CCD READER

Software Configuration Manual

CCD READER

SOFTWARE CONFIGURATION MANUAL

CONTENTS

HOW TO USE THIS MANUAL

All products are supplied with their own Quick Reference Manual which provides connection diagrams, basic application parameter settings, default values, and specific technical features.

You can use either your reader's Quick Reference Manual or this Manual for initial configuration in order to set the default values and select the interface for your application.

This manual can be used for complete setup and configuration of your reader.

- **To use this manual for initial setup:**

  1) Read the Reset Factory Default code on page 2.

  2) Choose the correct interface selection code at the beginning of one of the following sections:

     RS232   page 3

     WEDGE   page 9, 10

     Wand Emulation   page 13

  according to your application.

  If you wish to change the default settings, this manual provides complete configuration of your reader in an easy way.

- **To configure your reader:**

  1) Read the Enter Configuration code ONCE, available at the top of each page of configuration.

  2) Modify the desired parameters in one or more sections following the procedures given for each group.

  3) Read the Exit and Save Configuration code ONCE, available at the bottom of each page of configuration.

Reference notes describing the operation of the more complex parameters are written below the specific parameters.

An alternative configuration method is provided by sending the command strings (in the box next to each code) using the RS232 interface. This method is particularly useful when many readers need to be configured with the same settings. Batch files containing the desired parameter settings can be prepared to configure readers quickly and easily.

When this method is used, the programming sequence format is the following:

<div align="center">

$+***Command***$-CR

</div>

$+ = Enter configuration environment
Command = Character sequence shown in the boxes next to each code
$- = Exit and Save configuration
CR = Carriage return character (0D Hex.)

Example:
<div align="center">

Multiple command programming sequence:

$+EB2BM1AA0AANCR

</div>

$+ = Enter configuration environment
EB2 = Enable AIM Standard Code Identifier
BM1 = Disable Standby (optimize for reading speed)
AA0 = Disable EAN/UPC family
AAN = Enable UPCA/UPCE with Add on 5 only
CR = Carriage return character (0D Hex.)

Each configuration parameter setting removes the condition previously active for that parameter.

<div align="center">

NOTE

</div>

The reader buffer can contain a maximum of 60 characters. If your programming string goes over this value, you must split it into separate groups and send each group after a delay of at least 3 seconds to give the reader time to empty the buffer and interpret the commands.

INTRODUCTION

This manual provides all the necessary information for complete software configuration of your CCD reader.

This product contains a <u>built-in decoder</u> and <u>multi-standard interface</u>.

It is designed for use in a wide variety of environments including **commercial**, **office automation** and **retail** applications where large quantities of information need to be collected rapidly, easily and reliably.

STATUS INDICATORS

The reader has two indicators, LED and beeper. They signal several operating conditions, which are described in the tables below.

Power On

Beeper	Meaning
L L L L	Parameters loaded correctly
H H H H long tones	Parameter loading error, reading or writing error in the non volatile memory
H L H L	Hardware error in EEPROM

Configuration

Beeper	Meaning
H H H H	Correct entry or exit from Configuration mode
L	good read of a command
L L L	command read error

Data Entry

LED	Beeper	Meaning
ON	one beep°	correct read of a code in normal mode
OFF		ready to read a code
	H L H L	output interface not selected
	H L long tones	tx buffer full

H = high tone   **L** = low tone   ° = (user configurable)

RESET FACTORY DEFAULT

Read the code below to set the reader to the factory default values:

Reset Factory Default $+$*

CONFIGURATION

In this manual, the configuration parameters are divided into logical groups making it easy to find the desired function based on its reference group.

The first three groups are for Standard Interface parameter configuration:

- **RS232**

- **WEDGE**

- **WAND EMULATION**

The following groups contain configuration parameters common to all applications:

DATA FORMAT parameters regard the messages sent to the Host system for all interfaces except Wand Emulation.

READING PARAMETERS control various operating modes and indicator status functioning.

DECODING PARAMETERS maintain correct barcode decoding in certain special reading conditions.

CODE SELECTION parameters allow configuration of a personalized mix of codes, code families and their options.

Enter configuration

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RS232

RS232 Interface Selection   CP0

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Baud Rate

150 baud   CD0

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CD1   300 baud

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600 baud   CD2

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CD3   1200 baud

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2400 baud   CD4

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CD5   4800 baud

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9600 baud   CD6

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CD7   19200 baud

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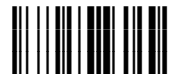
Exit configuration

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Parity

none **CC0**

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CC1 even parity

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odd parity **CC2**

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Data Bits

CA0 7 bits

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8 bits **CA1**

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CA2 9 bits

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Stop Bits

1 stop bit **CB0**

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CB1 2 stop bits

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Ack/Nack Protocol

enable   CF3

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CF0   disable

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This parameter sets a transmission protocol in which the Host responds to the reader after every code transmitted. The Host sends an ACK character (06 Hex) in the case of good reception or the NACK character (15 Hex) requesting re-transmission, in the case of bad reception.

Selection of the ACK/NACK protocol automatically disables FIFO buffering.

Handshaking

disable   CE0

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CE1   hardware (RTS/CTS)

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software (XON/XOFF)   CE2

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Hardware handshaking: (RTS/CTS)

The RTS line is activated by the decoder before transmitting a character. Transmission is possible only if the CTS line (controlled by the Host) is active.
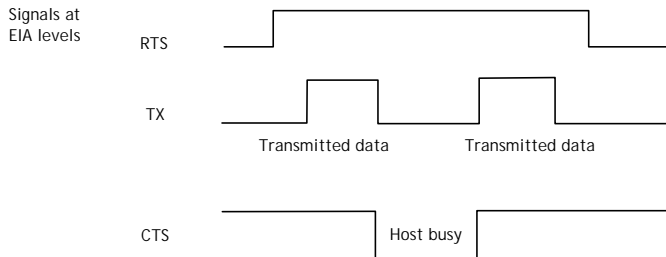
RTS/CTS handshaking

Software handshaking: (XON/XOFF)

During transmission, if the Host sends the XOFF character (13 Hex), the decoder interrupts the transmission with a maximum delay of one character and only resumes when the XON character (11 Hex) is received.
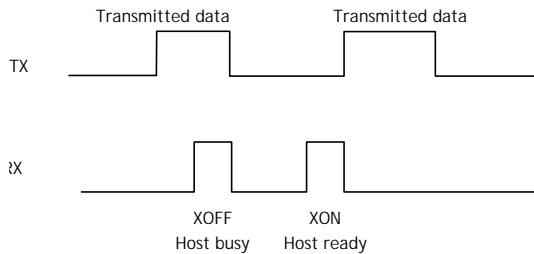
XON/XOFF handshaking

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Inter-Character Delay

delay between characters
transmitted to Host   CK   + **00 to 99**

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Read 2 numbers from the table where:

    00 =   DELAY disabled
    01-99 = DELAY from **1** to **99** milliseconds

FIFO

enable   EC1

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ECO   disable

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This parameter determines whether data (barcodes) are buffered on a First In First Out basis allowing faster data collection in certain cases for example when using slow baud rates and/or HW handshaking.

If the FIFO buffering is enabled, codes are collected and sent out on the serial line in the order of acquisition. Up to 185 characters can be collected (buffer full), after which the reader signals an error and discards any further codes until the transmission is restored.

If the FIFO buffering is disabled, each code must be transmitted before another one can be read.

Selection of FIFO buffering automatically disables ACK/NACK protocol.

RX Timeout

timeout control
in reception from Host   CL   + 00 to 99

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Read 2 numbers from the table where:

    00 =   TIMEOUT disabled
    01-99 =   TIMEOUT from **.1** to **9.9** seconds

When the RS232 interface is selected, the Host can be used to configure the reader by sending it command strings (see appendix A).

This parameter can be used to automatically end data reception from the Host after the specified period of time.

If no character is received from the Host, after the timeout expires, any incomplete string (any string not terminated by <CR>) is flushed from the reader buffer.

WEDGE

WEDGE Interface Selections

IBM AT or PS/2 PCs   CP500

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CP503   IBM XT

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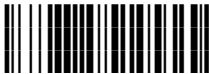
PC Notebook   CP505

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CP506   IBM SURE1

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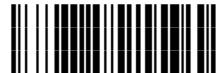
IBM Terminal 3153   CP504

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Enter configuration

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WEDGE Interface Selections

IBM Terminals:

To select the interface for IBM Terminals, read the correct <u>KEY TRANSMISSION</u> code. Select the <u>KEYBOARD TYPE</u> if necessary (default = advanced keyboard).

IBM TERMINALS KEY TRANSMISSION

make-only keyboard   `CP502`

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`CP501`   make-break keyboard

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IBM TERMINALS KEYBOARD TYPE

advanced keyboard   `FK1`

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`FK0`   typewriter keyboard

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Exit configuration

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Keyboard Nationality

English   FJ4
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FJ2   French
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German   FJ3
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FJ1   Italian
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Swedish   FJ5
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FJ0   USA
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Spanish   FJ6
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FJ7   Belgian
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Enter configuration

Caps Lock

caps lock OFF   FE0

FE1   caps lock ON

Select the appropriate code to match your keyboard caps lock status.

Note: For **PC Notebook** interface selections, the caps lock status is automatically recognized, therefore this command is not necessary.

Inter-Character Delay

delay between characters
transmitted to Host   CK   **+ 00 to 99**

Read 2 numbers from the table where:

    00 =   DELAY disabled
    01-99 =   DELAY from **1** to **99** milliseconds

Inter-Code Delay

delay between codes
transmitted to Host   FG   **+ 00 to 99**

Read 2 numbers from the table where:

    00 =   DELAY disabled
    01-99 =   DELAY from **1** to **99** milliseconds

Exit configuration

Wedge

WAND EMULATION

Wand Emulation Interface Selection   CP6

Operating Mode

The operating mode parameters are complete commands and do not require reading the Enter and Exit configuration codes.

interpret mode $]
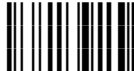
Interprets commands without
sending them to the decoder

transparent mode $[

Sends commands to the decoder
without interpreting them

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Minimum Output Pulse

200 µs   DG0

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DG1   400 µs

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600 µs   DG2

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DG3   800 µs

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1 ms   DG4

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DG5   1.2 ms

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This parameter sets the duration of the output pulse corresponding to the narrowest element in the barcode. In this way the code resolution is controlled by the signal sent to the decoder, independently of the physical resolution of the code read.

The shortest pulse (200 µs) corresponds to a high resolution code emulation and therefore a shorter transfer speed to the decoder (for decoders able to work on high resolution codes). Likewise, longer pulses correspond to low resolution code emulation and therefore a longer transfer time to the decoder.

Conversion To Code 39

disable **DA0**

Transmits all codes
in their original format

DA1 enable

Converts all codes read
into Code 39 format

Overflow

narrow **DH0**

DH1 medium

wide **DH2**

This parameter generates a white space before the first bar and after the last bar of the code. The selections are as follows:

narrow   =   space 10 times the minimum output pulse.

medium =   space 20 times the minimum output pulse.

wide   =   space 30 times the minimum output pulse.

Output Level

normal   DD0

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(white = logic level 0)

DD1   inverted

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(white = logic level 1)

Idle Level

normal   DE0
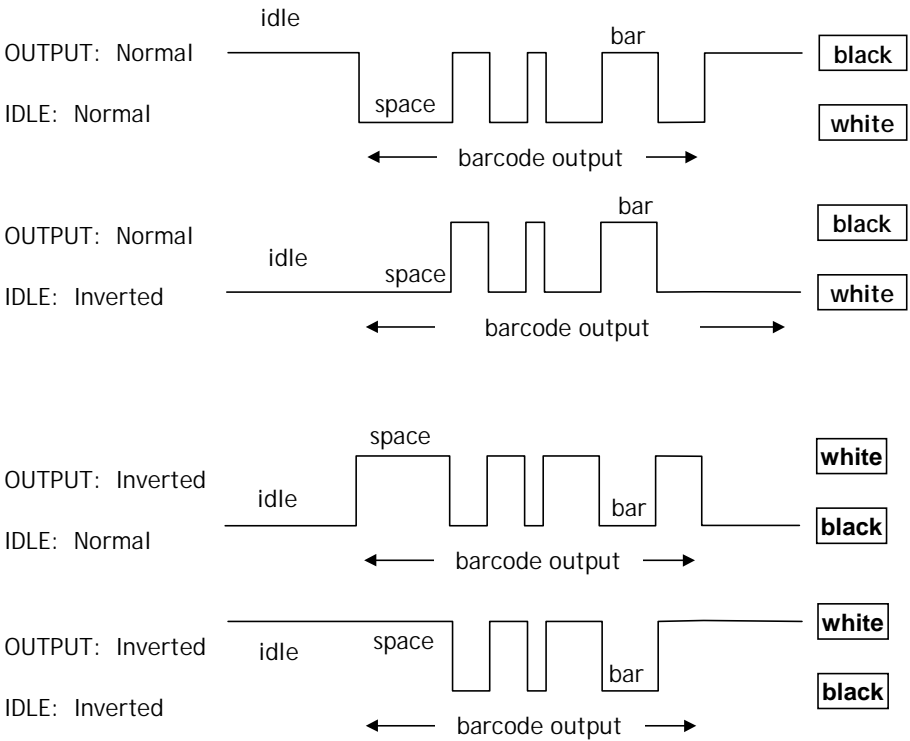
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(black level)

DE1   inverted

‖‖|‖|‖|‖‖‖|‖‖‖|‖

(white level)

The following state diagrams describe the different output and idle level combinations for Wand emulation:

Output and Idle Levels

DATA FORMAT

CODE IDENTIFIER TABLE			
CODE	**AIM STANDARD**	**CUSTOM**	
		Default	**User Defined**
2/5 interleaved	] I y	N	
2/5 industrial	] X y	P	
2/5 normal 5 bars	] S y	O	
2/5 matrix 3 bars	] X y	Q	
EAN 8	] E 4	A	
EAN 13	] E 0	B	
UPC A	] X y	C	
UPC E	] X y	D	
EAN 8 with 2 ADD ON	] E 5	J	
EAN 8 with 5 ADD ON	] E 6	K	
EAN 13 with 2 ADD ON	] E 1	L	
EAN 13 with 5 ADD ON	] E 2	M	
UPC A with 2 ADD ON	] X y	F	
UPC A with 5 ADD ON	] X y	G	
UPC E with 2 ADD ON	] X y	H	
UPC E with 5 ADD ON	] X y	I	
Code 39	] A y	V	
Code 39 Full ASCII	] A y	W	
CODABAR	] F y	R	
ABC CODABAR	] X y	S	
Code 128	] C 0	T	
EAN 128	] C 1	k	
Code 93	] G y	U	
CIP/39	] X y	Y	
CIP/HR	] X y	e	
Code 32	] X y	X	

AIM standard identifiers are not defined for all codes: the X identifier is assigned to the code for which the standard is not defined. The y value depends on the selected options (check digit tested or not, check digit tx or not, etc.).

For Custom Code Identifiers, 1 or 2 identifier characters can be defined for each code type. If only 1 identifier character is required, the second character must be selected as **FF** (disabled).

The code identifier can be singly disabled for any code by simply selecting **FF** as the first identifier character.

Write in the User Defined Custom character identifiers in the table above for your records.

Code Identifier

disable   EB0

||| || ||||||||||

       EB3   custom

||| ||| |||||||||||

AIM standard   EB2

||| ||| ||||||||

Custom Code Identifier

define custom code identifier(s)   EH

||| ||| |||||||||

① Read the above code.
       (This sets the Custom Code Identifier default values, see table on previous page).

② Select the code type from the code table in Appendix A for the identifier you want to change.

③ You can define 1 or 2 identifier characters for each code type. If only 1 identifier character is required, the second character must be selected as **FF** (disabled). Read the hexadecimal value (Appendix B) corresponding to the character(s) you want to define as identifiers for the code selected in step ②: valid characters are in the range **00-7F**.

EXAMPLE: To define Code 39 Code Identifier = **@**

define custom code identifier(s)

Read ||| ||| |||||||||| + **Code 39** + **40** + **FF**

                                (Appendix A)

Enter configuration

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Header

no header   **EA00**

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RS232 Hex values from 00 to 7F
WEDGE Hex values from 00 to 99
Appendix B

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one character header   **EA01**   + **1 Hex. value**

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two character header   **EA02**   + **2 Hex. values**

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three character header   **EA03**   + **3 Hex. values**

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four character header   **EA04**   + **4 Hex. values**

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Exit configuration

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                      Data Format

Enter configuration

Terminator

no terminator **EA10**

RS232 Hex values from 00 to 7F
WEDGE Hex values from 00 to 99
Appendix B

one character terminator **EA11** + **1 Hex. value**

two character terminator **EA12** + **2 Hex. values**

three character terminator **EA13** + **3 Hex. values**

four character terminator **EA14** + **4 Hex. values**

Exit configuration

The header/terminator selection is not effected by the reading of the reset factory default code. In fact, header and terminator default values depend on the interface selection:

RS232:   no header, terminator CR-LF
WEDGE: no header, terminator ENTER

These default values are <u>always</u> restored through the reading of RS232 or WEDGE interface selection codes, see pages 3, 9-10 or the relative Quick Reference Manual.

For the WEDGE interface, the following extended keyboard values can also be configured:

EXTENDED KEYBOARD TO HEX CONVERSION TABLE			
	IBM AT IBM 3153	IBM XT	IBM terminals
HEX	KEY	KEY	KEY
83	ENTER	ENTER	FIELD EXIT
84	TAB	TAB	TAB
85	F1	F1	F1
86	F2	F2	F2
87	F3	F3	F3
88	F4	F4	F4
89	F5	F5	F5
8A	F6	F6	F6
8B	F7	F7	F7
8C	F8	F8	F8
8D	F9	F9	F9
8E	F10	F10	F10
8F	F11	ESC	F11
90	F12	BACKSPACE	F12
91	HOME	HOME	ENTER
92	END	END	RESET
93	PG UP	PG UP	INSERT
94	PG DOWN	PG DOWN	DELETE
95	↑	↑	FIELD -
96	↓	↓	FIELD +
97	←	←	ENTER (Paddle)
98	→	→	PRINT
99	ESC	ESC	
9A	CTRL (Right)	CTRL (Right)	

READING PARAMETERS

Trigger Type

hardware trigger   **BK1**

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Restores Trigger mode

software trigger   **BK0**

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Enables "FLASH" mode

Trigger Signal

trigger active level   **BA0**

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trigger active pulse   **BA1**

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Trigger signal is useful to determine the modality of the reader ON state when hardware trigger is selected:

- trigger level: the reader goes ON when the trigger is pressed and goes OFF when it is released

- trigger pulse: the reader goes ON at the first trigger press and goes OFF only at a second press

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Trigger-Off Timeout

trigger-off timeout   **BD**   **+ 00 to 99**

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Read 2 numbers in the range 00-99:

> 00 = disables the trigger-off timeout
> 01-99 = corresponds to a max. 99 sec. delay after the trigger press to allow the reader to turn off automatically.

The timeout is useful when hardware trigger type is selected. When a timeout is selected, the reader (if not decoding) turns OFF automatically after the desired period of time.

Flash Mode

"FLASH" ON duration   **BB0**   **+ 01 to 99**

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"FLASH" OFF duration   **BB1**   **+ 01 to 99**

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Read 2 numbers in the range 01-99:

> 01 to 99 = from **.1** to **9.9** seconds.

Enter configuration

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Reads Per Cycle

one read per cycle   `BC0`

||| ||| |||||||| |||

multiple reads per cycle   `BC1`

||| ||| |||||||| |||

In general, a **reading cycle** corresponds to the ON + OFF times of a reader. The resulting effects of this parameter on code reading depend on other related configuration conditions. Here are the definitions of ON and OFF times.

❑ For readers which operate in FLASH MODE or readers using the *software trigger* parameter, a reading cycle corresponds to the *flash on* + *flash off* times. Code reading takes place during the *flash on* time.

❑ For readers using the *hardware trigger* parameter, a reading cycle corresponds to a trigger press (ON) + one of the following OFF conditions:

- trigger release (for *trigger active level*)
- a second trigger press (for *trigger active pulse*)
- *trigger-off timeout*.

When **one read per cycle** is selected, the reader decodes only one code during the ON period <u>and immediately turns OFF the reader</u>. It is only possible to read another code when the next ON time occurs.

In **multiple reads per cycle**, the reader decodes a code during the ON period. The *flash on* or the *trigger-off timeout* period is immediately reset after each read and therefore extended. If another code is decoded before the reset *flash on* or *timeout* period expires, the *flash on* or *timeout* is

Exit configuration

||| | ||| |||||| |||

again reset and the effect is that the reader remains ON, decoding codes until the *flash on* or *timeout* period expires.

The Safety Time parameter should be used in this case to avoid unwanted multiple reading of the same code.

Safety Time

safety time   **BE**   **+ 00 to 99**

||| || |||||||||

Limits <u>same</u> code consecutive reading

Read 2 numbers in the range 00-99:

00 = no same code consecutive reading until reader is removed (no decoding) for at least 400 ms.

01 to 99 = timeout from **.1** to **9.9** seconds before a consecutive read on same code.

Safety time prevents the reader from immediately decoding the same code more than once. Same code consecutive reading can be disabled requiring the reader to be removed from the code (no decoding) for at least 400 ms, or a timeout can be set up to 9.9 seconds before the decoder will accept the same code. Reading is immediate if the code changes.

Beeper Intensity

beeper off   **BG0**

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BG1   low intensity

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medium intensity   **BG2**

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BG3   high intensity

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Beeper Tone
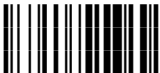
tone 1   **BH0**

‖‖‖‖‖‖‖‖‖‖‖‖

BH1   tone 2

‖‖‖‖‖‖‖‖‖‖‖‖

tone 3   **BH2**

‖‖‖‖‖‖‖‖‖‖‖‖

BH3   tone 4

‖‖‖‖‖‖‖‖‖‖‖‖

Standby

enable **BM0**

||| |||||||||||

optimize for low power consumption

disable **BM1**

||| |||||||||||

optimize for reading speed

If this command is enabled, part of the CCD circuitry shuts down (Standby), in order to optimize low power consumption when not reading. When the trigger is pressed this circuitry powers up. This mode causes a minor delay before the reader is ready, ranging from a few milliseconds to a few tenths of a second (depending on the reader).

DECODING PARAMETERS

Overflow Control

disable   **AW1**

‖‖‖‖‖‖‖‖‖‖‖

enable   **AW0**

‖‖‖‖‖‖‖‖‖‖‖

The overflow control parameter can be disabled when decoding codes printed on small surfaces, which don't allow the use of an overflow space.

This command does not effect code families 2/5, Code 128 and Code 93.

Interdigit Control

disable   **AV0**

‖‖‖‖‖‖‖‖‖‖‖

enable   **AV1**

‖‖‖‖‖‖‖‖‖‖‖

The interdigit control parameter verifies the interdigit spacing for code families Code 39 and Codabar.

CODE SELECTION

DISABLES ALL CODE FAMILIES   **AZ0**

‖‖‖ ‖ ‖‖‖‖‖‖‖ ‖‖

Note:
The reader allows up to 5 code selections.

All SINGLE code selections are underlined and in bold.

EAN/UPC Family

disables the family   **AA0**

‖‖ ‖ ‖‖‖ ‖‖‖‖‖ ‖‖

①   Read the desired family code

Note:
Since the EAN/UPC without ADD ON code selection is enabled by default, to correctly enable another selection from this family, first disable the family.

**EAN 8/EAN 13/UPC A/UPC E
with and without ADD ON**   **AA8**

‖‖‖ ‖ ‖‖‖ ‖‖‖‖‖ ‖‖‖

Enter configuration

‖‖ ‖ ‖‖‖‖‖‖ ‖‖

Without Add On

EAN 8/EAN 13/
UPC A/UPC E   AA1

‖‖‖ ‖ ‖ ‖‖‖‖‖

                                          AA3   **EAN 8/EAN 13**

                                                     ‖‖‖ ‖ ‖ ‖‖‖‖‖

UPC A/UPC E   AA4

‖‖‖ ‖ ‖ ‖‖‖‖‖

With Add On 2 And 5

                                          AA5   **EAN 8/EAN 13/**
                                                     UPC A/UPC E

                                                     ‖‖‖ ‖ ‖ ‖‖‖‖‖

EAN 8/EAN 13   AA6

‖‖‖ ‖ ‖‖‖‖‖‖

                                          AA7   **UPC A/UPC E**

                                                     ‖‖‖ ‖ ‖ ‖‖‖‖‖

Exit configuration

‖‖‖ ‖ ‖‖‖‖‖ ‖‖

With Add On 5 Only

EAN 8/EAN 13   AAL

||||||||||||||||

                                    AAN   UPC A/UPC E

                                            ||||||||||||||||

With Add On 2 Only

EAN 8/EAN 13   AAK

||||||||||||||||

                                    AAM   UPC A/UPC E

                                            ||||||||||||||||

EAN/UPC Check Digit Tx Selections

For each code type in this family you can choose to transmit the check digit or not

CHECK DIGIT TRANSMISSION

EAN 8   AAG1

||||||||||||||||

                                    AAH1   EAN 13

                                             ||||||||||||||||

UPC A   AAI1

||||||||||||||||

                                    AAJ1   UPC E

                                             ||||||||||||||||

NO CHECK DIGIT TRANSMISSION

EAN 8   **AAG0**

‖‖‖‖‖‖‖‖‖‖‖‖‖

AAH0   EAN 13

‖‖‖‖‖‖‖‖‖‖‖

UPC A   **AAI0**

‖‖‖‖‖‖‖‖‖‖‖‖

AAJ0   UPC E

‖‖‖‖‖‖‖‖‖‖‖

Conversion Options

UPC E to UPC A   **AAA**

‖‖‖‖‖‖‖‖‖‖

AAB   UPC E to EAN 13

‖‖‖‖‖‖‖‖‖‖

UPC A to EAN 13   **AAC**

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AAD   EAN 8 to EAN 13

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2/5 Family

disables the family   AC0

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1. Read **one** check digit option from the desired family code.

2. Read **4** numbers from Appendix B for the code length where:
   First 2 digits = minimum code length.
   Second 2 digits = maximum code length.

The maximum code length is 55 characters.
The minimum code length must always be less than or equal to the maximum.

Examples:
0155 =   variable from 1 to 55 digits in the code.
1010 = 10 digit code length only.
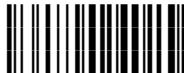
Interleaved 2/5

AC11   + 4 numbers

‖‖‖ ‖ ‖ ‖‖‖‖‖‖ ‖

no check digit control

AC12   + 4 numbers

‖‖‖ ‖ ‖ ‖‖‖‖‖‖ ‖

check digit control and transmission

AC13   + 4 numbers

‖‖‖ ‖ ‖ ‖‖‖‖‖‖ ‖

check digit control without transmission

‖‖ ‖‖ ‖‖‖‖‖ ‖‖‖

Normal 2/5 (5 Bars)

AC21   **+ 4 numbers**

‖‖‖ ‖‖ ‖ ‖‖‖‖‖‖‖‖‖ ‖‖

no check digit control

AC22   **+ 4 numbers**

‖‖‖ ‖‖ ‖ ‖‖‖‖‖‖‖‖ ‖‖

check digit control and transmission

AC23   **+ 4 numbers**

‖‖‖ ‖‖ ‖ ‖‖‖‖‖‖‖‖‖‖

check digit control without transmission

Industrial 2/5 (IATA)

AC31   **+ 4 numbers**

‖‖‖ ‖‖ ‖ ‖‖‖‖‖‖‖‖‖

no check digit control

AC32   **+ 4 numbers**

‖‖‖ ‖‖ ‖ ‖‖‖‖‖‖‖‖‖

check digit control and transmission

AC33   **+ 4 numbers**

‖‖‖ ‖‖ ‖ ‖‖‖‖‖‖‖‖‖

check digit control without transmission

‖‖ ‖ ‖‖‖‖‖ ‖‖ ‖‖‖

Matrix 2/5 (3 Bars)

AC41 + 4 numbers

‖‖‖ ‖‖ ‖ ‖‖‖‖‖‖‖‖‖ ‖‖

no check digit control

AC42 + 4 numbers

‖‖‖ ‖‖ ‖ ‖‖‖‖‖‖‖ ‖‖ ‖‖

check digit control and transmission

AC43 + 4 numbers

‖‖‖ ‖‖ ‖ ‖‖‖‖‖‖‖ ‖‖ ‖‖

check digit control without transmission

The pharmaceutical code below is part of the 2/5 family but has no check digit nor code length selections.

Code CIP/HR   AC5

‖‖‖ ‖ ‖ ‖ ‖‖‖‖ ‖‖‖ ‖‖

French pharmaceutical code

Code 39 Family

disables the family

AB0

‖‖ ‖ ‖ ‖ ‖‖‖ ‖‖ ‖

Read **one** check digit option from the desired family code.

Standard Code 39

AB11

‖‖ ‖ ‖ ‖‖‖‖‖‖‖ ‖‖

no check digit control

AB12

‖‖ ‖ ‖ ‖ ‖‖‖‖‖‖‖ ‖

check digit control and transmission

AB13

‖‖ ‖ ‖ ‖ ‖‖‖‖‖‖ ‖‖

check digit control without transmission

‖‖ ‖ ‖ ‖‖‖‖‖ ‖‖

Full ASCII Code 39

AB21

‖‖‖ ‖‖ ‖ ‖‖‖‖‖‖‖‖‖‖

no check digit control

AB22

‖‖‖ ‖‖ ‖ ‖‖‖‖‖‖‖‖‖‖

check digit control and transmission

AB23

‖‖‖ ‖‖ ‖ ‖‖‖‖‖‖‖‖‖‖

check digit control without transmission

The pharmaceutical codes below are part of the Code 39 family but have no check digit selections.

Code CIP39   AB3

‖‖‖ ‖ ‖‖‖‖ ‖‖ ‖‖‖

French pharmaceutical code

Code 32   AB4

‖‖‖ ‖ ‖‖‖‖‖‖ ‖‖‖

Italian pharmaceutical code

‖‖‖ ‖‖ ‖‖‖‖‖‖ ‖‖‖

Code Selection

Code 39 CODE LENGTH (optional)

The code length selection is valid for the entire Code 39 family

Read the code below + **4** numbers for the code length where:

First 2 digits = minimum code length.
Second 2 digits = maximum code length.

set code length   **AB***

‖‖‖‖‖‖‖‖‖‖‖

The maximum code length is 32 characters. The minimum code length must always be less than or equal to the maximum.
Examples: **0132** = variable from 1 to 32 digits in the code. **010** = 10 digit code length only.

Code 128 Family

disables the family   **AI0**

Read the desired family code.

Code 128   **AI11**

control without transmission
of check digit

EAN 128   **AI21**

control without transmission
of check digit

Code 93

disables the code   **AK0**

Code 93   **AK1**

control without transmission
of check digit

Codabar Family

disables the family   **AD0**

||| ||| ||||||| |||

Read the desired equality control code.

Standard Codabar

AD111

||| ||| ||||||||| |||
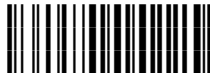
no start/stop character
equality control nor transmission

AD112

||| ||| ||||||||| |||

no start/stop character
equality control but transmission

AD121

||| ||| ||||||||| |||

start/stop character
equality control but no transmission

AD122

||| ||| ||||||||| |||

start/stop character
equality control and transmission

Codabar ABC   **AD212**

||| ||| ||||||||| |||

no start/stop character equality control but transmission

Codabar CODE LENGTH (optional)

The code length selection is valid for the entire Codabar family

Read the code below + **4** numbers for the code length where:

First 2 digits = minimum code length.

Second 2 digits = maximum code length.

set code length   **AD***

‖‖‖‖‖‖‖‖‖‖‖‖‖

The maximum code length is 44 characters. The minimum code length must always be less than or equal to the maximum.

Examples: **0144** = variable from 1 to 44 digits in the code.   **1010** = 10 digit code length only.

START/STOP CHARACTER CASE

The start/stop character case selections below are valid for the entire Codabar family:

lower case start/stop characters   **ADA0**

‖‖‖‖‖‖‖‖‖‖‖‖ ‖‖

upper case start/stop characters   **ADA1**

‖‖ ‖ ‖‖‖‖‖‖ ‖‖

HARDWARE RESET

If your reader does not work properly after configuration, read the code below and then read the reset factory default code and the interface selection code for your application.

Hardware Reset

APPENDIX A   CUSTOM CODE IDENTIFIER TABLE

2/5 Interleaved

2/5 Industrial

2/5 normal 5 bars

2/5 matrix 3 bars

EAN 8

EAN 13

UPC A

UPC E

EAN 8 with 2 ADD ON

EAN 8 with 5 ADD ON

EAN 13 with 2 ADD ON

EAN 13 with 5 ADD ON

UPC A with 2 ADD ON

UPC A with 5 ADD ON

‖‖ ‖‖ ‖‖‖

UPC E with 5 ADD ON

‖‖ ‖ ‖‖‖ ‖‖

Code 39 Full ASCII

‖‖ ‖ ‖‖ ‖‖‖

ABC CODABAR

‖‖ ‖ ‖‖ ‖‖‖

EAN 128

‖‖ ‖ ‖‖‖ ‖‖‖

CIP/39

‖‖ ‖‖‖ ‖ ‖‖‖

Code 32

‖‖ ‖ ‖‖‖‖ ‖‖‖

UPC E with 2 ADD ON

‖‖ ‖ ‖‖‖ ‖‖‖

Code 39

‖‖ ‖ ‖‖ ‖‖‖

CODABAR

‖‖ ‖ ‖‖‖ ‖

Code 128

‖‖ ‖‖ ‖‖‖‖

Code 93

‖‖ ‖‖‖‖‖
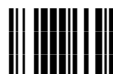
CIP/HR

‖‖ ‖‖‖ ‖‖ ‖ ‖‖‖

APPENDIX B   HEX AND NUMERIC TABLE

CHARACTER TO HEX CONVERSION TABLE					
Char	**hex**	**char**	**hex**	**char**	**hex**
NUL	00	*	2A	U	55
SOH	01	+	2B	V	56
STX	02	,	2C	W	57
ETX	03	-	2D	X	58
EOT	04	.	2E	Y	59
ENQ	05	/	2F	Z	5A
ACK	06	0	30	[	5B
BEL	07	1	31	\	5C
BS	08	2	32	]	5D
HT	09	3	33	^	5E
LF	0A	4	34	_	5F
VT	0B	5	35	`	60
FF	0C	6	36	a	61
CR	0D	7	37	b	62
SO	0E	8	38	c	63
SI	0F	9	39	d	64
DLE	10	:	3A	e	65
DC1	11	;	3B	f	66
DC2	12	<	3C	g	67
DC3	13	=	3D	h	68
DC4	14	>	3E	i	69
NAK	15	?	3F	j	6A
SYN	16	@	40	k	6B
ETB	17	A	41	l	6C
CAN	18	B	42	m	6D
EM	19	C	43	n	6E
SUB	1A	D	44	o	6F
ESC	1B	E	45	p	70
FS	1C	F	46	q	71
GS	1D	G	47	r	72
RS	1E	H	48	s	73
US	1F	I	49	t	74
SPACE	20	J	4A	u	75
!	21	K	4B	v	76
"	22	L	4C	w	77
#	23	M	4D	x	78
$	24	N	4E	y	79
%	25	O	4F	z	7A
&	26	P	50	{	7B
'	27	Q	51			7C
(	28	R	52	}	7D
)	29	S	53	~	7E
		T	54	DEL	7F

0

1

2

3

4

5

6

7

8

9

A

B

C

D

E

F

90ACC1740