Metrologic®

IS1000 Series

Radio Frequency Bar Code Reader

Configuration Guide

Metrologic

Metrologic Instruments GmbH makes no guaranteed declaration or offer concerning the contents or use of this manual, and notably refutes any express or implicit liability as regards the merchandisable quality or suitability for a particular use of the product.

In addition, Metrologic Instruments GmbH reserves the right to update this publication and to make changes at any time without notice.

Metrologic Instruments GmbH refutes any liability concerning any modifications that might be made to the commodities supplied.

You use this equipment at your own risks and perils.

Metrologic Instruments GmbH will not be held liable for any direct or indirect losses or damage resulting from its use.

Moreover, Metrologic Instruments GmbH reserves the right to modify its products, entirely or in part, at any time without notice.

This hardware is guaranteed by Metrologic Instruments GmbH for one year from the date of delivery. During this period, any defective equipment item will be repaired or replaced without charge.

MLPN XX-XXXXX

January 2002

Metrologic Instruments GmbH

Donierstrasse 2

82178 Puchheim

GERMANY

Tel.: +49 (0)89 890 190   Fax: +49 (0)89 890 19 200

info@europe.metrologic.com

Metrologic Instruments Italia S.r.L.

Via Emilia 70

40064 Ozzano Dell'Emilia (BO)

ITALY

Tel.: +39 051 651 19 78   Fax: +39 051 652 13 37

Metrologic Eria Ibérica S.A.

Julian Camarillo 29, D1 Bajo

28037 Madrid

SPAIN

Tel.: +34 91 327 24 00   Fax: +34 91 327 38 29

Metrologic Eria Ibérica S.A.

Consell de Cent 106 – 108 – 3° 3a

08015 Barcelona

SPAIN

Tel.: +34 93 423 11 10   Fax: +34 93 423 14 76

Metrologic Eria France S.A.

Z.I. Paris Nord II, 69, rue de la Belle Etoile, Bât. E – B.P. 50057

95947 Roissy CDG Cedex

FRANCE

Tel.: +33 (0)1 48 63 78 78   Fax: +33 (0)1 48 63 24 94

Metrologic Instruments U.K., Ltd.

58 Tempus Business Centre, Kingsclere Road

Basingstoke, Hampshire RG21 6XG

UNITED KINGDOM

Tel.: +44 (0) 1256 365 900   Fax: +44 (0) 1256 365 955

Metrologic®

TABLE OF CONTENTS

Page intentionally left blank

1. INTRODUCTION

This manual contains information about configuration IS1000 laser reader and decoder present in the radio base.

The installation procedures and technical description are described in the IS1000 *Installation and User's Guide*.

The IS1000 *Connection List* contains the connection numbers (or ID) and the cable references to be used for Keyboard-Wedge communication on PCs and terminals, for communication with P.O.S. systems and Notebooks. For other types of connections see chapter 2, *Communication Modes*.

Metrologic®

Once the radio base is powered on, each parameter value can be changed simply by scanning, with the laser reader, the codes appearing in this manual with respect to configuration sequence.

START OF CONFIGURATION
bottom left of each page

Chapter 2	COMMUNICATION MODES	Page 5
	Selection of the communication mode and adjustment of the transmission parameters	

Chapter 3	SYMBOLOGIES	Page 21
	Selection and adjustment of options	

Chapter 4	OPERATING MODES	Page 47
	Selection of the operating mode and adjustment of options	

Chapter 5	EDITING MODE	Page 53
	Adjustment of data formats	

Chapter 6	APPENDIXES	Page 55
	Adjustment of data formats	

END OF CONFIGURATION
bottom right of each page

⚠ *Note:*

There is no need to adjust all the parameters. Change only the ones concerning your application. Unchanged parameters will keep their previous value.

The parameter values are stored in a non-volatile memory called EEPROM and are saved when the radio base is turned off.

Metrologic

1.1. _Default Configuration (factory setting)_

When shipped from the factory, each IS1000 is configured with default parameter values as follows:

Default Configuration	
Communication Mode	RS232 mode: - 9600 bps - Even parity - 7 data bits - 1 stop bit - CR/LF end of message characters
Symbology	Code 39, Code 128, EAN 128, UPC/EAN, Interleaved 2/5, Monarch/Codabar
Radio	433 MHz – Channel 3
Operating Mode	- Simple acknowledgment mode - Timer 1 = 200 ms - Timer 2 = 3 s - Timer 3 = 2 s - Number of re-transmissions = 3
Buzzer	High volume

These are the main parameters, please check the sections of this manual which concern your application.

The default value of each parameter appears like this:

```
3 to 5 characters
Code 39
```
FUNCTION X ACTIVATED *
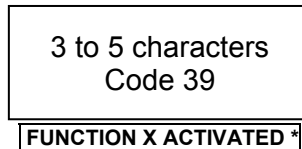
The text below the code is framed and ended by the sign * to indicate the default value.

At any time, the default values of all the parameters can be set by scanning this code:

DEFAULT CONFIGURATION

⚠ _Caution:_

The reading of this code will turn all parameters to their default value.

Page intentionally left blank

Metrologic®

2. COMMUNICATION MODES

The radio base is equipped with a decoder offering a multi-interface communication port.

The default communication mode is RS232 (9600 baud, 7 data bits, parity even, 1 stop bit, end message: CR LF).

Other communication modes can be selected by using the following sequence:

```
┌─────────────────────────────────────┐
│   Read the code Start of Configuration │
│        bottom left of each page        │
└─────────────────────────────────────┘
                    │
┌─────────────────────────────────────┐
│   Select the mode of communication   │
└─────────────────────────────────────┘
                    │
┌─────────────────────────────────────┐
│   Adjust the transmission parameters │
└─────────────────────────────────────┘
                    │
┌─────────────────────────────────────┐
│   Read the code End of Configuration  │
│        bottom right of each page       │
└─────────────────────────────────────┘
```

‖‖‖‖‖‖‖‖‖‖‖‖‖‖
START OF CONFIGURATION

‖‖‖‖‖‖‖‖‖‖‖‖‖‖
END OF CONFIGURATION

![Metrologic]
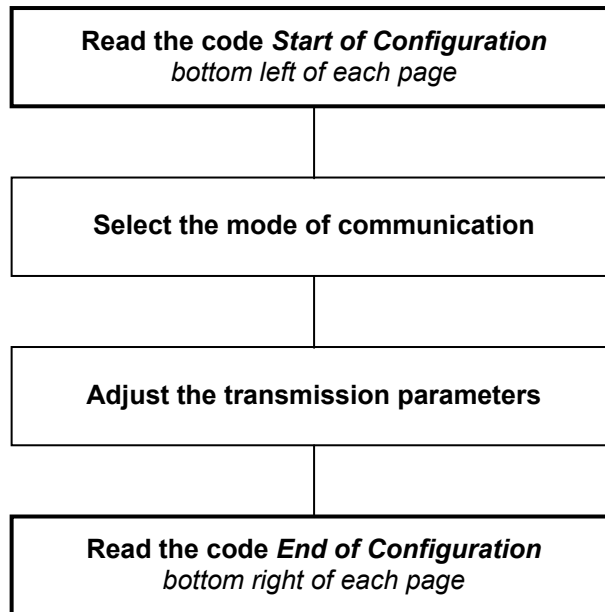
2.1. *RS232*

Use the codes on this page through to page 11 to activate and adjust the RS232 parameters.

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

RS232 MODE ACTIVATED *

2.1.1. *Baud Rate*

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

300

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

600

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

1200

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

2400

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

4800

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

9600 *

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

19200

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

38400

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

START OF CONFIGURATION

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

END OF CONFIGURATION

2.1.2. Data Bits

|||||||||||||||||||||||||||
7 *

|||||||||||||||||||||||||||
8

2.1.3. Parity

|||||||||||||||||||||||||||
EVEN *

|||||||||||||||||||||||||||
MARK

|||||||||||||||||||||||||||
ODD

|||||||||||||||||||||||||||
SPACE

2.1.4. Stop Bits

|||||||||||||||||||||||||||
1 *

|||||||||||||||||||||||||||
2

|||||||||||||||||||||||||||
START OF CONFIGURATION

|||||||||||||||||||||||||||
END OF CONFIGURATION

2.1.5. _End of Message Character_

One character can be systematically transmitted with each code to indicate the end of message:

CR/LF *

STX...ETX

HT

SUITE (MINITEL)

NONE

LF

CR

EOT

Other characters or complete fields can be added to the message using the _Preamble / Postamble_ function (see appendix 6.3, page 58) or the _Editing Mode_ (see chapter 5, page 53).

START OF CONFIGURATION

END OF CONFIGURATION

2.1.6. _Time-Out Between Characters_

In case that errors are detected using high speed transmissions such as 19200 or 38400 baud and if two stop bits are already set, a time-out can be inserted between each character for a better synchronization:

0 ms *	10 ms
20 ms	50 ms
100 ms	

START OF CONFIGURATION

END OF CONFIGURATION

Metrologic®

2.1.7. ACK/NAK Protocol

Once this protocol is activated, the decoder waits for an acknowledgment from the host system:

- ACK   (06 hexa) means: message correctly received by the host system.

- NAK   (15 hexa) means: message incorrectly received by the host, upon reception of this character the decoder resends the message.

ACK/NAK DISACTIVATED *

ACK/NAK ACTIVATED

2.1.8. XON/XOFF Protocol

Using this protocol, the host system can control the data flow coming from the decoder:

- XON   (11 hexa) means: host system ready to receive data.

- XOFF (13 hexa) means: host system busy, the decoder stops the transmission and waits for an XON.

XON/XOFF DISACTIVATED *

XON/XOFF ACTIVATED

2.1.9. RTS/CTS Protocol

This protocol is a hardware "handshake" between the decoder and the host system. Before transmitting data, the decoder rises its RTS signal (pin 4) to +10 volt and waits for a +10 volt signal on its CTS (pin 5) from the host. The rest position of the two pins is -10 volt.

RTS/CTS PROTOCOL DISACTIVATED *

RTS/CTS PROTOCOL ACTIVATED

START OF CONFIGURATION

END OF CONFIGURATION

2.1.10. _PC-Term Mode_

Some applications use several RS232 terminals connected to a PC host system configured in PC-Term mode. When a character is typed on a keyboard of a terminal, its scan code value is transmitted to the PC instead of its ASCII value. Then, upon reception, the PC sends back the corresponding ASCII character to display on the screen.

Therefore, once this mode is activated, the decoder sends the scan code value of each character read.

To activate the PC-Term mode, read this code and adjust the RS232 parameters using page 6 to 10. It is advised to insert a time-out of 50 ms between each character when baud rate is over 9600 baud (see page 9).

PC-TERM MODE ACTIVATED

Upper/lower case characters and the type of numeric characters can be adjusted using page 14 and 15.

Keyboard layout style can be selected using the _Bar Code Pad_ page 12, without reading the code _Keyboard-Wedge Mode Activated_.

START OF CONFIGURATION

END OF CONFIGURATION

2.2. _Keyboard-Wedge_

In this mode the radio base is connected between the keyboard and the computer (or terminal). Data is emulated by the decoder as if it was typed on the keyboard.

The default communication mode (factory setting) is RS232, use the codes on this page to activate the Keyboard-Wedge mode and to select the ID corresponding to your computer or terminal:

![barcode]

KEYBOARD-WEDGE MODE ACTIVATED

Consult the IS1000 _Connection List_ and enter the ID corresponding to your computer or terminal using this _Bar Code Pad_

![barcode] 0

![barcode] 1

![barcode] 2

![barcode] 3

![barcode] 4

![barcode] 5

![barcode] 6

![barcode] 7

![barcode] 8

![barcode] 9

![barcode] **START OF CONFIGURATION**

![barcode] **END OF CONFIGURATION**

PC Keyboard-Wedge ID:

PC Keyboard Type	ID
ALT Mode	114
Belgian	644
French	1
German	104
Hungarian	437
Italian	123
Spanish	313
Swedish	169
Swiss	148
UK	611
US	11

⚠ *Note:*

For other Keyboard-Wedge interfaces, please refer to the IS1000 Connection List to obtain ID and cable reference.

START OF CONFIGURATION

END OF CONFIGURATION

2.2.1. _End of Message Character_

One of the characters below can be systematically emulated by the decoder as the end of message character:

‖‖‖‖‖‖‖‖‖‖‖	‖‖‖‖‖‖‖‖‖‖‖
RETURN *	**FIELD EXIT**
‖‖‖‖‖‖‖‖‖‖‖	‖‖‖‖‖‖‖‖‖‖‖
ENTER	**TAB +**
‖‖‖‖‖‖‖‖‖‖‖	‖‖‖‖‖‖‖‖‖‖‖
CR/LF ; FEED ; SEND	**LF**
‖‖‖‖‖‖‖‖‖‖‖	‖‖‖‖‖‖‖‖‖‖‖
FIELD ADVANCE	**NO CHARACTER**

Other characters, signs, function keys or fields can be added using the _Preamble / Postamble_ function (see appendix 6.3, page 58) or the _Editing Mode_ (see chapter 5, page 53).

2.2.2. _Upper / Lower Case Options_

Use one of these codes to inform the decoder of the state of your keyboard:

‖‖‖‖‖‖‖‖‖‖‖	‖‖‖‖‖‖‖‖‖‖‖
UPPER CASE/CAPS *	**LOWER CASE/SMALL**

‖‖‖‖‖‖‖‖‖‖‖	‖‖‖‖‖‖‖‖‖‖‖
START OF CONFIGURATION	**END OF CONFIGURATION**

2.2.3. Types of Numeric Characters

This function allows the emulation of the numeric characters of the numeric pad or those located on top of the keyboard.

Use this function if trouble occurs with upper/lower case keyboard modes.

NUMERICS LOCATED OVER THE ALPHANUMERIC PAD *	**NUMERIC PAD**

⚠ **Note:**

If the option Numeric Pad is chosen, the numeric pad of the keyboard must be also turned on (or locked) for correct operation.

2.2.4. Time-Out Between Characters

The insertion of a time-out between each character can sometimes avoid eventual errors due to a fast transmission speed (specially on PS/2 or when DOS and BIOS are very busy).

0 ms *	**5 ms**
10 ms	**20 ms**
50 ms	**100 ms**

START OF CONFIGURATION	**END OF CONFIGURATION**

Metrologic

2.2.5. "WYSE" Time-Out

Some Keyboard-Wedge connections on some Wyse terminals can drop characters especially when a string of identical characters appears in a code.

Only in this case, use this function to insert a time-out between characters:

ACCESS CODE TIME-OUT

**Enter the desired value
using the *Numeric Pad* page 81**
0 ≤ value ≤ 49

VALIDATION

START OF CONFIGURATION

END OF CONFIGURATION

2.3. <u>*P.O.S. (Point Of Sale) Systems*</u>

The main communication modes with P.O.S. systems are:

- RS232

- Keyboard-Wedge

- OCIA

- RS485

To set RS232 communication use pages 6 to 11 to adjust the transmission parameters.

To set a Keyboard-Wedge, OCIA or RS485 communication use page 12 of this manual; scan the code *Keyboard-Wedge Mode Activated* and enter your ID.

⚠ *Note:*

Please refer to the IS1000 Connection List to obtain ID and cable reference.

START OF CONFIGURATION

END OF CONFIGURATION

2.4. Wand Emulation

Scan this code to activate the wand emulation mode:

WAND EMULATION MODE ACTIVATED

Then select the symbology to be emulated using the *Bar Code Pad* page 12, without reading the code *Keyboard-Wedge Mode Activated*:

Emulation	ID
Code 39	69
Interleaved 2/5	68
UPC/EAN *	70

* Only 8 or 13 characters messages are accepted for this emulation

Then adjust the following transmission parameters.

2.4.1. Transmission Speed

HIGH *

MEDIUM

LOW

START OF CONFIGURATION

END OF CONFIGURATION

2.4.2. _Bar/Space Polarity_

‖‖‖ ‖‖ ‖‖‖ ‖‖ ‖‖‖	‖‖‖ ‖‖ ‖‖‖ ‖‖ ‖‖‖
BAR = 1, SPACE = 0 *	BAR = 0, SPACE = 1

2.4.3. _Idle State_

‖‖‖ ‖‖ ‖‖‖ ‖‖ ‖‖‖	‖‖‖ ‖‖ ‖‖‖ ‖‖ ‖‖‖
HIGH (5 VOLT) *	LOW (0 VOLT)
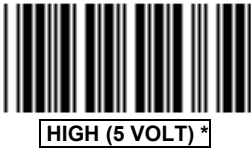
START OF CONFIGURATION

END OF CONFIGURATION

2.5. Laser Emulation

With this mode, data are transmitted as code 39 data coming from a TTL hand held laser or CCD scanner.

Scan this code to activate this mode:

LASER EMULATION MODE ACTIVATED

⚠ **Note:**

For the radio base connector pin-out, refer to the IS1000 Installation and User's Guide.

START OF CONFIGURATION

END OF CONFIGURATION

Metrologic

3. SYMBOLOGIES

Many bar code symbologies have been developed to suit many data capture applications in different domains (retail, industry, medical, transport…) requiring simple or complete sets of characters (numeric, alphanumeric, full ASCII set…) with various density performances.

Each symbology has options which must be carefully checked and adjusted by the user.

Some samples are printed in appendix 6.12, page 82.

The default configuration of the IS1000 permits the reading of only six bar code symbologies appearing on the next left hand page.

Other symbologies can be selected on the next right hand page by using the following sequence:

```
┌─────────────────────────────────────┐
│   Read the code Start of Configuration │
│        bottom left of each page        │
└─────────────────────────────────────┘
                    │
┌─────────────────────────────────────┐
│      Read the code New Selection      │
└─────────────────────────────────────┘
                    │
┌─────────────────────────────────────┐
│    Select the new group of bar code   │
│          symbologies desired          │
└─────────────────────────────────────┘
                    │
┌─────────────────────────────────────┐
│   Adjust the options of each bar code  │
│          symbology desired            │
└─────────────────────────────────────┘
                    │
┌─────────────────────────────────────┐
│   Read the code End of Configuration   │
│       bottom right of each page        │
└─────────────────────────────────────┘
```
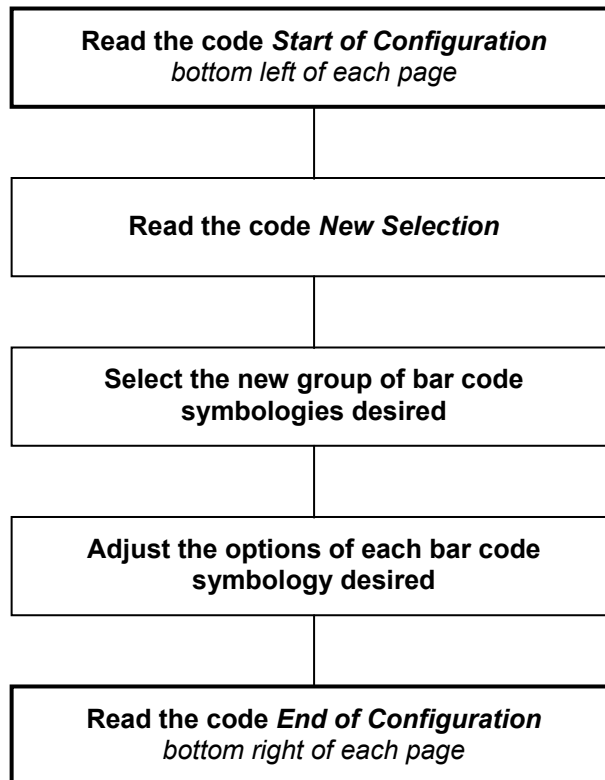
To fully optimize the decoding reliability, it is advised to select only the symbology(ies) required for your application.

In addition, a function called *Decoding Selectivity* (see page 45) will perform several data collections and decodings with comparisons before transmission.

START OF CONFIGURATION

END OF CONFIGURATION

Metrologic

3.1. _Symbology Selection_

NEW SELECTION

**This code must be read to initialize
any new selection of symbologies**

CODE 39 *

INTERLEAVED 2/5 *

UPC/EAN *

MONARCH/CODABAR *

CODE 128 *

EAN 128 *

These six bar code symbologies are the most commonly used and are active by default.

Other symbologies can be selected on the next page.

⚠ _Note:_

- _If no symbology is selected after the reading of New Selection code, the above six symbologies will remain activated._

- _Only the symbologies selected after the reading of New Selection code will be activated_

- _If New Selection code is not read before selecting another symbology, this will be added to the six of above._

START OF CONFIGURATION

END OF CONFIGURATION

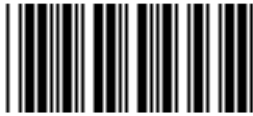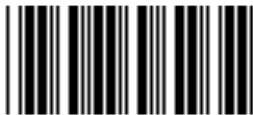|	
STANDARD 2/5	MSI
PLESSEY	TELEPEN
CODE 93	MATRIX 2/5
IATA	BC 412 **
3W7	Reserved # 1
Reserved # 2	Reserved # 3

Once your selection is completed, consult the next pages to verify and adjust the options you require for each symbology.

** Strictly reserved for IBM and authorized companies; require a specific firmware.

START OF CONFIGURATION

END OF CONFIGURATION

3.2. Code 39

This is the most popular alpha-numeric bar code symbology. It has a set of 43 characters (alphanumeric and a few symbols) and can be used with or without a check digit.

3.2.1. Standard/Full ASCII

The Code 39 *Full ASCII* option allows the transmission of the 128 ASCII characters. Each ASCII character is a combination of two Code 39 characters. It can be very useful specially to transmit control characters (STX, ETX, TAB, EOT…) as preambles or postambles in a message (see appendix 6.3, page 58). The *Code 39 Full ASCII Table* is listed in appendix 6.10, page 70.

STANDARD *

FULL ASCII

3.2.2. Full ASCII Extended

In Keyboard-Wedge mode, function keys like F1 to F12, →, HOME, CLEAR… can be emulated using this function.

The function key to be emulated is represented by two Code 39 characters from the *Code 39 Full ASCII Extended Table* (see appendix 6.8, page 65), which can be part of the symbol or separate from it.

DISACTIVATED *

**ACTIVE ON TWO CHARACTERS
PRECEDED BY A DASH**
(part of or separate from the symbol)

ACTIVE ON TWO CHARACTERS
(part of or separate from the symbol)

**ACTIVE ONLY ON TWO CHARACTERS
SEPARATE FROM THE SYMBOL**

⚠ **Note:**

The function key value to be emulated can be set as a preamble or a postamble of message (see appendix 6.3, page 58).

START OF CONFIGURATION

END OF CONFIGURATION

3.2.3. Multiread

DISACTIVATED *

ACTIVATED

The Multiread function permits the temporary storage of one or more codes in the decoder's memory which will then be transmitted in a single string message.

To operate the Multiread function, the desired group of codes to be first stored must have a Multiread Character as the leading character. This character can be chosen in the *Multiread Character Table* (see appendix 6.9, page 67; default is SPACE character) after reading code *Activated*. The transmission will start once a code having no Multiread Character is read.

3.2.4. Modulo 43 Check Character

In the case of high level security applications, a check character can be integrated as the last character in the code and verified before transmission.

NOT VERIFIED *

VERIFIED AND TRANSMITTED

VERIFIED AND NOT TRANSMITTED

⚠ **Note:**

See page 27 for the calculation algorithm of Code 39 Modulo 43 Check Character.

START OF CONFIGURATION

END OF CONFIGURATION

3.2.5. _Pharmacode or Pharma 32/39_

This symbology is used only in Italy. The encoding uses the Code 39 standard but the decoding performs a transformation of the digits using a translation table.

Example:

The Code 39 message: 2 D W W K P will be transformed into 080638517.

To activate this symbology, the code _New Selection_ must be read first.

NEW SELECTION *

PHARMACODE ACTIVATED

START/STOP NOT TRANSMITTED *

START/STOP TRANSMITTED

CHECK DIGIT TRANSMITTED *

CHECK DIGIT NOT TRANSMITTED

3.2.6. _CIP Code 39_

CIP Code is specific to the French pharmaceutical industry. This function allows the reading of the CIP Code 39 only (code with 7 characters), with the possibility of transmitting or not the check digit. To cancel this function, read the code _All Codes 39_.

ACTIVATED WITH
CHECK DIGIT NOT TRANSMITTED

ACTIVATED WITH
CHECK DIGIT TRANSMITTED

ALL CODES 39 *

START OF CONFIGURATION

END OF CONFIGURATION

3.2.7. *Start/Stop*

This function activates the transmission of the start and stop characters (sign ✶).

NOT TRANSMITTED *

TRANSMITTED

3.2.8. *Modulo 43 Algorithm*

Code 39 is strongly self checked and most situations do not require a check character. If a specific application requires exceptional data security, a check character can be added as the last character of the code.

Example:

Message: 12345/ABCDE

Sum of values: 1 + 2 + 3 + 4 + 5 + 40 + 10 + 11 + 12 + 13 + 14 = 115

Divide 115 by 43. The quotient is 2 with the remainder 29. The check character is the character corresponding to the value of the remainder, which is 29 in this example, corresponding to the character T.

The complete message, including check character is: 12345/ABCDET.

Numerical value assignments for computing the optional check character:

Character	Value	Character	Value	Character	Value
0	0	F	15	U	30
1	1	G	16	V	31
2	2	H	17	W	32
3	3	I	18	X	33
4	4	J	19	Y	34
5	5	K	20	Z	35
6	6	L	21	-	36
7	7	M	22	.	37
8	8	N	23	Space	38
9	9	O	24	$	39
A	10	P	25	/	40
B	11	Q	26	+	41
C	12	R	27	%	42
D	13	S	28		
E	14	T	29		

START OF CONFIGURATION

END OF CONFIGURATION

3.3. _Interleaved 2/5_

This symbology is only numeric and offers a very high density of characters per inch due to its interleaved encoding system. The decoding is very easy even if the symbols are poorly printed. These advantages make it very popular for industrial applications.

But to avoid missing characters when scanning is incomplete, it has to be used with fixed lengths (see pages 28 or 29) or variable lengths with a check digit (see page 30).

3.3.1. _Fixed Length(s) Authorized and Set Upon First Reading(s)_

The characters are interleaved (always paired), therefore it is necessary to define whether the number of significant characters is odd or even.

EVEN *	ODD
1 LENGTH FIXED AFTER THE FIRST READ *	2 LENGTHS FIXED AFTER THE FIRST 2 READS
3 LENGTHS FIXED AFTER THE FIRST 3 READS	4 LENGTHS FIXED AFTER THE FIRST 4 READS

⚠️ _Note:_

In this mode, the code lengths are not saved after power-off.

START OF CONFIGURATION

END OF CONFIGURATION

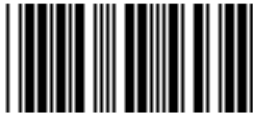### 3.3.2. *Fixed Length(s) Authorized and Set Using the Numeric Pad*

Select the number of code length(s) desired (1 to 4):

‖‖‖‖‖‖‖‖‖‖	‖‖‖‖‖‖‖‖‖‖
ONE	**TWO**

‖‖‖‖‖‖‖‖‖‖	‖‖‖‖‖‖‖‖‖‖
THREE	**FOUR**

Select the N° of the length to be adjusted:

‖‖‖‖‖‖‖‖‖‖	‖‖‖‖‖‖‖‖‖‖
LENGTH N° 1	**LENGTH N° 2**

‖‖‖‖‖‖‖‖‖‖	‖‖‖‖‖‖‖‖‖‖
LENGTH N° 3	**LENGTH N° 4**

**Enter the desired number of characters
using the *Numeric Pad* page 81**

‖‖‖‖‖‖‖‖‖‖

VALIDATION

Go back to adjust a next N° of length or read the code *End of Configuration* if no other lengths is desired.

⚠ **Note:**

In this mode, the code lengths are saved after power-off.

‖‖‖‖‖‖‖‖‖‖	‖‖‖‖‖‖‖‖‖‖
START OF CONFIGURATION	**END OF CONFIGURATION**

3.3.3. Variable Lengths Authorized

ACTIVATED

**CHECK DIGIT
VERIFIED BUT NOT TRANSMITTED**

**CHECK DIGIT
VERIFIED AND TRANSMITTED**

How to calculate the check digit value:

Example:
Message: 14356
Add the odd positions: 1 + 3 + 6 = 10
Multiply by 3 = 30
Add the even positions. 30 + 4 + 5 = 39
The check digit is the complement to the next ten: CK = 40 – 39 = 1
The printed message will be: 143561

**CIP CHECK DIGIT
VERIFIED BUT NOT TRANSMITTED**

**CIP CHECK DIGIT
VERIFIED AND TRANSMITTED**

CHECK DIGIT NOT VERIFIED *

⚠ **Caution:**

The mode Check Digit Not Verified is not advised, missing characters can occur in case of incomplete scanning of a code.

START OF CONFIGURATION

END OF CONFIGURATION

3.4. UPC/EAN

This symbology is mainly used for retail applications. It has fixed lengths (8 or 12 characters for UPC, 8 or 13 characters for EAN) and uses a check digit as the last character and is only numeric. Two or five supplemental digits called Add-On can be added to the right hand size of the codes.

3.4.1. Types of UPC/EAN Authorized

ALL UPC/EAN CODES *

EAN 13 AUTHORIZED

UPC A AUTHORIZED

EAN 8 AUTHORIZED

UPC E AUTHORIZED

⚠️ _Note:_

Several selections can be accumulated.

3.4.2. Transformations

UPC TRANSMITTED AS EAN *

UPC TRANSMITTED AS UPC

UPC E TRANSMITTED AS UPC E *

UPC E TRANSMITTED AS UPC A

START OF CONFIGURATION

END OF CONFIGURATION

3.4.3. Add-On Options

The Add-On is a group of 2 or 5 digits printed on the right hand size of a code which can be transmitted or not depending of the following settings:

ADD-ON NOT TRANSMITTED *

ADD-ON TRANSMITTED

If *Add-On Transmitted* is set, some conditions can be fixed:

ADD-ON MAY NOT BE PRESENT *

ADD-ON MUST BE PRESENT

If *Add-On Must Be Present* is selected, other conditions can be fixed:

On the type of Add-On accepted:

WITH 2 OR 5 CHARACTERS *

WITH 2 CHARACTERS ONLY

WITH 5 CHARACTERS ONLY

For specific applications with EAN 13 on magazines:

Code EAN 13 starting with the 3 digits 378 or 379 will be decoded only if the Add-On is available and correctly decoded.

DISACTIVATED *

ACTIVATED

START OF CONFIGURATION

END OF CONFIGURATION

3.4.4. *Leading Prefixes for P.O.S. Systems*

Leading characters can be transmitted with each code to inform the P.O.S. system with the type of UPC or EAN read.

The prefixes are: FF for EAN 8, F for EAN 13, A for UPC A, E for UPC E.

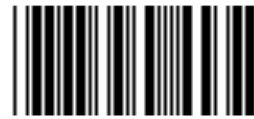|	
‖‖‖‖‖‖‖‖	‖‖‖‖‖‖‖‖
PREFIXES NOT TRANSMITTED *	**PREFIXES TRANSMITTED**

3.4.5. *Flag Option*

The Flag is the first digit of the code. It can be transmitted or suppressed.

‖‖‖‖‖‖‖‖	‖‖‖‖‖‖‖‖
EAN 13 FLAG TRANSMITTED *	**EAN 13 FLAG NOT TRANSMITTED**
‖‖‖‖‖‖‖‖	‖‖‖‖‖‖‖‖
EAN 8 FLAG TRANSMITTED *	**EAN 8 FLAG NOT TRANSMITTED**
‖‖‖‖‖‖‖‖	‖‖‖‖‖‖‖‖
UPC A FLAG TRANSMITTED *	**UPC A FLAG NOT TRANSMITTED**
‖‖‖‖‖‖‖‖	‖‖‖‖‖‖‖‖
UPC E FLAG TRANSMITTED *	**UPC E FLAG NOT TRANSMITTED**

‖‖‖‖‖‖‖‖	‖‖‖‖‖‖‖‖
START OF CONFIGURATION	**END OF CONFIGURATION**

3.4.6. Check Digit Options

EAN 13 CHECK DIGIT TRANSMITTED *

EAN 13 CHECK DIGIT NOT TRANSMITTED

EAN 8 CHECK DIGIT TRANSMITTED *

EAN 8 CHECK DIGIT NOT TRANSMITTED

UPC A CHECK DIGIT TRANSMITTED *

UPC A CHECK DIGIT NOT TRANSMITTED

UPC E CHECK DIGIT TRANSMITTED *

UPC E CHECK DIGIT NOT TRANSMITTED

3.4.7. Product Code

The product code is represented by the last six digits (without the check digit) can be transmitted alone:

ALL CHARACTERS TRANSMITTED *

PRODUCT CODE ONLY

3.4.8. ISBN Conversion

This function converts UPC/EAN codes appearing on book into ISBN format.

The 3 leading digits and the check digit of UPC/EAN codes are suppressed and the remaining 9 digits are transmitted with the ISBN check digit calculated by the decoder.

UPC/EAN TRANSMITTED AS AN UPC/EAN *

UPC/EAN CONVERTED IN ISBN
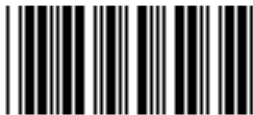

START OF CONFIGURATION

END OF CONFIGURATION

3.5. Monarch/Codabar

The Codabar (or Monarch) is a very high reliable bar code which has been designed specially for medical applications such as blood bag identification.

Its character set contains numerics and four symbols.

3.5.1. Start/Stop

NOT TRANSMITTED *

TRANSMITTED

a b c d Small *

ABCD BLOCK

a, b, c, d are the different start/stop characters.

3.5.2. Concatenation

CONCATENATED *

STANDARD

This function permits the capture of two codes with only one scan. Codes must be close to one another and on the same "line".

Once captured, the two codes are assembled and transmitted as one message.

⚠ *Note:*

To operate this function correctly, the first code must end with the "d" stop character and the second code must start with the "d" start character. These two start/stop characters are cleared before transmission.

START OF CONFIGURATION

END OF CONFIGURATION

Metrologic

3.6. Code 128

This symbology offers a great flexibility with its three sets of characters:

- Set A: upper case alphanumeric characters and all ASCII control characters.
- Set B: upper and lower case alphanumeric characters and some symbols.
- Set C: numeric only but which a very high density of characters per inch.

Good quality printed codes are recommended due to the continuous structure (no gaps between characters) and the four types of bar and space widths.

It works with a modulo 103 check character as the last character.

⚠ *Note:*

The UCC/EAN 128 options are described on next page.

3.6.1. Check Character

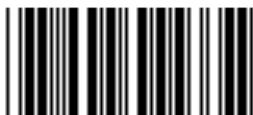**VERIFIED BUT NOT TRANSMITTED ***

NOT VERIFIED BUT TRANSMITTED

VERIFIED AND TRANSMITTED

3.6.2. FNC2 Function

This function permits the temporary storage of a code in the decoder if this code starts with the FNC2 character. The message buffered will be concatenated and transmitted with next code having no FNC2 character.

FNC2 NOT ACTIVATED *

FNC2 ACTIVATED

START OF CONFIGURATION

END OF CONFIGURATION

3.7. UCC/EAN 128

This symbology is fully compatible with Code 128. The main difference between EAN 128 and conventional Code 128 is that EAN 128 codes always contain a reserved non-data character, function 1 (FNC1), as the first character after the start character. This FNC1 character acts also as a separator of fields in the code.

Example of code UCC/EAN 128 structure:

START	FNC1	ID – DATA 1	FNC1	ID – DATA 2	CK	STOP

START: Start character from set A, B or C

FNC1 : Separator character

ID : Identifier of type of data

CK : Check digit modulo 103

STOP : Stop character

The decoder detects an UCC/EAN 128 code when FNC1 is the leading character.

The transmission of the data string will be performed as follow:

] C1	ID – DATA 1	GS	ID – DATA 2

] C1 : Three characters representing the identifier of the code UCC/EAN 128

GS : ASCII character (1D hexa) acting as a separator

⚠ **Note:**

In Keyboard-Wedge mode, the character GS is transmitted as quotes " (22 hexa).

The character FNC1 can be transmitted or not using these codes:

FNC1 NOT TRANSMITTED *

FNC1 TRANSMITTED

START OF CONFIGURATION

END OF CONFIGURATION

3.8. _Standard 2/5_

This symbology is numeric only and uses the same encoding system as the code Interleaved 2/5 but only the bars are significant. The problem of reliability is also the same in case of incomplete scanning of a code so it has to be used with fix length(s).

3.8.1. _Number of Lengths Authorized_

ONE *

TWO

To fix the number of characters per length, read one (or two) bar code label(s) having the desired length(s) after the decoder is turned on.

 Note:

The length(s) are not saved after power-off.

3.8.2. _Start/Stop Types_

Two types of start/stop characters can be used, select the one corresponding to your application:

WITH 3 BARS *

WITH 2 BARS

START   STOP

START   STOP

START OF CONFIGURATION

END OF CONFIGURATION

3.9. _MSI_

This symbology is mainly used in libraries to trace the loan of books. It is only numeric and due to its very simple encoding system it can be used only with fixed length or with variable lengths when including one or two check digits.

3.9.1. _Variable or Fix Lengths_

VARIABLE LENGTHS *

ONE FIXED LENGTH SET BY READING
A LABEL AFTER POWER-ON

⚠ _Note:_

The length is not saved after power-off.

3.9.2. _Double Check Digit (Modulo 10)_

VERIFIED BUT NOT TRANSMITTED *

VERIFIED AND BOTH TRANSMITTED

BOTH VERIFIED BUT ONLY
FIRST ONE TRANSMITTED

NOT VERIFIED

3.9.3. _Single Check Digit (Modulo 10)_

VERIFIED BUT NOT TRANSMITTED

VERIFIED AND TRANSMITTED

START OF CONFIGURATION

END OF CONFIGURATION

3.10. Plessey

This was the first bar code symbology invented in the UK during the early 70's to control the loan of library books.

The character set is numeric and its encoding system is very simple (thin bar = 0, large bar = 1). It can be only read with two check digits as last characters.

CHECK DIGIT TRANSMITTED *

CHECK DIGIT NOT TRANSMITTED

3.11. Telepen

Mainly used in UK, this symbology has two separated sets of characters; one is numeric and the other is alphanumeric. Use the codes below to activate the set desired.

ALPHANUMERIC *

NUMERIC

3.12. Code 93

The 128 ASCII characters can be encoded using this symbology which is more dense than Code 39. Two check digits are always encoded as the last characters and are verified by the decoder but not transmitted.

Its Multiread function permits the concatenation of codes in the decoder for those that start with a space character. These will be transmitted upon the reading of a code having no leading space character.

MULTIREAD ACTIVATED *

MULTIREAD NOT ACTIVATED

START OF CONFIGURATION

END OF CONFIGURATION

3.13. _Matrix 2/5_

This is a numeric and a more dense code than the Standard 2/5. Each character is encoded with three bars and two spaces. It is advised to use it with fixed lengths or with a check digit.

3.13.1. _Types of Start/Stop_
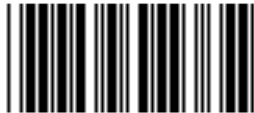
WITH 3 BARS *

WITH 2 BARS

START   STOP

START   STOP

3.13.2. _Check Digit_

VERIFIED AND TRANSMITTED *

VERIFIED BUT NOT TRANSMITTED

NOT VERIFIED

 Caution:

The mode Check Digit Not Verified is not advised, missing characters can occur in case of incomplete scanning of a code.

3.13.3. _Fixed or Variable Lengths_

VARIABLE *

FIXED

In case that fixed lengths have been set, go to next page to adjust the number of characters per length.

START OF CONFIGURATION

END OF CONFIGURATION

3.13.4. *Setting the Authorized Lengths*

FIRST LENGTH SELECTED

**ACCESS CODE
FIRST LENGTH**

**Enter the desired number of characters
using the *Numeric Pad* page 81**

VALIDATION

SECOND LENGTH SELECTED

**ACCESS CODE
SECOND LENGTH**

**Enter the desired number of characters
using the *Numeric Pad* page 81**

VALIDATION

START OF CONFIGURATION

END OF CONFIGURATION

3.14. <u>IATA</u>

This code is used by the airline and railway companies and are printed at the bottom of each ticket. It is in fact a Standard 2/5 code with 2 bar start/stop characters.

Once activated (see *Symbology Selection*, chapter 3.1), only codes with 15, 17, 19 or 21 characters can be decoded.

3.15. <u>BC 412</u>

This symbology has been developed by IBM and is reserved for IBM and authorized companies only. To decode it the decoder must be equipped with specific firmware available on request, accompanied with an authorization letter from IBM.

It uses a check digit being the second character in the code which is verified and transmitted or not depending of the option selected.

CHECK DIGIT NOT TRANSMITTED *

CHECK DIGIT TRANSMITTED

3.16. <u>3W7</u>

Mainly used in Italy, this symbology has a set of 28 characters (numeric, letters A to F, a few symbols and ASCII control characters).

A check digit modulo 28 is used as the last character in the code which is always verified but not transmitted.

START OF CONFIGURATION

END OF CONFIGURATION

3.17. <u>Leading Identifiers</u>

They are characters added by the decoder to the leading positions of each code which inform the host system of the type of symbology decoded. For example, they can be used when several codes with different symbologies appear on a product or document.

Two types of identifiers can be used:

3.17.1. <u>Identifier with One Character</u>

NOT TRANSMITTED *	TRANSMITTED

Symbology	Identifier	Symbology	Identifier
Code 39	A	Telepen	B
Pharmacode	S	Code 93	G
Interleaved 2/5	I	Matrix 2/5	Q
UPC/EAN	E	IATA	T
Monarch/Codabar	F	BC 412	U
Code 128	C	3W7	X
EAN 128	J	Reserved # 1	V
Standard 2/5	R	Reserved # 2	W
MSI	M	Reserved # 3	Y
Plessey	P		

3.17.2. <u>Identifier with Three Characters</u>

NOT TRANSMITTED *	TRANSMITTED
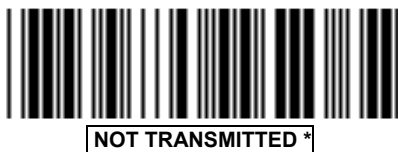
The first character is] (5D hexa), the second one identifies the type of symbology read, the third one indicates an option in the symbology. Please consult the AIM standard to obtain the complete list of identifiers.
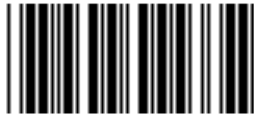
START OF CONFIGURATION

END OF CONFIGURATION

Metrologic®

3.18. *Decoding Selectivity*

This function can be used to fully optimize the reliability of decoding when poor printed codes are used.

Once activated, the decoder performs three data captures and three decodes then compares them before transmission.

<table>
<tr>
<td align="center">||||| ||| |||||| ||||
MINIMUM SELECTIVITY *
(one capture, one decode)</td>
<td align="center">||||| ||| |||||| ||||
MAXIMUM SELECTIVITY
(3 captures, 3 decodes)</td>
</tr>
</table>

||||| ||| |||||| ||||
START OF CONFIGURATION

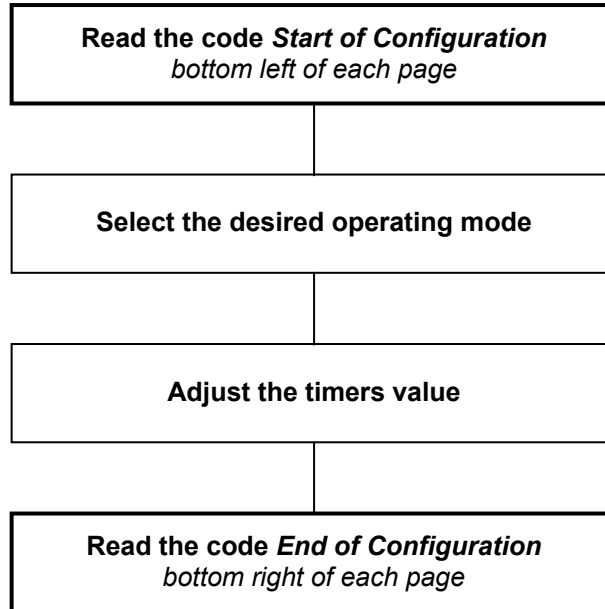||||| ||| |||||| ||||
END OF CONFIGURATION

Page intentionally left blank

4. OPERATING MODES

The default operating mode of the IS1000 is the *"Simple Acknowledgment"*.

Other operating modes can be selected by using the following sequence:

```
┌─────────────────────────────────────────┐
│   Read the code Start of Configuration   │
│         bottom left of each page         │
└─────────────────────────────────────────┘
                    │
┌─────────────────────────────────────────┐
│      Select the desired operating mode   │
└─────────────────────────────────────────┘
                    │
┌─────────────────────────────────────────┐
│          Adjust the timers value         │
└─────────────────────────────────────────┘
                    │
┌─────────────────────────────────────────┐
│   Read the code End of Configuration     │
│        bottom right of each page         │
└─────────────────────────────────────────┘
```

4.1. Simple Acknowledgment

SIMPLE ACKNOWLEDGMENT *

- Timer T1 = 200 ms (default value). To configure it, see page 51.

START OF CONFIGURATION

END OF CONFIGURATION

4.2. _Host System Acknowledgment_

HOST SYSTEM ACKNOWLEDGMENT

ACK/NAK PROTOCOL ACTIVATED

- Timer T1 = 200 ms (default value). To configure it, see page 51.

- Timer T2 = 3 s (default value). To configure it, see page 52.

- Timer T3 = 2 s (default value). To configure it, see page 52.

4.3. _On File / Not On File_

ACTIVATED

DISACTIVATED

ON FILE / NOT ONFILE

- Timer T1 = 200 ms (default value). To configure it, see page 51.

- Timer T2 = 3 s (default value). To configure it, see page 52.

- Timer T3 = 2 s (default value). To configure it, see page 52.

START OF CONFIGURATION

END OF CONFIGURATION

4.3.1. *Setting the On File Character*

This function can be used to change the On File Character sends by the host.

By default: Character ~ (7E hexa).

**ACCESS CODE
ON FILE CHARACTER**

**Enter the desired character
using the *Code 39 Full ASCII Table* page 70**

VALIDATION

4.3.2. *Setting the Not On File Character*

This function can be used to change the Not On File Character sends by the host.

By default: Character DEL (7F hexa).

**ACCESS CODE
NOT ON FILE CHARACTER**

**Enter the desired character
using the *Code 39 Full ASCII Table* page 70**

VALIDATION

START OF CONFIGURATION

END OF CONFIGURATION

4.4. Bell

ACTIVATED

DISACTIVATED

BELL

- Timer T1 = 200 ms (default value). To configure it, see page 51.

- Timer T2 = 3 s (default value). To configure it, see page 52.

START OF CONFIGURATION

END OF CONFIGURATION

4.5. Setting the Timers

Operating Mode	Default Value		
	Timer T1	Timer T2	Timer T3
Simple Acknowledgment	200 ms		
Host System Acknowledgment	200 ms	3 s	2 s
On File / Not On File	200 ms	3 s	2 s
Bell	200 ms	3 s	

4.5.1. Timer T1

Default value = 200 ms

ACCESS CODE TIMER T1

Enter the desired value
using the *Numeric Pad* page 81
(Step of 10 ms)
10 ≤ value ≤ 254

VALIDATION

START OF CONFIGURATION

END OF CONFIGURATION

4.5.2. _Timer T2_

Default value = 3 s

ACCESS CODE TIMER T2

**Enter the desired value
using the _Numeric Pad_ page 81**
(Step of 100 ms)
10 ≤ value ≤ 254

VALIDATION

4.5.3. _Timer T3_

Default value = 2 s

ACCESS CODE TIMER T3

**Enter the desired value
using the _Numeric Pad_ page 81**
(Step of 100 ms)
10 ≤ value ≤ 254

VALIDATION

START OF CONFIGURATION

END OF CONFIGURATION

5. EDITING MODE

6. APPENDIXES

6.1. Radio Parameters

6.1.1. Radio Channel

Channel Number	Frequency
1	433.4 MHz
2	433.6 MHz
3	433.8 MHz
4	434.0 MHz
5	434.2 MHz
6	434.4 MHz

CHANNEL 1

CHANNEL 2

CHANNEL 3 *

CHANNEL 4

CHANNEL 5

CHANNEL 6

START OF CONFIGURATION

END OF CONFIGURATION

6.1.2. <u>Number of Re-transmissions</u>

Maximum number of bar code re-transmission attempts by the IS1000.

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

0

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

1

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

2

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

3 *

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

4

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

5

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

6

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

7

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

START OF CONFIGURATION

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

END OF CONFIGURATION

Metrologic

6.2. Adjustment of the Beep Sound

6.2.1. Laser Reader

VOLUME HIGH *

VOLUME LOW

6.2.2. Radio Base
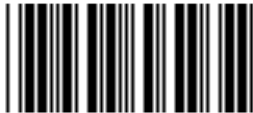
VOLUME HIGH *

VOLUME MEDIUM

VOLUME LOW

VOLUME OFF

DURATION LONG (120 ms) *

DURATION MEDIUM (60 ms)

DURATION SHORT (20 ms)

DURATION VERY SHORT (5 ms)

START OF CONFIGURATION

END OF CONFIGURATION

6.3. *Preamble / Postamble*

One or several characters (22 maximum) can be systematically added to each message as Preamble (leading positions) or as Postamble (ending positions) before transmission to the host system.

These characters can be chosen from the *Code 39 Full ASCII Table* (see appendix 6.10, page 70) when ASCII characters are required or from the *Code 39 Full ASCII Extended Table* (see appendix 6.8, page 65) to emulate function keys in Keyboard-Wedge mode.

6.3.1. *Preamble Character*

ACCESS CODE PREAMBLE BUFFER

**Enter the Preamble character(s)
using the *Code 39 Full ASCII Table* page 70 or
the *Code 39 Full ASCII Extended Table* page 65**

6.3.2. *Postamble Character*

ACCESS CODE POSTAMBLE BUFFER

**Enter the Postamble character(s)
using the *Code 39 Full ASCII Table* page 70 or
the *Code 39 Full ASCII Extended Table* page 65**

6.3.3. *Clear Buffer*

To clear a buffer, read the corresponding access code then read the code *Clear Buffer Pre-selected*.

CLEAR BUFFER PRE-SELECTED

START OF CONFIGURATION

END OF CONFIGURATION

6.4. Conversion of Characters

6.4.1. First Character

A first character can be converted into another defined by the user with the codes on this page (see next page for changing a second one).

Example:

The user wants to convert all Q characters found in an input message into A.
Input message Q10Q234 will be changed into output message A10A234.

ACCESS CODE
FIRST CHARACTER TO BE CONVERTED

Enter the desired character
using the *Code 39 Full ASCII Table* page 70

VALIDATION

ACCESS CODE
NEW CHARACTER DESIRED

Enter the desired character
using the *Code 39 Full ASCII Table* page 70

VALIDATION

START OF CONFIGURATION

END OF CONFIGURATION

Read this code to clear a pre-programmed conversion of a first character.

CONVERSION OF FIRST CHARACTER
CLEARED

START OF CONFIGURATION

END OF CONFIGURATION

6.4.2. _Second Character_

ACCESS CODE
SECOND CHARACTER TO BE CONVERTED

**Enter the desired character
using the _Code 39 Full ASCII Table_ page 70**
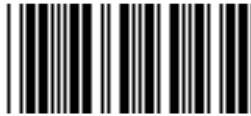
VALIDATION

**ACCESS CODE
NEW CHARACTER DESIRED**

**Enter the desired character
using the _Code 39 Full ASCII Table_ page 70**

VALIDATION

Read this code to clear a pre-programmed conversion of a second character.

**CONVERSION OF SECOND CHARACTER
CLEARED**

START OF CONFIGURATION

END OF CONFIGURATION

6.5. *Rolling Buffer Mode*

In this mode, the input data is first stored in the buffer of the decoder (up to 3K characters maximum) and transmitted to the host system at a rhythm fixed by the inter-message time-out selected on this page.

It can be useful when the data transmission speed to the host system is slow (specially in Keyboard-Wedge mode) while a group of bar code labels has to be read very quickly (example: carton on a conveyor…) or while a group of RS232 input messages has to be first collected before transmission to the host system.

<table>
<tr><td>NO TIME-OUT *</td><td>100 ms</td></tr>
<tr><td>200 ms</td><td>500 ms</td></tr>
<tr><td>700 ms</td><td>1 SECOND</td></tr>
<tr><td>1.5 SECONDS</td><td>2 SECONDS</td></tr>
<tr><td>3 SECONDS</td><td>5 SECONDS</td></tr>
<tr><td>7 SECONDS</td><td>10 SECONDS</td></tr>
</table>

START OF CONFIGURATION

END OF CONFIGURATION

6.6. _Transmission of the Full ASCII Character Set_

This function releases the transmission of the 96 printable ASCII characters (20 to 7F hexa) to the host system in any communication mode. The purpose of this function is to verify that all characters are correctly emulated by the decoder specially in Keyboard-Wedge mode.

ASCII TABLE TRANSMISSION ACTIVATED

START OF CONFIGURATION

END OF CONFIGURATION

6.7. *Displaying the Firmware Level*

Once the IS1000 radio base is connected to a host system with communication parameters correctly adjusted, the level of the firmware implemented in the IS1000 laser reader, radio base and its decoder can be displayed.

LASER READER AND RADIO BASE

The message will appear as follow:

Portable=X.XX - - Base=X.XX

RADIO BASE DECODER

The message will appear as follow:

FIRMWARE LEVEL: XXX.XX

START OF CONFIGURATION

END OF CONFIGURATION

Metrologic

6.8. Code 39 Full ASCII Extended Table

●A
FIELD EXIT

●B
FIELD ADVANCE

●C
ENTER

●D
SEND

●E
TAB -

●F
RETURN

●G
RESET, RESTORE

●H
HOME

●I
➡

●J
⬅

●K
⬆

●L
⬇

●M
CLEAR

Metrologic

F1	●N
F2	●O
F3	●P
F4	●Q
F5	●R
F6	●S
F7	●T
F8	●U
F9	●V
F10	●W
F11	●X
F12	●Y

RESERVED ●Z

Metrologic®

6.9. *Multiread character Table*

||||||||||| ||||| ||| ||||
SPACE *

||||| ||||| ||| |||| |||
0

||||||||| ||||| ||||| |||
1

||||| ||||| ||| |||| |||
2

||||||||| ||| ||||| |||
3

||||| ||| ||||| ||| |||
4

||||||||| ||||| ||| |||
5

||||| ||||| ||| |||| |||
6

||||||||| ||| ||||| |||
7

||||| ||| ||| ||||| |||
8

||||||||| ||||| ||| |||
9

||||| ||||| ||| ||| |||
A

||||||||| ||| ||| ||||
B

||||| ||| ||| ||| ||||
C

||||||||| ||| ||| ||||
D

||||| ||||| ||| ||| |||
E

Metrologic®

```
||||| |||| ||| ||| |
          F
```

```
||||| ||| ||| ||| |||
          G
```

```
||||| |||| ||| ||| |||
          H
```

```
||||| ||| ||| ||| |||
          I
```

```
||||| ||| ||| ||| ||
          J
```

```
||||| ||| ||| ||| |||
          K
```

```
||||| ||| ||| ||| |||
          L
```

```
||||| ||| ||| ||| |||
          M
```

```
||||| ||| ||| ||| |||
          N
```

```
||||| ||| ||| ||| |||
          O
```

```
||||| ||| ||| ||| |||
          P
```

```
||||| ||| ||| ||| |||
          Q
```

```
||||| ||| ||| ||| |||
          R
```

```
||||| ||| ||| ||| |||
          S
```

```
||||| ||| ||| ||| |||
          T
```

```
||||| ||| ||| ||| |||
          U
```

![Metrologic logo]

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

V

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

W

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

X

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

Y

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

Z

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

-

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

.

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

*

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

$

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

/

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

+

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

%

6.10. Code 39 Full ASCII Table

Translation and values of the bar codes which appear on the next pages.

ASCII	Code 39	Hexa Value	ASCII	Code 39	Hexa Value
NUL	%U	00	SP	Space	20
SOH	$A	01	!	/A	21
STX	$B	02	"	/B	22
ETX	$C	03	#	/C	23
EOT	$D	04	$	/D	24
ENQ	$E	05	%	/E	25
ACK	$F	06	&	/F	26
BEL	$G	07	'	/G	27
BS	$H	08	(	/H	28
HT	$I	09	)	/I	29
LF	$J	0A	*	/J	2A
VT	$K	0B	+	/K	2B
FF	$L	0C	,	/L	2C
CR	$M	0D	-	-	2D
SO	$N	0E	.	.	2E
SI	$O	0F	/	/O	2F
DLE	$P	10	0	0	30
DC1	$Q	11	1	1	31
DC2	$R	12	2	2	32
DC3	$S	13	3	3	33
DC4	$T	14	4	4	34
NAK	$U	15	5	5	35
SYN	$V	16	6	6	36
ETB	$W	17	7	7	37
CAN	$X	18	8	8	38
EM	$Y	19	9	9	39
SUB	$Z	1A	:	/Z	3A
ESC	%A	1B	;	%F	3B
FS	%B	1C	<	%G	3C
GS	%C	1D	=	%H	3D
RS	%D	1E	>	%I	3E
US	%E	1F	?	%J	3F

Translation and values of the bar codes which appear on the next pages.

ASCII	Code 39	Hexa Value
@	%V	40
A	A	41
B	B	42
C	C	43
D	D	44
E	E	45
F	F	46
G	G	47
H	H	48
I	I	49
J	J	4A
K	K	4B
L	L	4C
M	M	4D
N	N	4E
O	O	4F
P	P	50
Q	Q	51
R	R	52
S	S	53
T	T	54
U	U	55
V	V	56
W	W	57
X	X	58
Y	Y	59
Z	Z	5A
[	%K	5B
\	%L	5C
]	%M	5D
^	%N	5E
_	%O	5F

ASCII	Code 39	Hexa Value
`	%W	60
a	+A	61
b	+B	62
c	+C	63
d	+D	64
e	+E	65
f	+F	66
g	+G	67
h	+H	68
i	+I	69
j	+J	6A
k	+K	6B
l	+L	6C
m	+M	6D
n	+N	6E
o	+O	6F
p	+P	70
q	+Q	71
r	+R	72
s	+S	73
t	+T	74
u	+U	75
v	+V	76
w	+W	77
x	+X	78
y	+Y	79
z	+Z	7A
{	%P	7B
|	%Q	7C
}	%R	7D
~	%S	7E
DEL	%T	7F

![Metrologic]

NUL

SOH

STX

ETX

EOT

ENQ

ACK

BEL

BS

HT

LF

VT

FF
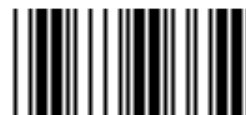
CR

SO

SI

DLE	**DC1**
DC2	**DC3**
DC4	**NAK**
SYN	**ETB**
CAN	**EM**
SUB	**ESC**
FS	**GS**
RS	**US**

SP

!

"

#

$

%

&

'

(

)

*

+

,

-

.

/

![Metrologic]

‖‖‖ ‖ ‖ ‖ ‖‖ **0**	‖‖‖‖ ‖ ‖ ‖ **1**
‖‖‖‖ ‖ ‖ ‖ **2**	‖ ‖‖ ‖‖‖ ‖‖ **3**
‖‖‖‖ ‖ ‖ ‖ **4**	‖ ‖‖‖ ‖ ‖‖ **5**
‖‖‖‖ ‖ ‖‖ **6**	‖ ‖‖‖ ‖ ‖‖ **7**
‖‖‖‖ ‖ ‖‖ **8**	‖ ‖‖‖ ‖ ‖‖ **9**
‖‖‖ ‖ ‖ ‖‖ ‖ ‖‖ **:**	‖‖‖‖ ‖ ‖‖ ‖‖ ‖ **;**
‖‖‖‖ ‖ ‖ ‖‖ ‖‖ **<**	‖‖‖ ‖ ‖ ‖ ‖‖ ‖‖ **=**
‖‖‖‖ ‖ ‖ ‖ ‖‖‖ **>**	‖‖‖‖ ‖ ‖‖ ‖ ‖‖ **?**

![Metrologic]

@

A

B

C

D

E

F

G

H

I

J

K
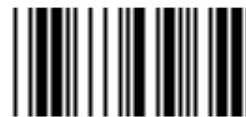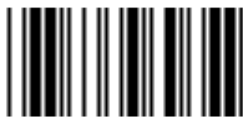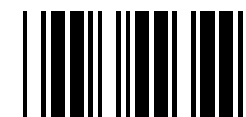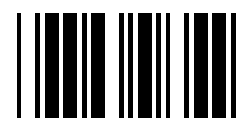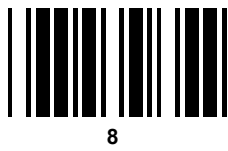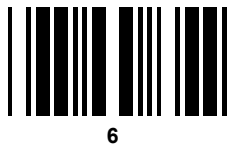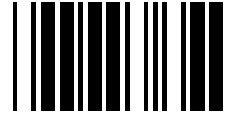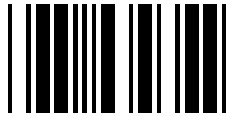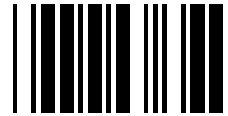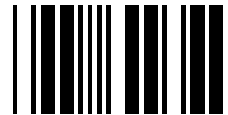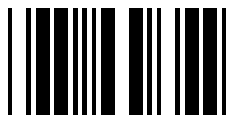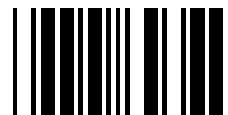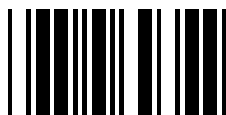
L
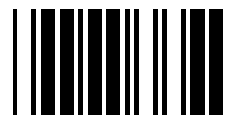
M
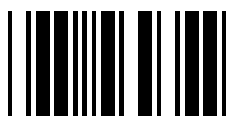
N

O

||||| P
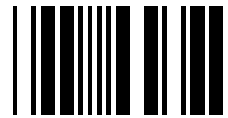
||||| Q

||||| R

||||| S

||||| T
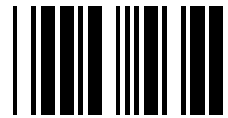
||||| U

||||| V
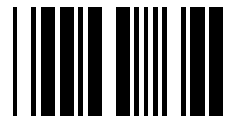
||||| W

||||| X
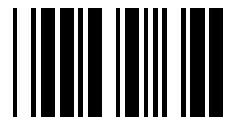
||||| Y

||||| Z

||||| [

||||| \

|||||]

||||| ^

||||| _

```
||||| ||| | ||| ||| |||
```
\`

```
||||| ||| | ||| |||
```
a

```
||||| ||| | ||| |||
```
b

```
||||| ||| | ||| |||
```
c

```
||||| ||| | ||| |||
```
d

```
||||| ||| | ||| |||
```
e

```
||||| ||| | ||| |||
```
f

```
||||| ||| | ||| |||
```
g

```
||||| ||| | ||| |||
```
h

```
||||| ||| | ||| |||
```
i

```
||||| ||| | ||| |||
```
j

```
||||| ||| | ||| |||
```
k

```
||||| ||| | ||| |||
```
l

```
||||| ||| | ||| |||
```
m

```
||||| ||| | ||| |||
```
n

```
||||| ||| | ||| |||
```
o

‖‖‖ ‖ ‖ ‖‖ ‖‖ ‖‖‖ **p**	‖‖‖ ‖ ‖ ‖‖‖ ‖ ‖‖‖ **q**
‖‖‖ ‖ ‖ ‖‖‖ ‖‖ ‖‖ **r**	‖‖‖ ‖ ‖ ‖‖‖ ‖‖‖ ‖ **s**
‖‖‖ ‖ ‖‖ ‖‖‖ ‖‖ **t**	‖‖‖ ‖ ‖‖‖ ‖‖ ‖‖ **u**
‖‖‖ ‖ ‖ ‖‖‖ ‖‖‖ **v**	‖‖‖ ‖ ‖ ‖‖‖ ‖‖‖ **w**
‖‖‖ ‖ ‖‖ ‖‖ ‖‖‖ **x**	‖‖‖ ‖ ‖‖ ‖‖ ‖‖‖ **y**
‖‖‖ ‖ ‖‖ ‖‖‖ ‖‖ **z**	‖‖‖ ‖ ‖‖‖ ‖ ‖‖‖ **{**
‖‖‖ ‖ ‖‖ ‖ ‖‖ ‖‖ **l**	‖‖‖ ‖ ‖‖ ‖‖ ‖‖‖ **}**
‖‖‖ ‖ ‖ ‖‖ ‖ ‖‖‖ **~**	‖‖‖ ‖ ‖‖ ‖‖‖ ‖‖ **DEL**

Page intentionally left blank

6.11. *Numeric Pad*

For entering variable data while configuration.
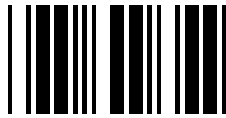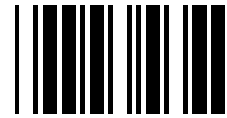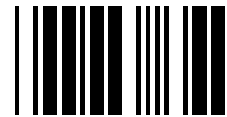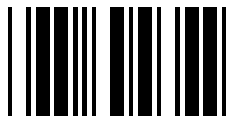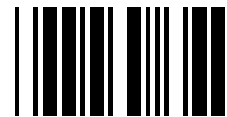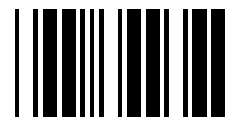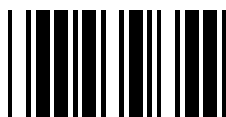
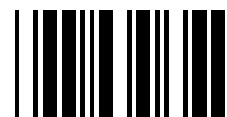|	
0	**1**
2	**3**
4	**5**
6	**7**
8	**9**

6.12. <u>*Samples of Bar Codes*</u>

CODE 39
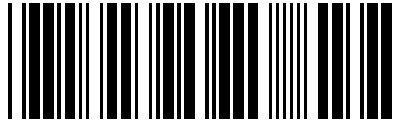
A123G

INTERLEAVED 2/5

012345

CODABAR
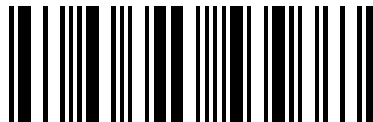
a12345b

CODE 128
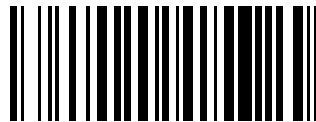
A1234

EAN 128

11940731 Lot 127

Metrologic

UPC E

0 998875 0

UPC A

0 08029 51041 8

UPC A with ADD-ON of 5 characters

69000

0 08029 51041 8

EAN 8

0021 0126

EAN 13

9 780901 690548

EAN 13 with ADD-ON of 5 characters

00725

9 780901 690548

Page intentionally left blank