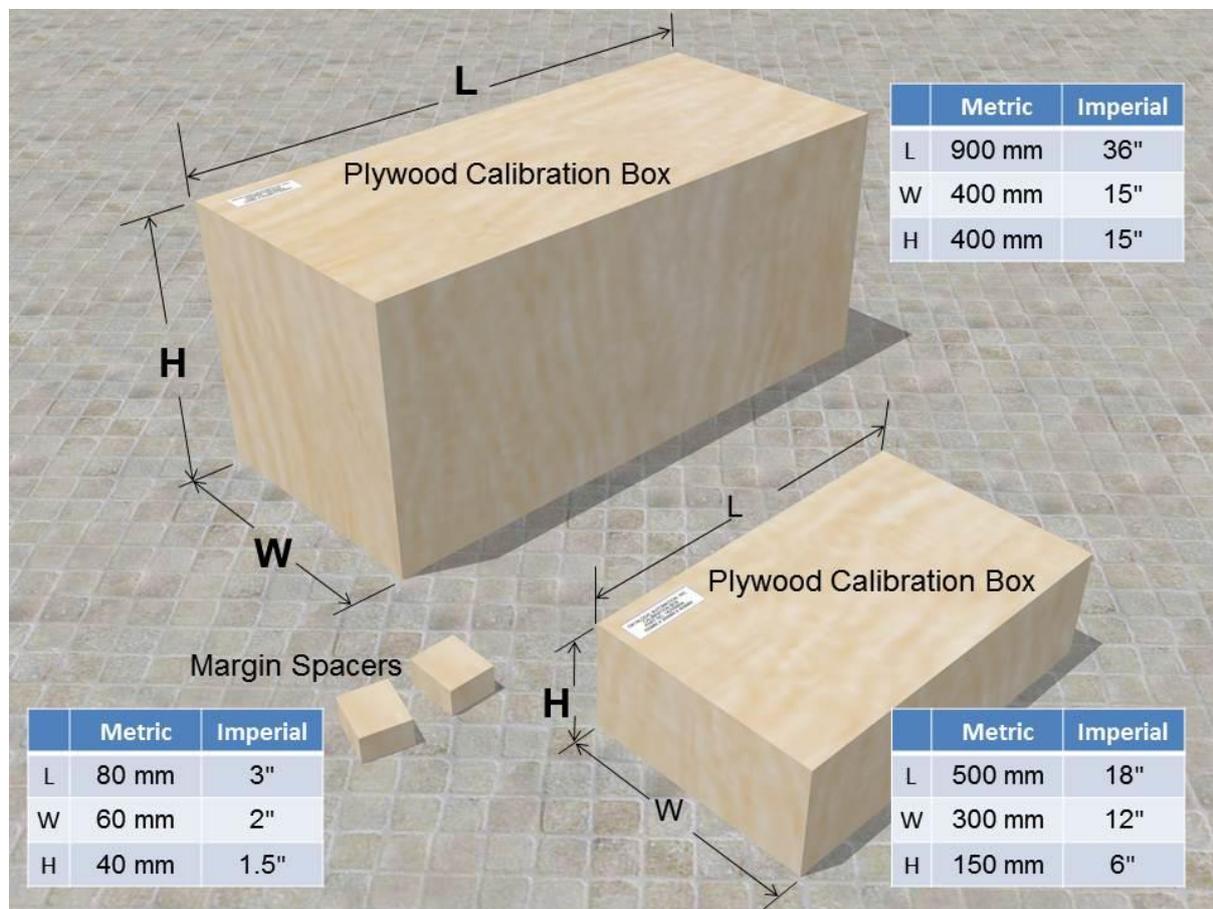
Figure 16: Calibration Kit

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

2 MECHANICAL INSTALLATION

WARNING: 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.

IMPORTANT: 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.

2.1 PREPARING FOR MECHANICAL INSTALLION

IMPORTANT: 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.

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

2.2 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

IMPORTANT: 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).
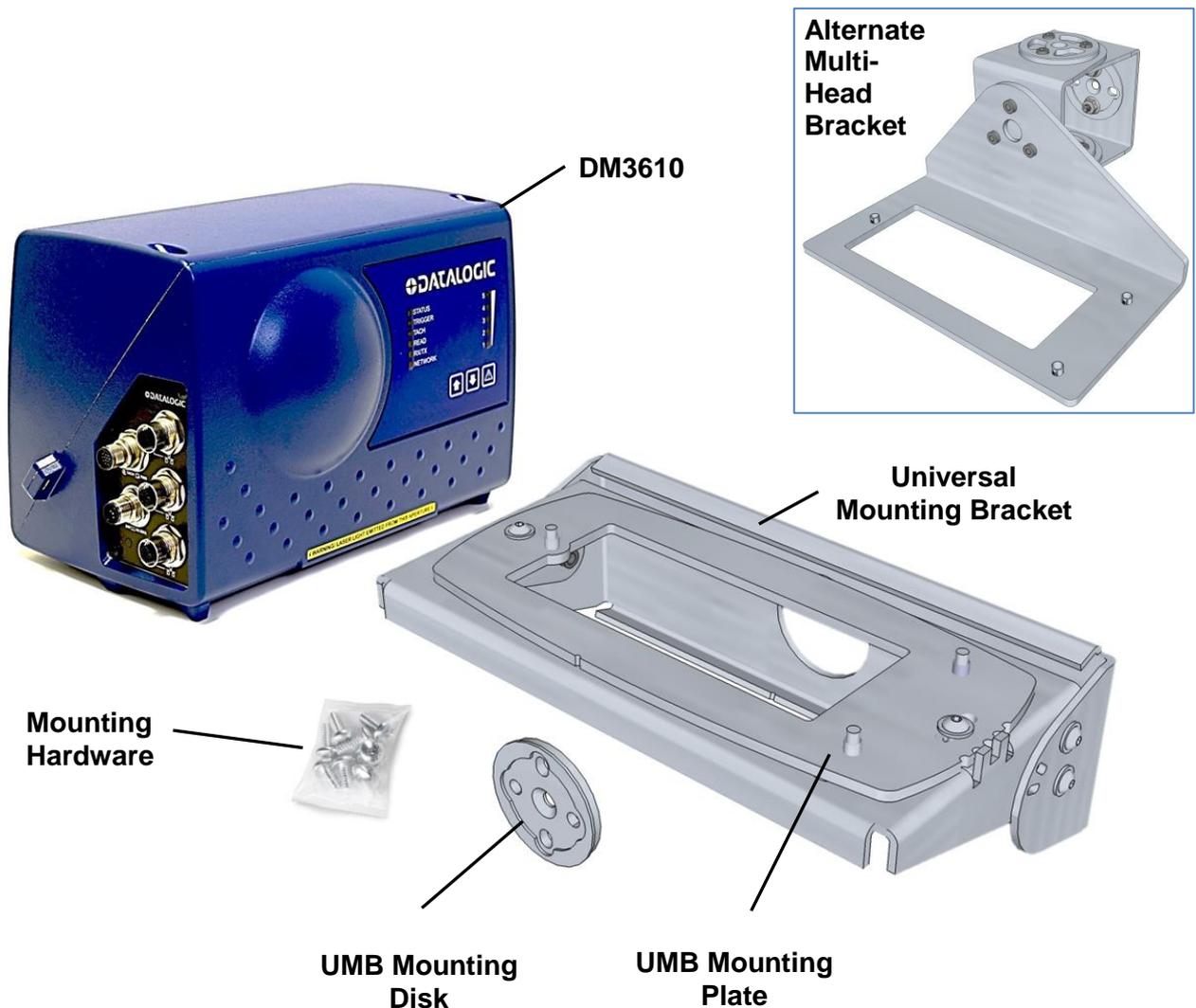
Figure 17: DM3610 and UMB Package Contents

2.3 INSTALLATION SEQUENCE(S)

NOTE: Everything should be **MECHANICALLY INSTALLED** before performing any **ELECTRICAL INSTALLATION**.
See *chapter 3* for electrical installation details.

To complete mechanical installation and setup, you must:

- 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 Class 2 EU 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 CBX100 connection box to the mounting structure *(See section 2.5.14)*

- Complete electrical installation *(See chapter 3)*

- Align the DM3610 for proper operation

- Calibrate the DM3610 *(See chapter 5)*

- Configure the DM3610 *(See chapter 4)*

- Check DM3610 operations *(See chapter 5)*

2.4 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**

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

- **Product and Dimensioning Specifications**

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

- **Application Specifications**

    o What will be done with the dimensioning information?
    o How will this information be used in your application?
    o 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.

2.5 MECHANICAL INSTALLATION

Because the DM3610 is a measuring device, calibration and proper usage of this device are necessary for proper operation. The DM3610 is shipped from Datalogic calibrated. 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.

2.5.1   Dimensions and Clearances

The overall dimensions of the DM3610 are provided in *section 2.5.6 and chapter 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.

IMPORTANT: For installation, maintenance and service reasons, approximately 300 mm [12 inches] of clearance is recommended.

2.5.2   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.

2.5.3   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).

2.5.4   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.

CAUTION: 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).

2.5.5   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, tumbling, or accelerating/decelerating when they pass under the scan line.

- Belt seams that elevate packages above the normal belt surface will impact dimensioning accuracy.

2.5.6 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.
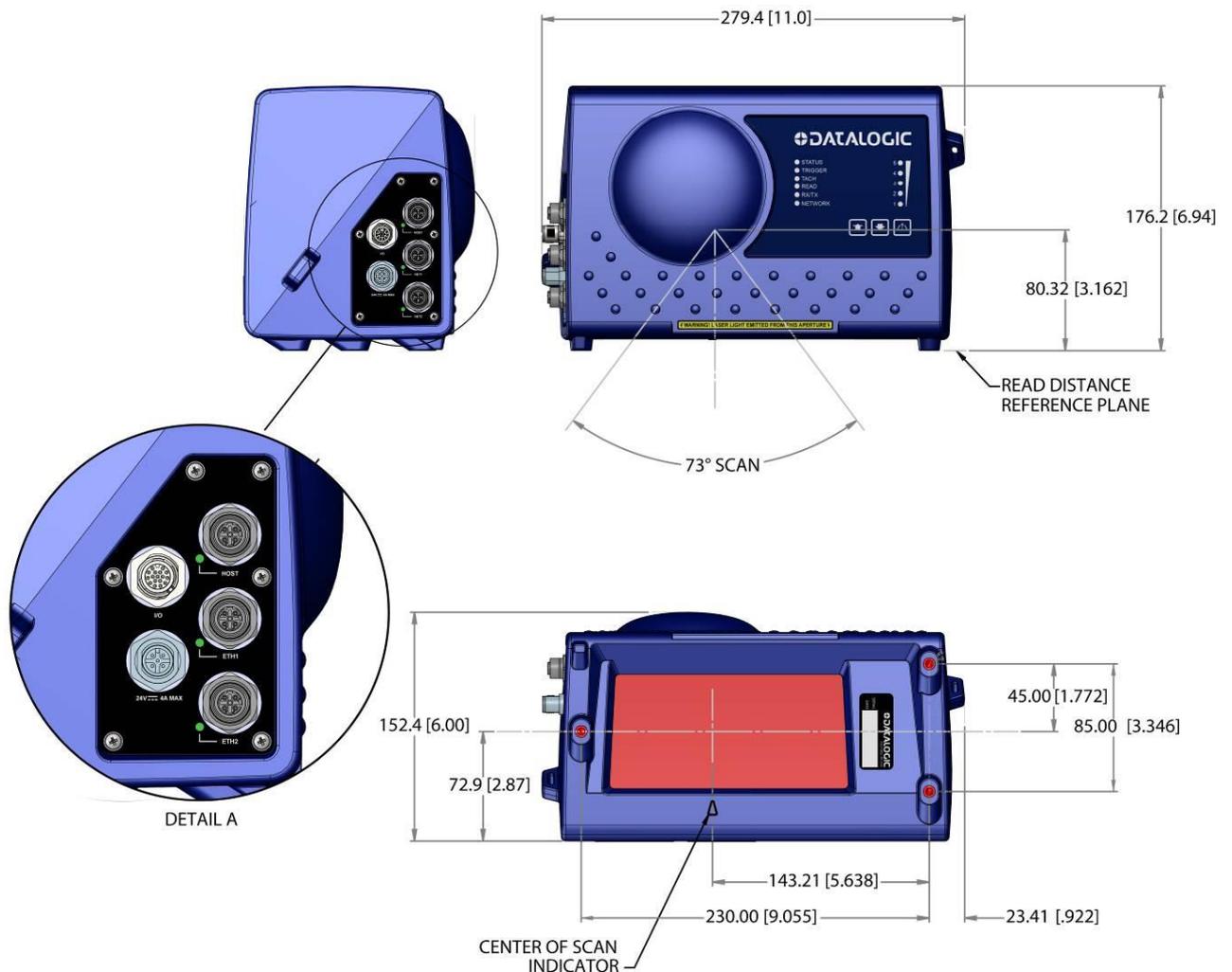
Figure 18: DM3610 Dimensions

FRONT VIEW

SIDE VIEW
181.5 [7.15]

130.8 [5.15]

50.5 [1.99]

281.2 [11.07]

SCAN
CENTERLINE
GUIDE

22.6 [.89]

73°

340.0 [13.39]

179.0 [7.05]

98.0 [3.86]

BOTTOM VIEW

SCAN
CENTERLINE
GUIDE

UNIVERSAL
MOUNTING
BRACKET
P/N 0114343001

360°

±2°

±4°

MOUNTING EXTRUSION
(SUPPLIED SEPERATELY)
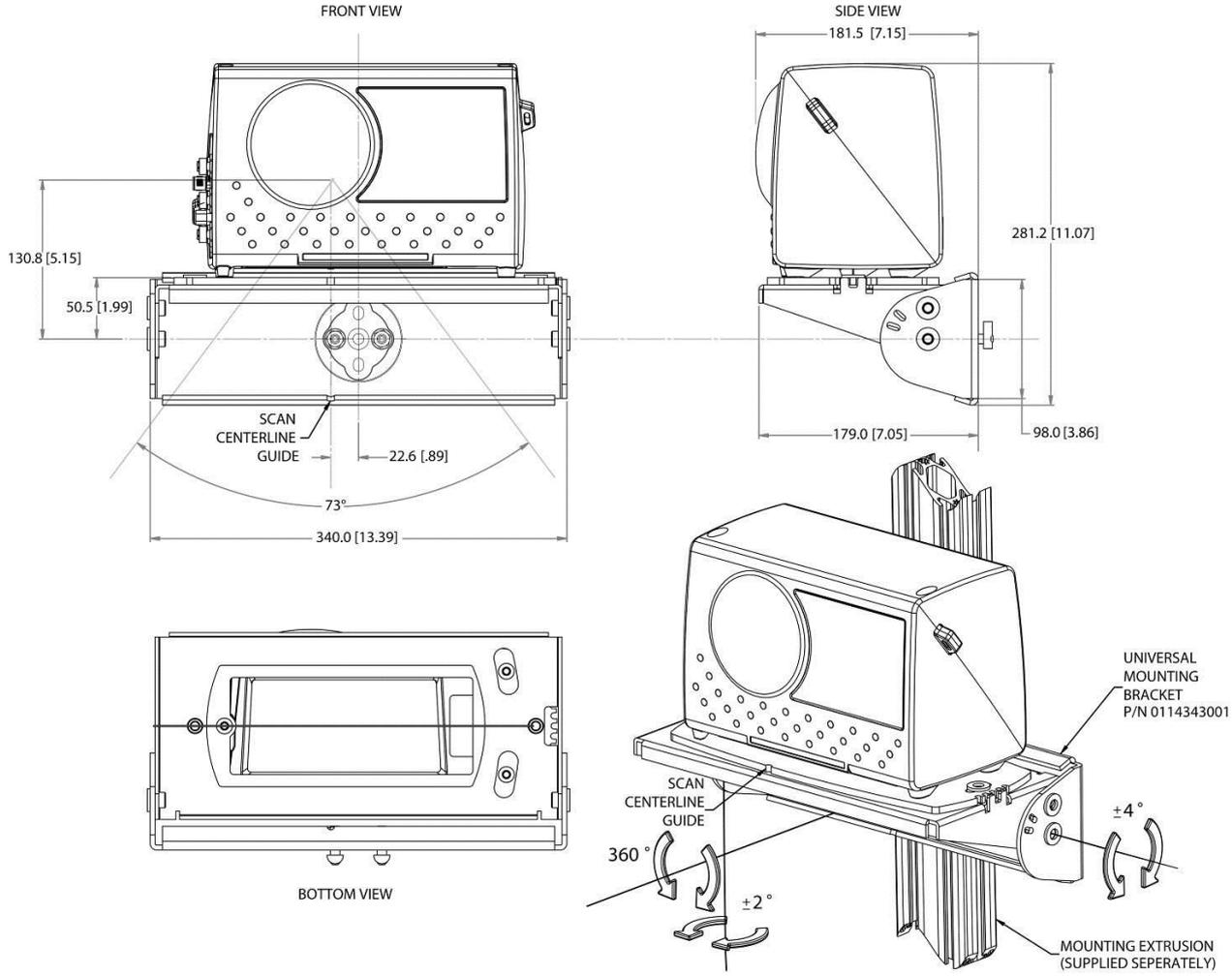
Figure 19: DM3610 Mounting Dimensions with UMB

2.5.7 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.
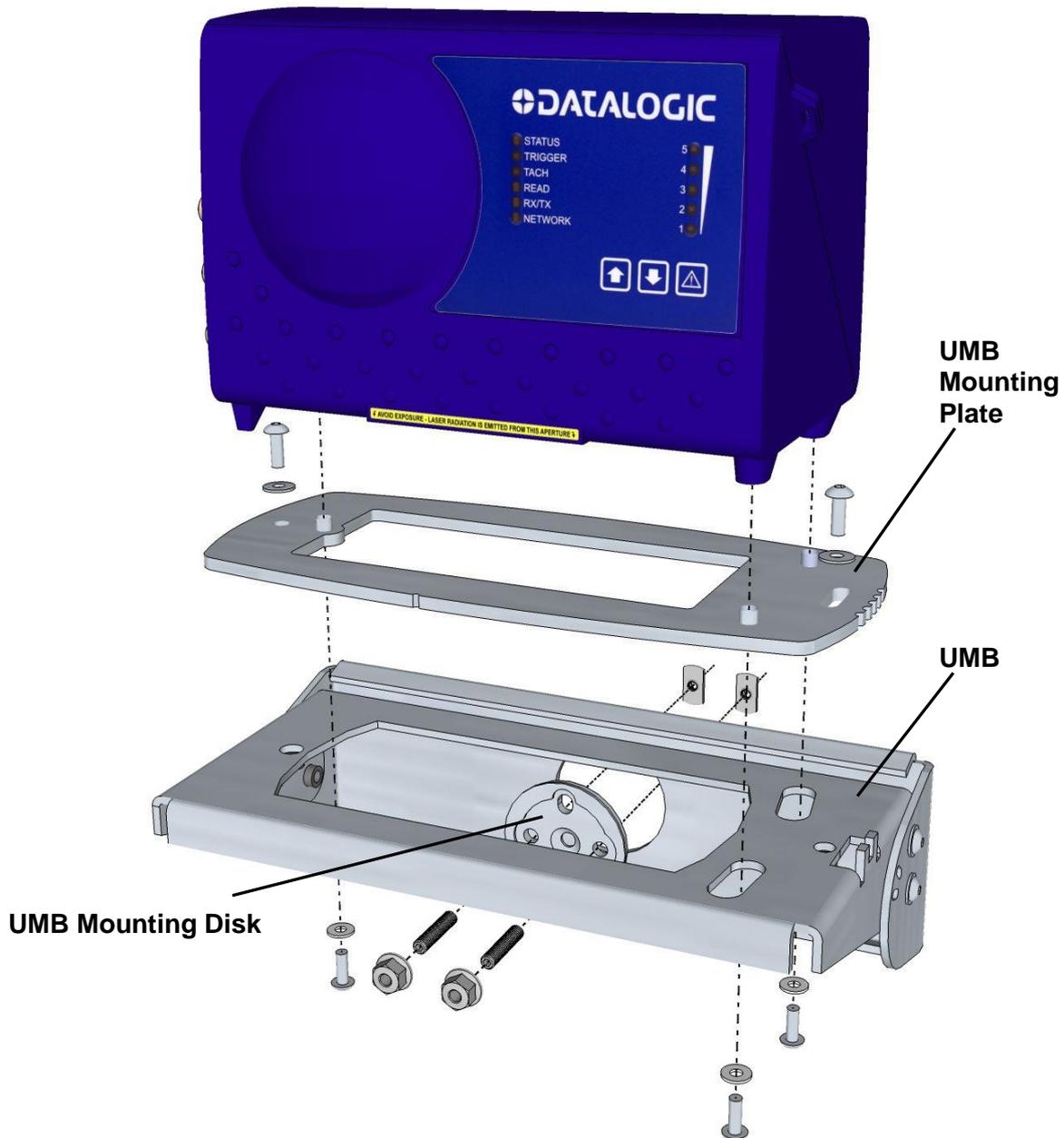
Figure 20: DM3610 and UMB Assembly

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**.

2.5.8 Mounting the Dimensioner with the Multi-Head Mounting Bracket

The Multi-Head Mounting Bracket allows you to install and make fine adjustments to the position of the DM3610 especially in systems with more than one dimensioner, where the heads are angled.
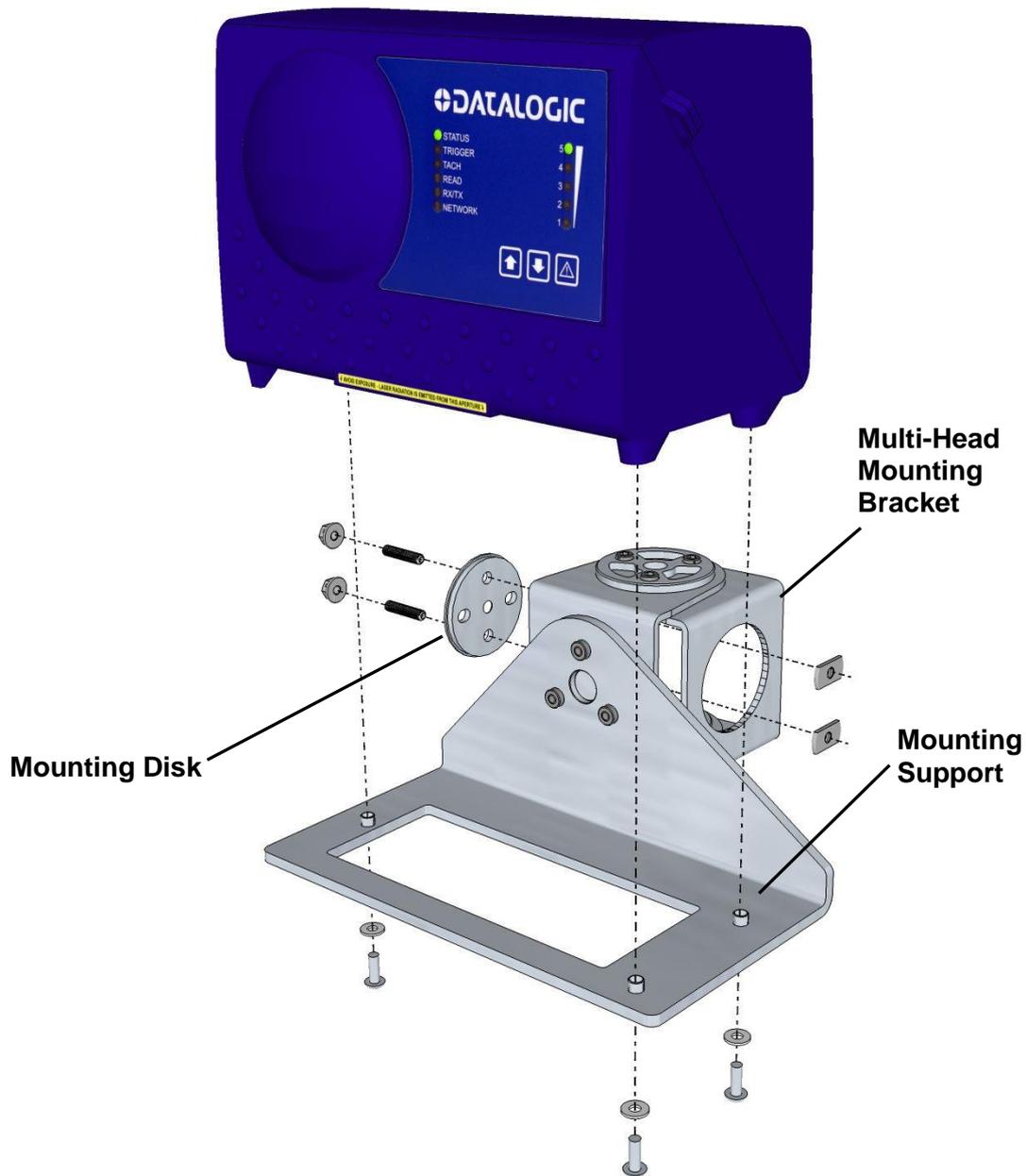
Figure 21: DM3610 and Multi-Head Mounting Bracket Assembly

1. Mount the bracket to the mounting structure using the **Mounting Disk** and hardware provided. Hardware is provided for standard Bosch or 80/20 mounting structure extrusion.

2. Mount the DM3610 to the **Mounting Support**.

2.5.9 Mounting the Optional Class 2 EU Adapter

The optional Class 2 EU Adapter is mounted below the standard and multi-head style UMB Mounting Brackets.

When mounting the Class 2 EU Adapter to the standard UMB, the mounting bolts included with the Class 2 EU 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.

DM3610

UMB Mounting Bracket with attached UMB Mounting Plate

4mm Spacer Washers

Class 2 EU Adapter

Mounting Bolts M6X25 BHCS
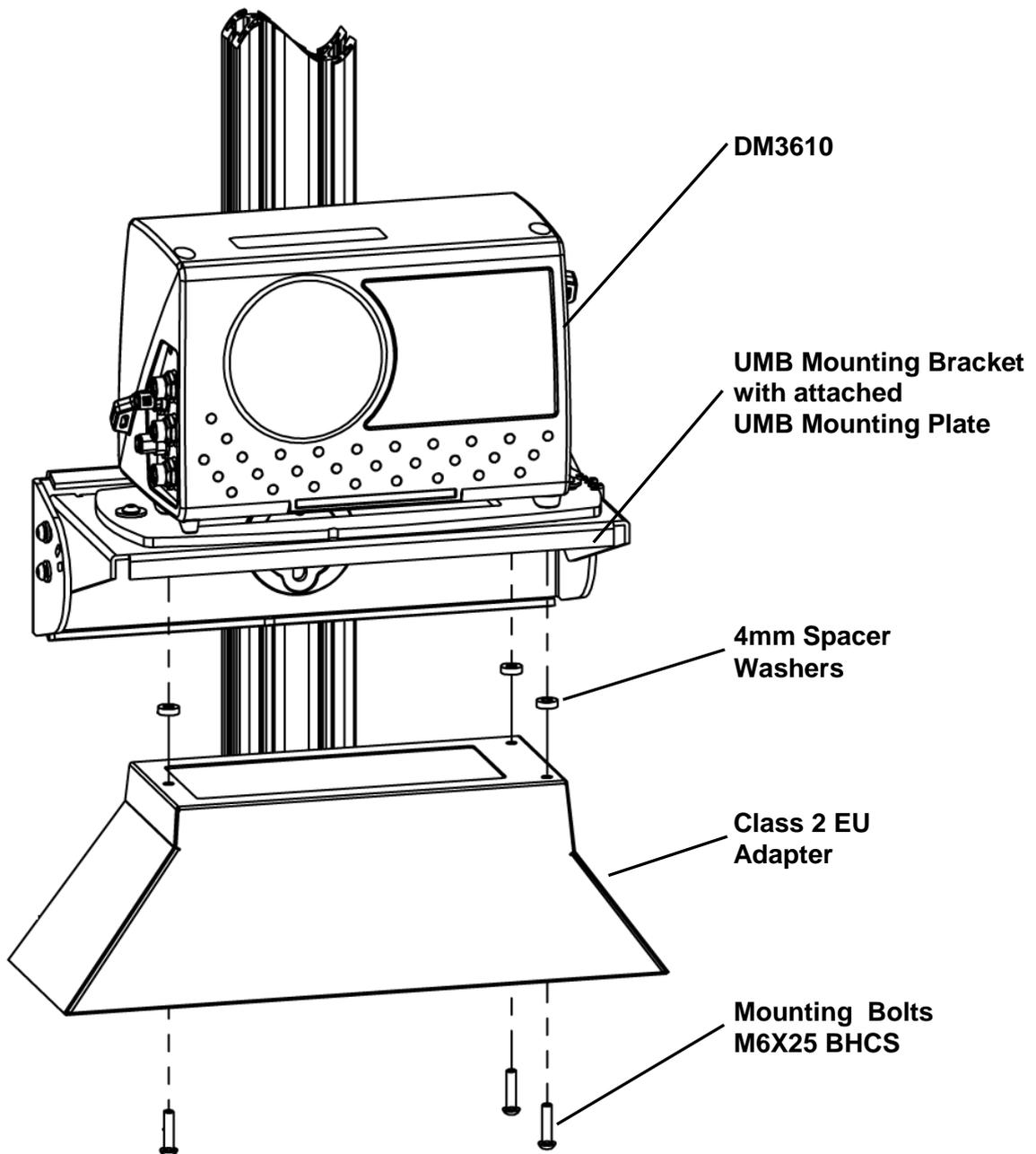
Figure 22: Class 2 EU Adapter Assembly with Standard UMB

NOTE: The bolts and washers provided with the DM3610 should discarded and replaced with those provided with the Class 2 EU Adapter.

When mounting the Class 2 EU Adapter to the Multi-Head Mounting Bracket, the original DM3610 mounting bolts can be used to attach the adapter, as shown below.

DM3610

Multi-Head Mounting Bracket

Class 2 EU Adapter

Mounting Bolts M6X22 BHCS
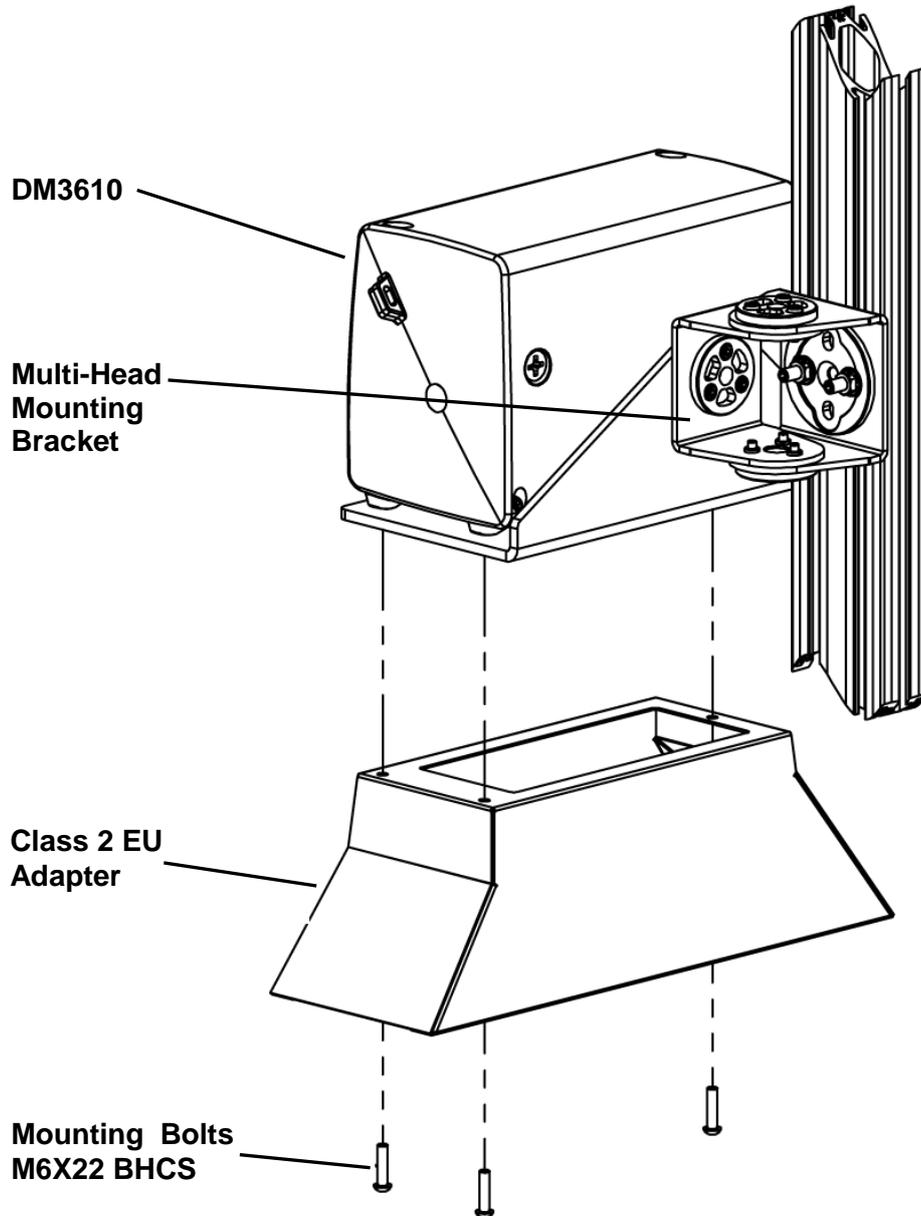
Figure 23: Class 2 EU Adapter Assembly with the Multi-Head Mounting Bracket

NOTE: Spacer washers and longer mounting bolts (M6X25) are not needed when mounting the Class 2 EU Adapter to the Multi-Head Bracket.

2.5.10 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)

NOTE: A photoelectric sensor is typically used for DM3610 singulated, non-touching 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.
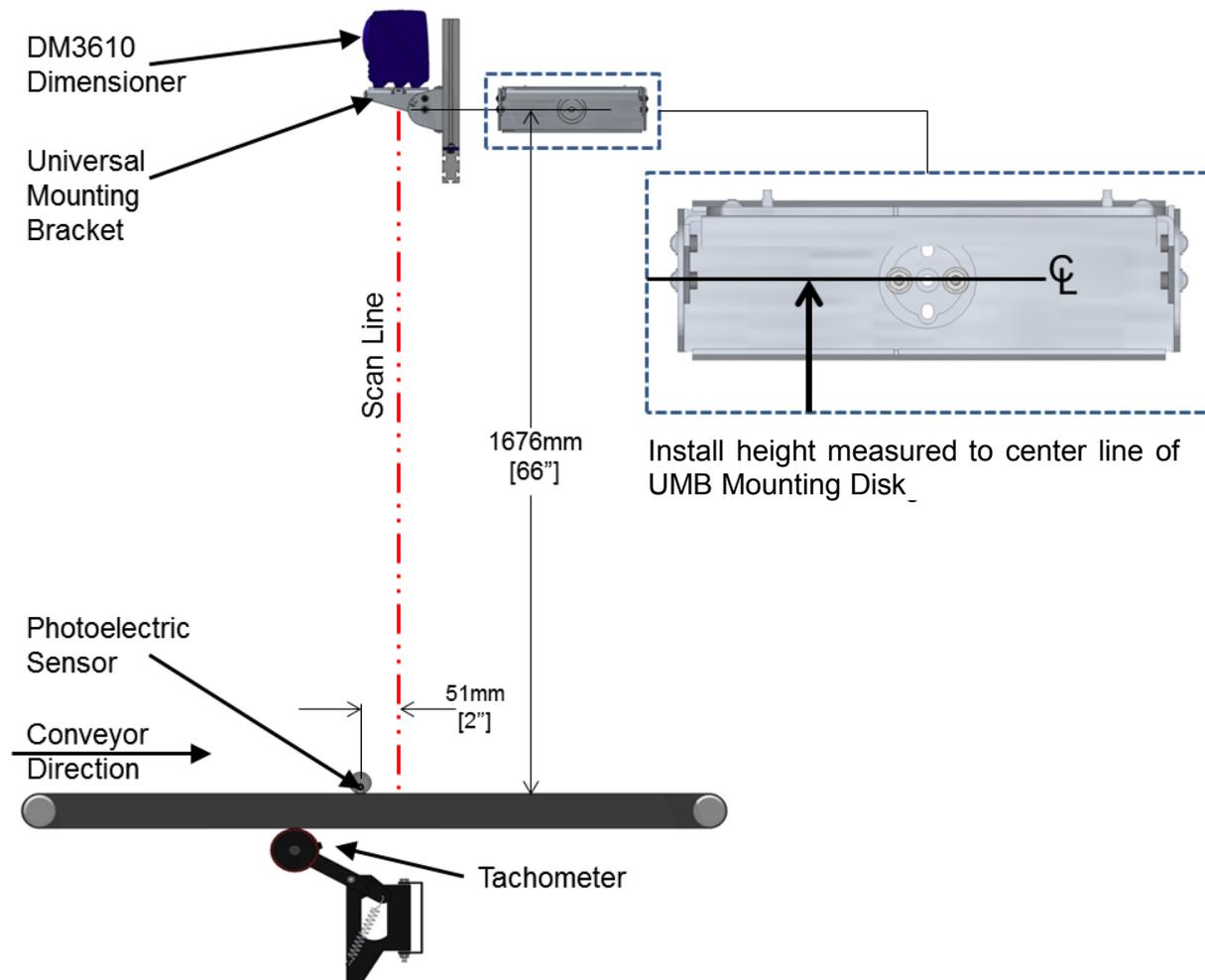
Figure 24: DM3610 Mounting Dimensions – SIDE VIEW
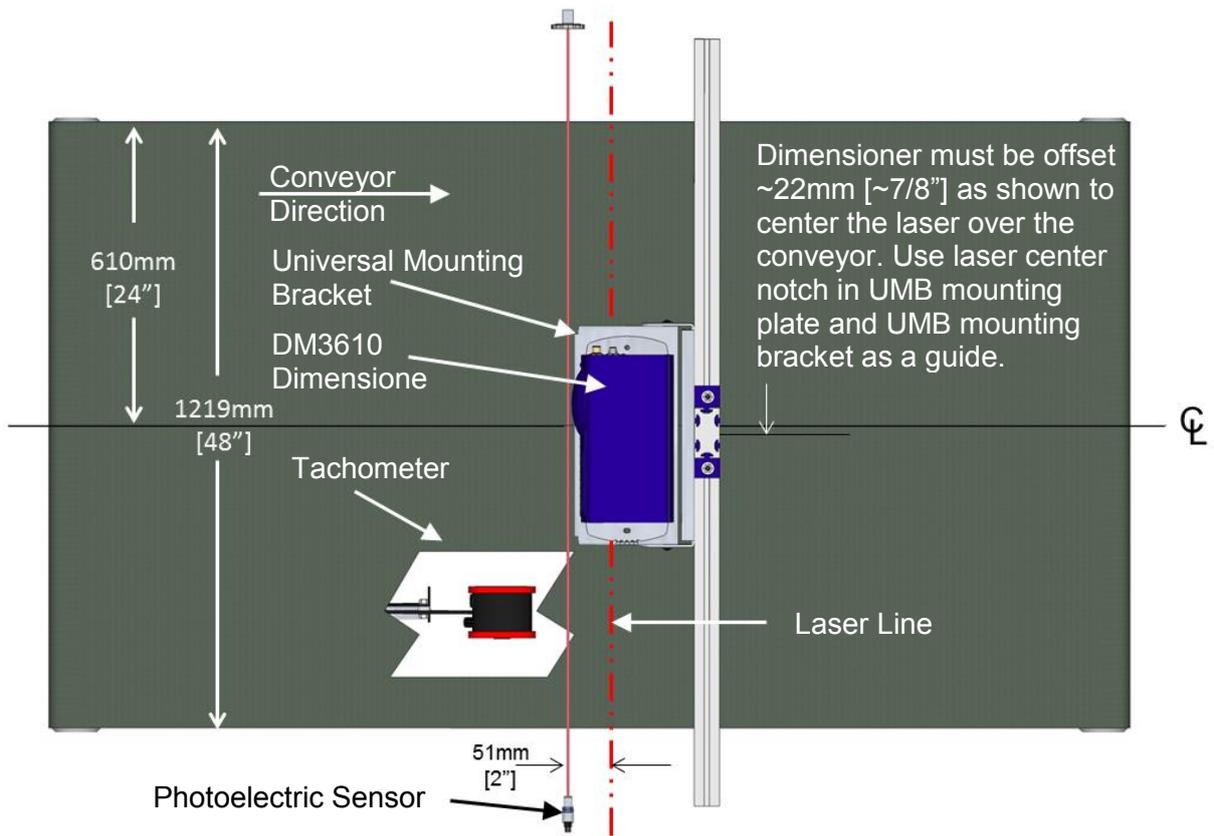
Figure 25: DM3610 Dimensioning System Installation - TOP VIEW

DM3610 Dimensioner

Universal Mounting Bracket

Beam Catcher

73° 36.5°

610mm [24"]

1219mm [48"]

915mm [36"] Coverage Area

Dimensioner must be offset ~22mm [~7/8"] as shown to center the laser over the conveyor. Use laser center notches in UMB mounting plate and UMB mounting bracket as a guide.

Photoelectric Sensor

Direction of conveyor travel is away from viewer

Tachometer
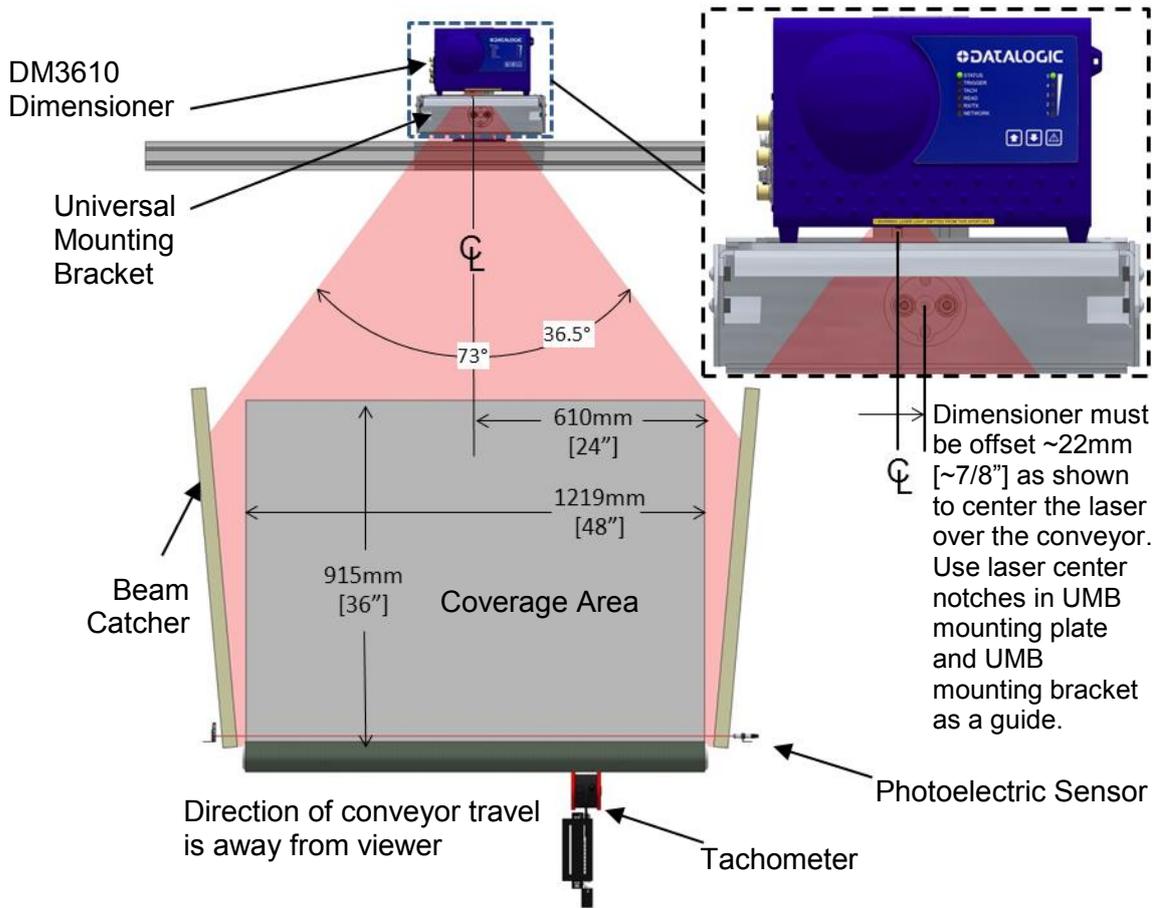
Figure 26: DM3610 Dimensioning System Installation – FRONT VIEW

DM3610 Dimensioner

Beam Catcher

Conveyor Direction

Maximum Box Size

2500mm [98"]

1219mm [48"]

915mm [36"]

Beam Catcher

Photoelectric Sensor

Tachometer

Figure 27: DM3610 Dimensioning System Installation – 3 QUARTER VIEW

2

2.5.11 Mounting Structure Assembly

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

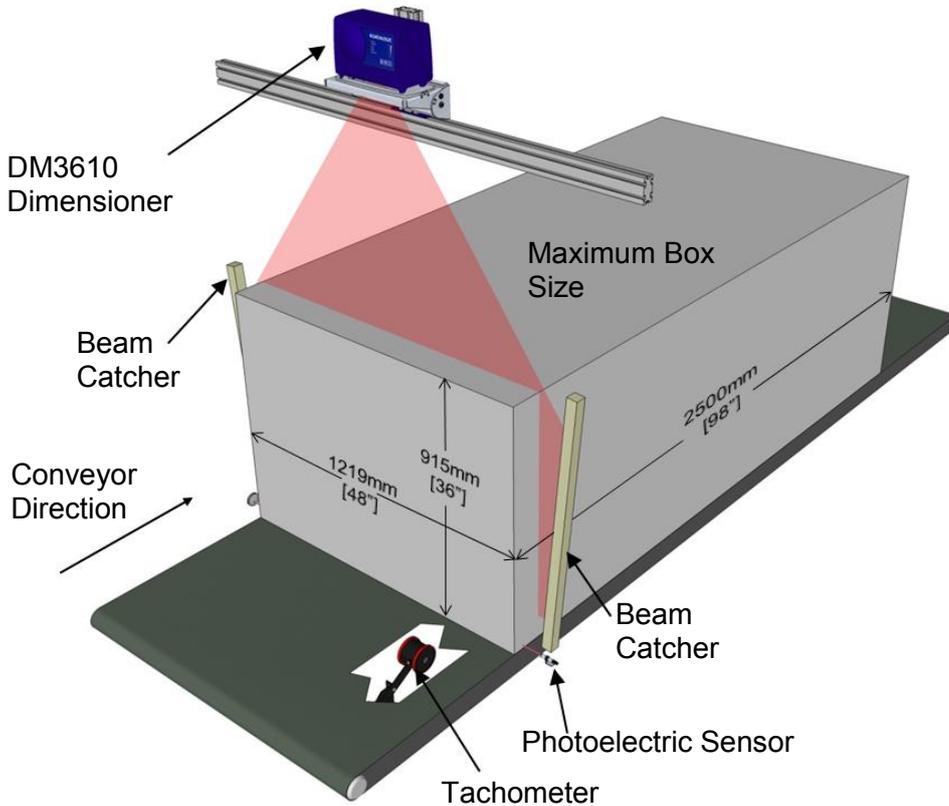**NOTE:** This manual addresses standard DM3610 installation. The information provided here may be superseded by any application specific drawings provided by Datalogic.

NOTE: Depending on your specific installation, beam catchers may be needed to avoid false dimensioning data points *(See Figure 26)*.

2.5.12 Prepare the Mounting Structure and Universal Mounting Bracket

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.
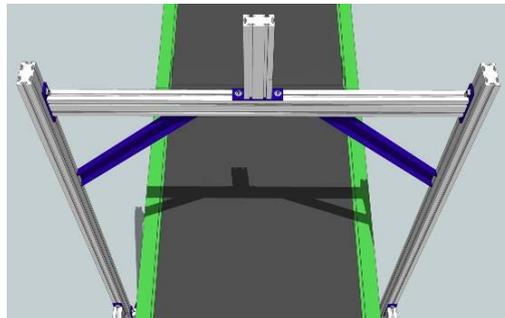
Figure 28: Center the Upright Mounting Support

2. Using a tape measure and marker or pencil, make an installation mark on the upright at 1680mm [approx. 66"] 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.

Standard mounting distance for the UMB is 1680mm [~66"]
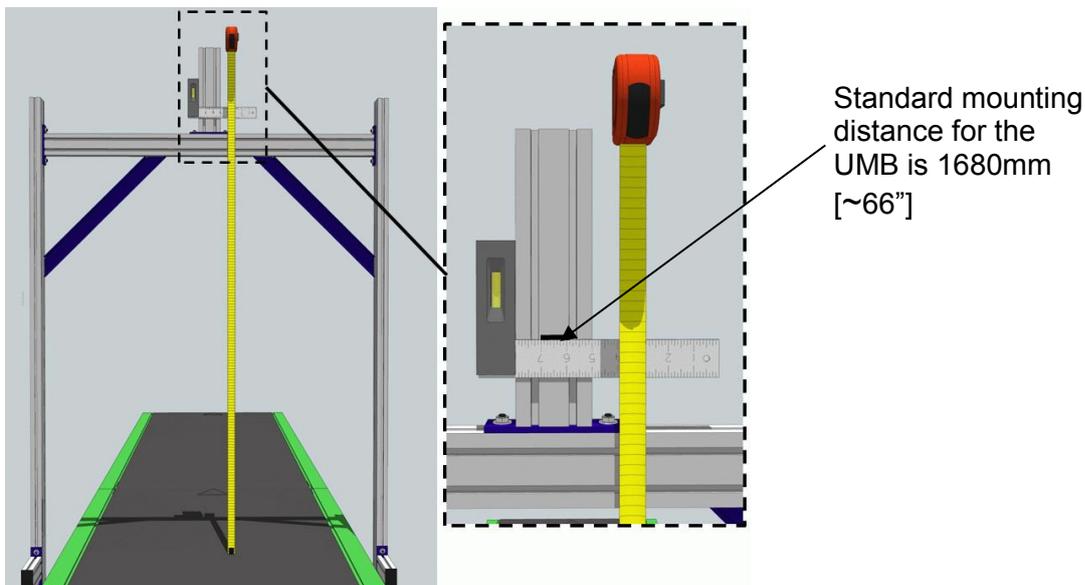
Figure 29: UMB positioning mark

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

UMB Mounting Plate

UMB
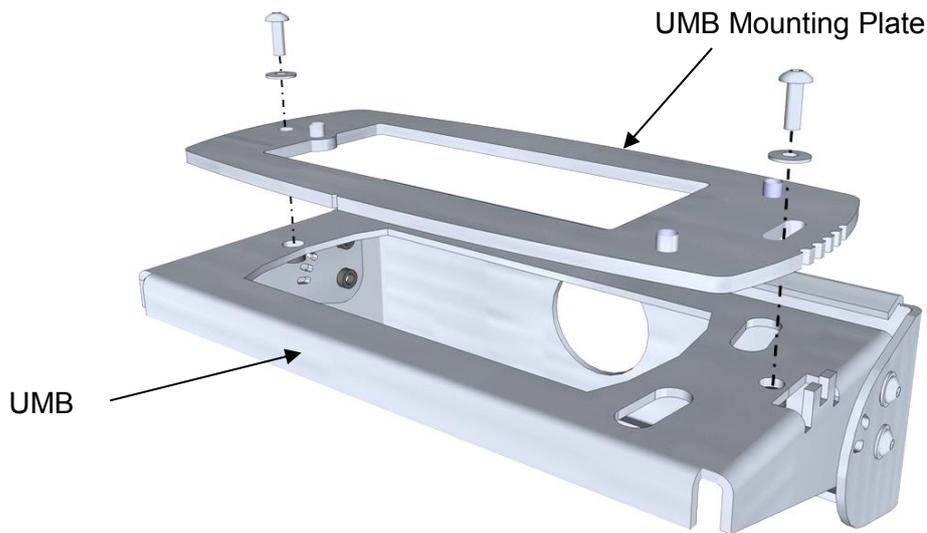
Figure 30: UMB Mounting Plate to UMB Assembly

NOTE: The Multi-Head Mounting bracket does not require a mounting plate.

2.5.13 Mounting the UMB and DM3610

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.

Threaded Inserts

Mounting Line

Set Screws

UMB Mounting Disk

Pitch Angle Adjustment bolts
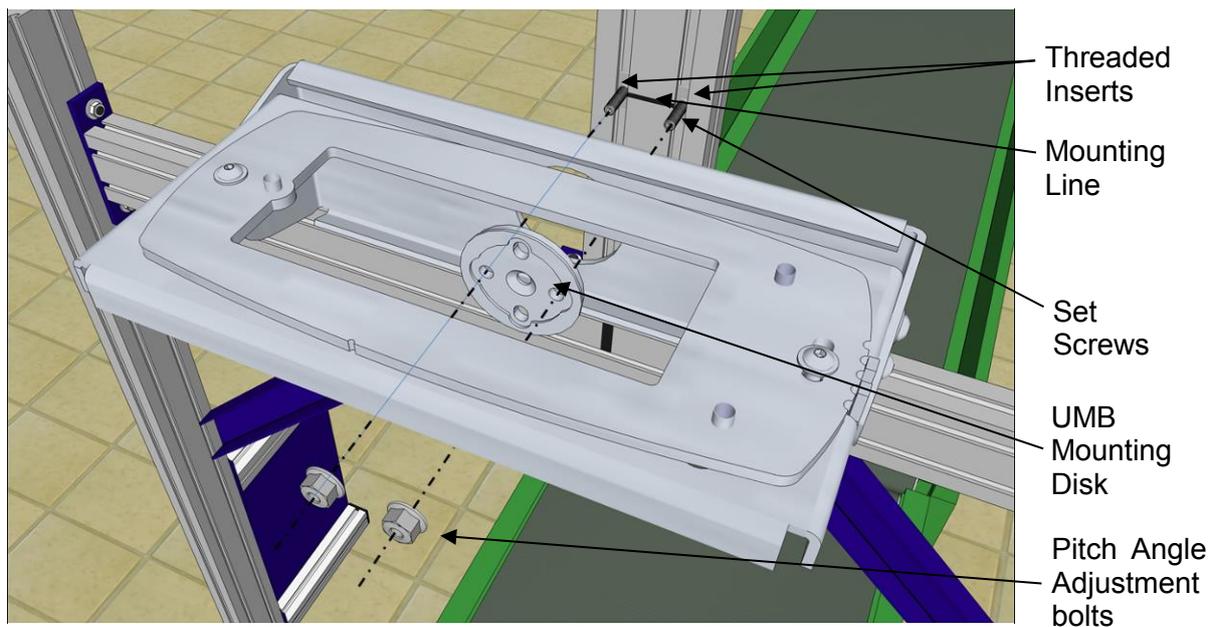
Figure 31: Securing the UMB to the structure

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

Mounting Line
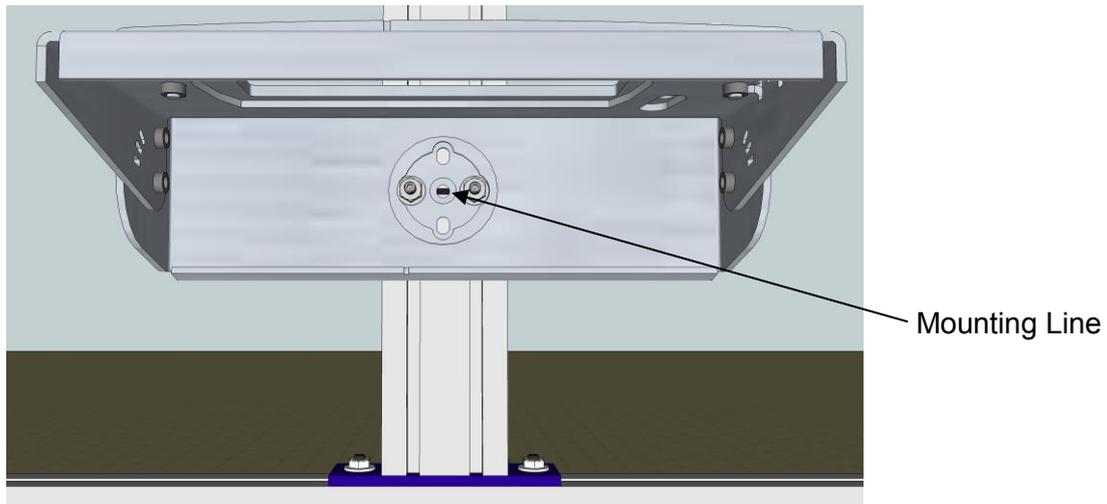
Figure 32: Aligning the UMB with the installation mark

NOTE: 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.
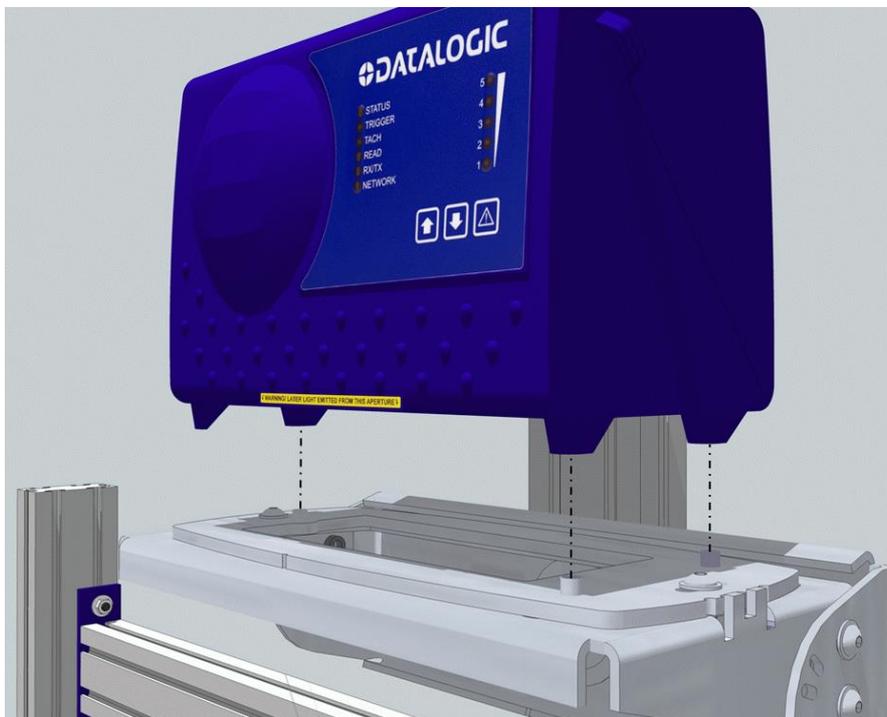
Figure 33: Placing the DM3610 on the positioning posts of the UMB Mounting Plate

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.

> **NOTE:** If you are using the optional **Class 2 EU Adapter**, attach it now using the screws and spacers provided as shown in *section 2.5.9.*
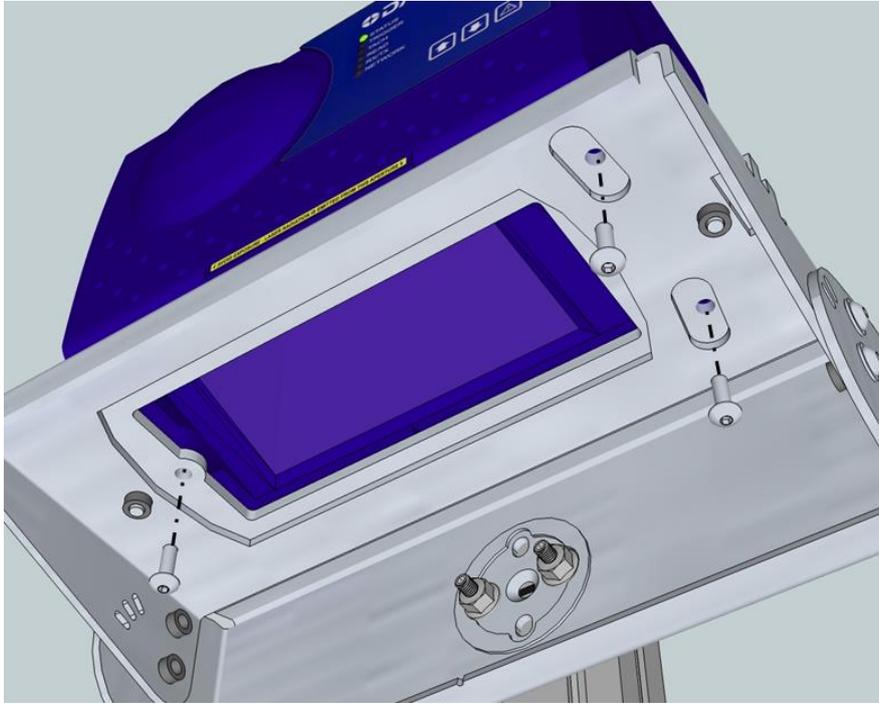
Figure 34: Securing the DM3610

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

2.5.14 Mounting the CBX Connection Box

CBX Series industrial connection boxes can be used to connect the DM3610 to the external display or other peripherals.

Figure 35: CBX100 Connection Box

The CBX100 All-in-One includes a BM100 backup module, which allows parameters to be downloaded from the DM3610. The backup module provides an easy way to upload existing parameters to a replacement DM3610 when necessary. The BM100 is only required if local parameter backup is desired. *(See chapter 5, Dimensioning Features)*

Mount the CBX100 to the mounting structure in a location to facilitate easy access to wiring. Secure the CBX100 with the bolts and drop-in T-nuts provided.

When mounting CBX100 to a fixed surface, the stencil include in the package can be used to drill the appropriate mounting holes.
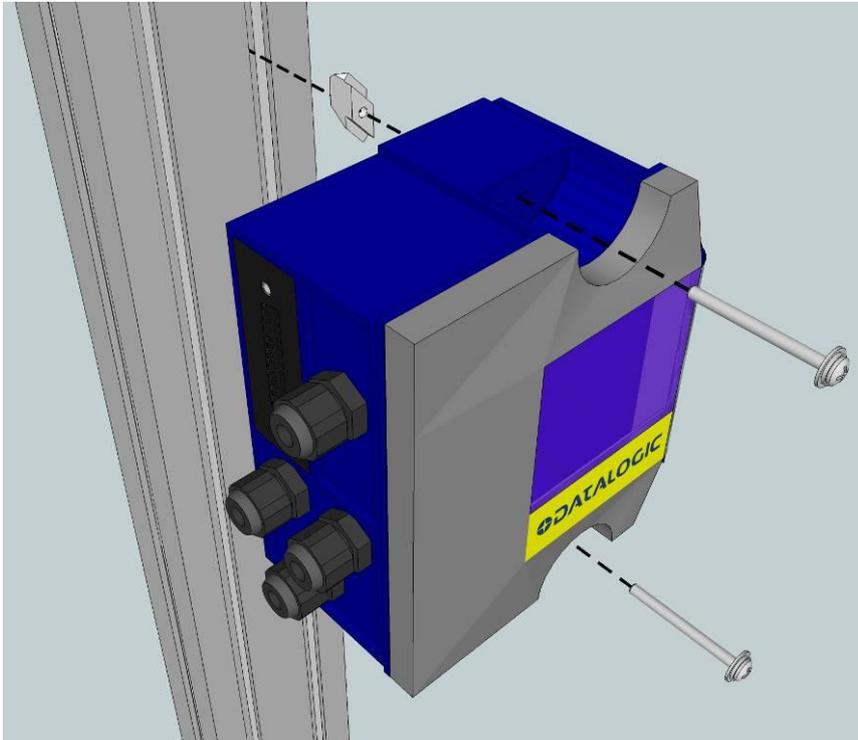
Figure 36: Securing the CBX100 using the 80/20 Mounting Kit

2.5.15 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.
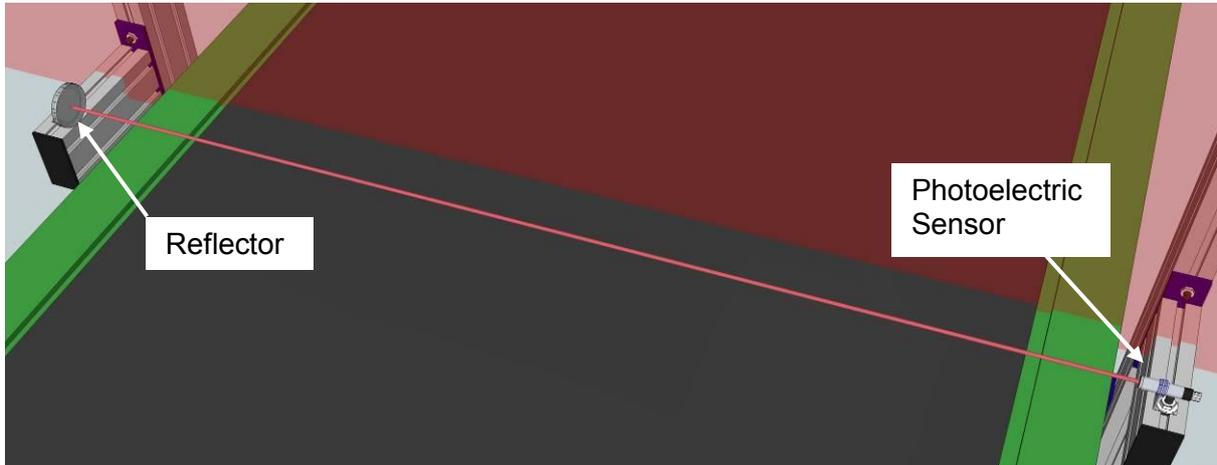
Figure 37: Mounting the Photoelectric Sensor

NOTE: 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.

NOTE: 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.

- Mount the reflector perpendicular to the conveyor, facing the emitter.

2.5.16 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.
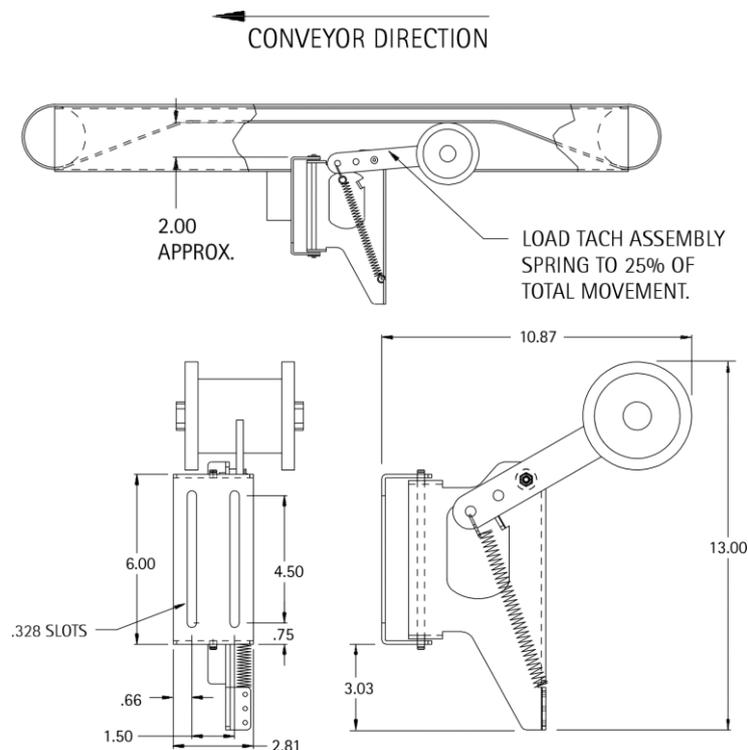
Figure 38: Tachometer Mounting Kit Installation

2.5.17 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.*

Figure 39: Datalogic CD141, 40 Character Remote Display

2.5.18 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.
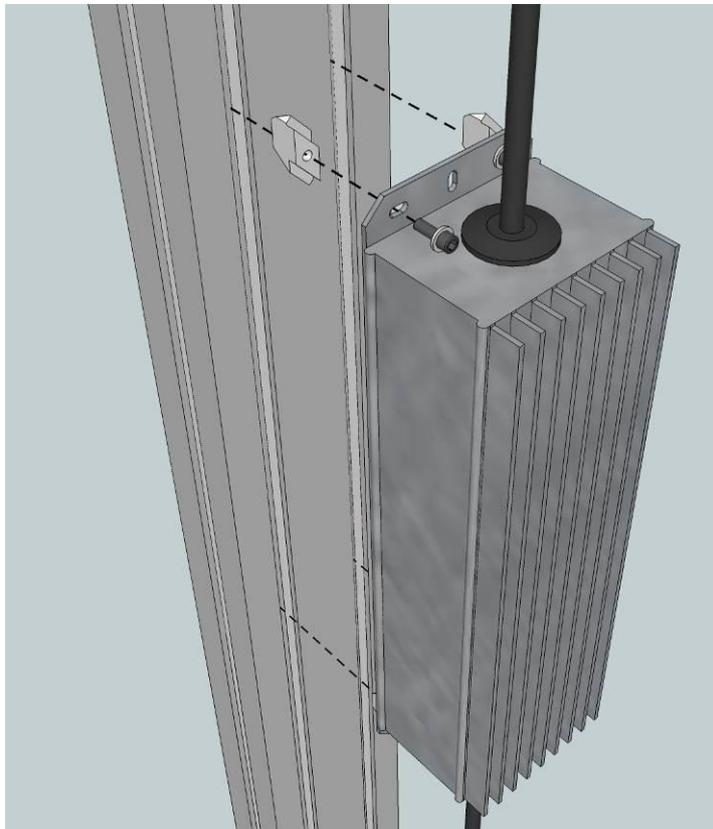
Figure 40: Securing the power supply to the mounting structure.

2.5.19 Connect Communication and Power Cables to the Installation

WARNING: DO NOT connect the power supply to a power source until after all wiring connections have been made to the DM3610 and CBX100.

Connect all communication cabling for the DM3610 system as explained in *chapter 3, Electrical Installation*, including:

- Communications and power supply connections to the DM3610

Figure 41: Connections to the DM3610 Connector Panel

- Connections to the CBX100 connection box

    - Connections to a photoelectric sensor
    - Connections to a tachometer
    - Connections to a remote display
    - Serial communication (if used)

After the communications cables have been connected, connect the power supply cable to the DM3610, and then attach the power supply to a power source.

NOTE: For information on setting up network or serial communication parameters, see *chapter 4, User Interface*.

2

2.6 ALIGNING DM3610 DIMENSIONING SYSTEM

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

2.6.1 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.
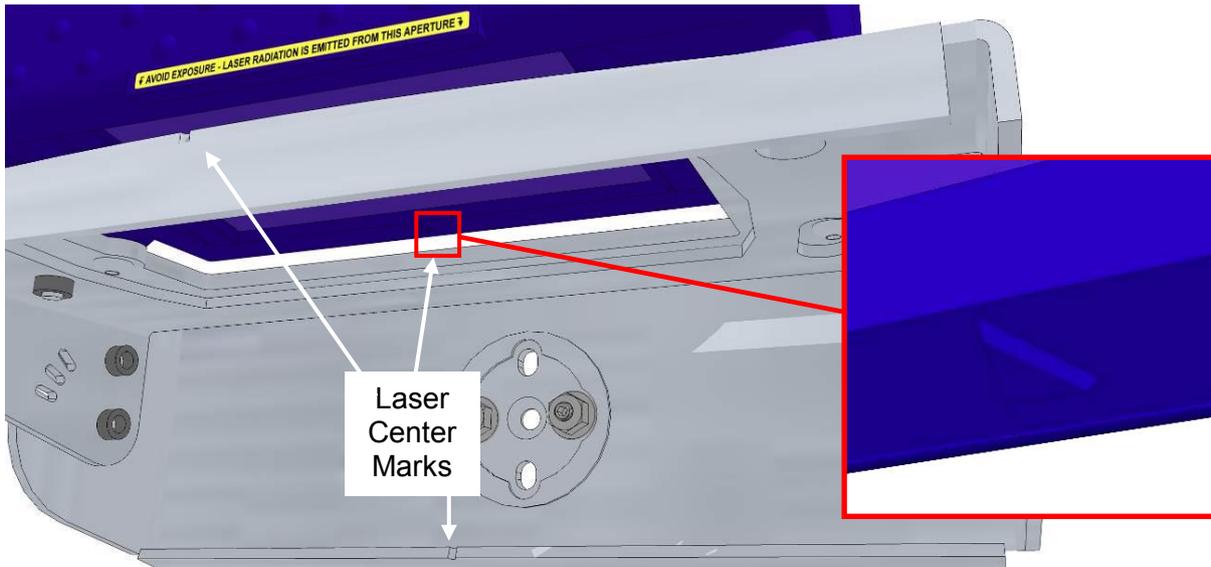
Figure 42: Laser Center Marks

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.
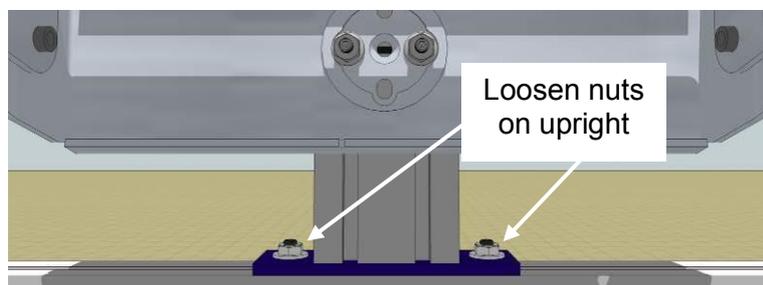
Figure 43: Laser Center Marks

5. 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.
6. Retighten the nuts securing the uprights when the laser center marks have been aligned with the center of the conveyor.

2.6.2   Adjusting the Pitch

1. Using 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.

Adjust Pitch by loosening nuts on the UMB Mounting Disk
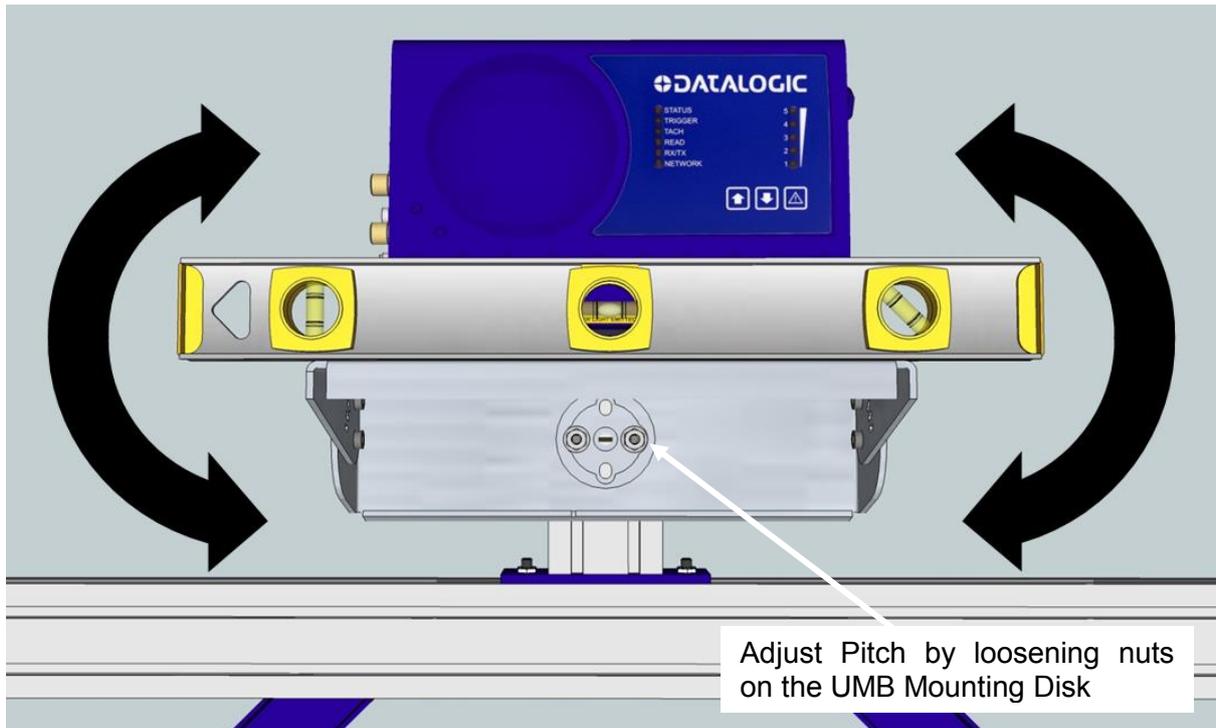
Figure 44: Adjusting the Pitch

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

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

2.6.3 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.
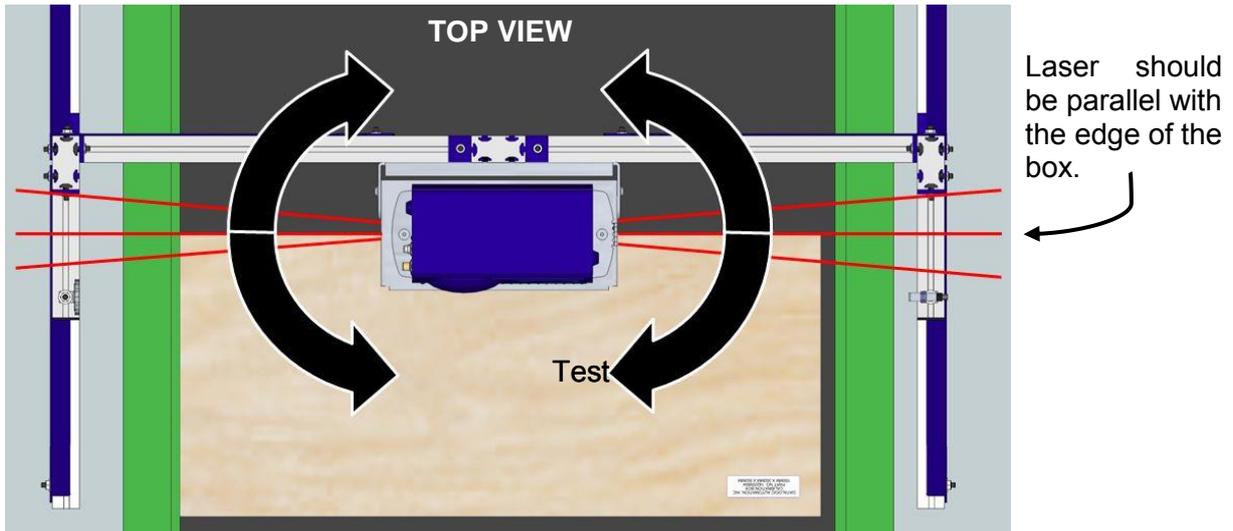
Figure 45: Adjusting the Tilt

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.
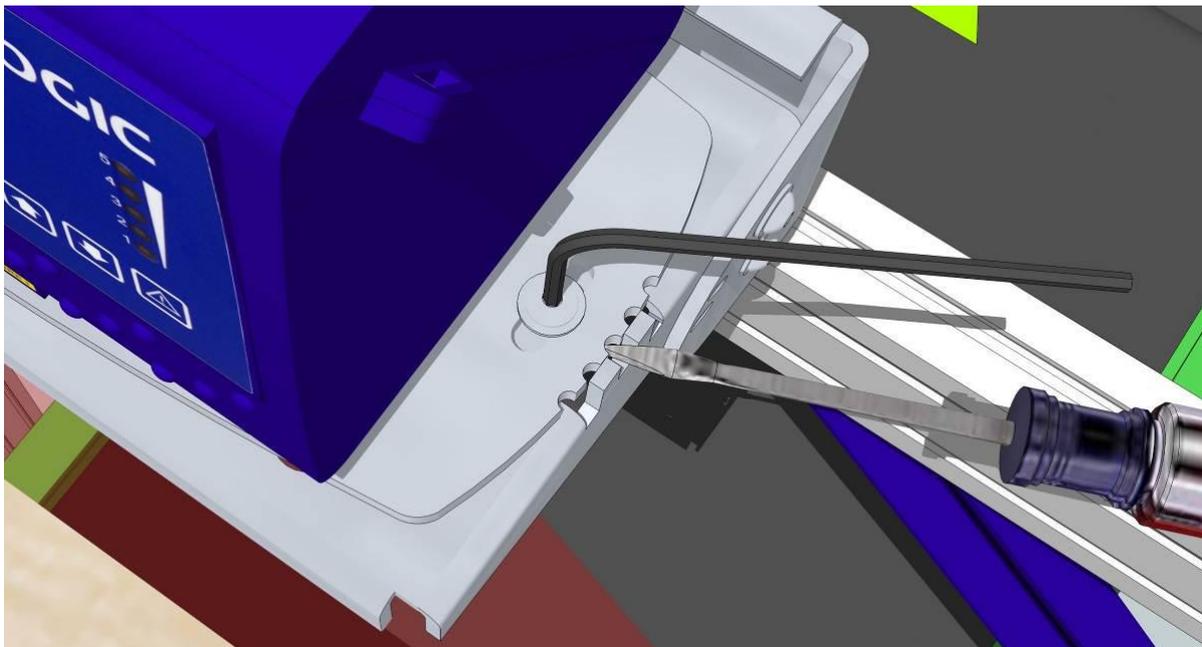
Figure 46: Adjusting UMB Mounting Plate with a Screwdriver

2.6.4   Adjusting the Skew

To adjust the laser skew, loosen the screws securing the front of the UMB to its back 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.

Adjustment Slots

Adjust the skew of the laser until it is 90° to the conveyor.
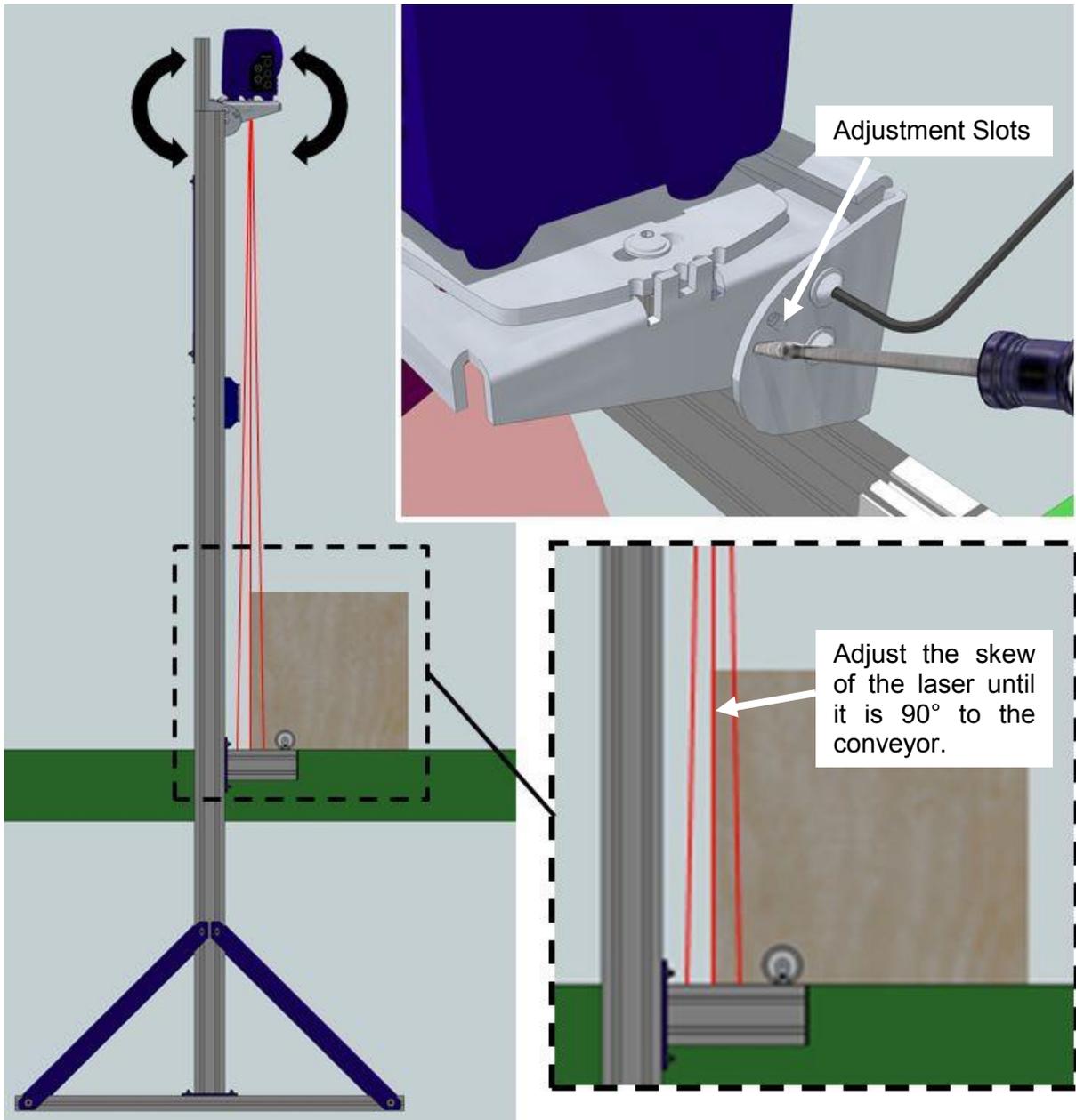
Figure 47: Adjusting the Skew

2.6.5   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.

2.7   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.

3 ELECTRICAL INSTALLATION

WARNING: Electrical Installation must be performed by a 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.

IMPORTANT: 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 to this manual. Failure to follow these precautions may void your warranty.

3.1 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.

IMPORTANT: 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.

3.2 INSTALLATION SEQUENCE

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

Most DM3610 applications are shipped with the CBX100 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.

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

3.2.1 Connecting a DM3610-1000/1100/1200/1300 Singulated, non-touching

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 CBX100.

- Wire the tachometer to the CBX100 (if used).

- Wire serial ports to the CBX100 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 CBX100 (if used).

- Connect the DM3610 to its power supply.

- Connect the power supply to the power source.

- Setup / check DM3610 operations *(See chapter 5.)*

3.2.2   Connecting a DM3610-2100/2200 Non-Singulated, touching

[Details on DM3610-2100, 2200 installation were not available at time of publication.]

3.2.3   Connecting a DM3610-3100/3200 Irregular System

[Details on DM3610-3100, 3200 installation were not available at time of publication.]

3.3 GENERAL ELECTRICAL 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:
  o 300 mm [12 inch] gap
  o use steel conduit and 25 mm [1 inch] gap
  o 6.5 mm [0.25 inch] of aluminum.

IMPORTANT: 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 **PLUGGABLE EQUIPMENT** the socket-outlet must be installed near the equipment and must be easily accessible.

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

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

3.4 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)

Figure 48: DM3610 Connector Panel

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.
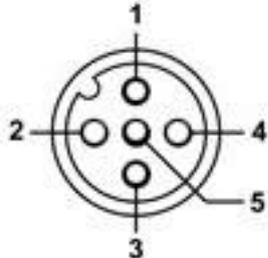

Figure 49: Wiring Channels

3.5 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

24V - - - 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	+24 VDC	
	2	N/C	
	3	DC RETURN	
	4	N/C	
	5	PROTECTIVE EARTH (CHASSIS)	

NOTE: 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.

3.6 POWER CONNECTIONS

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

CAUTION: 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.

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

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.
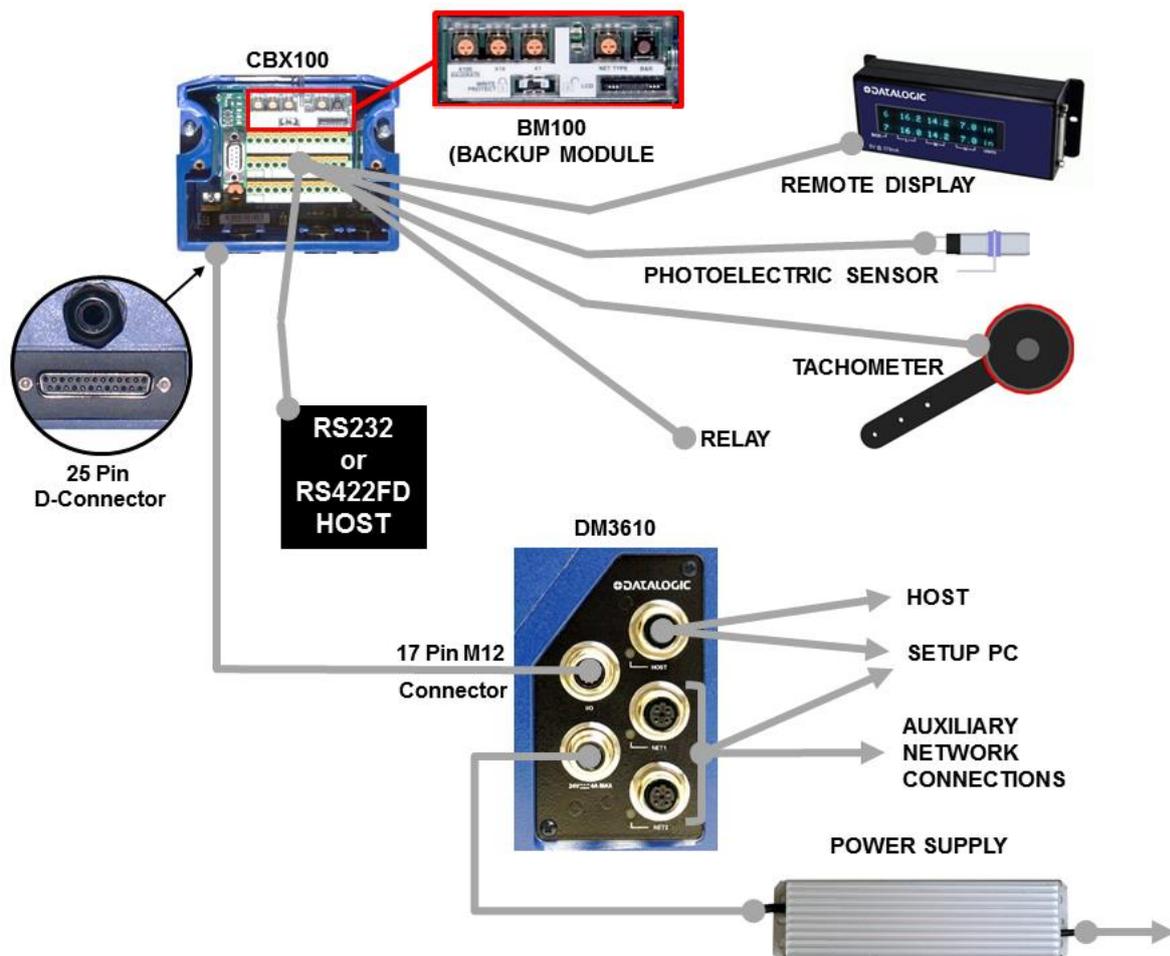

Figure 50: Wiring Block Diagram

3.7 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:
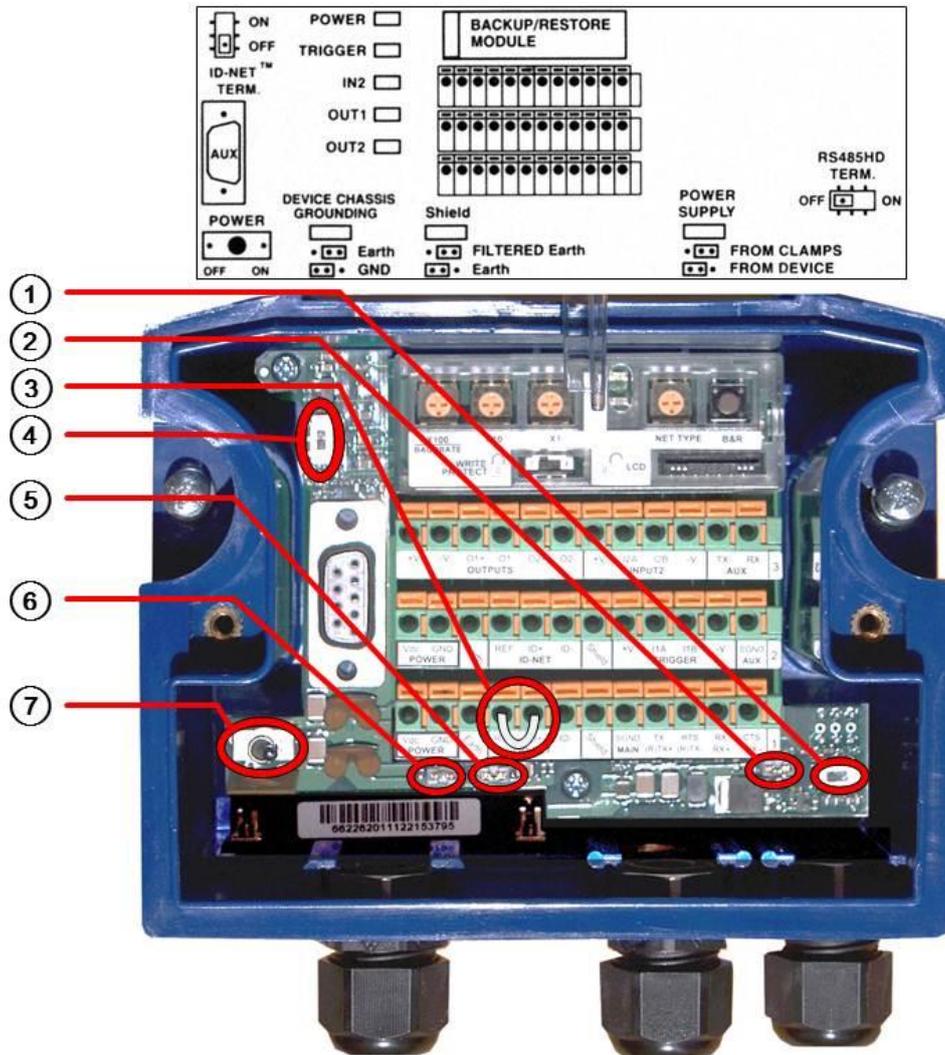

Figure 51: CBX100 Initial Setup

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).

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

4. Set ID-NET TERM. switch to OFF.

5. Set Shield jumper to FILTERED Earth.

6. Set DEVICE CHASSIS GROUNDING to Earth.

7. Set POWER switch to ON.

3.8 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.*

3.9   WIRING INTO THE CBX100 CONNECTION BOX

WARNING: DO NOT connect a separate power source to the CBX100 connection box. The CBX100 receives its power through its connection to the DM3610. Connecting a separate power source will be detrimental to the system operation.

As shown below, loose-lead cables must pass through the water-tight seals in the base of the CBX100 connection box. Insert the cables allowing enough slack for the individual wires to reach the appropriate pin block connectors. Securely tighten the water-tight seals after the cables have been inserted.

Insulation on individual wires should be removed to expose 13 mm [0.5 inch] of bare metal before inserting into the pin block.
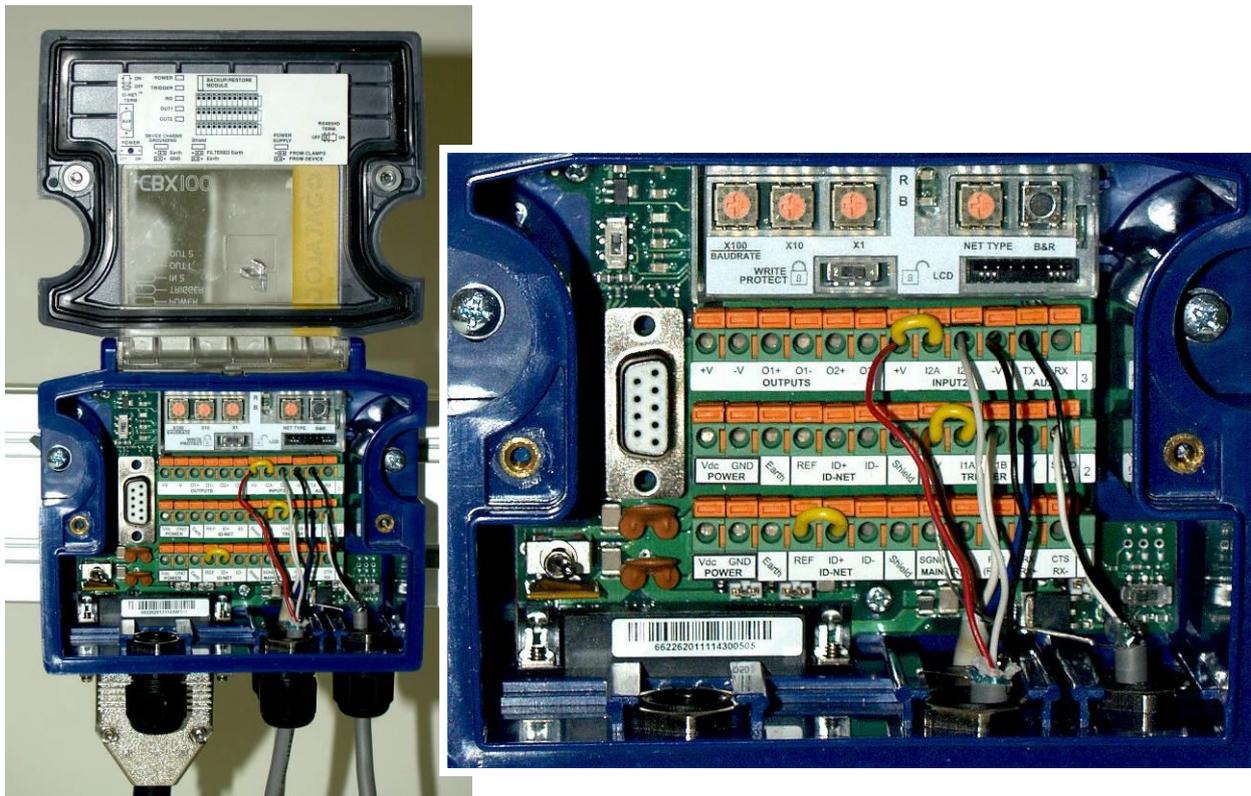

Figure 52: Securing wires with water-tight seals

3.10 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.

> **IMPORTANT:** 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 TRIG LED while the photoelectric sensor's beam is blocked. The Datalogic photoelectric sensor also includes a status LED.

3.10.1 Photoelectric Sensor Standard Wiring (NPN Output)

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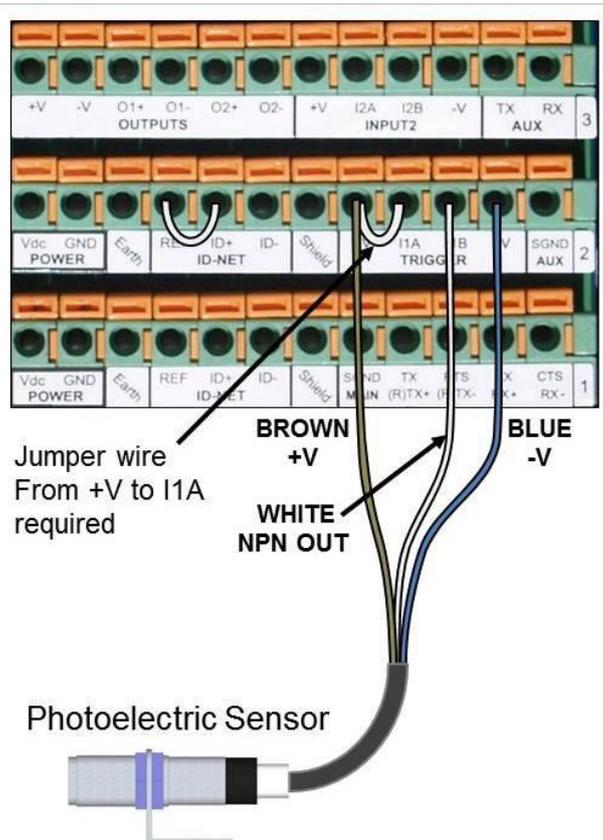

Figure 53: Photoelectric Sensor Wiring (NPN Output)

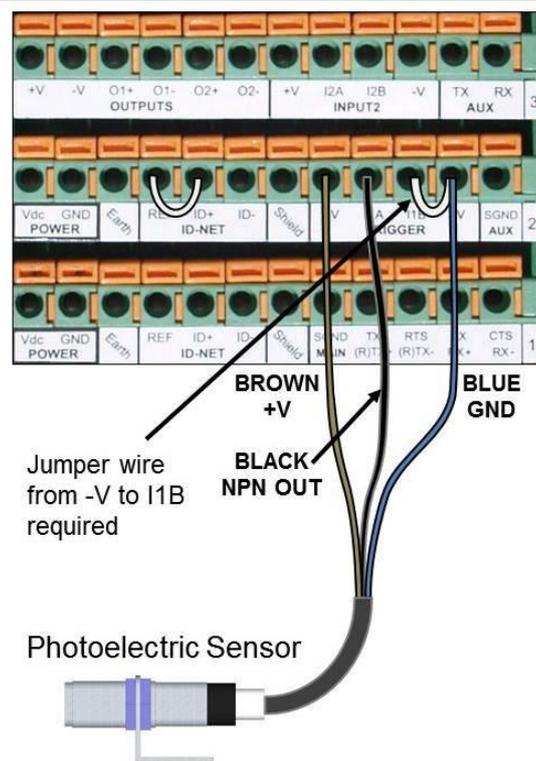## 3.10.2 Photoelectric Sensor Wiring (PNP Output)

Figure 54: Photoelectric Sensor Wiring (PNP Output)

3.11 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.

3.11.1 Standard Tachometer Wiring (NPN Output)
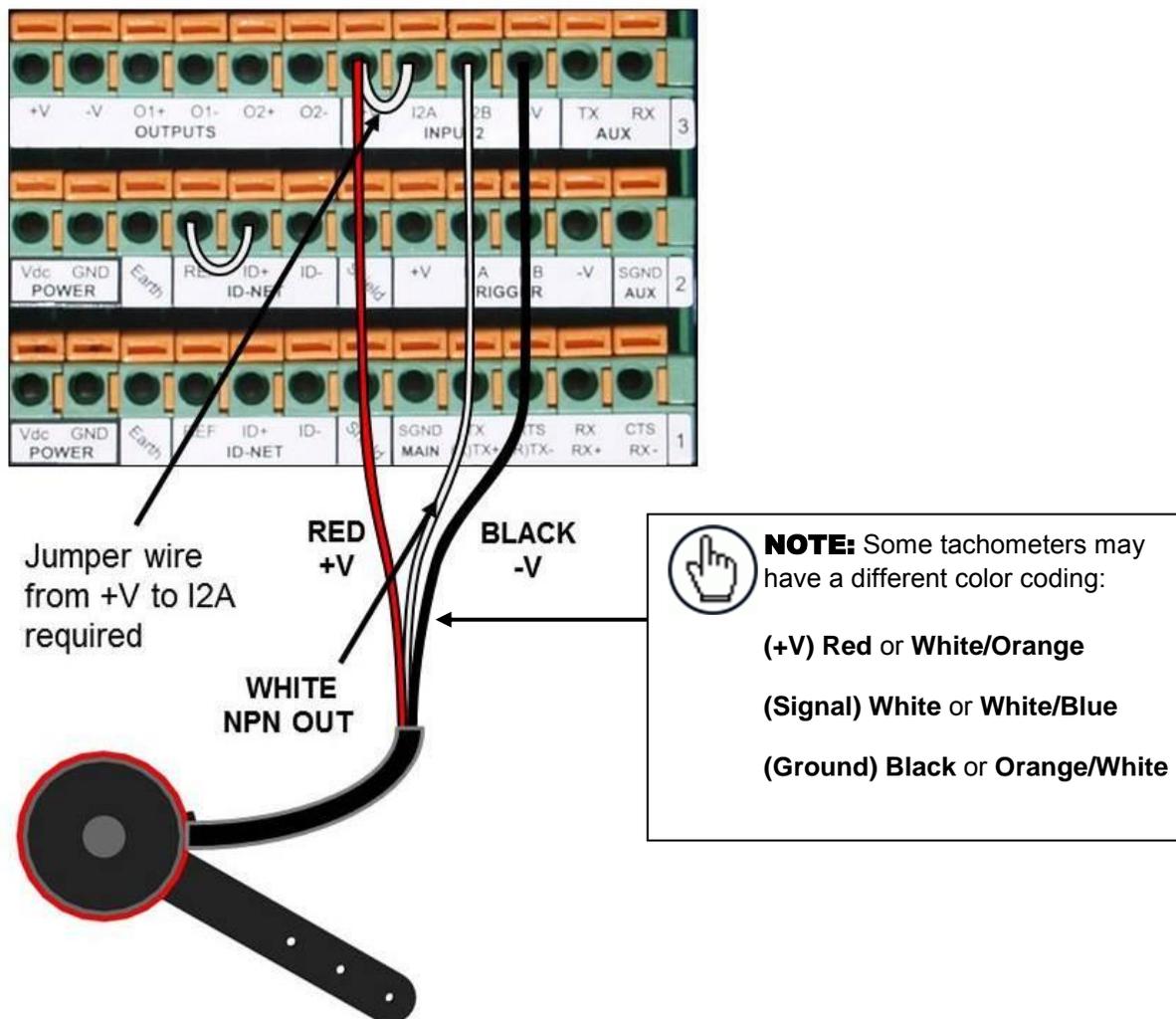
Figure 55: Tachometer Wiring (NPN Output)

3.11.2 Tachometer Wiring (PNP Output)

Jumper wire from -V to I2B required

+V

-V

PNP OUT

NOTE: Some tachometers may have a different color coding:

(+V) Red or **White/Orange**

(Signal) White or **White/Blue**
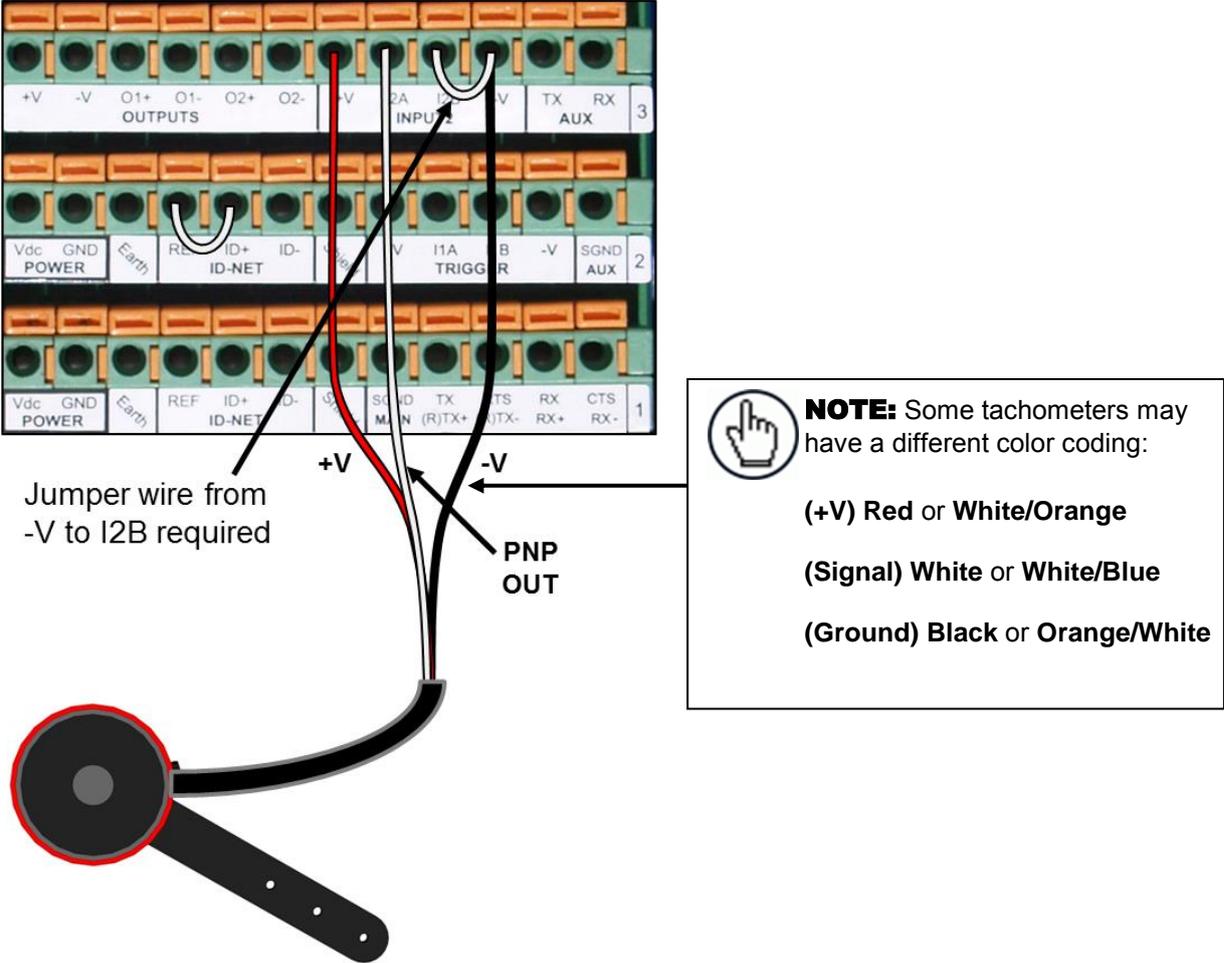
(Ground) Black or **Orange/White**

Figure 56: Tachometer Wiring (PNP Output)

3.12 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.
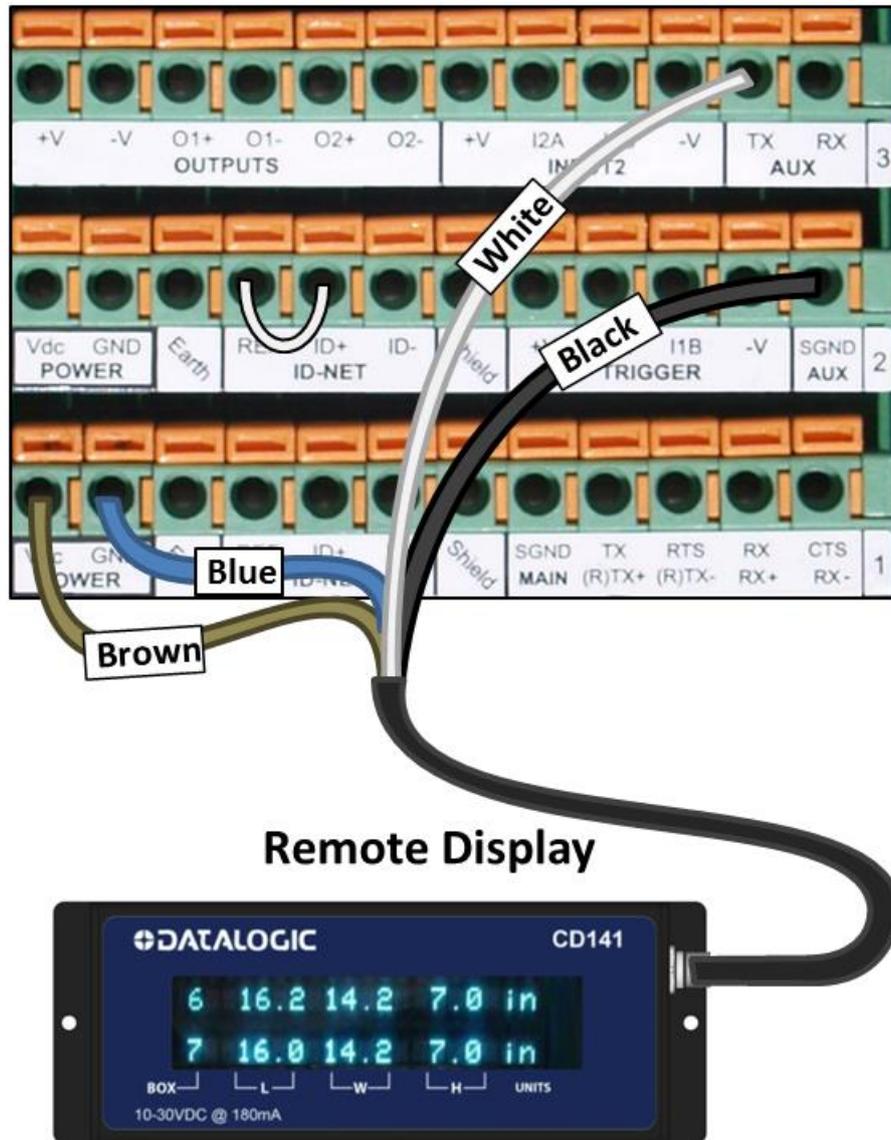

Figure 57: Remote Display Wiring

3

3.13 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.

3.13.1 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.

Figure 58: RS232 HOST (No Handshaking)
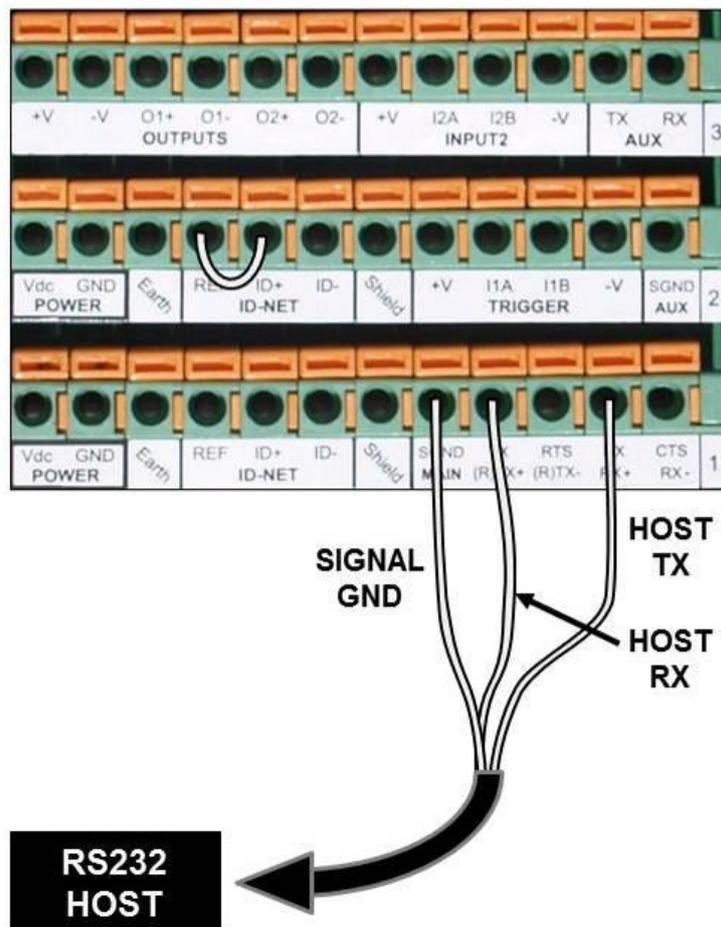
3.13.2 RS422FD HOST (Full Duplex)

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.
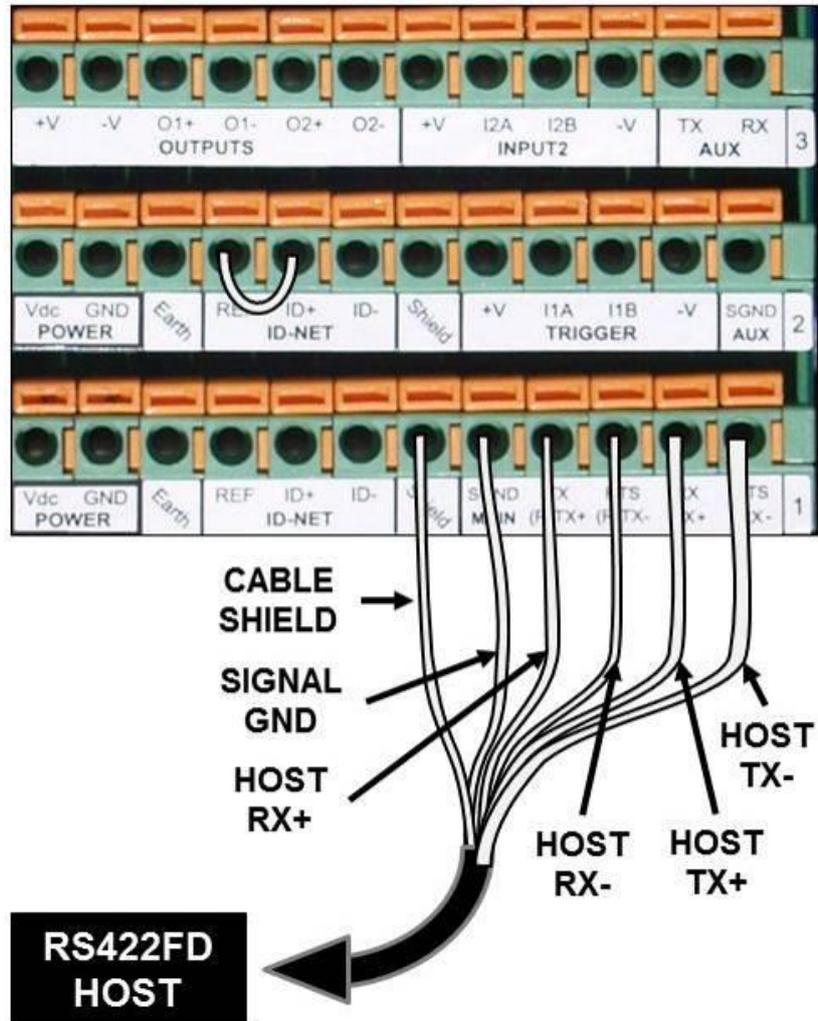

Figure 59: RS422FD HOST (Full Duplex)

3

3.14 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.

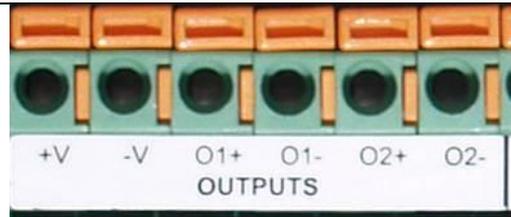| Outputs 1 and 2	
Maximum Voltage 30 V	
Collector Current (pulse) 130 mA Max.	
Collector Current (continuous) 40 mA Max.	
Saturation Voltage (VCE) 1 V at 10 mA Max.	
Maximum Power Dissipation 90 mW at 50°C (Ambient temperature)	

Figure 3.12: OUTPUTS Block
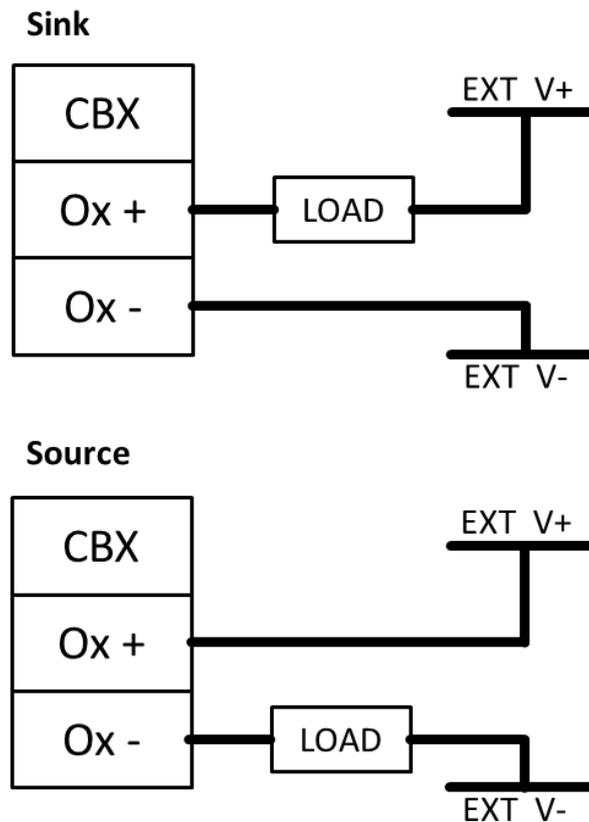
3.14.1 Isolated Relay

Figure 60: Isolated Relay Connection

3.14.2 Non-Isolated Relay
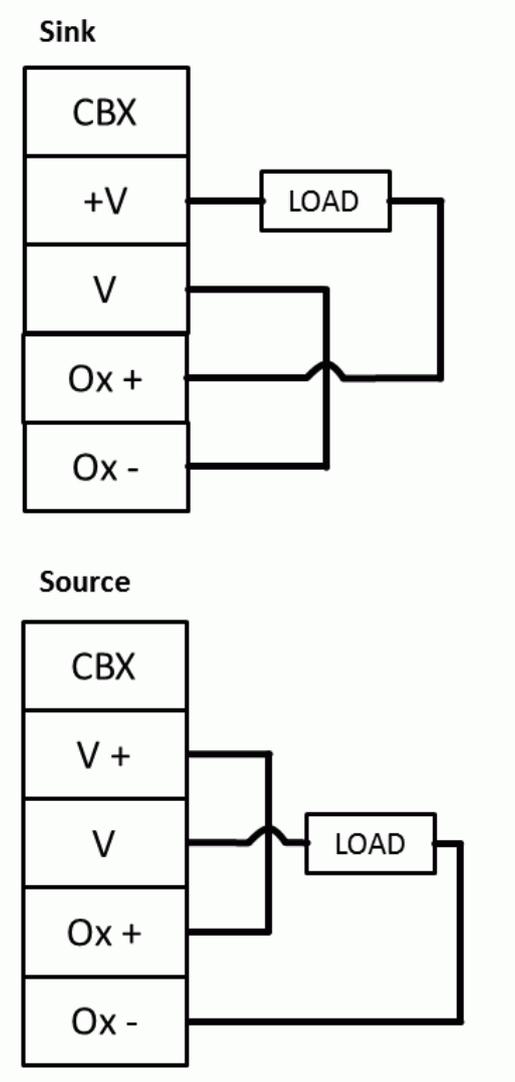
Figure 61: Non-Isolated Relay Connection

3.15 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.*

4 USER INTERFACE

4.1 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, monitor dimension quality, construct output messages, and view diagnostics. The DM3610 User Interface enables you to easily configure, fine-tune, and monitor your DM3610's operation.

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.

4.1.1 Prerequisites

Before setting up your DM3610 you will need the following:

Computer	Laptop
Browser	Internet Explorer 8 (or later)
	NOTE: Internet Explorer 10 (or later) is required to view **Diagnostic	DimView**.
	Firefox 18.0 (or later)
	Chrome 24.0.1312 (or later)
Java	Version 7, Update 9 (or later)

4.1.2 Accessing the DM3610 User Interface

To access the DM3610 User Interface:

1. Connect your computer to the DM3610 HOST port 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. If you are connecting to a stand-alone unit (not connected to an in-house network), you must configure your PC's IP Address to be in the same network as the DM3610's IP Address.

To change your PC's IP Address:

a. From the desktop, click the **Start** button, and then select **Control Panel**.
b. Type **adapter** in the search box, and then from the results, under **Network and Sharing Center**, click **View network connections**.
c. Right-click **Local Area Connection**, and then select **Properties**.
d. Select the **Networking** tab. **Under This connection uses the following items**, click **Internet Protocol Version 4 (TCP/IPv4)**, and then click **Properties**.
e. Select **Use the following IP address**.
f. In the **IP address** field, type the first 3 octets of the IP address of the DM3610 unit.
g. 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.

   Example: If the DM3610 IP Address is 192.168.3.100, set your PC's IP Address to 192.168.3.101.

h. In the Subnet mask field, type 255.255.255.0
i. In the **Default gateway** field, type 0.0.0.0
j. Click **Okay**.

4. 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	ENGLISH

Log On

5. Enter the **User ID** and **Password** for your system in the fields provided. The default User ID is "DM3610" and the default password is "DM3610." Your site administrator may have modified these defaults.

6. Select a language from the **Language** drop-down list.

7. 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.
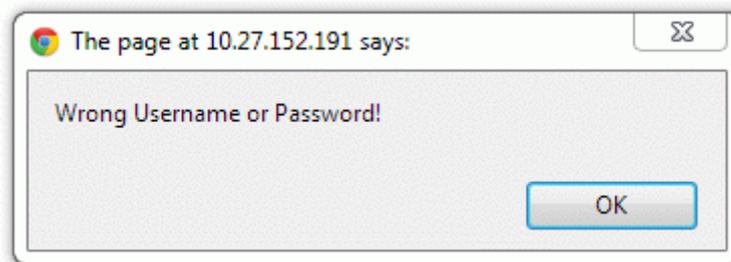
To log out of the DM3610 User Interface:

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

4.2 IP ADDRESS DISCOVERY

To discover the IP address of the dimensioner:

1. Power down the dimensioner (disconnect power).

2. Connect Laptop to the HOST port of the DM3610 with an M12 to RJ45 adapter cable.

Figure 62: Connector Panel

3. Hold down the "!" key on the dimensioner control panel while reapplying power to the unit.

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.

    7.   Power down the dimensioner to exit this feature.

Upon normal power up you can connect to the dimensioner using the IP Address, Username and Password indicated in the system info window.

4.3   USER INTERFACE BASICS

4.3.1   DM3610 User Interface Menu Tree

The functions that you can select are displayed in a menu tree on the left–hand side of the DM3610 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.
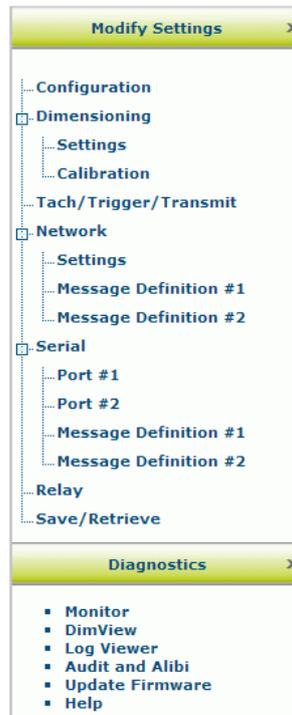
Sub–levels appear indented below the items from which they are expanded. Items that are expanded are preceded by a minus sign (–). You can expand no further when an item displays neither a plus or minus sign.

The DM3610 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.

4.3.2   Getting Help

DM3610 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.

4.4 MODIFY SETTINGS

Use the Modify Settings menu tree selections during initial setup to configure your DM3610 Dimensioner. If necessary, you can later make modifications to the dimensioner's configuration using the same menu selections, including:
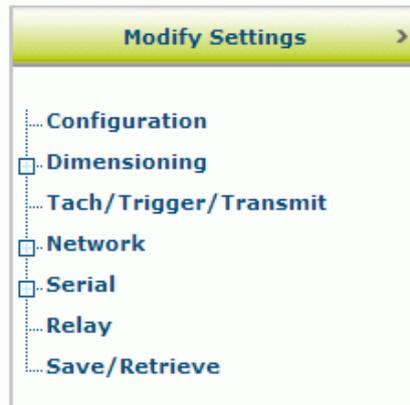
4.5 MODIFY SETTINGS | CONFIGURATION

Use Configuration to identify and configure a DM3610 Dimensioner. This includes access to dimensioner information as well as configuration options (scan rate, control panel and network access).

To set the dimensioner Configuration:

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

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

Field Name	Action/Definition
Dimensioner Information	
Dimensioner Name	Enter a user-defined dimensioner name (up to 15 characters) in the field provided. This is useful when it is necessary to identify multiple dimensioners within the same building or application.
Dimensioner Model	Displays the dimensioner model (DM3610-1000, DM3610-1100, etc.)
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	Select this check box to activate the Control Panel Buttons on the front of the DM3610. Deselect 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.

4.6 MODIFY SETTINGS | DIMENSIONING

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

The menu selections include:

- Settings
- Calibration

4.6.1 Modify Settings | Dimensioning | Settings

Use 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.

Field Name	Action/Definition
Outputs	
DIM-in-Head Enabled	Select **On** or **Off** from the drop-down list.
	If **On** is selected, the DM3610 is using the scan point data to calculate the object dimensions within the head itself.
	If **Off** is selected, the DM3610 is not calculating dimensions, but gives you the option to transmit 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.
	NOTE: 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**.
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 disabled.

Field Name	Action/Definition
Length, Width Resolution (d)	Select the dimensioning length/width resolution from the choices provided in the drop-down list. (d) represents the smallest interval between two consecutive values used in the dimension calculations.
Height Resolution (d)	Select the dimensioning height resolution from the choices provided in the drop-down list.(d) represents the smallest interval between two consecutive values used in the dimension calculations.
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).*
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.

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

4.6.2   Modify Settings | Dimensioning | Calibration

Use Dimensioning | Calibration to calibrate an installed DM3610 dimensioner.

To calibrate the dimensioner *(See also, **Dimensioner Calibration** in chapter 5 section 5.6, Dimensioning Features):*

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

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

Field Name	Action/Definition
Belt Analysis	
Side Margins	Side margins equal the width of spacers (the aluminum extrusion pieces shown in the drawing below) that help the dimensioner find the edges of the conveyor belt.

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

If the spacers 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.
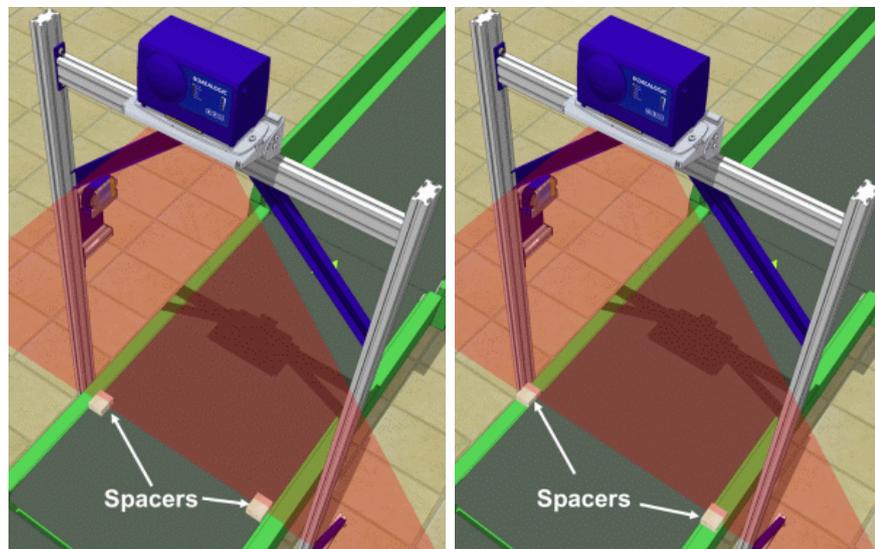

Figure 63: Side Margin Spacer Placement

Field Name	Action/Definition
Belt Analysis	
Find Belt	Click **Find Belt** to automatically determine the scan points, field of view, angle offset, scanner height, left ignore, and right ignore.

NOTE: 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"].

Find Belt measures dimensioner height to bottom of housing

Figure 64: Dimensioner Height

Use Belt	Click **Use Belt** to transfer the "found" or calculated dimensions to the **Dimensioning Area** fields.
Dimensioning Area	**NOTE**: All these values are automatically populated by the **Find Belt/Use Belt** commands
Scan Points (100-1000)	This is the number of points across the laser scan line.
Field of View (2-119 degrees)	Enter the coverage angle of the dimensioner's laser. This is the total swing angle of coverage for the laser from left to right.

Field Name	Action/Definition
Belt Analysis	
Angle Offset (0-32 degrees)	Enter 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.
Scanner Height	Enter the distance from the scanner to conveyor belt surface. If **Use Belt** is clicked, this field will be populated automatically.
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. If **Use Belt** is clicked, this field will be populated automatically.
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. If **Use Belt** is clicked, this field will be populated automatically.

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

4.7 MODIFY SETTINGS | TACH/TRIGGER/TRANSMIT

Use Tach/Trigger/Transmit to set up the tachometer source 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 tree menu 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.

Field Name	Action/Definition
Tachometer	
Tach Source	Select **Hardware/External** or **Constant/Internal** the tachometer source from the drop-down list.

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.

Pulse per cm [in]	Enter the number of tachometer pulses used per cm [in] traveled.
Tach Scale Factor	Enter a factor to eliminate deviations in the expected versus actual tachometer pulses/inch or cm. **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.
Tach Controlled Laser	Enable this check box for the laser to automatically turn off whenever the belt speed is zero for one minute or more.

Field Name	Action/Definition
Constant/ Internal	Specify the tach rate to be used (from .05 - 3.05 m/sec [from 10 - 600 ft/min]). No external hardware is used.

 |
Pulse per cm [in]	Enter the number of tachometer pulses used per cm [in] traveled.
Tach Scale Factor	Enter a factor to eliminate deviations in the expected versus actual tachometer pulses/inch or cm. **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)
Tach Controlled Laser	Enable this check box for the laser to automatically turn off whenever the belt speed is zero for one minute or more.

Field Name	Action/Definition	
Trigger		
Trigger Source	Select **Hardware Trigger, Software Trigger,** or **Continuous Trigger** from the drop-down list.	
	Hardware Trigger	This refers to an actual photoelectric sensor used as the trigger.
	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.
	Trigger Reference Point	Enter the distance from your trigger source to the DM3610 laser scan line.
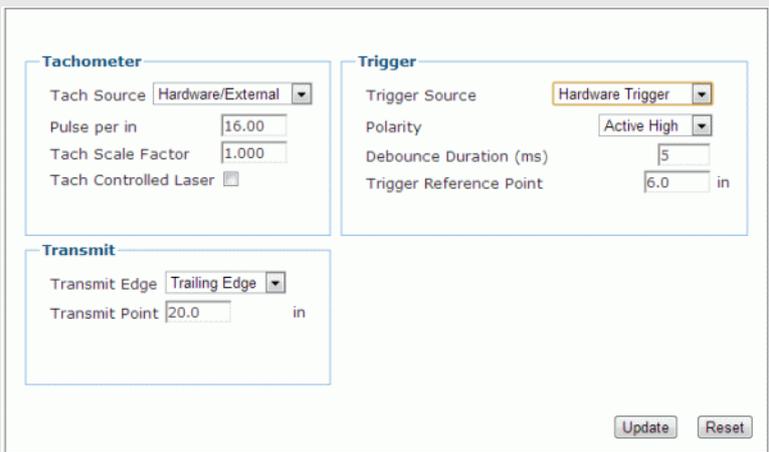
Field Name   Action/Definition
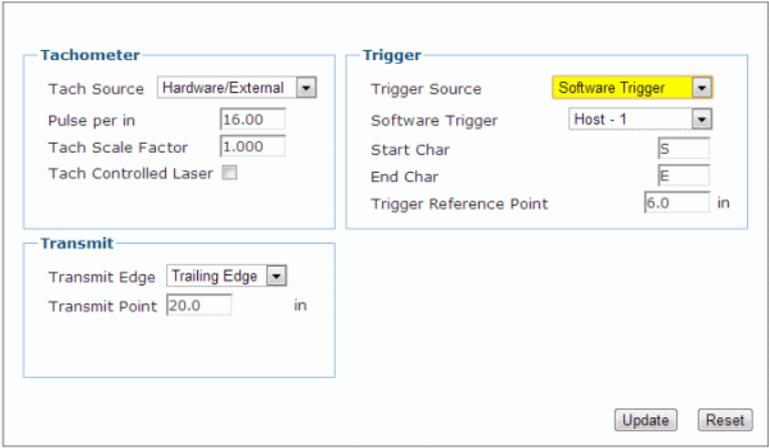
Software Trigger	
Software Trigger	Select Host - 1, Host - 2, Net - 1, or Net - 2 from the drop-down list. The software trigger can be any "host port" either serial or network based.
Start Char	Define the ASCII characters that, when received, will start trigger for the reader.
End Char	Define the ASCII 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.
Continuous Trigger	When selected, the dimensioner is always in trigger mode and immediately transmits the dimensions of any package seen.

Field Name	Action/Definition
Transmit	Transmit is hidden if **Continuous Trigger** is selected as the trigger source.
Transmit Type	This input is only visible when **DIM-in-Head Enabled** is set to **Off** in **Modify Settings | Dimensioning | Settings.** Select **No Transmit, Continuous Scans, Trigger Based Scans, Calibration Scans**, or **Averaged Scans** from the drop-down list.

NOTE: This data is transmitted by UDP messaging to the remote IP address and port specified in the Data Transmit section of the **Network Settings** page.

No Transmit	When selected, no scan line data is transmitted.
Continuous Scans	When selected, every scan line is transmitted.

WARNING: This mode should only be used for controller-based dimensioning. The high-throughput can have adverse effects on the system and/or diagnostic utilities.

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.
Calibration Scans	When selected, this behaves like Trigger Based Scans but provides additional debugging capability to an advanced user.
Averaged Scans	When selected, this behaves like Trigger Based Scans, except that it averages scan line data over time. This mode is useful when using **Diagnostics | DimView** as it smooths away image noise.
Transmit Edge	This input is only visible when **DIM-in-Head Enabled** is set to **On** in Modify Settings | Dimensioning | Settings. Specifies which edge of the package (leading or trailing) is used to reference the transmit point. View window.
Transmit Point	This input is only visible when **DIM-in-Head Enabled** is set to **On** in **Modify Settings | Dimensioning | Settings.** The point at which dimension data is transmitted. Defines the number of inches or centimeters after the specified edge of the package passes the trigger before data transmission occurs.

Field Name	Action/Definition
Extends	These inputs are only available when **DIM-in-Head Enabled** is set to **Off** in **Modify Settings | Dimensioning | Settings** and a **Transmit Type** of **Trigger Based Scans, Calibration Scans,** or **Averaged Scans** is selected.

Extend Front	Scan lines will be sent at the full rate this many inches before the front of the package crosses the scan line.
Extend Back	Scan lines will return from full rate to slow/nominal rate this many inches after the back of the package passes the scan line.

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

4.8 MODIFY SETTINGS | NETWORK

Use **Modify Settings | Network** 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. The menu selections include:

Network Settings
Message Definition #1
Message Definition #2

Definitions:

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

Net Mask - A netmask modifies a standard IP address into subnets. A default class C net mask should be valid in most cases (either 255.255.255.0 or 255.255.240.0).Consult your network administrator for the net mask value.

Gateway IP Address - 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.

4.8.1 Modify Settings | Network | Network Settings

Use **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.

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

Field Name	Action/Definition
IP Address 1	An IP address specifies a unique host ID for the reader on a particular TCP/IP network. Consult your network administrator for a valid IP address for the reader. **NOTE**: 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	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	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.
Enable IP Address 2	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. **NOTE**: 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 2	Enter a secondary Net Mask for the unit.
Net Host Connection *n*	**Select a connection types 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.

When used, a remote IP address must also be entered in the fields provided.

> **NOTE**: 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.

> The page at 10.27.152.191 says:
>
> Parameter change requires a reboot. The system will reboot in two seconds.
>
> OK
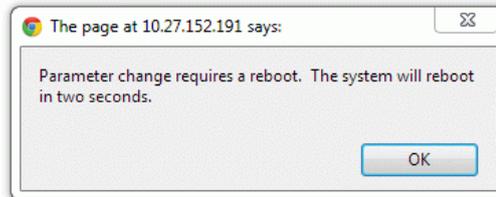
Select a Message Format from the drop-down list:

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

> **NOTE**: 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.

> **NOTE**: When **Standard Message** is selected, no user input is permitted in the **Message Definition #n** window.

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

Telnet Port	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	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 off-line analysis and troubleshooting. The various modes of this data transmission can be set using the Transmit Type selection on the **Tach/Trigger/Transmit** page.

> **WARNING:** 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.

4.8.2 Modify Settings | Network | Message Definition #N

Use **Modify Settings | Network | Message Definition #n** to define messages when User Defined Messages has been selected in the **Network Settings** window.

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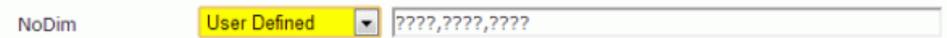
2. Enter the appropriate information in the form as described below.

Field Name	Action/Definition
Framing	**Define the message framing**
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.
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.
Messages	
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. 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. NoDim User Defined ▾ ????,????,????
Dimensions Format	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 Name	Action/Definition
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 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**
Dimension Units	Select **in** (inches), **mm** (millimeters), or **cm** (centimeters) from the drop down list.
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.
Lead Padding	Enter characters to proceed the length, width, and height field.
Trail Padding	Enter characters to follow the length, width, and height field.
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.
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.

Field Name	Action/Definition
Append Alibi Info	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. **Format:** <Sequence #|-YYYYMMDDhhmmss
Append Volume	Select the check box to enable. When checked, **Volume Units**, **Volume Field Width**, and **Volume Precision** drop-down boxes are revealed.

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

Field Name	Action/Definition
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. **NOTE**: 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.

4.9   MODIFY SETTINGS | SERIAL

Use Modify Settings | Serial to specify serial settings for the dimensioner. Port #1 and Port #2 define two serial connections for sending messages. The Connection Type and Message Format for each port can be set independently. The menu selections include:

Port #1
Port #2
Message Definition #1
Message Definition #2

4.9.1   Modify Settings | Serial | Port #N

Use Modify Settings | Serial | Port #1 (or #2) to define the format of message the dimensioner sends to your host computer (or other device) connected to Serial Port n.

To adjust the serial port settings for the dimensioner:

1. In the tree menu under **Modify Settings**, navigate to **Serial | Port #n**. The **Port #n** window opens.

4.9.2   Modify Settings | Serial | Message Definition #N

Use Modify Settings | Serial | Message Definition #n to define messages when User Defined Messages has been selected in the Serial Port #n window.

To define the appearance of dimensioner messages:

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

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

> **NOTE**: Available user interaction with this form will vary depending on the Message Format selected in **Modify Settings | Serial | Port #n**.

Field Name	Action/Definition
Framing	**Define the message framing**
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.
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.
Messages	
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. 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. NoDim User Defined ????,????,????

Field Name	Action/Definition
Dimensions Format	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 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**
Dimension Units	Select **in** (inches), **mm** (millimeters), or **cm** (centimeters) from the drop down list.
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.
Lead Padding	Enter characters to proceed the length, width, and height field.
Trail Padding	Enter characters to follow the length, width, and height field.
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.
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.

Field Name	Action/Definition
Append Alibi Info	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. **Format:** <Sequence #|-YYYYMMDDhhmmss

Append Volume	Select the check box to enable. When checked, **Volume Units**, **Volume Field Width**, and **Volume Precision** drop-down boxes are revealed.
	
	Volume Units ft³ ▼ Volume Field Width [6 ▼]
	                                      Volume Precision [3 ▼]
	
	Select cubic Volume Units from the drop-down list. Selections include in³ (inches cubed), ft³ (feet cubed), cm³ (centimeters cubed), and dm³ (decimeters cubed).
	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.
	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**

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. **NOTE**: 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.

4.10 MODIFY SETTINGS | RELAY

Use Relay to configure output and auxiliary relays.

To configure the relays:

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

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

Field Name	Action/Definition
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)**.

Field Name	Action/Definition	
	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 all expected dimensions are read.
		No Dim: Active if not all expected dimensions are read.
	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.
AUX IN Configuration	**Select Not in use, Use as input, or Use as output 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**	

	Input Type	Currently, only **Custom Input** is available.
	Active High/Active Low	Select Active High or Active Low from the drop-down list.
Used as output	The **Used as output** selection is not currently available.	

3. When you have finished making changes, click **Update** to save or click **Reset** to revert to the previously saved values.
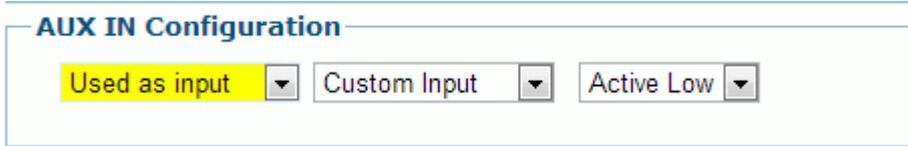
4.11 MODIFY SETTINGS | SAVE / RETRIEVE

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.

Field Name	Action/Definition
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 computers 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. **NOTE**: This option is only shown when Serial Port #1 mode is set to RS232 Backup Module.

Field Name	Action/Definition
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.
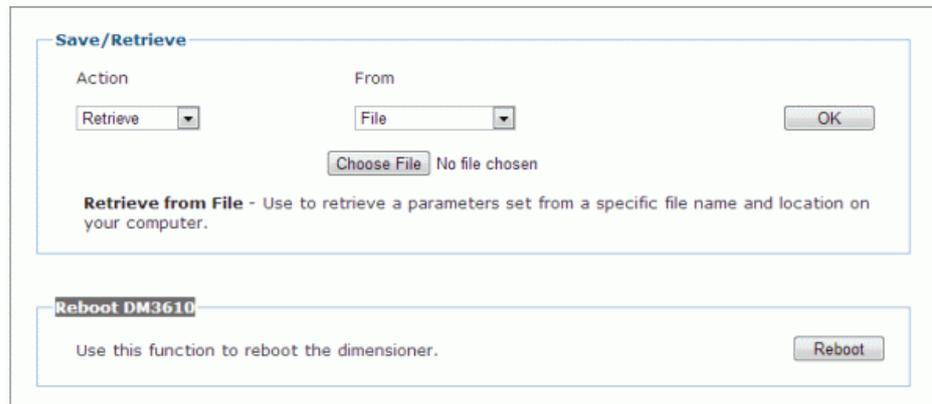
Retrieve / From Backup Module	Use to retrieve the parameters stored in the dimensioner's backup module. This is especially useful when it becomes necessary to load previously saved parameters to a replacement dimensioner module. Click **OK** to execute the command. **NOTE**: This option is only shown when Serial Port #1 set to RS232 Backup Module.
Default	Use to return the dimensioner's parameters to the hard-coded "default" values built into the dimensioner software. **WARNING**: Selecting **Default** will return your reader to the default factory settings. Since your reader may already be configured for your application, it is recommended that you **ALWAYS** S**ave current parameters** to a file or the backup module before using the default function.
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.
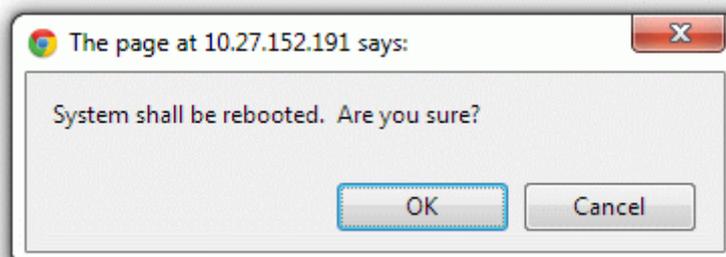
4.12 DIAGNOSTICS

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:

4.12.1 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.

NOTE: The Monitor is a Java application and requires Java and the appropriate browser plug-in.

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.

Field Name	Action/Definition
Status LEDs Status LEDs 🟩 Status ⬛ Network ⬛ Trigger ⬛ OUT 1 ⬛ Good/No Dim ⬛ OUT 2 ⬛ Tach 🟩 AUX IN 🟩 Polarizer	**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. **Network** – **GREEN** indicates a network host connection has been made. **RED** indicates a problem with the reader network. Example: A red Network LED upon power up could indicate the MAC address is not set. **OUT 1(2) –** Indicates the status of the programmable relay **AUX IN –** Indicates the status of the auxiliary input relay
System Information System Information Belt Speed (fpm) `0` Scan Rate `0600` Scan Rate Variance `012`	**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.
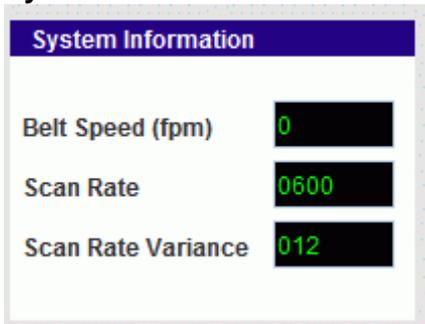
Field Name	Action/Definition
Legal for Trade Status **Legal For Trade Status** ■ Ready [Show] ■ Temp Comp ■ Scan Rate	**Ready** – **GREEN** indicates the system settings meet Legal for Trade requirements. **RED** indicates that a system setting or performance does not meet Legal- for-Trade requirements. Click **Show** to display status details in the Message pane. **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 **Messages** Started Legal for Trade: NOT-READY, status = 0xa01 CERT mode off DSP signature Library signature	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, Serial Port 1, Serial Port 2, Net Port 1**, or **Net Port 2** to view messages for that connection.
Reconnect	Click **Reconnect** to re-establish communications between the Monitor page and the DM3610.

4.12.2 Diagnostics | DimView

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

The **DimView** monitor is explained in the image below.
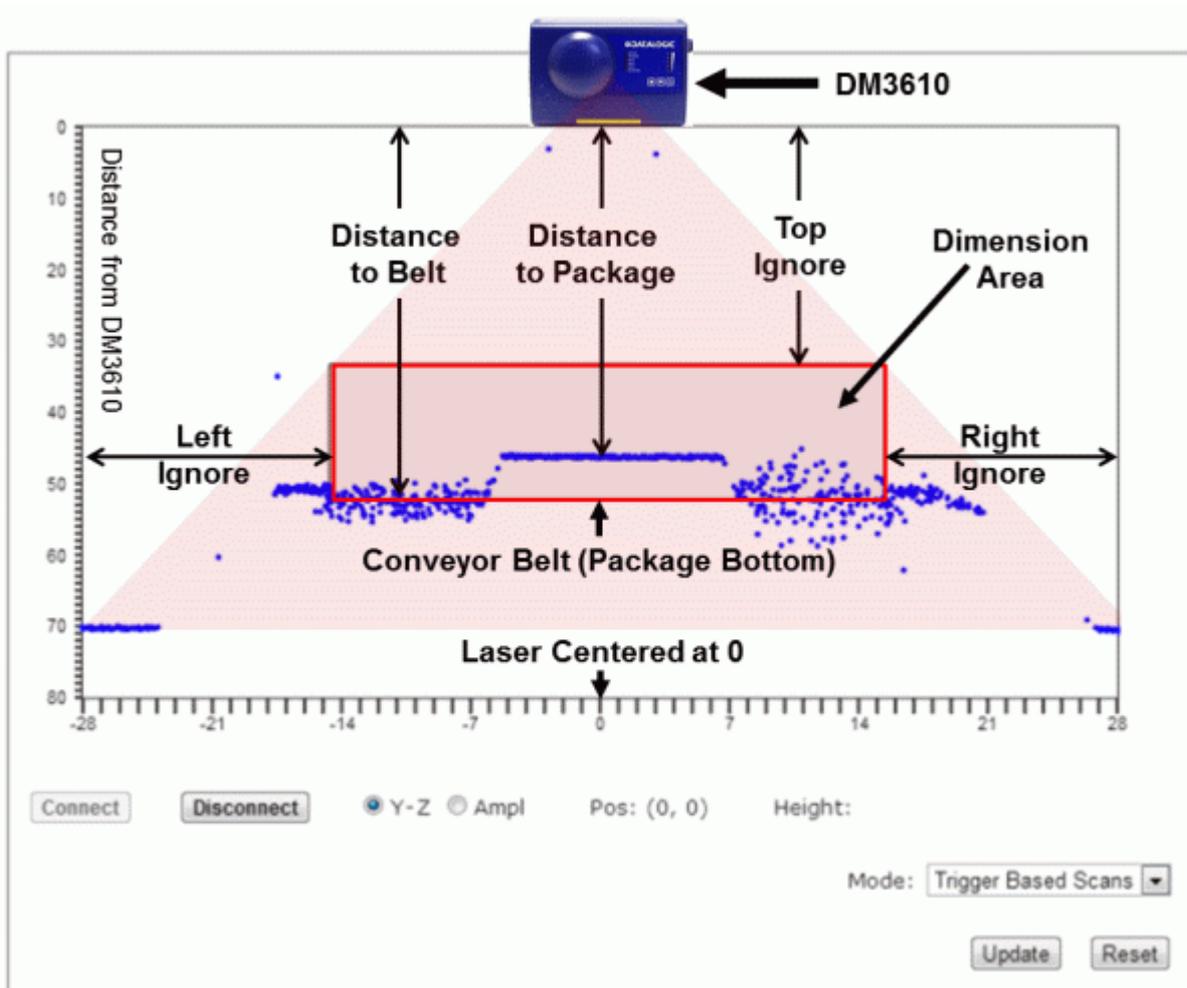
Figure 4.5: Understanding DimView

4

To View DimView:

1. In the tree menu under **Diagnostics**, click **DimView**. The **DimView** window opens.
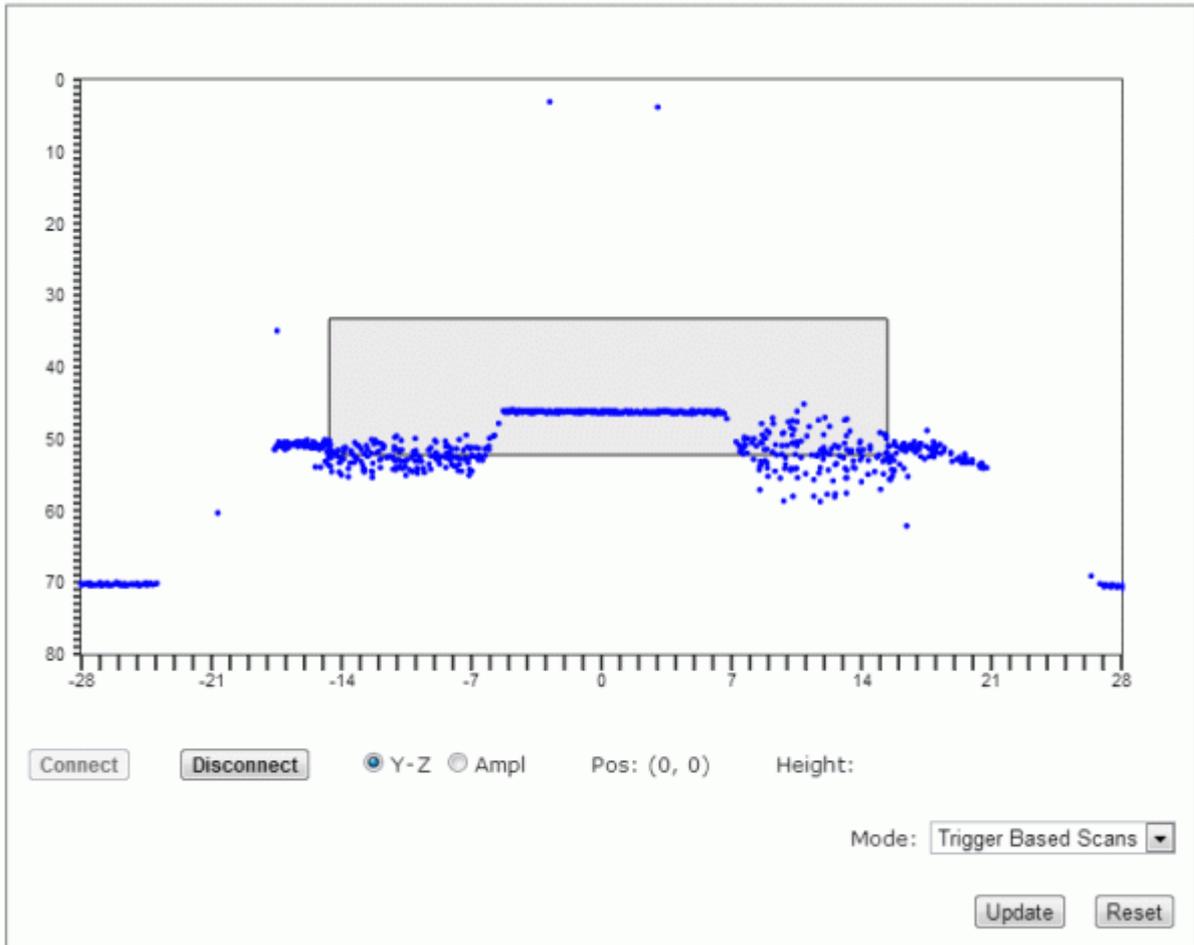
2. Click Connect to activate the DimView monitor, or Click Disconnect to deactivate.

3. Use the option buttons provided to view either the Y-Z plain or wave Ampl (amplitude).
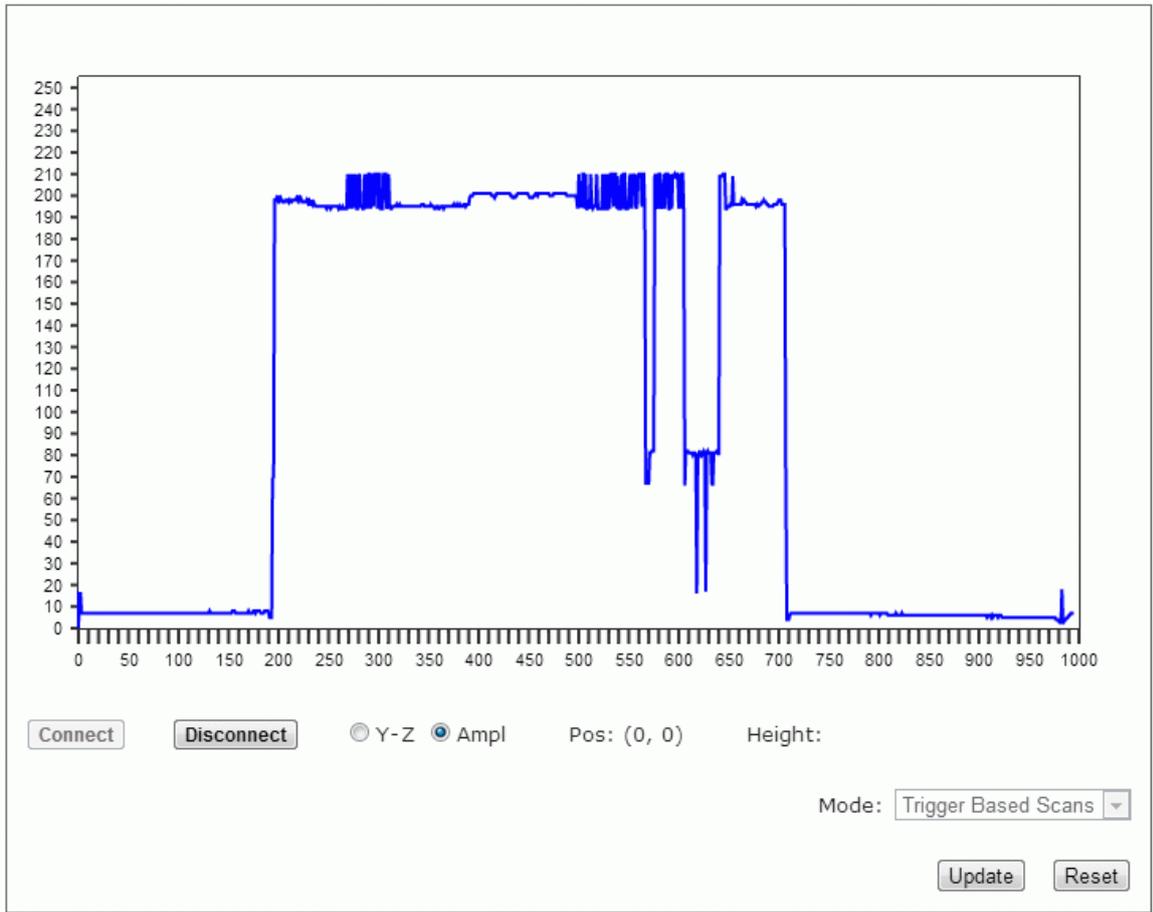
4. Select a mode from the Mode drop-down list. Mode option results are as follows:

NOTE: These options are not available when Certification Mode is on.

WARNING: If you switch from Dim-in-Head Enabled to one of the other selections your system will no longer be dimensioning packages.

Mode Selection	Action/Definition
No Transmit	When selected, no scan line data is transmitted. *See Tach/Trigger/Transmit.*
Continuous Scans	When selected, every scan line is transmitted. *See Tach/Trigger/Transmit.*

Mode Selection	Action/Definition
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.* ⚠ **WARNING:** If you switch from **Dim-in-Head Enabled** to one of the other selections your system will no longer be dimensioning packages.
Calibration Scans	When selected, this behaves like Trigger Based Scans but provides additional debugging capability to an advanced user. *See Tach/Trigger/Transmit.*
Averaged Scans	When selected, this behaves like Trigger Based Scans, except that it averages scan line data over time. This mode is useful when using **Diagnostics | DimView** as it smooths away image noise. *See Tach/Trigger/Transmit.*

5. When you have selected a mode, click **Update** to activate it or click **Reset** to revert to the previously active mode.

4.12.3 Diagnostics | Log Viewer

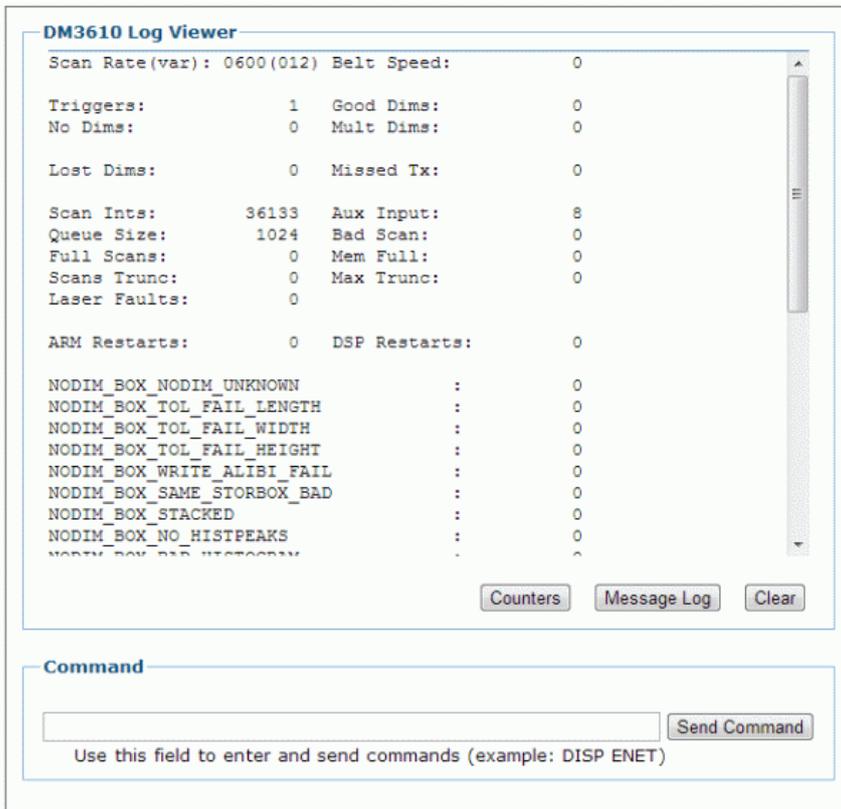The Diagnostics | Log Viewer lets you review the performance logs saved by the dimensioner.

To View the Log Viewer:

In the tree menu under **Diagnostics**, click **Log Viewer**. The **Log Viewer** window opens.

The two most commonly viewed logs are Counters and Message Logs, which are available by selecting one of the buttons:

Counters

Message Log

```
┌─DM3610 Log Viewer──────────────────────────────────────┐
│ 0-00:00:00.000: DM3610 software DM3610_RELEASE initializing. │
│ 0-00:00:00.005: Invalid Laser ID 0.                         │
│ 0-00:00:00.005: Laser #1 Module Serial 0.                   │
│ 0-00:00:00.182: Checksum error reading ACTIVE LFT parameters from FLASH using │
│ defaults.                                                   │
│ 0-00:00:00.182: Checksum error reading CERT LFT parameters from FLASH using │
│ defaults.                                                   │
│ 0-00:00:00.182: LFT parameters load failed. Active=-1, Cert=-1. │
│ 0-00:00:00.182: LFT library open failed, status = 0x10.     │
│ 0-00:00:00.182: Updating FLASH with LFT Defaults.           │
│ 0-00:00:00.182: Defaulting Serial Comm parameters on port #0. │
│ 0-00:00:00.182: Reset Clock Chip                            │
│ 0-00:00:00.382: Configure Clock Chip (0)                    │
│ 0-00:00:01.018: FPGA Load Complete                          │
│ 0-00:00:02.018: FPGA device id: 3c40.                       │
│ 0-00:00:02.018: FPGA version: 3.0(0).                       │
│ 0-00:00:02.039: Set initial APD DAC to 820, polarizer is in, prss 116, temp │
│ 35                                                          │
│ 0-00:00:02.039: Sysdata ptr = 8801d500, size=28436132       │
│ 0-00:00:02.039: ArmDSP_Memory bff0 (8801d500), Sys_data 8801d500, Sys_VarPtr │
│ 8801d500                                                    │
│ 0-00:00:02.040: TX Port 0 Started.                          │
│ 0-00:00:02.040: TX Port 1 Started.                          │
│ 0-00:00:02.075: Reset Clock Chip                            │
│ 0-00:00:02.076: Mac Address: 00:0E:13:05:00:01              │
│                          [Counters] [Message Log] [Clear]   │
└────────────────────────────────────────────────────────────┘
┌─Command────────────────────────────────────────────────┐
│ [_____] [Send Command]     │
│  Use this field to enter and send commands (example: DISP ENET) │
└────────────────────────────────────────────────────────┘
```

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.
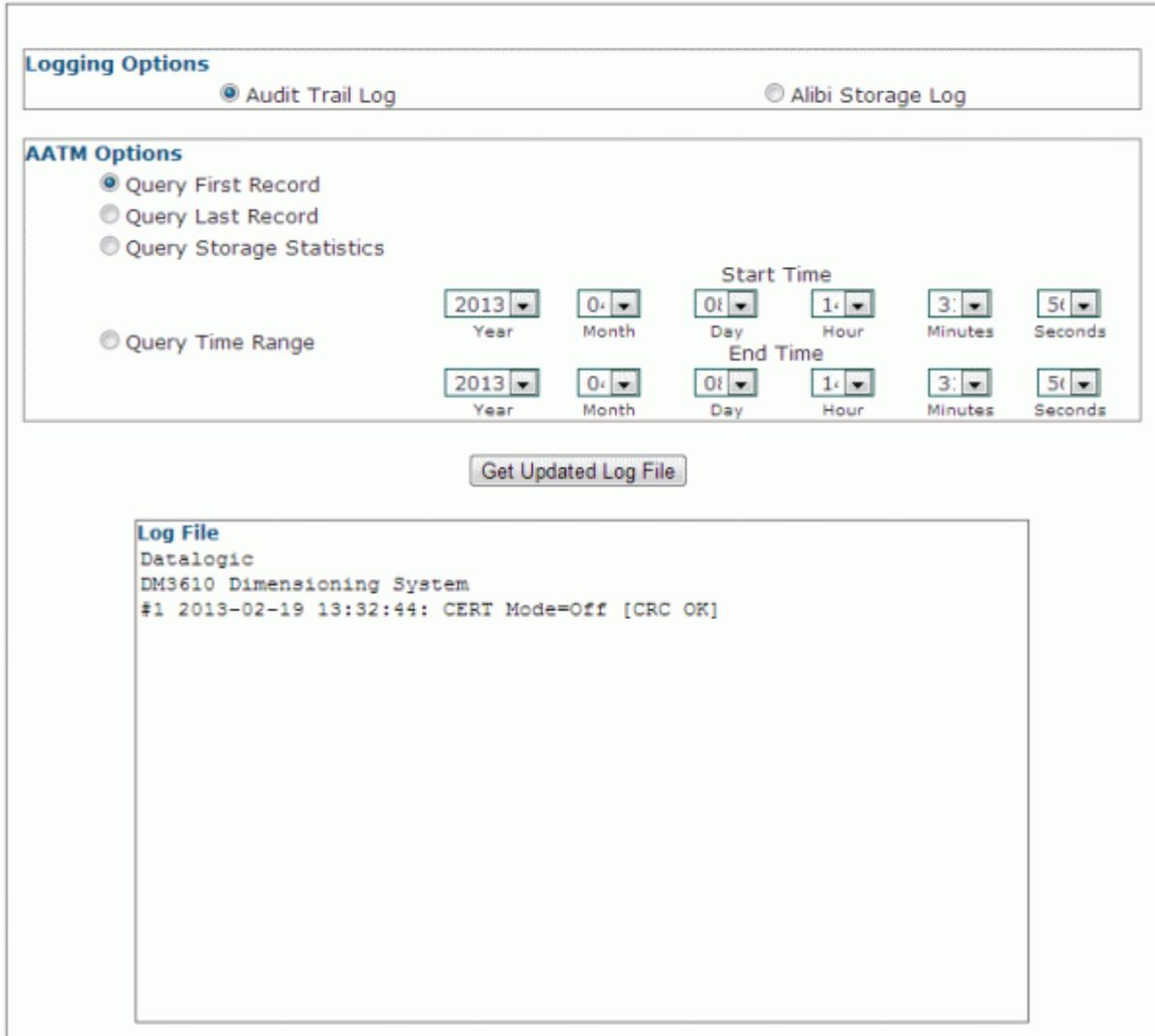
3. Log Viewer displays the most current information for the log you requested.

4. Click **Clear** to empty the Log Viewer.

4.12.4 Diagnostics | Audit and Alibi

Use Diagnostics | Audit and Alibi to search for and view system audit trail and alibi logs.

To View Audit and Alibi:

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

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

Field Name	Action/Definition
Logging Options (Dimensioning-specific)	Audit Trail Log Opens the Audit Trail Log for viewing 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. **NOTE**: 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 Updated 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.

4.12.5 Diagnostics | Update Firmware

Use Diagnostics | Update Firmware to reload the dimensioner firmware.

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

To Extract Image:

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

2. Click Extract Image.

3. In Save as window, save the image (*.as) files to your computer. The graphic on-screen indicates Extract Image is in-process.

A message will appear when Extract Image is complete.

To Burn Flash:

1. Click Choose File. In the browse window, select an image file (*.as) to burn to flash.

> **NOTE:** The appearance of these functions may vary from browser to browser.

2. Click Burn Flash.

The graphic on-screen indicates Burn Flash is in-process.

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

4.12.6 Diagnostics | Help

Clicking **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.

5 DIMENSIONING FEATURES

This chapter provides details on how the DM3610 Dimensioning System functions during normal operation. It also helps familiarize the user 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.

> **IMPORTANT:** 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.

5.1 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 (optional) 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.
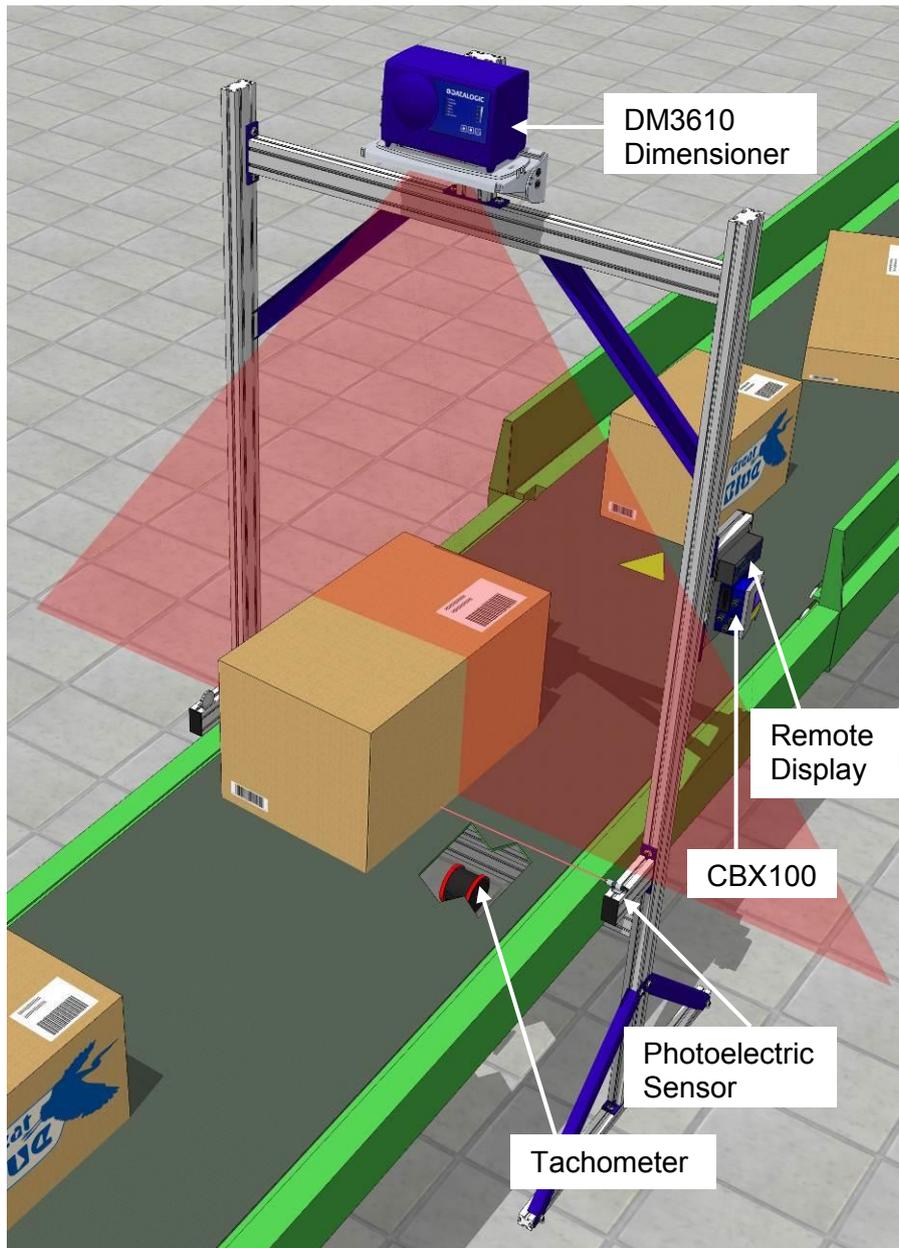
Figure 65: DM3610 Determining Package Height

5.1.1   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 measures 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.
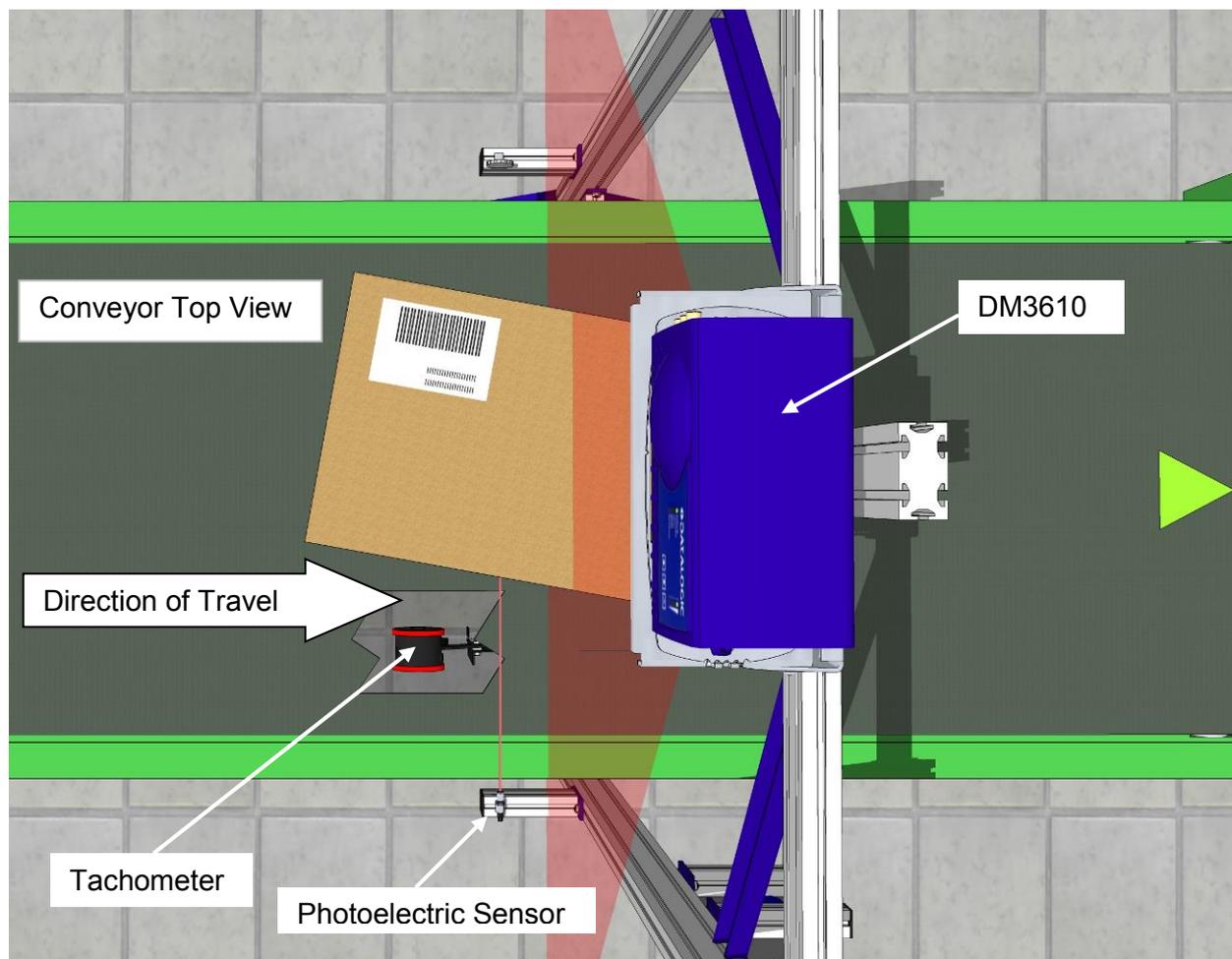
Figure 66: DM3610 Dimensioning Overview

While the tachometer relays the conveyor speed, the DM3610 is constantly scanning across the conveyor belt, gathering range data at close intervals. 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.

5.2 INDICATORS

The DM3610 has twelve (12) LEDs on the control panel.
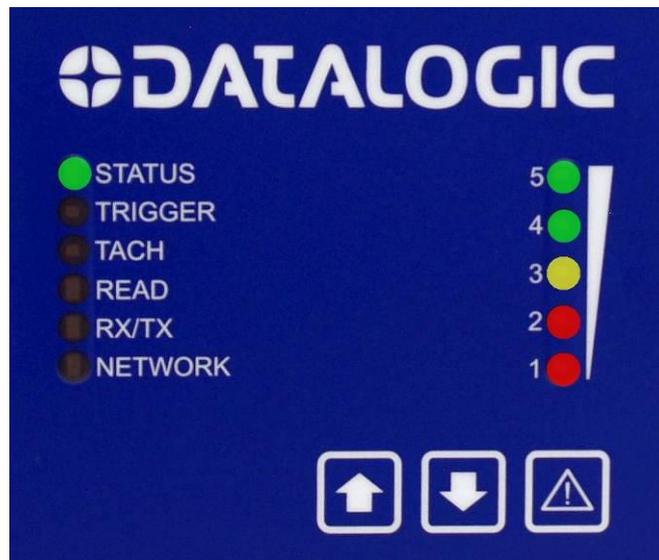
Figure 67: DM3610 Control Panel

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

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	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 on 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

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5.3   CONTROL PANEL BUTTONS

Figure 68: Control Panel Buttons

Ref	Button	Description
	Restore	Restores parameters from CBX100 backup module to DM3610 • Button must be pressed twice to initiate action. • See below for procedure.
	Backup	Downloads parameters from DM3610 to CBX100 backup module • Button must be pressed twice to initiate action. • See below for procedure.
	!	Used for both laser shutoff and recovery
	Laser Shutoff	• Hold in to perform laser shutoff.
	Recovery	• 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.

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

5.4 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 *(see Figure 69).*

2. Press and hold for one second or more. When you release the button you will notice the Bar Graph LEDs (1-5) flashing quickly.

3. Press again for less than one second.

   If the download initiation is successful, the Bar Graph LEDs will 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.

4. Once parameters have been saved, you can protect the parameters by placing the backup module's write protect switch in the lock position. *See Figure 69.*

To restore parameters the CBX100 backup module to the DM3610:

1. On the DM3610 interface panel, press and hold [⬆] for at least one second. When you release the button you will notice the Bar Graph LEDs (1-5) flashing quickly.

2. Press [⬆] again for less than one second. 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 never cycle (1 to 5) with an upward motion, the parameters were not retrieved and you must repeat step 1 and 2 again.

NOTE: Please note that the B&R button on the backup module inside the CBX100 should not be used.
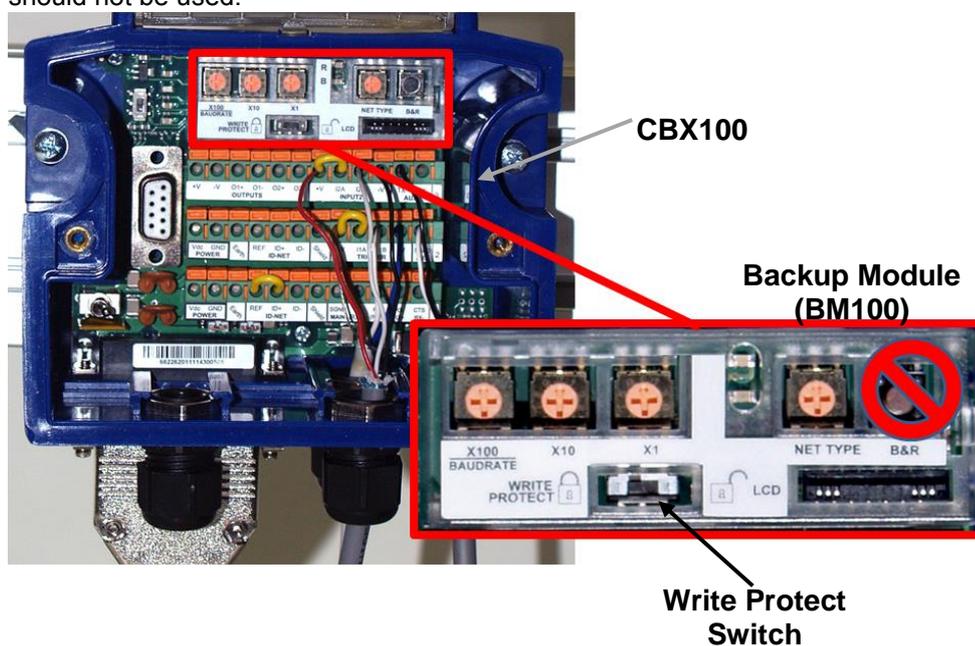
Figure 69: CBX100 with BM100 backup module installed

NOTE: 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.

5.5 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.

IMPORTANT: 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
- Calibration kit boxes *(See section 5.6 Dimensioner Calibration)*

5.5.1 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.

Figure 70: DM3610 Control Panel

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NOTE: Please note that the B&R button on the backup module should not be used.

CBX100

Backup Module (BM100)

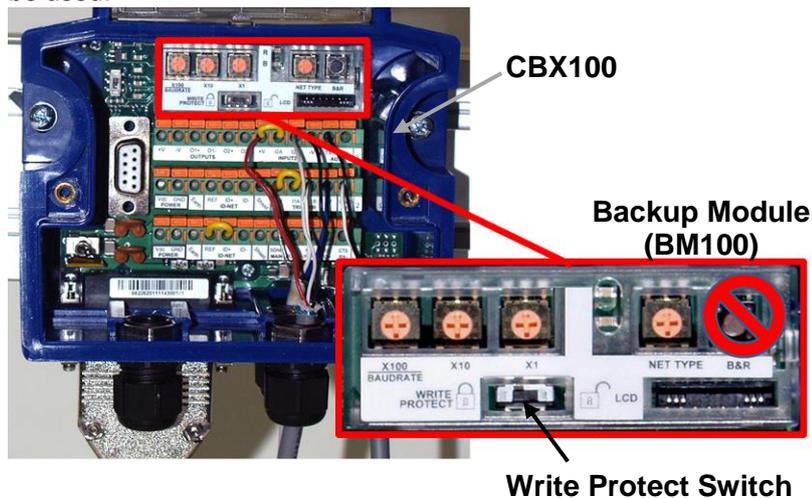**Write Protect Switch**

Figure 71: CBX100 with BM100 backup module installed

To Save the Parameters to the Backup Module:

1. Make sure the BM100 write protect switch is in the unlocked position (see Figure 5.7).

2. Press and hold ⬇ for one second or more. When you release the button you will notice the Bar Graph LEDs (1-5) flashing quickly.

3. Press ⬇ again for less than one second.

   If the download initiation is successful, the Bar Graph LEDs will 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.

NOTE: 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.*

NOTE: 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.

NOTE: 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.

5.5.2 Removing the Existing DM3610

1. Remove power from the DM3610.

2. Label and then disconnect all cables from the side panel. It is a good practice to label all the cables so they can easily be reconnected to their original location.
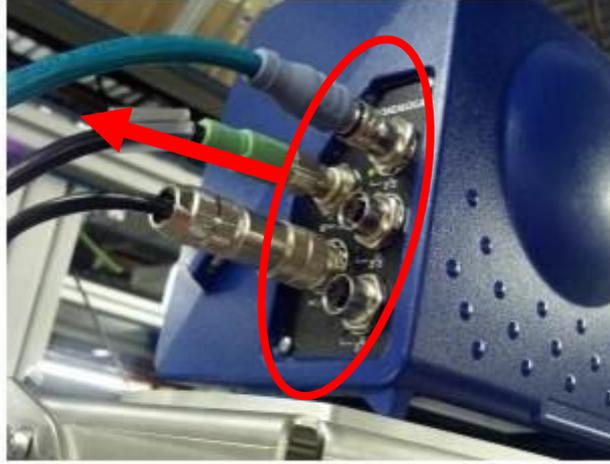
Figure 72: Remove Cables from DM3610

3. Remove the three bolts on the bottom of the Universal Mounting Bracket (UMB) shown below using a 4mm Allen™ wrench.

Figure 5.9: Mounting bolt location

Figure 73: Removing a mounting bolt

4. Once these screws are removed lift the unit straight up and off the 3 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.

5.5.3   Installing the Replacement DM3610

NOTE: It is important to avoid getting finger prints on the exit glass while installing the new 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.

Figure 74: Placing DM3610 on the hollow Spirol™ spring dowel

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 4 mm Allen™ wrench as shown below.
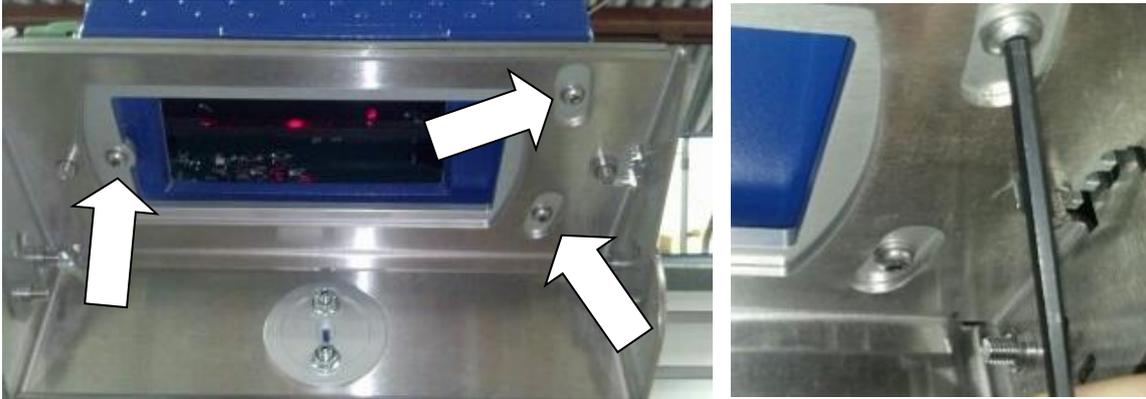
Figure 75 and Figure 76: Securing the DM3610

4. Reconnect all the cables on the side panel as they were previously installed.
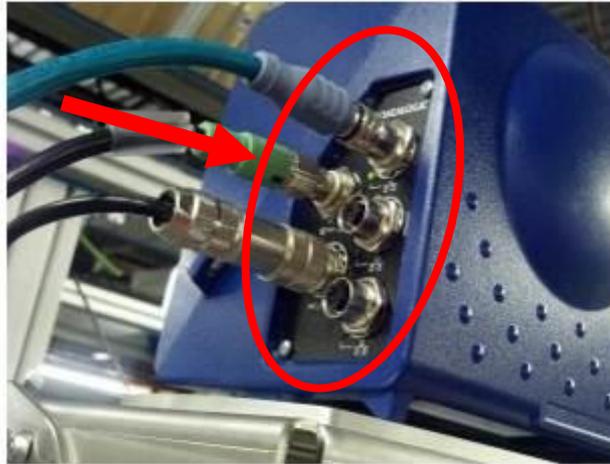
Figure 77: Cable connections

5. Reconnect the power to the DM3610.

5.5.4   Restoring the Parameter Data from the Backup Module:

1. On the DM3610 interface panel, press and hold [⬆] for at least one second. When you release the button you will notice the Bar Graph LEDs (1-5) flashing quickly.

2. Press [⬆] again for less than one second. 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.

NOTE: Please note that the B&R button on the backup module inside the CBX100 should not be used.
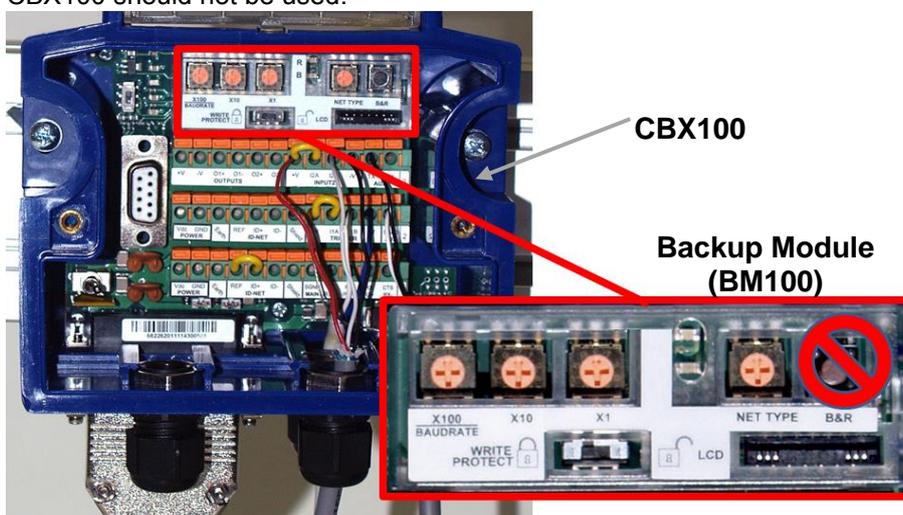
Figure 78: CBX100 with BM100 backup module installed

NOTE: 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.

5.5.5   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, *see all sub-paragraphs under 5.6* in this chapter for instructions on calibrating the DM3610.

5.6 DIMENSIONER CALIBRATION

Now that you understand how the dimensioner "sees" objects on the belts, let's look 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.

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

Margin Spacers

	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"
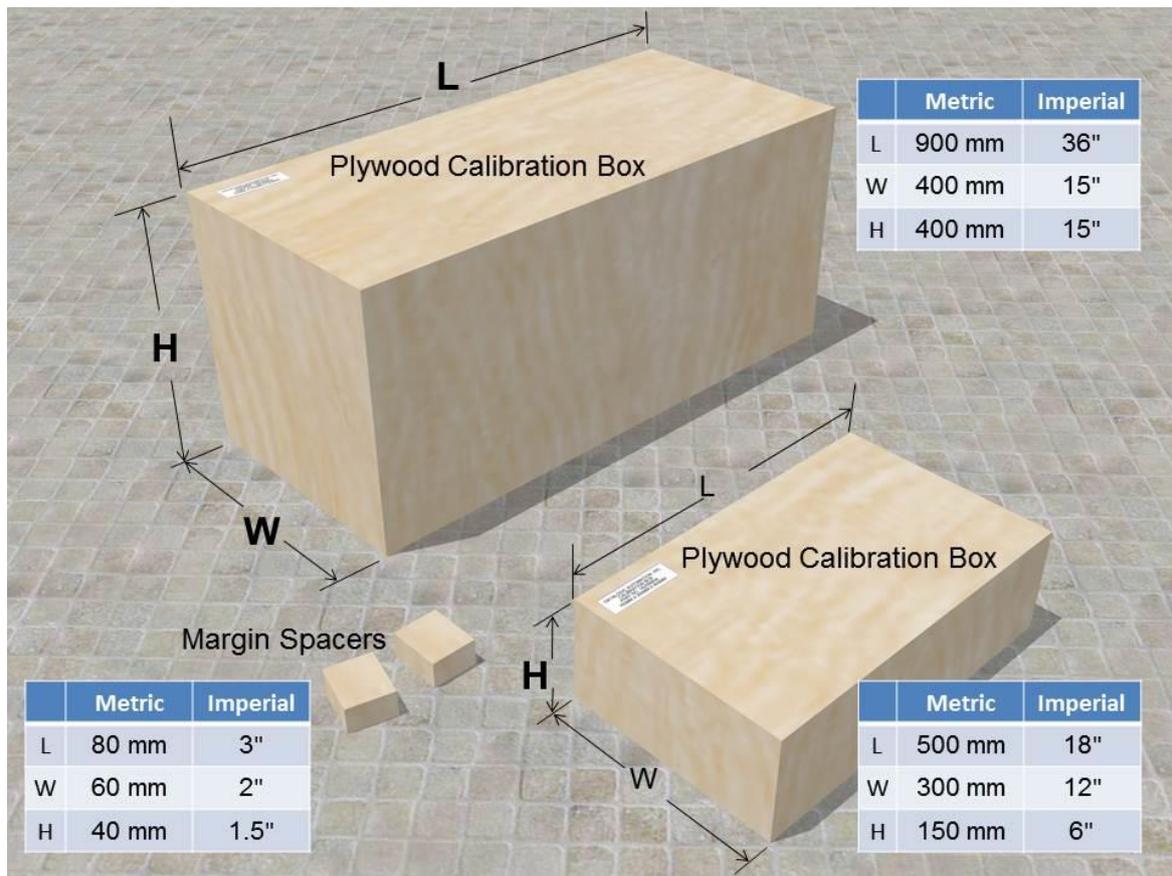
Figure 79: DM3610 Calibration Kit

5

5.6.1 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.

4. For calibration purposes, enter the height of the maximum package size that will be run through your dimensioning system in the text field provided.

5. 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.
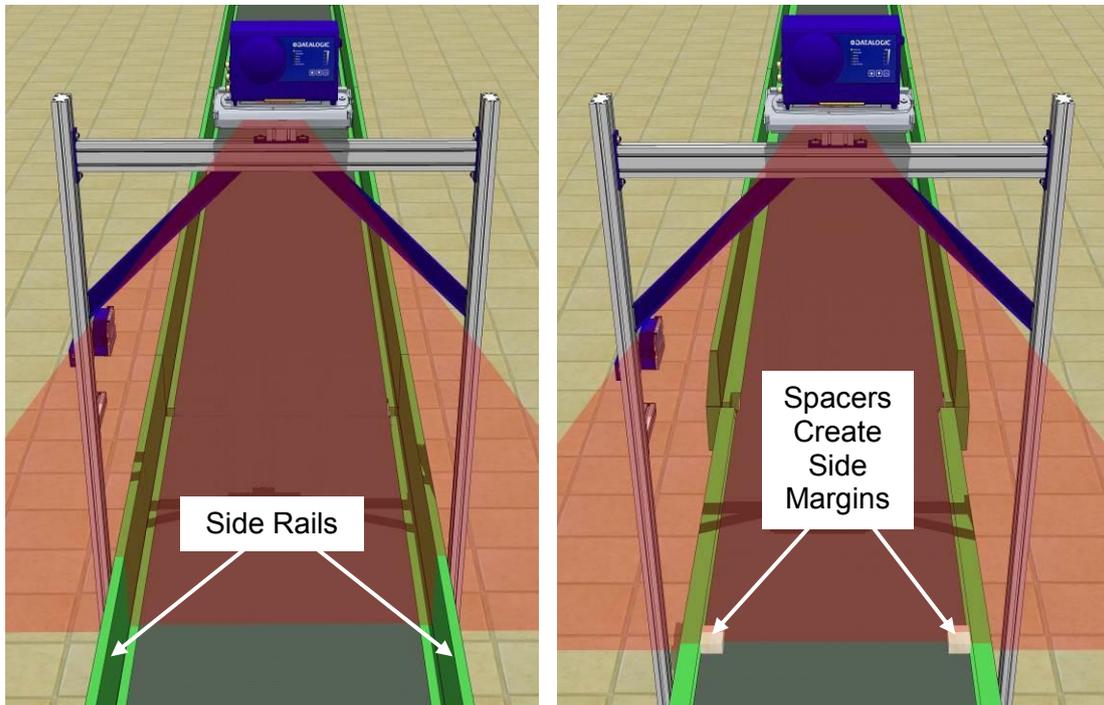
Figure 80: Defining Belt Edges

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.
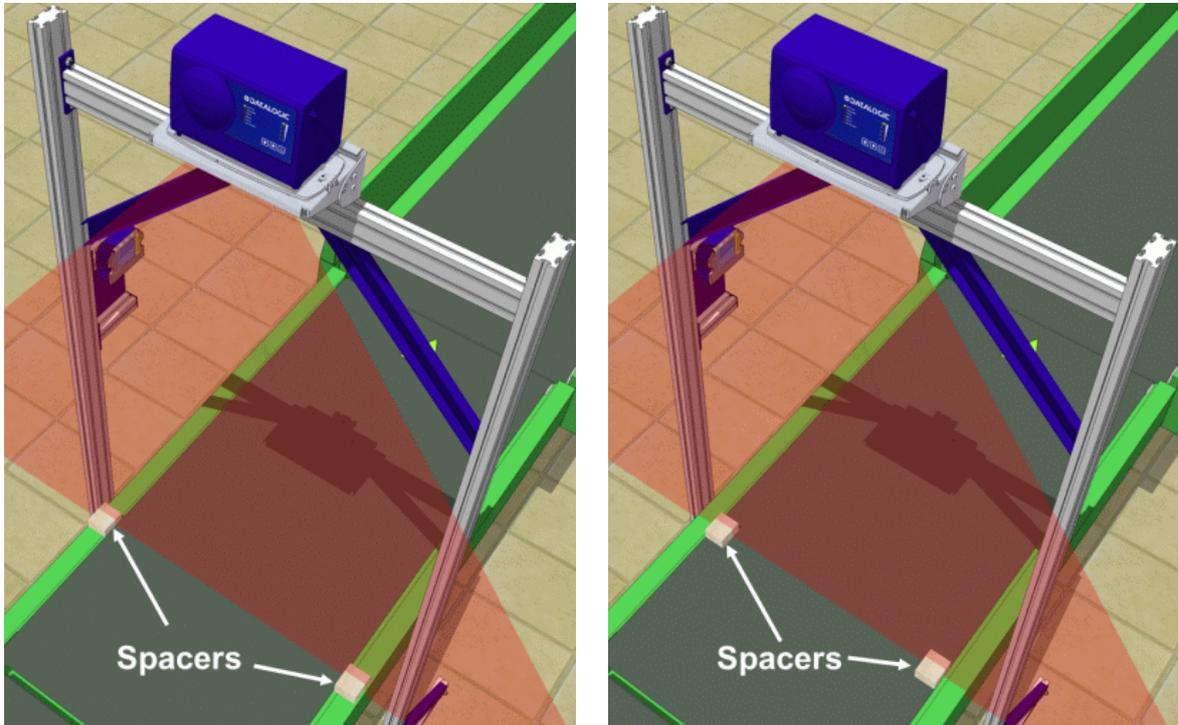
Figure 81: Placing the Spacers

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.

IMPORTANT: Since the Side Margins text field only allows one value, the spacers must have the exact same width.

4. 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 greyed fields included in the **Dimensioning Area** of the window.

NOTE: 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"].

Find Belt measures dimensioner height to bottom of housing

Figure 82: Find Belt height indicator

5. Click **Use Belt** to use the data calculated by **Find Belt** when dimensioning packages.

6. Click **Update** to save the data in the system.

5

5.6.2   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)*

3. Start the conveyor.

   WARNING: 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.

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" box from the Imperial measurement calibration kit.

If the length of the box is within system tolerance, your system is ready to run.

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.
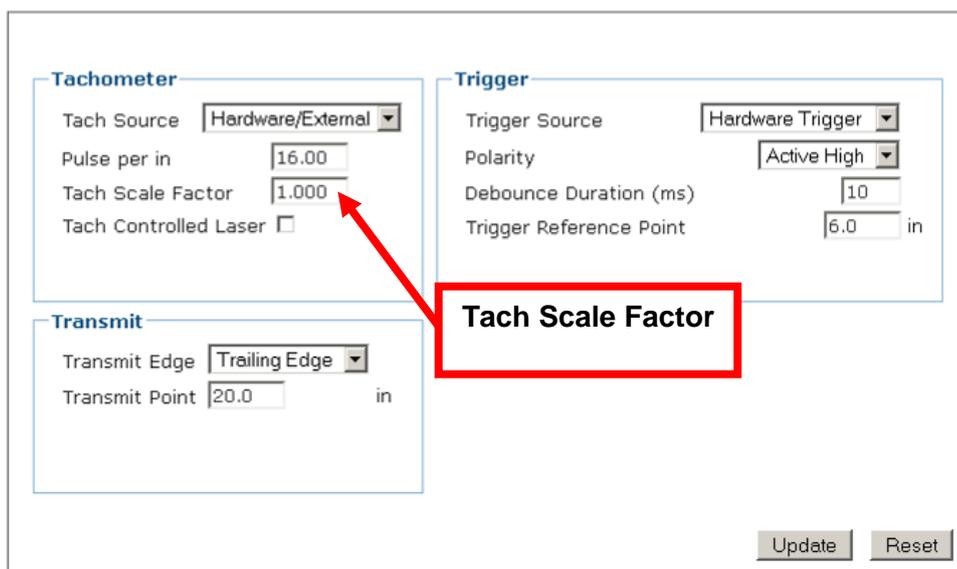
8. If adjustments need to be made, change the **Tach Scale Factor** by fractional increments. For example, try changing the **Tach Scale Factor** from 1.000 to 0.998.

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.

6 MAINTENANCE

6.1 OVERVIEW

This chapter provides instructions for maintaining optimum performance and life for 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

IMPORTANT: 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.

6.2 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.

6.2.1 Exterior Cleaning

WARNING: 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.

CAUTION: Do not use any chemical on the DM3610 that is unsafe for plastics, such as benzene, acetone, or similar products. Before performing this maintenance task, be sure to shutdown the DM3610.

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.

6.2.2 Cleaning the Exit Window

WARNING: 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.

CAUTION: Never apply cleaning solution directly to the exit window. Always apply the solution to a cloth, and then the cloth to the window. 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.
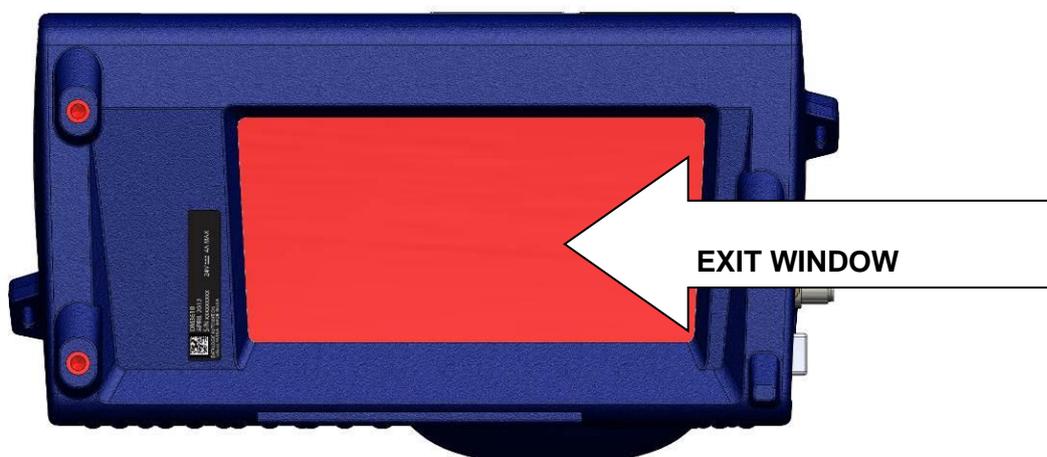
Figure 83: DM3610 Exit Window Location

6.2.3   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. Turn off the DM3610 by disconnecting the power source.

3. Clean the photoelectric sensor's lens using the denatured alcohol solution and a cotton swab or lens paper.

4. Clean the reflector using the denatured alcohol solution and a cotton swab or lens paper.

5. Verify photoelectric sensor operation.

6.2.4   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. Turn off the DM3610 by disconnecting the power source.

3. Using a clean, soft cloth, wipe the wheels of the tachometer clean using a mild detergent solution.

4. Before restarting the system, be sure the tachometer is making good contact with the product transport.

5. Verify tachometer operation.
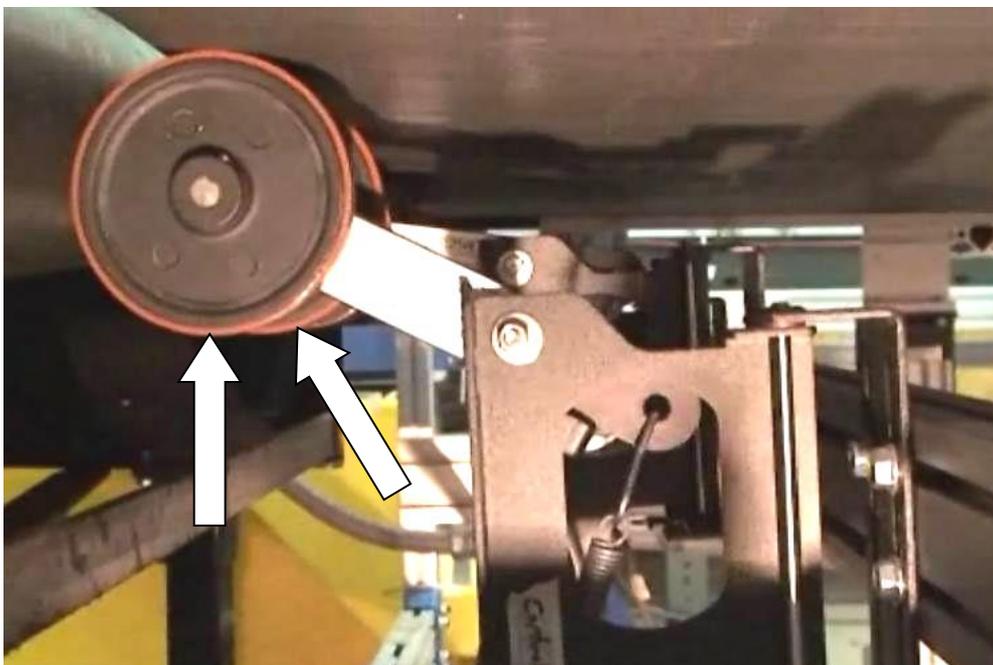
Figure 84: Tachometer Wheel

6.2.5   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.

6.2.6   Checking Dimensioning System Connections

Wiring connections to the DM3610 are made to the connector panel and CBX100.
(See chapter 3, Electrical Installation.)

1. Check all wiring connections to the connector panel.
   Tighten any loose connections as necessary. Do not over-tighten.

2. Check all wiring connections to the CBX100.
   Tighten any loose connections as necessary. Do not over-tighten.

3. Check all cabling/conduit for signs of wear/damage.
   Repair/replace any damaged cable connections as necessary.

6.2.7   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.

6.2.8   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.

6.2.9 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.

7 TROUBLESHOOTING

IMPORTANT: 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.
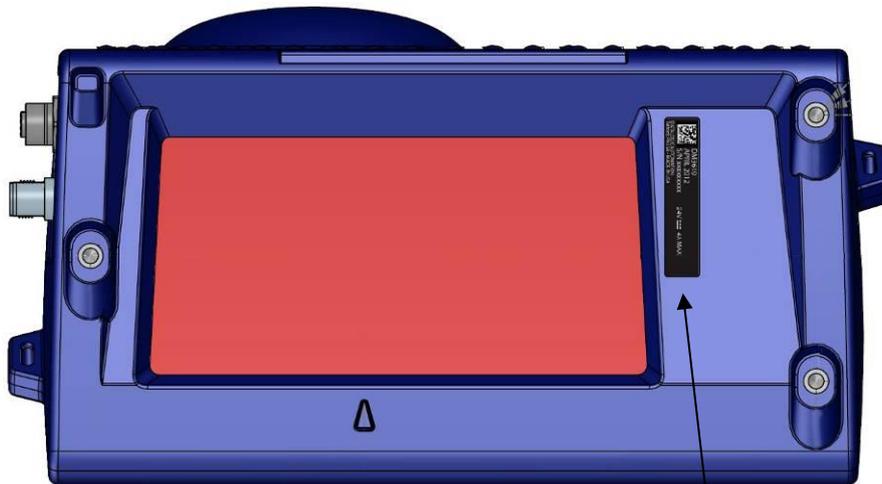
Serial Number Tag Location

Figure 85: Serial Tag Location

7.1 ERROR CODES AND RESOLUTIONS

NOTE: The following error codes pertain to 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	Parcels are not cuboidal and present non-squared corners to the DM3610 Black parcel reflectivity is below DM3610's reflectivity minimum	Confirm the parcels are within the minimum/ maximum package size options set in ***Modify Settings | Dimensioning | Settings*** *(See 4.6.1)* Run a calibration box to determine whether the DM3610 returns no dimensions or only dimensions for certain packages Run ***Diagnostics | DimView*** *(See 4.12.2)* in the user interface to determine whether the DM3610 detecting packages Replace the DM3610
BOX_SAME_STORBOX_BAD	Multiple parcels are in the DM3610 scanning area at the same time, and some may be misshapen	Confirm that there are no parcels side-by-side when they pass under the DM3610 Run a calibration box to confirm whether the DM3610 is returning accurate dimensions Confirm that all parcels passing under the DM3610 are cuboidal Determine whether the parcel material may be causing the problem. (i.e. Specular) Replace the DM3610

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 (See 4.6.1)*	Run a calibration box to confirm whether the DM3610 is returning accurate dimensions Confirm that all parcels passing under the DM3610 are cuboidal Determine whether the parcel material may be causing the problem (i.e. Specular) Replace the DM3610
BOX_TOL_FAIL_HEIGHT	Parcels being conveyed are less than the Minimum Package Size - Height settings found in *Modify Settings	Dimensioning	Settings (See 4.6.1)*	Run a calibration box to confirm whether the DM3610 is returning accurate dimensions Run *Diagnostics	DimView (See 4.12.2)* in the user interface to determine whether the DM3610 is detecting packages Run the **Find Belt** calculation under *Modify Settings	Dimensioning	Calibration (See 4.6.2)* in the user interface Replace DM3610

Error Code(s)	Possible Cause	Corrective Action
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* *(See 4.6.1)*	Run a calibration box to confirm whether the DM3610 is returning correct dimensions Run *Diagnostics | DimView (See 4.12.2)* in the user interface to determine whether the DM3610 is detecting packages Run the **Find Belt** calculation under *Modify Settings | Dimensioning | Calibration (See 4.6.2)* in the user interface Replace DM3610
BOX_POINTS_NEAR_ CORNERS	Parcels are not cuboidal and present non-squared corners to the DM3610 Black parcel reflectivity is below the DM3610's reflectivity minimum	Confirm that the parcels are within the min/max size settings found in *Modify Settings | Dimensioning | Settings (See 4.6.1)* Run a calibration box to determine whether the DM3610 returns no dimensions or only dimensions for certain packages Run *Diagnostics | DimView (See 4.12.2)* in the user interface to determine whether the DM3610 is detecting packages Replace DM3610

Error Code(s)	Possible Cause	Corrective Action
BOX_SIDE_LEN_TOO_LONG	Parcels are larger than the maximum package size settings found in *Modify Settings | Dimensioning | Settings (See 4.6.1)*	Run a calibration box to confirm whether the DM3610 is returning accurate dimensions Confirm that all parcels passing under the DM3610 are cuboidal Determine whether the parcel material may be causing the problem (i.e. Specular) Replace the DM3610
BOX_STACKED	Multiple parcels are in the DM3610 scanning area at the same time	Confirm that the packages are singulated when passing under the DM3610 scan line
BOX_SYSTEM_FAULT	Temperature compensation or scan rate fault. This is indicated on the user interface *Diagnostic | Monitor* screen *(See 4.12.1)*	Replace the DM3610

Error Code(s)	Possible Cause	Corrective Action
BOX_TOL_FAIL_LENGTH	Incorrect tachometer (encoder) signal Package rubbing on the side rail causing it to go slower through the DM3610 scan line Parcels are larger than the maximum package size settings found in ***Modify Settings | Dimensioning | Settings*** *(See 4.6.1)*	On the user interface ***Diagnostic | Monitor*** screen *(See 4.12.1)*, check the belt speed and confirm that it matches the actual belt speed Confirm that the parcels are within the min/max ignore range on the configuration page Run a calibration box to confirm whether the DM3610 is returning accurate dimensions Run ***Diagnostics | DimView*** *(See 4.12.2)* in the user interface to determine whether the DM3610 is detecting packages Run the **Find Belt** calculation under ***Modify Settings | Dimensioning | Calibration*** *(See 4.6.2)* in the user interface Replace the DM3610
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* (See 4.6.1)
	The DM3610 may not have completed a parameter change before a package is sent through the system	Adjust transmit point in *Modify Setting	Tach/Trigger/ Transmit* (See 4.7)
	Scanner height may be incorrect	Confirm accuracy of the Trigger Reference Point
		Adjust trigger debounce *(See 4.7)*
		Run *Diagnostics	DimView (See 4.12.2)* 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* (See 4.6.1)

Error Code(s)	Possible Cause	Corrective Action
LFT_ALIBI_OPEN_FAIL LFT_ALIBI_WRITE_FAIL LFT_ALIBI_READ_FAIL LFT_AUDIT_OPEN_FAIL LFT_AUDIT_WRITE_FAIL LFT_AUDIT_READ_FAIL	Alibi memory storage failed	Cycle power on the DM3610 Monitor to confirm that the problem does not reoccur Replace the DM3610
LFT_DSP_COMPONENT_ INVALID LFT_FPGA_COMPONENT_ INVALID LFT_LIBRARY_COMPONENT_ INVALID LFT_COMPONENT_ SIGNATURE_FILE_FAIL LFT_PARAMETER_SET_ INVALID LFT_CALIBRATION_ PARAMETER_SET_INVALID	Internal memory failure May occur after software upgrade	Confirm that the software has not changed Cycle power on the DM3610 Replace the DM3610
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 Setting	Tach/ Trigger/ Transmit* (See 4.7) 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 *(See 5.6)*

Run both Static and Dynamic calibration on the DM3610 *(See 5.6)* |
| 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 *(See 5.6)*

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 Setting | Tach/Trigger/ Transmit (See 4.7)* | Change tachometer setting to **Hardware/External** in *Modify Setting | Tach/Trigger/ Transmit (See 4.7)* |
| 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 CBXconnection box

Change RS232 Mode in *Modify Settings | Serial | Port #N* to **RS232 Direct** *(See 4.9.1)* |
| BOX_BAD_JAC_CHOL

BOX_BAD_CHOL

BOX_SIZE_CORRECTION_ ERROR | DM3610 Internal malfunction | This error may occur randomly. If the error continues to occur then replace DM3610 |

8 TECHNICAL FEATURES

8.1 TECHNICAL SPECIFICATIONS

DM3610 Dimensioner

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 II - CDHR

DIMENSIONING FEATURES	
Dimensioning Accuracy	
• NTEP/	± 0.20" for length and width and ± 0.10" for height
• OIML	± 5.0 mm for length, width and height
Conveyor Speeds	Up to 3.1 m/s [620 fpm]
Box Size (maximum)	L 2500 mm [98"] x W 1200 mm [48"] x H 900 mm [36"]
Box Size (minimum)	
• NTEP	L 2.4" x W 2.4" x H 1.2"
• OIML	L 50 mm x W 50 mm x H 50 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

The latest product documentation can be downloaded from our website, www.datalogic.com.

GLOSSARY

Alignment
The position of a dimensioner, scanner, or light source in relation to the target of a receiving element.

ASCII (American Standard Code for Information Interchange)
Pronounced ask-ee. A seven bit plus parity code established by ANSI to achieve compatibility between data services.

Barcode
A pattern of variable-width bars and spaces which represents numeric or alphanumeric data in machine-readable form. The general format of a barcode symbol consists of a leading margin, start character, data or message character, check character (if any), stop character, and trailing margin. Within this framework, each recognizable symbology uses its own unique format.

Barcode Label
A label that carries a barcode and can be affixed to an article.

Baud Rate
A unit used to measure communications speed or data transfer rate.

BCC (Block Check Character)
Used to check transmission accuracy, a character transmitted by the sender after each message block and compared with a block check character computed by the receiver.

Belt width
The width of the conveyor belt measured in millimeters or inches.

CDRH (Center for Devices and Radiological Health)
This organization (a service of the Food and Drug Administration) is responsible for the safety regulations governing acceptable limitations on electronic radiation from laser devices. Datalogic devices are in compliance with the CDRH regulations.

Configuration
The arrangement and interconnection of hardware components within a system, and the hardware (switch and jumper) and software selections that determine the operating characteristics of the system.

Conveyor speed
The speed that the conveyor is moving measured in meters per second (mps) or feet per minute (fpm). Conveyor speed directly impacts the time that the parcel passes below the dimensioner, and therefore, affects the possible transmission and quality of the dimensions returned to the host.

(d)
Represents the smallest interval between two consecutive values used in the dimension calculations.

Default(s)
Original parameters as programmed at the factory.

Dimensioner
A device that captures and calculates the length, width, and height of an object, and then sends that information to a host system.

Drop-down list, menu
A graphical user interface component that allows the user to select from a list of options that are displayed when a specific function has been selected. This options list drops down from the selected function.

Field of view (FOV)
Defines the coverage area across the conveyor belt width over which the dimensioner can detect objects. FOV is a linear measurement of the length of the scan line and should be qualified with a throw distance (e.g.: 24 FOV @ 60 throw).

A maximum theoretical FOV is the absolute maximum scan line length assuming sufficient uniform illumination along the whole scan line. Effective FOV is the useful length of the scan line as limited by the illumination and/or the camera. (For example: At a throw of 60, a camera may have a maximum theoretical FOV of 24 but the illumination may only cover a 20 FOV, so the effective FOV of the camera/illumination system would be 20.)

Full Duplex
Simultaneous, two-way, independent transmission in both directions.

Gateway
A device used to connect networks using different protocols so that information can be passed from one system or network to the other(s).

Gateway address
Like all other devices on a network, the device serving as the gateway must also have an IP address so that devices wishing to communicate with devices outside its own network can fine the gateway which will forward its data. Like all other addresses, it is displayed in the dotted-decimal format.

Half Duplex
Transmission in either direction, but not simultaneously.

Handshaking
Exchange of predetermined signals between two devices establishing a connection. Usually part of a communications protocol.

Header
A means of identifying the beginning of a message to be sent to the host. One example is <STX> or Start of Text.

Hexadecimal
A base-16 numbering system that uses the symbols 0,1,2,3,4,5,6,7,8,9,A,B,C,D,E,F.

Host
A computer that serves other terminals in a network, providing services such as network control, database access, special programs, supervisory programs, or programming languages.

Interface
A shared boundary defined by common physical interconnection characteristics, signal characteristics and meanings of interchanged signals.

IP (internet protocol) address
IP address is the numeric address given to a network card which enables other devices on a network to find it. For readability, this number is displayed in dotted-decimal format (e.g. 127.0.0.1) as opposed to the binary equivalent (e.g. 01111111000000000000000000000001).

Jumper
A wire that connects a number of pins on one end of a cable only, such as looping back Request to Send from Clear to Send pins 4 and 5.

LED (Light Emitting Diode)
A low power electronic device that can serve as a visible or near infrared light source when voltage is applied continuously or in pulses. It is commonly used as an indicator light and uses less power than an incandescent light bulb but more than a Liquid Crystal Display (LCD). LEDs have extremely long lifetimes when properly operated.

Memory
A computer can contain several different forms of memory, such as RAM, ROM, and video memory. The term memory is generally used to define RAM. When a computer has 8 MB of memory, it actually has 8 MB of RAM.

Measurement Canada
A Canadian government organization created "to ensure equity and accuracy where goods and services are bought and sold on the basis of measurement, in order to contribute to a fair and competitive marketplace for Canadians."

Message
1) A meaningful combination of alphanumeric characters that establishes the content and format of a report. 2) In a communication network, the unit of exchange at the application layer.

MID (Measuring Instruments Directive)
Directive by the European Union, which seeks to regulate many aspects of legal metrology across all member states of the EU.

NCWM/NTEP (National Conference On Weights and Measure)
Organization that regulates the United States technical standards for weights and measures.

Net mask
A numeric value that is used by devices to determine whether the device it wishes to communicate with is on the same network. If not, the data must be forwarded via a gateway. May also be referred to as subnet mask.

Network
A series of stations (nodes) connected by some type of communication medium. A network may be made up of a single link or multiple links.

No dim
When the dimensioner is unable to calculate dimensions within specified parameters as a parcel passes through the scan zone.

OIML
The International Organization of Legal Metrology (Organisation Internationale de Métrologie Légale) formed to set technical standard regulations globally for weights and measures.

Parameter
A value that you specify to a program. Typically parameters are set to configure a device to have particular operating characteristics.

Pitch
Rotation of a device about the X-axis.

Position
The position of a scanner or light source in relation to the target of a receiving element.

Photoelectric Sensor
Device used, often as a *trigger*, to detect the absence or presence of a parcel by using a light transmitter and reflector. Sometimes referred to as a *photo eye*.

Protocol
A formal set of conventions governing the formatting and relative timing of message exchange between two communicating systems.

Pulses per centimeter - Defines the number of pulses per centimeter of transport travel as provided by the tachometer.

Pulses per inch
Defines the number of pulses per inch of transport travel as provided by the tachometer.

Relay
Relays are simply electrical switches that are typically used to control external diverts, alarms, etc. Relay types available are FORM A and FORM C. FORM C type relays have both normally open and normally closed contacts available while FORM A type relays have only normally open contacts available.

Resolution (d), Length, Width, Height
Represents the smallest length, width, or height interval between two consecutive values used in calculating dimensions.

RS232
Interface between data terminal equipment and data communication equipment employing serial binary data interchange.

RS485
Interface that specifies the electrical characteristics of generators and receivers for use in balanced digital multipoint systems such as on a Multidrop line.

Scanner
A device that examines a printed pattern (barcode) and either passes the uninterpreted data to a decoder or decodes the data and passes it onto the Host system (sometimes used interchangeably with *dimensioner.*)

Serial Port
An I/O port used to connect a scanner to your computer.

Signal
An impulse or fluctuating electrical quantity (i.e.: a voltage or current) the variations of which represent changes in information.

Skew
Rotation of a device about the Y-axis.

STX (Start of Text)
A transmission control character that precedes a text and is used to terminate a heading. (^B)

Symbol
A combination of characters including start/stop and checksum characters, as required, that form a complete scannable barcode.

Tachometer (tach)
Hardware device used to provide conveyor speed information to the dimensioner in x pulses per centimeter or inch.

TCP/IP
An industry standard suite of protocols providing communications in a heterogeneous network environment. TCP/IP stands for Transport Control Protocol/Internet Protocol.

Tilt
Rotation of a device about the Z axis.

Tracking
Process of keeping track of packages as they travel through the scanning area. Tracking can be done based on the leading edge or trailing edge of packages. Belt speed (as monitored via the tachometer signal) and camera mounting also figure into the tracking process.

Trailer
A means of identifying the end of a message sent to the host. One example is <ETX> or End of Text.

Transmit point
The time it takes to transmit the calculated results from the time the object is first sensed until the completion of transmission to the host.

Trigger Signal
A signal, typically provided by a photoelectric sensor or proximity switch, which informs the scanner of the presence of an object within its reading zone.

UPC
Acronym for Universal Product Code. The standard barcode type for retail food packaging in the United States.

Visible Laser Diode
A light source used in scanners to illuminate the barcode symbol.

WELMEC (European cooperation in the field of legal metrology)
Regulating body set up to promote European cooperation in the field of legal metrology.

Write protect
Read-only files are said to be *write-protected*. The backup module has a switch to toggle its write-protect mode.

INDEX

DIMENSIONING CERTIFICATIONS

Certifications Included:

- NTEP

- OIML

- Measurement Canada

NATIONAL TYPE EVALUATION PROGRAM

Certificate of Conformance
for Weighing and Measuring Devices

For:

Multiple Dimension Measuring Device
Model: DM3610
Maximum: (see below)
Minimum: (see below)
d_{min}: (see below)

Submitted By:

Datalogic Automation
511 Schoolhouse Road
Telford, PA 18969
Tel: 800-227-2633 (1-800-BARCODE)
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 DM3610 (dimensioner), one power supply, one tachometer, one photo-eye (optional) and one 2 line by 20 character display (optional).

Axis ID	dmin	Minimum Dimension	Maximum Dimension	Minimum Velocity	Maximum Velocity
Length	0.2 inch	2.4 in	98.0 in		
Width	0.2 inch	2.4 in	48.0 in	50 ft/min	620 ft/min
Height	0.1 inch	1.2 in	36.0 in		

- Minimum Spacing between packages: 2 inches
- Width= shortest horizontal plane; Length= longest horizontal plane; Height= vertical plane
- 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. An optional controller may be used to match the bar code data with the dimension data.

Temperature Range: 0 °C to 40 °C (32 °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. *Editorial changes, not affecting the type or metrological content, corrected this certificate.

Stephen Benjamin
Chairman, NCWM, Inc.

Kurt Floren
Committee Chair, National Type Evaluation Program Committee
Issued: April 24, 2013

1135 M Street, Suite 110 / Lincoln, Nebraska 68508

Datalogic Automation

Multiple Dimension Measuring Device / DM3610

Application: The DM3610 is used to calculate the dimensions of an opaque cuboidal object in a dynamic (conveyor) scenario. The DM3610 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 along the belt measurement.

Identification: The required information appears on an adhesive badge attached to the top of the of the DM3610 housing.

Sealing: The DM3610 has a Category 1 physical seal and a Category 3 Audit Trail. The device and is physically sealed by provisions for a wire seal.

Operation:

The DM3610 is a dynamic dimensioning system that mounts over a conveyor system. Cuboidal objects must travel on the conveyor with a minimum 2 inch separation between objects.

- 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.

Test Conditions: 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 0 °C to 50 °C (32 °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)

Type Evaluation Criteria Used: *NIST Handbook 44 Specifications, Tolerances, and Other Technical Requirements for Weighing and Measuring Devices*, 2013 Edition. *NCWM Publication 14 Measuring Devices*, 2013 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)

Example(s) of Device:

OIML Certificate of Conformity

OIML Member State
The Netherlands

Number R129/2000-NL1-13.01
Project number 13200217
Page 1 of 2

Issuing authority	NMi Certin B.V. Person responsible: C. Oosterman
Applicant	Datalogic Automation Srl Via Lavino n. 265 Monte San Pietro 40050 Italy
Identification of the certified type	A **Multi-Dimensional Measuring instrument** Type : DM3610-....
Characteristics	See next page

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 R129 - Edition 2000 (E)

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 Test Report(s) is not permitted, although either may be reproduced in full.

Issuing Authority	**NMi Certin B.V., OIML Issuing Authority NL1** 6 August 2013 C. Oosterman Head Certification Board

INSPECTION
RvA I 122

OIML Certificate of Conformity

The conformity was established by the results of tests and examinations provided in the associated OIML Test Report(s):
- No. NMi-13200217-01 dated 6 August 2013 that includes 64 pages.

Characteristics of the multi-dimensional measuring instrument

Suitability for measuring objects[*)]	Objects that are rectangular, opaque, and have regular surfaces		
Determination of dimensions of objects during automatic operation	dynamically		
Type of package flow	Instrument is capable of measuring single objects or multiple objects simultaneously in the measurement area		
Max	L	W	H
	$Max_L \leq 2500$ mm	$Max_W \leq 1200$ mm	$Max_H \leq 900$ mm
Min	$Min_L \geq 50$ mm	$Min_W \geq 50$ mm	$Min_H \geq 50$ mm
Scale interval	$d_L \geq 5$ mm	$d_W \geq 5$ mm	$d_H \geq 5$ mm
Maximum number of partial measuring ranges	1		
Maximum belt speed	$V_{max} \leq 3,15$ m/s		
Temperature range	-10 °C / +50 °C		
Environment classes	M2 / E1		
Power supply voltage	22,5 – 26,5 V DC		
Software identification	**MD5 hashes**		
	DSP software	9769FD1C96438C5AB910F725545FFDB3	
	FPGA software	61A92F0F152949924F17152E063A9236	
	LFT library	94092F384948235EB4E70E30667D8991	

[*)] The smallest rectangular box that fully encloses the object is determined.

The above-mentioned limitations of use shall be clearly marked on the markings plate in a visible place to the operator.

The software identification can be shown as follows:
- Upon start-up of the instrument (it is displayed on the (optional) remote display), or;
- The system runs a web server through which the software identification can be accessed. From the main screen press the following sequence:
  - 'Modify Settings' -> 'Configuration'.

APPROVAL No. - N° D'APPROBATION
AM-5924C

NOTICE OF CONDITIONAL APPROVAL

Issued by statutory authority of the Minister of Industry for the following device model(s):

AVIS D'APPROBATION CONDITIONNELLE

Émis en vertu du pouvoir statutaire du ministre de l'Industrie pour le(s) modèle(s) d'instrument suivant(s):

TYPE OF DEVICE

Electronic Multiple Dimension Measuring Device

TYPE D'APPAREIL

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 ºC to/à 50 ºC
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 Cuboïdal objects only / Seulement pour objets cuboïdaux ② Non-Cuboïdal 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

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 plau amples reseignements sont disponibles à la section "Autre"..

SECTION 3 - TABLE 2 - Display Features

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**	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. / L'appareil est installé perpendiculairement au-dessus d'un convoyeur à courroie. Avant et aprés l'instrument, le convoyeur doit être droit et d'une longueur égale ou supérieure à la capacité horizontale certifiée (longueur) de l'appareil.
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 junction (CBX 100) 1 Photo-eye (optional) / Cellule photoélectrique (en option)
Description	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. For non-singulated, non-touching operation a bar code scanner is used to assign the measurements to the correct object. / 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. 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.
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 leursdimensions.

Le contenu du registre des événements doit être facilement accessible en tout temps. Un imprimé du contenu du registre desévénements 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 types(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.

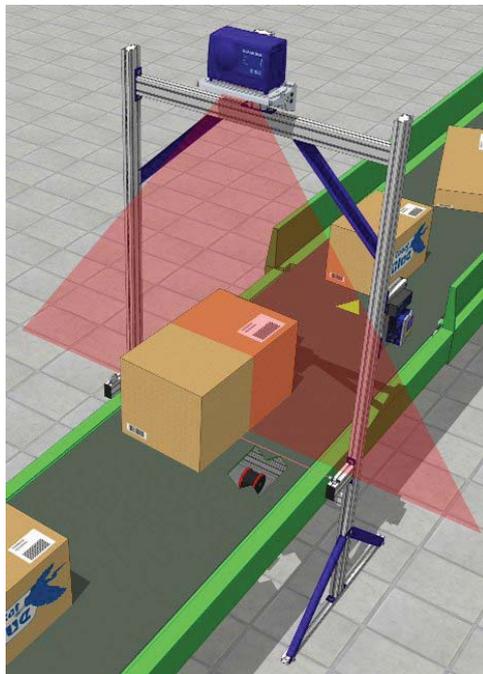**PARTIE 8 - Photos et dessins**

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 parite 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.

CE

Datalogic Automation S.r.l.
Via Lavino 265
40050 Monte San Pietro
Bologna - Italy
www.datalogic.com

declares that the

DM3610; Multi-dimensional measuring system

is in conformity with the requirements of the European Council Directives listed below:

2004 / 108 / EC EMC Directive

_____

This Declaration is based upon compliance of the products to the following standards:

EN 55022 (CLASS A ITE), 2010:	*INFORMATION TECHNOLOGY EQUIPMENT RADIO DISTURBANCE CHARACTERISTICS LIMITS AND METHODS OF MEASUREMENTS*
EN61000-4-3, 2010:	*PART 4-3: TESTING and MEASUREMENT TECHNIQUES - RADIATED, RADIO-FREQUENCY, ELECTROMAGNETIC FIELD IMMUNITY TEST*

NOTE: FOR "LEGAL FOR TRADE" INSTALLATION THIS DECLARATION MUST BE COMPLETED BY SPECIFIC DECLARATION ACCORDING TO 2004/22 EC DIRECTIVE.

Monte San Pietro, December 10th, 2013

Paolo Morselli
Quality Manager

Morselli Paolo

CSQ
UNI EN ISO 9001

CSQ eco
UNI EN ISO 14001

CERTIFIED
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DATALOGIC

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