



METROLOGIC INSTRUMENTS, INC.

**TECH 10<sup>®</sup> LASER BAR CODE  
PROJECTION SCANNER (1070)**

**INSTALLATION AND USER'S GUIDE**

**November 2004**

**Printed in USA**



00 - 02166A



## LOCATIONS

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### CORPORATE HEADQUARTERS

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<b>North America</b>	Metrologic Instruments, Inc. 90 Coles Road Blackwood, NJ 08012-4683	Customer Service: 1-800-ID-METRO Tel: 856-228-8100 Fax: 856-228-6673 Email: info@metrologic.com Internet: www.metrologic.com
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### EUROPEAN HEADQUARTERS

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<b>Germany, Middle East and Africa</b>	Metrologic Instruments GmbH Dornierstrasse 2 82178 Puchheim b. Munich, Germany	Tel: +49 89 89019 0 Fax: +49 89 89019 200 Email: info@europe.metrologic.com Germany Email: info@de.metrologic.com
--	---	--

---

<b>Spain</b>	Metrologic Eria Ibérica SL Julián Camarillo 29, D-1 Edificio Diapasón 28037 Madrid	Tel: +34 913 272 400 Fax: +34 913 273 829 Email: info@es.metrologic.com
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<b>Italy</b>	Metrologic Instruments Italia srl Via Emilia 70 40064 Ozzano dell'Emilia (BO)	Tel: +39 0 51 6511978 Fax: +39 0 51 6521337 Email: info@it.metrologic.com
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<b>France</b>	Metrologic Eria France SA 69 Rue de la Belle Etoile ZI Paris Nord II, BP 50057 95947 – ROISSY CDG CEDEX	Tel: +33 (0) 1 48.63.78.78 Fax: +33 (0) 1 48.63.24.94 Email: info@fr.metrologic.com
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<b>United Kingdom</b>	Metrologic Instruments UK Limited 58 Tempus Business Centre Kingsclere Road, Basingstoke Hampshire RG21 6XG	Tel: +44 (0) 1256 365900 Fax: +44 (0) 1256 365955 Email: info@uk.metrologic.com
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### ASIA

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<b>Singapore</b>	Metrologic Asia (Pte) Ltd No. 8 Kaki Bukit Place 4 <sup>th</sup> Floor Singapore 416186	Tel: 65-842-7155 Fax: 65-842-7166 Email: info@sg.metrologic.com
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<b>China</b>	Metro (Suzhou) Technologies Co., Ltd. 221 Xing Hai Street Suzhou Industrial Park Suzhou, China 215021	Tel: 86-512-2572511 Fax: 86-512-2571517 Email: info@cn.metrologic.com
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<b>Japan</b>	Metrologic Japan Co., Ltd. Matsunoya Building, 6 Floor 3-14-8 Higashiueno Taitou-Ku, Tokyo 110-0015 Japan	Tel: 81-3-3839-8511 Fax: 81-3-3839-8519 Email: info@jp.metrologic.com
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### SOUTH AMERICA

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<b>Brazil</b>	Metrologic do Brasil Ltda. Rua da Paz 2059 CEP 04713-002 Chácara Santo Antônio São Paulo, SP, Brasil	Tel: 55-11-5182-8226 Fax: 55-11-5182-8315 Email: info@br.metrologic.com
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<b>Outside Brazil</b>	Metrologic South America Rua da Paz 2059 CEP 04713-002 Chácara Santo Antônio São Paulo, SP, Brasil	Tel: 5511-5182-7273 Fax: 5511-5182-7198 Email: info@sa.metrologic.com
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## INTRODUCTION

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Metrologic's TECH 10<sup>®</sup> 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 203 mm – 559 mm (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.

## SCANNER AND ACCESSORIES

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The following will be contained in the shipping carton:

- Installation and User's Guide [MLPN 00-02186]
- ScanSelect™ Scanner Programming Guide [MLPN 00-02186]
- TECH 10 Laser Bar Code Projection Scanner

Optional Scanner Accessories

- Communication Cable with Power Supply  
or  
Communication Cable
- Stand [MLPN 45-45479]

To order additional items, contact the dealer, distributor or call Metrologic's Customer Service Department. at 1-800-ID-METRO.

## SCANNER CONNECTIONS TO THE HOST

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**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.
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. The outlet should be near the equipment and 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.



**Caution:**

To maintain compliance with applicable standards, all circuits connected to the scanner must meet the requirements for SELV (Safety Extra Low Voltage) according to EN 60950.

To maintain compliance with standard CSA C22.2 No. 950/UL 1950 and norm EN 60950, the power source should meet applicable performance requirements for a limited power source.

## CONFIGURATION OF THE SCANNER TO THE HOST SYSTEM

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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.)

**Caution:**



To maintain compliance with applicable standards, all circuits connected to the scanner must meet the requirements for SELV (Safety Extra Low Voltage) according to EN 60950.

To maintain compliance with standard CSA C22.2 No. 950/UL 1950 and norm EN 60950, the power source should meet applicable performance requirements for a limited power source.

## 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.

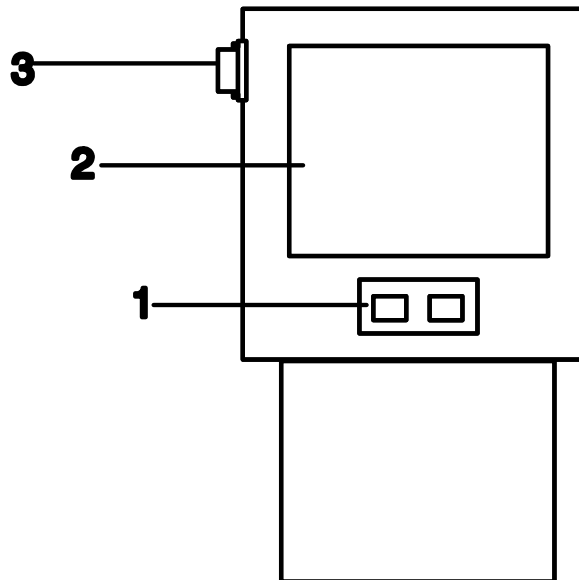


Figure 1

- 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 #45-45479), the scanner can be positioned in a vertical orientation. To use this stand, four 6-32 x ½" machine screws and two #10 panhead wood screws will need to be purchased. The maximum distance the screws should go into the scanner is ½ 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 ½" 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 254 mm x 95 mm (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)

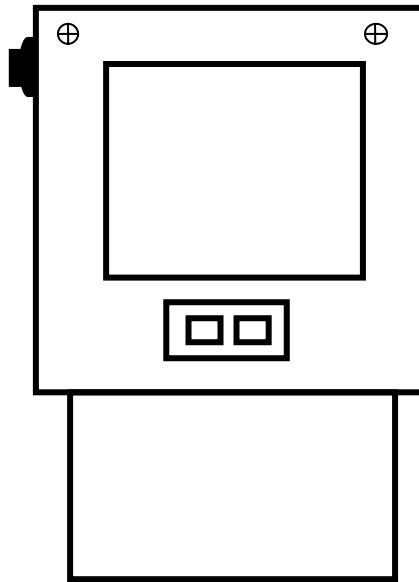
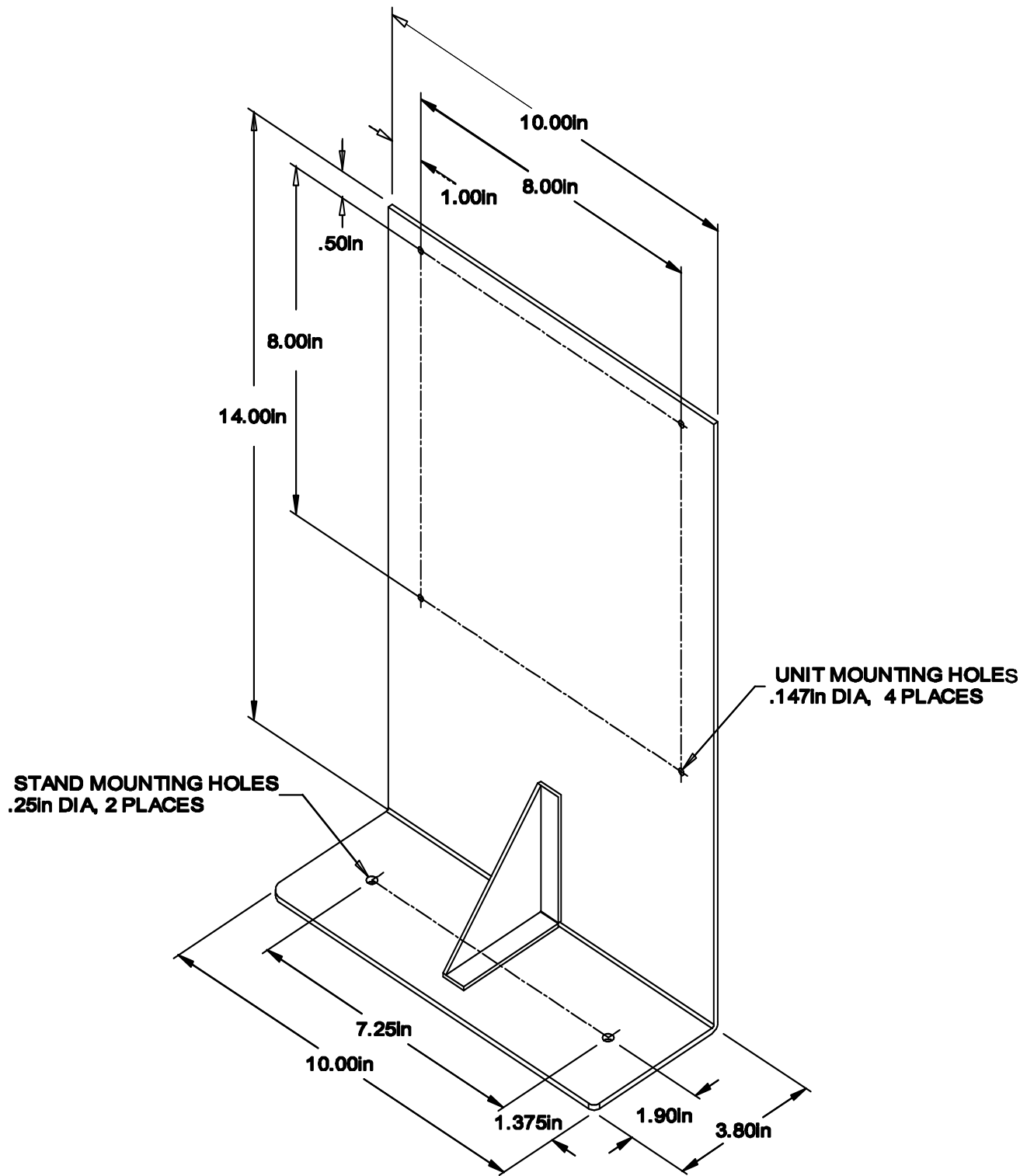


Figure 2



**TECH 10 STAND (45479)**

**Figure 2**

## LABELS

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.

### Metrologic®

Metrologic Instrumrnts Inc.  
Blackwood New Jersey, USA  
Contains no user servicable componets.  
Warranty void if case is opened.  
Complies with FCC Class A.  
See manual.

Software: 15082  
Manufactured Blackwood, NJ.  
November 2004 (F)  
Model: IS1170-46 RS232/RS422  
TECH 10® Barcode Scanner  
Serial #: 21 04 44 0102 11-30V<sup>\*\*\*</sup>



See User's Guide for patent coverage.

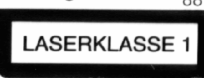


This product complies with US  
DHHS Standard 21 CFR Chapter  
1 Subchapter J. Class Ila Laser  
Product. Avoid long-term viewing  
of direct laser light.



Eviter toute exposition prolongee  
de la vue au rayonnement laser  
direct. Appareil laser Classe Ila

Complies with 21 CFR  
Chapter 1 subchapter  
J. Class Ila laser  
product. Avoid long-  
term viewing of direct  
laser light.



CAUTION:  
Laser light when opened.  
DO NOT STARE INTO BEAM.

## Scanning bar codes

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

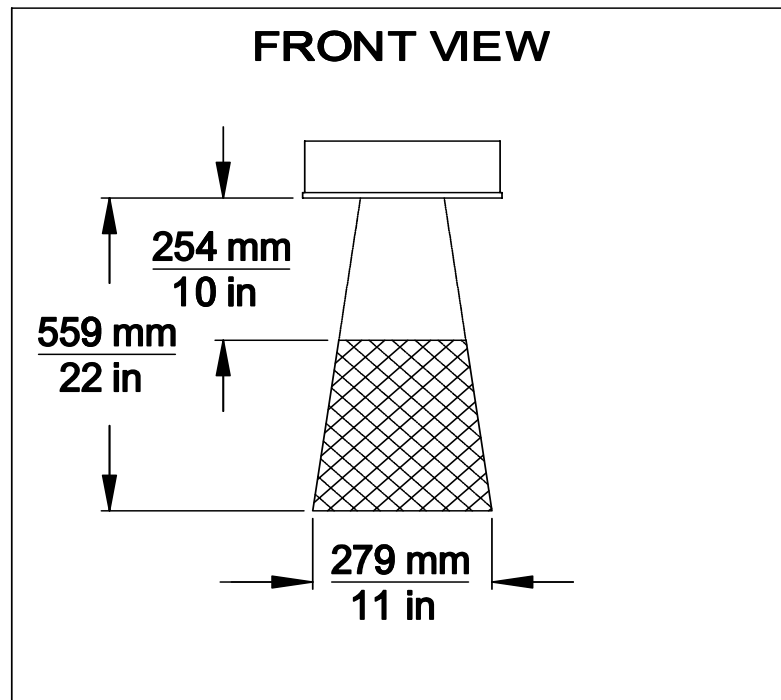


Figure 3

## **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

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### Specifications

Application: Universal Industrial Scanner  
Light Source: Visible Laser Diode 650 ± 5nm  
Laser Class: CDRH: CLASS IIa; EN 60825 Class 1  
Certifications: CE, UL listed for US and Canada  
EMC: FCC, ICES-003 & EN 55022 Class A

### Mechanical

Dimensions: 311 mm x 262 mm x 108 mm  
(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: 450 mA typical @ 20V  
Standby Current: 210 mA 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.

Specifications subject to change without notice.

## APPENDIX A (CONTINUED)

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### Operational

Depth of Scan Field:	254 mm to 559 mm (10" to 22")
Scan Speed:	1,250 scan lines per second
Scan Pattern:	25 line omnidirectional
Exit Angle:	12° 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:	360°, 60°, 60°

### Environmental

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

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. The Tech 10® scanners are manufactured by Metrologic at its Blackwood, New Jersey, U.S.A. facility. For easier reference, refer to Figure 5 for pin locations.

PIN	FUNCTION
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

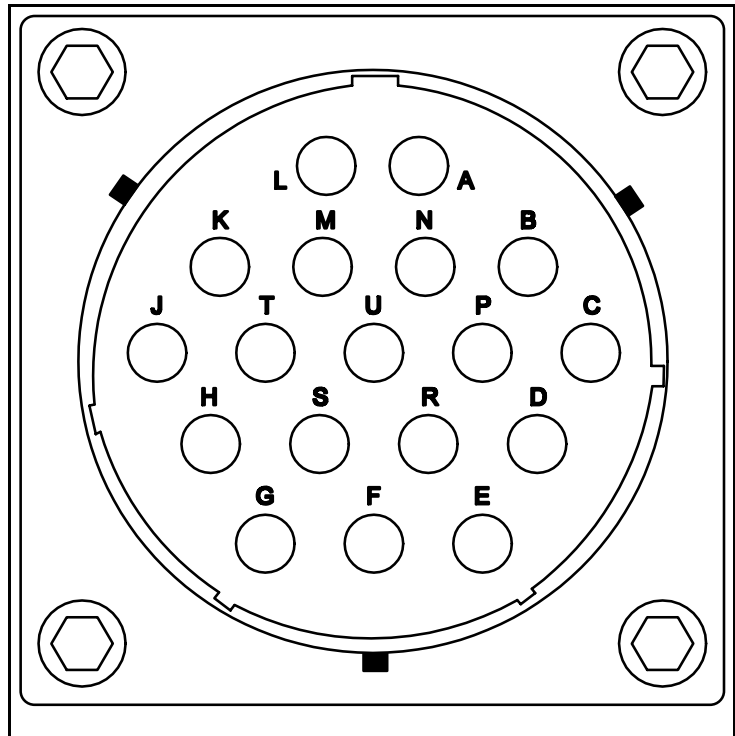


Figure 5

## APPENDIX C

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### Limited Warranty

The Tech 10<sup>®</sup> scanners are manufactured by Metrologic at its Blackwood, New Jersey, U.S.A. facility Tech 10<sup>®</sup>. The Tech 10<sup>®</sup> scanners have a two (2) year limited warranty from the date of manufacture. Metrologic warrants and represents that all Tech 10<sup>®</sup> scanners are free of all defects in material, workmanship and design, and have been produced and labeled in compliance with all applicable U.S. Federal, state and local laws, regulations and ordinances pertaining to their production and labeling.

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

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

This limited warranty does not extend to any Product which, in the sole judgement of Metrologic, has been subjected to abuse, misuse, neglect, improper installation, or accident, nor any damage due to use or misuse produced from integration of the Product into any mechanical, electrical or computer system. The warranty is void if the case of Product is opened by anyone other than Metrologic's repair department or authorized repair centers.

THIS LIMITED WARRANTY, EXCEPT AS TO TITLE, IS IN LIEU OF ALL OTHER WARRANTIES OR GUARANTEES, EITHER EXPRESS OR IMPLIED, AND SPECIFICALLY EXCLUDES, WITHOUT LIMITATION, WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE UNDER THE UNIFORM COMMERCIAL CODE, OR ARISING OUT OF CUSTOM OR CONDUCT. THE RIGHTS AND REMEDIES PROVIDED HEREIN ARE EXCLUSIVE AND IN LIEU OF ANY OTHER RIGHTS OR REMEDIES. IN NO EVENT SHALL METROLOGIC BE LIABLE FOR ANY INDIRECT OR CONSEQUENTIAL DAMAGES, INCIDENTAL DAMAGES, DAMAGES TO PERSON OR PROPERTY, OR EFFECT ON BUSINESS OR PROPERTY, OR OTHER DAMAGES OR EXPENSES DUE DIRECTLY OR INDIRECTLY TO THE PRODUCT, EXCEPT AS STATED IN THIS WARRANTY. IN NO EVENT SHALL ANY LIABILITY OF METROLOGIC EXCEED THE ACTUAL AMOUNT PAID TO METROLOGIC FOR THE PRODUCT. METROLOGIC RESERVES THE RIGHT TO MAKE ANY CHANGES TO THE PRODUCT DESCRIBED HEREIN.

#### USA Corporate Headquarters

Metrologic Instruments, Inc.  
90 Coles Road  
Blackwood, NJ 08012-4683  
Customer Service: 1-800-ID-METRO  
Tel: 856-228-8100  
Email: [info@metrologic.com](mailto:info@metrologic.com)  
[www.metrologic.com](http://www.metrologic.com)

#### Germany

Metrologic Instruments GmbH  
Dornierstrasse 2  
82178 Puchheim b.  
Munich, Germany  
Tel: 49-89-89019-0  
Fax: 49-89-89019-200  
Email: [metrologic@europe.metrologic.com](mailto:metrologic@europe.metrologic.com)



## APPENDIX D

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### 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.

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 that may cause undesired operation.

### Notice

This Class A digital apparatus complies with Canadian ICES-003.

### Remarque

Cet appareil numérique de la classe A, conforme a la norme NMB-003 du Canada.

### ⚠ Caution

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

### ⚠ Atención

La modificación de los procedimientos, o la utilización de controles o ajustes distintos de los especificados aquí, pueden provocar una luz de láser peligrosa. Bajo ninguna circunstancia el usuario deberá realizar el mantenimiento del láser del escáner. Ni intentar mirar al haz del láser incluso cuando este no esté operativo. Tampoco deberá abrir el escáner para examinar el aparato. El hacerlo puede conllevar una exposición peligrosa a la luz de láser. El uso de instrumentos ópticos con el equipo láser puede incrementar el riesgo para la vista.

### ⚠ 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 qui est dangereux. L'emploi d'appareils optiques avec cet équipement laser augmente le risque d'endommagement de la vision.

### ⚠ Achtung

Die Verwendung anderer als der hier beschriebenen Steuerungen, Einstellungen oder Verfahren kann eine gefährliche 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 gefährlichen Laserstrahlung aussetzen. Der Einsatz optischer Geräte mit dieser Laserausrüstung erhöht das Risiko einer Sehschädigung.

### ⚠ Attenzione

L'utilizzo di sistemi di controllo, di regolazioni o di procedimenti diversi da quelli descritti nel presente Manuale può provocare delle esposizioni a raggi laser rischiose. Il cliente non deve assolutamente tentare di riparare egli stesso lo scanner laser. Non guardate mai il raggio laser, anche se credete che lo scanner non sia attivo. Non aprite mai lo scanner per guardare dentro l'apparecchio. Facendolo potete esporvi ad una esposizione laser rischiosa. L'uso di apparecchi ottici, equipaggiati con raggi laser, aumenta il rischio di danni alla vista.

## APPENDIX D (CONTINUED)

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### EUROPEAN STANDARD

**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.

### Funkstöreigenschaften nach EN 55022:1998

**Warnung!**

Dies ist eine Einrichtung der Klasse A. Diese Einrichtung kann im Wohnbereich Funkstörungen verursachen; in diesem Fall kann vom Betreiber verlangt werden, angemessene Maßnahmen durchzuführen.

### Standard Europeo

**Attenzione**

Questo è un prodotto di classe A. Se usato in vicinanza di residenze private potrebbe causare interferenze radio che potrebbero richiedere all'utilizzatore opportune misure.

**Attention**

Ce produit est de classe "A". Dans un environnement domestique, ce produit peut être la cause d'interférences radio. Dans ce cas l'utilisateur peut être amené à prendre les mesures adéquates.

## 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; 4,960,985; 4,992,717; 5,015,833; 5,017,765; 5,059,779; 5,081,342; 5,117,098; 5,124,539; 5,130,520; 5,132,525; 5,140,144; 5,149,950; 5,180,904; 5,200,599; 5,216,232; 5,229,591; 5,247,162; 5,250,790; 5,250,791; 5,250,792; 5,260,553; 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; 5,557,093; 5,627,359; 5,637,852; 5,777,315; 5,789,731

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Other worldwide patents pending.

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