

# Installation Guide

P/N 3-510049-01



# MaxiScan 3100 Fixed Station Scanner

 **ntermec**

A **UNOVA** Company

# Regulatory Statements

**CE** Intermec hereby declares that the MaxiScan 3100 has been tested and found compliant with the below listed standards as required by the EMC Directive 89/336/EEC as amended by 92/31/EEC and by the Low Voltage Directive 73/23/EEC as amended by 93/68/EEC:

EN50081-1 (1992)

EN50082-1 (1998)


EN60950 (1993)

**USA:** 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.

This equipment is intended for operation in an industrial environment, in compliance with the requirements for a Class B device, pursuant to part 15 of the FCC Rules. It generates, uses and can radiate radio frequency energy. If not installed and used in accordance with the instructions, it may cause interference to radio communications. If this equipment causes interference, the user will be required to correct the interference at the user's own expense.

**Canada:** This Class B digital apparatus meets all requirements of the Canadian Interference-Causing Equipment Regulations.

Cet appareil numérique de la classe B respecte toutes les exigences du Règlement sur le matériel brouilleur du Canada.

**Australia-New Zealand:** This equipment has been tested and found to conform to the Australian EMC framework concerning Class B digital devices, prescribed by the Australian and New-Zealand standard AS/NZS 3548.  N309

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# Laser warnings (MaxiScan 3100 ST / ML only)

These warnings do not apply to the MaxiScan 3100 SR which is a CCD scanner and does not contain a laser.

- English** USA DHHS Standard 21CFR 1040.10 and 1040.11: Class IIa Laser Product  
IEC 825-1 (1993) EN 60825-1 (1997): Class 1 Laser Product  
AVOID LONG TERM VIEWING OF DIRECT LASER LIGHT  
CAUTION - LASER LIGHT WHEN OPEN - DO NOT STARE INTO BEAM
- Deutsch** IEC 825-1 (1993) EN 60825-1 (1997): Laser-Produkt der Klasse 1  
AUGEN VOR DIREKTEM LASERLICHT SCHÜTZEN  
VORSICHT! LASERLICHT BEI GEÖFFNETEM GEHÄUSE - NICHT IN DEN STRAHL STARREN
- Español** IEC 825-1 (1993) EN 60825-1 (1997): Aparato láser de Clase 1  
EVITAR EXPOSICIONES PROLONGADAS DE LA VISTA A LA RADIACION LASER DIRECTA  
CUIDADO - RADIACION LASER - EN FUNCIONAMIENTO NO MIRAR DENTRO DEL RAYO LASER
- Français** IEC 825-1 (1993) EN 60825-1 (1997): Appareil Laser de Classe 1  
EVITER TOUTE EXPOSITION PROLONGÉE DE LA VUE AU RAYONNEMENT LASER DIRECT  
ATTENTION - RAYONNEMENT LASER - EN CAS D'OUVERTURE NE PAS REGARDER DANS LE FAISCEAU
- Italiano** IEC 825-1 (1993) EN 60825-1 (1997): Apparecchio Laser Classe 1  
NON ESPORRE A LUNGO LA VISTA AD UN IRRADIAMENTO LASER DIRETTO  
ATTENZIONE - IRRADIAMENTO LASER - AD APPARECCHIO IN FUNZIONE,  
NON GUARDARE IL FASCIO LUMINOSO
- Português** IEC 825-1 (1993) EN 60825-1 (1997): Equipamento Laser Classe 1  
LUZ DE LASER - NÃO OLHAR NA DIRECÇÃO DO FEIXE  
ATENÇÃO - LUZ DE LASER QUANDO ABERTO - NÃO OLHAR NA DIRECÇÃO DO FEIXE

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

VORSICHT – Bei einer anders als hier beschriebenen Verwendung der Bedienelemente oder Veränderungen oder einer anderen Ausführung der Arbeitsabläufe entsteht gefährliches Laserlicht.

ATTENTION – L'utilisation de contrôles/commandes ou de réglages ou l'exécution de procédures autres que ceux précisés par le présent document provoquent une lumière laser dangereuse.

Avoid long term viewing of direct laser radiation.  
Eviter toute exposition prolongée de la vue au rayonnement laser direct.  
Augen vor direktem Laserlicht schützen.

Complies with US DHHS Standard 21CFR Part 1040 as a:  
Class IIa Laser Product. IEC825-1 (1993) – EN60825-1 (1997)



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# 1 Before you start

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## Introduction

The MaxiScan 3100 is a range of compact fixed bar code scanners that uses the latest patented technology and integrated design for fast and accurate scanning. The Maxiscan 3100 offers a choice of Intermec's linear image (CCD) or laser scanning technologies that run on a common electronic/software platform. The MaxiScan 3100 is small and tough and is suitable for a number of industrial applications.

This Installation Guide explains how to install and set up your MaxiScan 3100.

You can use the EasySet setup software to set up the MaxiScan 3100.

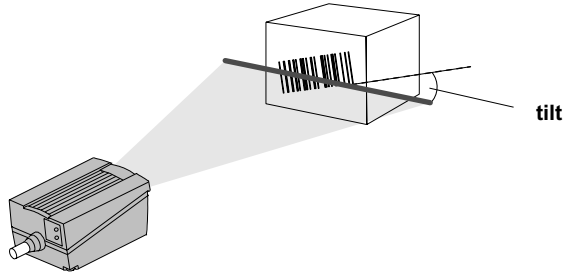
## Integration considerations

<b>Environment</b>	Make sure the operating environment is suitable for the MaxiScan 3100 (see the <i>Technical characteristics</i> section).
<b>Reading distance</b>	High-density bar codes require a shorter reading distance than low-density bar codes. Reading distance is less critical for medium density bar codes (see the <i>Reading distance</i> section).
<b>Reading filters</b>	To optimize reading efficiency, activate a optimization filter when you set up your MaxiScan. There are filters for barcode density, contrast and reading distance. If you have problems reading a barcode, try a different filter.
<b>Setup</b>	Test the setup before you install the MaxiScan permanently.
<b>Symbologies</b>	<ul style="list-style-type: none"><li>• Use the symbologies best suited to your application. Some symbologies (Interleaved 2 of 5 for example) are less reliable than others.</li><li>• Use as few symbologies as possible.</li><li>• Fixed barcode lengths and check digits increase reading efficiency and security.</li></ul>
<b>I/O synchronization</b>	<ul style="list-style-type: none"><li>• An external input synchronization device can be used to activate the MaxiScan 3100.</li><li>• The MaxiScan 3100 can send a synchronization output to control external devices according to the read result.</li><li>• See the <i>Input/output synchronization</i> section.</li></ul>

## Location and reading position

### Tilt

Prevents reading of a bar code if all the bars are not inside the reading beam



good read



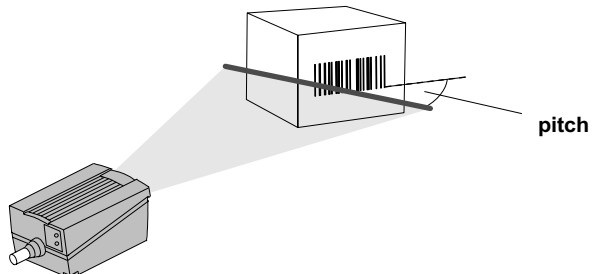
read OK



no read

### Pitch

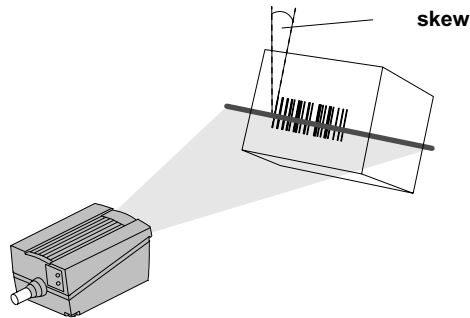
- Reduces bar width and is much more critical for high-density barcodes
- Reading may be possible with a pitch angle up to 70°
- Reduce pitch to increase reading efficiency



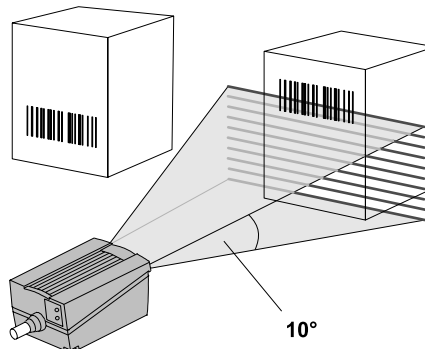


**Skew**

- Reduces bar height
- Reading may be possible with a skew angle up to  $65^\circ$
- Reduce skew to increase reading efficiency
- A small skew angle ( $2\text{-}3^\circ$  minimum) is necessary to prevent specular reflection

**Multi-line**

- Good for reading damaged barcodes
- Good for reading barcodes in different positions
- 10 scan lines through an angle of  $10^\circ$  (20 scans / second on each line)
- Multi-line is only available on the MaxiScan 3100 ML



## Reading moving bar codes

### Which scanner ?

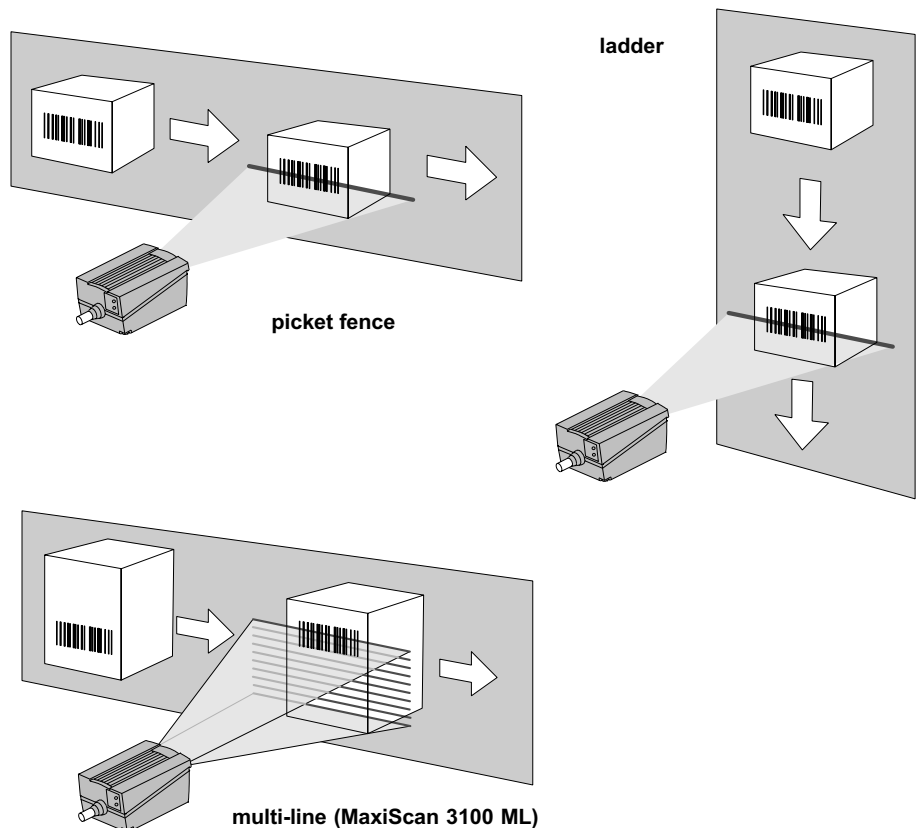
MaxiScan 3100 ST suitable for reading moving bar codes.

MaxiScan 3100 ML suitable for reading moving bar codes. Good for damaged barcodes or picket fence reading of "floating" barcodes.

MaxiScan 3100 SR not usually suitable for reading moving barcodes because the pass-through speed must be very low. The information below applies to laser scanners only (MaxiScan 3100 ST and ML).

### Picket fence and ladder

Ladder reading increases reading efficiency.



## Calculating pass-through speed

If your application reads moving bar codes, the MaxiScan 3100 ST / ML must have time to read each bar code several times (5 scans is a good minimum). You can calculate the pass-through speed as follows.

### Ladder reading

$$\text{pass-through speed} = \frac{\text{scan rate} \times \text{code height}}{\text{number of scans on code} + 2}$$

Example:

code height = 2 cm; scan rate = 200 scans/second; number of scans on code = 6

$$\text{pass-through speed} = \frac{200 \times 2}{6 + 2} = 50 \text{ cm / sec}$$

### Picket fence reading

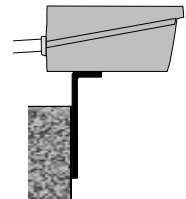
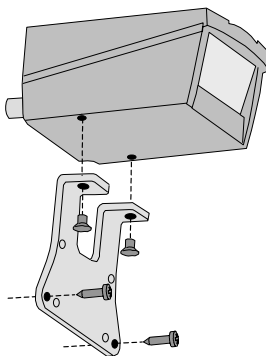
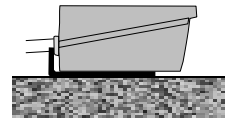
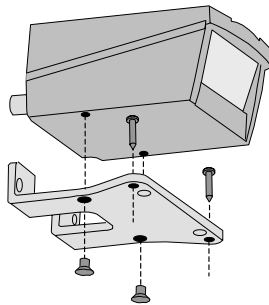
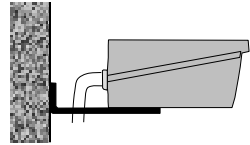
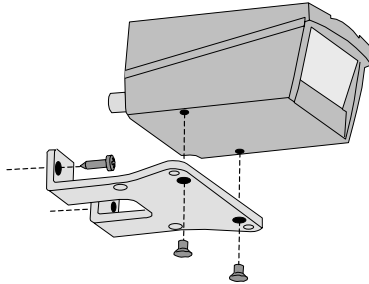
$$\text{pass-through speed} = \frac{\text{scan rate} \times (\text{scan width} - \text{code width})}{\text{number of scans on code} + 2}$$



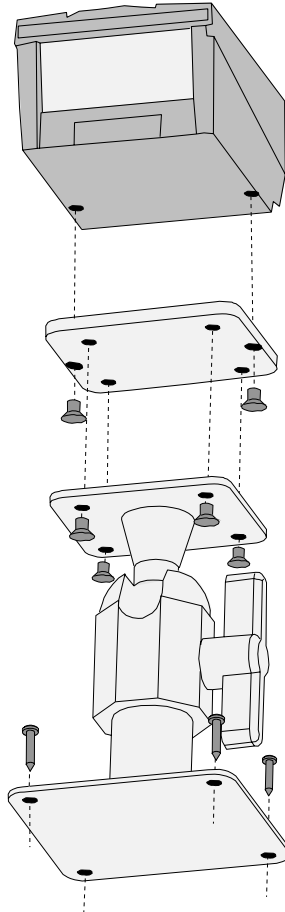
# 2 Installation

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## Mounting

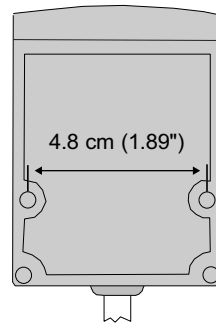
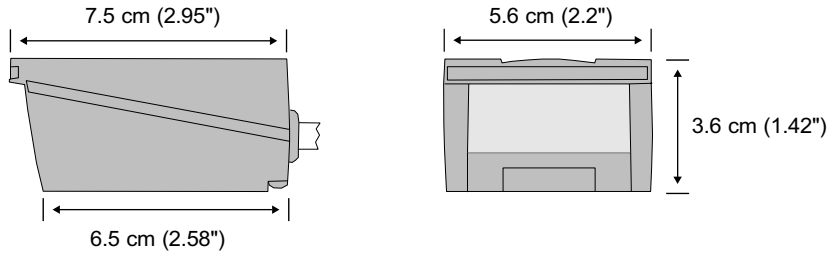


## Adjustable raised stand (option)



P/N 0-51029-05

## Dimensions



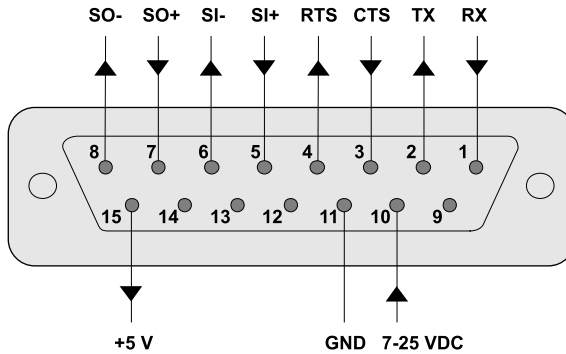
Scale 1:2





# 3 Connections

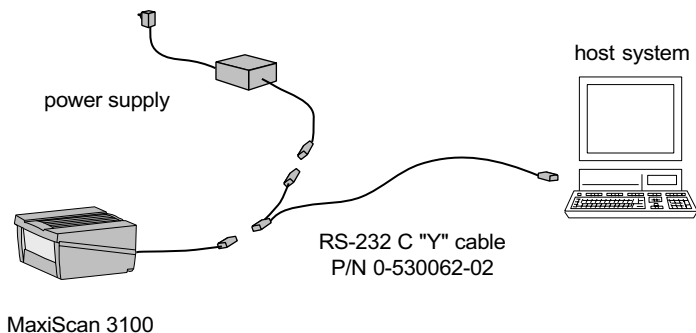
## MaxiScan 3100 connector



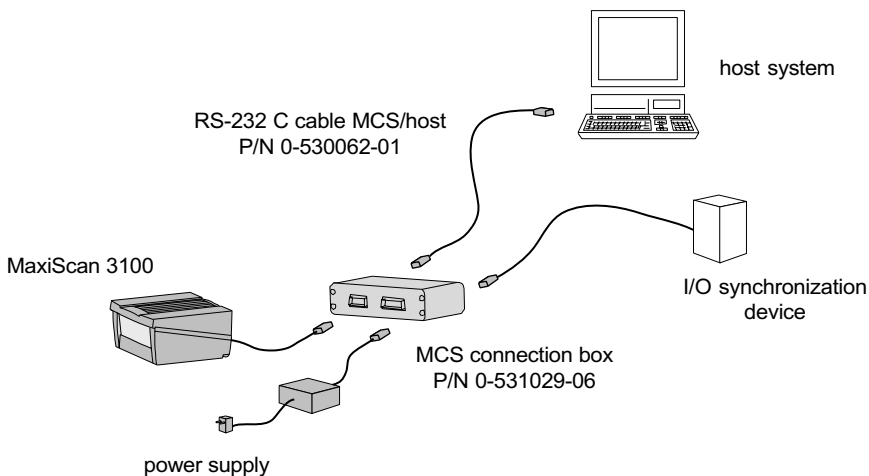
**15-pin subD female connector**

Pin	Function
1	Receive data
2	Transmit data
3	Clear to send
4	Request to send
5	Positive synchronization input (SI+)
6	Negative synchronization input (SI-)
7	Positive synchronization output (SO+)
8	Negative synchronization output (SO-)
9	Not connected
10	Power in (7 to 25 VDC unregulated)
11	Ground
12	Reserved
13	Not connected
14	Not connected
15	+5 VDC out (65 mA max)

## RS-232 C connection

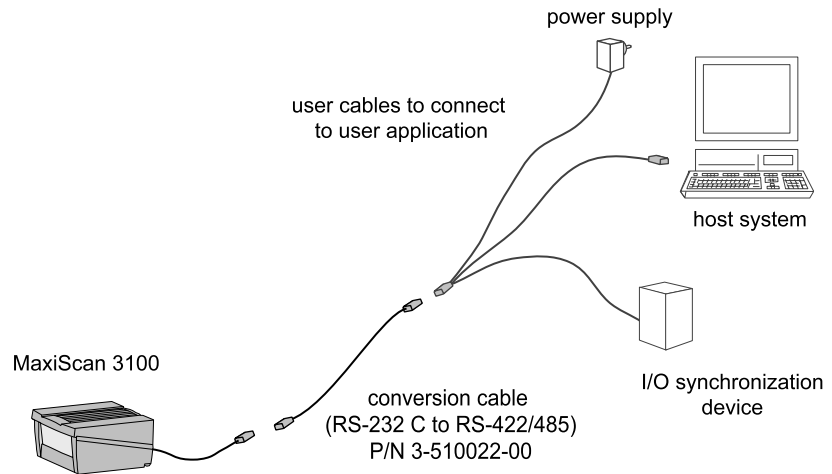


## RS-232 C connection with synchronization



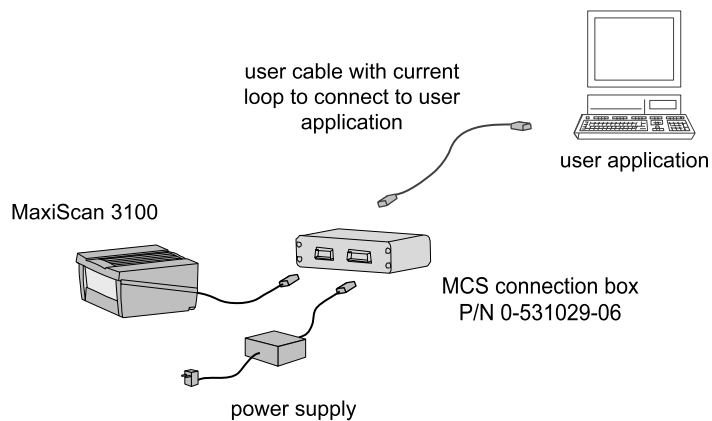
See the *MaxiScan Connexion System* section for the pinouts of the MCS connection box.

## RS-422 / RS-485 connection



See the *Conversion cable* section for the pinouts of the RS232 C to RS-422/485 conversion cable.

## Current loop connection



See the *MaxiScan Connexion System* section for the pinouts of the MCS connection box.



## 4 Input / output synchronization

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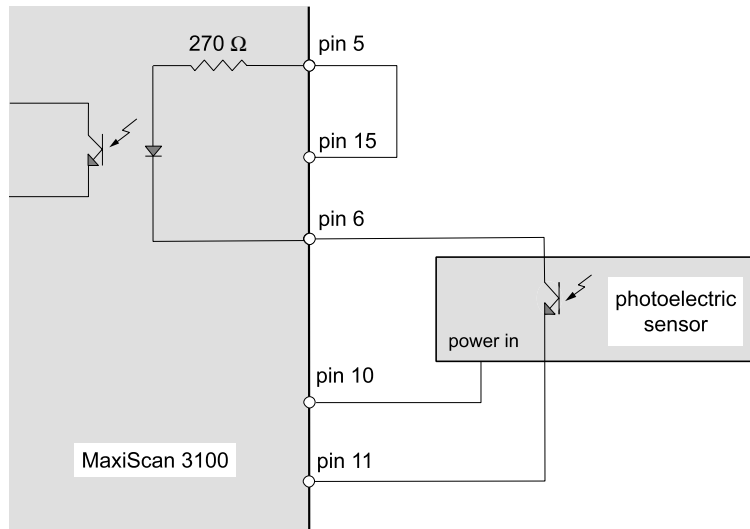
### Input synchronization

Reading can be triggered by an external device (opto-coupled cell, automatic machine, electrical control device) connected to pins 5 and 6. The MaxiScan 3100 can send a message to the host system when reading is activated by an input synchronization device.

<b>Current on</b>	Reading is active when current flows between pins 5 and 6. It remains active until there is a good read or until the current stops flowing (setup option).
<b>Current off</b>	Reading is active when no current flows between pins 5 and 6. It remains active until there is a good read or until the current starts to flow (setup option).
<b>Rising edge</b>	Reading is triggered by a rising edge current between pins 5 and 6. It remains active until there is a good read or timeout (setup option).
<b>Falling edge</b>	Reading is triggered by a falling edge current between pins 5 and 6. It remains active until there is a good read or timeout (setup option).
<b>Rising &amp; falling edge</b>	Reading is triggered by a rising or falling edge current between pins 5 and 6. It remains active until there is a good read or timeout (setup option).
<b>Software</b>	Reading is triggered when a start character is received and remains active until a stop character is received. The start and stop characters are user-programmable. This software trigger can be combined with any of the above hardware triggers. See EasySet for more details.

### Example

Reading triggered by an opto-coupled cell. Current provided by the external input device must be limited to 20 mA (15 mA is a good average value).



## Output synchronization

An external device (switch, alarm, indicator light) can be triggered by a good read or unsuccessful read by the MaxiScan 3100. The external device is connected to pins 7 and 8.

### Output trigger

**Good read** The output device is triggered when the MaxiScan 3100 performs a good read.

**No read** The output device is triggered when the MaxiScan 3100 does not perform a good read. An input synchronization trigger is required (no read = no read before timeout).

### Hardware action

**Current on** The output device operates when current flows between pins 7 and 8. The output device stops operating when the current stops flowing. An output trigger (good read or no read) must be activated.

**Current off** The output device operates when no current flows between pins 7 and 8. The output device stops operating when the current starts to flow. An output trigger (good read or no read) must be activated.

### Software action

The MaxiScan sends a specified character following a good read or no read. This software output can be combined with an action (current on or current off).





# 5 Setup

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There are 3 different ways to set up your MaxiScan 3100 :


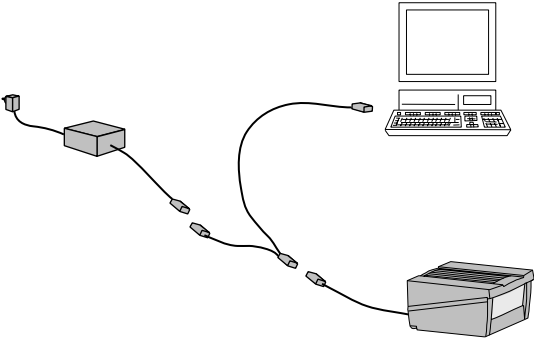



- Online setup with EasySet
- Offline setup
- Online setup with commands

EasySet System configuration software is the easiest way to set up your MaxiScan 3100. You can download your custom settings directly to the MaxiScan 3100 or print out and scan the corresponding configuration bar codes.

The *Basic setup* section of this manual contains the barcodes to set up your MaxiScan 3100 in a basic configuration.

If you want to configure your MaxiScan 3100 dynamically, or if your MaxiScan 3100 is not connected to a PC, use the slave mode to send setup commands directly to your MaxiScan 3100 (see the *Slave mode* section).

## Online setup with EasySet

- 1** System power OFF 
- 2** Connect RS-232 C cable (P/N : 0-530062-02) 
- 3** MaxiScan power ON
- 4** System power ON 
- 5** Scan EasySet setup code 
- 6** Start EasySet 
- 7** Set the COM port parameters to 19200 baud, 8 data bits, no parity

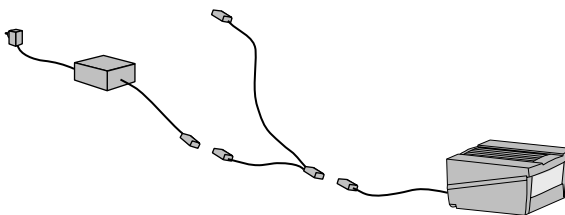
Refer to the EasySet online help for a detailed explanation of how to use the EasySet System configuration software. You can also set up your MaxiScan 3100 offline with barcodes printed from EasySet.

## Basic setup

You can set up your MaxiScan 3100 in a basic configuration by scanning configuration bar codes. Follow the instructions in this section.

Basic setup does not include all the configuration possibilities of the MaxiScan. For a complete setup, use the EasySet System configuration software (see the *Online setup with EasySet* section).

### 1 Connect MaxiScan power supply



### 2 Reset factory defaults (optional)



### 3 Select interface

RS-232 C



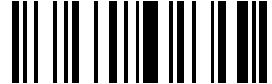
**4** Customize parameters

(\*) = default value (9600 baud, 7 data bits, even parity, 2 stop bits, postamble = CR + LF)

9600 baud (\*)



19200 baud



7 data bits (\*)



8 data bits



Odd parity



Even parity (\*)



No parity



Postamble = Carriage Return



Postamble = none



Postamble = Carriage Return + Line Feed (\*)



**5 Disable all symbologies**



**6 Select symbologies**

UPC-A, UPC-E, EAN-8, EAN-13  
(UPC-A -> EAN-13)



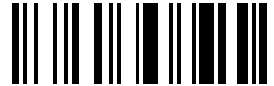
UPC-A, UPC-E, EAN-8, EAN-13  
(UPC-A -> UPC-A)



Code 128 / EAN 128



Code 39



**7 Test symbologies**





## 6 Slave mode

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You can control or configure your MaxiScan 3100 directly from the terminal host system using slave mode. In this mode all the setup commands can be sent directly to the MaxiScan 3100 through the RS-232 input port. The default slave mode is security slave mode.

- Security slave mode is based on Code 128. It includes start/stop characters and a checksum described in the document AFNOR Z63.300/EN 799 /USS.
- Debug slave mode is easy to monitor but less secure than the security mode (no start/stop characters or checksum).

### Security slave mode

1. Find the data string and checksum of the setup commands you want to send to the MaxiScan 3100. Activate the "display data string mode" to display the data string and checksum on a terminal screen (or calculate the checksum yourself, see the *Calculating the checksum* section below)

display data string



This mode remains active until you switch off the MaxiScan 3100.

Example: command "Code 39 – active" = \41\4C\60\5E (5E = checksum)

2. Remove the backslash separator characters from the data strings and adapt each string to the security slave mode format:

<b>start</b>	<b>command</b>	<b>checksum</b>	<b>stop</b>
0x68	x...x	xx	0x6A

Example: command "Code 39 – active" = 68 41 4C 60 5E 6A

3. Activate the security slave mode (if not already active) and set the RS-232 output parameters to suit your system (if required)

security slave mode (9600, 7, E, 2) - interface n° 105



4. Send the setup commands from the host terminal to the MaxiScan 3100.

Note: the values displayed in "display data string mode" are hexadecimal values, make sure that the values you send from the host system correspond to these values. In our example, the MaxiScan 3100 must receive the hexadecimal value 41 or its equivalent (ASCII character "A" for example), not the decimal value "41".

To restart the MaxiScan 3100 after changing the interface configuration, send the "restart" command 0x68 0x4C 0x41 0x60 0x53 0x6A (this is equivalent to disconnecting and reconnecting the MaxiScan 3100).

### Calculating the checksum

If you do not use "display data string mode", you will have to calculate the checksum yourself :

1. Use the EasySet "View - Data String" command to obtain the data strings for the setup commands you want to send to the MaxiScan 3100.

Example: command "Code 39 – active" = \41\4C\60

2. Calculate the weighted sum of the data string values (weight increases by 1 for each successive value) and include startB with weight 1 at the beginning:

<b>data string :</b>	startB	0x41	0x4C	0x60
<b>weight :</b>	1	1	2	3
<b>weight * value :</b>	$(1 * 0x68) + (1 * 0x41) + (2 * 0x4C) + (3 * 0x60) = 0x261$			

3. Calculate the modulo 103 value (modulo 67 hex) of the sum:

$0x261 \text{ modulo } 0x67 = 0x5E (= \text{checksum})$

$(0x261 / 0x67 = 0x5 \text{ with remainder } 0x5E)$

4. Add the checksum to the data string

Example: "Code 39 - active" = \41\4C\60\5E



## Debug slave mode

1. Use the EasySet "View - Data String" command to obtain the data strings for the setup commands you want to send to the MaxiScan 3100.

Example: command "Code 39 – active" = \41\4C\60

If you use "display data string mode" (see above), do not use the last 2 digits (checksum).

2. Activate the debug slave mode (if not already active) and set the RS-232 output parameters to suit your system (if required).

debug slave mode (9600, 7, E, 2) - interface n° 109



3. Send the commands in ASCII format from the host terminal to the MaxiScan 3100.

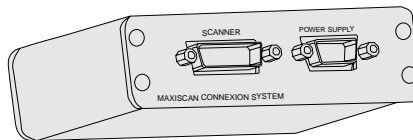
To save the new configuration, send the "update current configuration" command to the MaxiScan 3100 (\46\41\02\60).



# 7 MaxiScan Connexion System (option)

## MCS connection box

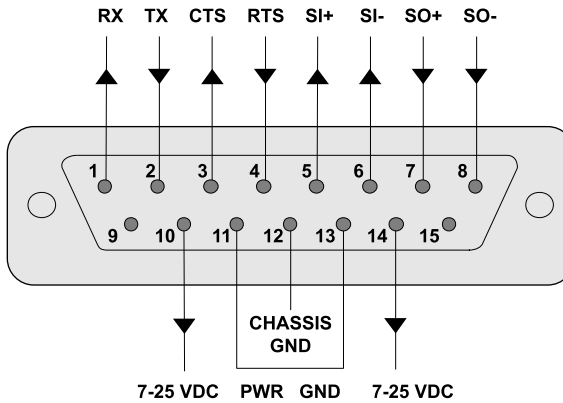
The MaxiScan Connexion System (MCS) can be used to connect the Maxiscan 3100 to a host computer, power supply and synchronization device. The MCS box is an option (P/N 0-531029-06).



MCS Port	Type	Connect to	Remarks
<b>Scanner</b>	15-pin subD male	MaxiScan 3100	
<b>Power supply</b>	9-pin subD male	External power supply	7-25 V 2.5 Watt full-wave rectified unregulated power
<b>Host</b>	15-pin subD female	Host computer	<ul style="list-style-type: none"> <li>· RS-232 C (standard configuration)</li> <li>· Current Loop (requires MCS)</li> </ul> <p>Each host system interface is software programmable and requires a different cable</p>
<b>Synchros</b>	9-pin subD female	I/O synchronization device	<p>Input synchronization - reading can be triggered by an external cell, automatic machine, electrical control device</p> <p>Output synchronization - an external device (switch, alarm, indicator light) can be triggered by a good read or unsuccessful read as required</p>

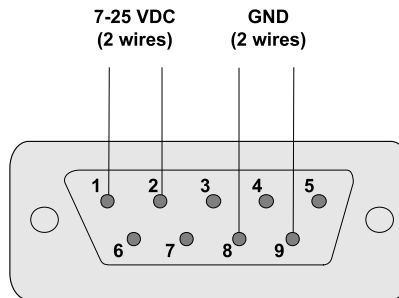
## Scanner port

15-pin subD male connector



Pin	Function
1	Receive data (RS-232 C)
2	Transmit data (RS-232 C)
3	Clear to send (RS-232 C)
4	Request to send (RS-232 C)
5	Positive synchronization input (SI+)
6	Negative synchronization input (SI-)
7	Positive synchronization output (SO+)
8	Negative synchronization output (SO-)
9	Not connected
10	Power in (7 to 25 VDC 2.5 Watt unregulated)
11	Power ground
12	Shield
13	Power ground
14	Power in (7 to 25 VDC 2.5 Watt unregulated)
15	Not connected

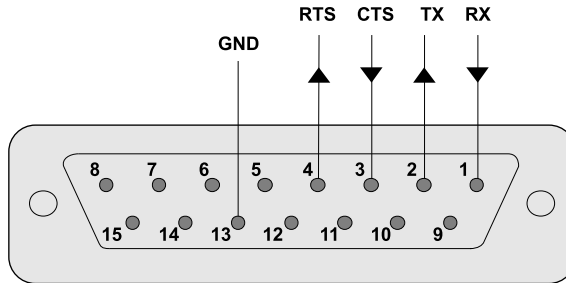
## Power supply port



**9-pin subD male connector**

Pin	Function
1	Power in (7 to 25 VDC 2.5 Watt unregulated)
2	Power in (7 to 25 VDC 2.5 Watt unregulated)
3	Not connected
4	Not connected
5	Not connected
6	Not connected
7	Not connected
8	Power ground
9	Power ground

## Host port (RS-232 C)

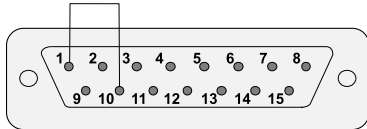


**15-pin subD female connector**

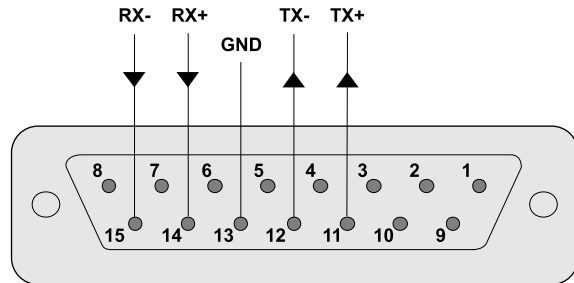
Pin	Function
1	Receive data (RS-232 C)
2	Transmit data (RS-232 C)
3	Clear to send (RS-232 C)
4	Request to send (RS-232 C)
5	Not connected
6	Not connected
7	Not connected
8	Not connected
9	Not connected
10	Reserved Current Loop
11	Reserved Current Loop
12	Reserved Current Loop
13	Signal ground (RS-232 C)
14	Reserved Current Loop
15	Reserved Current Loop

## Host port (current loop)

Current loop - connect pins 1 and 10



Host cable connector 15-pin subD male

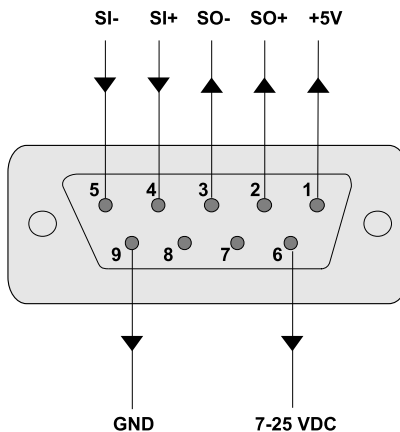


MCS 15-pin subD female connector

Pin	Function
1	Reserved
2	Reserved RS-232 C
3	Reserved RS-232 C
4	Reserved RS-232 C
5	Not connected
6	Not connected
7	Not connected
8	Not connected
9	Not connected
10	Reserved
11	TX+ (Current Loop)
12	TX- (Current Loop)
13	Signal ground (Current Loop)
14	RX+ (Current Loop)
15	RX- (Current Loop)

## Synchros port

In all cases, the synchronization current provided by the external input/output device must be limited to 20 mA maximum (15 mA is a good average value).



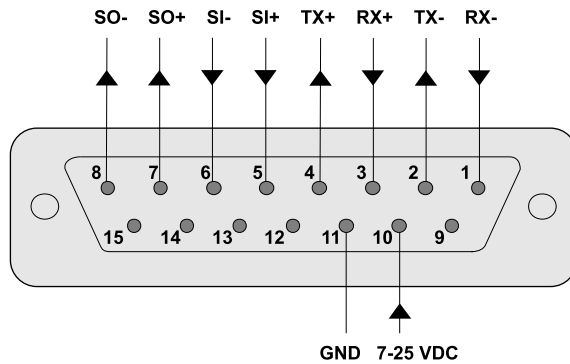
**9-pin subD female connector**

Pin	Function
1	+5 VDC out (65 mA max)
2	Positive synchronization output (SO+) - 20 mA max
3	Negative synchronization output (SO-) - 20 mA max
4	Positive synchronization input (SI+) - 20 mA max
5	Negative synchronization input (SI-) - 20 mA max
6	7-25 VDC 2.5 Watt
7	Not connected
8	Not connected
9	Power ground



## 8 Conversion cable (RS-232 C to RS-422 / 485)

### Host side connector

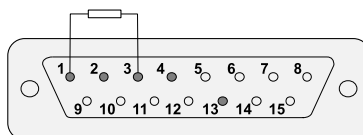


Host side - 15-pin subD female connector

Pin	Function
1	Receive / transmit data RX- / TX- (RS-485) Receive data RX- (RS-422)
2	Receive / transmit data RX- / TX- (RS-485) Transmit data TX- (RS-422)
3	Receive / transmit data RX+ / TX+ (RS-485) Receive data RX+ (RS-422)
4	Receive / transmit data RX+ / TX+ (RS-485) Transmit data TX+ (RS-422)
5	Positive synchronization input (SI+)
6	Negative synchronization input (SI-)
7	Positive synchronization output (SO+)
8	Negative synchronization output (SO-)
9	Not connected
10	Power in (7 to 25 VDC unregulated)
11	Ground
12	Reserved
13, 14, 15	Not connected

## RS-422 host cable connector

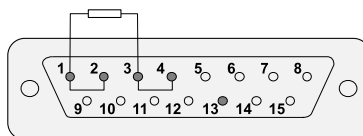
The user must provide the connection between the conversion cable and the host system. If this cable is long, install a resistor between pins 1 and 2. The resistor should have the characteristic impedance of the cable.



**Host cable connector 15-pin subD male**

## RS-485 host cable connector

The user must provide the connection between the conversion cable and the host system. Connect pins 1 and 2 and connect pins 3 and 4 of this cable. If the cable is long, install a resistor between pins 1 and 2. The resistor should have the characteristic impedance of the cable.



**Host cable connector 15-pin subD male**

## 9 Technical characteristics

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### Data (MaxiScan 3100 SR)

<b>Interface</b>	Host system interface	<ul style="list-style-type: none"> <li>- RS-232 C (standard configuration)</li> <li>- RS-422 (requires cable P/N 3-530062-01)</li> <li>- RS-485 (requires cable P/N 3-530062-01)</li> <li>- Current loop - passive type (requires MCS connection box P/N 0-531029-06)</li> </ul>
	Input synchronization	<ul style="list-style-type: none"> <li>One hardware sync from external device</li> <li>One software sync from host system</li> </ul>
	Output synchronization	<ul style="list-style-type: none"> <li>One hardware sync to external device</li> <li>One software sync to host system</li> </ul>
<b>Decoding</b>	Symbologies	Codabar, Code 39, Code 93, Code 128, MSI Code, Plessey Code, EAN/UPC (including add-on 2-5), Interleaved 2 of 5, Matrix 2 of 5, Standard / Industrial 2 of 5, PDF 417
<b>Scan performance</b>	Scan rate	100 to 800 scans/second
	Depth of field	See the <i>Reading distance</i> section below
	Minimum resolution	See the <i>Reading distance</i> section below
	Maximum code width	See the <i>Reading distance</i> section below
	Scan angle (width)	65° minimum
	Pitch	± 70°
	Skew	± 65°
	Print contrast ratio	20% minimum
<b>Optical characteristics</b>	Light source	4 LEDs at 640 nm
	Image sensor	High resolution CCD
<b>Electrical characteristics</b>	Power supply voltage	7 to 25 VDC full-wave rectified unregulated (2.5 Watt)
<b>Physical characteristics</b>	Width x depth x height	5.6 x 7.4 x 3.5 cm (2.2" x 2.92" x 1.37")
	Mounting	In any position using 2 x M4 screws
	Connector	15-pin subD female

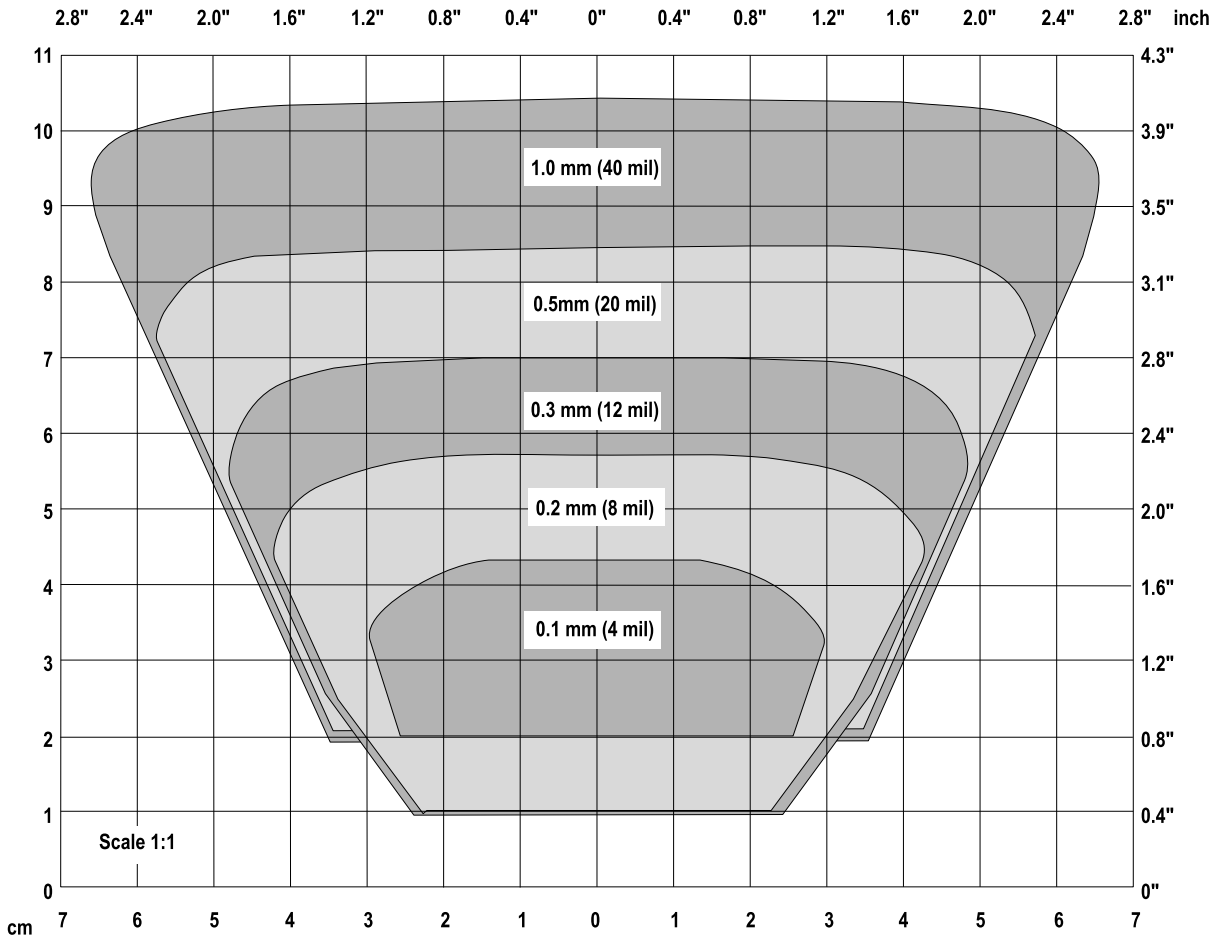
<b>Environmental specifications</b>	Operating temperature	0°C to 40°C (32°F to 104°F)
	Storage temperature	-25°C to 60°C (-13°F to 140°F)
	Relative humidity	10% to 90% non-condensing
	Maximum ambient lighting	4 000 lux
	Electrostatic discharge	± 8000 V (air discharge) ± 4000 V (contact discharge)
	Shock resistance	IEC 68-2-27: 30G, 11ms, 3 axis
	Vibration resistance	IEC 68-2-6: 1.5mm amplitude, 10Hz to 55Hz, 3 axis
	Sealing (dust etc.)	IP65 / Nema 12
	MTBF	> 50 000 hours
<b>User interface</b>	Power on	Red LED + 2 beeps
	Good read	1 green LED flash + 1 beep (default settings)
	Good read (configuration codes)	2 beeps
	Configuration error	6 beeps
	EEPROM error	3 long beeps

## Data (MaxiScan 3100 ST / ML)

<b>Interface</b>	Host system interface	<ul style="list-style-type: none"> <li>- RS-232 C (standard configuration)</li> <li>- RS-422 (requires cable P/N 3-530062-01)</li> <li>- RS-485 (requires cable P/N 3-530062-01)</li> <li>- Current loop - passive type (requires MCS connection box P/N 0-531029-06)</li> </ul>
	Input synchronization	<ul style="list-style-type: none"> <li>One hardware sync from external device</li> <li>One software sync from host system</li> </ul>
	Output synchronization	<ul style="list-style-type: none"> <li>One hardware sync to external device</li> <li>One software sync to host system</li> </ul>
<b>Decoding</b>	Symbologies	Codabar, Code 39, Code 93, Code 128, MSI Code, Plessey Code, EAN/UPC (including add-on 2-5), Interleaved 2 of 5, Matrix 2 of 5, Standard / Industrial 2 of 5, PDF 417
<b>Scan performance</b>	Scan rate	200 scans/second
	Depth of field	See the <i>Reading distance</i> section below
	Minimum resolution	See the <i>Reading distance</i> section below
	Maximum code width	See the <i>Reading distance</i> section below
	Scan angle (width)	65° minimum
	Pitch	± 70°
	Skew	± 65°
	Print contrast ratio	20% minimum
	Scan lines	10 (MaxiScan 3100 ML only)
	Scan angle (height)	10° (MaxiScan 3100 ML only)
<b>Optical characteristics</b>	Light source	laser diode at 660 nm Laser class: IEC Class 1. US CDRH class IIa
<b>Electrical characteristics</b>	Power supply voltage	7 to 25 VDC full-wave rectified unregulated (2.5 Watt)
<b>Physical characteristics</b>	Width x depth x height	5.6 x 7.4 x 3.5 cm (2.2" x 2.92" x 1.37")
	Mounting	In any position using 2 x M4 screws
	Connector	15-pin subD female

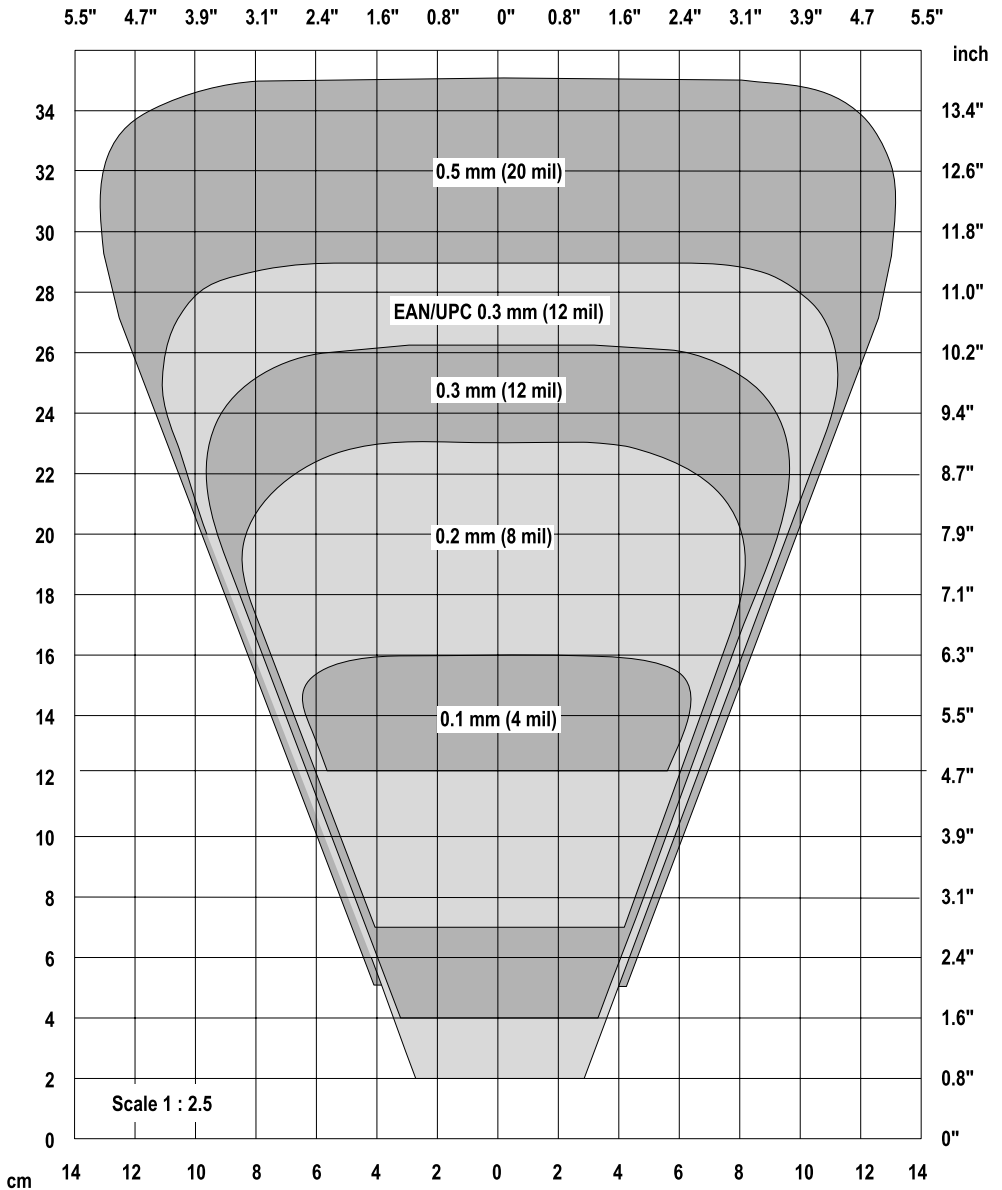
<b>Environmental specifications</b>	Operating temperature	0°C to 40°C (32°F to 104°F)
	Storage temperature	-25°C to 60°C (-13°F to 140°F)
	Relative humidity	10% to 90% non-condensing
	Maximum ambient lighting	40 000 lux
	Electrostatic discharge	± 8000 V (air discharge) ± 4000 V (contact discharge)
	Shock resistance	IEC 68-2-27: 30G, 11ms, 3 axis
	Vibration resistance	IEC 68-2-6: 1.5mm amplitude, 10Hz to 55Hz, 3 axis
	Sealing (dust etc.)	IP65 / Nema 12
	MTBF	> 20 000 hours
<b>User interface</b>	Power on	Red LED + 2 beeps
	Good read	1 green LED flash + 1 beep (default settings)
	Good read (configuration codes)	2 beeps
	Configuration error	6 beeps
	EEPROM error	3 long beeps

## Reading distance (MaxiScan 3100 SR)



This chart shows the horizontal reading range for 90% contrast Code 39 barcodes read in the dark.

## Reading distance (MaxiScan 3100 ST / ML)



This chart shows the horizontal reading range for 90% contrast Code 39 barcodes read in the dark.



## Accessories

<b>Cables</b>	RS-232 C "Y" cable to connect MaxiScan 3100 to host system or PC. Includes connection for power input and can be used to set up the MaxiScan 3100 with EasySet software	0-530062-02
	RS-232 cable to connect MCS box to host system or PC	0-530062-01
	Cable to convert RS-232 to RS-422/485	3-510022-00
	Download cable	3-514022-00
<b>Power supply</b>	US	0-531029-08
	Europe (except UK)	0-531029-02
	UK	0-531029-04
<b>Accessories</b>	Adjustable raised stand	0-531029-05
	MCS connection box	0-531029-06
	MCS connection box (IP version)	0-531029-07
	Optical sensor input synchro	3-500029-03

