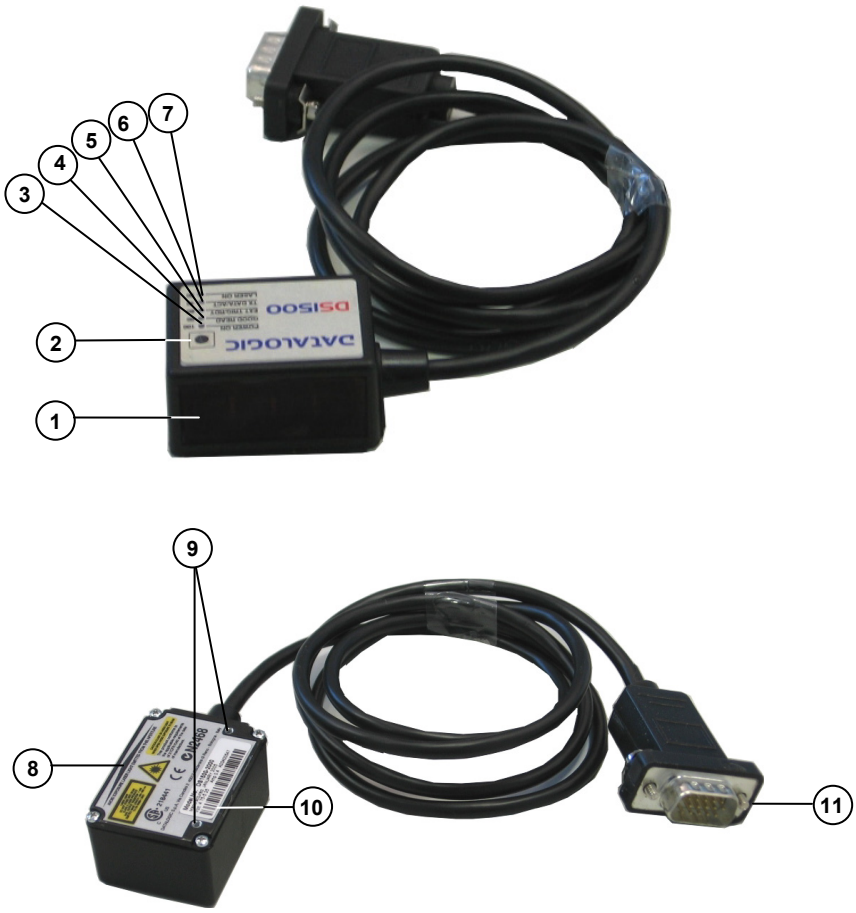
DS1500

General View:



1 Laser Beam Output Window	5 External Trigger/Ready LED	9 Mounting Holes
2 Test Key	6 Tx Data/Active LED	10 Product Label
3 Power On LED	7 Laser On LED	11 15-pin D-sub Male Connector
4 Good Read LED	8 Warning and Device Class Label	

Figure A

For further details on product installation, see the complete Reference Manual.

DS1500 can be configured through the WinHost Windows-based software program available on the installation CD-ROM (part number 93ACC1771).

For configuration it is necessary to create a cable connecting the scanner to the PC as indicated in the "How To Build A Simple Interface Test Cable" section of this guide.

Laser Safety:

The scanner is classified as a Class 2 laser product according to EN 60825-1 regulations and as a Class II laser product according to CDRH regulations.

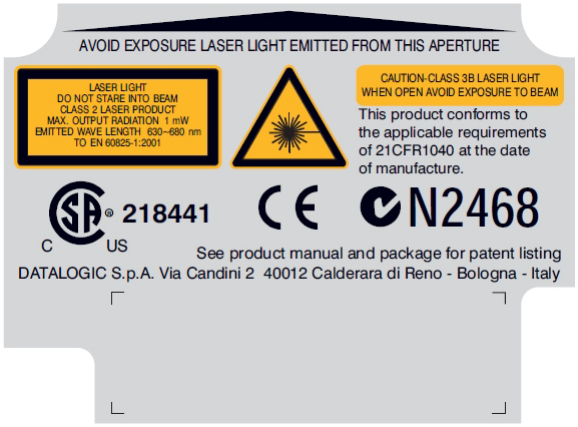
Disconnect the power supply when opening the device during maintenance or installation to avoid exposure to hazardous laser light.

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.

The laser beam can be switched off through a software command (see also the WinHost Help On Line).

The laser diode used in this device is classified as a class 3B laser product according to EN 60825-1 regulations and as a Class IIIb laser product according to CDRH regulations.

Any violation of the optic parts in particular can cause radiation up to the maximum level of the laser diode (35 mW at 630 to 680 nm).



Warning and Device Class Label

Power Supply:

- **This product is intended to be installed by Qualified Personnel only.**
- **All Models:**
  This accessory device is intended to be supplied by a UL Listed or CSA Certified Power Unit with «Class 2» or LPS power source, which supplies power directly to the scanner via the **15**-pin connector.

Patents:

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

U.S. patents: 5,992,740; 7,131,590 B2; 7,533,822 B2.

European patents: 789,315 B1; 1,207,489 B1.

Additional patents pending.

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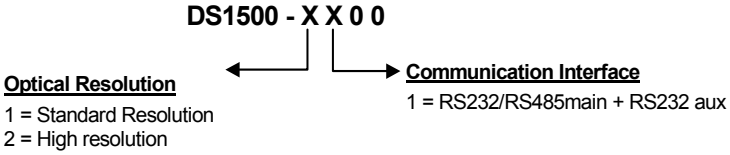
Model Description:



Reading Performance:

Version	Reading Distance	Max Code Resolution	Speed
		mm (mils)	scans/s
1100	40 mm (1.6 in) - 240 mm (9.4 in) on 0.50mm (20 mils) codes	0.20 (8)	1200
1100	75 mm (2.9 in) - 115 mm (4.5 in) on 0.15mm (6 mils) codes	0.15 (6)	800
2100	50 mm (2 in) - 125 mm (4.9 in) on 0.20mm (8 mils) codes	0.10 (4)	800

Technical Features:

ELECTRICAL FEATURES	
Input Power	
Supply voltage	5 Vdc± 5%
Power consumption max.	0.4 A; 2 W
Serial Interfaces	
Main	RS232; RS485 Full-duplex / Half-duplex
Auxiliary	RS232
Baud Rates	150 to 115200
Inputs	External Trigger
Voltage max.	40 Vdc
Outputs	OUT1, OUT2
V_{CE} max.	40 Vdc
Collector current max.	20 mA continuous;
V_{CE} saturation	0.3V at 6 mA max.
Power dissipation max.	100 mW at 45 °C (Ambient temp.)
OPTICAL FEATURES	
Light source	Semiconductor laser diode
Wave length (Note 1)	630 to 680 nm
Safety class	Class 2 - EN 60825-1; Class II - CDRH
READING FEATURES	
Scan rate (software programmable)	800 to 1200 scans/sec
Aperture angle	
Maximum Reading distance	See reading diagrams
Maximum resolution	
USER INTERFACE	
LED indicators	Laser ON, Tx Data/ACT, Ext Trig/RDY, Good Read, Power ON

SOFTWARE FEATURES	
READABLE CODE SYMBOLOGIES * EAN/UPC EAN/UPC (including Add-on 2 and Add-on 5) * 2/5 Interleaved * Code 39 (Standard and Full ASCII) * Codabar	* Code 93 * Code 128 * EAN 128 ISBT 128 Pharmacode
*ACB Readable. Other symbologies available on request.	
Code Selection	up to six different codes during one reading phase
Decoding Safety	can enable multiple good reads of same code
Headers and Terminators	up to four headers and four terminators
Operating Modes	On-Line, Serial-On-Line, Automatic, Continuous, Test
Configuration Modes	• through menus using WinHost utility • receiving commands from one of the serial ports (HOST MODE)
Special Functions	ACB (Advanced Code Builder) Motor Off
Parameter Storage	Non-volatile internal EEPROM
ENVIRONMENTAL FEATURES	
Operating temperature (Note 2)	0° to 45 °C (32° to 113 °F)
Storage temperature	-20° to 70 °C (-4° to 158 °F)
Humidity max.	90% non condensing
Vibration resistance EN 60068-2-6 2 hours on each axis	14 mm @ 2 to 10 Hz 1.5 mm @ 13 to 55 Hz 2 g @ 70 to 200 Hz
Shock resistance EN 60068-2-27 3 shocks on each axis	30 g; 11 ms
Protection class EN 60529	IP65
PHYSICAL FEATURES	
Mechanical dimensions	40 x 30 x 22 mm (1.57 x 1.18 x 0.86 in)
Weight without cable	44 g (1.55 oz)

Note 1: The features given are typical at a 25 °C ambient temperature (if not otherwise indicated).

Note 2: If the reader is used in high temperature environments (over 40 °C), it is advised the use of the Beam-shutter (see the WinHost configuration program) and/or a thermal conductive support (such as the metal bracket provided).

Accessories:

Name	Description	Part Number
CONFIG / DOC PKG	DS1500 Configuration SW, Reference Manual, Test Chart, other documentation	93ACC1771

Electrical Connections:

DS1500 is equipped with a cable terminated by a 15-pin male High Density D-sub connector for connection to the power supply and input/output signals.

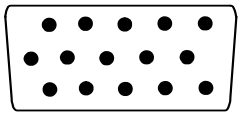
CAUTION

Do not connect GND and SGND to different (external) ground references. GND and SGND are internally connected through filtering circuitry which can be permanently damaged if subjected to voltage drops over 0.8 Vdc.

The details of the connector pins are indicated in the following table:

15-pin male high density D-sub connector pinout

Pin	Name	Function
1	VS	Power supply input voltage +
5	GND	Power supply input voltage -
8	PE	Protective Earth Ground
13	SHIELD	Cable Shield
9	EXT TRIG -	External Trigger -
7	OUT1 +	Output 1 +
14	OUT2 +	Output 2 +
11, 12, 15	NC	Not Connected

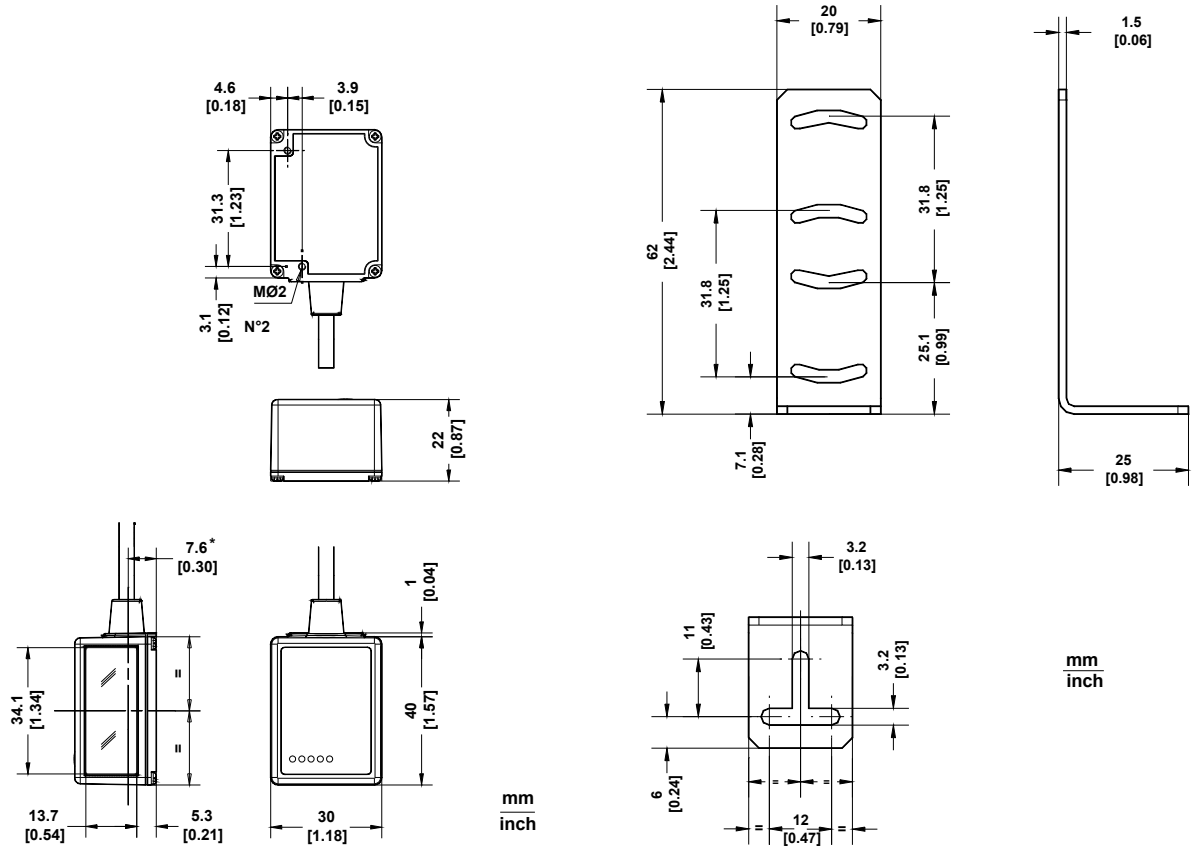


15-pin D-sub High-Density Male Connector

Pin	RS232	RS485 Full-Duplex	RS485 Half-Duplex
2	TX232 Main	TX485-	RTX485-
3	RX232 Main	* RX485+	
6	TXAUX	TX485+	RTX485+
10	RXAUX	* RX485-	
4	SGND	SGND	SGND

* Do not leave floating, see Reference Manual for connection details.

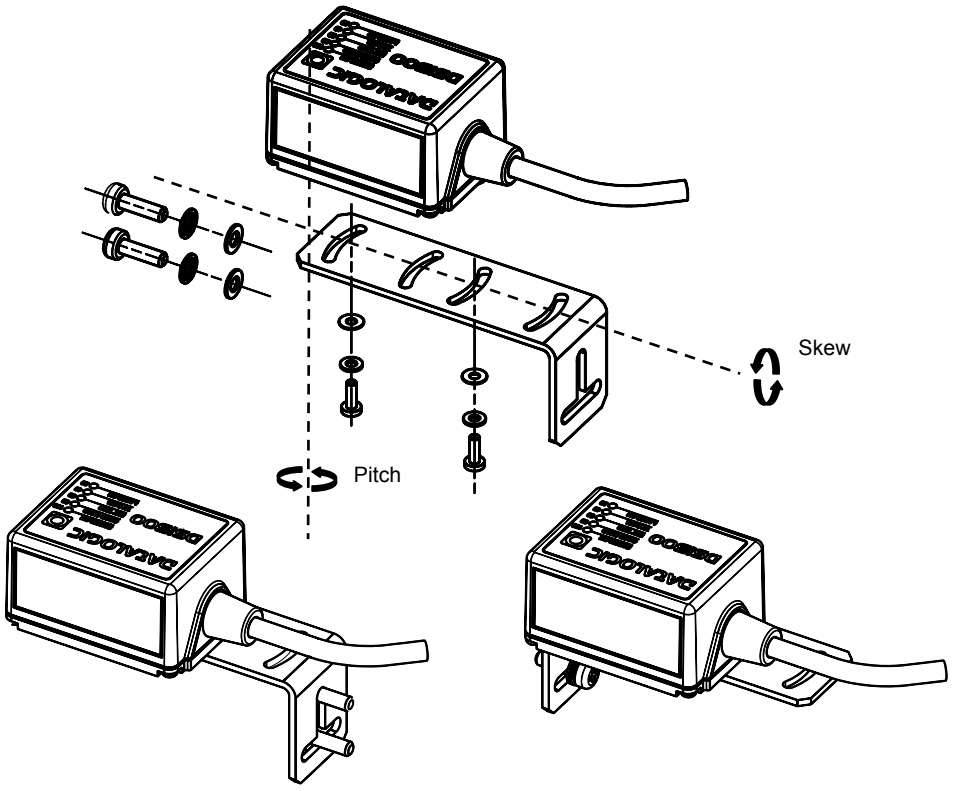
Mechanical Installation:



* The quote refers to the scan line

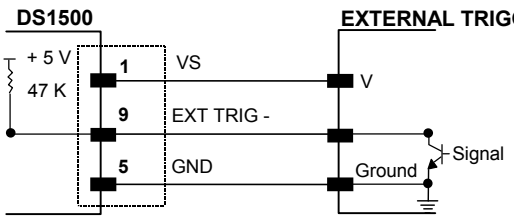
DS1500 Overall Dimensions

Mounting Bracket Overall Dimensions

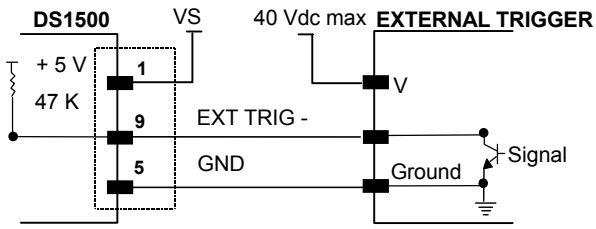


Input/Output Connections:

INPUT CONNECTIONS

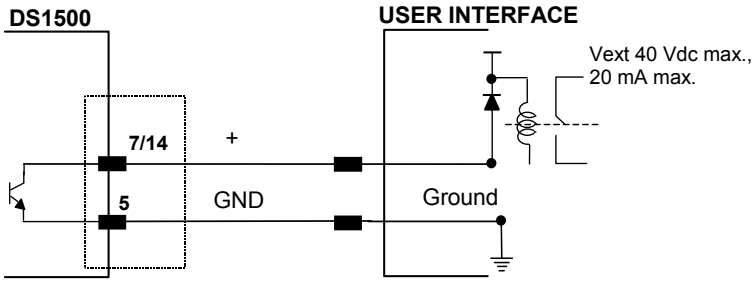


External Trigger Input Command using Scanner Power



External Trigger Input Command using External Power

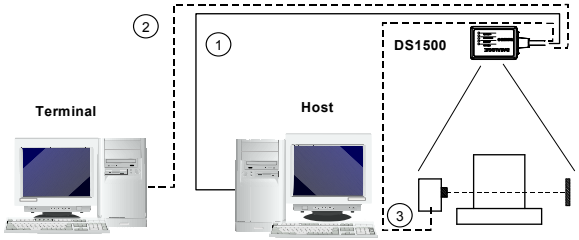
OUTPUT CONNECTIONS



V_{CE} max = 40 Vdc
I max = 20 mA continuous

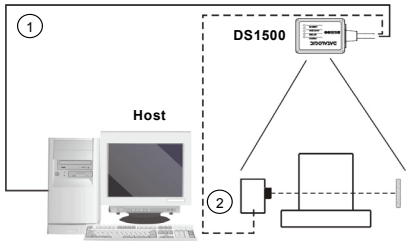
Connectivity:

RS232 Point-to-point Layout



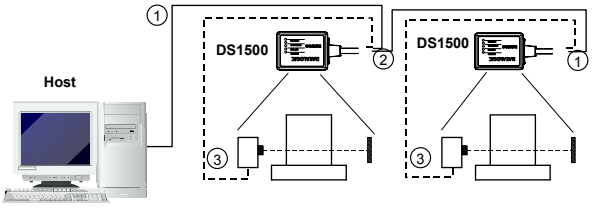
① Main Serial Interface (RS232)
②Auxiliary Serial Interface (Local Echo)
③External Trigger (for On-Line Mode)

RS485 Point-to-point Layout



① Main Serial Interface (RS485 Full Duplex)
② External Trigger (for On-Line Mode)

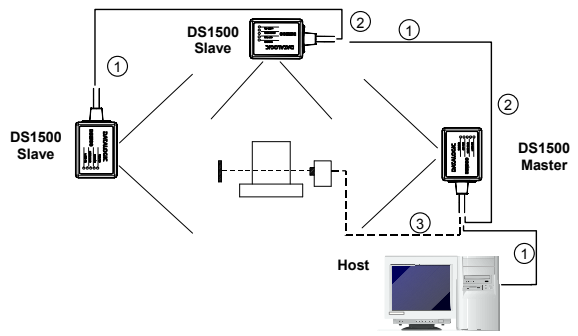
RS232 Pass-through Layout



① Main Serial Interface
②Auxiliary Serial Interface
③External Trigger (for On-Line Mode)

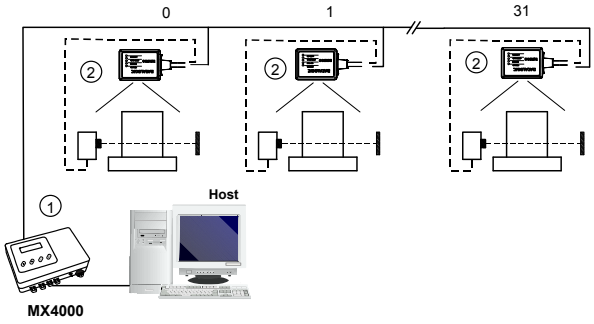
Connectivity:

RS232 Master/slave Layout



① Main Serial Interface
② Auxiliary Serial Interface
③ External Trigger (for On-Line Mode)

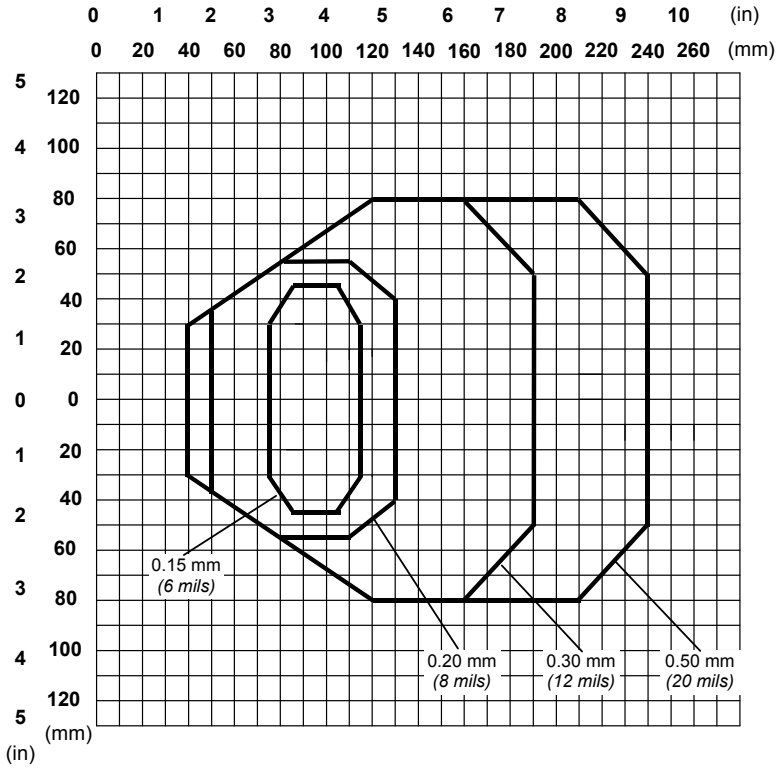
Multiplexer Layout



① Main Serial Interface
② External Trigger (for On-Line Mode)

Reading Diagrams:

DS1500-1100



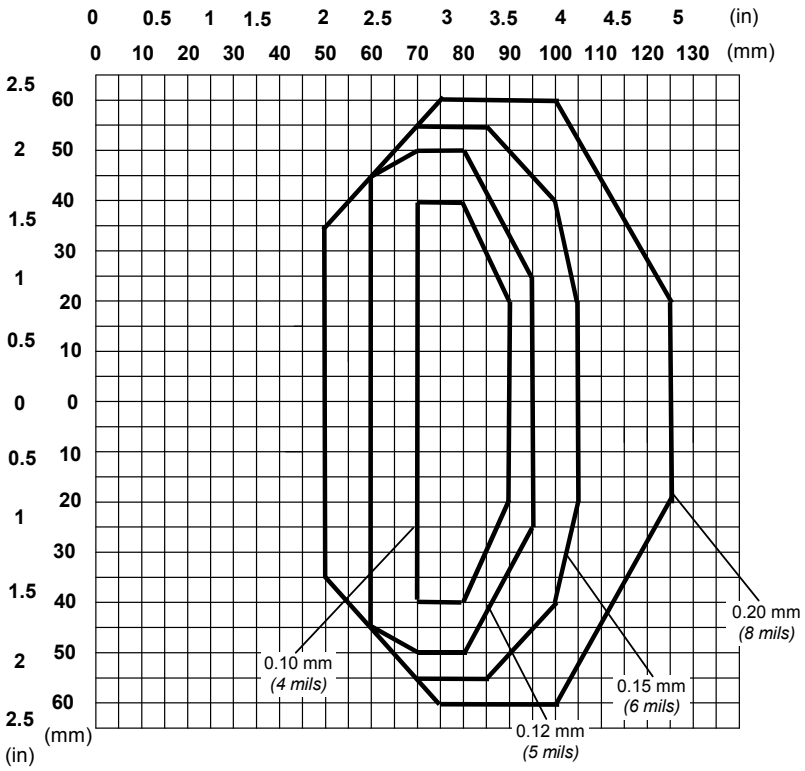
NOTE: (0,0) is the center of the laser beam output window.

CONDITIONS

Code = Interleaved 2/5 or Code 39
PCS = 0.90
"Pitch" angle = 0°
"Skew" angle = 15°
"Tilt" angle = 0°
*Motor Control = Speed_3 (800 scans/s) for 0.15mm codes, Speed_4 (1200 scans/s) for 0.20mm codes and greater

* Parameter selectable in Winhost

DS1500-2100



NOTE: (0,0) is the center of the laser beam output window.

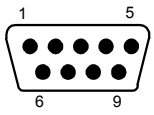
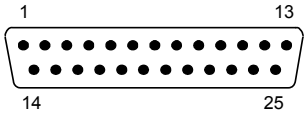
CONDITIONS

Code = Interleaved 2/5 or Code 39
PCS = 0.90
"Pitch" angle = 0°
"Skew" angle = 15°
"Tilt" angle = 0°
*Motor Control = Speed_3 (800 scans/s)

- Parameter selectable in Winhost

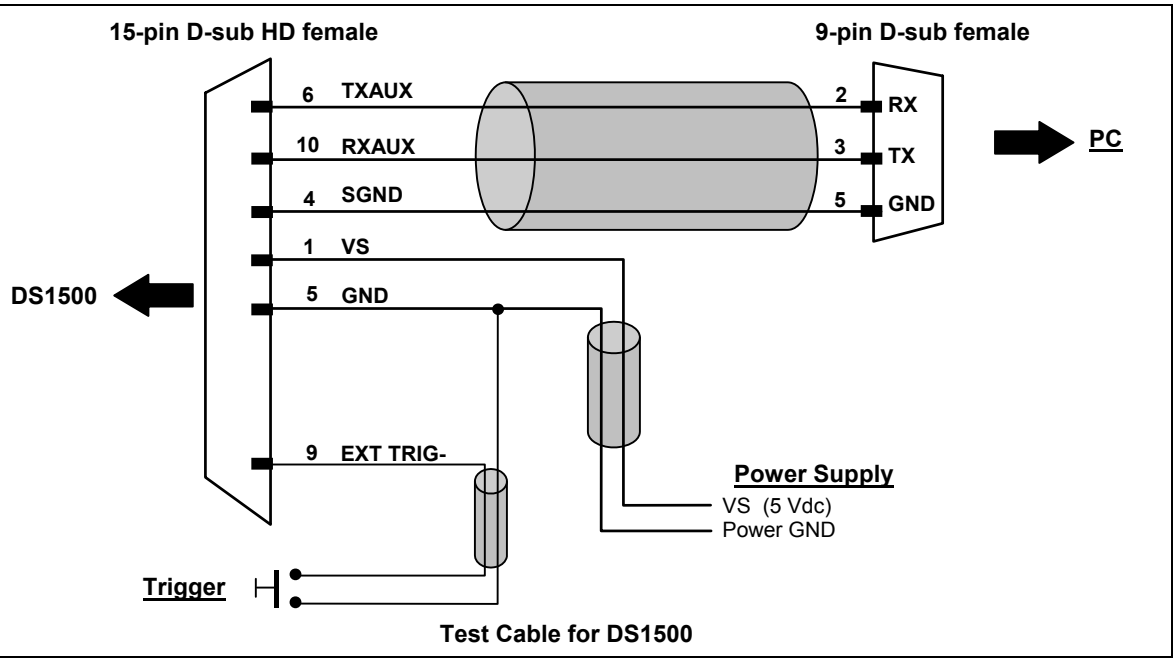
User Interface:

The following table contains the pinout for standard RS232 PC Host interface. For other user interface types please refer to their own manual.

RS232 PC-side connections			
 9-pin male connector		 25-pin male connector	
Pin	**Name**	**Pin**	**Name**
2	RX	3	RX
3	TX	2	TX
5	GND	7	GND
7	RTS	4	RTS
8	CTS	5	CTS

How To Build A Simple Interface Test Cable:

The following wiring diagrams show a simple test cable including power, external (push-button) trigger and PC RS232 COM port connections.



Test Cable for DS1500

NOTE *The Auxiliary RS232 interface is only available when the main interface is RS232.*

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Bologna - Italy

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bescheinigt, daß das Gerät
declare que el

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and all its models
et tous ses modèles
und seine Modelle
y todos sus modelos

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are in conformity with the requirements of the European Council Directives listed below:
sont conformes aux spécifications des Directives de l'Union Européenne ci-dessous:
der nachstehend angeführten Direktiven des Europäischen Rats:
cumple con los requisitos de las Directivas del Consejo Europeo, según la lista siguiente:

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Basate sulle legislazioni degli Stati membri in relazione alla compatibilità elettromagnetica ed alla sicurezza dei prodotti.
On the approximation of the laws of Member States relating to electromagnetic compatibility and product safety.
Basée sur la législation des Etats membres relative à la compatibilité électromagnétique et à la sécurité des produits.
Über die Annäherung der Gesetze der Mitgliedsstaaten in bezug auf elektromagnetische Verträglichkeit und Produktsicherheit entsprechen.
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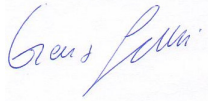
RADIO DISTURBANCE CHARACTERISTICS
LIMITS AND METHODS OF MEASUREMENTS

EN 61000-6-2, September 2005: ELECTROMAGNETIC COMPATIBILITY (EMC)
PART 6-2: GENERIC STANDARDS - IMMUNITY FOR INDUSTRIAL ENVIRONMENTS

Lippo di Calderara, January 29th, 2008

Lorenzo Girotti
Product & Process Quality Manager