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DL910 SERIES

Instruction Manual

DATALOGIC

DL910 SERIES

INSTRUCTION MANUAL

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DL910 SERIES

GENERAL VIEW

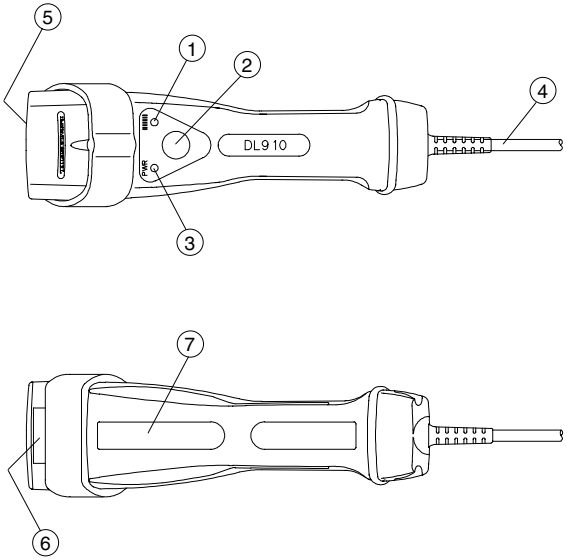


Figure - A

1 Good decode LED

2 Push-button

3 Laser ON LED

4 Connection cable

5 Laser beam output window

6 Warning label

7 Warning label

1. GENERAL FEATURES

1.1 DESCRIPTION AND USE

The DL910 series scanners are hand-held bar code readers with a built-in interface.

This series represents the synthesis of a project which had as fundamental targets from the beginning an ergonomic design, reliability and reading safety in all the phases of data collection.

Code scanning is done automatically by the laser scanner, just aim and press the button.

Successful scanning is obtained by tilting the scanner with respect to the barcode to avoid direct reflections which can impair the reading performance. (Figure 1).

Adapt the reading distance to the code features and operating needs.

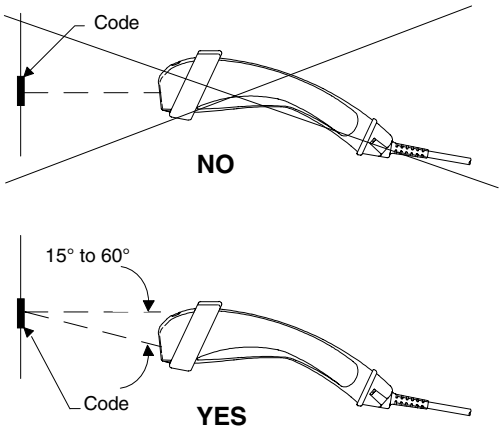


Figure A - Code reading position

The laser beam must pass across the entire code length. The best performance is obtained with the laser beam perpendicular to the bars of the code. (Figure 2).

Figure 2 - Laser beam position

1.2 GAS TANK FOR DL910

For DL910 standard models, a “gas tank” is provided to prevent possible damage to the laser due to overheating. It limits the amount of time the laser remains on within a given period.

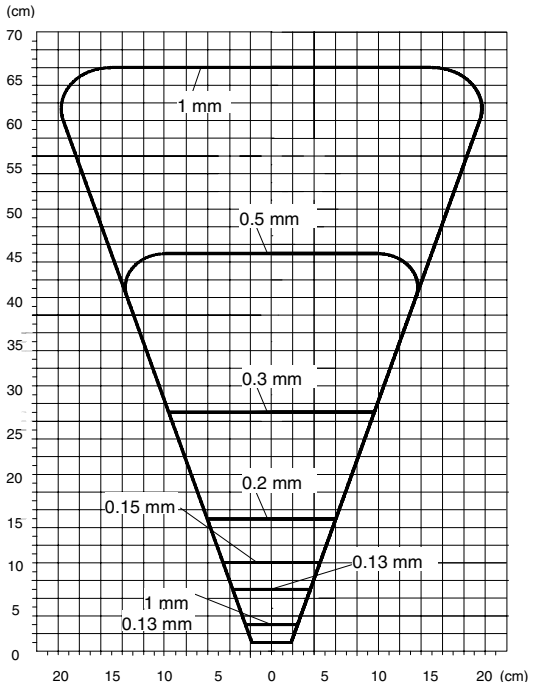
The “gas tank” may become active if the scanner is constantly retriggered with a minimal off period between triggers.

If you accumulate 37 seconds (± 10) of “on time” (difference between when the laser is on and when it is off), the laser will go into a 50% duty cycle (± 25% and operate with a period of 16 seconds (± 4).

The gas tank will become completely inactive after 37 seconds (± 10) of inactivity (off time).

1.3 READING FEATURES FOR DL910

NOTE :
(0,0) is the center of output window of the laser beam.



CONDITIONS :

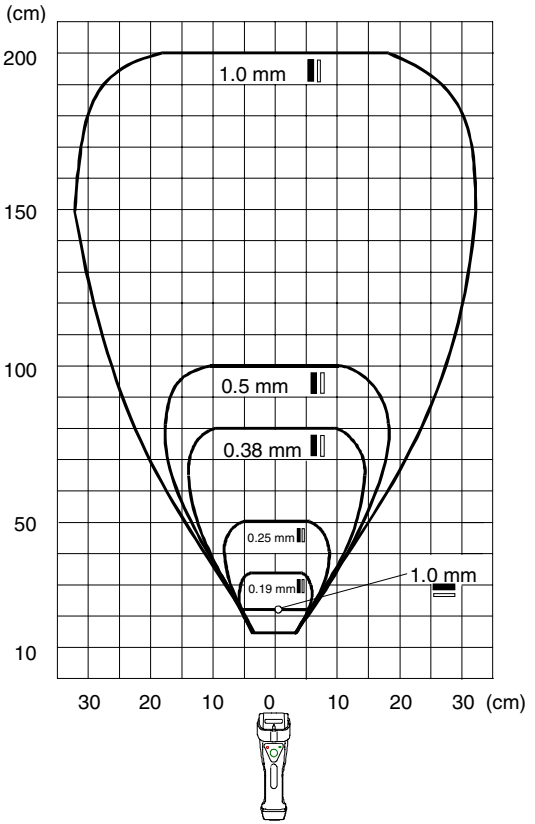
Code = code 39

PCS = 0.90

1.2 - General features

1.4 READING FEATURES FOR DL910-LR

NOTE :
(0,0) is the center of output window of the laser beam.



CONDITIONS :

Code = code 39

PCS = 0.90

1.5 STATUS INDICATORS

The reader has three status indicators: two LEDs and a beeper.

- The red LED indicates the laser beam On state.
- The green LED indicates a good read.
- The beeper has two tones to indicate different operating conditions according to the following tables:

POWER ON

Tone	Meaning
L L L L	correct loading of parameters.
L H L H	incorrect loading of parameters, reading or writing error in the non volatile memory

CONFIGURATION

Tone	Meaning
H H H H	correct ENTRY or EXIT from Configuration mode.
L	valid read of a command
L L	correct batch sequence
L L L	reading error of a command

DATA ENTRY

Tone	Meaning
H	correct code read in normal mode
H H	correct code read but FIFO memory full

where : H = high tone L = low tone

2. CONFIGURATION

2.1 CONFIGURATION COMMANDS

The configuration commands allow all the reader operating parameters to be set.

The configuration selected can be saved in the non volatile memory and maintained when the reader is off.

The commands in this manual can be used on all reader models; other commands relative to specific models are found in the relative Operator's Manual Supplements.

The commands are represented in barcode form and divided into two groups:

- ENTRY/EDIT/EXIT CONFIGURATION Par. 2.4
- PARAMETER SELECTION
  (accessible only after reading the **"Entry"**code).

  Family A Bar Code Selection Par. 2.5.

  Family B Reading Parameters Par. 2.6

2.2 HOW TO CONFIGURE THE READER

The reader can be configured using 3 different methods:

2.2.1 Barcode menu configuration

(method using this Manual)

1. Read the **"Entry"** menu command. The reader emits 4 high tones indicating entry into the configuration environment.
2. Read the parameter selection commands corresponding to the desired configuration options.
3. Repeat point 2 for all the families to modify (including those in the Operator's Manual Supplement for your particular model).
4. Read an "Exit" command (**"Exit and save"** or **"End of modifications"**). The reader emits 4 high tones indicating return to data entry mode.

NOTE

An error in command reading is signalled by different tones, see par. 1.5 "Status Indicators". After such an error, the reader waits for a correct character sequence or a BACKSPACE command (see Par 2.4).

2.2.2 Automatic configuration

With this method the user must print one or more labels (following the syntax for normal menu configuration) that contain all the desired options.

The code selected for this printing must be CODE 128 with "START B" type beginning.

This rapid configuration method excludes all error risks and allows passing immediately from one configuration to another in the case of frequent application changes.

2.2.3 Copy configuration

A configured reader (source) is used to copy its configuration to a non-configured reader (destination) by connecting the two units to a copy cable and reading the correct copy configuration code.

This method is suggested when configuring numerous units in the same way.

The operating details are given in the Operator's Manual Supplement relative to the interface type together with eventual operating compatibility between different software releases.

2.3 DEFAULT CONFIGURATION

Each reader has a resident "default" configuration.

The default options are indicated by an '*' in the parameter selection families and can be enabled by reading the **"Default"** label.

Default configuration is normally used during the initial operating test phase of the reader.

Users are advised to select the operating parameters (codes in particular) according to the application, even if the default configuration appears correct.

Reading the "Default" label will cancel the actual configuration and return to the factory default.

DEFAULT PARAMETER VALUES

Family A Bar code selection

- EAN8/EAN13/UPC A/UPC E
- STANDARD CODE 39 :
  no check digit control
- INTERLEAVED 2/5 :
  no check digit control, variable length code
- NORMAL 2/5 (5 bars) :
  no check digit control, variable length code
- STANDARD CODABAR :
  no start/stop equality control, start/stop transmission unchanged

Family B Reading parameters selection

- BEEPER INTENSITY = high
- BEEPER TONE = tone 1
- SOUND EMISSION = after decoding
- DECODING SAFETY = one read

2.4 ENTRY/EDIT/EXIT CONFIGURATION

ENTRY COMMAND

"Entry" allows to enter the configuration environment from the normal data entry mode. Code **$+**

EDIT COMMANDS

"Backspace" cancels an incomplete configuration sequence without exiting the configuration environment, the previous parameter value remains valid. Code **$%**

"Cancel all" cancels all modifications performed after "Entry" without exiting the configuration environment. You can then continue modifications. Code **$/**

"Default" allows to cancel the actual configuration of the non volatile memory and reprogram with the default values. Once the command is performed the reader returns to data entry mode. Code **$***

NOTE

The restore default configuration is also relative to the features of the output interface. If this does not comply with the operating required, the correct interface parameters must be selected immediately (see the specifications relative to the model used).

EXIT COMMANDS

"Exit and save" allows to return to data entry mode from the configuration environment and save the modifications in the non volatile memory. Code **$-**

or

"End of modifications" allows to pass from the configuration environment to data entry mode WITHOUT saving the modifications in the non volatile memory. Modifications will be lost at power off. Code **$)**

After exiting the configuration environment with the "End of modifications" command, the following commands allow permanent storage :

Read the "Entry" command, then :

"Save" allows the temporary configuration to be saved in the non volatile memory. It then returns to data entry mode. Code **$(**

"Restore" allows the temporary configuration to be cancelled and recalls the previously saved configuration in the non volatile memory. It then returns to data entry mode. Code **$.**

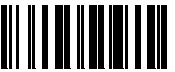
2.5 FAMILY "A" BAR CODE SELECTION

The reader simultaneously discriminates up to five different bar codes. The same code type can be selected more times with different options (the number of characters for example).

Each selected code type can be cancelled by its respective **disable** label.

The following selection cancel all codes types:

Cancels all the codes



AZ0

To increase the efficiency and safety of the system, only select codes effectively used; moreover when possible select the code length and enable check digit controls.

EAN/UPC FAMILY

Disables the family

AA0

EAN8/EAN13/
UPC A/UPC E(*)

AA1

EAN8/EAN13

AA3

UPC A/UPC E

AA4

EAN8/EAN13/
UPC A/UPC E
with ADD ON

AA5

(*) Default

EAN/UPC FAMILY

EAN8/EAN13
with ADD ON

AA6

UPC A/UPC E
with ADD ON

AA7

EAN/UPC with and
without ADD ON

AA8

UPC E CODE OPTIONS

Check digit transmission

disabled

AA90

enabled

AA91

Code expansion

disabled

AAA0

enabled

AAA1

CODE 39 FAMILY

Disables the family

AB0

STANDARD CODE 39

Enable the code by selecting one of the check digit selections.

no check digit control (*)

AB11

check digit control and transmission

AB12

check digit control without transmission

AB13

FULL ASCII CODE 39

Enable the code by selecting one of the check digit selections.

no check digit control

AB21

check digit control and transmission

AB22

check digit control without transmission

AB23

(*) Default

2/5 CODE FAMILY

INTERLEAVED 2/5

Disables the family

AC0

1. Enable the code by selecting one of the check digit selections.

no check digit control (*)

AC11

check digit control and transmission

AC12

control without check digit transmission

AC13

2. Read two numbers between 00 and 99 from the table in par. 2.7 to select the code length starting from the most significant digit.

Number 00 indicates variable code length.

Number 99 indicates same code length as the first code read.

(*) Default

2/5 CODE FAMILY

NORMAL 2/5 CODE (5 BARS)

Disables the family

AC0

1. Enable the code by selecting one of the check digit selections.

no check digit control (*)

AC21

check digit control and transmission

AC22

check digit control without transmission

AC23

2. Read two numbers between 00 and 99 from the table in par. 2.7 to select the code length starting from the most significant digit.

Number 00 indicates variable code length.

Number 99 indicates same code length as the first code read.

(*) Default

CODE 2/5 FAMILY

INDUSTRIAL 2/5 (IATA)

Disables the family

AC0

1. Enable the code by selecting one of the check digit selections.

no check digit control

AC31

check digit control and transmission

AC32

check digit control without transmission

AC33

2. Read two numbers between 00 and 99 from the table in par. 2.7 to select the code length starting from the most significant digit.

Number 00 indicates variable code length.

Number 99 indicates same code length as the first code read.

2/5 CODE FAMILY

MATRIX 2/5 (3 BARS)

Disables the family

AC0

1. Enable the code by selecting one of the check digit selections.

no check digit control

AC41

check digit control and transmission

AC42

check digit control without transmission

AC43

2. Read two numbers between 00 and 99 from the table in par. 2.7 to select the code length starting from the most significant digit.

Number 00 indicates variable code length.

Number 99 indicates same code length as the first code read.

CODABAR FAMILY

Disables the family

AD0

STANDARD CODABAR

1. Enable the code by selecting one of the start/stop character control selections.

no start/stop character equality control (*)

AD11

with start/stop character equality control

AD12

2. Read a code from the start/stop character transmission table below:

ABC CODABAR

1. Enable the code by selecting one of the start/stop character control selections.

no start/stop character equality control

AD21

with start/stop character equality control

AD22

2. Read a code from the start/stop character transmission table below:

START/STOP CHARACTER TRANSMISSION

not transmitted

1

transmitted unchanged (*)

2

transmitted as DC1 DC2 DC3 DC4

3

(*) Default

MSI

Disables the code

AE0

1. Enable the code by selecting one of the check digit selections.

no check digit control

AE1

control and transmission of 1 check digit

AE2

control without transmission of 1 check digit

AE3

MOD.10 - two check digit control with transmission of the first

AE4

MOD.10 - two check digit control with transmission of both

AE5

MOD.10 - two check digit control without transmission

AE6

MOD.11 - MOD.10 two check digit control with transmission of the first

AE7

MOD.11 - MOD.10 two check digit control with transmission of both

AE8

MOD.11 - MOD.10 two check digit control without transmission

AE9

2. Read two numbers between 00 and 99 from the table in par. 2.7 to select the code length starting from the most significant digit.

Number 00 indicates variable code length.

Number 99 indicates same code length as the first code read.

PLESSEY

Disables the code

AF0

1. Enable the code by selecting one of the check digit selections.

no check digit control

AF1

check digit control and transmission

AF2

check digit control without transmission

AF3

2. Read two numbers between 00 and 99 from the table in par. 2.7 to select the code length starting from the most significant digit.

Number 00 indicates variable code length.

Number 99 indicates same code length as the first code read.

CODE 11

Disables the code

AG0

1. Enable the code by selecting one of the check digit selections.

no check digit control

AG1

control with 1 check digit transmission

AG2

control without 1 check digit transmission

AG3

control with 2 check digit transmission

AG4

control without 2 check digit transmission

AG5

2. Read two numbers between 00 and 99 from the table in par. 2.7 to select the code length starting from the most significant digit.

Number 00 indicates variable code length.

Number 99 indicates same code length as the first code read.

IBM DELTA

Disables the code

AH0

Enable the code by selecting one of the check digit selections.

no check digit control

AH1

TYPE1 check digit control

AH2

TYPE2 check digit control

AH3

CODE 128

Disables the code

AI0

Enable the code by selecting one of the check digit selections.

no check digit control nor transmission

AI1

check digit control without transmission

AI2

EAN 128

Disables the code

AM0

Enable the code by selecting one of the check digit selections.

no check digit control nor transmission

AM1

check digit control without transmission

AM2

SEPARATOR CHARACTER SELECTION
(for Wedge model only)

Code EAN 128 uses a special character to separate a variable length code field from the next field. The standard value of this character (from code EAN 128 specifications) is ASCII <GS> wich is not useful for the Wedge interface. For this reason the default separator character is "ENTER" and can be modified by the user.

To define this character read the label

FK

If the interface selected uses the "ALT + 3 numbers" technique (see "Selection of interface type" in the Wedge Interface Manual, note A), and interface table selection with "*" keyboard option (see "Table of Interfaces"), read the separator character from the table in par. 2.7 as follows:

Example = 'L' (4C Hex.) read '4' then 'C' in the table.

Function keys F1,...., F10 have the following coding:

F1	80 Hex	F6	85 Hex
F2	81 Hex	F7	86 Hex
F3	82 Hex	F8	87 Hex
F4	83 Hex	F9	88 Hex
F5	84 Hex	F10	89 Hex

Otherwise press the key(s) of the separator required, respecting the sequence necessary for the generation of the same.

When setting characters requiring shift keys (or alt, ctrl), these must be defined previously during a keyboard setting procedure.

PHARMACEUTICAL FAMILY

Disables the family

AJ0

Italian (Code 32)

AJ1

French (C.I.P./39)

AJ2

French (C.I.P./HR)

AJ3

CODE 93

Disables the code

AK0

Enable the code by selecting one of the check digit selections.

no check digit control nor transmission

AK1

check digit control without transmission

AK2

TELEPEN

Disables the code

AL0

NUMERIC

Enable the code by selecting one of the check digit selections.

no check digit control

AL11

check digit control and transmission

AL21

check digit control without transmission

AL31

ALPHANUMERIC

Enable the code by selecting one of the check digit selections.

no check digit control

AL12

check digit control and transmission

AL22

check digit control without transmission

AL32

2.6 FAMILY "B" READING PARAMETERS

BEEPER INTENSITY

beeper off

BG0

low

BG1

medium

BG2

high (*)

BG3

BEEPER TONE

tone 1 (*)

BH0

tone 2

BH1

tone 3

BH2

tone 4

BH3

(*) Default

SOUND EMISSION

after decoding (*)

BI0

after transmission

BI1

DECODING SAFETY

This command is useful when reading unprotected codes (see 2/5 family, MSI with variable length) and/or damaged codes. The number of good reads DL910-LR must perform before accepting the code can be selected.

one read (*)

ED0

two reads

ED1

three reads

ED2

four reads

ED3

(*) Default

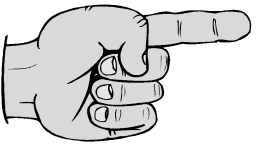
2.7 CHARACTER SELECTION

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

KEEP THE

CHARACTER SELECTION TABLE

OPEN DURING CONFIGURATION



CHARACTER SELECTION TABLE

0 

1 

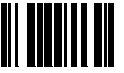
2 

3 

4 

5 

6 

7 

8 

9 

A 

B 

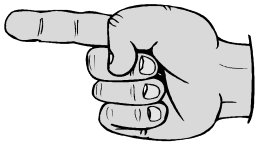
C 

D 

E 

F 

OPEN THIS PAGE TO READ THE
DESIRED CHARACTER /
NUMBER SELECTIONS



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3. MAINTENANCE AND TROUBLESHOOTING

3.1 MAINTENANCE

The DL910 series rugged and reliable scanner is protected against dust and liquids and normal maintenance is not required. The only precaution necessary to maintain good quality reading is to always keep the laser beam output window clean. Therefore avoid touching the window with the fingers or abrasive materials. Clean the window with an air jet or if this is not sufficient, with alcohol and a soft cloth. A dirty output window slows down the reading time and can eventually prevent the scanner from reading at all.

3.2 TROUBLESHOOTING

- **The reader does not emit any acoustic signal at power on.**

Every model, except for PEN EMULATION, should audibly signal the correct completion of the auto test procedure.

Verify that the connector is correctly fixed.

Return the device to the nearest DATALOGIC center if the trouble persists.

- **The reader emits a continual acoustic signal at power on.**

The internal memory check (ROM/RAM/EEPROM) gave negative results.

Return the device to the nearest DATALOGIC center.

- **The reader does not read codes or reads with difficulty**

a - verify that the code to read is among those selected and the label is not damaged.

b - verify the good reading using the DATALOGIC test chart, clean the window if necessary.

c - return the device to the nearest DATALOGIC center if the trouble persists after these controls.

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4. TECHNICAL FEATURES

HARDWARE FEATURES		
Power supply	4.75 to 14 VDC	
Consumption	Depends on the model: refer to the relative appendix.	
Scan rate	36 scans/sec. ± 3	
Max. resolution	0.13 mm	
Laser class:	**DL910**	**DL910-LR**
IEC 825-1	Class 1	Class 2
CDRH	Class 2	Class 2

ENVIRONMENTAL FEATURES	
Weight	420 g
Operating temperature	-10 to +40 °C 14 to +104 °F
Storage temperature	-20 to + 60 °C -4 to +140 °F
Maximum relative humidity	95% non condensing
Protection class	IP64
Resistance to falls	IEC 68-2-32 Test ED
ESD immunity	15 KV R = 150Ω C = 150 pF

SOFTWARE FEATURES	
Configuration methods	"Barcode menu configuration", reading labels in the Operator's manuals. "Copy configuration" procedure with another DL910 reader. "Automatic configuration" reading customised labels
Retention of programming data	Using an internal non volatile EEPROM memory
Code selection	
	EAN/UPC family with & without ADD ON
	CODE 39 (normal & FULL ASCII)
	CODE 32 (Italian pharmaceutical)
	C.I.P. /39 (French pharmaceutical)
	C.I.P./HR (French pharmaceutical)
	CODABAR
	ABC CODABAR
	INTERLEAVED 2/5
	NORMAL 2/5 (5 bars)
	INDUSTRIAL 2/5 (IATA)
	MATRIX 2/5 (3 bars)
	CODE 93
	CODE 11
	CODE 128
	MSI CODE
	PLESSEY CODE
	TELEPEN CODE
	IBM DELTA
	EAN 128
Selection mode	Single or autodiscrimination of up to 5 codes, various options can be enabled for each code.
Decoding safety	up to 4 "good" consecutive and equal decodes on the same user programmable code.
Reading mode	Manual using On/off button.