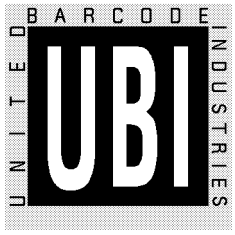

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Installation Guide

Edition 1.0

valid for MaxiScan 3300 with S/N greater than 01000

August 1997

MS/3300/IG/10/E/970831

Notice

English	USA DHHS Standard 21CFR 1040.10 and 1040.11: Class II Laser Product IEC 825: CLASS 2 LASER PRODUCT LASER LIGHT—DO NOT STARE INTO BEAM
Deutsch	IEC 825: LASERPRODUKT DER KLASSE 2 LASERSTRAHLEN—NICHT DIREKT IN DEN LASERSTRAHL SCHAUEN
Français	IEC 825: PRODUIT LASER DE CLASSE 2 LUMIERE LASER—NE PAS REGARDER DANS LE FAISCEAU
Italiano	IEC 825: PRODOTTO LASER CLASSE 2 RAGGIO LASER - NON RESTARE ESPOSTO AI RAGGI
Svenska	IEC 825: LASERPRODUKT KLASS 2 LASERLJUS—STIRRA INTE MOT STRÅLEN

The MaxiScan products described in this manual comply with CE directives for electromagnetic emission levels and electrical immunity in industrial environments.

Warning

This apparatus is a Class A apparatus. In a residential environment this apparatus may cause radio frequency interference. In this case, the user may be asked to take appropriate measures.

The MaxiScan 3300 will operate in complete safety when used as specified in official UBI MaxiScan 3300 documentation.

Protective eyewear is recommended when working in the laser field.

MS/3300/IG/10/E/970831

Scanner Technology Center

DECLARATION OF CONFORMITY

We,

UBI Scanner Technology Center
Immeuble Le Naurouze, Rue Carmin
Voie No.3, Innopole - BP 187
31676 Labège Cedex
France

declare under our sole responsibility[1] that the product(s)

MaxiScan 3300

to which this declaration relates
is (are) in conformity with the following standards:

Emission: **EN 50081-2** (1995)
EN 55022 (1987) **Class A**

Immunity: **EN 50082-2** (1995)

Safety: **EN 60950** (1993)
IEC 950

following the provisions of Directives

89/336/EEC
73/23/EEC

Toulouse 04/03/1997

.....

Sven Skarendahl
President

[1]*UBI assumes no responsibility as regards fulfilling the CE Directive if the product(s) is (are) handled, modified or installed in other manners than those described in UBI's manuals.*

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What you are going to do . . .

This Installation Guide tells you how to install the MaxiScan 3300 to operate successfully in most working situations.

You will then probably need to use the EasySet System configuration software to customize the MaxiScan 3300 setup parameters for your application—section 5 (*Setting up your MaxiScan 3300*) tells you how to do this.

Step by step how to install and set up your MaxiScan 3300

Additional information is provided in the Appendix

What you are going to do . . .

1 Check you have everything you need

Checklist of items for your installation

all systems

- ☐ MaxiScan 3300
- ☐ *EasySet System* configuration software
- ☐ this *MaxiScan 3300 Installation Guide*

options

- ☐ 7-25 VDC mains power supply adapter
- ☐ MaxiScan Connexion System unit
- ☐ standard RS-232 C cable (also used to download setup commands from the *EasySet System* configuration software)
- ☐ adjustable stand

The minimum configuration for the EasySet System configuration software is Windows™ 3.11 running on a 486 PC with 8 MB RAM.

1. Check you have everything you need

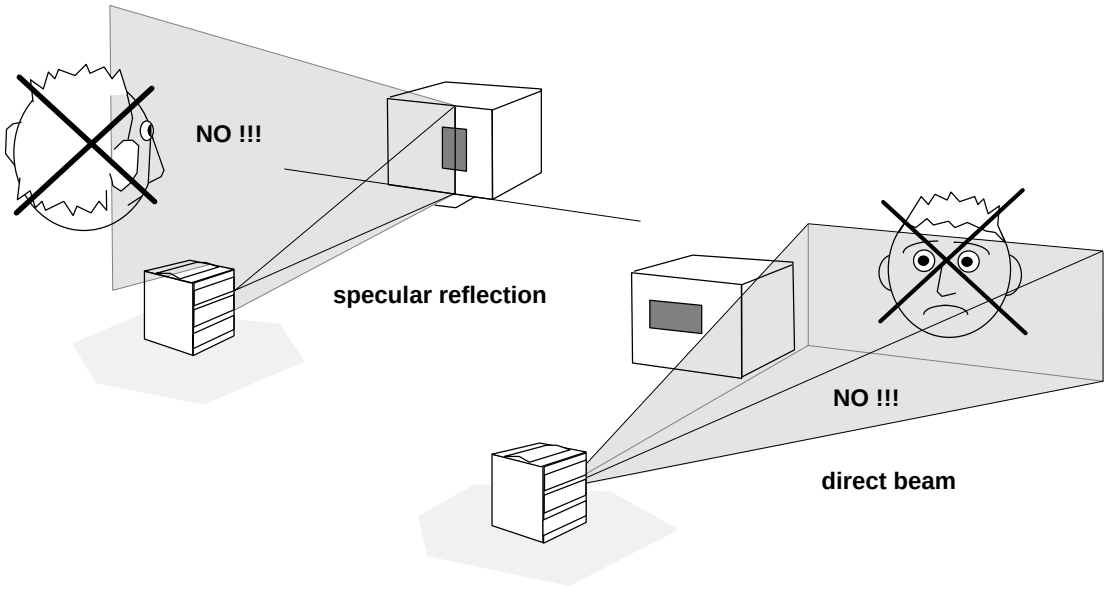
2 Decide what's best for your application

Safety first !!!

As for all laser products, prolonged viewing into direct laser light may damage people's eyes—remember this when you decide where to install your MaxiScan 3300 !

The MaxiScan 3300 will operate in complete safety when used as specified in this Installation Guide.

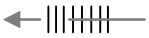
Do not try to dismount the MaxiScan 3300 and always use the scanner only as described in official MaxiScan 3300 documentation.



specular reflection = laser light reflected directly perpendicular to the reflective surface

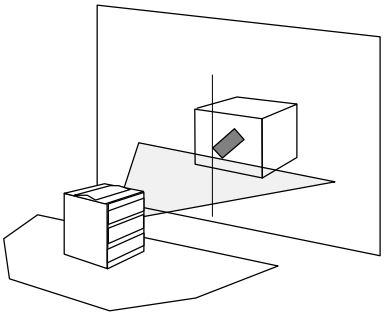
2. Decide what's best for your application

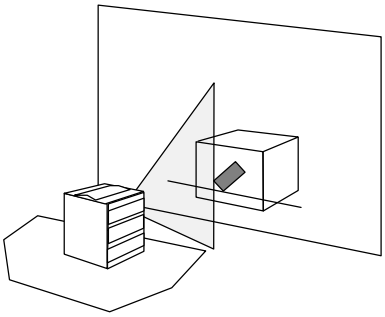
What's best for labels ☑

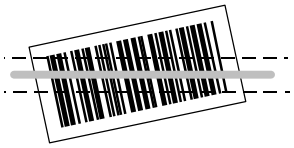
	☑		☐	
label quality	☑	good quality, undamaged	☐	variable quality
label printing	☑	thermal transfer, direct thermal, modern ink-jet	☐	fuzzy printing, dot-matrix, . . .
label surface	☑	matt	☐	glossy, reflective
label location	☑	same location	☐	different locations
label orientation	☑	all codes same orientation (a slight skew is good as it prevents specular reflection)	☐	different orientations, excessive tilt, pitch or skew
label size	☑	same size	☐	different sizes
picket pass-through applications overall barcode width	☑	narrow  (more scans, higher pass-through speeds)	☐	wide 
ladder pass-through applications length of bars (barcode height)	☑	long  (more scans, read over whole code area)	☐	short 
contrast black : white ratio (minimum = 25%)	☑	high contrast	☐	low contrast
barcode density (resolution) narrow bar width	☑	medium density	☐	low / high density
quiet zone empty margin at start / end of code	☑	at least 10 * "X" dimension (narrow bar width)	☐	less than 10 * "X" dimension

Difficult reading situations—Tilt

tilt reduces the number of effective scans for the bar code—heavy tilt prevents reading as the scan line can not cover all the bars

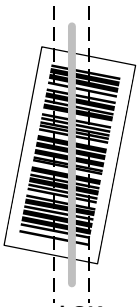






read OK

no read



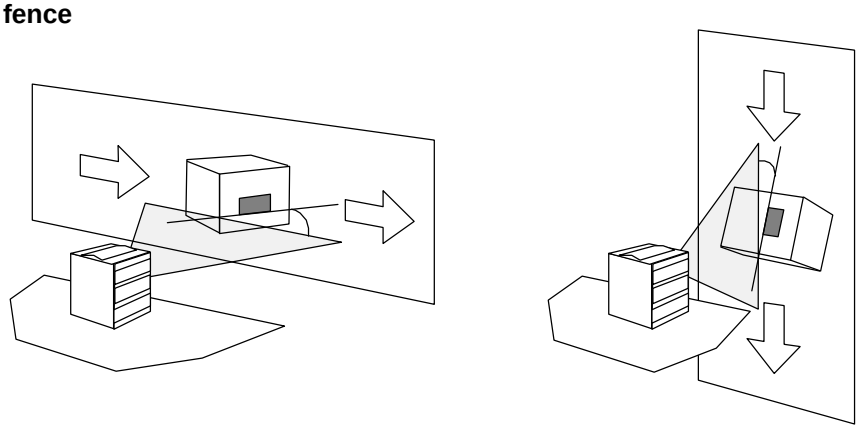
read OK

no read

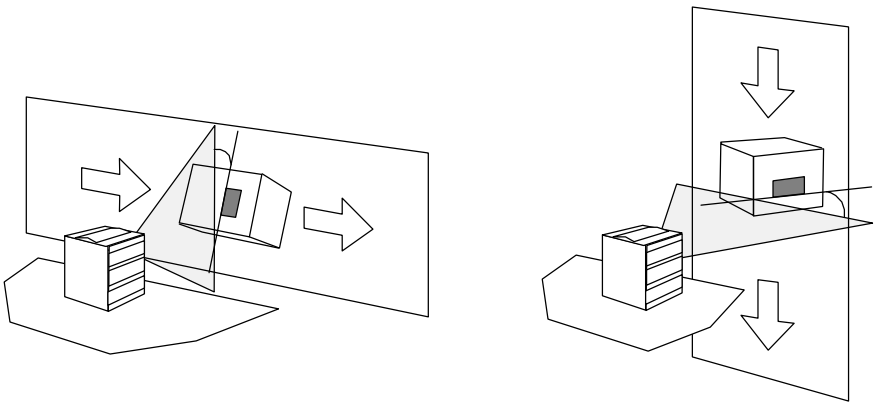
Difficult reading situations—Pitch

- pitch reduces bar width and is much more critical for high-density bar codes
- reading may be possible with a pitch angle up to ± 70°
- the greater the pitch angle, the more difficult it is to read

Picket fence



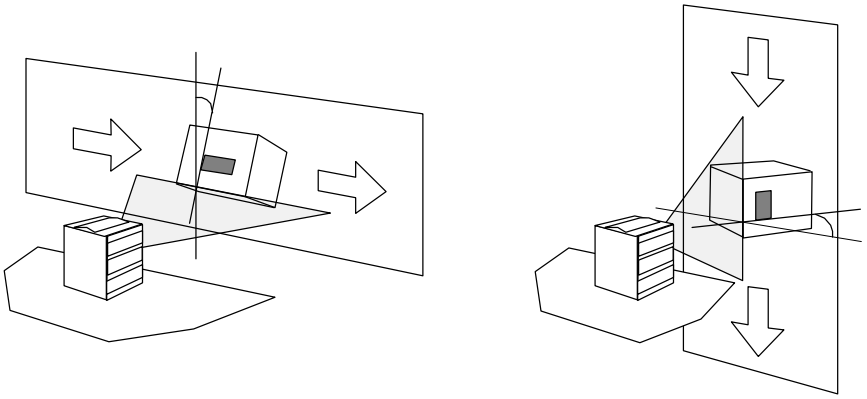
Ladder



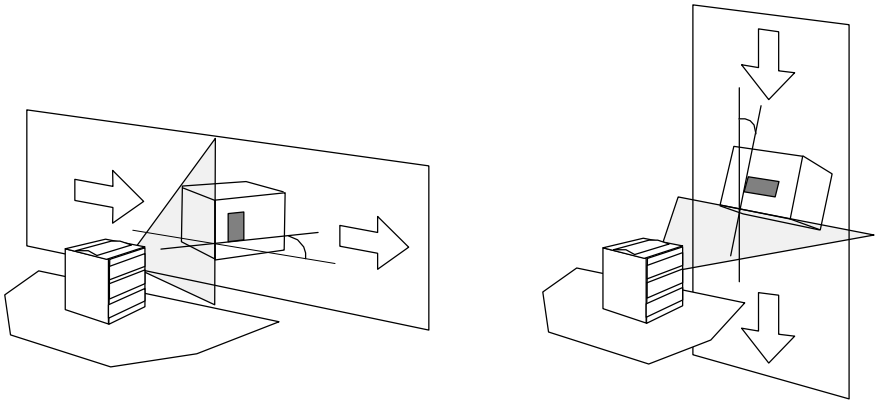
Difficult reading situations—Skew

- skew reduces bar height
- reading may be possible with a skew angle up to ± 40°
- the greater the skew angle, the more difficult it is to read
- a slight skew (scanner or labels) is good as it prevents 90° specular reflection

Picket fence



Ladder



2. Decide what's best for your application

General remarks

As a general rule, keep your application simple and consistent.

Wait until you have tested your setup before you install the MaxiScan 3300 permanently.

environment

- make sure that your operating environment is suitable for your MaxiScan 3300 model—refer to the product specifications in Appendix A

cables and connections

- remember to take into account the length of the operating cables and power supply cable when you set up your MaxiScan 3300

optional adjustable stand

- using the adjustable stand is more flexible than fixing the MaxiScan 3300 directly to the work surface—refer to the product specifications in Appendix A

I/O synchronization

- external input synchronization devices can be used to activate the MaxiScan 3300—they ensure longer life for the motors and laser diode and allow you to detect unsuccessful read attempts
- the MaxiScan 3300 can also send a synchronization output to control external devices according to the read result
- refer to Appendix E if your application uses external synchronization devices

symbologies

- use standard symbologies best suited to your application—some symbologies (Interleaved 2 of 5 for example) are less reliable than others
- try to use as few symbologies as possible
- fixed barcode lengths and check digits increase reading efficiency and security

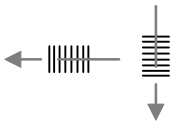
specular reflection

- slightly skew the scanner or labels to avoid 90° specular reflection (label exactly perpendicular to scanner) in any part of the scan

number of scans

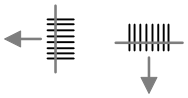
- a good read usually requires a minimum of 5 scans

picket fence



- generally more scans per code in pass-through applications than with ladder reading

ladder



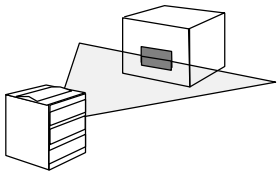
- generally fewer scans per code in pass-through applications than with picket fence reading
- read over whole code height—good for high-speed pass-through with variable label quality and different label positions

reading distance

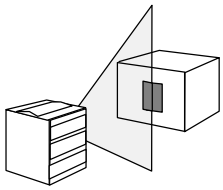
- high density bar codes require a shorter reading distance than low density codes—reading distance is less critical for medium-density codes

depth of field

- there is more depth of field when the laser beam is horizontal with regard to the MaxiScan 3300:

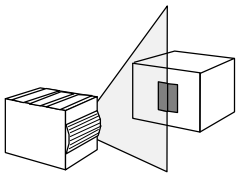


more depth of field



less depth of field

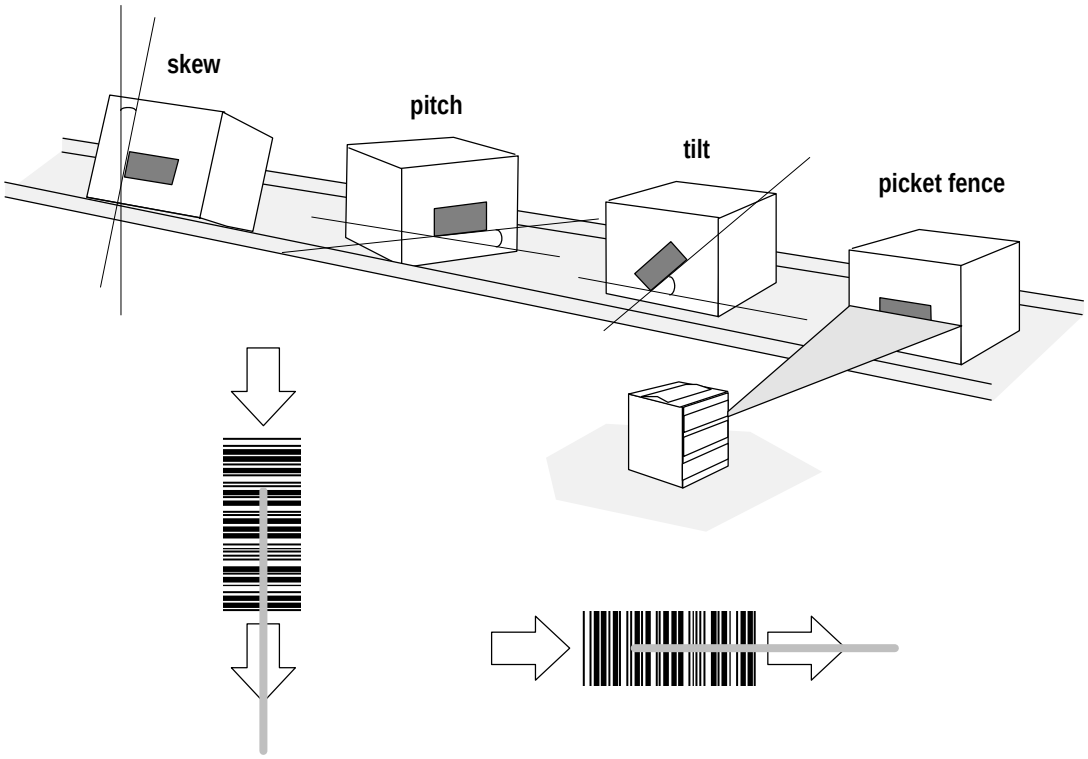
if your application mostly needs a vertical beam, it is better to install the MaxiScan 3300 on its side:



more depth of field

2. Decide what's best for your application

Picket fence reading



- *number of scans* = [(*scan width* - *code width*) x *scan rate* / *pass-through speed*] - 2

  Example: scan width = 20 cm code width = 10 cm scan rate = 450 scans / sec
  conveyor speed = 1 meter / sec (100 cm / sec)

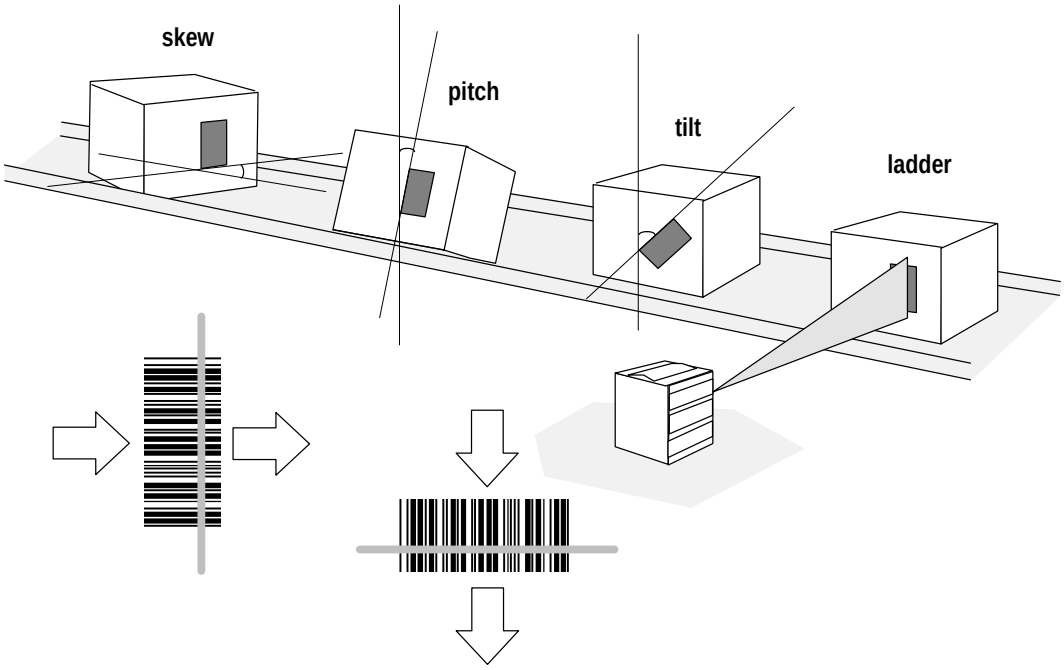
  [(20 - 10) * 450 / 100] - 2 = 43 so there will be 43 full scans on the code

The code width value will vary slightly according to the degree of tilt and pitch.

- increase the scan width (adjust the reading distance) and decrease the code width and pass-through speed to increase the number of scans

Remain within the product specifications for reading distance and barcode density provided in Appendix A.

Ladder reading



- *number of scans* = [(*code height* / *pass-through speed*) x *scan rate*] - 2

  Example: code height = 2.5 cm conveyor speed = 1 meter/sec (100 cm / sec)
  scan rate = 450 scans / sec

  [(2.5 / 100) * 450] - 2 = 9.25 so there will be 9 full scans on the code

The code height value will vary slightly according to the degree of tilt and skew.

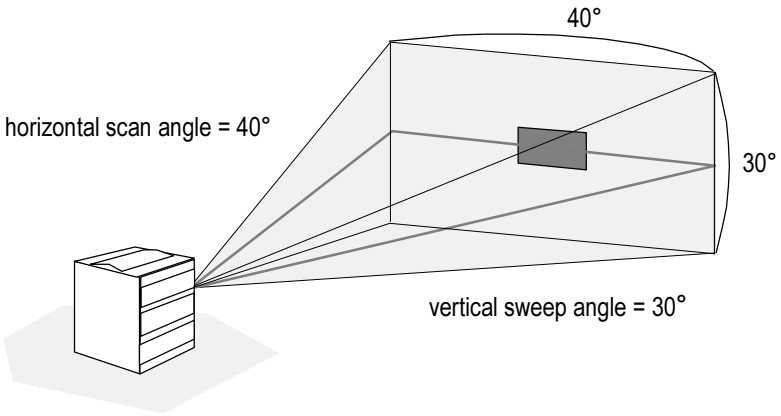
- increase the code height and decrease the pass-through speed to increase the number of scans
- *minimum code height* = *pass-through speed* x (*number of scans* + 2) / *scan rate*

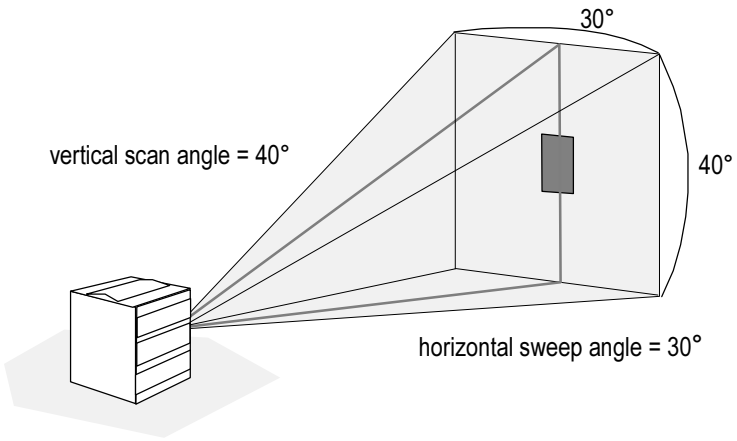
  if we suppose that 5 scans is a good minimum, the formula becomes:

  min code height = *pass-through speed* x 7 / *scan rate*

Remain within the product specifications for reading distance and barcode density provided in Appendix A.

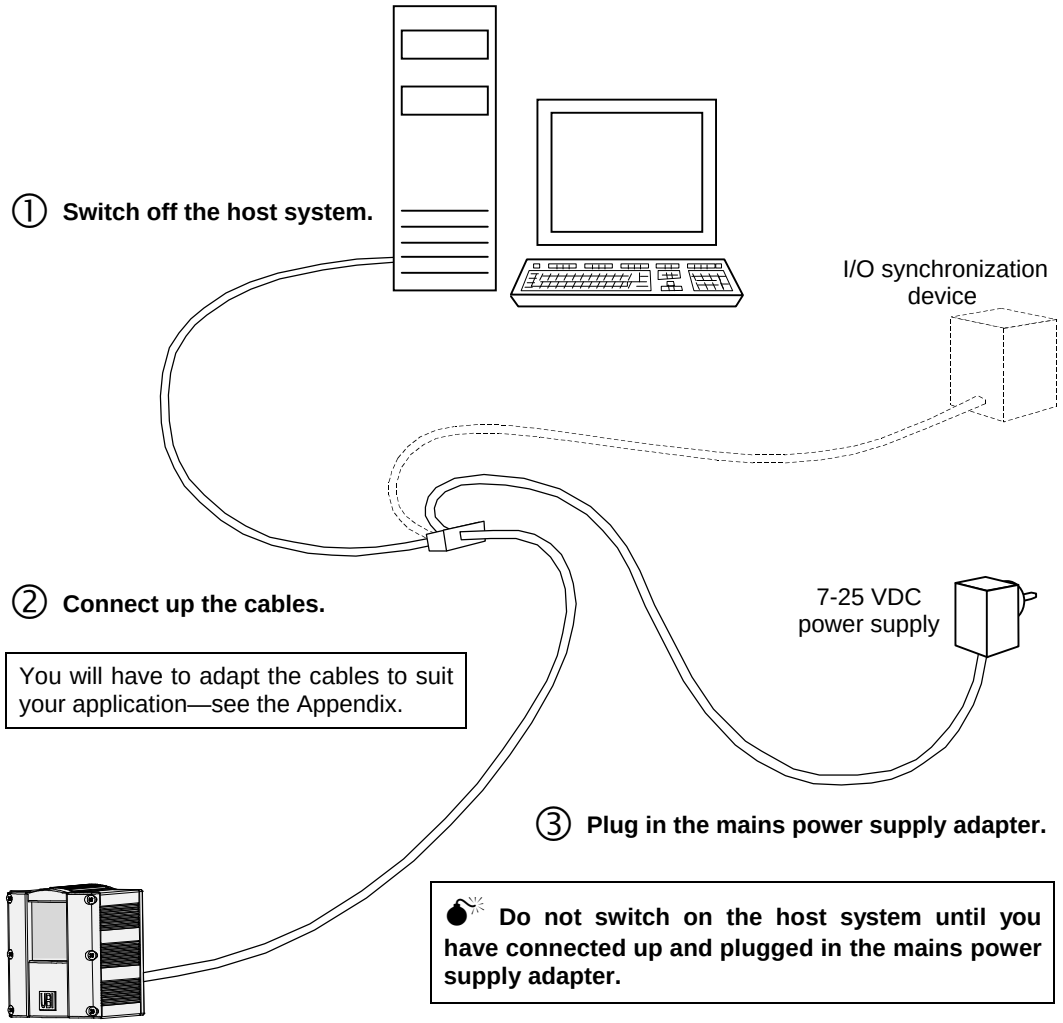
Scan angles


40°
horizontal scan angle = 40°
30°
vertical sweep angle = 30°


30°
vertical scan angle = 40°
40°
horizontal sweep angle = 30°

3 Switch off the host system and connect up your MaxiScan 3300

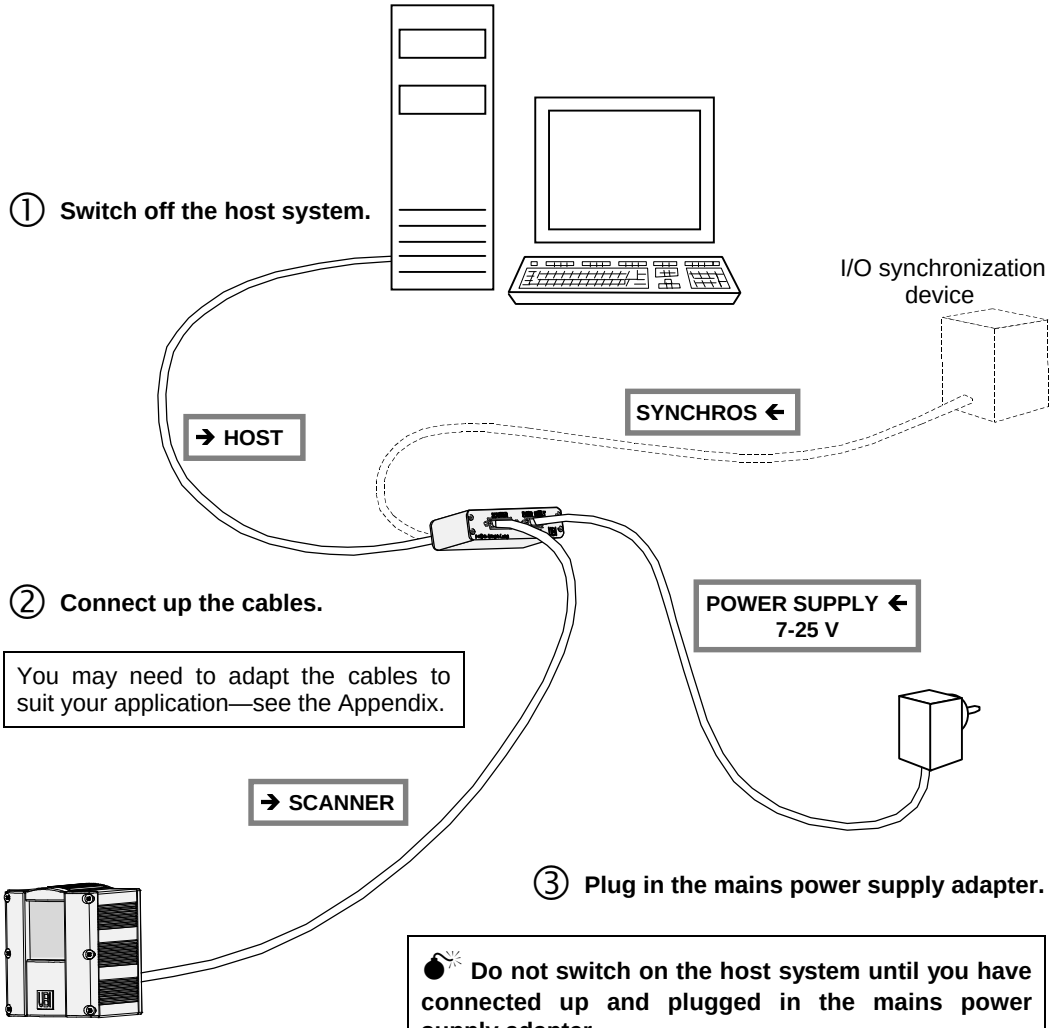
Direct connection—RS-232 C, RS-422, RS-485



3. Switch off the host system and connect up your MaxiScan 3300

MCS connection unit—RS-232 C, RS-422, RS-485, Current Loop

The MaxiScan Connexion System unit is necessary for Current Loop applications.



Do not switch on the host system until you have connected up and plugged in the mains power supply adapter.

4 Power up the MaxiScan 3300

Laser safety recommendations

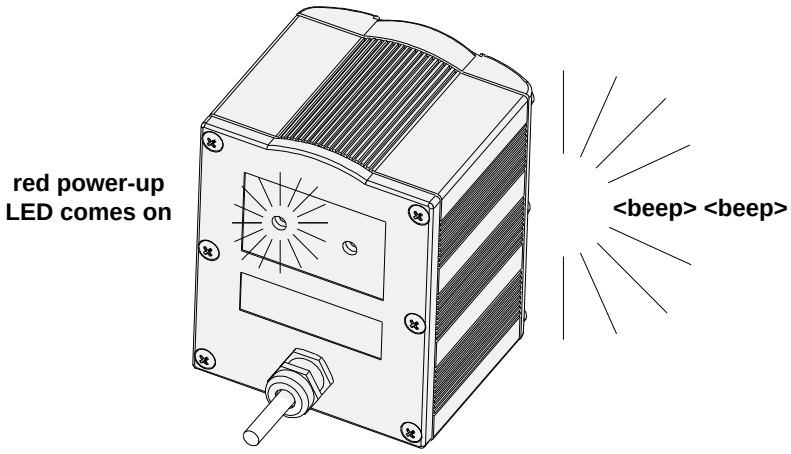
The MaxiScan 3300 will operate in complete safety when used as specified in this Installation Guide.

As for all laser products, avoid staring directly into the laser light beam for long periods of time—prolonged viewing into direct laser light may damage your eyes.

Do not try to dismount the MaxiScan 3300 and always use the scanner only as described in official MaxiScan 3300 documentation.

Plug in and power up

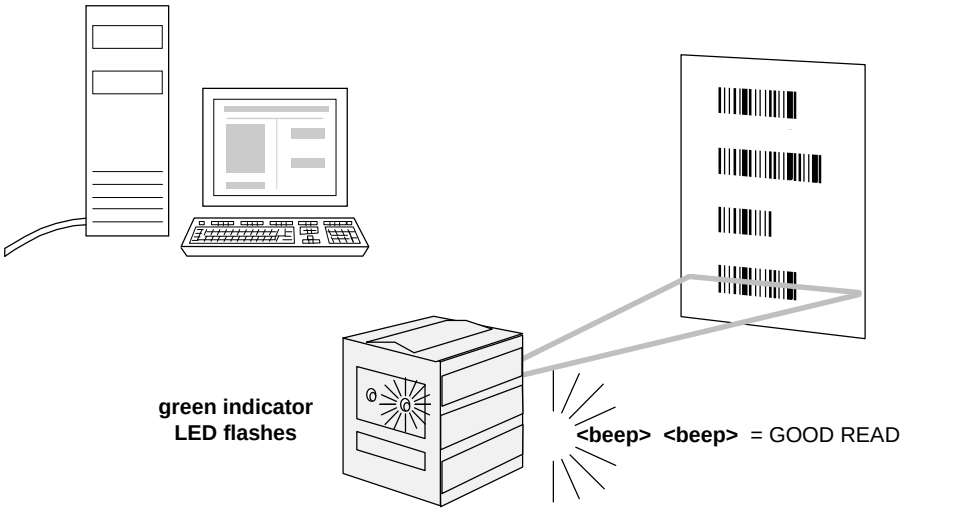
1. Plug the external power supply into the mains socket.
2. Switch on the host system.



4. Power up the MaxiScan 3300

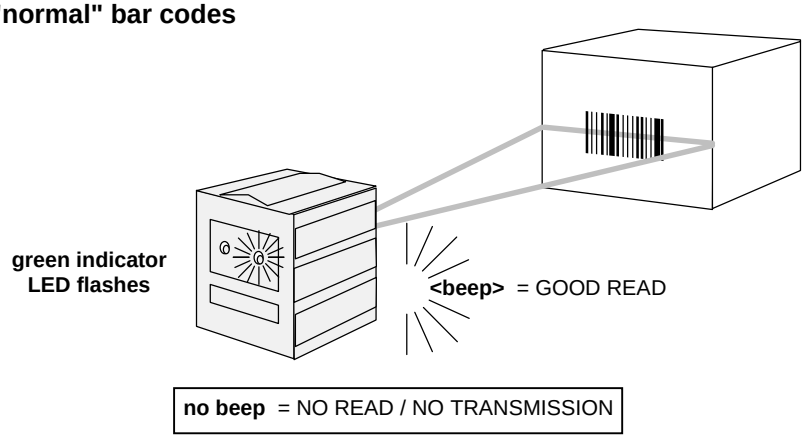
Beeps and LEDs

Using EasySet System software or reading configuration bar codes



<beep> <beep> <beep> <beep> <beep> <beep> = SETUP ERROR

Reading "normal" bar codes



no beep = NO READ / NO TRANSMISSION

5 Setting up your MaxiScan 3300

Modifying your setup parameters

The MaxiScan 3300 is pre-programmed with a set of factory default parameter settings, but you may need to modify some of the settings to suit your application.

You can use the EasySet System configuration software to download your custom settings directly to the MaxiScan 3300 or print out the corresponding configuration bar codes.

You can also use the host system to set up the MaxiScan 3300 dynamically according to your application.

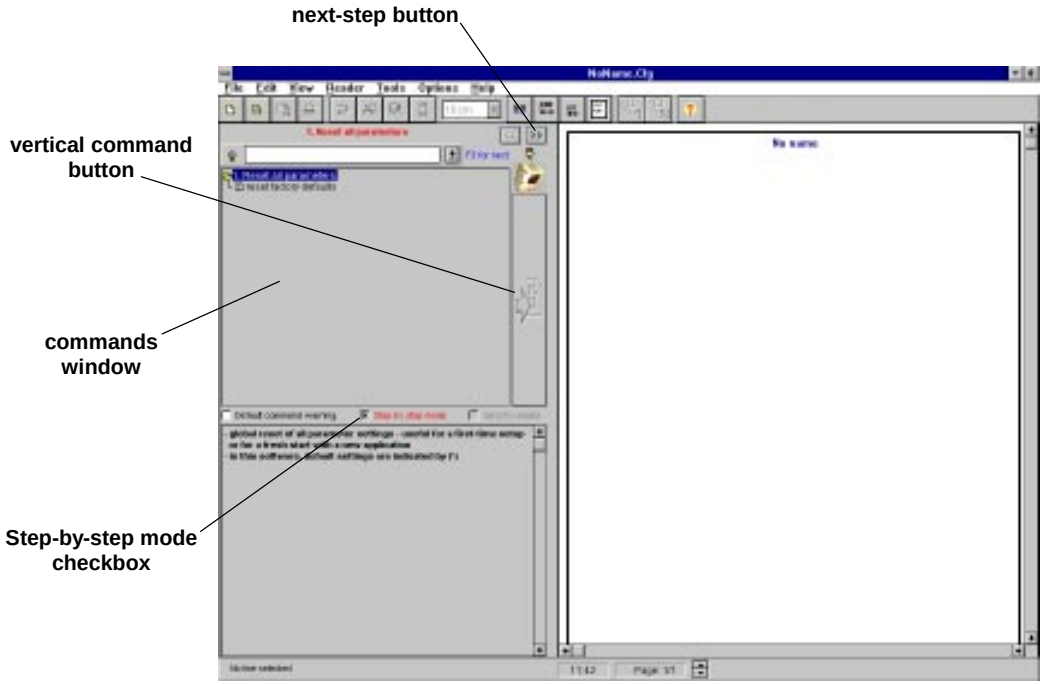
Install and start up EasySet System

The minimum configuration for the EasySet System configuration software is Windows™ 3.11 running on a 486 PC with 8 MB RAM.

1. Open the EasySet directory on your product cd-rom or diskette.
2. Double-click the **setup.exe** file to install the EasySet System configuration software on your PC.
3. Double-click the **EasySet** icon from the Windows™ program manager to start up EasySet.

Step-by-step mode

EasySet starts up in Step-by-step mode—the **Step-by-step mode** checkbox is selected and the commands window shows the command for the first step.



Step-by-step mode ensures that new users do not miss any steps during setup. When you have completed a step, click the next-step button [>>] to go on to the next step.

Experienced users can deselect the **Step-by-step mode** checkbox for direct access to all the setup commands.

Using the commands window

The setup commands in the commands window are presented in **numbered sections** corresponding to the different steps in a setup session.

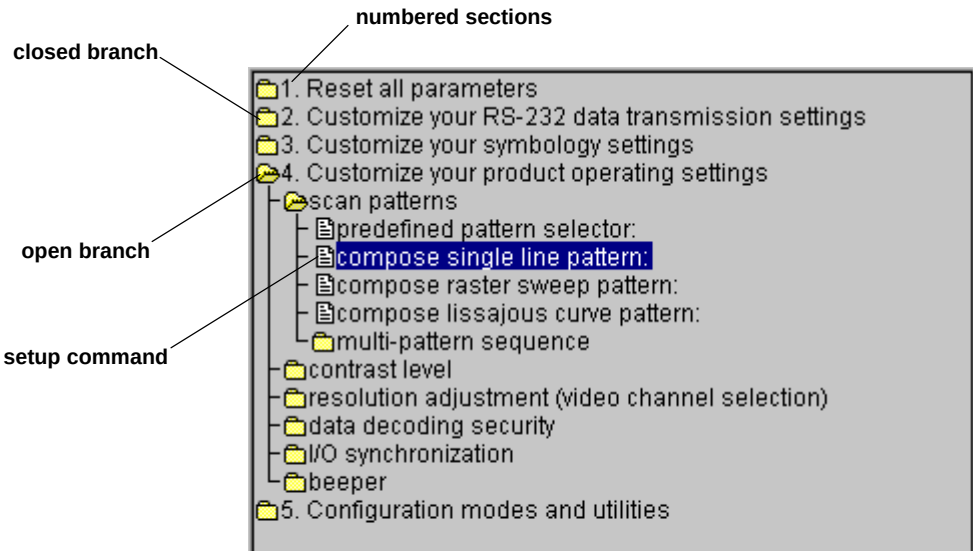
Each section is organized as a tree structure and uses the following symbols:

a **closed branch** with more information underneath—double-click on the corresponding line to open the branch and see more

an **open branch**—double-click on the corresponding line to close the branch and all the branches underneath

a **setup command**—double-click on the corresponding line to send the command to the setup sheet (and to the MaxiScan 3300 if you have chosen online setup)

You can also use the vertical command button to send commands to the setup sheet and to the MaxiScan 3300—click once on the button (single click).

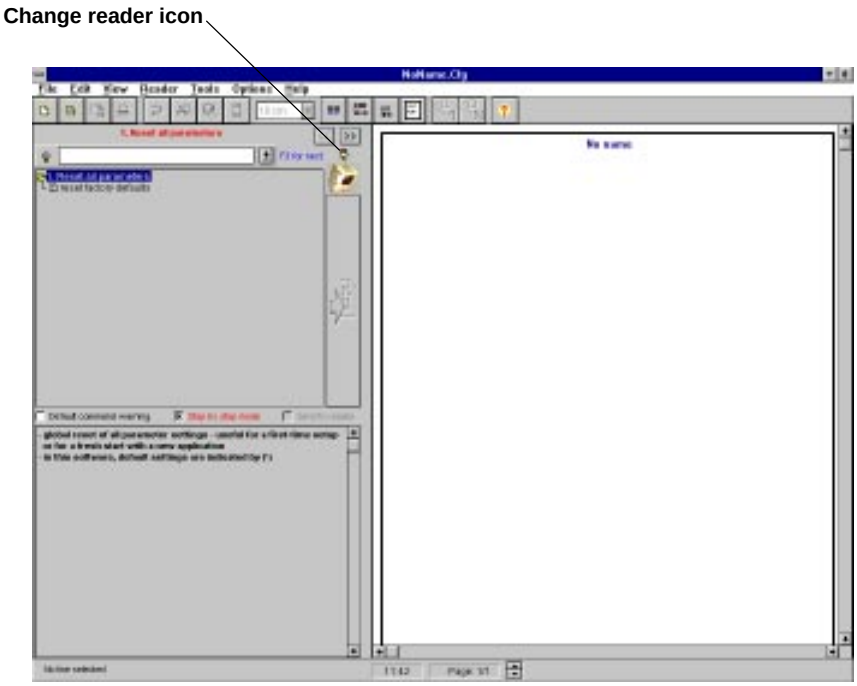


All the sections are visible in this example (Step-by-step mode has been deactivated).

Select the MaxiScan 3300

- Choose **MaxiScan 3300** with the **Reader - Select** command if the MaxiScan 3300 is not already selected.

You can also use the **Change reader** icon at the top of the vertical command button to select the MaxiScan 3300.



If you want to work online with the MaxiScan 3300

1. Connect the standard RS-232 C cable between the HOST port of the MaxiScan Connexion System and the serial port of your PC if it is not already connected.

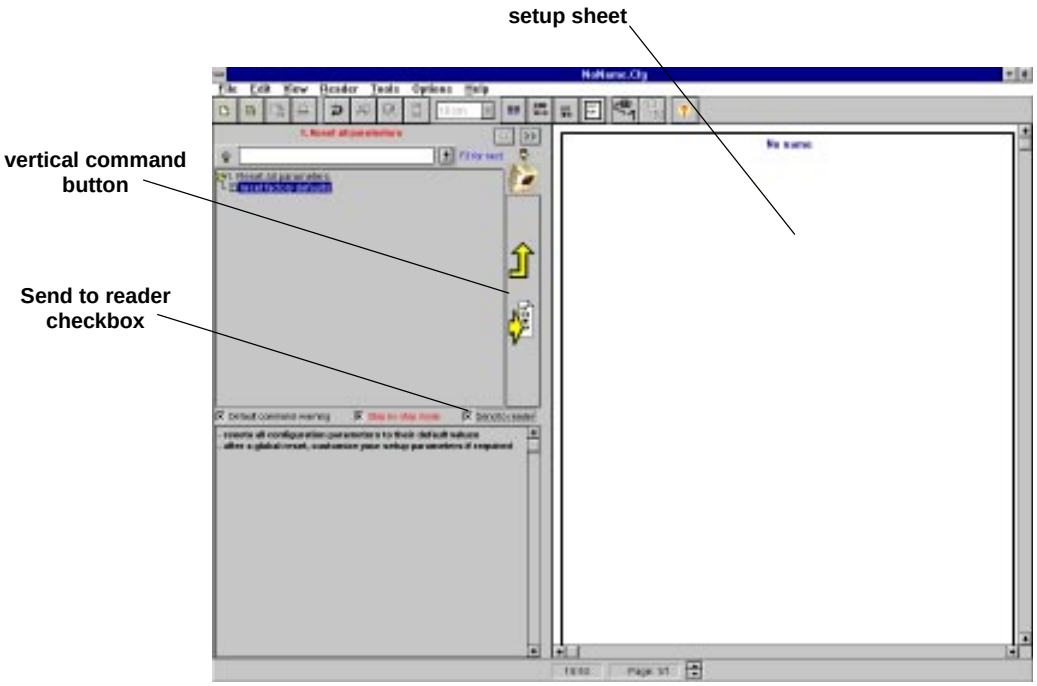
2. Choose **Reader - Configure communication PC/Reader** and select the **Port** the MaxiScan 3300 is connected to.

3. Click **SelfSet**.

   The software adapts the RS-232 communication parameters of your PC to the current settings of the MaxiScan 3300.

4. Select the **Send to reader** checkbox under the commands window if you want to send commands directly to the MaxiScan 3300 as well as to the setup sheet.

   The download arrow is displayed on the vertical command button.



Make a new setup for your MaxiScan 3300

1. Reset all parameters

Selecting **reset factory defaults** makes sure that you start with a "clean" setup.
Factory default settings are indicated by an asterisk (*) in the software.

1. Select **reset factory defaults** and double-click to send it to the setup sheet.

>> 2. Click the next-step button to go on to the next step.

2. Customize your RS-232 data transmission settings

1. Look at the data transmission settings the MaxiScan 3300 needs for communication with your application host system.

2. Select the settings you need if they are not already selected by default—double-click the selected commands or click the vertical command button.

3. Click the next-step button to go on to the next step.

3. Customize your symbology settings

Code 39 and UPC/EAN are activated by default.

Do not activate symbologies that you do not need.

1. Deactivate the Code 39 and UPC/EAN default symbologies if you do not need them.
2. Activate the symbologies you need if they are not already activated by default.
3. Look at the settings for your symbologies.
4. Select the settings you need if they are not already selected by default—double-click the selected commands or click the vertical command button.

If the bar codes in your application have fixed lengths, the **compose 1 or 2 or 3 fixed lengths** option gives the best reading efficiency and security.

If not, use the **compose minimum length** option—select the same length as the minimum length in your application (do not select a shorter length !!).

Use check digits if available to increase data security.

>> 5. Click the next-step button to go on to the next step.

4. Customize your product operating settings

1. Select the settings you need if they are not already selected by default—double-click the selected commands or click the vertical command button.

Choosing the right operating settings is very important for optimized reading performance ! This is especially true for the following parameters.

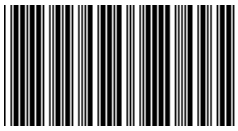
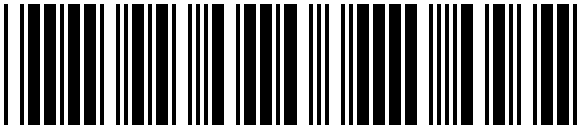
scan patterns

• **single line**	• picket fence and ladder reading • set scan rate / position (scan width depends on reading distance) • picket fence—increase scan width to increase the number of scans • ladder—limit scan width to just over width of code if possible to avoid wasted scans
• **raster**	• **picket fence only—do not use for ladder reading !** • good for poor quality or damaged labels (read same code at different heights) or variable label position • useful for multicode applications • set scan rate / sweep angle (scan area depends on reading distance and sweep angle) • limit raster or pattern to height of code if possible to avoid wasted scans
• **lissajous curves**	• undefined orientation • more directions = lower effective scan rate per line
• **multipattern sequence**	• for variable orientation and position • suitable for static reading or slow pass-through applications • cross pattern provides good coverage with codes that are higher than wide
• **scan rate**	• increase the scan rate if your application uses small bar codes and higher pass-through speeds

contrast level

• **all contrast levels**	• cycles through all contrast levels for labels with varying contrast • OK when presenting labels, not good for passthrough applications • **reading is slower than with dedicated contrast levels—use dedicated contrast levels (low, medium, high) if possible**
• **low contrast**	
• **medium contrast**	
• **high contrast**	

resolution adjustment (video channel selection)

• **high / low resolution**	• continuous switching between the 2 video channels—the video channel changes with each new scan • normal-quality medium-resolution bar codes such as standard EAN (100%) are read easily by both video channels • **reading is slower than with dedicated resolution levels—use dedicated resolution levels (high, low) if possible**
• **high resolution**	
• **low resolution**	

data decoding security

• **timeout between identical consecutive codes**	• prevents reading the same bar code more than once
• **timeout between different consecutive codes**	• prevents unwanted reading of other bar codes on the same label • **longer timeout = slower reading of different codes**

>> 2. Click the next-step button to go on to the next step.

5. Configuration modes and utilities

The **configuration inhibit after 1 minute** option protects against unwanted reading of configuration codes and greatly improves reading performance for the "normal" bar codes in your application.

If you use a setup sheet for configuration and the **configuration inhibit after 1 minute** option is selected, you must disconnect and then reconnect the MaxiScan 3300 power supply to enable reading of configuration codes.

You then have 1 minute to read a setup code (if you do not read a code within 1 minute, the MaxiScan 3300 will leave configuration mode and you will have to switch off and restart the MaxiScan 3300 again). Every new configuration code you read enables the MaxiScan 3300 to read another configuration code within 1 minute.

You have now created a setup for your MaxiScan 3300.

Choose **File - Save as** if you want to save your setup sheet (the filename you give must have the extension **.cfg**).

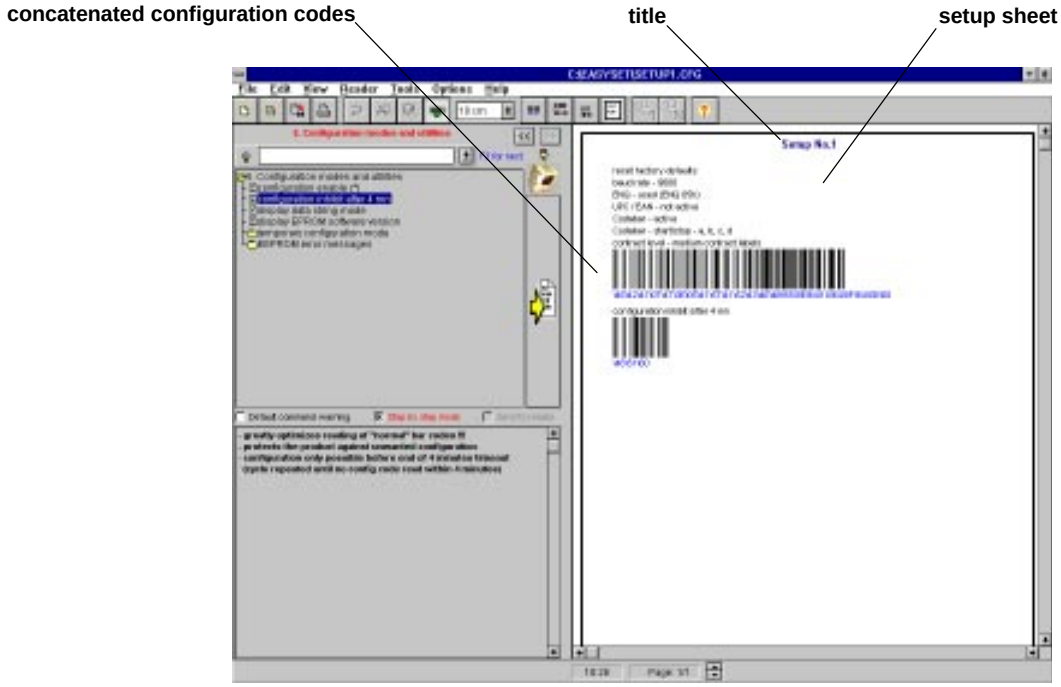
Editing and printing out the setup sheet

You may want to use the setup sheet for a number of reasons:

- you did not choose to download the setup commands directly to the MaxiScan 3300,
- you want to use the same setup for other MaxiScan 3300 units installed on your site,
- you want to keep a record on paper of your setup.

If the "configuration inhibit after 1 minute" option is selected, you must disconnect and then reconnect the MaxiScan 3300 power supply to enable reading of the configuration codes on the setup sheet (repeated 1-minute cycle).

1. Choose **Edit - Concatenate** if you want to reduce the number of codes you have to read with the MaxiScan 3300.
2. Choose **Edit - Title** if you want to give a title to your setup sheet.
3. Choose **File - Print** if you want to print out your setup sheet.



Sending commands from the setup sheet

1. Connect the standard RS-232 C cable between the HOST port of the MaxiScan Connexion System and the serial port of your PC if it is not already connected.

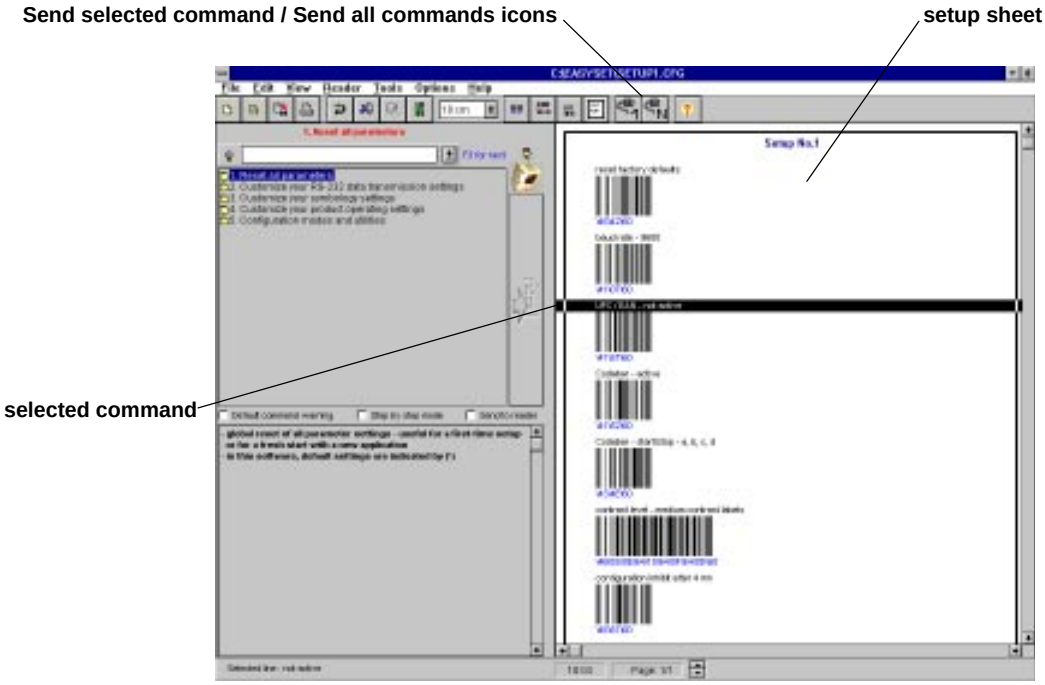
2. Choose **Reader - Configure communication PC/Reader** and select the **Port** the MaxiScan 3300 is connected to.

3. Click **SelfSet**.

   The software adapts the RS-232 communication parameters of your PC to the current settings of the MaxiScan 3300.

4. Select a command title in the setup sheet and click the **Send selected command** icon to send the command to the MaxiScan 3300.

   The **Send all commands** icon sends all the commands in the setup sheet to the MaxiScan 3300.



5. Setting up your MaxiScan 3300

A Technical characteristics

Technical characteristics are subject to change without prior notice due to continuous product improvement.

Models	
MaxiScan 3300 ST	standard model
MaxiScan 3300 HR	high resolution
option	laser diode thermocooler—required if ambient temperature above 27°C (80°F)
accessories	• MaxiScan Connexion System connection unit • mains power supply adapter (15 VDC, 0.65 A, 10 Watt full-wave rectified unregulated) • adjustable stand
Interface capability	
host system interfaces	• RS-232 C (standard configuration) • RS-422 • RS-485 • Current Loop (passive type)–requires MCS connection unit
I/O synchronization	• input sync from external device (opto-switch, . . .) • output sync to external device (conveyor gate switch, . . .) • software output to host system
Decoding capability	
symbologies	• Codabar • Codablock • Code 39 • Code 93 • Code 128 • EAN 128 • Industrial / Standard 2 of 5 • Interleaved 2 of 5 • Matrix 2 of 5

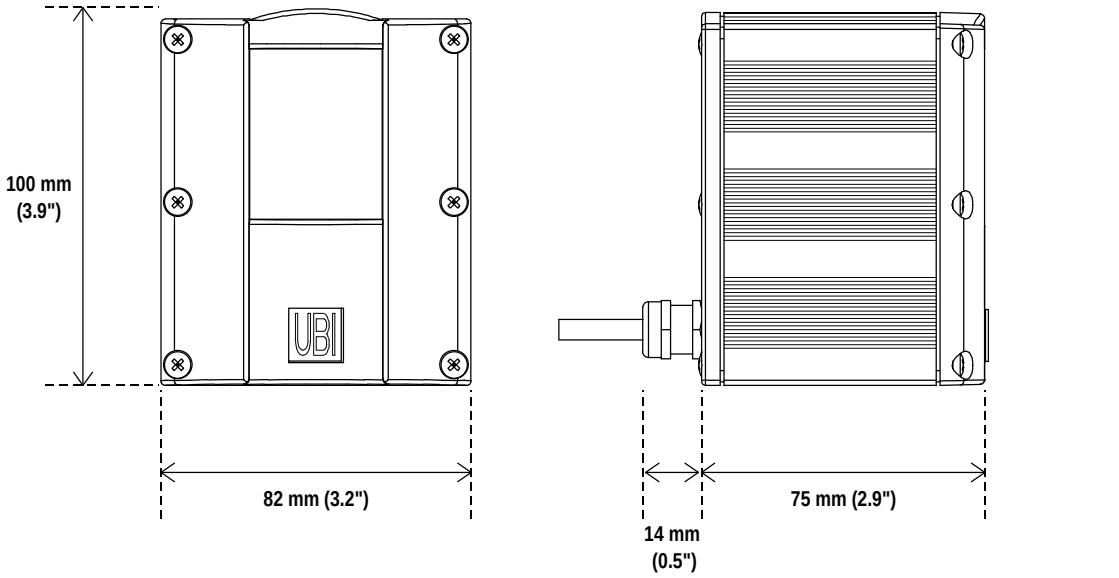
A. Technical characteristics

	• MSI Code • Plessey Code • UPC/EAN • others on request
code reconstruction	• optional for EAN-13, UPC-A • automatic with 1 fixed length selected for Code 39, CIP 128, Codabar CLSI, MSI Code, Plessey Code
decoding rate	real-time with scanning rate if only 1 or 2 symbologies are selected
other decoding features	• multicode reading • code sorting • autodiscrimination of symbologies
Scanning performance	
scan rate	• 400 to 700 scans/second • 450 scans/second at 40° scan angle (default)
maximum scan angle (scan width)	45° ± 4°
maximum sweep angle (raster height)	adjustable increments to 30° ± 4°
reading distance / depth of field	see charts in next section
pitch	± 70°
skew	± 40°
minimum print contrast ratio	25 %
minimum resolution	• ST: 0.19 mm (7 mil) • HR: 0.08 mm (3 mil)
Optical characteristics	
light source	5 mW long-life red laser diode
wavelength	660 nm
laser class	US CDRH Class II, IEC Class 2
Electrical characteristics	
power supply voltage	7-25 VDC full-wave rectified unregulated
power requirements	• < 3.5 Watt normal operation (higher peaks at power-up) • < 4.75 Watt with thermo-cooler (higher peaks at power-up)
Physical characteristics	
dimensions (width x depth x height)	82 x 75 x 100 mm (3.2 x 2.9 x 3.9")
maximum weight without cord	550 g (19.4 oz)
case	Epoxy-coated aluminium

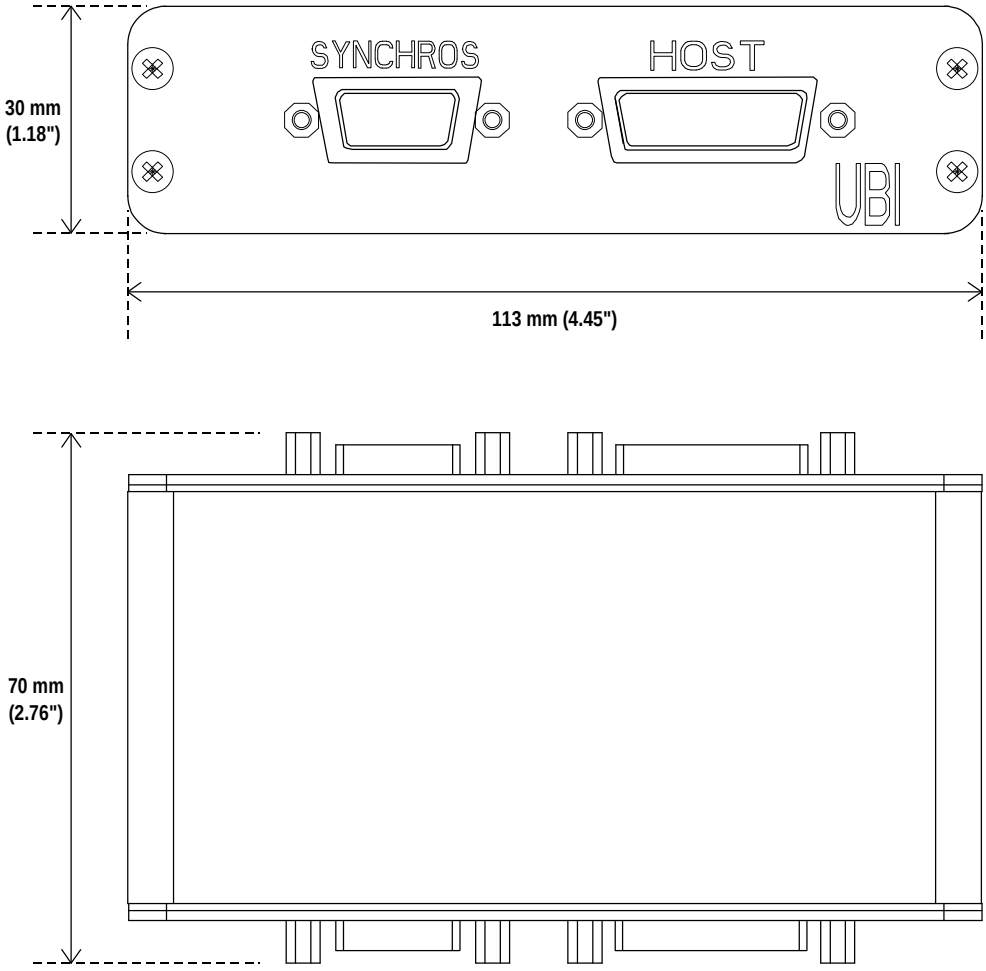
mounting	• metric screw threads under case • can be mounted in any position
connector	15-pin subD
Environmental characteristics	
operating temperature	• 0° to 50° C (32° to 122° F) • use thermo-cooler for temperatures > 27° C • use thermo-cooler and input sync device for temperatures > 40° C
storage temperature	-40° to 70° C (-40° to 158° F)
sealing standards (dust, corrosive chemicals)	IP65 / Nema 12
relative humidity	5% to 95% non-condensing
maximum ambient lighting	4 000 lux on the code
electrostatic discharge	8 kV to any external surface
vibration	IEC 6826 - Fc
shock	IEC 68227 - Ea
CE standards conformity	• Emission: EN 50081-2 (1995), EN 55022 (1987) Class A • Immunity: EN 50082-2 (1995) • Safety: EN 60950 (1993) / IEC 950
MTBF	20 000 hours according to operating conditions
User interface	
power-up	red LED - 2 beeps
good read	1 green LED flash - 1 beep
configuration error	6 error beeps

Dimensions

MaxiScan 3300



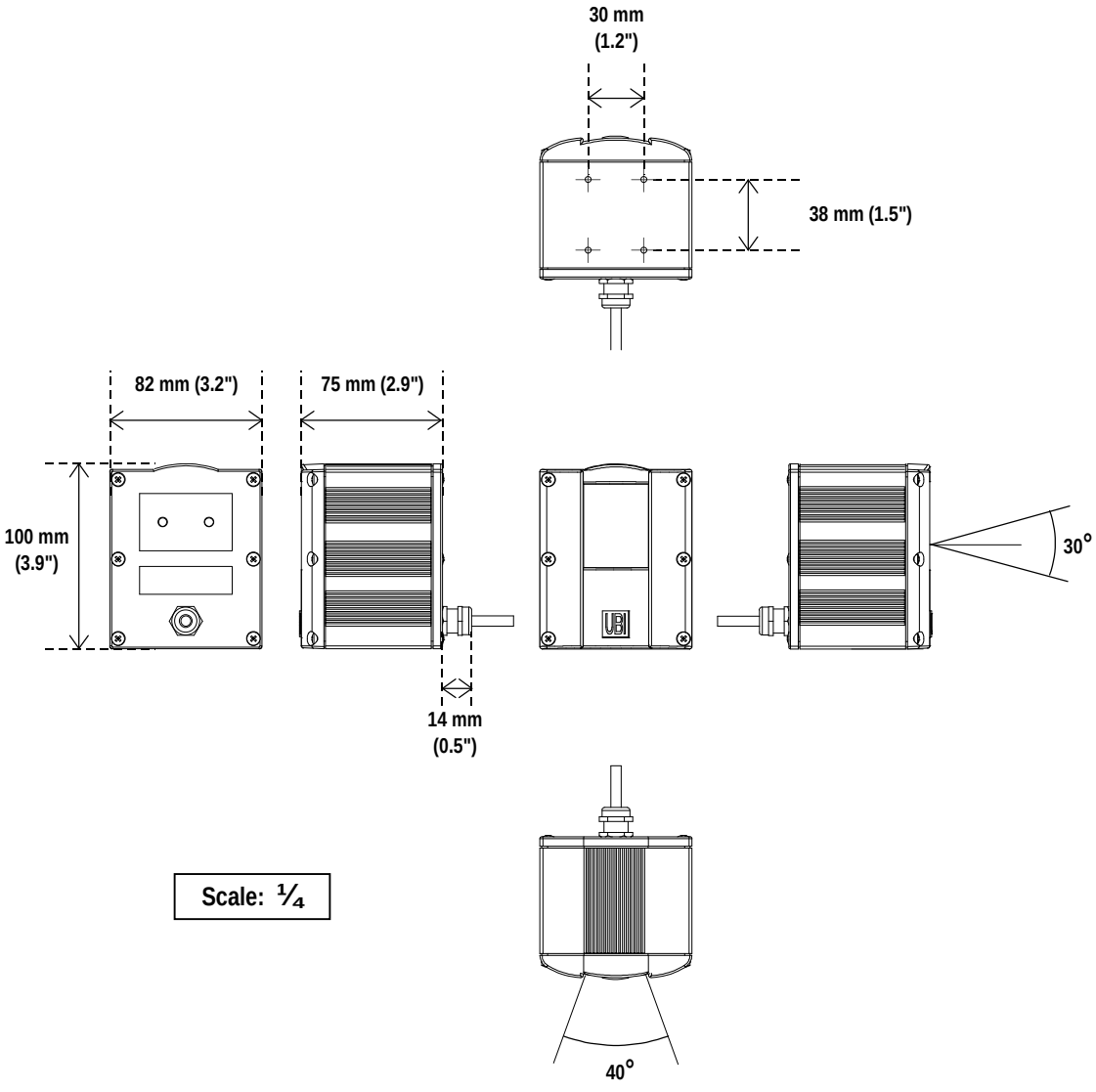
Maxiscan Connexion System (external unit)



Scale: 1

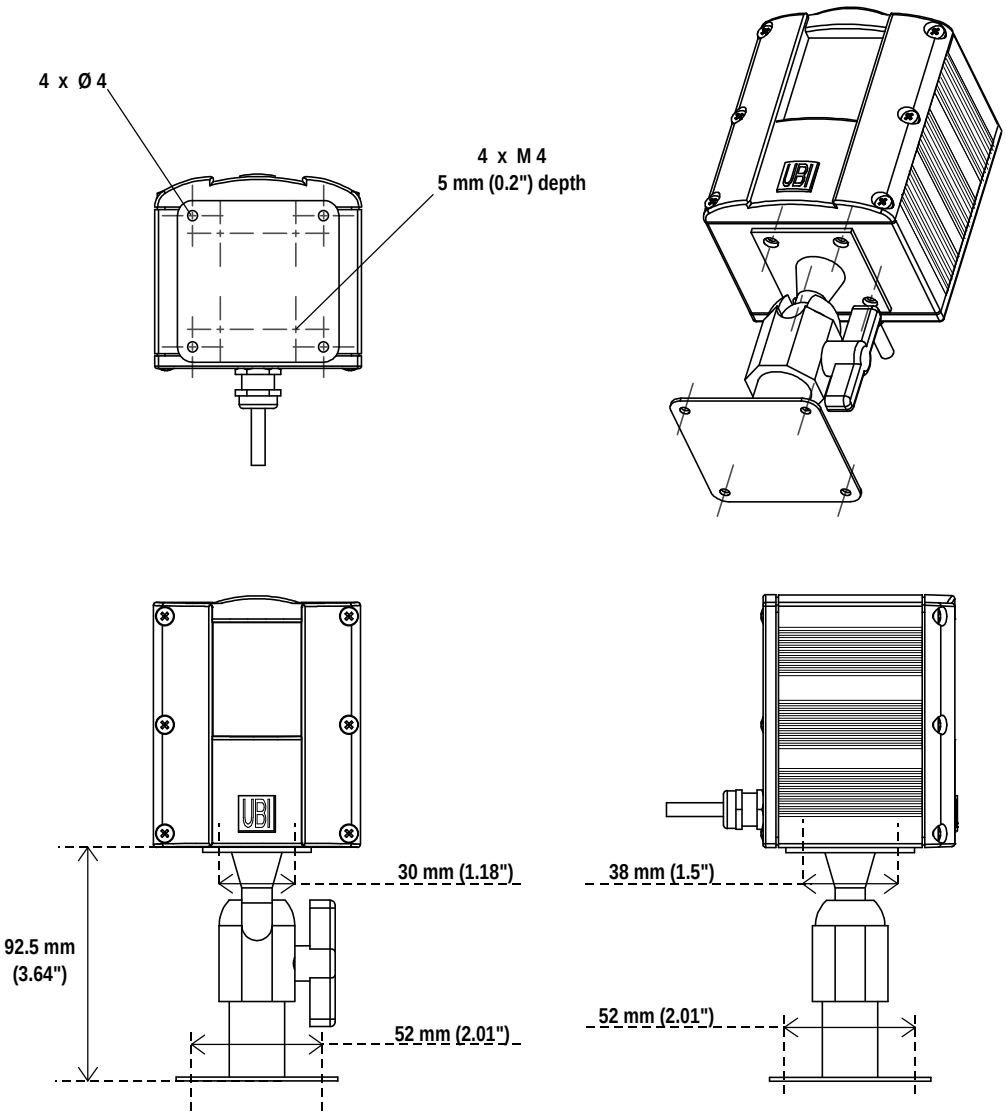
A. Technical characteristics

Mounting points / laser light plane



Scale: 1/4

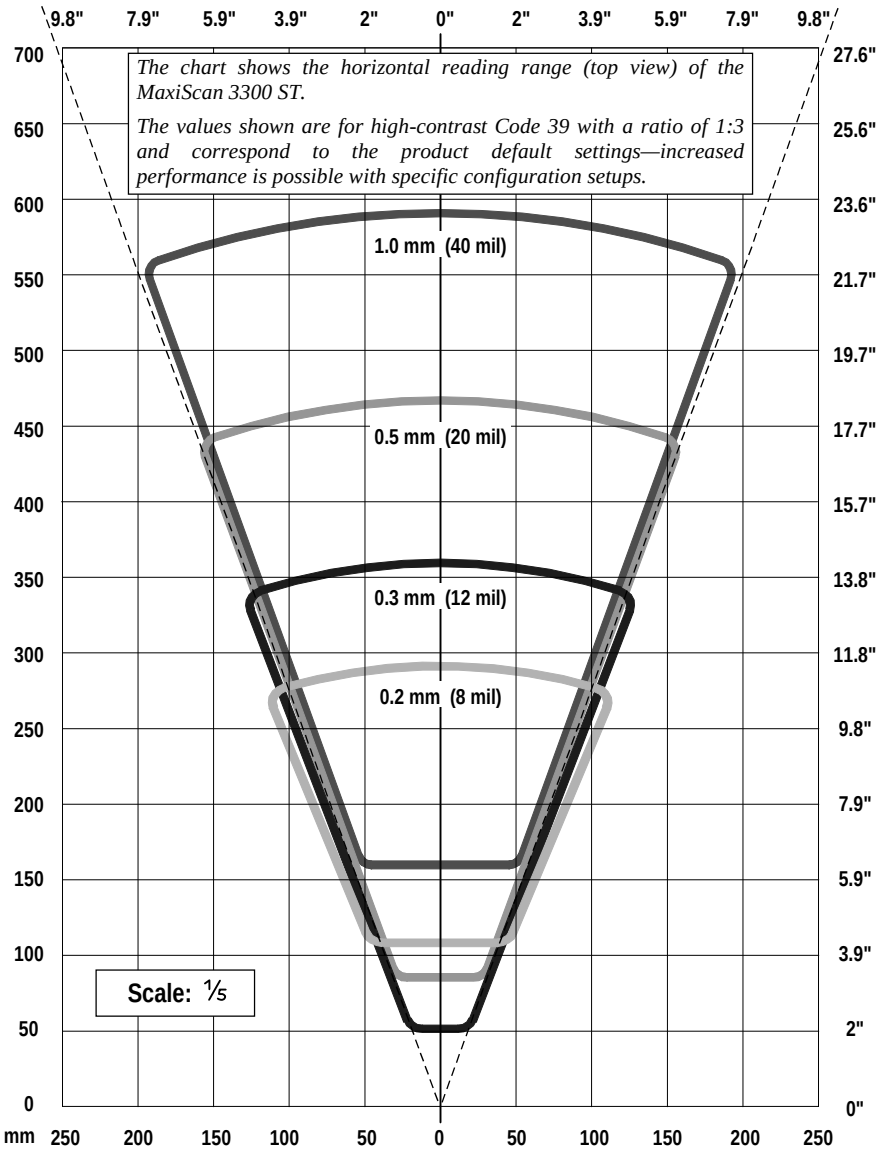
Optional adjustable stand



Scale: 1/3

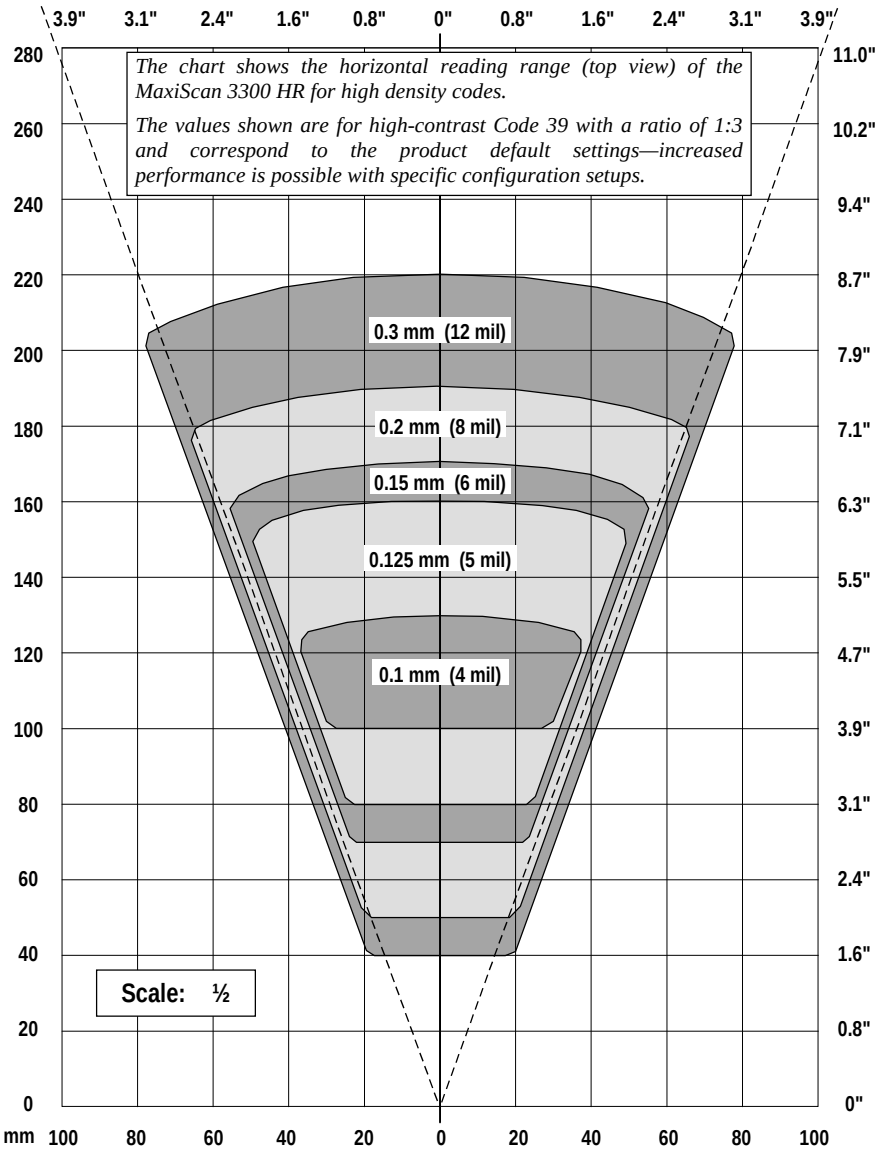
Horizontal scan width / reading distance / barcode density

MaxiScan 3300 ST



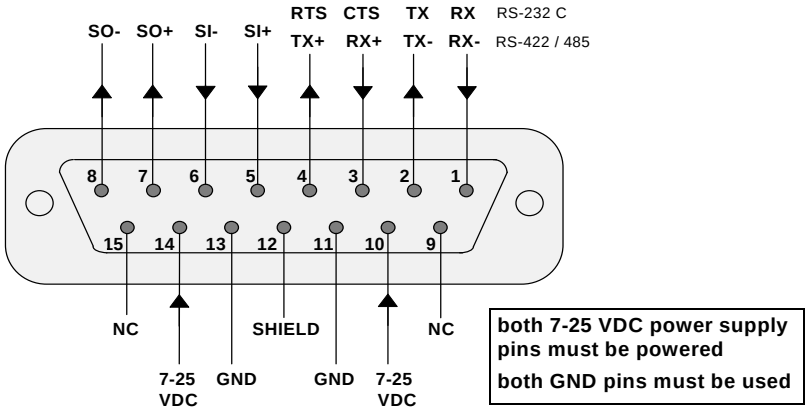
Horizontal scan width / reading distance / barcode density

MaxiScan 3300 HR



A. Technical characteristics

B MaxiScan 3300 cable connector

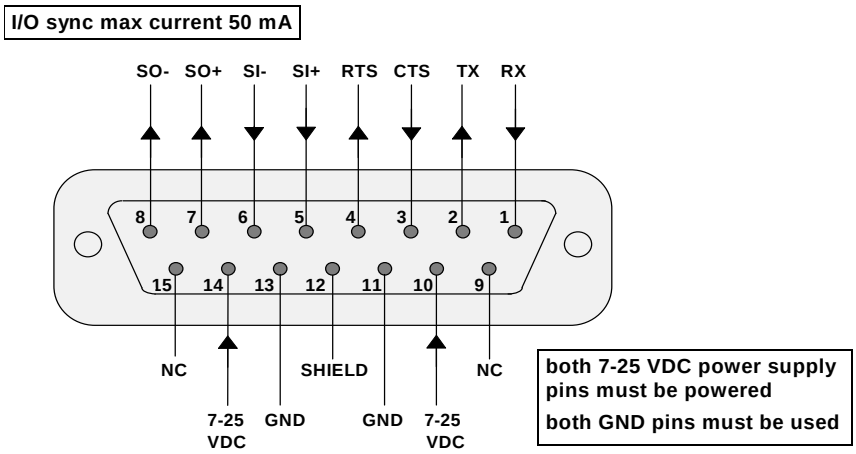


15-pin subD female connector

pin	function
1	**receive data (RS-232 C) / RX- (RS-422 / 485)**
2	**transmit data (RS-232 C) / TX- (RS-422 / 485)**
3	**clear to send (RS-232 C) / RX+ (RS-422 / 485)**
4	**request to send (RS-232 C) / TX+ (RS-422 / 485)**
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 10 Watt unregulated)**
11	**power ground**
12	**shield**
13	**power ground**
14	**power in (7 to 25 VDC 10 Watt unregulated)**
15	not connected

B. MaxiScan 3300 cable connector

RS-232 C



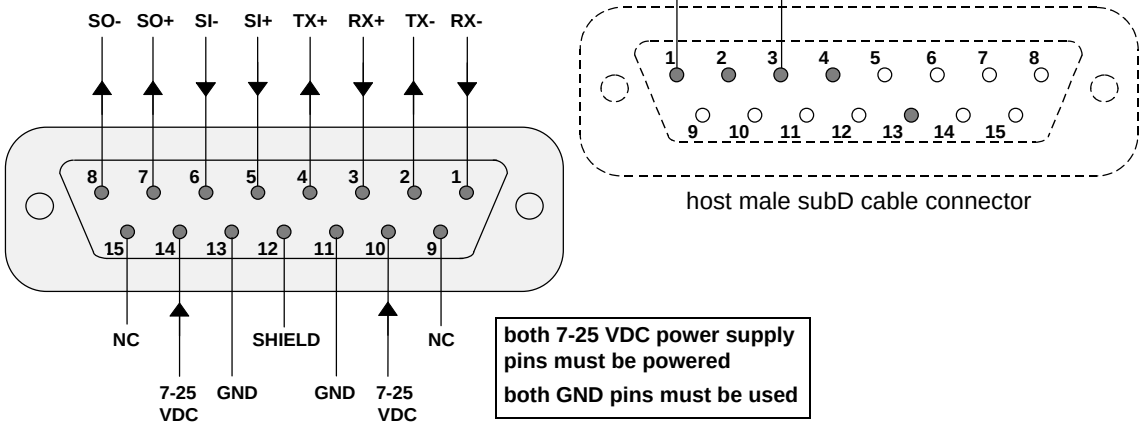
15-pin subD female connector

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	**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 10 Watt unregulated)**
11	**power ground**
12	**shield**
13	**power ground**
14	**power in (7 to 25 VDC 10 Watt unregulated)**
15	not connected

RS-422

RS-422: install resistor = 100 Ohm

I/O sync max current 50 mA



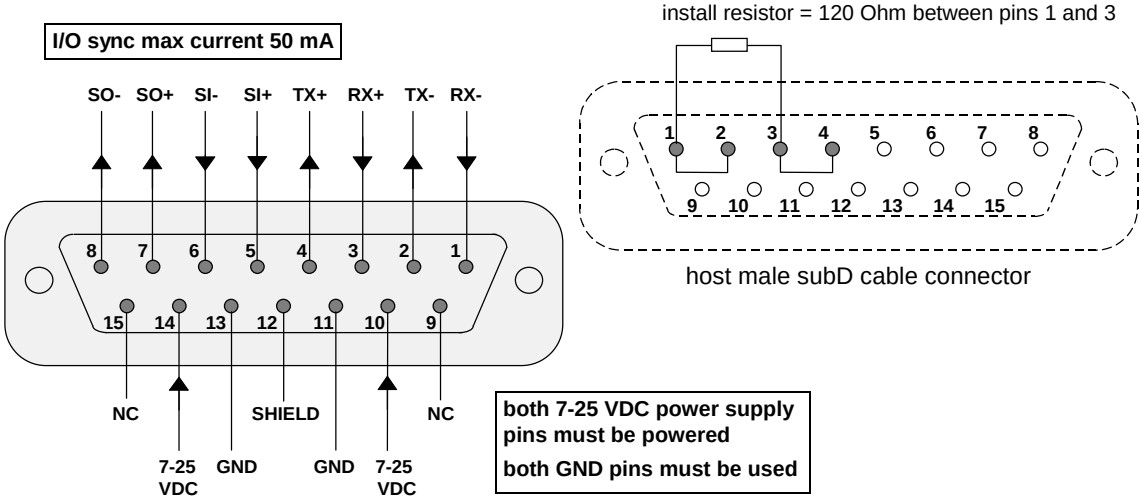
MaxiScan 3300 15-pin subD female connector

pin	function
1	**receive data RX- (RS-422)**
2	**transmit data TX- (RS-422)**
3	**receive data RX+ (RS-422)**
4	**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 10 Watt unregulated)**
11	**power ground**
12	**shield**
13	**power ground**
14	**power in (7 to 25 VDC 10 Watt unregulated)**
15	not connected

B. MaxiScan 3300 cable connector

RS-485

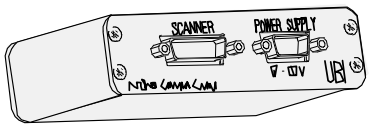
RS-485: connect pins 1 and 2 and connect pins 3 and 4
install resistor = 120 Ohm between pins 1 and 3



MaxiScan 3300 15-pin subD female connector

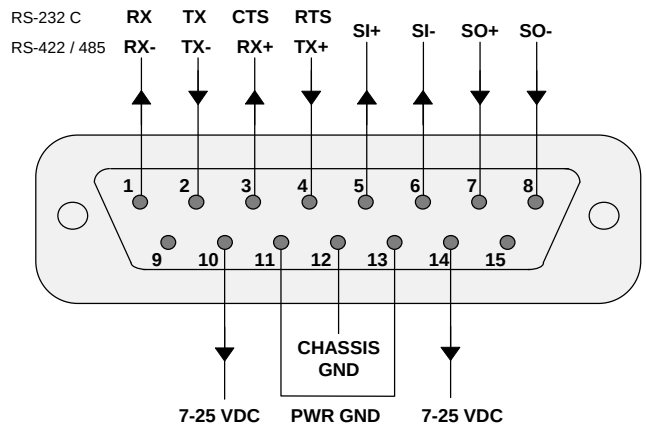
pin	function
1	**receive / transmit data RX- / TX- (RS-485)**
2	**receive / transmit data RX- / TX- (RS-485)**
3	**receive / transmit data RX+ / TX+ (RS-485)**
4	**receive / transmit data RX+ / TX+ (RS-485)**
5	**positive synchronization input (SI+)**
6	**negative synchronization input (SI-)**
7	**positive synchronization output (SO+)**
8	**negative synchronization output (SO-)**
9	not connected
10	**power in (7 to 25 VDC 10 Watt unregulated)**
11	**power ground**
12	**shield**
13	**power ground**
14	**power in (7 to 25 VDC 10 Watt unregulated)**
15	not connected

C MaxiScan Connexion System (MCS)



port	type	connection	remarks
SCANNER	15-pin subD male	MaxiScan 3300	-
POWER SUPPLY 7-25 V	9-pin subD male	external power supply	7-25 V 10 Watt full-wave rectified unregulated power
HOST	15-pin subD female	host computer	• RS-232 C (standard configuration) • RS-422 • RS-485 • Current Loop (requires MCS) each host system interface is software programmable and requires a different cable
SYNCHROS	9-pin subD female	I/O synchronization cable	• input synchronization—reading can be triggered by an external cell, automatic machine, electrical control device • output synchronization—an external device (switch, alarm, indicator light) can be triggered by a good read or unsuccessful read as required

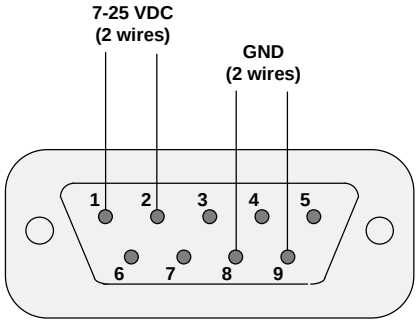
SCANNER port



15-pin subD male connector

pin	function
1	**receive data (RS-232 C) / RX- (RS-422 / 485)**
2	**transmit data (RS-232 C) / TX- (RS-422 / 485)**
3	**clear to send (RS-232 C) / RX+ (RS-422 / 485)**
4	**request to send (RS-232 C) / TX+ (RS-422 / 485)**
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 10 Watt unregulated)**
11	**power ground**
12	**shield**
13	**power ground**
14	**power in (7 to 25 VDC 10 Watt unregulated))**
15	not connected

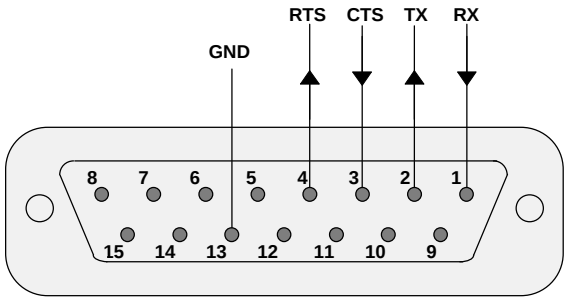
POWER SUPPLY 7-25V port



9-pin subD male connector

pin	function
1	**power in (7 to 25 VDC 10 Watt unregulated)**
2	**power in (7 to 25 VDC 10 Watt unregulated)**
3	not connected
4	not connected
5	not connected
6	not connected
7	not connected
8	**power ground**
9	**power ground**

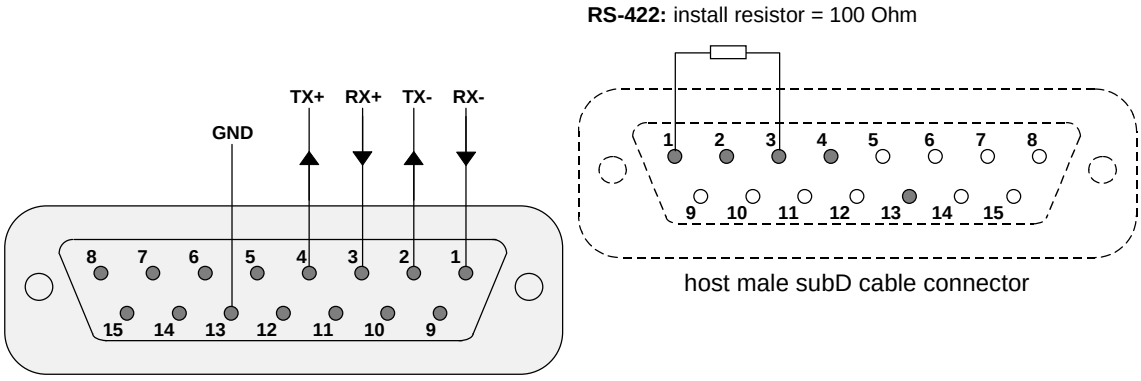
HOST port—RS-232 C



MCS 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—RS-422

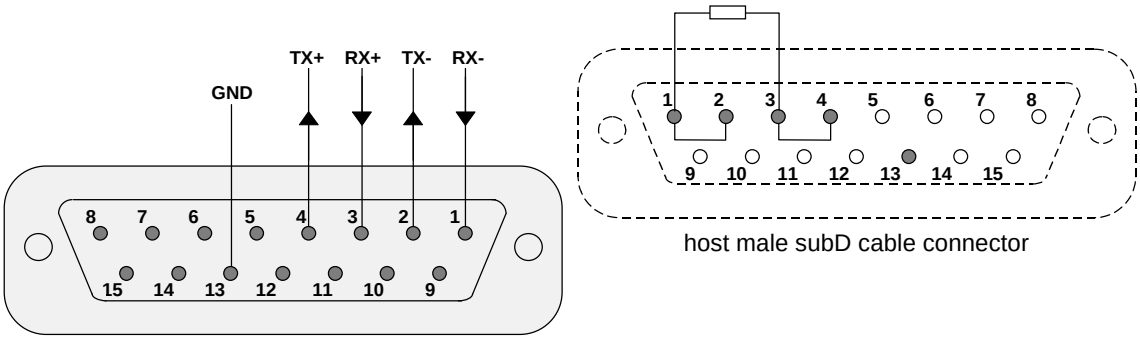


MCS 15-pin subD female connector

pin	function
1	**receive data RX- (RS-422)**
2	**transmit data TX- (RS-422)**
3	**receive data RX+ (RS-422)**
4	**transmit data TX+ (RS-422)**
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-422)**
14	reserved Current Loop
15	reserved Current Loop

HOST port—RS-485

RS-485: connect pins 1 and 2 and connect pins 3 and 4
install resistor = 120 Ohm between pins 1 and 3

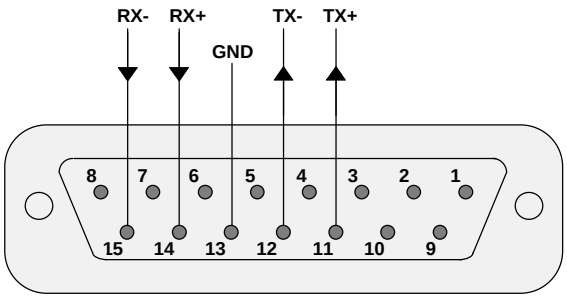


host male subD cable connector

MCS 15-pin subD female connector

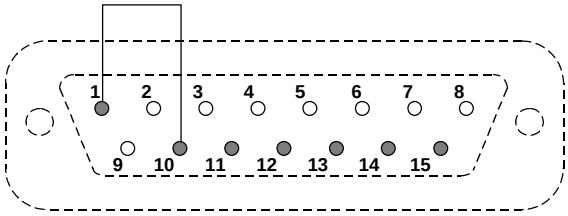
pin	function
1	**receive / transmit data RX- / TX- (RS-485)**
2	**receive / transmit data RX- / TX- (RS-485)**
3	**receive / transmit data RX+ / TX+ (RS-485)**
4	**receive / transmit data RX+ / TX+ (RS-485)**
5	not connected
6	not connected
7	not connected
8	not connected
9	not connected
10	reserved Current Loop
11	reserved Current Loop
12	reserved Current Loop
13	**signal ground (RS-485)**
14	reserved Current Loop
15	reserved Current Loop

HOST port—Current Loop (passive type)



MCS 15-pin subD female connector

Current Loop: connect pins 1 and 10

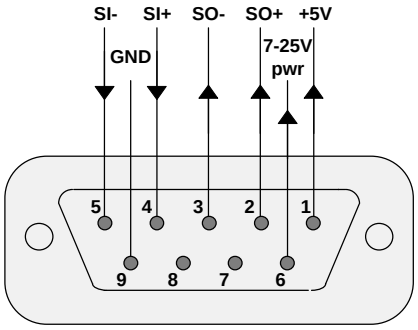


host male subD cable connector

pin	function
1	**reserved**
2	reserved RS-232 C / RS-422 / 485
3	reserved RS-232 C / RS-422 / 485
4	reserved RS-232 C / RS-422 / 485
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

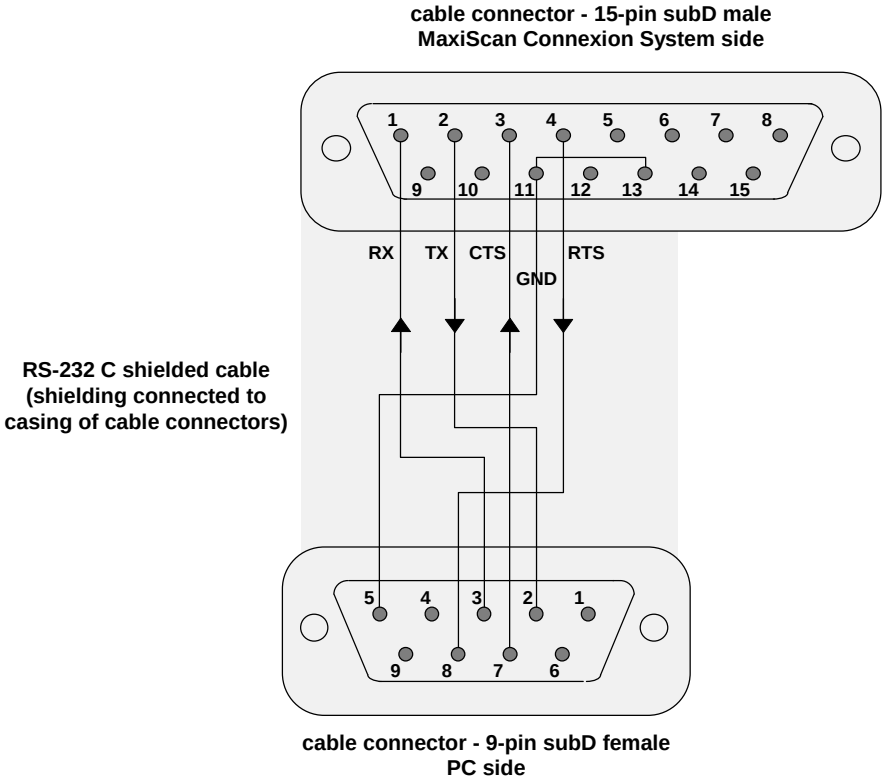
In all cases, the synchronization current provided by the external input/output device must be limited to 50 mA max (20 mA is a good average value).



9-pin subD female connector

pin	function
1	**+5 VDC out (65 mA max)**
2	**positive synchronization output (SO+) (50 mA max)**
3	**negative synchronization output (SO-) (50 mA max)**
4	**positive synchronization input (SI+) (50 mA max)**
5	**negative synchronization input (SI-) (50 mA max)**
6	**7-25 VDC 10 Watt**
7	not connected
8	not connected
9	**power ground**

D Standard RS-232 C cable



DB 15 male MaxiScan Connexion System side	signal	DB 9 female PC side
1	RX	3
2	TX	2
3	CTS	7
4	RTS	8
11-13	GND	5
connector casing	shielding	connector casing

D. Standard RS-232 C cable

E Input/output synchronization

Input synchronization—Hardware

MaxiScan 3300 trigger event

current on	the MaxiScan 3300 starts to read when current flows between inputs SI+ and SI- and remains active until the current stops flowing
current off	the MaxiScan 3300 starts to read when no current flows between inputs SI+ and SI- and remains active until current starts to flow
input pulse	the MaxiScan 3300 starts to read for a programmable duration when a change-of-state pulse is received through the SYNCHROS input

Output synchronization—Hardware

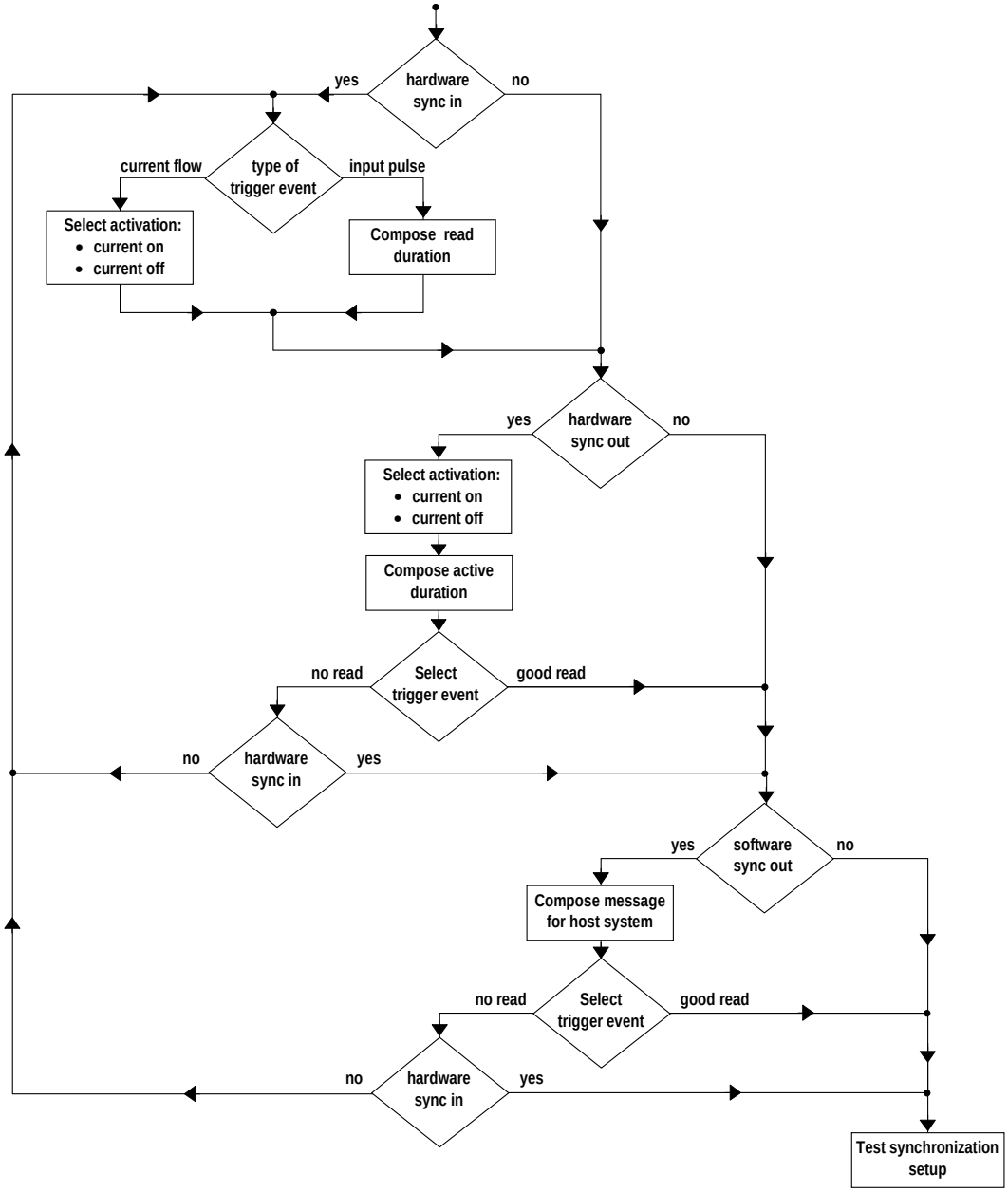
Hardware synchronization

Output device trigger event	
good read	the output device is activated after a good read
no read	the output device is activated if there is no successful read during an input synchronization reading session triggered by an input pulse (no read before the end of the read time-out)
Output device activation current	
current on	the MaxiScan 3300 allows current to flow between outputs SO+ and SO-
current off	the MaxiScan 3300 allows no current to flow between outputs SO+ and SO-

Output synchronization—Software

The MaxiScan 3300 can send a message to the host system after a read success or failure.

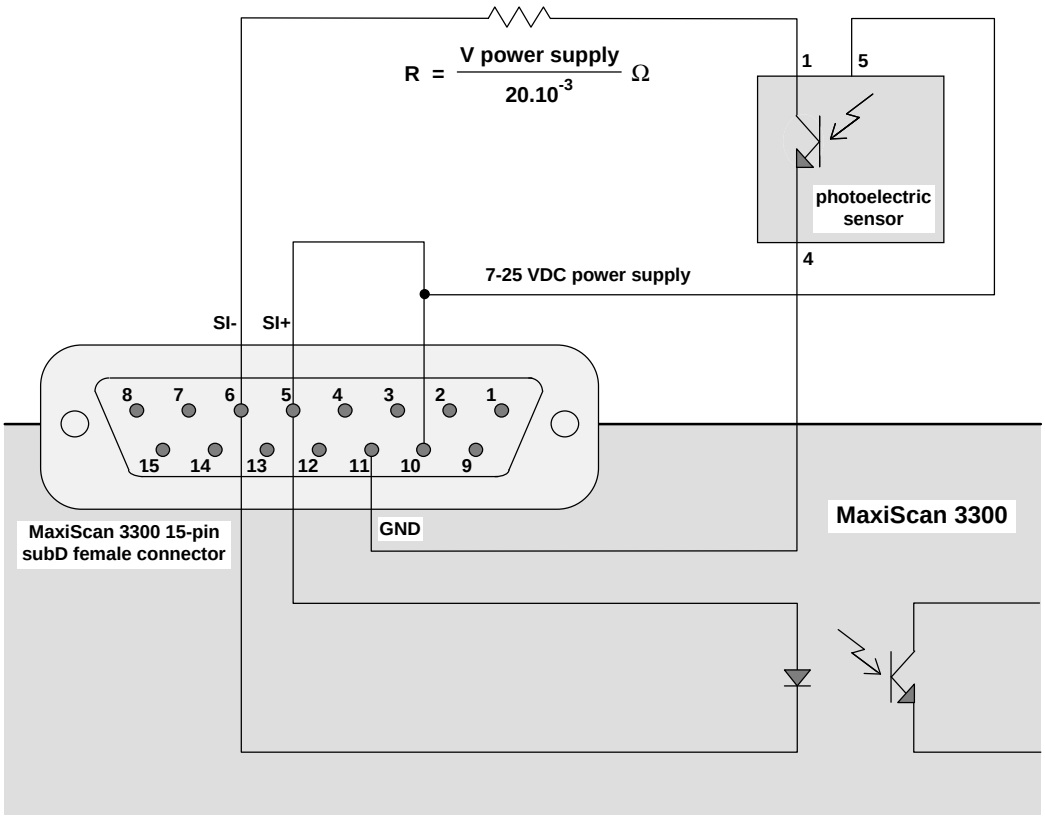
Synchronization flowchart



Examples

Input synchronization—Direct connection

Example: Reading triggered by an opto-coupled MLV 40-8/28 (VISOLUX) cell.

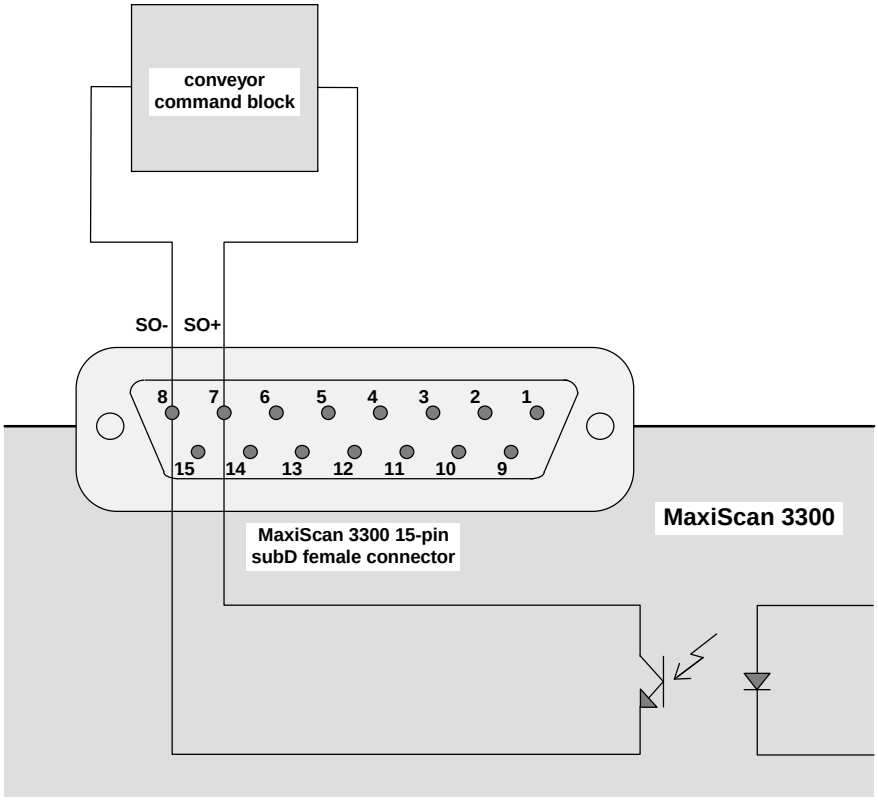


In all cases, the synchronization current provided by the external input device must be limited to 50 mA max (20 mA is a good average value).

E. Input/output synchronization

Output synchronization—Direct connection

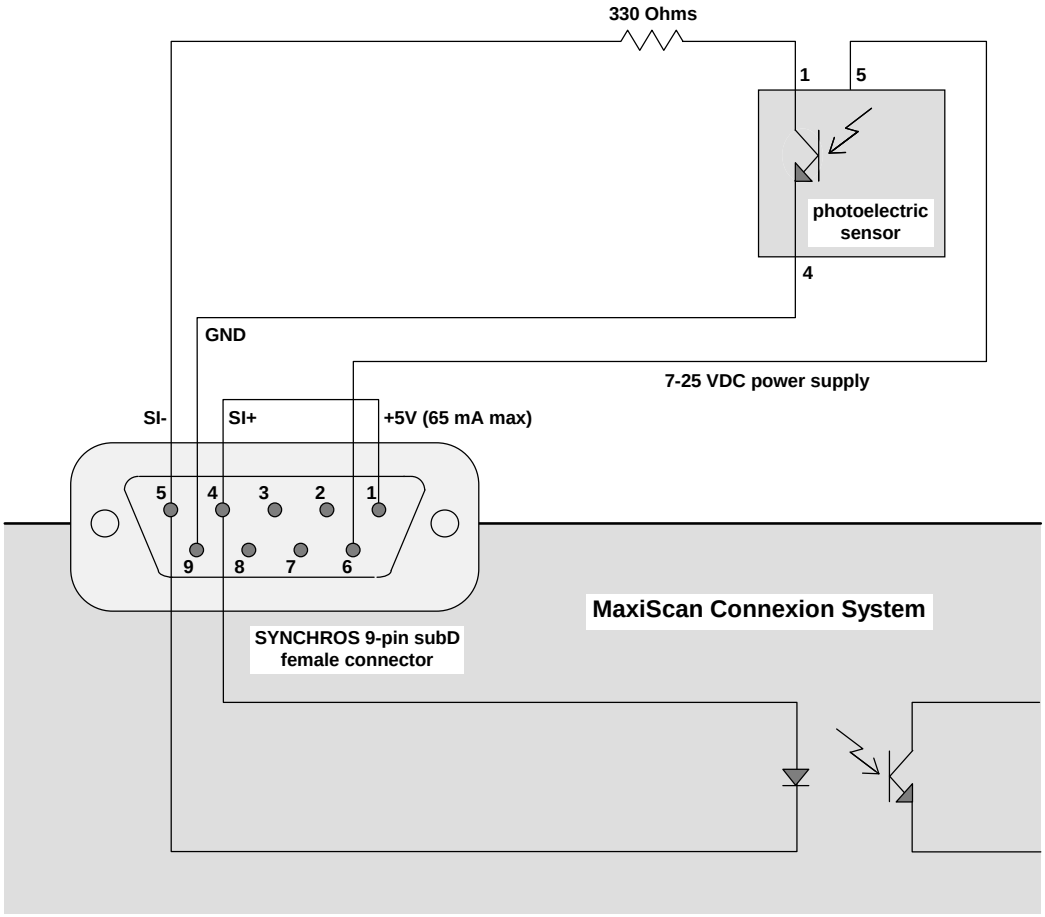
Example: Opto-coupled control output.



The synchronization current provided by the external output device must be limited to 50 mA max (20 mA is a good average value).

Input synchronization—MCS connection unit

Example: Reading triggered by an opto-coupled MLV 40-8/28 (VISOLUX) cell.

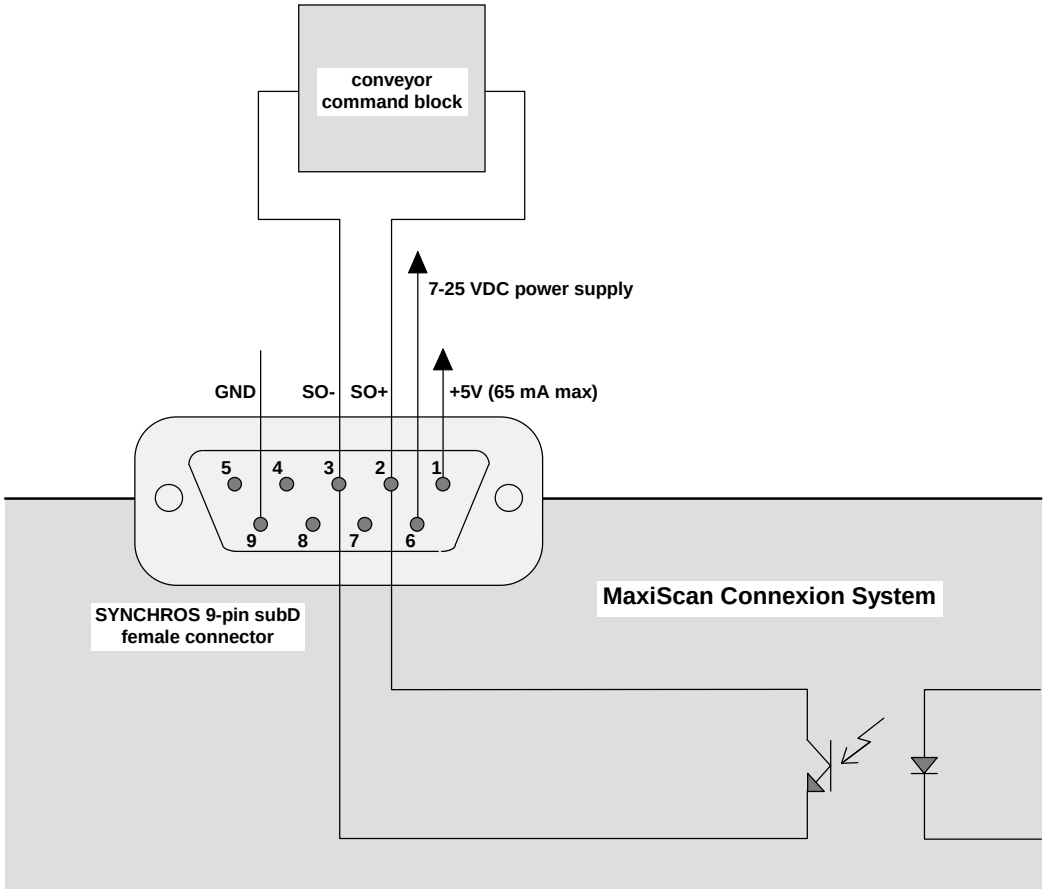


In all cases, the synchronization current provided by the external input device must be limited to 50 mA max (20 mA is a good average value).

E. Input/output synchronization

Output synchronization—MCS connection unit

Example: Opto-coupled control output.



The synchronization current provided by the external output device must be limited to 50 mA max (20 mA is a good average value).

F If you have a problem . . .

This appendix describes things you can try if you have problems with your MaxiScan 3300 during power-up, configuration and normal operation.

If you can not solve the problem yourself, please contact your UBI representative.

Before you contact your UBI representative . . .

Look in the following checklists if you have any of the following problems:

- no LEDs
- no beeps
- error beeps
- no transmission
- incorrect transmission

Setup problems—Checklist

- ☐ system connected up correctly
- ☐ system switched on
- ☐ correct power-up beep indication—2 beeps
- ☐ default **configuration inhibit after 1 minute** option is active—if you are using a setup sheet, you must switch off / switch on the MaxiScan 3300 to be able to read configuration codes if the 1-minute configuration timeout has expired

F. If you have a problem . . .

Reading problems—Checklist

- ☐ correct symbologies selected for the bar codes you are trying to read
- ☐ symbologies you read are available for your MaxiScan 3300
- ☐ all unnecessary symbologies disabled
- ☐ **continuous configuration mode** disabled (**configuration inhibit after 1 minute** selected)
- ☐ barcode length compatible with minimum / fixed length parameter settings of MaxiScan 3300
- ☐ MaxiScan 3300 configured for check digit and no check digit present in code
- ☐ barcode quality, damaged or poorly printed codes, "fragile" symbologies—read the appropriate test code to see if there is a problem with the symbology (Appendix G)

Transmission problems—Checklist

- ☐ all unnecessary symbologies disabled
- ☐ **continuous configuration mode** disabled (**configuration inhibit after 1 minute** selected)
- ☐ correct RS-232 data transmission settings selected
- ☐ inter-character delay value required if transmitted data incomplete or incorrect

Try a general reset of the MaxiScan 3300 . . .

If you do not find a solution after checking the above points, you can try a general reset of the MaxiScan 3300.

Reset Factory Defaults resets all the MaxiScan 3300 operating parameters to their factory default settings:

- default RS-232 C data transmission settings,
- default symbologies and symbology settings,
- default MaxiScan 3300 operating settings (scan patterns, contrast level, resolution adjustment (video channel selection), . . .).

After a general reset, you will have to re-enter any custom settings if applicable.

1. Disconnect the MaxiScan 3300 power supply.
2. Prepare the MaxiScan 3300 for online setup—connect the standard RS-232 C cable between the HOST port of the MaxiScan Connexion System and the serial port of your PC if it is not already connected.
3. Position the Reset Factory Defaults code at a good reading distance in front of the MaxiScan 3300 and reconnect the MaxiScan 3300 power supply.

Reset Factory Defaults

4. Start up the EasySet System configuration software.
5. Use EasySet System to download your complete setup to the MaxiScan 3300 (see section 5, *Setting up your MaxiScan 3300*).

If you still have a problem . . .

Contact your UBI representative and give full details of the problem.

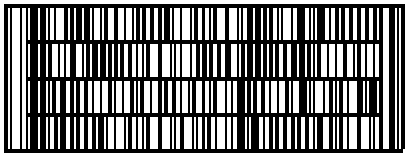
F. If you have a problem . . .

G Test codes

Codabar

123456

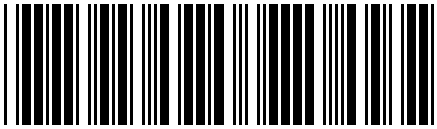
Codablock F



UBI ScanPlus XP and XP PDF
CCD Bar Code Scanners

G. Test codes

Code 39

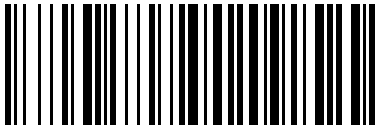


CODE-39

Code 93

CODE-93

Code 128



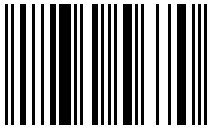
CODE-128

EAN 128

(]C1)EAN 128

G. Test codes

EAN-8



12345670

EAN-13

1234567890128

UPC-E

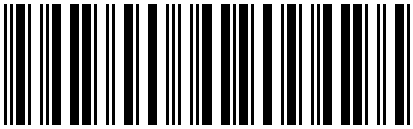
UPC-A

G. Test codes

Standard 2 of 5

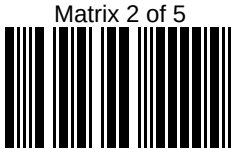
123456

Interleaved 2 of 5



12345678901234

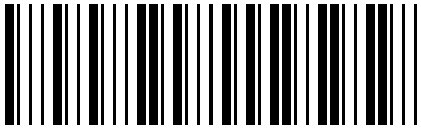
Matrix 2 of 5



012345

G. Test codes

MSI Code



12345666

Plessey Code

80001495050

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MS/3300/IG/10/E/970831 UBI Part Number: 0-530049-01-10