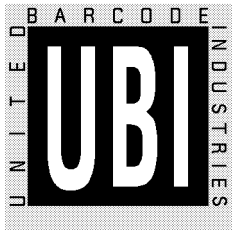

MaxiScan 2200

Reference Manual

Preliminary Edition

January 1997

MS/2200/RM/00/E/970131

Notice

The MaxiScan 2200 will operate in complete safety when used as specified in official UBI MaxiScan 2200 documentation.

Complies with US DHHS Standard 21CFR1040.10 and 1040.11 as a:
Class IIa Laser Product
Avoid long term viewing of direct laser light.
Eviter toute exposition prolongée de la vue
au rayonnement laser direct.
Augen vor direktem Laserlicht schützen.
IEC 825 Class 1 Laser Product
Appareil Laser de Class 1
Laser-Produkt der Klasse 1
Caution - Laser light when open - Do not stare into beam
Attention - Rayonnement Laser -
En cas d'ouverture ne pas regarder dans le faisceau
Vorsicht! Laserlicht bei geöffnetem Gehäuse -
Nicht in den Strahl starren
Input Voltage: 5.5 to 7 V

The MaxiScan products described in this manual comply with CE directives for electromagnetic emission levels and electrical immunity in commercial, light industry and office environments.

MS/2200/RM/00/E/970131

Contents

The topics in this manual are presented in alphabetical order for easy access. Use the *Contents* for a quick overview if you do not know where to find a particular item.

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ASCII character codes

NUL (00h)

SOH (01h)

Code Length = 1

You can use ASCII codes 1 (01h) to 30 (1Eh) to enter barcode length values directly instead of using the number codes (➔ *Symbologies - Barcode length and data security*):

1. Scan Compose Minimum Length or Compose 1 Or 2 Or 3 Fixed Lengths for your symbology (➔ *Barcode length* for your symbology).
2. Scan the ASCII code corresponding to the minimum length or scan 1, 2 or 3 ASCII codes corresponding to the fixed barcode lengths in your application
3. Scan End Selection to finish.

End Selection

STX (02h)

Code Length = 2

ETX (03h)

Code Length = 3

ASCII character codes

EOT (04h)

Code Length = 4

ENQ (05h)

Code Length = 5

End Selection

ACK (06h)

Code Length = 6

BEL (07h)

Code Length = 7

BS (08h)

Code Length = 8

HT or TAB (09h)

Code Length = 9

End Selection

LF (0Ah)

Code Length = 10

VT (0Bh)

Code Length = 11

ASCII character codes

FF (0Ch)

Code Length = 12

CR (0Dh)

Code Length = 13

End Selection

SO (0Eh)

Code Length = 14

SI (0Fh)

Code Length = 15

DLE (10h)

Code Length = 16

DC1 (11h)

Code Length = 17

End Selection

DC2 (12h)

Code Length = 18

DC3 (13h)

Code Length = 19

ASCII character codes

DC4 (14h)

Code Length = 20

NAK (15h)

Code Length = 21

End Selection

SYN (16h)

Code Length = 22

ETB (17h)

Code Length = 23

CAN (18h)

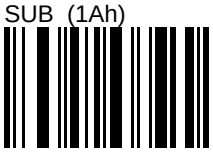
Code Length = 24

EM (19h)

Code Length = 25

End Selection

SUB (1Ah)



Code Length = 26

ESC (1Bh)

Code Length = 27

ASCII character codes

FS (1Ch)

Code Length = 28

GS (1Dh)

Code Length = 29

End Selection

RS (1Eh)

Code Length = 30

US (1Fh)

SP (20h)

! (21h)

End Selection

" (22h)

(23h)

ASCII character codes

$ (24h)

% (25h)

End Selection

& (26h)

’ (27h)

((28h)

) (29h)

End Selection

* (2Ah)

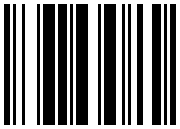
+ (2Bh)

ASCII character codes

, (2Ch)

- (2Dh)

End Selection



. (2Eh)

/ (2Fh)

0 (30h)

1 (31h)

End Selection

2 (32h)

3 (33h)

ASCII character codes

4 (34h)

5 (35h)

End Selection

6 (36h)

7 (37h)

8 (38h)

9 (39h)

End Selection

: (3Ah)

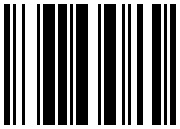
; (3Bh)

ASCII character codes

< (3Ch)

= (3Dh)

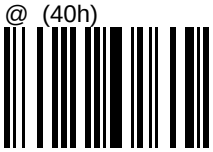
End Selection



> (3Eh)

? (3Fh)

@ (40h)



A (41h)

End Selection

B (42h)

C (43h)

ASCII character codes

D (44h)

E (45h)

End Selection

F (46h)

G (47h)

H (48h)

I (49h)

End Selection

J (4Ah)

K (4Bh)

ASCII character codes

L (4Ch)

M (4Dh)

End Selection

N (4Eh)

O (4Fh)

P (50h)

Q (51h)

End Selection

R (52h)

S (53h)

ASCII character codes

T (54h)

U (55h)

End Selection

V (56h)

W (57h)

X (58h)

Y (59h)

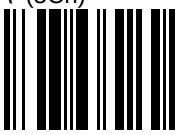
End Selection

Z (5Ah)

[(5Bh)

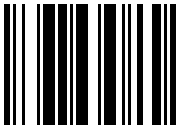
ASCII character codes

\ (5Ch)



] (5Dh)

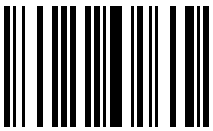
End Selection



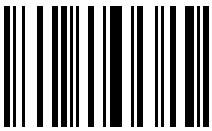
^ (5Eh)

_ (5Fh)

‘ (60h)



a (61h)



End Selection

b (62h)

c (63h)

ASCII character codes

d (64h)

e (65h)

End Selection

f (66h)

g (67h)

h (68h)

i (69h)

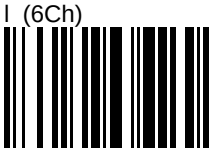
End Selection

j (6Ah)

k (6Bh)

ASCII character codes

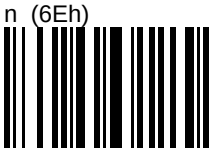
l (6Ch)



m (6Dh)

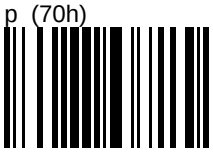
End Selection

n (6Eh)



o (6Fh)

p (70h)



q (71h)

End Selection

r (72h)

s (73h)

ASCII character codes

t (74h)

u (75h)

End Selection

v (76h)

w (77h)

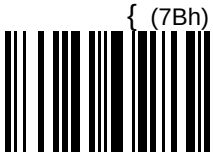
x (78h)

y (79h)

End Selection

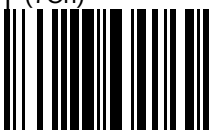
z (7Ah)

{ (7Bh)



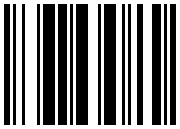
ASCII character codes

| (7Ch)



} (7Dh)

End Selection



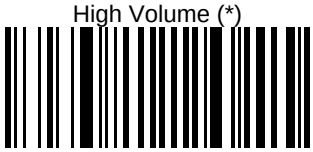
~ (7Eh)

DEL (7Fh)

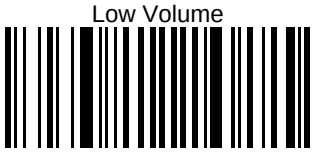
Beeps

Beeper volume

High Volume (*)



Low Volume



Beeps

Beeper note (tone frequency)

High (2093.04 Hz, 478 µs) (*)

Low (1318.52 Hz, 758 µs)

Medium (1760 Hz, 568 µs)

Power-up beeps

Power-Up Beeps On (*)

Two beeps indicate that the power-up sequence has been completed.

Three long beeps at power-up indicate an EEPROM integrity error. If this occurs, contact your UBI representative.

Power-Up Beeps Off

Beeps

Good read beeps

By default, a single short beep (80 ms) indicates that the barcode has been read successfully.
If Beep After Transmission is selected, the same beep indicates that the bar code has been read and transmitted to the host system.

Number of good read beeps

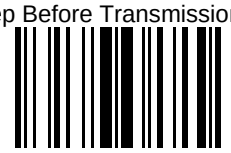
1 Good Read Beep (*)

2 Good Read Beeps

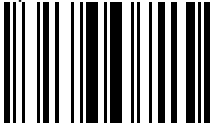
No Good Read Beep

Timing of good read beeps

Beep Before Transmission (*)



Beep After Transmission



Beeps

Duration of good read beeps

80 ms Beep Duration (*)

60 ms Beep Duration

200 ms Beep Duration

300 ms Beep Duration

Compose good read beep duration

Compose Beep Duration (0 to 999 ms)

Example	To make each beep last for half a second (500 ms): 1. Scan Compose Beep Duration. 2. Scan 5 0 0 and scan End Selection to finish (➔ *Number codes* or appendix at the end of this manual).

Beeps

Configuration beeps

The MaxiScan 2200 has special beeps for the configuration bar codes provided in this manual.

success Two beeps indicate that the selection has been accepted by the MaxiScan 2200.

error Six short beeps indicate a setup error (incorrect configuration code) for the selected interface type:

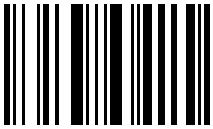
- option not available,
- interface number not available,
- optional feature not implemented,
- commands not read in the correct order,
- other setup errors.

Three long beeps during configuration indicate an EEPROM integrity error. If this occurs, contact your UBI representative.

Code mark

Code mark activation

Code Mark Not Transmitted (*)



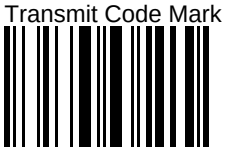
Transmit Code Mark enables transmission of current settings of code marks—barcode symbology identifying characters—for all the symbologies supported.

Transmit Code Mark + Barcode Length transmits 2 decimal digits after the code mark to indicate the length of the code read.

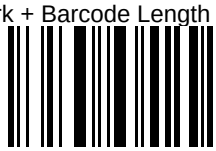
Code marks are transmitted after the preamble if present and before the barcode data.

Code marks should only be activated for keyboard wedge and RS-232 interfaces.

Transmit Code Mark



Transmit Code Mark + Barcode Length



Code mark

Default code mark values—Keyboard wedge and RS-232 interfaces

Use the Compose Code Mark codes on the next pages to modify the default code marks

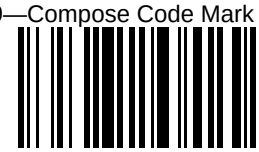
Code marks should only be modified for keyboard wedge and RS-232 interfaces.

symbology	default code mark
Codabar	N
Code 39	M
Code 128 / EAN 128	M
Interleaved 2 of 5	I
Matrix 2 of 5	?
Standard 2 of 5	H
MSI Code	M
Plessey Code	M
UPC-A	A
UPC-E	E
EAN-8	FF
EAN-13	F

Composing custom code marks

Codabar—Compose Code Mark

Code 39—Compose Code Mark



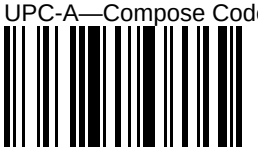
1. Select the Compose Code Mark code for your symbology.
2. Scan an identifying character and scan End Selection to finish (➔ *ASCII character codes*).

Compose code marks for keyboard wedge and RS-232 interfaces only.

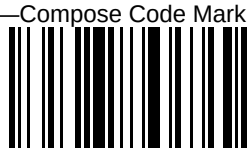
Code 128 / EAN 128—Compose Code Mark

Code mark

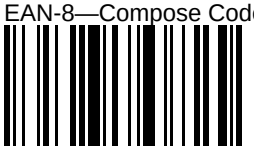
UPC-A—Compose Code Mark



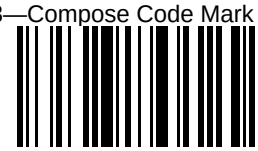
UPC-E—Compose Code Mark



EAN-8—Compose Code Mark

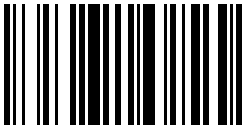


EAN-13—Compose Code Mark

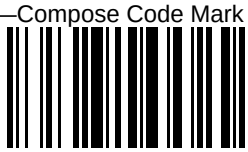


Code mark

Interleaved 2 of 5—Compose Code Mark



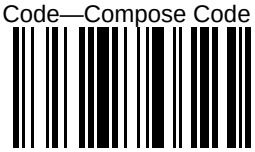
Matrix 2 of 5—Compose Code Mark



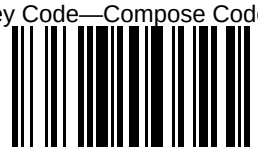
Standard 2 of 5—Compose Code Mark

Code mark

MSI Code—Compose Code Mark



Plessey Code—Compose Code Mark



Compose interface number

Which interface number?

To know which interface number to enter, check the following points in the order shown:

1. Look to see if there is a suitable number in the *Predefined interface numbers* section for your interface.
2. Look to see if your configuration is described in the *MaxiScan 2200 Terminal List* (if available).
3. If you still do not know which number to enter, contact your UBI representative.

Compose interface number

Composing an interface number

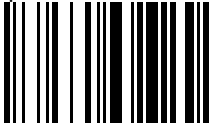
Entering an interface number usually only modifies data transmission parameter settings but in some special cases, other parameter settings (beep settings, symbologies, etc.) may be modified for specific interface configurations.

The MaxiScan 2200 will only accept interface numbers that are compatible with its hardware configuration (I/O board and cable)—if you try to enter a number for a different interface, you will hear 6 error beeps. If necessary, check the interface of your MaxiScan 2200 model (➔ *Interfaces*).

Example To enter the number 102:

1. Scan Compose Interface Number on the next page.
2. Scan each digit of your interface number using the number codes—in our example we would scan 1, then 0, then 2—and scan End Selection to finish (➔ *Number codes* or appendix at the end of this manual)

Compose Interface Number



Concatenating configuration bar codes

What is a configuration bar code?

All the configuration codes in this Reference Manual are Code 128 bar codes with a special terminator character—FNC3, data string \60—to indicate that the code is a configuration code.

Why concatenate?

In order to configure the MaxiScan 2200 for a given installation, you may need to read a number of configuration codes one after the other—and you may need to do this for each MaxiScan 2200 you have to install and set up.

Many of the configuration bar codes in this manual can be concatenated (combined) to form a single custom bar code which corresponds to your own particular setup configuration—you then only need to read 1 or 2 concatenated codes instead of a whole series of codes.

Limitations

Do not create concatenated codes wider than the maximum reading width of your MaxiScan 2200 product—approximately 20 cm (8").

If you need to create more than one code for a series of configuration codes, always end each concatenated code with a complete configuration code—not a partial code—and the FNC3 terminator.

You can not concatenate configuration codes that use the *Number codes* to compose numerical values.

How to concatenate

1. Identify the list of codes you want to concatenate and the order of concatenation—the codes should be concatenated in the same order as you would read them individually.

Concatenating configuration bar codes

Example	If you need to enter Reset Factory Defaults, put this code at the beginning.

2. Obtain the data strings for the codes you want to concatenate (➔ *Parameter list / data strings*).

Example	For the following codes, you will obtain the following strings:	
	reset factory defaults	\46\42\60
	N° 100 - Standard RS-232 C (9600, 7, E, 2)	\41\4A\01\24\60
	Codabar active	\41\52\60
	2 good read beeps	\45\4A\01\60

You can also obtain the data strings by putting the MaxiScan 2200 into Display Data String mode and reading the configuration codes of your choice (➔ *Configuration modes—Display data strings*). However, the strings displayed include a check digit after the \60 end-of-code character which you must also remove when you concatenate the codes.

3. Use the individual data strings to create a single data string and remove the \60 end-of-code characters for each code except the last code in the string.

Example	For the codes listed in the previous example, you will obtain the following concatenated string: \46\42\41\4A\01\24\41\52\45\4A\01\60

4. If necessary, convert the hexadecimal values and backslash separators into suitable values for your barcode printing sofware (ASCII values for example).

The data strings contain hexadecimal values separated by backslashes.

Make sure that the values you use with your software correspond to these values.

Example: Instead of the hexadecimal value \41, you may need to use the equivalent ASCII character "A" (do not use the decimal value 41 !).

Configuration modes

Configuration authorization modes

Configuration enable mode

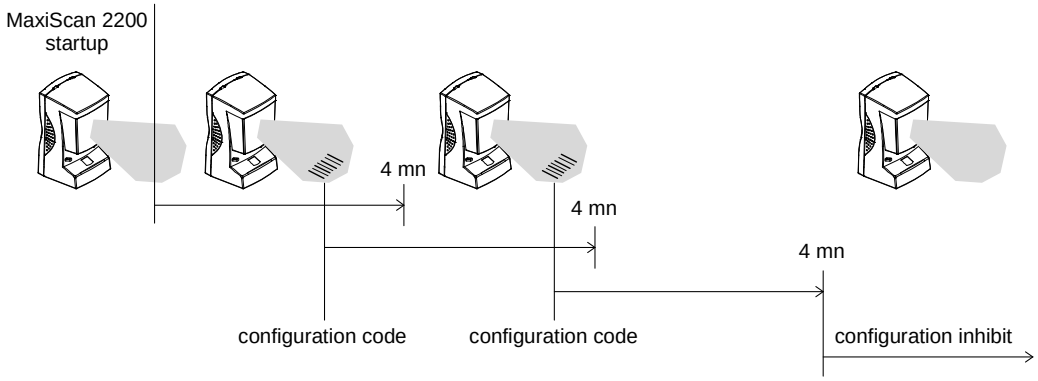
Configuration Enable Mode (*)

Configuration Enable Mode allows you to configure your MaxiScan 2200 at all times.

Configuration inhibit after 4 mn

Configuration Inhibit After 4 mn protects the MaxiScan 2200 from unintentional configuration actions—configuration is inhibited if no configuration codes are read during the first 4 minutes after power-up.

Each time a configuration code is read within 4 minutes, configuration is enabled for another 4 minutes.



Configuration Inhibit After 4 mn

Configuration modes

Temporary configuration mode

Temporary Configuration Mode

Temporary Configuration Mode allows you to test new configuration settings without losing your current configuration setup.

Temporary configuration mode remains active until you select Restore/Update Current Configuration or until you switch off the MaxiScan 2200.

Restore current configuration

Restore Current Configuration quits temporary configuration mode and returns the MaxiScan 2200 to its current configuration settings.

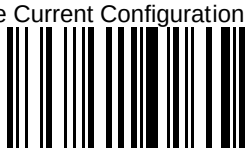
Update current configuration

Update Current Configuration replaces the current configuration settings with the new settings entered in temporary configuration mode.

The MaxiScan 2200 quits temporary configuration mode.

Restore Current Configuration

Update Current Configuration



Display data string mode

Display Data String Mode allows you to display the data string values for configuration bar codes on a terminal screen. The configuration codes in this manual are in Code 128 format.

Data string values are displayed in hexadecimal and are separated by backslashes or other characters depending on your terminal emulation setup.

Data string values are useful if you want to concatenate configuration bar codes (➔ *Concatenating configuration bar codes*) or if you want to send commands directly from an RS-232 terminal to the MaxiScan 2200 in monitor mode (➔ *RS-232—Monitor mode*).

Display Data String Mode remains active until you switch off the MaxiScan 2200.

Example

1. Scan Display Data String Mode.
2. Read a configuration bar code—the Code 39 activation code (➔ *Symbologies—Code 39*) for example.

The data string for Code 39 activation will be displayed on your terminal screen:

\41\4C\60

Display Data String Mode

Data decoding security parameters

Description

Data decoding security parameters allow you to ensure that the MaxiScan 2200 transmits the correct data after decoding, whatever the reading conditions or quality of the bar codes read.

Predefined security levels

The Normal Security Level optimizes the reading speed for most situations.

Only select Medium and High Security Levels when using poor-quality bar codes or for critical applications.

The predefined security level parameters can be modified individually.

Increasing the level of security reduces the reading speed.

Data security and barcode length

The reliability of the barcode data transmitted can depend on the symbologies used—some symbologies are more "fragile" than others and errors may occur due to incorrect interpretation of code lengths.

You can configure the MaxiScan 2200 to transmit data for codes of 1, 2 or 3 fixed lengths only or codes with a known minimum length (➔ *Symbologies - Barcode length and data security*).

If you use the Compose Minimum Length option, we recommend that you use a check digit and the *Consecutive same read data validation* feature provided below to ensure that the same read result is obtained on 2 or more successive reads before the read is validated.

Predefined security levels

Normal Security Level (*)

Normal security level

Single Read Before Transmission—500 ms Between Identical Consecutive Codes—500 ms Between Different Consecutive Codes

Medium security level

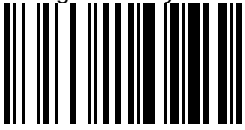
2 Consecutive Same Reads Before Transmission—500 ms Between Identical Consecutive Codes—500 ms Between Different Consecutive Codes

High security level

3 Consecutive Same Reads Before Transmission—500 ms Between Identical Consecutive Codes—500 ms Between Different Consecutive Codes

Medium Security Level

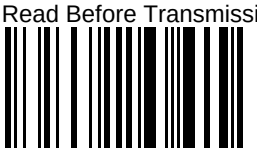
High Security Level



Data decoding security parameters

Consecutive same read data validation

Single Read Before Transmission (*)



Compose number of consecutive same reads before transmission

Consecutive same read data validation is useful when increased data security is required—poorly printed codes, codes with variable lengths and without check digits, "fragile" barcode types.

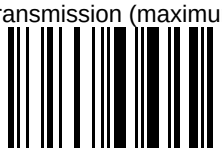
By default, transmission occurs after a single successful read.

To increase the reliability of the data transmitted, you can set the MaxiScan 2200 to validate the data before transmission—it will only transmit data after a specified number of successful consecutive reads have given the same result.

Increasing the number of consecutive same reads before transmission decreases the decoding rate.

Example	To make your MaxiScan 2200 read the same code successfully 5 times before it can transmit it: 1. Scan Compose Number of Consecutive Same Reads. 2. Scan 5 and scan End Selection to finish (➔ *Number codes* or appendix at the end of this manual).

Compose Number of Consecutive Same Reads
Before Transmission (maximum = 255)



Timeout between identical consecutive codes

500 ms Between Identical Consecutive Codes (*)

Compose timeout between identical consecutive codes

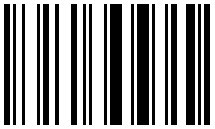
By default, you can only read identical consecutive codes after a timeout between reads of 500 ms.

Increasing the timeout before you can read another identical code protects against unwanted reading of the same bar code.

This timeout should not be shorter than the Timeout Between Different Consecutive Codes.

Example	To make your MaxiScan 2200 wait 1 second (= 1000 ms) before it can read the same code again: 1. Scan Compose Timeout Between Identical Consecutive Codes. 2. Scan 1 0 0 0 and scan End Selection to finish (➔ *Number codes* or appendix at the end of this manual).

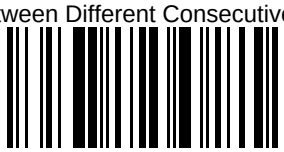
Compose Timeout Between Identical Consecutive Codes
(maximum timeout = 65 535 ms)



Data decoding security parameters

Timeout between different consecutive codes

500 ms Between Different Consecutive Codes (*)



Compose timeout between different consecutive codes

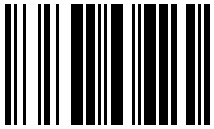
By default, you can only read different consecutive codes after a timeout between reads of 500 ms.

Increasing the timeout before you can read a different code protects against unwanted reading of other bar codes if they are close together on the same label.

This timeout should not be longer than the Timeout Between Identical Consecutive Codes.

Example	To make your MaxiScan 2200 wait 1 second (= 1000 ms) before it can read a different code: 1. Scan Compose Timeout Between Different Consecutive Codes. 2. Scan 1 0 0 0 and scan End Selection to finish (➔ *Number codes* or appendix at the end of this manual).

Compose Timeout Between Different Consecutive Codes
(maximum timeout = 65 535 ms)



Default parameter settings

Factory default settings for the MaxiScan 2200 configuration parameters are indicated by "*" in this manual.

Use the Reset Factory Defaults code to reset all the MaxiScan 2200 parameters to their factory default settings (➔ *Reset all configuration parameters*).

➔ *Parameter list / data strings* provides the full list of parameters including default settings.

Error messages

Display EEPROM Error Messages

The MaxiScan 2200 stores operating error messages in an internal EEPROM. Display EEPROM Error Messages displays these messages on the host terminal screen if applicable (keyboard wedge, RS-232 C and RS-232 TTL).
Delete EEPROM Error Messages clears the messages currently stored in the EEPROM.

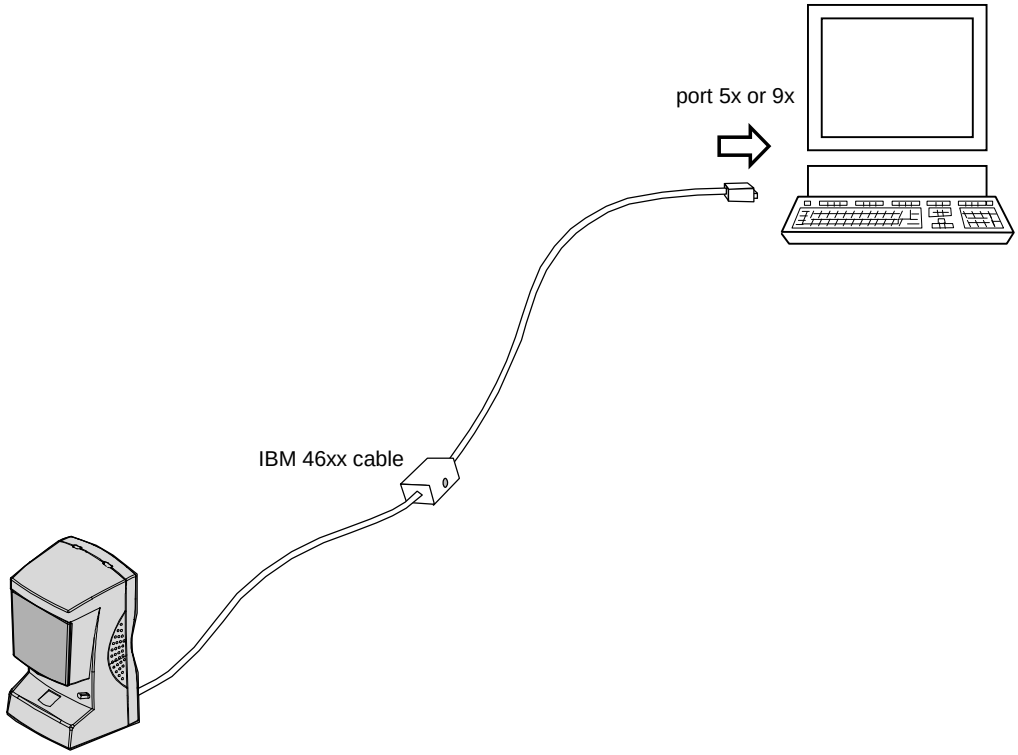
Delete EEPROM Error Messages

Glossary

data transmission parameters	interface-specific communication parameters—in certain cases they need to be modified to optimize the performance of the MaxiScan 2200
dual RS-232 C	MaxiScan 2200 connected between two systems communicating through an RS-232 link (external power supply necessary)
external power supply	6V mains power supply adapter—necessary if the host system does not provide enough electrical power to drive the MaxiScan 2200
interface number	automatically configures your MaxiScan 2200 by setting interface-specific parameters—in particular data transmission parameters—to suit your operating environment
keyboard wedge	MaxiScan 2200 connected between a keyboard and the host system—data from the MaxiScan 2200 is transmitted in keyboard emulation mode to provide instant software compatibility (external power supply necessary)
operating parameters	parameters that affect the way the MaxiScan 2200 operates—general operating parameters include resolution adjustment (video channel selection), depth of field, scan rate, standby mode settings, beep characteristics
symbology	bar code type or "family"—Code 39, UPC and EAN are examples of common symbologies

IBM 46xx cash registers

Connection



1. Switch off the host system.
2. Use the IBM 46xx cable to connect the MaxiScan 2200 to the host system.

Predefined interface numbers

N° 110 - IBM 46xx cash registers—Port 9x

If your interface number is not among the predefined interface numbers, you must compose the number yourself (➔ *Compose interface number*).

The orange indicator LED of MaxiScan 2200 models configured for IBM cash registers will flash 3 times at power-up.

Configuration is independent of the physical link with the cash register—you can configure the MaxiScan 2200 for Port 9x or Port 5x as required by the host system.

N° 111 - IBM 46xx cash registers—Port 5x

IBM 46xx cash registers

Predefined data transmission settings

Predefined settings for IBM 46xx cash registers - Interface N° 110 / N° 111

The main predefined parameter settings for IBM 46xx cash registers depend on cash register protocols and can not be modified.

Transmission delay

➔ *Inter-message delay*

Installation procedure

The *MaxiScan 2200 Installation Guide* tells you step by step how to install and set up your MaxiScan 2200 to operate successfully in most working situations.

General installation / configuration procedure

1. Check you have everything you need (➔ *Product checklist*).
2. Switch off the host system and connect up your MaxiScan 2200 (➔ *Connection* for your interface).
3. Switch on the host system.
4. Scan the interface number for your system (➔ *Predefined interface numbers* for your interface or *Compose interface number*).
5. Customize the data transmission settings for your interface if required (➔ *Data transmission parameters* for your interface).
6. Select the symbologies you need and customize the symbology parameter settings if required (➔ *Symbologies*).
7. Customize the MaxiScan 2200 operating settings if required (➔ *Parameter list / data strings* and individual operating parameter entries).

Inter-character delay

No Delay (*)

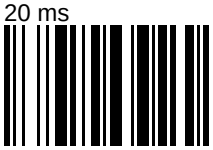
10 ms

The maximum rate at which data can be transmitted by the MaxiScan 2200 is affected by the response of the system. By the insertion of an inter-character delay, the MaxiScan 2200 can avoid dropping characters if it is transmitting decoded data too rapidly.

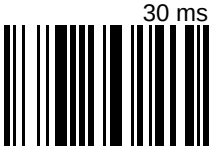
Select one of the predefined values or compose a custom value.

This feature can only be used with keyboard wedge and RS-232 interfaces and OCIA cash registers.

20 ms



30 ms



40 ms

50 ms

Compose inter-character delay

Example	To make your MaxiScan 2200 insert an 80 ms delay between characters: 1. Scan Compose Inter-Character Delay. 2. Scan 8 0 and scan End Selection to finish (➔ *Number codes* or appendix at the end of this manual).

Compose Inter-Character Delay (maximum = 999 ms)

Inter-message delay

No Delay (*)

10 ms

The maximum rate at which data can be transmitted by the MaxiScan 2200 is affected by the response of the system. By the insertion of an inter-message delay, the MaxiScan 2200 can avoid dropping characters if it is transmitting decoded data too rapidly.

Select one of the predefined values or compose a custom value.

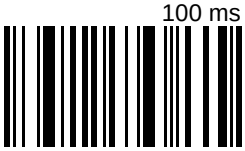
This feature can be used with all interfaces.

30 ms

50 ms

80 ms

100 ms



Compose inter-message delay

Example	To make your MaxiScan 2200 insert a 200 ms delay between messages: 1. Scan Compose Inter- Message Delay. 2. Scan 2 0 0 and scan End Selection to finish (➔ *Number codes* or appendix at the end of this manual).

Compose Inter-Message Delay (maximum = 999 ms)

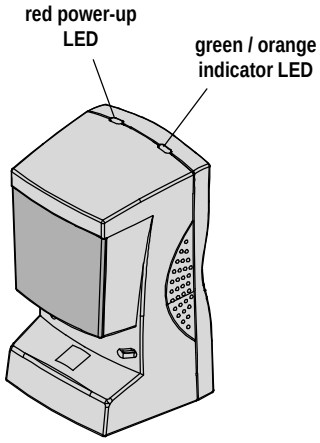
Interfaces

Identifying the interface

The indicator LED flashes orange a number of times at power-up to indicate the interface configuration of your MaxiScan 2200 model.

If the MaxiScan 2200 has already been programmed for a given interface configuration, the indicator LED will stay green.

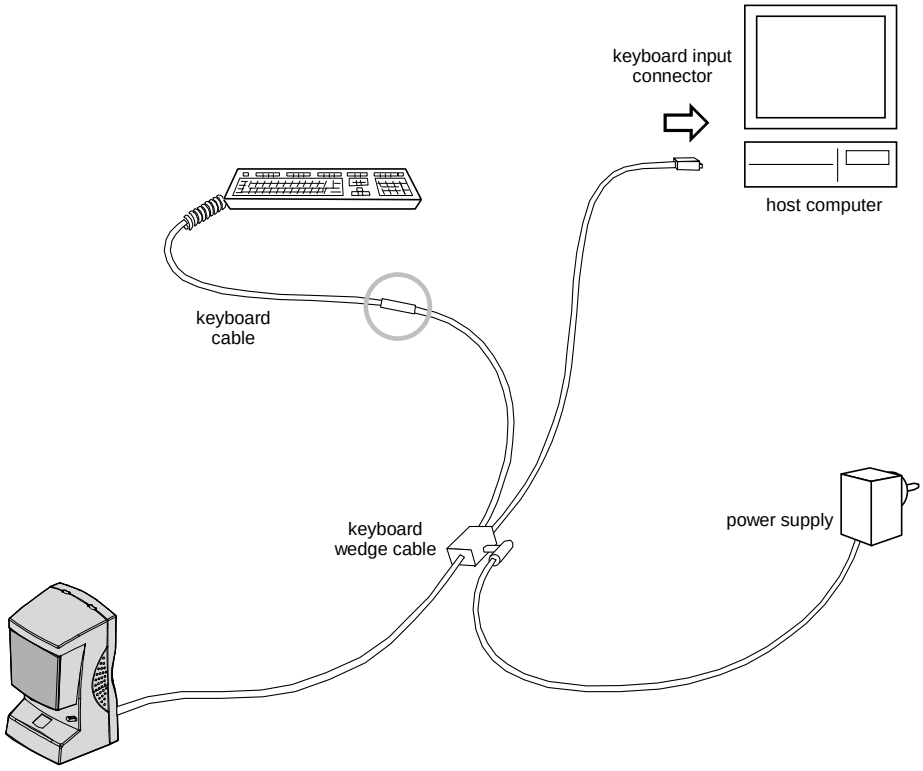
If no interface number has been programmed—which may be the case during first-time setup or after reading the Reset Factory Defaults code—the indicator LED will stay orange and you will have to re-enter the appropriate interface number for your system (➔*Predefined interface numbers* section for your interface or *Compose interface number*).



orange LED flashes	interface configuration
2 flashes	RS-232 C dual RS-232 C
3 flashes	IBM 46xx cash registers
4 flashes	RS-232 TTL wand emulation
5 flashes	OCIA cash registers
7 flashes	keyboard wedge

Keyboard wedge

Connection



1. Switch off the host system.
2. Disconnect the keyboard from the host computer.
3. Use the keyboard wedge cable to connect the MaxiScan 2200 between the keyboard and the host computer.
4. Connect the power supply to the keyboard wedge cable.
5. Plug the power supply into the mains socket.

Do not switch on the host computer until you have connected up and plugged in the external power supply.

Keyboard wedge

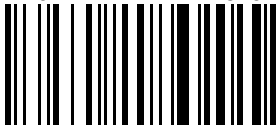
Predefined interface numbers

> If your interface number is not among the predefined interface numbers, you must compose the number yourself (➔ *Compose interface number*).
>
> The orange indicator LED of MaxiScan 2200 models configured for keyboard wedge applications will flash 7 times at power-up.

IBM PC AT and compatibles

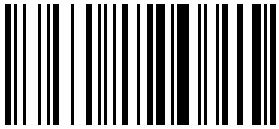
N° 200 - QWERTY - English

N° 201 - AZERTY - French



N° 204 - QWERTZ - German

N° 205 - QWERTY - Swedish / Finnish



IBM PC AT and compatibles

N° 206 - QWERTY - Italian

N° 207 - QWERTY - Norwegian

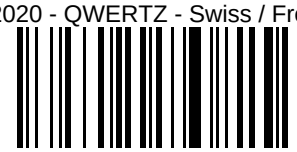
N° 208 - QWERTY - Danish

N° 209 - QWERTY - Spanish

Keyboard wedge

IBM PC AT and compatibles

N° 2020 - QWERTZ - Swiss / French



IBM 31xx, 32xx, 34xx

N° 230 - QWERTY - English

N° 231 - AZERTY - French

N° 232 - AZERTY - international

N° 233 - AZERTY - caps QWERTY

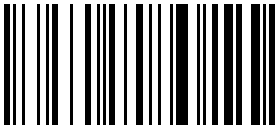
Keyboard wedge

IBM 31xx, 32xx, 34xx

N° 234 - QWERTZ - German

N° 2310 - QWERTY - data entry

N° 2313 - AZERTY - data entry



N° 2314 - QWERTZ - numeric keypad

DEC VT 220, 320, 420

N° 410 - QWERTY - PC type

N° 411 - AZERTY - PC type

N° 414 - QWERTZ - PC type

N° 415 - QWERTY - PC type - Swedish / Finnish

Keyboard wedge

DEC VT/PC 510

N° 271 - AZERTY - PC type

N° 275 - QWERTY - PC type - Swedish / Finnish

N° 2717 - AZERTY - VT type - French

N° 2718 - QWERTY - VT type - Swedish / Finnish

DEC VT/PC 510

N° 2720 - QWERTZ - PC type - Swiss / French

Keyboard wedge

Apple / Macintosh

N° 220 - QWERTY - English

N° 221 - AZERTY - French

N° 224 - QWERTZ - German

Hewlett Packard 700/92

N° 260 - QWERTY - English

N° 261 - AZERTY - French

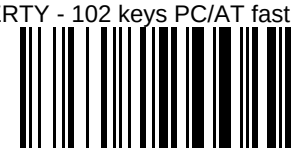
N° 264 - QWERTZ - German

Keyboard wedge

Wyse 60, 65, 99GT, 120

N° 300 - QWERTY - 102 keys PC/AT fast

N° 301 - AZERTY - 102 keys PC/AT fast



N° 304 - QWERTZ - 102 keys PC/AT fast

Predefined data transmission settings

Predefined settings for keyboard wedge - Interface N° 200

end-of-transmission keyboard character status	-	lower case
preamble	-	none
postamble	-	Enter
inter-character delay	-	none
inter-message delay	-	none

In this section, the predefined parameter settings for standard keyboard wedge configurations are indicated by an asterisk (*).

Keyboard wedge

Preamble / postamble

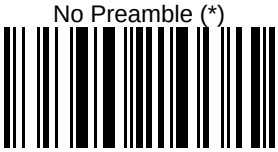
The MaxiScan 2200 can send preambles and postambles—control codes before and after each message—to emulate command keys on the keyboard and allow automatic data entry:

<preamble> *<barcode data>* *<postamble>*

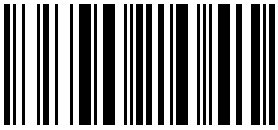
Customizable barcode type code marks can be inserted after the preamble and before the barcode data (➔ *Code mark*).

No preamble / no postamble

No Preamble (*)



No Postamble



Compose preamble / postamble

Compose Preamble

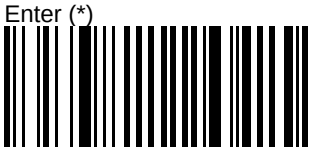
Compose Postamble

Each preamble and postamble can contain a maximum of 10 characters

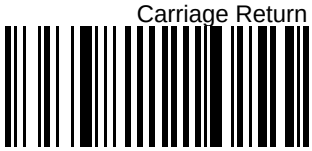
Example	To enter the STX character (ASCII character 02) as a preamble: 1. Scan Compose Preamble. 2. Scan one or more character codes you want to include in the preamble—in our example we would scan the ASCII STX character code—and scan End Selection to finish (➔ *ASCII character codes* and *Keyboard wedge—Additional preamble / postamble characters*).

Predefined postamble codes

Enter (*)



Carriage Return



Keyboard wedge

Predefined postamble codes

Tab

Field Advance

Field Exit

Down Arrow

Transmitting special keyboard keys

Different symbologies support different character formats. The MaxiScan 2200 transmission format is different according to the symbologies used (➔ *Symbologies - Character formats and MaxiScan 2200 transmission format*).

Only symbologies supporting the full ASCII character set allow the encoding of certain special keyboard keys such as <Return> and <Tab>.

No symbologies support the encoding of other function keys such as <PF1> and <PageDown>.

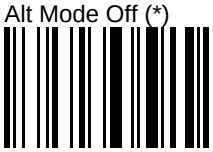
Alt mode transmission

Alt Mode On emulates the [<Alt>+*decimal_number_sequence*] function available on PC AT keyboards and can be used to transmit ASCII characters that are not available on the keyboard corresponding to your interface number.

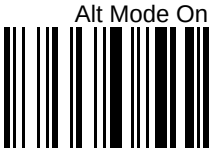
If you read bar codes containing such characters, you will be able to transmit the characters if you select Alt Mode On. Only use Alt mode if necessary, as all characters will be transmitted as <Alt> sequences and transmission will be slightly slower.

Example	With Alt Mode On, any barcode which contains the string “A { B” will be transmitted as follows:		
	<Alt> + <6> + <5>	<Alt> + <1> + <2> + <3>	<Alt> + <6> + <6>
	A	{	B

Alt Mode Off (*)



Alt Mode On



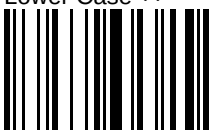
Keyboard wedge

End-of-transmission keyboard character status

The MaxiScan 2200 transmission format is different according to the symbologies used (➔ *Symbologies - Character formats and MaxiScan 2200 transmission format*).

By default, the MaxiScan 2200 sets the keyboard to lower case at the end of transmission.

Lower Case (*)



Upper Case

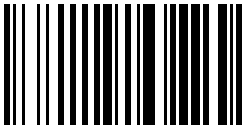
Transmission delay

➔ *Inter-character delay*

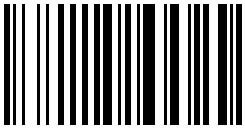
➔ *Inter-message delay*

Keyboard wedge—Additional preamble / postamble characters

PF 1



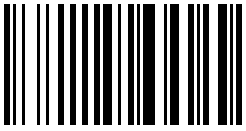
PF 2



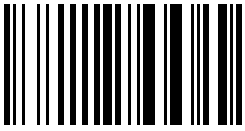
Use these character codes with the Compose Preamble / Postamble codes to create custom preambles / postambles for keyboard wedge applications (➔ *Keyboard wedge - Preamble / Postamble*).

End Selection

PF 3



PF 4



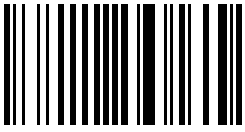
Keyboard wedge—Additional preamble / postamble characters

PF 5

PF 6

End Selection

PF 7



PF 8

Keyboard wedge—Additional preamble / postamble characters

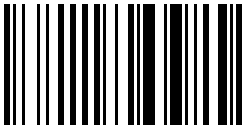
PF 9

PF 10

End Selection

PF 11

PF 12



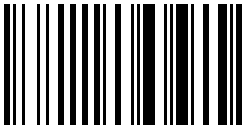
Keyboard wedge—Additional preamble / postamble characters

PF 13

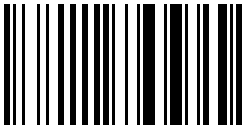
PF 14

End Selection

PF 15



PF 16



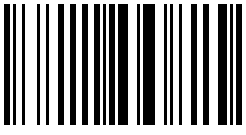
Keyboard wedge—Additional preamble / postamble characters

PF 17

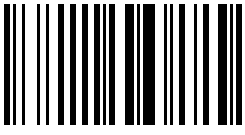
PF 18

End Selection

PF 19



PF 20



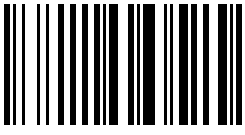
Keyboard wedge—Additional preamble / postamble characters

PF 21

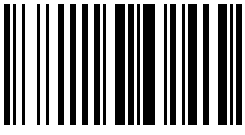
PF 22

End Selection

PF 23



PF 24



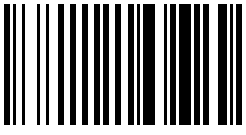
Keyboard wedge—Additional preamble / postamble characters

DEL

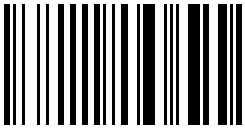
ENTER

End Selection

RETURN

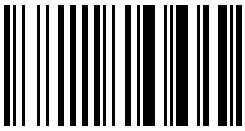


SEND

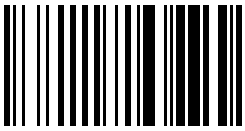


Keyboard wedge—Additional preamble / postamble characters

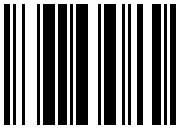
FIELD +



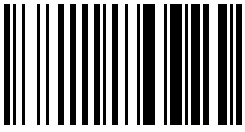
FIELD EXIT



End Selection



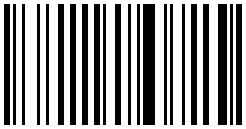
HOME



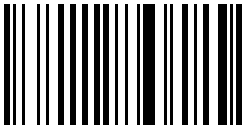
END

Keyboard wedge—Additional preamble / postamble characters

TAB = Ctrl i



ALT



End Selection

BACK TAB

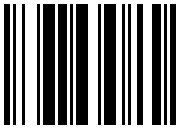
BACK SPACE

Keyboard wedge—Additional preamble / postamble characters

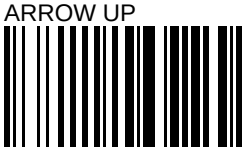
ARROW RIGHT

ARROW LEFT

End Selection



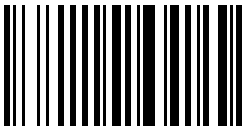
ARROW UP



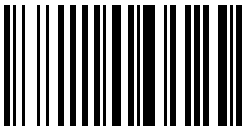
ARROW DOWN

Keyboard wedge—Additional preamble / postamble characters

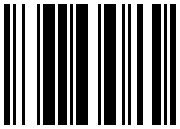
CLEAR



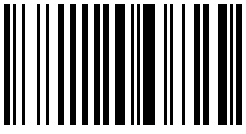
FIELD -



End Selection



DUP



ESC

Keyboard wedge—Additional preamble / postamble characters

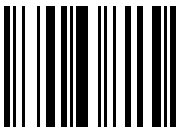
LINE FEED

RESET

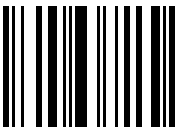
End Selection

Number codes

1



2



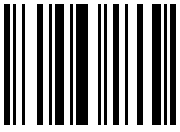
Use the number codes on the following pages to enter custom numerical values required by certain configuration codes.

Scan each digit in the number and scan End Selection—once or twice as applicable—after the last digit.

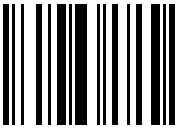
The same number codes are provided at the end of this manual (➔ *Appendix—Number codes*).

End Selection

3



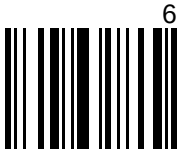
4



Number codes

5

6



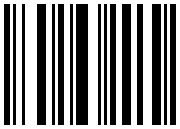
End Selection

7

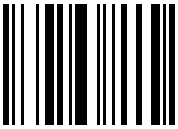
8

Number codes

9



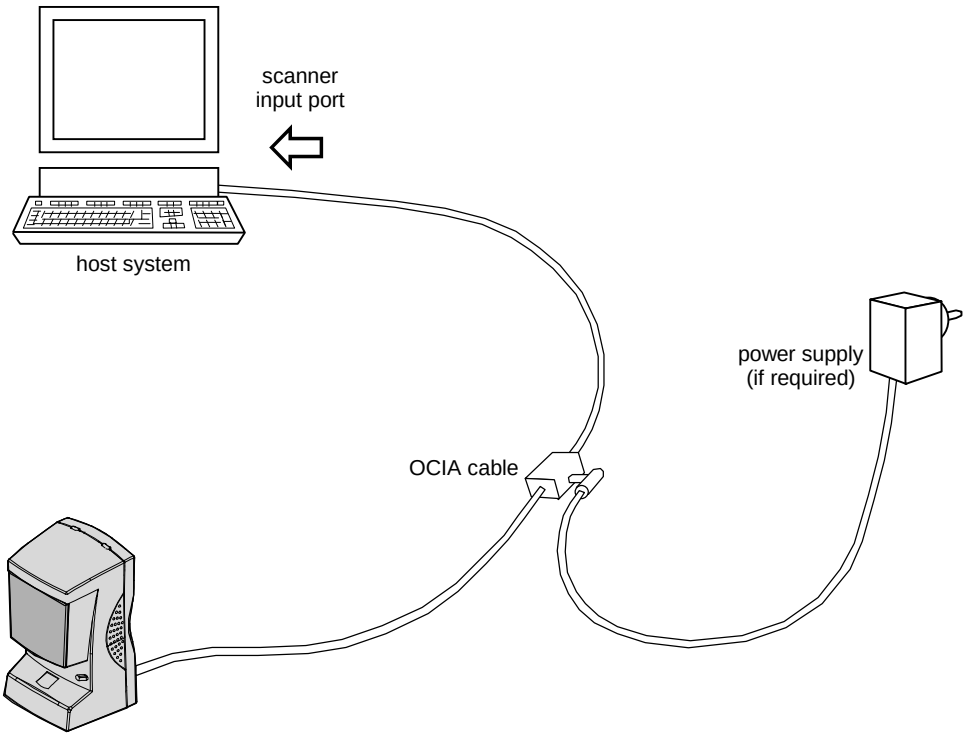
0



End Selection

OCIA cash registers

Connection



1. Switch off the host system.
2. Use the OCIA cable to connect the MaxiScan 2200 to the host system.
3. If your host system requires an external power supply:
   - Connect the power supply to the OCIA cable.
   - Plug the power supply into the mains socket.

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

Predefined interface numbers

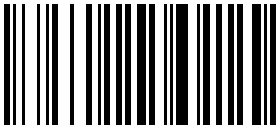
N° 120 - OCIA TEC cash registers
First Type

N° 121 - OCIA TEC cash registers
Second Type

If your interface number is not among the predefined interface numbers, you must compose the number yourself (➔ *Compose interface number*).

The orange indicator LED of MaxiScan 2200 models configured for OCIA cash registers will flash 5 times at power-up.

N° 122 - OCIA NCR cash registers



N° 123 - OCIA NCR 7052 cash registers

OCIA cash registers

Predefined data transmission settings

Predefined settings for OCIA cash registers - Interface N° 120 / N° 121 / N° 122

The main predefined parameter settings for OCIA cash registers depend on cash register protocols and can not be modified.

inter-character delay	-	none
inter-message delay	-	none

Transmission delay

➔ *Inter-character delay*

➔ *Inter-message delay*

Parameter list / data strings

Interface numbers

	compose interface number		\41\4A\60
Keyboard wedge—predefined interface numbers			
IBM PC AT and compatibles	N° 200	QWERTY - English	\41\4A\03\08\60
	N° 201	AZERTY - French	\41\4A\03\09\60
	N° 204	QWERTZ - German	\41\4A\03\0C\60
	N° 205	QWERTY - Swedish / Finnish	\41\4A\03\0D\60
	N° 206	QWERTY - Italian	\41\4A\03\0E\60
	N° 207	QWERTY - Norwegian	\41\4A\03\0F\60
	N° 208	QWERTY - Danish	\41\4A\03\10\60
	N° 209	QWERTY - Spanish	\41\4A\03\11\60
	N° 2020	QWERTZ - Swiss / French	\41\4A\1F\24\60
IBM 31xx, 32xx, 34xx	N° 230	QWERTY - English	\41\4A\03\26\60
	N° 231	AZERTY - French	\41\4A\03\27\60
	N° 232	AZERTY - international	\41\4A\03\28\60
	N° 233	AZERTY - caps QWERTY	\41\4A\03\29\60
	N° 234	QWERTZ - German	\41\4A\03\2A\60
	N° 2310	QWERTY - data entry	\41\4A\24\06\60
	N° 2313	AZERTY - data entry	\41\4A\24\09\60
	N° 2314	QWERTZ - numeric keypad	\41\4A\24\0A\60
DEC VT 220, 320, 420	N° 410	QWERTY - PC type	\41\4A\06\1A\60
	N° 411	AZERTY - PC type	\41\4A\06\1B\60
	N° 414	QWERTZ - PC type	\41\4A\06\1E\60
	N° 415	QWERTY - PC type - Swedish / Finnish	\41\4A\06\1F\60

DEC VT/PC 510	N° 271	AZERTY - PC type	\41\4A\04\0F\60
	N° 275	QWERTY - PC type - Swedish / Finnish	\41\4A\04\13\60
	N° 2717	AZERTY - VT type - French	\41\4A\2A\1D\60
	N° 2718	QWERTY - VT type - Swedish / Finnish	\41\4A\2A\1E\60
	N° 2720	QWERTZ - PC type - Swiss / French	\41\4A\2A\20\60
Apple / Macintosh	N° 220	QWERTY - English	\41\4A\03\1C\60
	N° 221	AZERTY - French	\41\4A\03\1D\60
	N° 224	QWERTZ - German	\41\4A\03\20\60
Hewlett Packard 700/92	N° 260	QWERTY - English	\41\4A\04\04\60
	N° 261	AZERTY - French	\41\4A\04\05\60
	N° 264	QWERTZ - German	\41\4A\04\08\60
Wyse 60, 65, 99GT, 120	N° 300	QWERTY - 102 keys PC/AT fast	\41\4A\04\2C\60
	N° 301	AZERTY - 102 keys PC/AT fast	\41\4A\04\2D\60
	N° 304	QWERTZ - 102 keys PC/AT fast	\41\4A\04\30\60

RS-232—predefined interface numbers

	N° 100	standard RS-232 C (9600, 7, E, 2)	\41\4A\01\24\60
	N° 101	RS-232 TTL level	\41\4A\01\25\60
	N° 102	RS-232 PC Term	\41\4A\01\26\60

Wand emulation—predefined interface numbers

	N° 130	digital wand emulation	\41\4A\02\02\60
	N° 131	analog wand emulation	\41\4A\02\03\60

IBM 46xx cash registers—predefined interface numbers

	N° 110	IBM 46xx cash registers—Port 9x	\41\4A\01\2E\60

	N° 111 IBM 46xx cash registers—Port 5x	\41\4A\01\2F\60

OCIA cash registers—predefined interface numbers

	N° 120 OCIA TEC cash registers First Type	\41\4A\01\38\60
	N° 121 OCIA TEC cash registers Second Type	\41\4A\01\39\60
	N° 122 OCIA NCR cash registers	\41\4A\01\3A\60
	N° 123 OCIA NCR 7052 cash registers	\41\4A\01\3B\60

Parameter list / data strings

Data transmission parameters

Keyboard wedge—data transmission parameters

Default values (*) correspond to interface N° 200 (IBM PC AT and compatibles - QWERTY - English).

preamble	no preamble (*)	\45\53\3E\00\60
	compose	\45\53\60
postamble	no postamble	\45\54\3E\00\60
	Enter (*)	\45\54\04\02\01\60
	Carriage Return	\45\54\04\02\02\60
	Tab	\45\54\04\02\08\60
	Field Advance	\45\54\04\02\04\60
	Field Exit	\45\54\04\02\05\60
	Down Arrow	\45\54\04\02\0F\60
	compose	\45\54\60
special keys transmission	Alt mode off (*)	\41\47\60
	Alt mode on	\41\46\60
end-of-transmission keyboard character status	lower case (*)	\41\44\60
	upper case	\41\45\60
inter-character delay	see below	
inter-message delay	see below	

RS-232—data transmission parameters

Default values (*) correspond to interface N° 100 (Standard RS-232 C - 9600, 7, E, 2).

baud rate	9600 (*)	\41\07\60
	75	\41\00\60
	150	\41\01\60

	300	\41\02\60
	600	\41\03\60
	1200	\41\04\60
	2400	\41\05\60
	4800	\41\06\60
	19200	\41\08\60
	38400	\41\09\60
data bits	7 (*)	\42\60
	8	\43\60
parity	even (*)	\46\01\60
	odd	\46\02\60
	none	\46\00\60
stop bits	2 (*)	\45\60
	1	\44\60
Hardware/software protocols time-out	1000 ms (*)	\51\0F\28\60
	unlimited	\51\00\60
	compose (1 to 2500 ms)	\51\60
ENQ (Hex 05)	not used (*)	\47\3E\00\60
	ENQ (HEX 05)	\47\3E\05\60
	compose	\47\60
ACK (Hex 06)	not used (*)	\48\3E\00\60
	ACK (HEX 06)	\48\3E\06\60
	compose	\48\60
NAK (Hex 15)	not used (*)	\49\3E\00\60
	NAK (HEX 15)	\49\3E\15\60
	compose	\49\60
XON/XOFF software protocol	not active (*)	\4B\60

	active	\4A\60
CTS/RTS hardware protocol	not active (*)	\4D\60
	active	\4C\60
preamble	no preamble (*)	\45\53\3E\00\60
	compose	\45\53\60
preamble/postamble	STX/ETX	\45\53\3E\02\45\54\3E\03\60
postamble	no postamble	\45\54\3E\00\60
	Carriage Return + Line Feed (*)	\45\54\3E\0D\3E\0A\60
	Carriage Return	\45\54\3E\0D\60
	Line Feed	\45\54\3E\0A\60
	compose	\45\54\60
inter-character delay	see below	
inter-message delay	see below	

Wand emulation—data transmission parameters

Default values (*) correspond to interface N° 130 (Digital Wand Emulation).

transmitted symbology type	transmission in original code (*)	\5E\00\60
	transmission in Code 39	\5E\01\60
inter-message delay	see below	
margin size	10 x narrow bar width (*)	\5A\0A\60
	compose	\5A\60
logical signal state during transmission	bar = 1, space = 0, margin = 0 (*)	\54\60
	bar = 0, space = 1, margin = 1	\55\60
logical signal state outside transmission	quiet zone = 0 (*)	\56\60
	quiet zone = 1	\57\60
pulse duration	0.88 ms (37.5 cm/s) (*)	\58\01\18\60

	0.19 ms (175 cm/s)	\58\13\60
	0.26 ms (125 cm/s)	\58\1A\60
	0.44 ms (75 cm/s)	\58\2C\60
	0.66 ms (50 cm/s)	\58\01\02\60
	1.32 ms (25 cm/s)	\58\02\04\60
	2.64 ms (12.5 cm/s)	\58\04\08\60
	6.60 ms (5 cm/s)	\58\0A\14\60

IBM 46xx cash registers—data transmission parameters

Default values (*) correspond to interface N° 110 / 111 (IBM 46xx cash registers—Ports 9x/5x).

inter-message delay	see below	

OCIA cash registers—data transmission parameters

inter-character delay	see below	
inter-message delay	see below	

Inter-character delay—keyboard wedge, RS-232, OCIA

inter-character delay	none (*)	\52\00\60
	10 ms	\52\0A\60
	20 ms	\52\14\60
	30 ms	\52\1E\60
	40 ms	\52\28\60
	50 ms	\52\32\60
	compose (1 to 999 ms)	\52\60

Inter-message delay—all interfaces

inter-message delay	none (*)	\53\00\60
	10 ms	\53\0A\60

	30 ms	\53\1E\60
	50 ms	\53\32\60
	80 ms	\53\01\10\60
	100 ms	\53\01\24\60
	compose (1 to 999 ms)	\53\60

Code mark—keyboard wedge, RS-232

activation	code mark not transmitted (*)	\45\56\60
	transmit code mark	\45\55\60
	transmit code mark + barcode length	\45\57\60
Default code marks:	Symbology:	Compose code mark:
N	Codabar	\45\59\04\60
M	Code 39	\45\59\01\60
M	Code 128 / EAN 128	\45\59\0B\60
A	UPC-A	\45\59\08\60
E	UPC-E	\45\59\09\60
FF	EAN-8	\45\59\07\60
F	EAN-13	\45\59\06\60
I	Interleaved 2 of 5	\45\59\02\60
?	Matrix 2 of 5	\45\59\0E\60
H	Standard 2 of 5	\45\59\03\60
M	MSI Code	\45\59\0A\60
M	Plessey Code	\45\59\0C\60

AIM symbology identifiers—keyboard wedge, RS-232

activation	AIM not transmitted (*)	\47\59\60
	AIM transmitted	\47\58\60

Symbology:	AIM symbology identifiers:			
Codabar	]	F	0 2 4	
Code 39	]	A	0 1 2 4	
Code 128 / EAN 128	]	C	0 1	
Interleaved 2 of 5	]	I	0 1 2	
Matrix 2 of 5	]	X	0	
Standard 2 of 5	]	S	0 1 2	
MSI Code	]	M	0 1	
Plessey Code	]	P	0	
UPC/EAN, "standard" lengths (8, 13, 15 (add-on 2), 18 (add-on 5) characters)	]	E	0 3 4	
UPC/EAN, other lengths (no check digit, . . .)	]	X	0	

Symbology parameters

	disable all symbologies	\41\4B\60
Codabar		
activation	not active (*)	\41\53\60
	active	\41\52\60
start/stop	not transmitted (*)	\43\4D\60
	a, b, c, d	\43\4E\60
	A, B, C, D	\43\4F\60
	a, b, c, d / t, n, *, e	\43\50\60
	DC1, DC2, DC3, DC4	\43\51\60
CLSI library system	not active (*)	\43\53\60
	CLSI With Spaces	\43\52\60
	CLSI Without Spaces	\46\5E\60
check digit (AIM recommendation)	not used (*)	\46\56\60
	checked and transmitted	\46\54\60
	checked but not transmitted	\46\55\60
barcode length (number of characters)	minimum length = 6 (*)	\43\55\06\60
	return to current minimum length	\43\54\00\60
	compose minimum length	\43\55\60
	compose 1 or 2 or 3 fixed lengths	\43\54\60
Code 39		
activation	active (*)	\41\4C\60
	not active	\41\4D\60
Code 39 type	standard 43 characters (*)	\42\4A\60
	full ASCII	\42\4B\60
start/stop	not transmitted (*)	\42\4D\60

	transmitted	\42\4C\60
check digit	not used (*)	\42\4F\60
modulo 43 check digit	checked and transmitted	\42\50\60
	checked but not transmitted	\42\51\60
French CIP check digit	checked and transmitted	\42\52\60
	checked but not transmitted	\42\53\60
Italian CPI check digit	checked and transmitted	\42\54\60
	checked but not transmitted	\42\55\60
barcode length (number of characters)	minimum length = 6	\42\5C\06\60
	return to current minimum length	\42\5B\00\60
	compose minimum length	\42\5C\60
	compose 1 or 2 or 3 fixed lengths	\42\5B\60

Code 128 / EAN 128

activation	not active (*)	\41\5B\60
	active	\41\5A\60
CIP 128 French pharmaceutical codes	not active (*)	\47\5D\00\60
	active	\47\5D\01\60
FNC1 separator character—EAN-128 norms	GS function character (ASCII 29)	\46\52\60
barcode length (number of characters)	minimum length = 6 (*)	\44\55\06\60
	return to current minimum length	\44\54\00\60
	compose minimum length	\44\55\60
	compose 1 or 2 or 3 fixed lengths	\44\54\60

Interleaved 2 of 5

activation	not active (*)	\41\4F\60
	active	\41\4E\60

check digit	not used (*)	\43\43\60
check digit mod 10	checked and transmitted	\42\5F\60
	checked but not transmitted	\43\40\60
French CIP HR check digit	checked and transmitted	\43\41\60
	checked but not transmitted	\43\42\60
barcode length (number of characters)	minimum length = 6 (*)	\43\45\06\60
	return to current minimum length	\43\44\00\60
	compose minimum length	\43\45\60
	compose 1 or 2 or 3 fixed lengths	\43\44\60

Matrix 2 of 5

activation	not active (*)	\42\41\60
	active	\42\40\60
barcode length (number of characters)	minimum length = 6 (*)	\46\59\06\60
	return to current minimum length	\46\58\00\60
	compose minimum length	\46\59\60
	compose 1 or 2 or 3 fixed lengths	\46\58\60

MSI Code

activation	not active (*)	\41\59\60
	active	\41\58\60
check digit mod 10	checked and transmitted (*)	\44\5A\60
	checked but not transmitted	\44\5C\60
check digit double mod 10	checked and transmitted	\44\5B\60
	checked but not transmitted	\44\5D\60
barcode length (number of characters)	minimum length = 6 (*)	\44\5F\06\60
	return to current minimum length	\44\5E\00\60

	compose minimum length	\44\5F\60
	compose 1 or 2 or 3 fixed lengths	\44\5E\60

Plessey Code

activation	not active (*)	\41\5D\60
	active	\41\5C\60
check digit	transmitted (*)	\44\56\60
	not transmitted	\44\57\60
barcode length (number of characters)	minimum length = 6 (*)	\44\59\06\60
	return to current minimum length	\44\58\00\60
	compose minimum length	\44\59\60
	compose 1 or 2 or 3 fixed lengths	\44\58\60

Standard 2 of 5

activation	not active (*)	\41\51\60
	active	\41\50\60
Standard 2 of 5 format	Identicon (6 Start/Stop Bars) (*)	\43\47\60
	Computer Identics (4 Start/Stop Bars)	\43\46\60
check digit mod 10	not used (*)	\43\4A\60
	checked and transmitted	\43\48\60
	checked but not transmitted	\43\49\60
barcode length (number of characters)	minimum length = 6 (*)	\43\4C\06\60
	return to current minimum length	\43\4B\00\60
	compose minimum length	\43\4C\60
	compose 1 or 2 or 3 fixed lengths	\43\4B\60

UPC/EAN code families (UPC-A, UPC-E, EAN-8, EAN-13)

activation	active (*) (UPC-A, UPC-E, EAN-8, EAN-13)	\41\56\60

Parameter list / data strings

	not active	\41\57\60
UPC/EAN format selection	UPC-A deactivated	\43\5D\60
	UPC-E deactivated	\43\5E\60
	EAN-8 deactivated	\43\5F\60
	EAN-13 deactivated	\44\40\60
add-on digits	not required but transmitted if read (*)	\44\43\60
	required and transmitted	\44\42\60
add-on 2	not active (*)	\44\41\60
	active	\46\44\60
add-on 5	not active (*)	\46\46\60
	active	\46\45\60
UPC-A check digit	transmitted (*)	\44\46\60
	not transmitted	\44\47\60
UPC-E check digit	transmitted (*)	\44\4A\60
	not transmitted	\44\4B\60
EAN-8 check digit	transmitted (*)	\46\49\60
	not transmitted	\46\4A\60
EAN-13 check digit	transmitted (*)	\46\47\60
	not transmitted	\46\48\60
UPC-A number system	transmitted (*)	\44\44\60
	not transmitted	\44\45\60
UPC-E number system	transmitted (*)	\44\48\60
	not transmitted	\44\49\60
re-encoding UPC-A, UPC-E, EAN-8	UPC-A transmitted as EAN-13 (*)	\44\4F\60
	UPC-A transmitted as UPC-A	\44\4E\60
	UPC-E transmitted as UPC-E (*)	\44\4C\60
	UPC-E transmitted as UPC-A	\44\4D\60

	EAN-8 transmitted as EAN 8 (*)	\44\50\60
	EAN-8 transmitted as EAN-13	\44\51\60

Parameter list / data strings

MaxiScan 2200 operating parameters

reset all configuration parameters	reset factory defaults	\46\42\60
software version	display	\46\43\60
error messages	display EEPROM error messages	\46\40\01\60
	delete EEPROM error messages	\46\40\05\60

Interfaces

	null interface (*) (no interface driver selected—no transmission)	
	keyboard wedge	
	RS-232 C	
	RS-232 TTL	
	wand emulation	
	IBM 46xx cash registers	
	OCIA cash registers	

Symbologies

	Codabar	
	Code 39 (*)	
	Code 128 / EAN 128	
	Interleaved 2 of 5	
	Matrix 2 of 5	
	MSI Code	
	Plessey Code	
	Standard 2 of 5	
	UPC/EAN code families (*) (UPC-A, UPC-E, EAN-8, EAN-13)	

General operating parameters

reading distance	20 cm (*)	\48\5B\00\60
	10 cm (UPC/EAN 100% only)	\48\5B\02\60
	15 cm	\48\5B\01\60
resolution adjustment (video channel selection)	high-resolution / low-resolution video channels (*)	\48\49\02\60
	high-resolution video channel	\48\49\00\60
	low-resolution video channel	\48\49\01\60
scan rate	1400 scans per second (*)	\46\40\07\60
	1200 scans per second	\46\40\06\60
	1600 scans per second	\46\40\08\60
standby mode	standby mode enable (*)	\45\5F\01\60
	standby mode disable	\45\5F\00\60
	initial standby after 15 minutes (*)	\45\5D\0E\04\60
	user-defined time in seconds before initial standby	\45\5D\60

Beeps

beeper volume	high volume (*)	\47\55\03\01\01\60
	low volume	\47\55\03\01\00\60
beeper note (tone frequency)	high (2093.04 Hz, 478 µs) (*)	\47\55\03\00\07\1E\60
	low (1318.52 Hz, 758 µs)	\47\55\03\00\0B\36\60
	medium (1760 Hz, 568 µs)	\47\55\03\00\08\38\60
power-up beeps	on (*)	\45\5B\60
	off	\45\5A\60
good read beeps	1 beep (*)	\45\4A\00\60
	2 beeps	\45\4A\01\60
	no beep	\45\49\00\60
timing of good read beeps	beep before transmission (*)	\45\52\60

	beep after transmission	\45\51\60
duration of good read beeps	80 ms (*)	\45\49\01\10\60
	60 ms	\45\49\3C\60
	200 ms	\45\49\04\2C\60
	300 ms	\45\49\03\08\60
	compose beep duration (0 to 999 ms)	\45\49\60

Configuration modes

configuration authorization modes	enable (*)	\46\50\60
	configuration inhibit after 4 mn	\46\51\60
temporary configuration mode	enable	\46\41\00\60
	restore current configuration	\46\41\01\60
	update current configuration	\46\41\02\60
display data string mode	enable	\46\4E\60
RS-232 monitor mode	enable	\46\40\04\60

Data decoding security parameters

predefined security levels	normal security level (*)	\45\4E\00\60
	medium security level	\45\4E\01\60
	high security level	\45\4E\02\60
consecutive same read data validation	single read before transmission (*)	\45\4B\01\60
	compose number of consecutive same reads before transmission (maximum = 10)	\45\4B\60
time-out between identical consecutive codes	500 ms (*)	\45\4C\07\34\60
	compose (maximum = 65 535 ms)	\45\4C\60
time-out between different consecutive codes	500 ms (*)	\45\4D\07\34\60
	compose (maximum = 65 535 ms)	\45\4D\60

Data string values

	end selection	\64\60
Number codes		
	0	\10\60
	1	\11\60
	2	\12\60
	3	\13\60
	4	\14\60
	5	\15\60
	6	\16\60
	7	\17\60
	8	\18\60
	9	\19\60
ASCII character codes		
	NUL (00h)	\3E\00\60
	SOH (01h)	\3E\01\60
	STX (02h)	\3E\02\60
	ETX (03h)	\3E\03\60
	EOT (04h)	\3E\04\60
	ENQ (05h)	\3E\05\60
	ACK (06h)	\3E\06\60
	BEL (07h)	\3E\07\60
	BS (08h)	\3E\08\60
	HT or TAB (09h)	\3E\09\60
	LF (0Ah)	\3E\0A\60
	VT (0Bh)	\3E\0B\60
	FF (0Ch)	\3E\0C\60

Parameter list / data strings

	CR (0Dh)	\3E\0D\60
	SO (0Eh)	\3E\0E\60
	SI (0Fh)	\3E\0F\60
	DLE (10h)	\3E\10\60
	DC1 (11h)	\3E\11\60
	DC2 (12h)	\3E\12\60
	DC3 (13h)	\3E\13\60
	DC4 (14h)	\3E\14\60
	NAK (15h)	\3E\15\60
	SYN (16h)	\3E\16\60
	ETB (17h)	\3E\17\60
	CAN (18h)	\3E\18\60
	EM (19h)	\3E\19\60
	SUB (1Ah)	\3E\1A\60
	ESC (1Bh)	\3E\1B\60
	FS (1Ch)	\3E\1C\60
	GS (1Dh)	\3E\1D\60
	RS (1Eh)	\3E\1E\60
	US (1Fh)	\3E\1F\60
	SP (20h)	\00\60
	! (21h)	\01\60
	" (22h)	\02\60
	# (23h)	\03\60
	$ (24h)	\04\04\60
	% (25h)	\05\60
	& (26h)	\06\60
	’ (27h)	\07\60
	((28h)	\08\60

	) (29h)	\09\60
	* (2Ah)	\0A\60
	+ (2Bh)	\0B\60
	, (2Ch)	\0C\60
	- (2Dh)	\0D\60
	. (2Eh)	\0E\60
	/ (2Fh)	\0F\0F\60
	0 (30h)	\10\60
	1 (31h)	\11\60
	2 (32h)	\12\60
	3 (33h)	\13\60
	4 (34h)	\14\60
	5 (35h)	\15\60
	6 (36h)	\16\60
	7 (37h)	\17\60
	8 (38h)	\18\60
	9 (39h)	\19\60
	: (3Ah)	\1A\60
	; (3Bh)	\1B\60
	< (3Ch)	\1C\60
	= (3Dh)	\1D\60
	> (3Eh)	\1E\60
	? (3Fh)	\1F\60
	@ (40h)	\20\20\60
	A (41h)	\21\60
	B (42h)	\22\60
	C (43h)	\23\60

Parameter list / data strings

	D (44h)	\24\60
	E (45h)	\25\60
	F (46h)	\26\60
	G (47h)	\27\60
	H (48h)	\28\60
	I (49h)	\29\60
	J (4Ah)	\2A\60
	K (4Bh)	\2B\60
	L (4Ch)	\2C\60
	M (4Dh)	\2D\60
	N (4Eh)	\2E\60
	O (4Fh)	\2F\60
	P (50h)	\30\60
	Q (51h)	\31\60
	R (52h)	\32\60
	S (53h)	\33\60
	T (54h)	\34\60
	U (55h)	\35\60
	V (56h)	\36\60
	W (57h)	\37\60
	X (58h)	\38\60
	Y (59h)	\39\60
	Z (5Ah)	\3A\60
	[(5Bh)	\3B\60
	\ (5Ch)	\3C\60
	] (5Dh)	\3D\60
	^ (5Eh)	\3E\3E\60
	_ (5Fh)	\3F\60

	‘ (60h)	\20\20\60
	a (61h)	\20\21\60
	b (62h)	\20\22\60
	c (63h)	\20\23\60
	d (64h)	\20\24\60
	e (65h)	\20\25\60
	f (66h)	\20\26\60
	g (67h)	\20\27\60
	h (68h)	\20\28\60
	i (69h)	\20\29\60
	j (6Ah)	\20\2A\60
	k (6Bh)	\20\2B\60
	l (6Ch)	\20\2C\60
	m (6Dh)	\20\2D\60
	n (6Eh)	\20\2E\60
	o (6Fh)	\20\2F\60
	p (70h)	\20\30\60
	q (71h)	\20\31\60
	r (72h)	\20\32\60
	s (73h)	\20\33\60
	t (74h)	\20\34\60
	u (75h)	\20\35\60
	v (76h)	\20\36\60
	w (77h)	\20\37\60
	x (78h)	\20\38\60
	y (79h)	\20\39\60
	z (7Ah)	\20\3A\60
	\{ (7Bh)	\20\3B\60

	| (7Ch)	\20\3C\60
	} (7Dh)	\20\3D\60
	~ (7Eh)	\20\3 E\60
	DEL (7Fh)	\20\3F\60

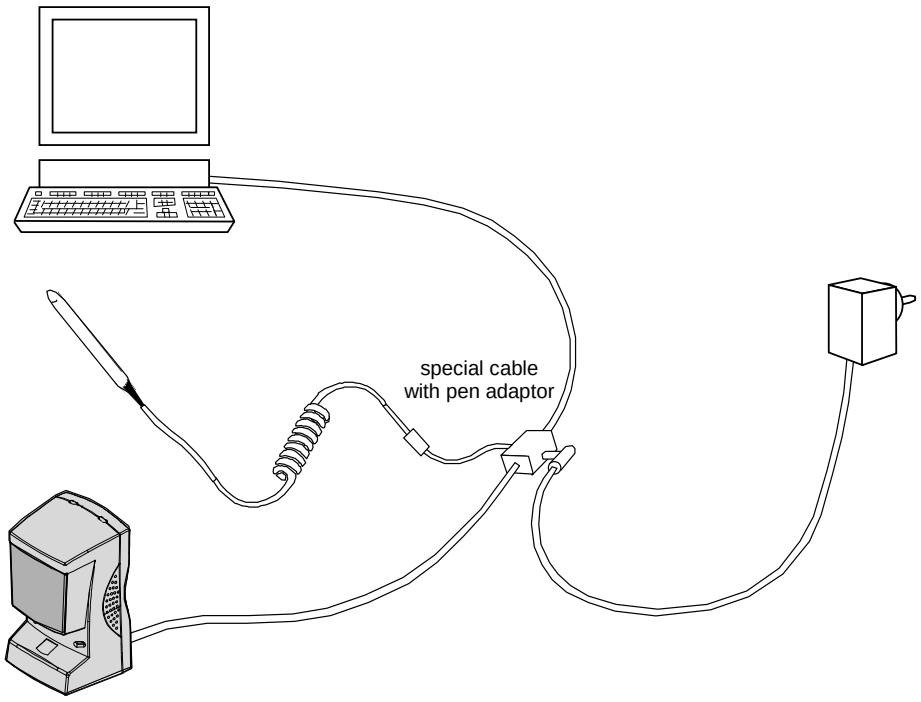
Additional preamble / postamble characters—Keyboard wedge

	PF 1	\04\02\18\60
	PF 2	\04\02\19\60
	PF 3	\04\02\1A\60
	PF 4	\04\02\1B\60
	PF 5	\04\02\1C\60
	PF 6	\04\02\1D\60
	PF 7	\04\02\1E\60
	PF 8	\04\02\1F\60
	PF 9	\04\02\20\60
	PF 10	\04\02\21\60
	PF 11	\04\02\22\60
	PF 12	\04\02\23\60
	PF 13	\04\02\24\60
	PF 14	\04\02\25\60
	PF 15	\04\02\26\60
	PF 16	\04\02\27\60
	PF 17	\04\02\28\60
	PF 18	\04\02\29\60
	PF 19	\04\02\2A\60
	PF 20	\04\02\2B\60
	PF 21	\04\02\2C\60
	PF 22	\04\02\2D\60

	PF 23	\04\02\2E\60
	PF 24	\04\02\2F\60
	DEL	\04\02\00\60
	ENTER	\04\02\01\60
	RETURN	\04\02\02\60
	SEND	\04\02\03\60
	FIELD +	\04\02\04\60
	FIELD EXIT	\04\02\05\60
	HOME	\04\02\06\60
	END	\04\02\07\60
	TAB = Ctrl i	\04\02\08\60
	ALT	\04\02\09\60
	BACK TAB	\04\02\0A\60
	BACK SPACE	\04\02\0B\60
	ARROW RIGHT	\04\02\0C\60
	ARROW LEFT	\04\02\0D\60
	ARROW UP	\04\02\0E\60
	ARROW DOWN	\04\02\0F\60
	CLEAR	\04\02\10\60
	FIELD -	\04\02\11\60
	DUP	\04\02\12\60
	ESC	\04\02\13\60
	LINE FEED	\04\02\14\60
	RESET	\04\02\15\60

Pen input

A special plug-and-play cable with a pen input adaptor is available for all interfaces. With no additional configuration, it allows you to read bar codes with a pen as well as with the MaxiScan 2200.



Preamble / postamble

➔ *Keyboard wedge - Preamble / postamble*

➔ *RS-232 - Preamble / postamble*

Do not try to configure preambles or postambles for IBM 46xx cash registers, OCIA cash registers, wand emulation.

Product checklist

all systems

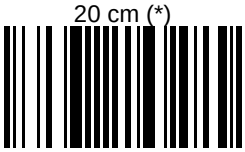
- ☐ the right MaxiScan 2200 model for your host system
- ☐ the right cable for your host system
- ☐ this *MaxiScan 2200 Installation Guide*
- ☐ MaxiScan 2200 user's leaflet if applicable
- ☐ mounting plate
- ☐ replacement red reading window

options

- ☐ external power supply
- ☐ adjustable stand
- ☐ *MaxiScan 2200 Reference Manual*

Reading distance

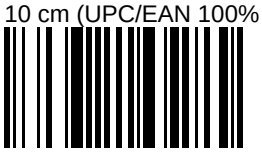
20 cm (*)



You can change the maximum reading distance of the MaxiScan 2200 to make sure that you only read codes within the specified range.

The reading distances provided here are valid for normal-quality medium-resolution bar codes such as standard EAN (100% magnitude).

10 cm (UPC/EAN 100% only)



15 cm

Reset all configuration parameters

Reset Factory Defaults resets all the MaxiScan 2200 parameters to their factory default settings (indicated by "(*)" in this manual):

- null interface (no interface driver selected—orange indicator LED always on—no transmission),
- default symbologies,
- default symbology settings,
- default MaxiScan 2200 operating settings (scan rate, LED / beep settings, etc.).

➔ *Parameter list / data strings* provides the full list of parameters and default settings.

If you scan Reset Factory Defaults, you will have to re-enter the appropriate interface number for your system and any custom settings if applicable. It is often easier to reset individual parameters.

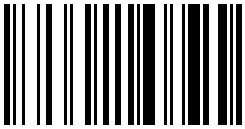
General reset procedure

1. Scan Reset Factory Defaults.
2. Scan the interface number for your system (➔ *Predefined interface numbers* for your interface or *Compose interface number*).
3. Customize the data transmission settings for your interface if required (➔ *Data transmission parameters* for your interface).
4. Select the symbologies you need and customize the symbology parameter settings if required (➔ *Symbologies*).
5. Customize the MaxiScan 2200 operating settings if required (➔ *Parameter list/data strings*, *Scan rate*, *Beeps/indicator LED*, etc.).

Reset Factory Defaults

Resolution adjustment—Video channel selection

High-Resolution / Low-Resolution Video Channels (*)



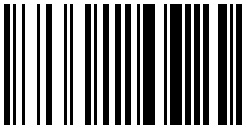
By default, the MaxiScan 2200 is set to switch continuously between the high- and low-resolution video channels. The video channel changes with each new scan and normal-quality medium-resolution bar codes such as standard EAN (100%) are read easily by both video channels.

For more “difficult” bar codes, you will greatly optimize reading by selecting the appropriate video channel (High-Resolution or Low-Resolution) for the bar codes you want to read.

bar codes you want to read	video channel selection
normal-quality medium-resolution bar codes such as standard EAN (100% magnitude)	High-Resolution / Low-Resolution Video Channels (*)
high-density bar codes (narrow bar width < 0.2 mm)	High-Resolution Video Channel
• ultra-low-density bar codes (narrow bar width > 1 mm) • bar codes printed with a dot-matrix printer • poorly printed bar codes	Low-Resolution Video Channel

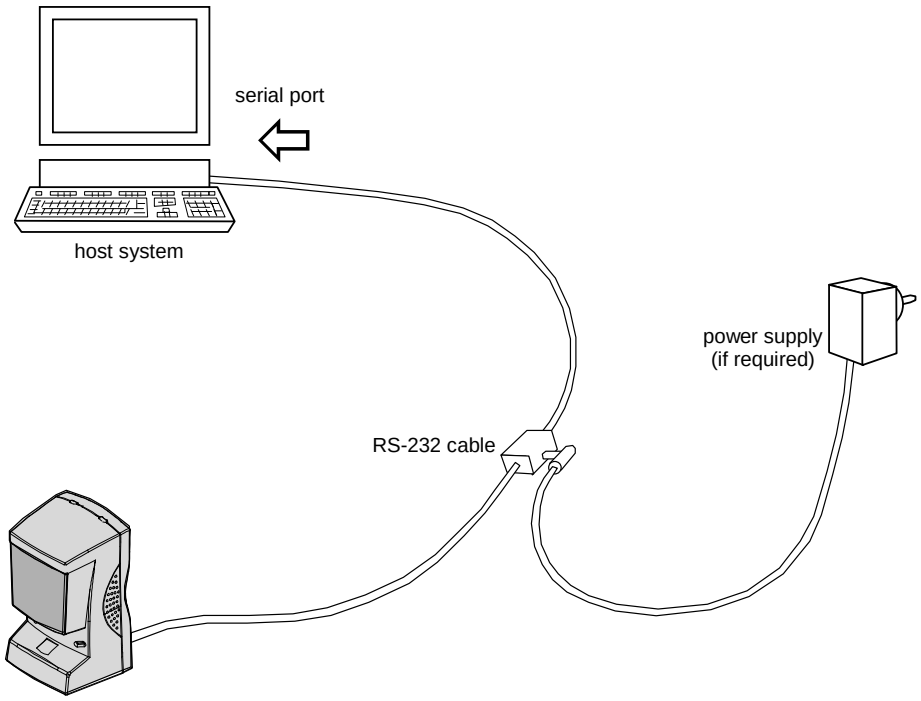
High-Resolution Video Channel

Low-Resolution Video Channel



RS-232

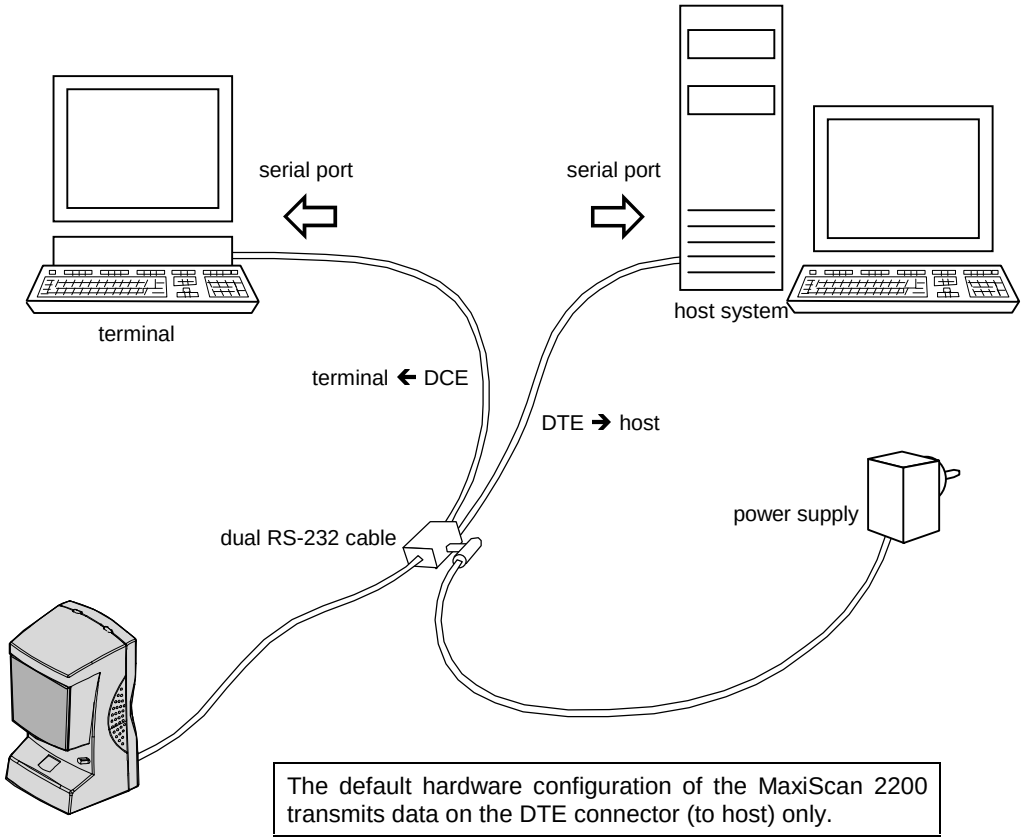
Connection—Single RS-232



1. Switch off the host system.
2. Use the RS-232 cable to connect the MaxiScan 2200 to the host system.
3. If your host system requires an external power supply:
   - Connect the power supply to the RS-232 cable.
   - Plug the power supply into the mains socket.

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

Connection—Dual RS-232 C



The default hardware configuration of the MaxiScan 2200 transmits data on the DTE connector (to host) only.

1. Switch off the host system.
2. Disconnect the terminal from the host system.
3. Use the dual RS-232 cable to connect the MaxiScan 2200 between the terminal and the host system.
4. Connect the power supply to the dual RS-232 cable.
5. Plug the power supply into the mains socket.

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

RS-232

Predefined interface numbers

N° 100 - Standard RS-232 C (9600, 7, E, 2)

If your interface number is not among the predefined interface numbers, you must compose the number yourself (➔ *Compose interface number*).

At power-up, the orange indicator LED of MaxiScan 2200 models configured for RS-232 applications will flash 2 times for RS-232 C or 4 times for RS-232 TTL.

N° 101 - RS-232 TTL Level

N° 102 - RS-232 PC Term

Predefined data transmission settings

Predefined settings for RS-232 C - Interface N° 100

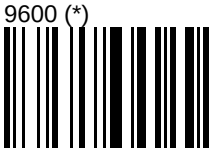
baud rate	-	9600
data bits	-	7
parity	-	even
stop bits	-	2
ENQ (Hex 05)	-	not used
ACK (Hex 06)	-	not used
NAK (Hex 15)	-	not used
XON/XOFF (software)	-	inactive
CTS/RTS (hardware)	-	inactive
LRC (longitudinal redundancy check)	-	inactive
time-out (hardware and software)	-	1000 ms
preamble		none
postamble	-	Carriage Return + Line Feed
inter-character delay	-	none
inter-message delay	-	none

In this section, the predefined parameter settings for interface N° 100 (Standard RS-232) are indicated by an asterisk (*).

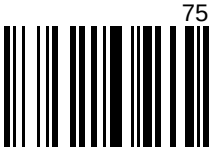
RS-232

Baud Rate

9600 (*)



75



150

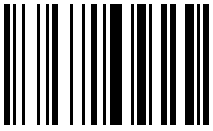
300

Baud Rate

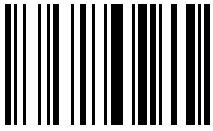
600

1200

2400



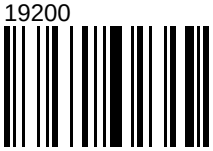
4800



RS-232

Baud Rate

19200



38400

Data bits

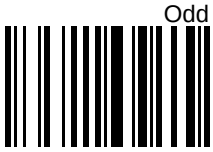
Seven (*)

Eight

Parity

Even (*)

Odd



None

RS-232

Stop bits

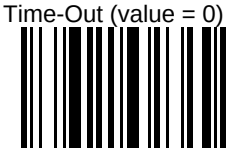
Two (*)

One

Hardware/software protocols time-out

1000 ms (*)

Unlimited Time-Out (value = 0)



The same time-out value applies to all the RS-232 protocols supported by the MaxiScan 2200:

- ENQ / ACK / NAK software protocol,
- XON / XOFF software protocol,
- CTS / RTS hardware protocol.

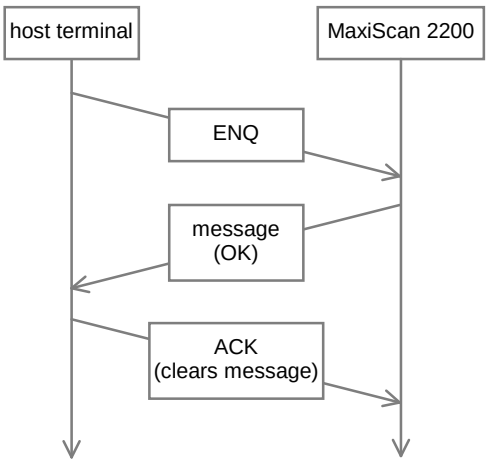
Compose hardware/software protocols time-out

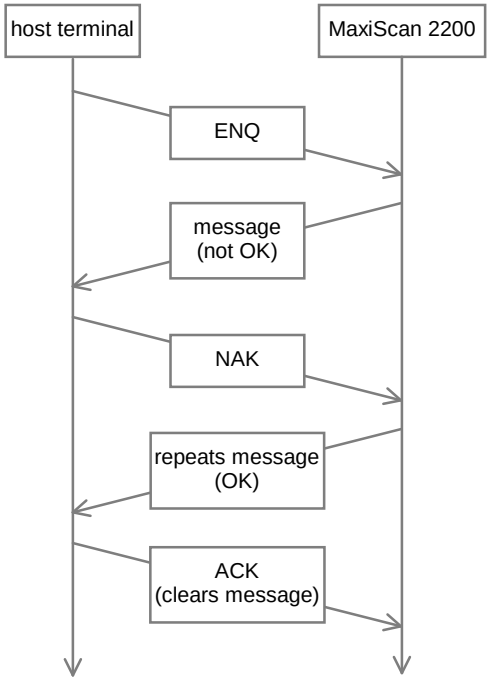
Example	To set a hardware and software timeout of 2 seconds (= 2000 ms): 1. Scan Compose Time-Out. 2. Scan the desired value in milliseconds—in our example we would scan 2 0 0 0—and scan End Selection to finish (➔ *Number codes* or appendix at the end of this manual).

Compose Time-Out (minimum = 1 ms, maximum = 2500 ms)

ENQ / ACK / NAK software protocol

Typical ENQ / ACK / NAK scenarios





ENQ enquiry character

Not Used (*)

ENQ (HEX 05)

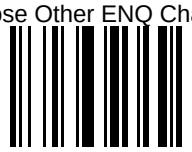
If ENQ is not used, the MaxiScan 2200 transmits barcode data without waiting for a request from the host system.

If an ENQ character is activated, the MaxiScan 2200 waits to receive the ENQ character from the host system before transmitting data after a good read. If no character is received before the end of the specified time-out (➔*RS-232 - Hardware/software protocols time-out*), the data is not transmitted (except for special configurations).

To use a different character for ENQ:

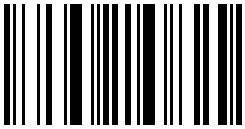
1. Scan Compose Other ENQ Character.
2. Scan the desired character code and scan End Selection to finish (➔ *ASCII character codes*).

Compose Other ENQ Character



ACK positive acknowledge character

Not Used (*)



ACK (HEX 06)

Scanning ACK or NAK activates the ACK/NAK protocol.

After a successful message transmission, the MaxiScan 2200 waits until the end of the protocol time-out before reading a new bar code. If there is no positive acknowledge (ACK) before the end of the specified time-out (➔*RS-232 - Hardware/software protocols time-out*), the MaxiScan 2200 processes as if there was a positive acknowledge (this behavior can be modified for special configurations).

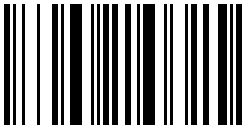
To use a different character for ACK:

1. Scan Compose Other ACK Character.
2. Scan the desired character code and scan End Selection to finish (➔ *ASCII character codes*).

Compose Other ACK Character

NAK negative acknowledge character

Not Used (*)



NAK (HEX 15)

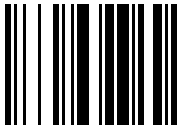
Scanning ACK or NAK activates the ACK/NAK protocol.

If the MaxiScan 2200 receives a negative acknowledge (NAK) after sending a message, it will send the message again. If it receives a negative acknowledge (NAK) after the third transmission, the message is aborted (this behavior can be modified for special configurations).

To use a different character for NAK:

1. Scan Compose Other NAK Character.
2. Scan the desired character code and scan End Selection to finish (➔ *ASCII character codes*).

Compose Other NAK Character



RS-232

XON/XOFF software protocol

Not Active (*)

Active

This protocol allows the host to control the flow of data from the MaxiScan 2200.

To interrupt reception of data, the host transmits the XOFF character (ASCII DC3) after the specified time-out (➔*RS-232 - Hardware/software protocols time-out*). To restart the flow, it sends the XON character (ASCII DC1).

CTS/RTS hardware protocol

The MaxiScan 2200 acts as a standard terminal and manages the RTS/CTS lines when configured.

RTS is activated (high) before data is transmitted and deactivated (low) when message transmission is completed after the specified time-out (➔*RS-232 - Hardware/software protocols time-out*).

CTS is tested before transmission of each character. Data is only transmitted when CTS is activated (high). If CTS is not used by the host system, the MaxiScan 2200 maintains the level high.

Not Active (*)

Active

Preamble / postamble

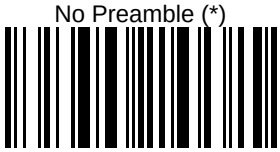
The MaxiScan 2200 can send preambles and postambles—control codes before and after each message—to emulate command keys on the keyboard and allow automatic data entry:

<preamble> *<barcode data>* *<postamble>*

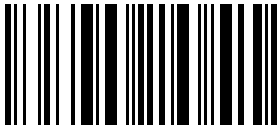
Customizable barcode type code marks can be inserted after the preamble and before the barcode data (➔ *Code mark*).

No preamble / no postamble

No Preamble (*)



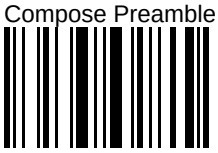
No Postamble



RS-232

Compose preamble / postamble

Compose Preamble



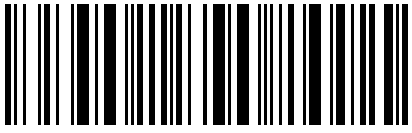
Compose Postamble

Each preamble and postamble can contain a maximum of 10 characters

Example	To enter the STX character (ASCII character 02) as a preamble: 1. Scan Compose Preamble. 2. Scan one or more character codes you want to include in the preamble—in our example we would scan the ASCII STX character code—and scan End Selection to finish (➔ *ASCII character codes*).

Predefined preamble/postamble code

Preamble = STX And Postamble = ETX

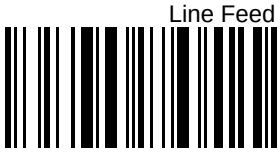


Predefined postamble codes

Carriage Return + Line Feed (*)

Carriage Return

Line Feed



Transmission delay

➔ *Inter-character delay*

➔ *Inter-message delay*

RS-232—Monitor mode

Monitor mode allows the MaxiScan 2200 to be configured or controlled directly by the terminal host via the RS-232 port.

1. Scan RS-232 Monitor Mode to activate monitor mode.
2. Look for the desired command strings in the parameter list (➔ *Parameter list / data strings*) or put the MaxiScan 2200 into Display Data String Mode (➔ *Configuration modes - Display data string mode*) and read the codes you want the host to transmit—the data string of each code you read will be displayed on the terminal screen.
3. Transmit the commands from the host terminal to the MaxiScan 2200. You can send monitor mode commands individually or make a list in a command file.

Monitor mode uses hexadecimal values. Make sure that the values you send from the host system correspond to these values.

For the value "\41" for example, the MaxiScan 2200 must receive the hexadecimal value 41 or its equivalent (ASCII character "A", for example), not the decimal value 41.

To quit monitor mode, switch off the MaxiScan 2200 or scan Reset Factory Defaults (➔ *Reset all configuration parameters*).

RS-232 Monitor Mode

Scan rate

1400 Scans Per Second (*)

The default scan rate of 1400 scans per second is suitable for normal-quality medium-resolution bar codes such as standard EAN (100%).

For other reading situations, you will optimize reading performance by finding the best scan rate for the bar codes you want to read.

reading situation	scan rate
normal-quality medium-resolution bar codes such as standard EAN (100% magnitude)	1400 Scans Per Second (*)
increased reading range for high-density bar codes (narrow bar width between 0.125 mm and 0.2 mm)	1200 Scans Per Second
fast reading of normal-quality UPC/EAN bar codes	1600 Scans Per Second

1200 Scans Per Second

1600 Scans Per Second

Software version identification

Software Version

Software Version displays on the host terminal screen (if applicable) the version of the software installed in the MaxiScan 2200.

Software version information is useful if you have a problem and need to contact your UBI representative (➔ *Troubleshooting*).

Software Version

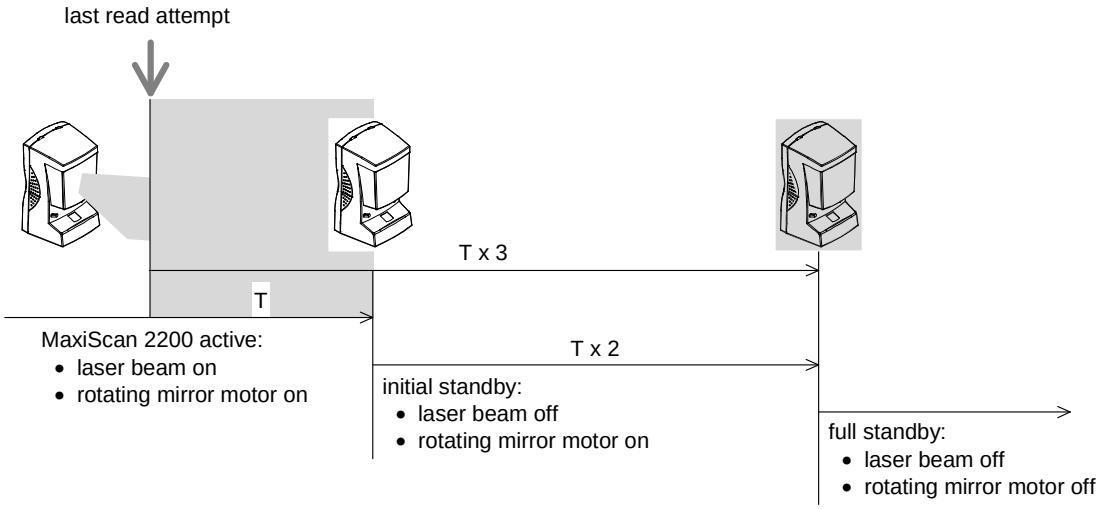
Standby mode

Standby Mode Enable (*)

Standby mode increases the lifetime of the laser diode (initial standby) and rotating mirror motor (full standby):

- after an initial period of inactivity (T), the laser beam is switched off automatically,
- after an additional period of inactivity (T x 2)—and a total period of inactivity T x 3—the rotating mirror motor is switched off.

The MaxiScan 2200 is reactivated when you try to read a new bar code. Wake-up is quicker after initial standby than after full standby.



Standby Mode Disable

Default standby settings

Initial Standby After 15 Minutes (*)

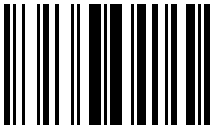
Default values before standby:

- initial standby: the laser beam is switched off after T = 15 minutes (900 seconds),
- full standby: the rotating mirror motor is switched off after an additional period of T x 2 = 30 minutes and a total period of inactivity of T x 3 = 45 minutes.

Composing a different time before standby

Example	To change the time before initial standby to 10 minutes (600 seconds): 1. Scan Compose Time In Seconds Before Initial Standby. 2. Scan 6 0 0 and scan End Selection to finish (➔ *Number codes* or appendix at the end of this manual). The MaxiScan 2200 will go into initial standby after 10 minutes and full standby after a total of 30 minutes after the last read attempt.

Compose Time In Seconds Before Initial Standby



Symbologies

Available symbologies

To optimize the performance of your MaxiScan 2200 and to ensure trouble-free scanning, do not select symbologies that you do not need.

If possible, do not select more than 2 symbologies at the same time—deactivate the Code 39 and UPC/EAN default symbologies if you do not need to use them.

- ➔ *Symbologies—Codabar*
- ➔ *Symbologies—Code 39 (*)*
- ➔ *Symbologies—Code 128 / EAN 128*
- ➔ *Symbologies—Interleaved 2 of 5*
- ➔ *Symbologies—Matrix 2 of 5*
- ➔ *Symbologies—MSI Code*
- ➔ *Symbologies—Plessey Code*
- ➔ *Symbologies—Standard 2 of 5*
- ➔ *Symbologies—UPC/EAN code families (UPC-A, UPC-E, EAN-8, EAN-13) (*)*

Default symbologies

Code 39 and the UPC/EAN code families are preselected by default.

When you install and set up your MaxiScan 2200 for the first time, all the symbology parameters are set to their factory default settings—indicated by an asterisk (*) in this manual.

The symbology default settings are global factory defaults—they are independent of the different symbology activation codes.

If you want to reset all the default symbology settings, you can scan the Reset Factory Defaults bar code (➔ *Reset all configuration parameters*), but you will then have to completely reconfigure your MaxiScan 2200. It is often easier to scan Disable All Symbologies and reactivate individual symbologies (➔ *Symbologies—Activation*).

Character formats and MaxiScan 2200 transmission format

symbology	character format supported	MaxiScan 2200 transmission format
• Code 39	alphanumeric—letter case not defined	upper case
• Code 128	alphanumeric full ASCII—letter case defined	full ASCII—lower case/upper case as defined
• Codabar • Interleaved 2 of 5 • Matrix 2 of 5, • Standard 2 of 5 • UPC/EAN code set	numerical	numerical

Barcode length and data security

As well as barcode length parameters, other configuration parameters help to increase the security of the data transmitted (➔ *Data decoding security parameters*).

The reliability of the barcode data transmitted can depend on the symbologies used—some symbologies are more "fragile" than others and errors may occur due to incorrect interpretation of code lengths.

Depending on the symbology used, the following barcode length parameters allow you to configure the MaxiScan 2200 to only accept codes which meet certain length requirements:

- Compose 1 Or 2 Or 3 Fixed Lengths—the safest option if you know that all the codes in your application have fixed lengths,
- Compose Minimum Length—if there are variable code lengths but you know that there is a minimum length.

All symbologies except UPC/EAN are set to a minimum code length of 6 characters by default.

You can use the special number codes (➔ *Number codes* or appendix at the end of this manual) or the ASCII character codes (➔ *ASCII character codes*) to enter the barcode lengths.

If you use the Compose Minimum Length option, we recommend that you use a check digit (if available) and the *Consecutive same read data validation* feature (➔ *Data decoding security parameters*) to ensure that the same read result is obtained on 2 or more successive reads before the read is validated.

Each symbology has its own set of configuration codes for barcode length parameters—you must only use the codes for your symbology.

Symbologies—Activation

To optimize the performance of your MaxiScan 2200 and to ensure trouble-free scanning, do not select symbologies that you do not need.

If possible, do not select more than 2 symbologies at the same time—deactivate the Code 39 and UPC/EAN default symbologies if you do not need to use them.

The symbology activation codes are also provided with the parameters for each symbology (➔ appropriate *Symbologies* section for your symbology).

Disable All Symbologies

Disable All Symbologies deactivates all the symbologies activated. If you want to deactivate individual symbologies, use the Not Active codes for each symbology.

Disable All Symbologies does not reset the individual parameter settings for each symbology. When you reactivate a symbology, you recover the parameter settings stored in memory for that symbology when it was disabled.

If you want to reset all the symbology parameters to their factory default values, you must scan the Reset Factory Defaults bar code (➔ *Reset all configuration parameters*).

Disable All Symbologies

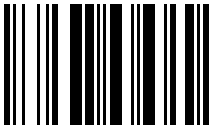
Symbology activation codes

Codabar—Not Active (*)

Codabar—Active

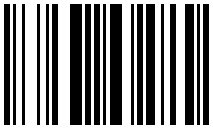
The default format for Code 39 is Standard 43 Characters.

Code 39—Not Active

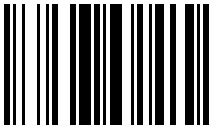


Code 39—Active (*)

Code 128 / EAN 128—Not Active (*)

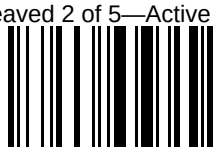


Code 128 / EAN 128—Active



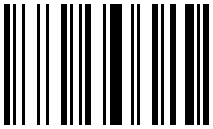
Interleaved 2 of 5—Not Active (*)

Interleaved 2 of 5—Active

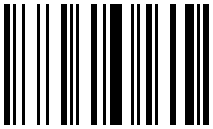


Symbologies—Activation

Matrix 2 of 5—Not Active (*)

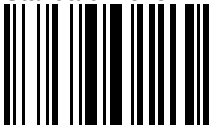


Matrix 2 of 5—Active

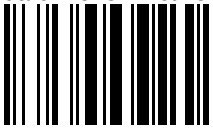


The default format for Standard 2 of 5 is Identicon (6 Bars).

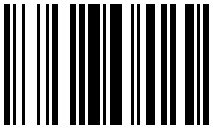
Standard 2 of 5—Not Active (*)



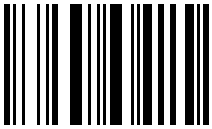
Standard 2 of 5—Active



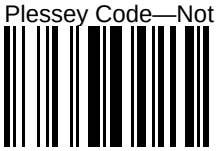
MSI Code—Not Active (*)



MSI Code—Active



Plessey Code—Not Active (*)



Plessey Code—Active

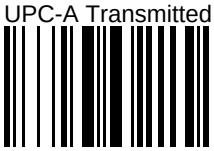
Symbologies—Activation

UPC/EAN—Not Active

UPC/EAN—Active (*)

Select the desired UPC/EAN format configuration and scan UPC/EAN—Active to enable.

UPC-A Transmitted as EAN-13 (*)



UPC-A Transmitted as UPC-A

UPC-A Deactivated

UPC-E Deactivated

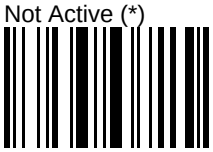
EAN-8 Deactivated

EAN-13 Deactivated

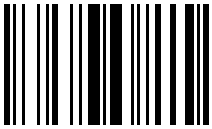
Symbologies—Codabar

Activation

Not Active (*)



Active

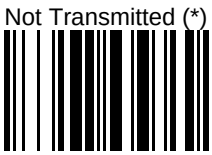


Default values

Start/stop	-	Not Transmitted
CLSI library system	-	Not Active
Check digit (AIM recommendation)	-	Not Used
Number of characters	-	Minimum Length = 6

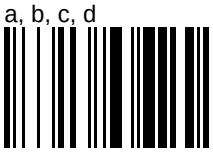
Start/stop

Not Transmitted (*)

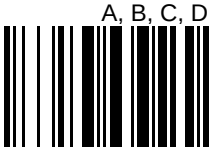


Start/stop

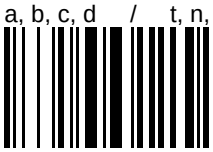
a, b, c, d



A, B, C, D



a, b, c, d / t, n, *, e



DC1, DC2, DC3, DC4

CLSI library system

Not Active (*)

Libraries in the CLSI system used in the United States require the insertion of spaces after characters 1, 5 and 10 in the 14-character label.

Example

39990000192148 is transmitted as: 3 9990 00019 2148

CLSI With Spaces inserts the spaces and activates automatic barcode reconstruction to increase decoding efficiency.

CLSI Without Spaces does not insert spaces but activates automatic barcode reconstruction for CLSI codes.

The start/stop code can be transmitted or not transmitted as required.

CLSI With Spaces

CLSI Without Spaces

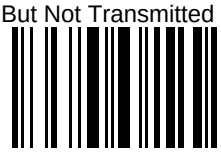
Check digit (AIM recommendation)

Not Used (*)

While Codabar has no check character, AIM has a recommended character. Each Codabar data character has a value assigned to it.

Checked And Transmitted

Checked But Not Transmitted



Symbologies—Codabar

AIM data character values

data character	value	data character	value
0	0	-	10
1	1	$	11
2	2	:	12
3	3	/	13
4	4	,	14
5	5	+	15
6	6	A	16
7	7	B	17
8	8	C	18
9	9	D	19

Calculation of the check digit

1. The values corresponding to all the Codabar data characters in the message (including Start/Stop characters) are added together to make a total.

2. The data character which must be added to this total to make a multiple of 16 is the check character.

Example	message:	A 0 1 2 3 4 B
	characters:	A 0 1 2 3 4 B
	values:	16 0 1 2 3 4 17
	sum of character values:	43
	next multiple of 16:	48
	48 - 43 =	5 (the check character)
	final message:	A 0 1 2 3 4 **5** B

Barcode length

Minimum Length = 6 (*)

Return To Current Minimum Length

Barcode length (number of characters) for Codabar = [start + barcode data + check digit if applicable + stop]. The minimum length possible is 3 characters.

If you scan Compose 1 Or 2 Or 3 Fixed Lengths or Compose Minimum Length, use the special number codes (➔ *Number codes* or appendix at the end of this manual) or the ASCII character codes (➔ *ASCII character codes*) to enter the barcode lengths.

Compose 1 Or 2 Or 3 Fixed Lengths provides the most security if the codes in your application have fixed lengths:

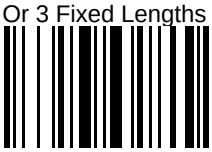
- if you use the number codes, scan End Selection after each length and scan End Selection a second time when you have finished (after 1, 2 or 3 fixed lengths),
- if you use the ASCII codes, do not scan End Selection until you have finished entering all the lengths (after 1, 2 or 3 fixed lengths).

Compose Minimum Length provides a certain degree of security if you know the minimum length of the codes in your application—enter the minimum length (number codes or ASCII code) and scan End Selection to finish.

Return To Current Minimum Length cancels any fixed length settings.

Compose Minimum Length

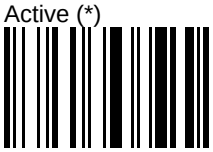
Compose 1 Or 2 Or 3 Fixed Lengths



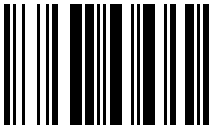
Symbologies—Code 39 (*)

Activation

Active (*)



Not Active



Select the desired Code 39 format if required (Standard 43 Characters or Full ASCII) and scan Active to enable.

Full ASCII characters are encoded using one of the four control characters ($, %, /, +) in combination with a letter (➔ *Full ASCII conversion chart—Code 39* on the next page).

Default values

Code 39 format	-	Standard 43 Characters
Start/stop	-	Not Transmitted
Check digit	-	Not Used
Number of characters	-	Minimum Length = 6

Code 39 format

Standard 43 Characters (*)

Full ASCII

Full ASCII conversion chart—Code 39

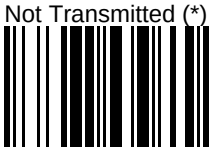
Code 39	ASCII	Hex	Code 39	ASCII	Hex	Code 39	ASCII	Hex	Code 39	ASCII	Hex
%U	NUL	00	Space	SP	20	%V	@	40	%W	‘	60
$A	SOH	01	/A	!	21	A	A	41	+A	a	61
$B	STX	02	/B	"	22	B	B	42	+B	b	62
$C	ETX	03	/C	#	23	C	C	43	+C	c	63
$D	EOT	04	$	$	24	D	D	44	+D	d	64
$E	ENQ	05	%	%	25	E	E	45	+E	e	65
$F	ACK	06	/F	&	26	F	F	46	+F	f	66
$G	BEL	07	/G	’	27	G	G	47	+G	g	67
$H	BS	08	/H	(	28	H	H	48	+H	h	68
$I	HT	09	/I	)	29	I	I	49	+I	i	69
$J	LF	0A	/J	*	2A	J	J	4A	+J	j	6A
$K	VT	0B	+	+	2B	K	K	4B	+K	k	6B
$L	FF	0C	/L	,	2C	L	L	4C	+L	l	6C
$M	CR	0D	/M	-	2D	M	M	4D	+M	m	6D
$N	SO	0E	/N	.	2E	N	N	4E	+N	n	6E
$O	SI	0F	/	/	2F	O	O	4F	+O	o	6F
$P	DLE	10	0	0	30	P	P	50	+P	p	70
$Q	DC1	11	1	1	31	Q	Q	51	+Q	q	71
$R	DC2	12	2	2	32	R	R	52	+R	r	72
$S	DC3	13	3	3	33	S	S	45	+S	s	73
$T	DC4	14	4	4	34	T	T	54	+T	t	74
$U	NAK	15	5	5	35	U	U	55	+U	u	75
$V	SYN	16	6	6	36	V	V	56	+V	v	76
$W	ETB	17	7	7	37	W	W	57	+W	w	77
$X	CAN	18	8	8	38	X	X	58	+X	x	78
$Y	EM	19	9	9	39	Y	Y	59	+Y	y	79
$Z	SUB	1A	/Z	:	3A	Z	Z	5A	+Z	z	7A
%A	ESC	1B	%F	;	3B	%K	[	5B	%P	{	7B
%B	FS	1C	%G	<	3C	%L	\	5C	%Q	|	7C
%C	GS	1D	%H	=	3D	%M	]	5D	%R	}	7D
%D	RS	1E	%I	>	3E	%N	^	5E	%S	~	7E
%E	US	1F	%J	?	3F	%O	_	5F	%T	DEL	7F

Symbologies—Code 39 (*)

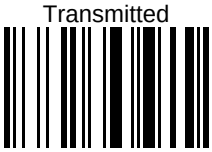
Start/stop

Transmission

Not Transmitted (*)



Transmitted



Check digit

Deactivation

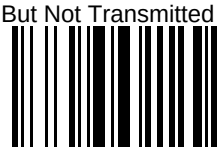
Not Used (*)

Modulo 43 check digit

The modulo 43 check digit is a character added to the end of the Code 39 barcode label for extra validation of the data.

Checked And Transmitted

Checked But Not Transmitted



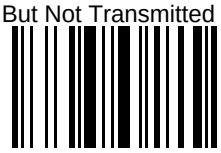
Symbologies—Code 39 (*)

Check digit

French CIP check digit

French CIP Check Digit
Checked And Transmitted

French CIP Check Digit
Checked But Not Transmitted



The French CIP check digit is used in the French pharmaceutical industry. It is only used for codes with seven characters.

If the French CIP check digit is used, the MaxiScan 2200 automatically performs code reconstruction to optimize reading.

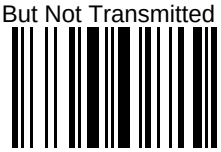
Italian CPI check digit

The Italian CPI check digit is used in the Italian pharmaceutical industry. If the Code 39 read does not match an Italian checksum, it is transmitted as a standard Code 39.

If the Italian CPI check digit is used, the MaxiScan 2200 automatically performs code reconstruction to optimize reading.

Italian CPI Check Digit
Checked And Transmitted

Italian CPI Check Digit
Checked But Not Transmitted



Barcode length

Minimum Length = 6 (*)

Return To Current Minimum Length

Barcode length (number of characters) for Code 39 = [start + barcode data + check digit if applicable + stop]. The minimum length possible is 3 characters.

If you scan Compose 1 Or 2 Or 3 Fixed Lengths or Compose Minimum Length, use the special number codes (➔ *Number codes* or appendix at the end of this manual) or the ASCII character codes (➔ *ASCII character codes*) to enter the barcode lengths.

Compose 1 Or 2 Or 3 Fixed Lengths provides the most security if the codes in your application have fixed lengths:

- if you use the number codes, scan End Selection after each length and scan End Selection a second time when you have finished (after 1, 2 or 3 fixed lengths),
- if you use the ASCII codes, do not scan End Selection until you have finished entering all the lengths (after 1, 2 or 3 fixed lengths).

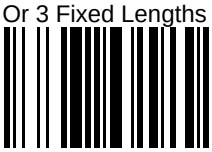
If only 1 fixed length is entered, the MaxiScan 2200 automatically performs code reconstruction to optimize reading.

Compose Minimum Length provides a certain degree of security if you know the minimum length of the codes in your application—enter the minimum length (number codes or ASCII code) and scan End Selection to finish.

Return To Current Minimum Length cancels any fixed length settings.

Compose Minimum Length

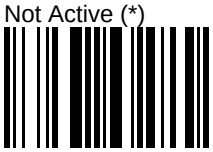
Compose 1 Or 2 Or 3 Fixed Lengths



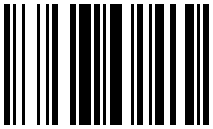
Symbologies—Code 128 / EAN 128

Activation

Not Active (*)



Active



New normalization allows decoding of the UCC/EAN standard extension. EAN 128 is auto-discriminating with Code 128 (recognition of the FNC1 start character used).

Default values

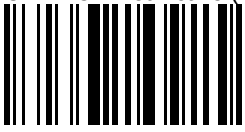
CIP 128 French pharmaceutical codes	-	Not Active
FNC1 separator character for EAN-128 norms	-	GS function character (ASCII 29)
Number of characters	-	Minimum Length = 6

CIP 128 French pharmaceutical codes

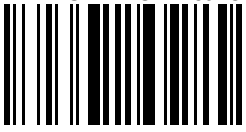
CIP 128 French pharmaceutical bar codes have the following characteristics:

- embedded CIP 39 data,
- fixed length 14 characters,
- Code 128 character set C.

CIP 128—Not Active (*)



CIP 128—Active



Code EAN-128 norms (auto-discriminating)

Compose FNC1 separator character

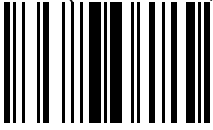
Inside the code, the FNC1 character can be used as a separator when multiple identifiers and their fields are concatenated. It is transmitted as the GS function character (ASCII 29) by default and can be substituted by your own ASCII character (used for example for keyboard wedge interfaces where the GS character can not be transmitted).

Example

If you want to use SP (ASCII character 32) as FNC1 separator character:

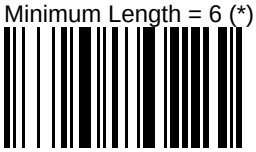
1. Use your MaxiScan 2200 to read the Compose Other Character bar code.
2. Scan the desired ASCII character and scan End Selection (➔ *ASCII character codes*).

Compose Other Character (default = GS, ASCII character 29)



Barcode length

Minimum Length = 6 (*)



Return To Current Minimum Length

Barcode length (number of characters) for Code 128 / EAN 128 = [barcode data]. The minimum length possible is 1 character.

Code 128 / EAN 128 does not use the same number of characters to code alphanumerical data and numerical data. If the MaxiScan 2200 does not read bar codes in your application, this may be due to unsuitable minimum or fixed lengths—try entering shorter lengths to get round this problem.

If you scan Compose 1 Or 2 Or 3 Fixed Lengths or Compose Minimum Length, use the special number codes (➔ *Number codes* or appendix at the end of this manual) or the ASCII character codes (➔ *ASCII character codes*) to enter the barcode lengths.

Compose 1 Or 2 Or 3 Fixed Lengths provides the most security if the codes in your application have fixed lengths:

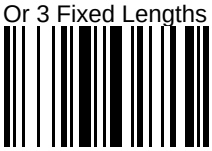
- if you use the number codes, scan End Selection after each length and scan End Selection a second time when you have finished (after 1, 2 or 3 fixed lengths),
- if you use the ASCII codes, do not scan End Selection until you have finished entering all the lengths (after 1, 2 or 3 fixed lengths).

Compose Minimum Length provides a certain degree of security if you know the minimum length of the codes in your application—enter the minimum length (number codes or ASCII code) and scan End Selection to finish.

Return To Current Minimum Length cancels any fixed length settings.

Compose Minimum Length

Compose 1 Or 2 Or 3 Fixed Lengths



Symbologies—EAN-8, EAN-13

➔ *Symbologies—UPC/EAN code families (UPC-A, UPC-E, EAN-8, EAN-13)*

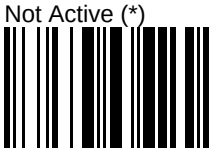
Symbologies—EAN 128

➔ *Symbologies—Code 128 / EAN 128*

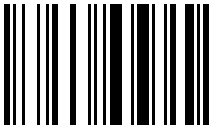
Symbologies—Interleaved 2 of 5

Activation

Not Active (*)



Active



Default values

Check digit	-	Not used
Number of characters	-	Minimum Length = 6

Symbologies—Interleaved 2 of 5

Check digit

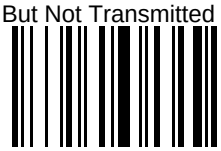
Not Used (*)

An Interleaved 2 of 5 check digit can be used as the last encoded character of a label. This is especially recommended when using variable length Interleaved 2 of 5 and if the *Consecutive same read data validation* feature is not activated (➔ *Data decoding security parameters*).

Check digit mod 10

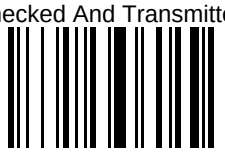
Checked And Transmitted

Checked But Not Transmitted



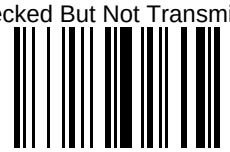
French CIP HR check digit

Checked And Transmitted



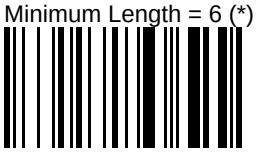
The CIP HR check digit is used in the French pharmaceutical industry. It is only used for codes with seven characters.

Checked But Not Transmitted



Barcode length

Minimum Length = 6 (*)



Return To Current Minimum Length

Barcode length (number of characters) for Interleaved 2 of 5 = [barcode data + check digit if applicable]. The minimum length possible is 2 characters.

Interleaved 2 of 5 always encodes an even number of characters. To handle codes with an odd number of characters, the MaxiScan 2200 will accept a code with the last character printed as 5 narrow bars. In this case, all useful characters are transmitted.

If you scan Compose 1 Or 2 Or 3 Fixed Lengths or Compose Minimum Length, use the special number codes (➔ *Number codes* or appendix at the end of this manual) or the ASCII character codes (➔ *ASCII character codes*) to enter the barcode lengths.

Compose 1 Or 2 Or 3 Fixed Lengths provides the most security if the codes in your application have fixed lengths:

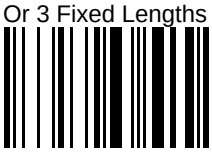
- if you use the number codes, scan End Selection after each length and scan End Selection a second time when you have finished (after 1, 2 or 3 fixed lengths),
- if you use the ASCII codes, do not scan End Selection until you have finished entering all the lengths (after 1, 2 or 3 fixed lengths).

Compose Minimum Length provides a certain degree of security if you know the minimum length of the codes in your application—enter the minimum length (number codes or ASCII code) and scan End Selection to finish.

Return To Current Minimum Length cancels any fixed length settings.

Compose Minimum Length

Compose 1 Or 2 Or 3 Fixed Lengths

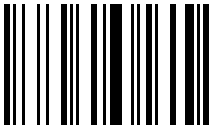


Symbologies—Matrix 2 of 5

Activation

Not Active (*)

Active

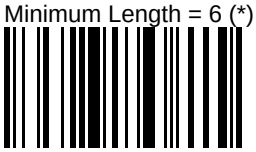


Default values

Number of characters	-	Minimum Length = 6

Barcode length

Minimum Length = 6 (*)



Return To Current Minimum Length

Barcode length (number of characters) for Matrix 2 of 5 = [barcode data]. The minimum length possible is 3 characters.

If you scan Compose 1 Or 2 Or 3 Fixed Lengths or Compose Minimum Length, use the special number codes (➔ *Number codes* or appendix at the end of this manual) or the ASCII character codes (➔ *ASCII character codes*) to enter the barcode lengths.

Compose 1 Or 2 Or 3 Fixed Lengths provides the most security if the codes in your application have fixed lengths:

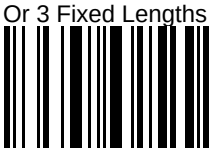
- if you use the number codes, scan End Selection after each length and scan End Selection a second time when you have finished (after 1, 2 or 3 fixed lengths),
- if you use the ASCII codes, do not scan End Selection until you have finished entering all the lengths (after 1, 2 or 3 fixed lengths).

Compose Minimum Length provides a certain degree of security if you know the minimum length of the codes in your application—enter the minimum length (number codes or ASCII code) and scan End Selection to finish.

Return To Current Minimum Length cancels any fixed length settings.

Compose Minimum Length

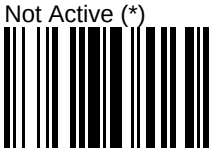
Compose 1 Or 2 Or 3 Fixed Lengths



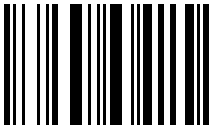
Symbologies—MSI Code

Activation

Not Active (*)



Active



Default values

Check digit mod 10	-	Checked And Transmitted
Number of characters	-	Minimum Length = 6

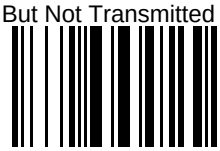
Symbologies—MSI Code

Check digit

Check Digit Mod 10

Checked And Transmitted (*)

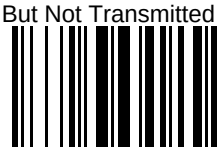
Checked But Not Transmitted



Check Digit Double Mod 10

Checked And Transmitted

Checked But Not Transmitted



Barcode length

Minimum Length = 6 (*)

Return To Current Minimum Length

Barcode length (number of characters) for MSI Code = [barcode data + check digit]. The minimum length possible is 2 characters.

If you scan Compose 1 Or 2 Or 3 Fixed Lengths or Compose Minimum Length, use the special number codes (➔ *Number codes* or appendix at the end of this manual) or the ASCII character codes (➔ *ASCII character codes*) to enter the barcode lengths.

Compose 1 Or 2 Or 3 Fixed Lengths provides the most security if the codes in your application have fixed lengths:

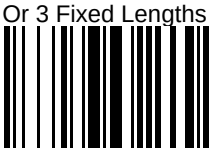
- if you use the number codes, scan End Selection after each length and scan End Selection a second time when you have finished (after 1, 2 or 3 fixed lengths),
- if you use the ASCII codes, do not scan End Selection until you have finished entering all the lengths (after 1, 2 or 3 fixed lengths).

Compose Minimum Length provides a certain degree of security if you know the minimum length of the codes in your application—enter the minimum length (number codes or ASCII code) and scan End Selection to finish.

Return To Current Minimum Length cancels any fixed length settings.

Compose Minimum Length

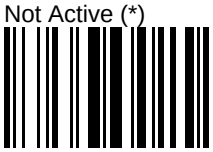
Compose 1 Or 2 Or 3 Fixed Lengths



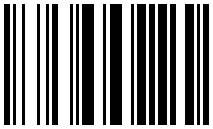
Symbologies—Plessey Code

Activation

Not Active (*)



Active



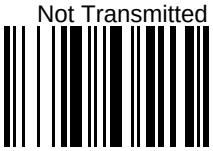
Default values

Check digit	-	Transmitted
Number of characters	-	Minimum Length = 6

Check digit

Transmitted (*)

Not Transmitted



Barcode length

Minimum Length = 6 (*)

Return To Current Minimum Length

Barcode length (number of characters) for Plessey Code = [start + barcode data + 2-character check digit + stop]. The minimum length possible is 5 characters. The maximum length possible is 25 characters.

If you scan Compose 1 Or 2 Or 3 Fixed Lengths or Compose Minimum Length, use the special number codes (➔ *Number codes* or appendix at the end of this manual) or the ASCII character codes (➔ *ASCII character codes*) to enter the barcode lengths.

Compose 1 Or 2 Or 3 Fixed Lengths provides the most security if the codes in your application have fixed lengths:

- if you use the number codes, scan End Selection after each length and scan End Selection a second time when you have finished (after 1, 2 or 3 fixed lengths),
- if you use the ASCII codes, do not scan End Selection until you have finished entering all the lengths (after 1, 2 or 3 fixed lengths).

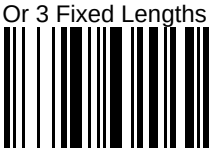
If only 1 fixed length is entered, the MaxiScan 2200 automatically performs code reconstruction to optimize reading.

Compose Minimum Length provides a certain degree of security if you know the minimum length of the codes in your application—enter the minimum length (number codes or ASCII code) and scan End Selection to finish.

Return To Current Minimum Length cancels any fixed length settings.

Compose Minimum Length

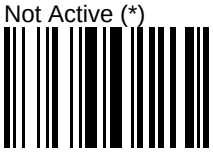
Compose 1 Or 2 Or 3 Fixed Lengths



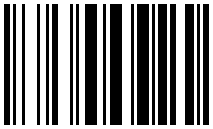
Symbologies—Standard 2 of 5

Activation

Not Active (*)



Active



Standard 2 of 5 is also referred to as "Straight 2 of 5" and "Industrial 2 of 5".

Select the desired Standard 2 of 5 format if required (Identicon or Computer Identics) and scan Active to enable.

Default values

Standard 2 of 5 format	-	Identicon (6 Start/Stop Bars)
Check digit	-	Not Used
Number of characters	-	Minimum Length = 6

Standard 2 of 5 format

Identicon (6 Start/Stop Bars) (*)

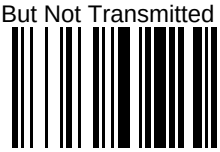
Computer Identics (4 Start/Stop Bars)

Check digit mod 10

Not Used (*)

Checked And Transmitted

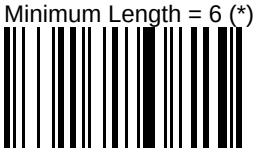
Checked But Not Transmitted



Symbologies—Standard 2 of 5

Barcode length

Minimum Length = 6 (*)



Return To Current Minimum Length

Barcode length (number of characters) for Standard 2 of 5 = [barcode data + check digit if applicable]. The minimum length possible is 3 characters.

If you scan Compose 1 Or 2 Or 3 Fixed Lengths or Compose Minimum Length, use the special number codes (➔ *Number codes* or appendix at the end of this manual) or the ASCII character codes (➔ *ASCII character codes*) to enter the barcode lengths.

Compose 1 Or 2 Or 3 Fixed Lengths provides the most security if the codes in your application have fixed lengths:

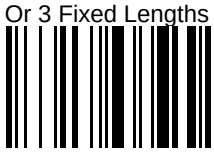
- if you use the number codes, scan End Selection after each length and scan End Selection a second time when you have finished (after 1, 2 or 3 fixed lengths),
- if you use the ASCII codes, do not scan End Selection until you have finished entering all the lengths (after 1, 2 or 3 fixed lengths).

Compose Minimum Length provides a certain degree of security if you know the minimum length of the codes in your application—enter the minimum length (number codes or ASCII code) and scan End Selection to finish.

Return To Current Minimum Length cancels any fixed length settings.

Compose Minimum Length

Compose 1 Or 2 Or 3 Fixed Lengths

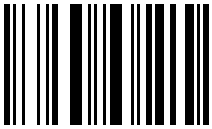


Symbologies—UPC/EAN code families (*) (UPC-A, UPC-E, EAN-8, EAN-13)

Activation

Active—UPC/EAN (*)

Not Active—UPC/EAN



Select the desired UPC/EAN format configuration and scan Active—UPC/EAN to enable.

The MaxiScan 2200 automatically performs code reconstruction for UPC-A, EAN-8 and EAN-13 to optimize reading.

In the case of an unregular UPC-E with number system equal to 1—usually the first printed character—you must deactivate EAN-13 format.

Selecting Active—UPC/EAN reactivates all deactivated families.

Default values

UPC/EAN format type	-	all formats active (UPC-A, UPC-E, EAN-8, EAN-13)
Add-on digits	-	Not Required But Transmitted If Read
	-	Add-On 2 Deactivated
	-	Add-On 5 Deactivated
Check digit UPC-A	-	Transmitted
Check digit UPC-E	-	Transmitted
Check digit EAN-8	-	Transmitted
Check digit EAN-13	-	Transmitted
UPC-A number system	-	Transmitted
UPC-E number system	-	Transmitted
Re-encoding UPC-E, UPC-A, EAN-8	-	UPC-A Transmitted as EAN-13
	-	UPC-E Transmitted as UPC-E
	-	EAN-8 Transmitted as EAN-8

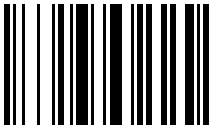
Symbologies—UPC/EAN code families (*)

UPC/EAN format selection

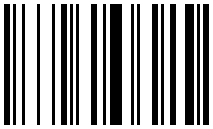
UPC-A Deactivated

UPC-E Deactivated

EAN-8 Deactivated

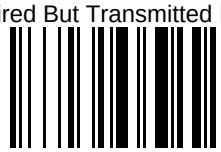


EAN-13 Deactivated

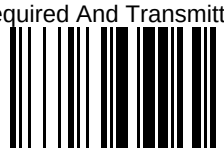


Add-on digits

Not Required But Transmitted If Read (*)



Required And Transmitted



Symbologies—UPC/EAN code families (*)

Add-on digits

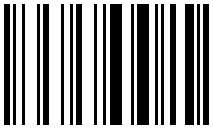
Add-On 2

Not Active (*)

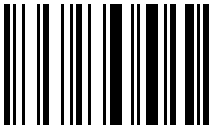
Active

Add-On 5

Not Active (*)



Active

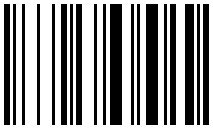


Check digit

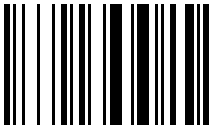
UPC/EAN code format: *<leading character> <number system> <data> <check digit>*

UPC-A check digit

Transmitted (*)



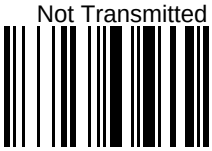
Not Transmitted



UPC-E check digit

Transmitted (*)

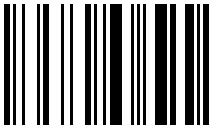
Not Transmitted



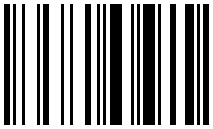
Symbologies—UPC/EAN code families (*)

EAN-8 check digit

Transmitted (*)

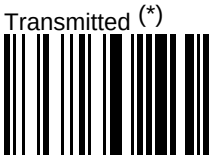


Not Transmitted

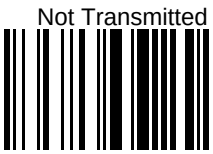


EAN-13 check digit

Transmitted (*)



Not Transmitted

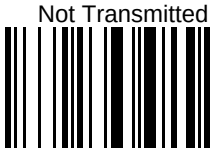


Transmission of number system

UPC-A number system

Transmitted (*)

Not Transmitted

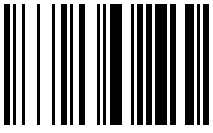


UPC/EAN code format: *<leading character> <number system> <data> <check digit>*

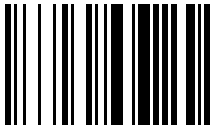
A regular UPC-A has a transmitted number system equal to 0. To transmit the additional leading character (country code), select the parameter UPC-A Transmitted As EAN-13.

UPC-E number system

Transmitted (*)



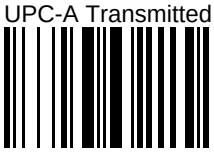
Not Transmitted



Symbologies—UPC/EAN code families (*)

Re-encoding UPC-A, UPC-E, EAN-8

UPC-A Transmitted as EAN-13 (*)



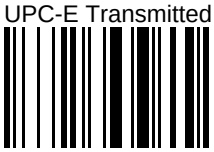
UPC-A Transmitted as UPC-A

These parameters convert the decoded data to other code formats. Transmission will only take into account the parameters available for the target bar code format.

UPC/EAN code format: *<leading character> <number system> <data> <check digit>*

A regular UPC-A has a transmitted number system equal to 0. To transmit the additional leading character (country code), select the parameter UPC-A Transmitted As EAN-13.

UPC-E Transmitted as UPC-E (*)



UPC-E Transmitted as UPC-A

Symbologies—UPC/EAN code families (*)

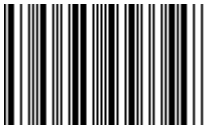
EAN-8 Transmitted as EAN 8 (*)

EAN-8 Transmitted as EAN-13

Test codes

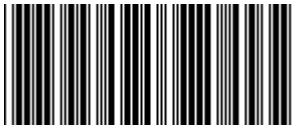
One-dimensional symbologies

Codabar



123456

Code 39



CODE-39

Code 128

CODE-128

EAN 128

(]C1)EAN 128

Test codes

EAN-8

12345670

EAN-13

1234567890128

UPC-A

0 01234 50000 7

UPC-E

0 0 1 2 3 4 5 7

Test codes

Interleaved 2 of 5

12345678901234

Matrix 2 of 5

012345

Standard 2 of 5

123456

MSI Code

12345666

Plessey Code

80001495050

Troubleshooting

The tables in this section describe some common problems you may encounter when you use your MaxiScan 2200 (power-up, normal operation, configuration). Look for a description of your problem in the *symptoms* columns and try the proposed solution given in the *action* column.

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

Before you contact your UBI representative . . .

If you do not find a solution in the following *Troubleshooting* tables, you can try a general reset of the MaxiScan 2200 (➔ *Reset all configuration parameters*).

If you still have a problem . . .

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

Your UBI representative may ask you to provide the software version number for your MaxiScan 2200. If the MaxiScan 2200 is powered up, try to read the Software Version code to display this information on your host system screen if applicable (➔ *Software version identification*).

Power-up problems

symptoms	possible causes	action (➔ *refer to*)
no red power-up LED / no power-up beeps	no electrical power or insufficient electrical power (especially keyboard wedge)	check power supply with MaxiScan 2200 connected.
	connection problems	check connections (*Connection* diagram for your interface)
	incorrect product components (MaxiScan 2200 model, cables, external power supply as applicable)	check product part numbers, order form and invoice + *Connection* diagram for your interface, *Interfaces*
red power-up LED but no power-up beeps	power-up beeps deactivated	activate power-up beeps (*Beeps*)
indicator LED flashes orange a number of times at power-up	number of flashes indicate the selected interface type	• check the number of flashes for your interface (*Interfaces*) • reselect correct interface number for your system if necessary (*Predefined interface numbers* section for your interface, *Compose interface number*) and reconfigure
continuous orange indicator LED at power-up	null interface following Reset Factory Defaults	scan the predefined interface number code for your system (*Predefined interface numbers* section for your interface) or enter the correct interface number (*Compose interface number*) and reconfigure
error beeps from keyboard when connecting MaxiScan 2200	host system already switched on	wait a few seconds—the beeps should stop
3 long beeps at power-up	EEPROM integrity error	contact UBI Technical Support

Configuration problems

symptoms	possible causes	action (➔ *refer to*)
6 short beeps when reading a configuration code	configuration error: • option not available • interface number not available • optional feature not implemented • commands not read in the correct order • other setup errors	check current action—make sure in particular that you have scanned End Selection once or twice if required for the previous parameter
no success beeps when reading a configuration code	installation problem	check MaxiScan 2200 power supply, connections (*Connection* diagram for your interface), product components
	MaxiScan 2200 in Configuration Inhibit After 4 mn mode	scan Configuration Enable Mode (*Configuration modes*)
MaxiScan 2200 reads the same configuration code more than once, does not transmit any data	insufficient time-out between identical consecutive codes	increase time-out between identical consecutive codes (*Data decoding security parameters*)
code mark selection not taken into account	you forgot to scan End Selection after scanning the desired ASCII character	re-enter the desired code mark (*Code mark*) and scan End Selection (*ASCII character codes*)
	code mark value has been selected but code mark transmission is not activated.	read Code Mark Transmitted (*Code mark*)
3 long beeps during configuration	EEPROM integrity error	contact UBI Technical Support

Operating problems

symptoms	possible causes	action (➔ *refer to*)
no beeps or orange LED indication during reading, no transmission	installation problem	check MaxiScan 2200 power supply, connections (*Connection* diagram for your interface), product components
	configuration problem	• check you have the correct product components (MaxiScan 2200 model, cables, CMM, external power supply as applicable) • check you have the correct number of flashes for your interface at power-up (*Interfaces*) • reselect correct interface number for your system if necessary (*Predefined interface numbers* section for your interface, *Compose interface number*) • if you have just configured the MaxiScan 2200, make sure you have finished correctly—the MaxiScan 2200 may be waiting for an End Selection for example
	symbology not selected	activate the required symbology (*Symbologies—Activation*)
	symbology not supported by your MaxiScan 2200 model	see the list of supported symbologies, read the appropriate test code (*Test codes*)
	good read beep / LED deactivated	activate if required (*Beeps*)
	barcode length incompatible with MaxiScan 2200 configuration (minimum/fixed length parameter settings)	• check bar code • change barcode length setting for your symbology (*Symbologies*)
	MaxiScan 2200 configured for check digit and no check digit present in code	• check bar code • change check digit configuration for your symbology if applicable (*Symbologies*)
poor reading performance	dirty or damaged red reading window	clean or replace as required (see *MaxiScan 2200 Installation Guide*)

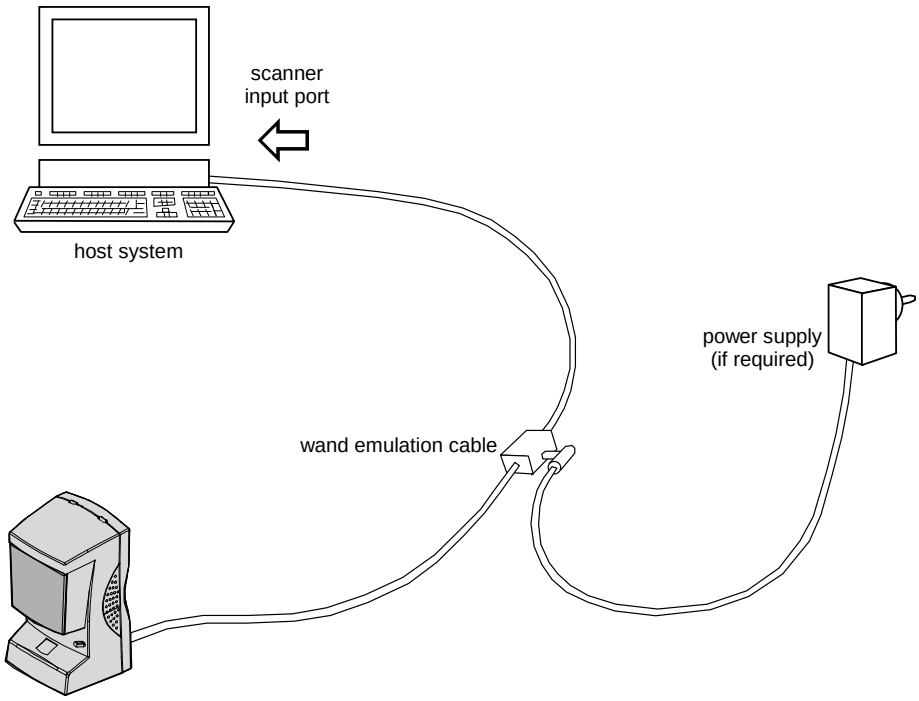
Troubleshooting

Operating problems

symptoms	possible causes	action (➔ *refer to*)
	incorrect reading distance for your reading situation	select correct reading distance (*Reading distance*)
	incorrect resolution adjustment (video channel) for the type of codes you read	select correct video channel (*Resolution adjustment—Video channel selection*)
	incorrect scan rate	select correct scan rate (*Scan rate*)
error beeps from keyboard or no manual keyboard response (keyboard wedge interface)	disconnect MaxiScan 2200 from CMM:	
	• if problem disappears, the problem is with the MaxiScan 2200	check MaxiScan 2200 model and configuration
	• if problem remains . . .	check all product components (MaxiScan 2200 model, cables, CMM, power supply as applicable), installation and configuration
MaxiScan 2200 reads the same bar code more than once, transmits same data	insufficient time-out between identical consecutive codes	increase time-out between identical consecutive codes (*Data decoding security parameters*)
MaxiScan 2200 reads the same bar code more than once, transmits different data	insufficient time-out between different consecutive codes	increase time-out between different consecutive codes (*Data decoding security parameters*)
	insufficient number of data validation reads	increase number of consecutive same reads before transmission (*Data decoding security parameters*)

Wand emulation

Connection



1. Switch off the host system.
2. Use the wand emulation cable to connect the MaxiScan 2200 to the host system.
3. If your host system requires an external power supply:
   - Connect the power supply to the wand emulation cable.
   - Plug the power supply into the mains socket.

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

Wand emulation

Predefined interface numbers

N° 130 - Digital Wand Emulation

If your interface number is not among the predefined interface numbers, you must compose the number yourself (➔ *Compose interface number*).

The orange indicator LED of MaxiScan 2200 models configured for wand emulation will flash 4 times at power-up.

N° 131 - Analog Wand Emulation

Predefined data transmission settings

Predefined settings for Wand emulation - Interface N° 130

margin size	-	10 x narrow bar width
logical signal state during transmission	-	bar = 1, space = 0, margin = 0
logical signal state outside transmission	-	quiet zone = 0
pulse duration	-	0.88 ms (37.5 cm/s)

In this section, the predefined parameter settings for Interface N° 130 (standard wand emulation configuration) are indicated by an asterisk (*).

Transmission delay

➔ *Inter-message delay*

Wand emulation

Margin size

Predefined margin size

The size of the default margin is 10 times the size of the narrow bar (50 µs).

10 x Narrow Bar Width (*)

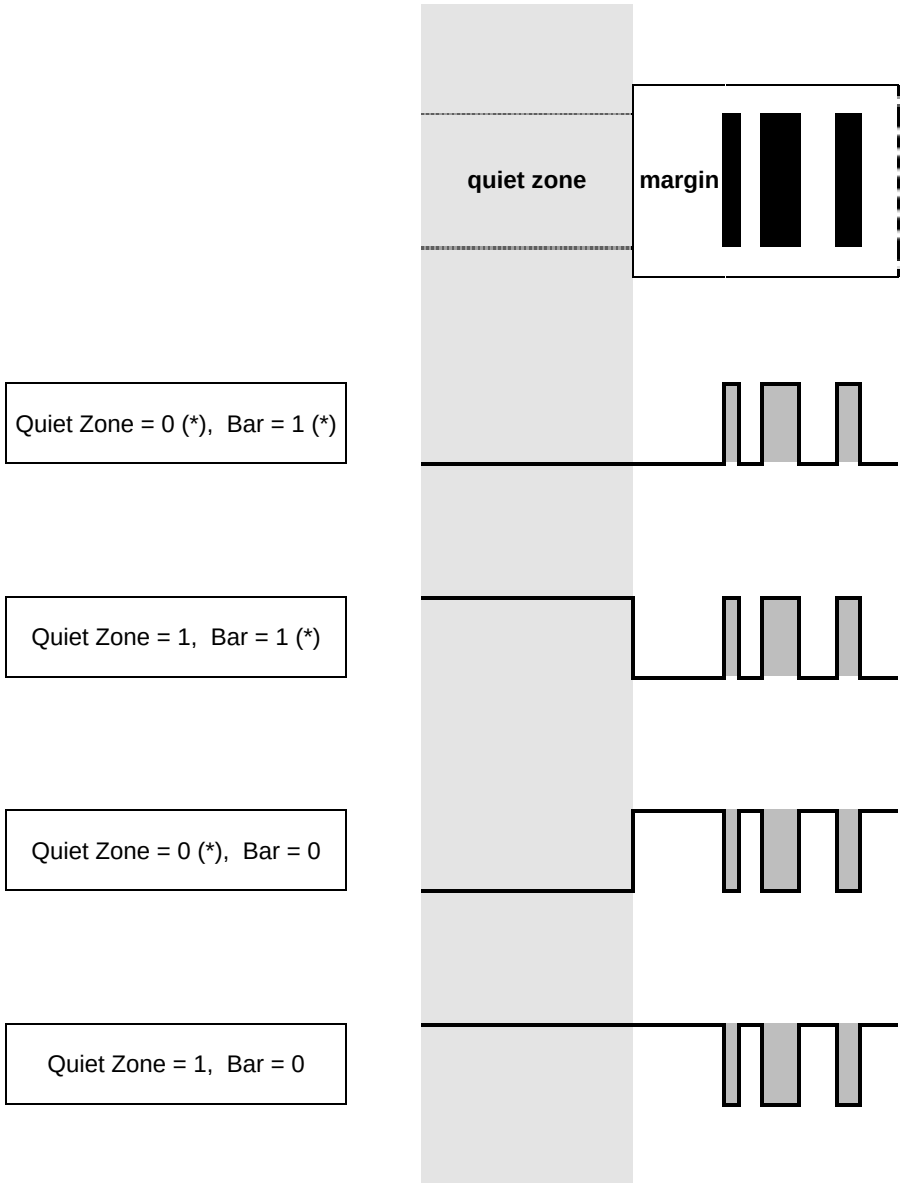
Compose margin size

Example	To set a margin size of 20 x the narrow bar width: 1. Scan Compose Margin Size. 2. Scan the desired value in narrow-bar increments—in our example we would scan 2 0—and scan End Selection to finish (➔ *Number codes* or appendix at the end of this manual).

Compose Margin Size

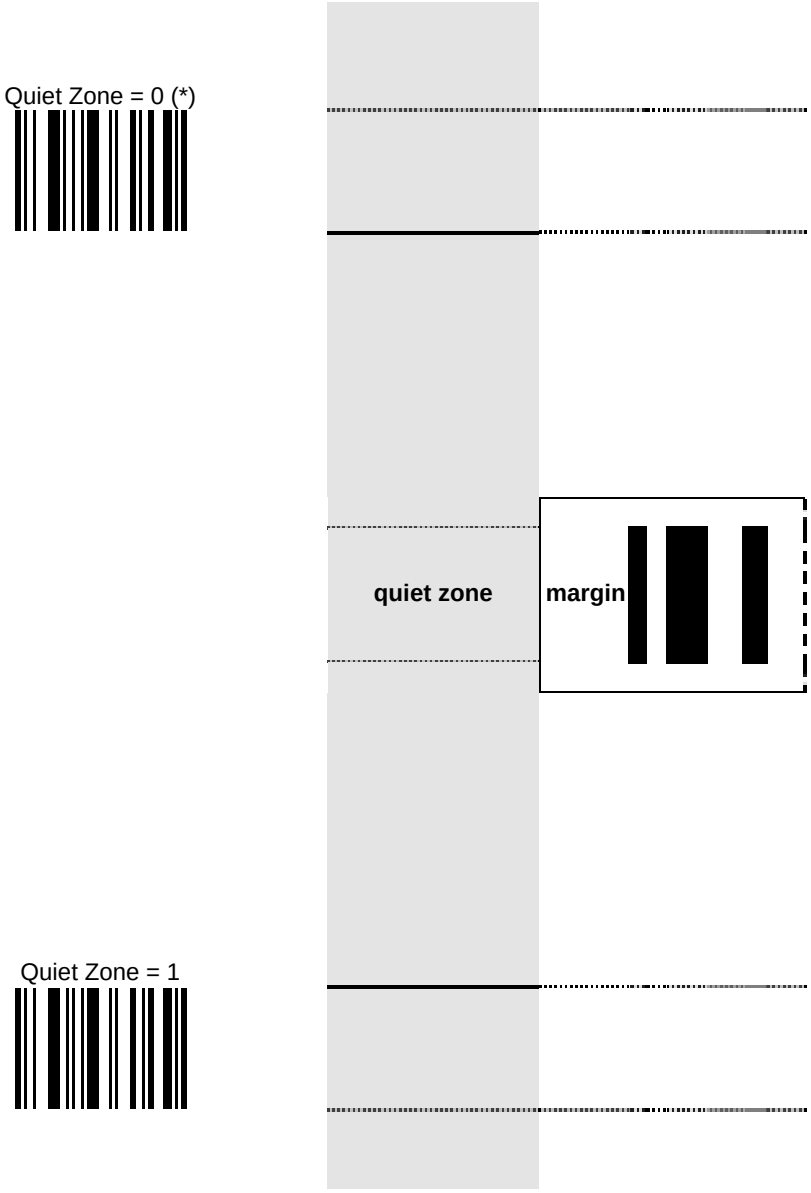
Logical output signal state

Examples of signal state combinations

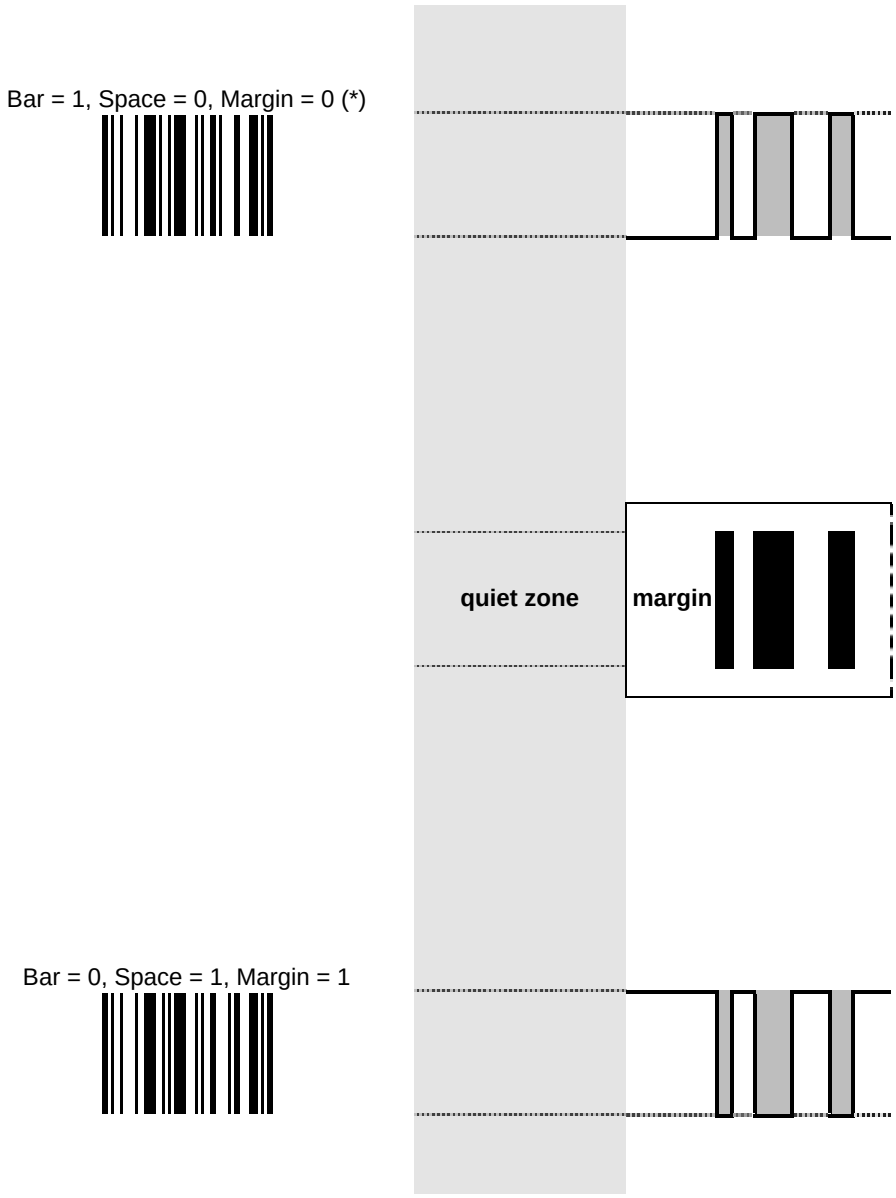


Wand emulation

Signal state outside transmission



Signal state during transmission



Wand emulation

Pulse duration

0.88 ms (37.5 cm/s) (*)

0.19 ms (175 cm/s)

The values represent the pulse duration of a narrow bar or space.

Speeds (values in parentheses) are provided for standard UPC/EAN bar codes with 0.33 mm narrow-bar elements.

Pulse duration speed calculation

Actual emulated speed = [100 x (r / t)] cm/s

with r = actual narrowest element (mm)

t = set-up duration element (ms)

Example	narrowest element (r):	0.45 mm
	set-up duration element (t):	0.4 ms
	emulated speed:	100 x (0.45 / 0.4) = 112.5 cm/s

0.26 ms (125 cm/s)

0.44 ms (75 cm/s)

Wand emulation

0.66 ms (50 cm/s)

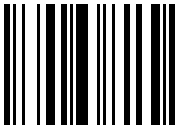
1.32 ms (25 cm/s)

2.64 ms (12.5 cm/s)

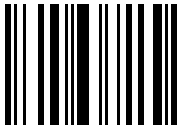
6.60 ms (5 cm/s)

Appendix—Number codes

1



2



Use the number codes on the following pages to enter custom numerical values required by certain configuration codes.

Scan each digit in the number and scan End Selection—once or twice as applicable—after the last digit.

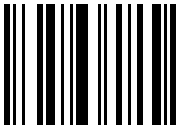
The same number codes are provided in another part of this manual (➔ *Number codes*).

End Selection

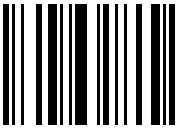
3

4

5

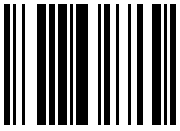


6

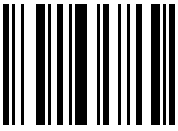


End Selection

7



8



Appendix—Number codes

9

0

End Selection

MS/2200/RM/00/E/970131

UBI Inc.
Ammendale Technology Park
12240 Indian Creek Court
Beltsville
MD 20705
USA
Tel: +1 301 210 3000
Fax: +1 301 210 5498

UBI Ltd
Rubra 1
The Mulberry Business Park
Wokingham
Berkshire RG112QJ
ENGLAND
Tel: +44 1734 795636
Fax: +44 1734 791851

UBI International / UBI France SA
Immeuble "Le Newton"
23 avenue de l'Europe
78402 Chatou Cedex
FRANCE
Tel: +33 (0)1.30.15.25.35
Fax: +33 (0)1.34.80.14.33

UBI SrL
Via Speranza 35
40068 San Lazzaro di Savena
Bologna
ITALY
Tel: +39 51 453270
Fax: +39 51 450460

UBI GmbH
Max-Planck-Strasse 9-13
D-85716 Unterschleissheim/München
GERMANY
Tel: +49 89 32 18 10 00
Fax: +49 89 32 18 10 20

UBI Nordic AB
Bredgatan 10
222 21 Lund
SWEDEN
Tel: +46 46 350 660
Fax: +46 46 350 661

UBI Danmark AS
Hovedvejen 122
2600 Glostrup
DENMARK
Tel: +45 43 43 90 72
Fax: +45 43 63 90 72

UBI Norge A/S
Postboks 33
1483 Skytta
NORWAY
Tel: +47 67 06 03 20
Fax: +47 67 06 05 01

UBI OY
Valkjärventie 1
02130 Espoo
FINLAND
Tel: +358 90 52 37 21
Fax: +358 90 52 92 24

UBI Russia
Kamennoostrovskii Prospect 29-2
St Petersburg 197 022
RUSSIA
Tel: +7 812 232 81 39
Fax: +7 812 119 13 82

UBI representative:

MS/2200/RM/00/E/970131 UBI Part Number: 0-440049-02-00