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**METROLOGIC INSTRUMENTS, INC.**

**TECH 10™ Laser Bar Code  
Projection Scanner (1070)**

**Installation and User's Guide**

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## **Introduction**

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Metrologic's TECH 10 laser bar code projection scanner is encased in a NEMA-12 steel case. The scanner's construction enables the scanner to operate in harsh surroundings, especially industrial environments. Water-resistant, shock-resistant, and rugged, the TECH 10 scanner is also fast, aggressive and reliable. It can register bar codes at a range of 203mm - 559mm (8" - 22") and can autodiscriminate among all common codes.

Among the scanner's many features is an Application Specific Integrated Circuit (ASIC) in the decoding system that virtually eliminates misreads; and MECCA<sup>®</sup> (Metrologic Enhanced Code Correcting Algorithm), which enables the scanner to read poorly printed, wrinkled or even torn bar codes on the first pass.

## **Unpacking List**

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The following will be contained in the shipping carton:

- ! Installation and User's Guide
- ! ScanSelect Scanner Programming Guide
- ! TECH 10 Laser Bar Code Projection Scanner
- ! Communication Cable with Power Supply (optional)

or

Communication Cable (optional)

- ! Stand (optional)

To order additional items, contact the dealer, distributor or call Metrologic's Customer Service Department.

## **Scanner Connections to the Host**

---

In order for the TECH 10 scanner to maintain compliance with applicable standards, all circuits connected to the scanner (Example: power supply, host system, etc.) must meet the requirements for SELV (Safety Extra Low Voltage) according to EN60950.

To avoid potential problems, **do not power up the scanner until the communication cable is secured to the host.**

1. Turn off the host system.
2. Locate the 19-pin female end of the scanner link cable and find the widest key located above pins L and A. Align this key with the corresponding key on the scanner box's Mil spec connector. While pushing in on the connector, rotate the ring clockwise until it locks into place with a click.
3. Connect the other end of the communication cable to the host device. (If the scanner will not receive power from a transformer, skip to Step 6.)
4. If the scanner will receive power from an external power source, check the AC input requirements of the transformer to make sure the voltage matches the AC outlet. (A socket-outlet can be installed near the equipment and can be easily accessible.)
5. Plug the transformer into the AC outlet to supply the power to the scanner.
6. Power up the host system.
7. Scan a few items to verify that data is being properly transmitted between the scanner and the host device.

## **Configuration of the Scanner to the Host System**

The scanner is shipped from the factory programmed to a set of default conditions noted in the ScanSelect™ Scanner Programming Guide by an asterisk that appears before the brief definition next to the bar code.

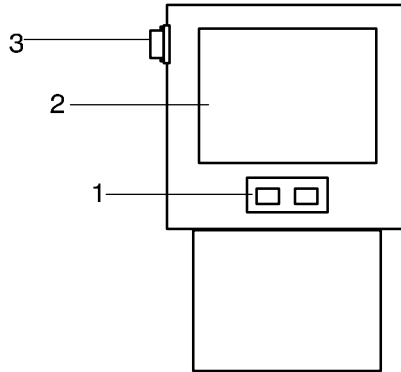
In order for the scanner to communicate with the host system properly, it needs to be programmed to meet your specific scanning needs. Since each host system is unique, the scanner must be configured to match the host system requirements. The scanner can be configured by entering program mode and scanning the appropriate bar codes that appear in the *ScanSelect Scanner Programming Guide*. (When using ScanSet™, refer to the *ScanSet* documentation for information on how to configure the scanner.)

1. Connect the scanner to the host system (Refer to the *Scanner Connections to the Host* section in this guide).
2. Enter program mode by scanning the ENTER/EXIT program mode bar code. (The unit will beep three times)
3. Scan the appropriate bar code(s) that appear in the ScanSelect Scanner Programming Guide. (Reveal only one bar code to the scanner each time. With your hand, cover the bar code that should not be scanned.)
4. Exit program mode by scanning the ENTER/EXIT program mode bar code again. (The new options will be saved and the scanner is ready for normal operation.)

## Parts of the Scanner

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Becoming familiar with the features of the TECH 10 scanner will help when operating the scanner. The following illustration and list explain the pertinent parts.



- 1 Green and Red LEDs** When the green LED is on, this shows that the unit is receiving power and the laser is on. When the red LED flashes on, the scanner has read a bar code successfully. When the red light turns off, communication to the host is complete.
- 2 Laser Output Window** Laser light is emitted from this aperture.
- 3 Mil spec Connector** This is a 19-pin male Mil spec connector. It is used to connect the scanner to a host device by using a communication cable with a female Mil spec connector. The communication cable may include a power transformer or it may be designed to draw power directly from the host device. The standard TECH 10 only contains one connector. If the scanner is being used with the MX001 box, then there will be two Mil spec connectors on the unit.

## Installation of the Stand

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With the Metrologic stand (Part #45479), the scanner can be positioned in a vertical orientation. To use this stand, four 6-32 x 1/2" machine screws and two #10 panhead wood screws will need to be purchased. The maximum distance the screws should go into the scanner is 1/2 inch.

1. Lay the scanner face down on a clean cloth to prevent any scratches from occurring on the output window. Position the scanner so the red and green LEDs are pointed toward you.
2. Lay the stand on top of the scanner with the angled bracket pointing up and toward you.
3. Align the four clearance holes to the four holes in the scanner's case. Fasten the stand to the scanner by inserting the four 6-32 x 1/2" screws into the four holes in the scanner's case.
4. Drill two holes into the work surface that correspond with the holes in the 254mm x 95mm (10" x 3.75") base of the stand.
5. Use the two #10 panhead wood screws to attach the stand and scanner to the work surface. (*Refer to Figure 1*)

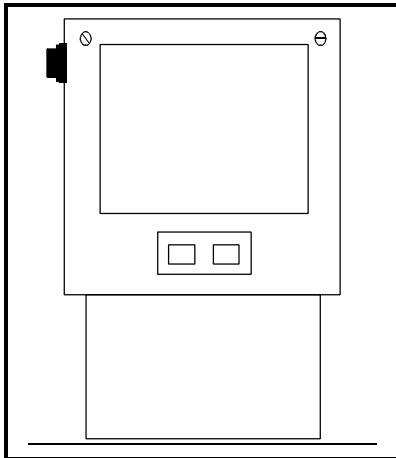
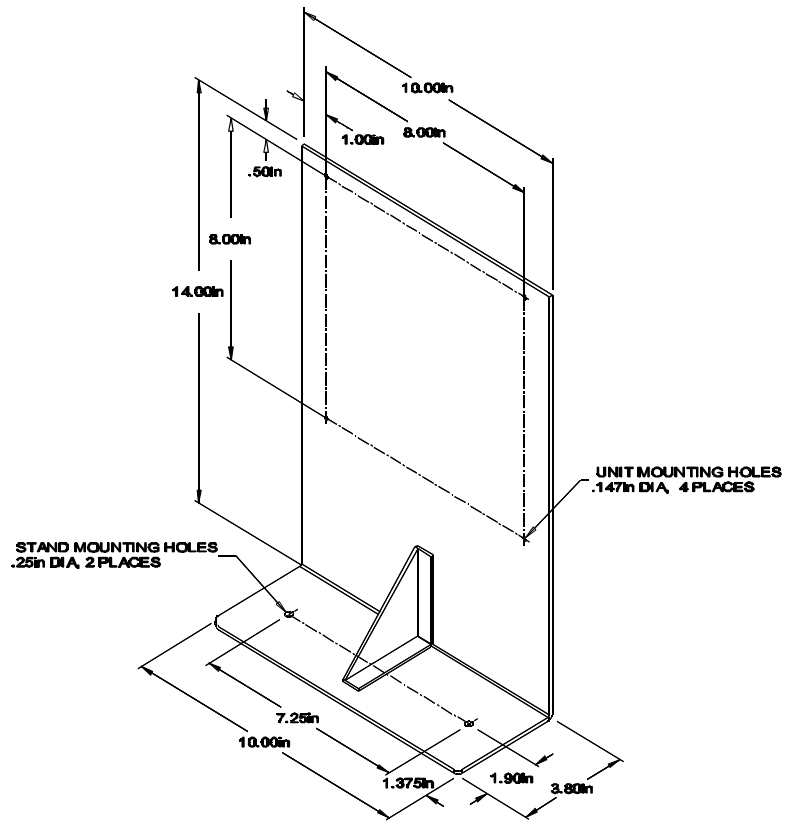


Figure 1





**TECH 10 STAND (45479)**

**Figure 2**

## Labels

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A label is inside the window of the scanner noting that this device is a CDRH Class IIA laser product and IEC 825 LASERKLASSE 1. Also, on the scanner is a label on the back of the unit. This label contains information such as the model number, date of manufacture, and serial number. The following are samples of the labels that are found on the unit.

## Scanning Bar Codes

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The depth of field for the scanner is 254mm to 559mm (10" to 22") from the scanner window. Pass the symbol through the scan area in order for the scanner to recognize the bar code.

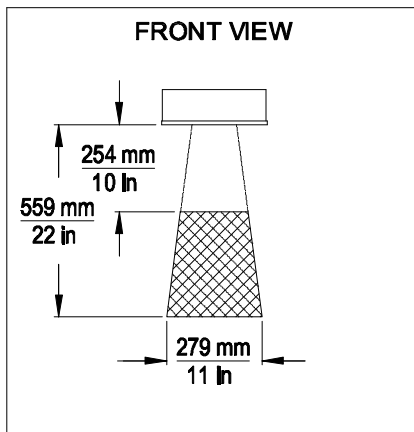


Figure 3

## **Maintenance**

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Smudges or dirt that appears on the scanner window can interfere with proper scanning. Therefore, only maintenance required is an occasional cleaning of the glass window.

1. Spray glass cleaner onto lint free, non-abrasive cleaning cloth.
2. Gently wipe the scanner window.

## Appendix A

---

### Specifications

Application:	Universal Industrial Scanner
Light Source:	Visible Laser Diode 670 ± 5nm
Laser Class:	CDRH: CLASS IIa; EN 60825 Class 1
Certifications:	CE, UL listed for US and Canada
EMC:	FCC Class A, CISPR Class A

### Mechanical

Dimensions:	311mm x 262mm x 108mm (12.25"L x 10.32"W x 4.25"D)
Weight:	5.19 kg. (11.45 lbs.) without cable
Orientation:	May be used in any orientation
Mounting:	Back plate mount or vertical stand
Top Cover:	NEMA-12 steel case

### Electrical

Power Consumption:	9 watts, host system or tabletop transformer
Input Voltage:	11-30 VDC
Operating Current:	450mA typical @ 20V
Standby Current:	210mA typical @ 20V
DC Transformers†:	220V (AC in) 120V (AC in) 230V (AC in)

†All transformers have required agency approvals and have earth ground tied to the core, through to the output.

Patents Pending

Specifications subject to change without notice.

## Operational

Depth of Scan Field:	254mm to 559mm (10" to 22")
Scan Speed:	1,250 scan lines per second
Scan Pattern:	25 line omnidirectional
Exit Angle:	12E down off perpendicular of scan window
Indicators:	LED: red = good read; green = laser on
Beeper Operation:	Selection of 3 tones for "Good Read"
Maintenance Required:	Clean window periodically
Decode Capability:	Autodiscriminates
System Interfaces:	RS232C; Light Pen Emulation; OCIA; RS422
Print Contrast:	35% minimum reflectance difference
Roll, Pitch, Yaw:	360E, 60E, 60E

## Environmental

Storage Temperature:	-40EC to 60EC (-40EF to 140EF)
Operating Temperature:	0EC to 35EC (32EF to 95EF)
Humidity:	5% to 95% relative humidity, non- condensing
Light Levels:	Up to 3200 foot candles - works in direct sun
Ventilation:	None required
Shock:	100g for 1ms
ESD:	8 kV IEC 801-2
Contaminants:	Protects against dust, falling dirt, and dripping non-corrosive liquid

Patents Pending

Specifications subject to change without notice.

## Appendix B

### Pin Assignments for the Mil spec Connector

Each TECH 10 scanner has a 19-pin male Mil spec connector that is on the side of the unit. To connect the scanner to the host device, use a communication cable with a female Mil spec connector. The communication cable may include a power transformer or it may be designed to draw power directly from the host device. This item can be ordered when the scanner is purchased.

The following is a list of the pin assignments. The pin numbers are impressed on the male Mil spec connector. For easier reference, refer to Figure 2 for pin locations.

PIN	FUNCTION
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A	R Data
B	RTS Output
C	Signal Ground
D	CTS Input
E	R Data Return
F	RS-232 Output
G	Clock in
H	Clock In Return
J	Clock Out
K	Shield Ground
L	DTR Input
M	Clock Out Return
N	Power to Scanner & 24 VDC
P	Earth Ground
R	Power Ground
S	RS-232 Input

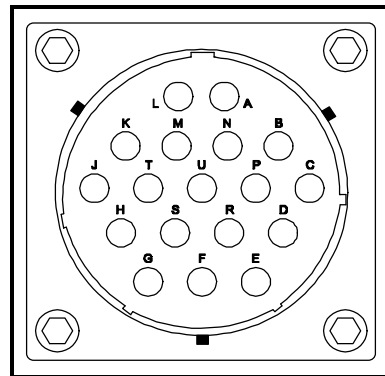


Figure 2

## Appendix C

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### Warranty and Disclaimer

#### Limited Warranty

Products manufactured by Metrologic have a 2-year limited warranty from date of manufacture.

This warranty is limited to repair, replacement or refund at Metrologic's discretion. Faulty equipment must be returned to the Metrologic facility in Blackwood, New Jersey or Puchheim, Germany. To do this, contact Metrologic Customer Service/Repair for a Returned Material Authorization (RMA) number.

In the event that it is determined that the equipment failure is covered under the warranty, Metrologic shall, as its sole option, repair, replace with a functionally equivalent unit, or refund an amount equal to the purchase price to the original purchaser, whether distributor, dealer/reseller, or retail consumer, and return the equipment to the customer without charge for service or return freight.

This limited warranty does not extend to any Product which, in the sole judgment of Metrologic, has been subjected to misuse, neglect, improper installation or accident, nor does it extend to any Product which has been repaired or altered by anyone who is not a Metrologic authorized representative.

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## Appendix D

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### Notices

#### Notice

This equipment has been tested and found to comply with limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case the user will be required to correct the interference at his own expense. Any unauthorized changes or modifications to this equipment could void the users authority to operate this device.

#### Notice

This digital apparatus does not exceed the Class A limits for radio noise emissions from digital apparatus set out in the Radio Interference Regulations of the Industry and Canada.

#### Caution

Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous laser light. Under no circumstances should the customer attempt to service the laser scanner. Never attempt to look at the laser beam, even if the scanner appears to be nonfunctional. Never open the scanner in an attempt to look into the device. Doing so could result in hazardous laser light exposure. The use of optical instruments with the laser equipment will increase eye hazard.

#### Remarque

Après contrôle de cet appareil, on a noté qu'il répondait aux valeurs limites de la classe A, conformément à la partie 15 des directives de l'administration fédérale américaine pour les télécommunications. Ces valeurs limites ont été prévues pour garantir une protection suffisante contre les effets nocifs dus à l'emploi de l'appareil dans un magasin. L'appareil génère et utilise une énergie haute fréquence et peut, s'il n'est pas installé et utilisé conformément aux instructions mentionnées dans le guide d'utilisation, entraîner des perturbations dans la radiocommunications. L'utilisation de cet appareil dans une zone d'habitation entraînera très vraisemblablement des perturbations. Dans ce cas, l'utilisateur est tenu de remédier à ces perturbations à ses propres frais. Toute modification ou remplacement non autorisé sur cet appareil peut entraîner l'invalidité de l'autorisation d'utilisation de l'appareil.

#### Remarque

Cet appareil numérique ne va pas contre les valeurs limites pour émissions de bruits radios des appareils numérique de la classe A, conformément aux directives relatives aux perturbations des radiocommunications du ministère canadien pour l'industrie.

#### Attention

L'emploi de commandes, réglages ou procédés autres que ceux décrits ici peut entraîner de graves irradiations. Le client ne doit en aucun cas essayer d'entretenir lui-même le scanner ou le laser. Ne regardez jamais directement le rayon laser, même si vous croyez que le scanner est inactif. N'ouvrez jamais le scanner pour regarder dans l'appareil. Ce faisant, vous vous exposez à une rayonnement laser mortel. L'emploi d'appareils optiques avec cet équipement laser augmente le risque d'endommagement de la vision.

**Anmerkung**

Nach Überprüfung dieses Geräts wurde festgestellt, daß es den Grenzwerten für Digitalgeräte der Klasse A gemäß Teil 15 der Richtlinien der US-amerikanischen Bundesbehörde für das Fernmeldewesen entspricht. Diese Grenzwerte wurden festgelegt, um einen angemessenen Schutz gegen schädliche Auswirkungen bei Einsatz des Geräts in einer Ladenumgebung zu gewähren. Das Gerät erzeugt und verwendet Hochfrequenzenergie und kann diese ausstrahlen, und kann, falls es nicht gemäß den im Bedienerhandbuch enthaltenen Anweisungen installiert und verwendet wird, zu einer Störung des Funkverkehrs führen. Der Betrieb dieses Geräts in einem Wohngebiet führt höchstwahrscheinlich zu Störungen. In diesem Fall ist der Bediener verpflichtet, die Störung auf eigene Kosten zu beseitigen. Durch jegliche unerlaubte Auswechslung oder Änderung an diesem Gerät könnte die Genehmigung des Bedieners zur Verwendung dieses Geräts ungültig werden.

**Anmerkung**

Dieses Digitalgerät verstößt nicht gegen die Grenzwerte für Funkrauschemissionen von Digitalgeräten der Klasse A gemäß den Richtlinien für Funkstörungen des kanadischen Ministeriums für Industrie.

**Achtung**

Die Verwendung anderer als der hierin beschriebenen Steuerungen, Einstellungen oder Verfahren kann eine lebensgefährliche Laserstrahlung hervorrufen. Der Kunde sollte unter keinen Umständen versuchen, den Laser-Scanner selbst zu warten. Sehen Sie niemals in den Laserstrahl, selbst wenn Sie glauben, daß der Scanner nicht aktiv ist. Öffnen Sie niemals den Scanner, um in das Gerät hineinzusehen. Wenn Sie dies tun, können Sie sich einer lebensgefährlichen Laserstrahlung aussetzen. Der Einsatz optischer Geräte mit dieser Laserausrüstung erhöht das Risiko einer Sehschädigung.

**N.B.**

Dal controllo di questo apparecchio risulta che esso risponde ai valori limite per apparecchi digitali della classe A conf. parte 15 delle direttive sulle telecomunicazioni dell'Autorità federale statunitense. Questi valori limite sono stati fissati per garantire una protezione adeguata contro gli effetti nocivi se questo apparecchio viene usato all'intero di un negozio. L'apparecchio genera, utilizza e può emettere energia ad alta frequenza e, se non viene installato ed utilizzato conformemente alle indicazioni fornite nel Manuale utente, può provocare disturbi al servizio radiofonico. L'uso di questo apparecchio in zone residenziali causa molto probabilmente dei disturbi. In questo caso l'utente è obbligato ad eliminare questi disturbi a sue spese. Qualsiasi sostituzione o modifica non autorizzata all'apparecchio potrebbe rendere invalida l'autorizzazione dell'utente all'uso dell'apparecchio.

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**Attenzione**

L'utilizzo di sistemi di controllo, di regolazioni o di procedimenti diversi da quelli decritti nel presente Manuale può provocare dei raggi laser pericolosi per la vita. Il cliente non deve assolutamente tentare di riparare egli stesso lo scanner laser. Non guardate mai nel raggio laser, anche se credete che lo scanner non sia attivo. Non aprite mai lo scanner per guardare dentro l'apparecchio. Se tuttavia lo fate, potete esporvi a dei raggi laser pericolosi per la vita. L'uso di apparecchi ottici con questo equipaggiamento laser aumenta il rischio di danni alla vista.

## Appendix E

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### Patents

“Patent Information

This METROLOGIC product may be covered by one or more of the following U.S. Patents:

U.S. Patent No. 4,360,798; 4,369,361; 4,387,297; 4,460,120; 4,496,831; 4,593,186; 4,607,156; 4,673,805; 4,736,095; 4,758,717; 4,816,660; 4,845,350; 4,896,026; 4,923,281; 4,933,538; 4,992,717; 5,015,833; 5,017,765; 5,059,779; 5,117,098; 5,124,539; 5,130,520; 5,132,525; 5,140,144; 5,149,950; 5,180,904; 5,200,599; 5,229,591; 5,247,162; 5,250,790; 5,250,791; 5,250,792; 5,262,628; 5,280,162; 5,280,164; 5,304,788; 5,321,246; 5,324,924; 5,396,053; 5,396,055; 5,408,081; 5,410,139; 5,436,440; 5,449,891; 5,468,949; 5,479,000; 5,532,469; 5,545,889

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