DP1100

Installation Manual

DATALOGIC DL

Bar Code & More

DP1100

INSTALLATION MANUAL

We

DATALOGIC S.p.A.
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Bologna - Italy

declare under our sole responsibility that the product

DP1100-XXXX, Decoder and all its models

to which this declaration relates is in conformity with the following standards or other normative documents

EN 55022, August 1994: LIMITS AND METHODS OF MEASUREMENTS OF RADIO DISTURBANCE CHARACTERISTICS OF INFORMATION TECHNOLOGY EQUIPMENT (ITE)

EN 50082-2, March 1995: ELECTROMAGNETIC COMPATIBILITY. GENERIC IMMUNITY STANDARD. PART 2: INDUSTRIAL ENVIRONMENT

EN 60950, October 1996: SAFETY OF INFORMATION TECHNOLOGY EQUIPMENT, INCLUDING ELECTRICAL BUSINESS EQUIPMENT

Following the provision of the Directive(s):

89/336 CEE *AND SUCCESSIVE AMENDMENTS*, **92/31 CEE; 93/68 CEE; 73/23 CEE**

Ruggero Cacioppo

Lippo di Calderara, 23.09.1997

Quality Assurance Supervisor

821000002 (Rev. B)

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SAFETY PRECAUTIONS

This product conforms to the applicable requirements contained in the European Standard for electrical safety EN-60950 at the date of manufacture.

⚠ **This symbol refers to operations that must be performed by qualified personnel only.** Example: opening the device.

⚡ **This symbol refers to operations where there is danger of electrical shock.** Before opening the device make sure the power cable is disconnected to avoid electric shock.

This device must be installed to a power source equipped with on/off switch or breaker within range of the operator as protection against grounding failures.

This device is protected against overloading by a correct value fuse. For protection fuse replacement make sure the correct value fuse is installed. This information is in par. 3.1 "Replacing the protection fuse".

1   GENERAL FEATURES

1.1   INTRODUCTION

The DP1100 is a decoder for barcode scanners designed to satisfy the most demanding requirements associated with high performance scanning.

Standard Application Program
A Standard Application Program is factory-loaded onto the DP1100. This program controls barcode reading, serial port interfacing, data formatting and many other operating and control parameters.

It is completely user configurable from a host computer using the Winhost interface utility program provided on diskette with the decoder or using the Keyboard Mode through the keypad and the display or using the Host Mode programming procedure, by ESC sequences via the serial interface.

There are different programmable operating modes to suit various barcode reading system requirements. Included in these is a test mode to verify the reading features and exact positioning of the barcode reader without using external tools.

Programmability
If your requirements are not met by the Standard Application Program, Custom Application Programs can be developed by your local Datalogic distributor.

1.2   AVAILABLE MODELS

The DP1100 is available in versions that differ in regard to the following parameters:

- Number of connected scan heads
- Supply voltage

The following models are therefore available:

DP1100 - X X 0 0

Number of scan heads   **Supply voltage**

1 = 1 scan head (**H1**)   1 = 110 VAC
2 = 2 scan heads (**H2**)   2 = 230 VAC
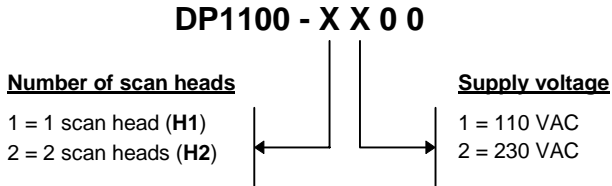
To simplify descriptions in this manual, hereon the designations **H1** and **H2** will be used to indicate 1 scan head and 2 scan head models respectively.

1.3   DESCRIPTION

Some of the main features of this decoder are given below:

- completely configurable from host computer

- 3 output signals (open collector, open emitter)

- 2 serial communication interfaces

- reads all popular codes

- connection to two scan heads (H2 models only)

- connections to a PLC using Siemens protocols

- configurable in different operating modes to suit the most various barcode reading system requirements

- test mode to verify the reading features and exact positioning of the scanner without the need of external tools

- code verifier

- PCS (H1 models only)

Optional boards can be mounted to increase the number of communication interfaces. For more details refer to your local Datalogic distributor.

IP65 protection class can be obtained to make DP1100 particularly suitable for industrial environments where high protection against harsh external conditions is required. For more details refer to your local Datalogic distributor.

The DP1100 is contained in a rugged aluminum housing; the mechanical dimensions are 240 x 200 x 66 mm and it weighs about 2.8 Kg.

1.3.1   Display

The DP1100 is equipped with a 20 character x 4 line backlit LCD. The LCD is used by the Standard Application Program to display programming and error messages, to view current configuration parameters and user menus.

For H2 models (see paragraph 1.2), the first two LCD lines refer to the results of the first scanner connected to the decoder, while the last two LCD lines refer to the scanning results of the second scanner connected to the decoder.

If a code is longer than the available number of characters in the LCD, it is not completely displayed, however it is completely transmitted to the host computer.

1.3.2   Keypad

There are four keys, marked with the symbols Up-arrow, Down-arrow, CLR and ENT; this keypad is mainly used to configure the DP1100 locally when remote configuration via a supervisor computer is not required.

To enter into keyboard programming mode, press the **UP-arrow** and **ENT** keys simultaneously. When you are working with the DP1100 Standard Application Program, these particular keys have the following functions:

This key scrolls functions or programmable data UP.

This key scrolls functions or programmable data DOWN.

This key allows you to return to the function of the previous menu.

This key enables the function or selects the value of the data shown on the display.

For further information on the use of these keys refer to the Word document "kdp1100.doc" provided with the DP1100 diskette.

1.3.3 LEDs

The 7 colored LEDs on the DP1100 front panel are shown in the following figure:

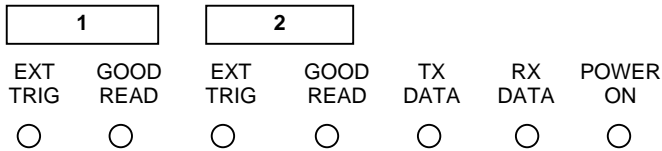| 1		2				
EXT TRIG	GOOD READ	EXT TRIG	GOOD READ	TX DATA	RX DATA	POWER ON
○	○	○	○	○	○	○

Figure 1.1 - DP1100 LEDs

The first two LEDs refer to scan head 1 connected to the decoder. The next two LEDs refer to scan head 2 for H2 models.

The LEDs indicate:

EXT TRIG	YELLOW LED indicates the code presence sensor is active (for details refer to the section "On Line Mode" in the Help On Line of the Winhost utility program).
GOOD READ	RED LED is used to signal successful barcode decoding. It is also used in Test mode to signal the decoding (for details refer to the section "LED Threshold" in the Help On Line of the Winhost utility program).
TX DATA	GREEN LED indicates transmission of data relative to the code or to programming running on the main serial interface.
RX DATA	GREEN LED indicates reception of data relative to the code or to programming running on the main serial interface.
POWER ON	RED LED indicates the decoder is powered.

1.3.4 On/off Switch

The on/off switch can be used to turn the device off if an emergency on the system occurs. The device can also be turned off for working on the internal cabling or other particular maintenance.

1.3.5   Removable Glands Panel

To make installation and replacement easier, the DP1100 is made up of two parts:

1) the body of the device with all standard electronic components and optional boards
2) the removable panel housing the glands for all external communication cables

This panel houses four glands for I/O and serial interface connections.

1.3.6   Communication Interfaces

The DP1100 is equipped with the following serial communication types for its main serial interface:

EIA RS232   **EIA RS485 NON POLLED**

EIA RS485 POLLED   **20 mA CURRENT LOOP**

The DP1100 also supports an RS232 auxiliary interface to be connected to another host computer or for particular layouts such as Pass Through.

Details regarding the connections and use of the interfaces are given in chapter 2 "Installation".

1.3.7   Inputs

PS1 presence sensor inputs (and PS2 for H2 models), allow code reading and consequent decoding to be synchronized with an external sensor, as in On Line operating mode.

During the PRESENCE SENSOR active phase, the yellow LED on the front of DP1100 is activated and VIDEO and SCAN signals for decoding are acquired from the scanner.

PS1AUX (and PS2AUX for H2 models) are auxiliary presence sensor inputs used to indicate to the decoder what code to store as the verifier code. For further details refer to the section "Store Verifier HW" in the Winhost Help On Line.

1.3.8   Outputs

Three outputs are present to signal if the barcode reading has been performed or not. They have different meanings depending on the model used.

H1 models:

- NO READ output
- RIGHT output
- WRONG output (Code Verifier and PCS)

The NO READ output activates when the code signalled by the presence sensor is not decoded.

The RIGHT output activates when the code is decoded correctly.

The WRONG output is used either in Code Verifier or PCS modes. See Winhost Help On Line.

H2 models:

- NO READ 1 output for scan head 1
- RIGHT 1 output for scan head 1
- RIGHT 2 output for scan head 2 (Code Verifier only)

The NO READ output activates when the code signalled by the presence sensor is not decoded.

The RIGHT output activates when the code is decoded correctly.

For further details on these outputs, refer to the relative sections in the Winhost Help On Line.

2 INSTALLATION

2.1 PACKAGE CONTENTS

Verify that the DP1100 reader and all the parts supplied with the equipment are present and intact when opening the packaging; the list of parts includes:

1) DP1100 decoder
2) Installation manual
3) DP1100 configuration program disk
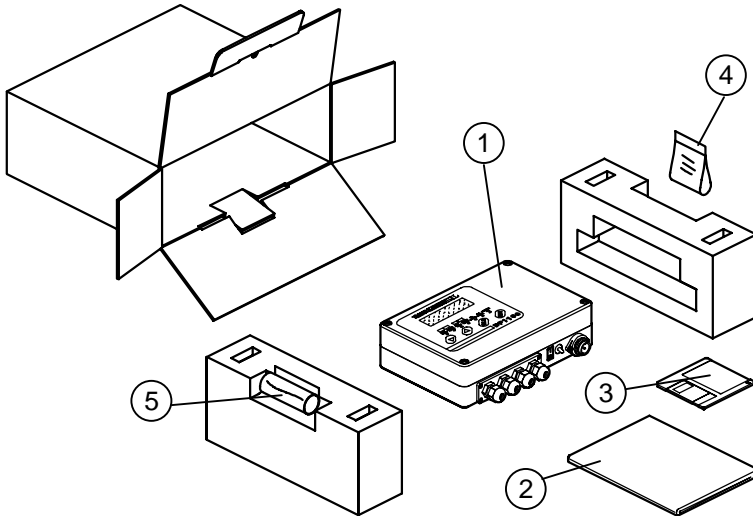4) Terminal block connectors
5) Power supply connector

Figure 2.1 - DP1100 package contents

2.2 GUIDE TO INSTALLATION

The following can be used as a checklist to verify all of the steps necessary for complete installation of the DP1100 decoder.

1) Open the decoder to select the main serial interface type as required (see paragraph 2.3).

2) Provide correct system cabling according to the signals necessary (see par. 2.5, the applicable sub-paragraphs under 2.6, par. 2.7, 2.8, and 2.9).

3) Install the Configuration Disk and configure the software parameters from a host computer using one of the following methods:

   • WINHOST interface utility program. For more details refer to the section "DP1100 Configuration" in the WINHOST Help On Line.

   • Host Mode programming procedure by ESC sequences via the serial interface. For more details refer to the Word document hdp1100.doc in the DP1100 directory.

   • Keyboard Mode through the keypad and the display. For more details refer to the Word document kdp1100.doc in the DP1100 directory.

NOTE
Fine tuning of the scanner position for barcode reading can be accomplished using the Test Mode. For further details refer to the section "Test Mode" in the Help On Line of the Winhost utility program.

The installation is now complete.

⚠ 2.3 OPENING THE DEVICE

Before installing the DP1100 it may be necessary to open it to perform the following operations:

• Select the required main serial interface. (Par. 2.3.1)

• Set the multiplexer address selection on the DIP switch.
  (Par. 2.6 under "RS485 Polled Interface")

• Change cable connections on the glands panel. (Par. 2.3.2)

- Mount the decoder on a panel or a wall. (Par. 2.4)

You have to remove the top panel to perform all these operations; you also have to remove the glands panel to change cable connections.

> ## WARNING
>
> The decoder must be disconnected from the power supply during this operation.

Refer to the following instructions and diagram below when opening the decoder:

1) Turn the DP1100 off.

2) Disconnect the power supply cable.

3) Unscrew the four screws as shown below to open the decoder.

4) Carefully remove the cover of the decoder while paying attention to the cable that is connected to the electrical ground; this cable is long enough to allow you to lay the cover to the side while operating inside the device.
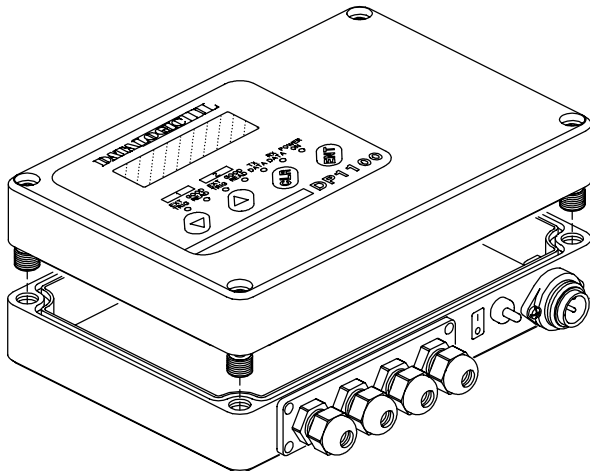

Figure 2.2 - Opening the DP1100

⚠ 2.3.1 Main serial interface selection

One of the following interface types can be selected to connect the main interface of the DP1100 to the host computer:

EIA RS232   20 mA CURRENT LOOP
EIA RS485 POLLED   EIA RS485 NON POLLED

To select the interface type, position the jumper block as indicated in the following figure:
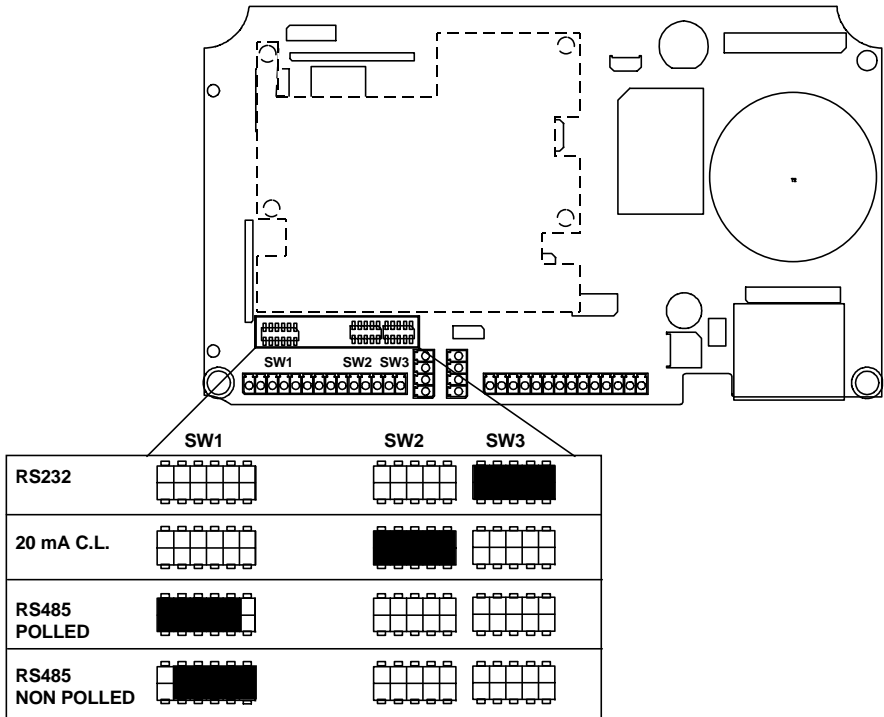

Figure 2.3 - Interface type selection

NOTE
The RS232 interface type is factory set.

⚠ 2.3.2 Removing and wiring the glands panel

After opening the decoder you must remove the panel housing the glands to connect or change the internal cabling to the DP1100.

To connect an external cable to the DP1100, proceed as follows:

1) Turn the DP1100 off.

2) Disconnect the power supply cable.

3) Open the DP1100 as described in paragraph 2.3.

4) Using a screwdriver, unlock the screws that fix the glands panel and remove it from the DP1100 body.

5) Unscrew the glands and pass the cables through them.

6) Cut the insulation of the cable on the DP1100 side by a few centimeters.

7) Strip the individual wires by a few millimeters.

8) Loosen the terminal block connector screw of the selected position, insert the wire and tighten the screw (see figure 2.4).

9) After inserting all the wires in the terminal block connectors, pass them through the glands panel hole and insert them into the base again (see figures 2.5 and 2.6).

10) Affix the glands panel to the DP1100 body with the proper screws adjusting the cables to the proper length through each gland and then tightening the glands.
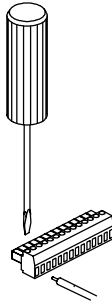
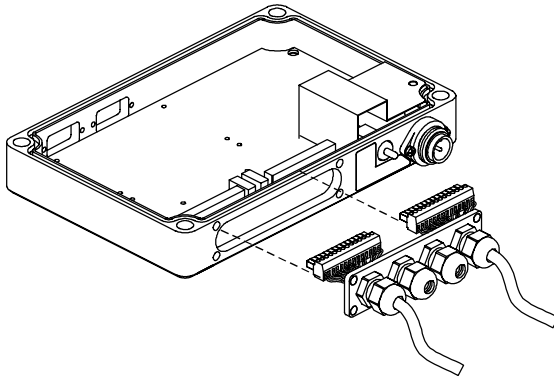**Figure 2.4 - Inserting the wire**

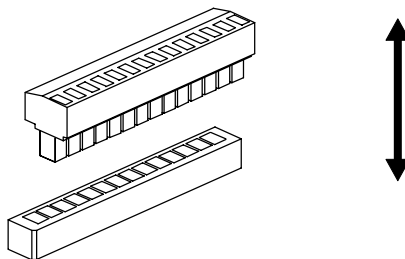**Figure 2.5 - DP1100 view**

Figure 2.6 - Terminal block connector and base

2.4 MECHANICAL INSTALLATION

2.4.1 Overall Dimensions

The figure below gives the overall dimensions of the decoder and its relative mounting holes and may be used for its installation.
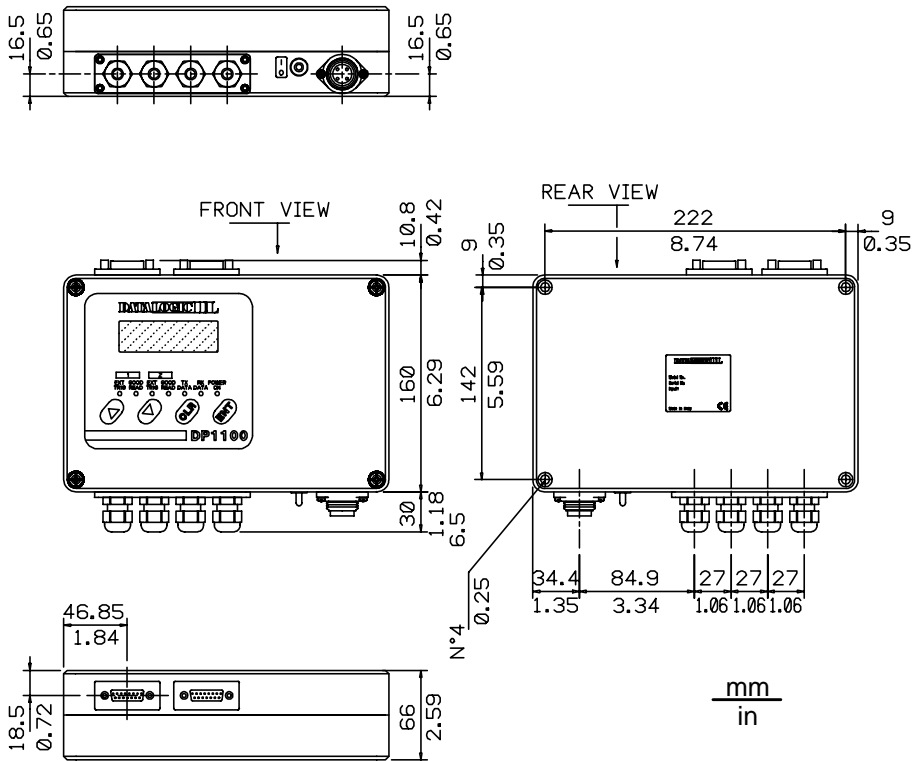
Figure 2.7- Overall dimensions

2.4.2 Mounting DP1100

DP1100 can be mounted on a wall or a panel. To do this:

1) Open the decoder as described in paragraph 2.3.

   If necessary, using the two mounting holes inside the DP1100 as a pattern, mark the panel or the wall with an appropriate object and then drill two pilot holes in the panel or in the wall.

2) Align the decoder and insert two appropriate screws (M5 x 35 UNI 6107 or M5 x 40) with their washers and then screw them into the panel or the wall until tight (see figure 2.8).

Figure 2.8 - Mounting DP1100

2.5   POWER SUPPLY CONNECTIONS

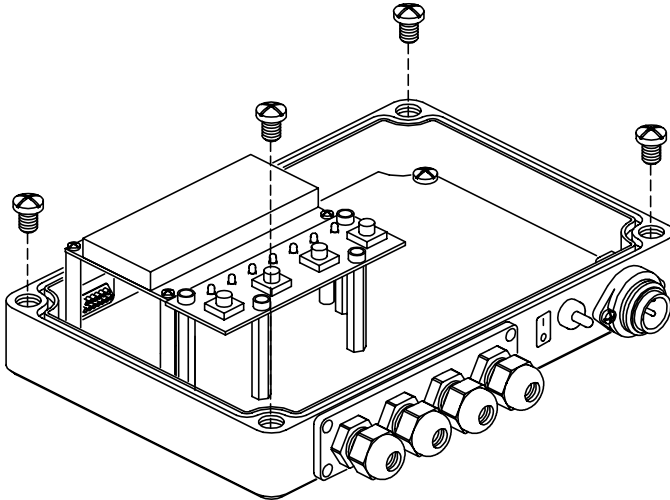All versions of DP1100 are powered from the AC mains (see paragraph 1.2). A connection cable terminated with the 4 pin male connector provided with the package is used.
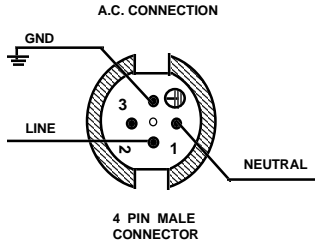
Figure 2.9 - Power supply connector - Cable side view

2.6   MAIN SERIAL INTERFACE CONNECTIONS

The signals relative to the following serial interface types are available for the DP1100 main serial interface:

EIA RS232

EIA RS485 POLLED

EIA RS485 NON POLLED

20mA CURRENT LOOP

DP1100 automatically recognizes the type of interface selected at each power on of the decoder.

If the recognized interface type is not compatible with the current communication handshaking, then the system forces the XON/XOFF protocol.

The parameters relative to the main interface (baud rate, data bits, etc.) can be defined using the Winhost utility program or Keyboard Mode programming or Host Mode programming. For more details refer to the section "Main Interface Menu" in the Help On Line of the Winhost utility program.

Pinout

The terminals of the internal connectors are numbered as illustrated in figure 2.10 depending on the model:
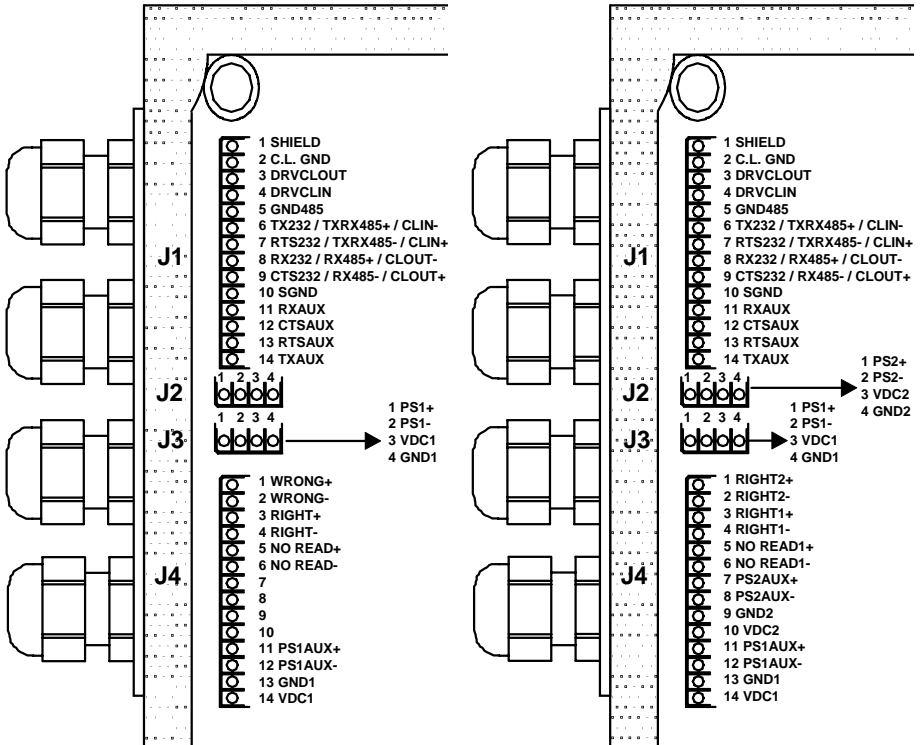

Figure 2.10 - Internal connectors pinouts

Grounding Rules

Shielding the communication cable is an effective way to protect against capacitive conduction and radiated interference, while the effect against noise due to inductive coupling is small. In any case, the shielding effect occurs only if the shield is grounded; otherwise the entire voltage of the shielded material will be floating and will not give protection against electrical noise.

When installing the DP1100 in a large system, remember that a voltage drop may occur between ground connections made at distant points. This could be the undesirable effect of variable electromagnetic fields due, for instance, to the presence of engines, leakage currents, lightning or other sources. For long distances between the devices (about 50 meters, but this length depends widely on the environment), the voltage drop between ground connections can be 100 V or higher.

If you ground the shield in several points the voltage drop across the shield will cause a current, increasing the noise on the signal wires.

Therefore, to avoid damage to the device drivers and loss of system performance in general, the shield should be grounded at most in one point only.

Since the shielding protection is more effective near to the ground connection, it is advisable to ground the shield where electric noise is higher. Typically this is done at the DP1100 device. The shield is provided on J1 Pin 1.
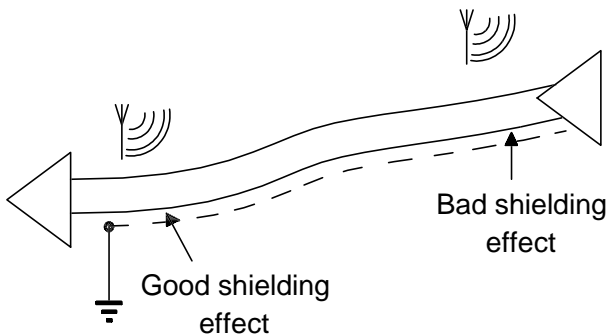
Figure 2.11 - Shield grounding effect

RS232 Interface

The serial interface is used in this case for point to point connections; it handles communication with the host computer and allows both transmission of code data and the configuration of the decoder.

The terminals of the external cable must be connected to the following pins of connector J1 (see figure 2.10) for RS232 interface connection:

RS232 connection

Pin	Name	Function
6	TX232	Transmitted Data
7	RTS232	Request to Send
8	RX232	Received Data
9	CTS232	Clear to Send
10	SGND	Signal Ground
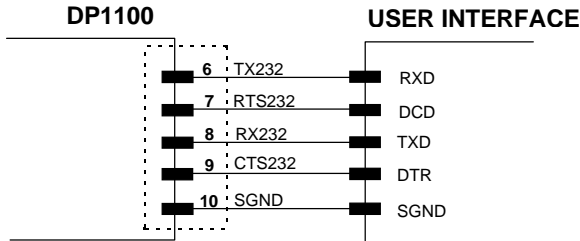
MAXIMUM LENGTH: 15 m

RTS/CTS HARDWARE HANDSHAKING ENABLED

Figure 2.12 - RS232 main interface connections

To select this interface type, follow the instructions in paragraph 2.3.1 "Main Serial Interface Selection".

Figure 2.13 - RS232 control signals

The RTS232 and CTS232 signals control data transmission and synchronize the connected devices.

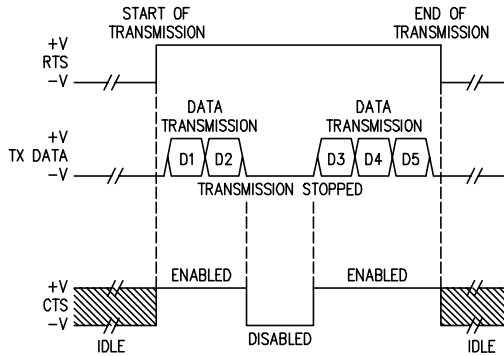If the RTS/CTS handshaking protocol is enabled, the DP1100 activates the RTS232 output to indicate a message is to be transmitted. The receiving unit activates the CTS232 input to enable the transmission.

RS485 Non Polled Interface

The RS485 NON POLLED interface is a Full Duplex interface.

The NON POLLED configuration is used for point to point connections over longer distances than those acceptable for RS232 communications or in electrically noisy environments.

The terminals of the external cable must be connected to the following pins of connector J1 (see figure 2.10) for RS485 NON POLLED communications:

RS485 NON POLLED connection

Pin	Name	Function
5	GND485	Signal Ground
6	TXRX485+	RS485 Output (+)
7	TXRX485-	RS485 Output (-)
8	RX485+	RS485 Input (+)
9	RX485-	RS485 Input (-)

MAXIMUM LENGTH: 1200 m

Figure 2.14 - RS485 NON POLLED connections

To select this interface type, follow the instructions in paragraph 2.3.1 "Main Serial Interface Selection" .

RS485 Polled Interface

The terminals of the external cable must be connected to the following pins of connector J1 (see figure 2.10) for RS485 POLLED communications:

RS485 POLLED connection

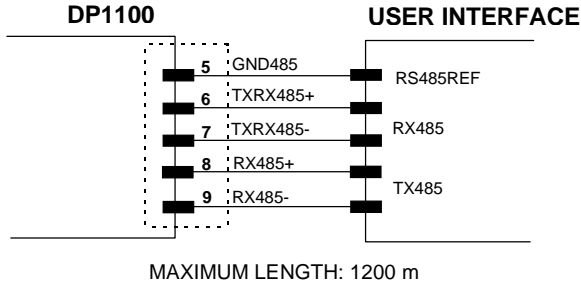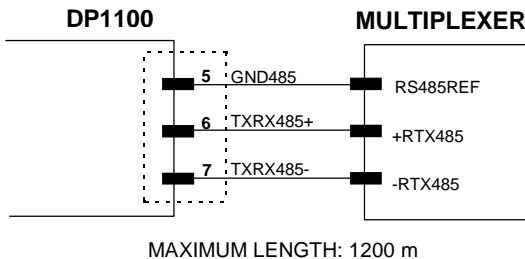| Pin	Name	Function
5	GND485	Signal Ground
6	TXRX485+	RS485 Input/output (+)
7	TXRX485-	RS485 Input/output (-)

MAXIMUM LENGTH: 1200 m

Figure 2.15 - RS485 POLLED connections

To select this interface type, follow the instructions in paragraph 2.3.1 "Main Serial Interface Selection".

For this interface type, the multidrop address must also be set on the DIP switch as shown in the figure below. Refer to paragraph 2.3 for details on how to open the DP1100. Record this information for further setup of the multidrop line.
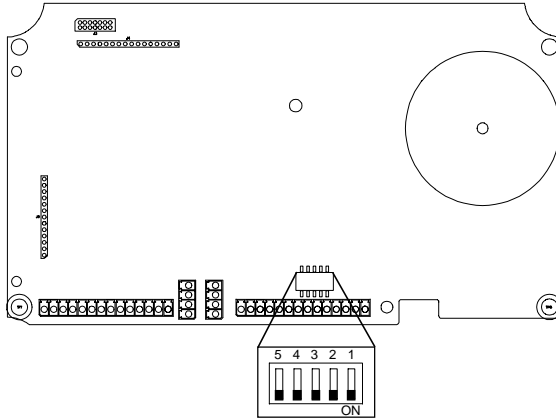

Figure 2.16 - DIP switch for multiplexer address selection

The following table shows the multiplexer address settings where:

0 = ON 1 = OFF

Position					Address	Position					Address
5	**4**	**3**	**2**	**1**		**5**	**4**	**3**	**2**	**1**	
1	1	1	1	1	31	0	1	1	1	1	15
1	1	1	1	0	30	0	1	1	1	0	14
1	1	1	0	1	29	0	1	1	0	1	13
1	1	1	0	0	28	0	1	1	0	0	12
1	1	0	1	1	27	0	1	0	1	1	11
1	1	0	1	0	26	0	1	0	1	0	10
1	1	0	0	1	25	0	1	0	0	1	9
1	1	0	0	0	24	0	1	0	0	0	8
1	0	1	1	1	23	0	0	1	1	1	7
1	0	1	1	0	22	0	0	1	1	0	6
1	0	1	0	1	21	0	0	1	0	1	5
1	0	1	0	0	20	0	0	1	0	0	4
1	0	0	1	1	19	0	0	0	1	1	3
1	0	0	1	0	18	0	0	0	1	0	2
1	0	0	0	1	17	0	0	0	0	1	1
1	0	0	0	0	16	0	0	0	0	0	0

Example address selections for DP1100 Multidrop connections:

Address 1   Address 9   Address 20

Figure 2.17 - DP1100 multidrop address selections

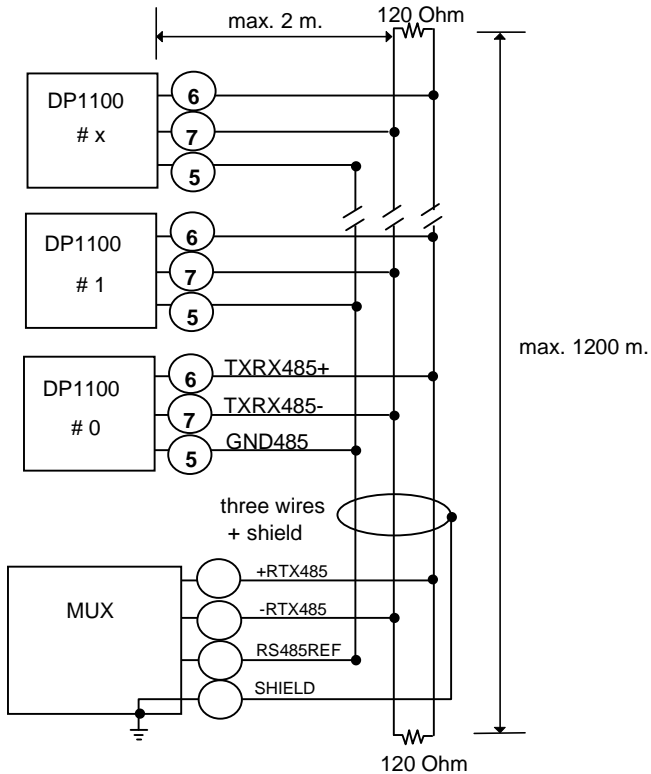The following figure shows a multidrop configuration with DP1100 decoders and a multiplexer connected.

Figure 2.18 - DP1100 multidrop connection to a multiplexer

20 mA Current Loop Interface

The DP1100 has two current generators (one for transmission and one for reception), allowing active and passive type connections.

The terminals of the external cable must be connected to the following pins of connector J1 (see figure 2.10) for 20 mA Current Loop communications:

20 mA C.L. connection

Pin	Name	Function
2	C.L. GND	Generator Reference
3	DRVCLOUT	Output Current Generator
4	DRVCLIN	Input Current Generator
6	C.L. IN-	Current Loop Input (-)
7	C.L .IN+	Current Loop Input (+)
8	C.L. OUT-	Current Loop Output (-)
9	C.L. OUT+	Current Loop Output (+)

MAXIMUM LENGTH: 300 m
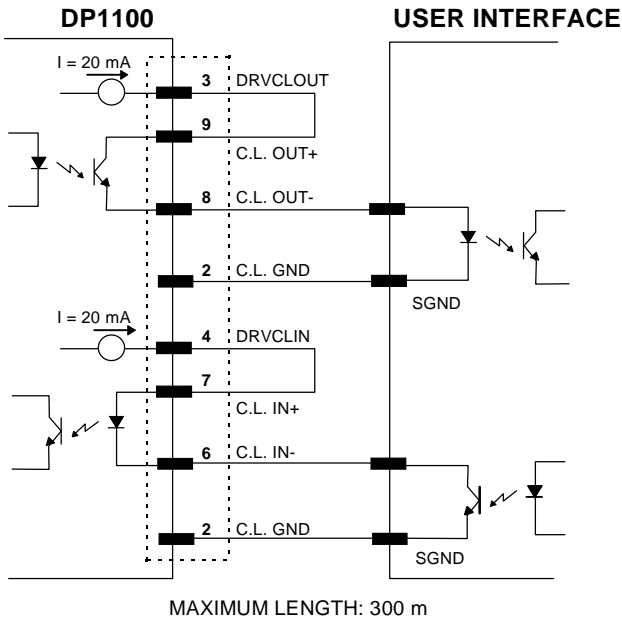
Figure 2.19 - 20 mA C.L. active connections

DP1100   **USER INTERFACE**

MAXIMUM LENGTH: 300 m
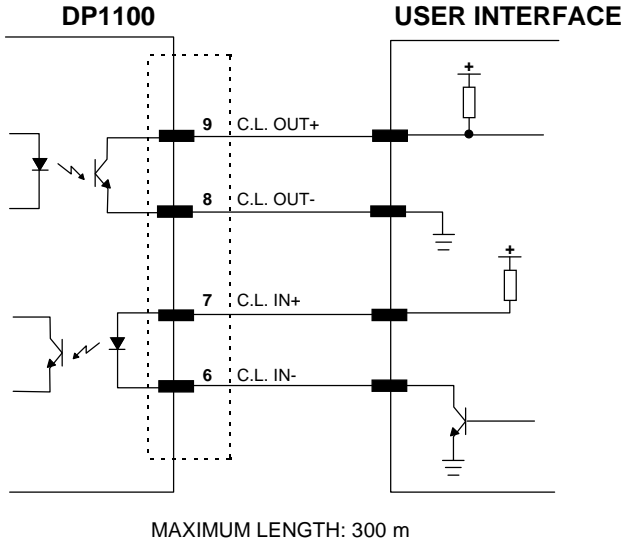
Figure 2.20 - 20 mA C.L. passive connections

To select this interface type, follow the instructions in paragraph 2.3.1 "Main Serial Interface Selection".

2.7 AUXILIARY RS232 INTERFACE CONNECTIONS

The auxiliary serial interface is used exclusively for RS232 point to point connections.

The parameters relative to the auxiliary interface (baud rate, data bits, etc.) as well as particular operating modes such as local echo can be defined using the Winhost utility program or Keyboard Mode programming or Host Mode programming. For more details refer to the section "Auxiliary Interface Menu" in the Help On Line of the Winhost utility program.

The terminals of the external cable must be connected to the following pins of connector J1 (see figure 2.10) to connect the RS232 auxiliary interface:

RS232 auxiliary connection

Pin	Name	Function
11	RXAUX	Auxiliary Input
12	CTSAUX	Auxiliary Handshake
13	RTSAUX	Auxiliary Handshake
14	TXAUX	Auxiliary Output
10	SGND	Signal Ground
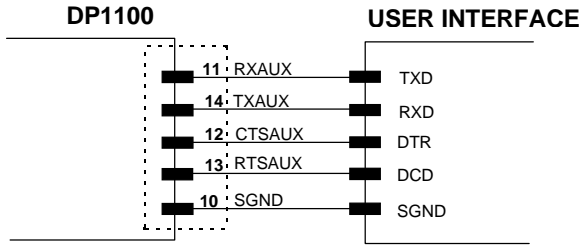
MAXIMUM LENGTH: 15 m

RTS/CTS HARDWARE HANDSHAKING ENABLED

Figure 2.21 - RS232 auxiliary interface connections

The RTSAUX and CTSAUX signals control data transmission and synchronize the connected devices. If the RTS/CTS handshaking protocol is enabled, the DP1100 activates the RTSAUX output to indicate a message is to be transmitted. The receiving unit activates the CTSAUX input to enable the transmission.

2.8 BARCODE READER CONNECTIONS

The DP1100 can be connected to one (H1 models) or two (H2 models) barcode readers such as LS2100, LS4100, LS6100 or LS50 through the 15 pin connector(s) illustrated in figure 2.22.
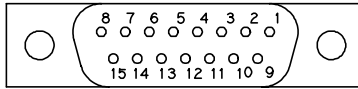
Figure 2.22 - 15 pin female connector type D

The following pins are available:

Barcode reader connector pinout		
Pin	**Name**	**Function**
1	GND	Ground
2	VDC	Operating Voltage
3	- VIDEO	Complementary Video Signal
4	+ VIDEO	Video Signal Representing Code
5	+ SCAN	Scan Start
6	- SCAN	Complementary Scan Start
7	N.C.	Not Connected
8	N.C.	Not Connected
9	I.U.	Internal Use
10	I.U.	Internal Use
11	CODE	Good Read Signal
*12	I.U.	Internal Use
13	RESOL	Resolution Signal
14	BS	Beam Shutter (Laser Off Signal)
15	N.C.	Not Connected

* For **H1 models only** this is the PCS (Print Contrast Signal) for connection to an LS4100 barcode reader.

2.9 I/O CONNECTIONS

2.9.1 Inputs

PS1 and PS1AUX presence sensor inputs refer to scan head 1, while PS2 and PS2AUX presence sensor inputs refer to scan head 2 (H2 models only). For more details refer to paragraph 1.3.7.

The signals relative to these sensors must be connected to the decoder via the proper internal connectors J2, J3 and J4 (see figure 2.10), respecting the following connections:

Connector J2		
Pin	**Name**	**Function**
*1	PS2+	Presence Sensor 2 (+)
*2	PS2-	Presence Sensor 2 (-)
*3	VDC2	PS2 Operating Voltage
*4	GND2	PS2 Signal Ground

Connector J3		
Pin	**Name**	**Function**
1	PS1+	Presence Sensor 1 (+)
2	PS1-	Presence Sensor 1 (-)
3	VDC1	PS1 Operating Voltage
4	GND1	PS1Signal Ground

Connector J4		
Pin	**Name**	**Function**
*7	PS2AUX+	Auxiliary Presence Sensor 2(+)
*8	PS2AUX-	Auxiliary Presence Sensor 2 (-)
*9	GND2	PS2 Signal Ground
*10	VDC2	PS2 Operating Voltage
11	PS1AUX+	Auxiliary Presence Sensor 1(+)
12	PS1AUX-	Auxiliary Presence Sensor 1 (-)
13	GND1	PS1 Signal Ground
14	VDC1	PS1 Operating Voltage

* H2 models only

A PRESENCE SENSOR input can be driven by sensors with NPN or PNP output and is optoisolated to assure maximum disturbance immunity.

The electrical features are:
   maximum voltage applicable at input: 30 V.
   maximum current: 20 mA.

VDC1 and VDC2 and their relative ground references (GND1, GND2) supply power to the presence sensor from DP1100 with the following characteristics:
   typical voltage: 12 V.
   maximum current: 50 mA.

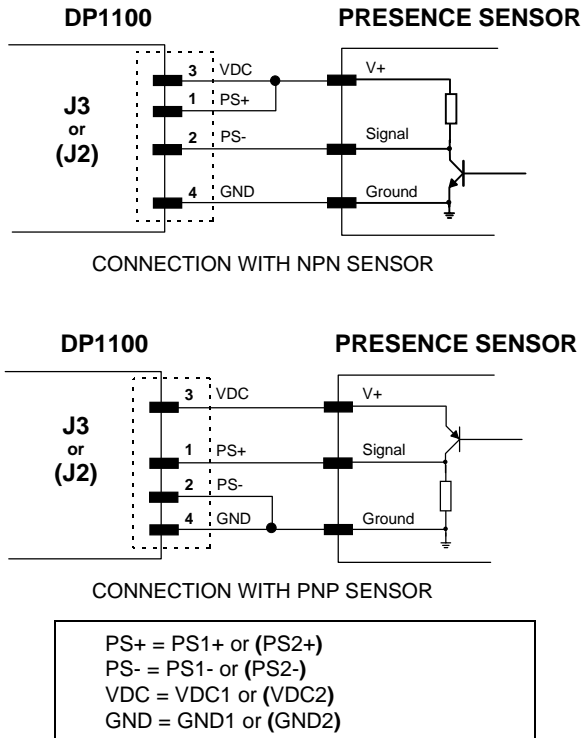A debounce filter is present on both inputs: the nominal value of the delay is 5 ms.

DP1100   **PRESENCE SENSOR**

CONNECTION WITH NPN SENSOR

DP1100   **PRESENCE SENSOR**

CONNECTION WITH PNP SENSOR

```
PS+ = PS1+ or (PS2+)
PS- = PS1- or (PS2-)
VDC = VDC1 or (VDC2)
GND = GND1 or (GND2)
```
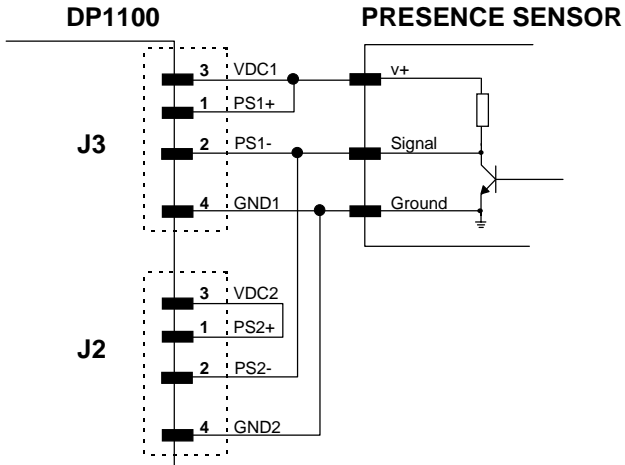
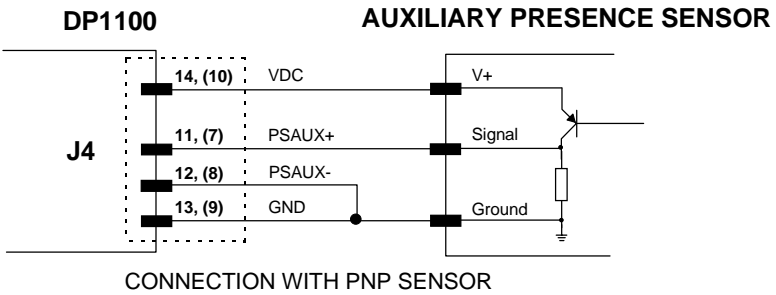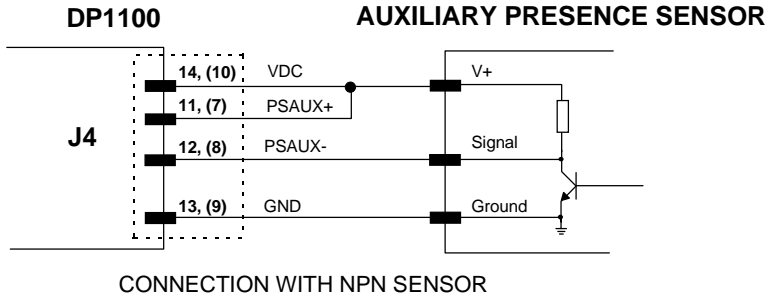**Figure 2.23 - Presence sensor input connections**

For H2 models, when 2 scanners are connected to DP1100 in a Single Reading layout, the presence sensors inputs should be connected in parallel to a single NPN sensor. These connections are provided in the following figure.

PARALLEL CONNECTION WITH NPN SENSOR

Figure 2.24 - Connection for Single Reading with 2 scanners

For the device configuration refer to the section "Reading Mode" in the Help On Line of the Winhost utility program.

DP1100   **AUXILIARY PRESENCE SENSOR**

CONNECTION WITH NPN SENSOR

DP1100   **AUXILIARY PRESENCE SENSOR**

CONNECTION WITH PNP SENSOR

```
PSAUX+ = PS1AUX+ or (PS2AUX+)
PSAUX- = PS1AUX- or (PS2AUX-)
VDC = VDC1 or (VDC2)
GND = GND1 or (GND2)
```

Figure 2.25 - Auxiliary input connections

2.9.2   Outputs

The following pins are present on connector J4 (see figure 2.10) of the decoder depending on the model:

Connector J4 for H1 models		
Pin	**Name**	**Function**
1	WRONG+	Wrong Read Output (+)
2	WRONG-	Wrong Read Output (-)
3	RIGHT+	Right Read Output (+)
4	RIGHT-	Right Read Output (-)
5	NO READ+	No Read Output (+)
6	NO READ-	No Read Output (-)

Connector J4 for H2 models		
Pin	**Name**	**Function**
1	RIGHT2+	Right Read Output (+) for scan head 2
2	RIGHT2-	Right Read Output (-) for scan head 2
3	RIGHT1+	Right Read Output (+) for scan head 1
4	RIGHT1-	Right Read Output (-) for scan head 1
5	NO READ1+	No Read Output (+) for scan head 1
6	NO READ1-	No Read Output (-) for scan head 1

The electrical features are:

VCE max.	40 Vdc
Collector current max.	40 mA continuous; 130 mA pulsed
VCE saturation	1V at 10 mA

DP1100   **USER INTERFACE**
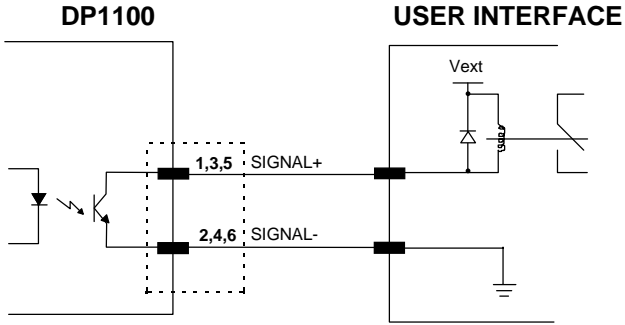
Figure 2.26 - Open collector output connection

DP1100   **USER INTERFACE**
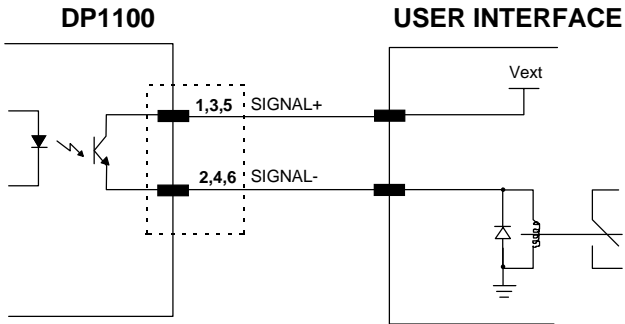

Figure 2.27 - Open emitter output connection

In the figures above, SIGNAL+ and SIGNAL- are used to refer to the corresponding No Read, Right or Wrong output signals, see table on the previous page. For the description of the DP1100 outputs refer to paragraph 1.3.8.

These outputs are both level or pulse programmable: a 50 ms pulse is generated in the second case. Further programming information is supplied in the section "Output Lines" in the Help On Line of the Winhost utility program.

2.10 TYPICAL LAYOUTS

The DP1100 decoder was specifically designed for industrial applications. A typical use is real time identification of moving objects on conveyors.

The decoder generally activates the scanner(s) when signalled by a photoelectric sensor used as a code presence sensor when an object enters the barcode reader reading zone. See the following figures for example layouts depending on whether H1 or H2 models are used.
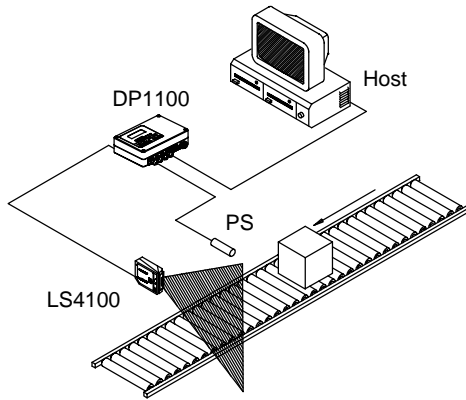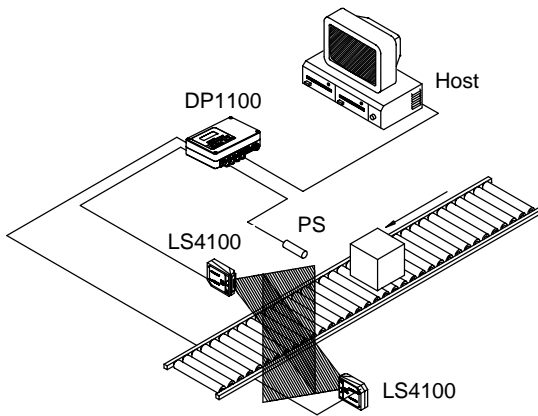

Figure 2.28 - DP1100 (H1) typical application

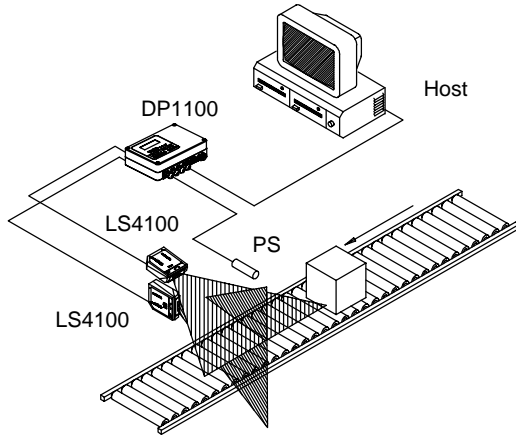**Figure 2.29 - DP1100 (H2) with 2 scanners in single reading mode**

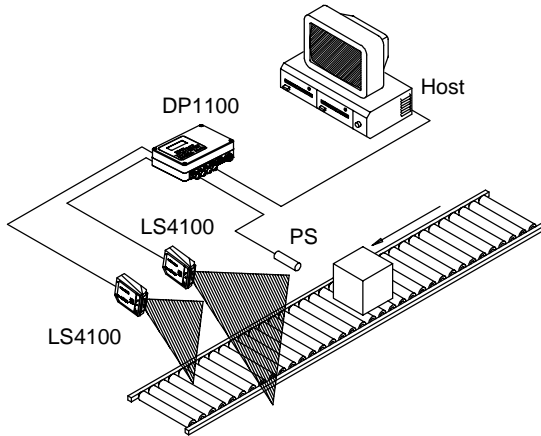**Figure 2.30 - DP1100 (H2) with 2 scanners in single reading mode**

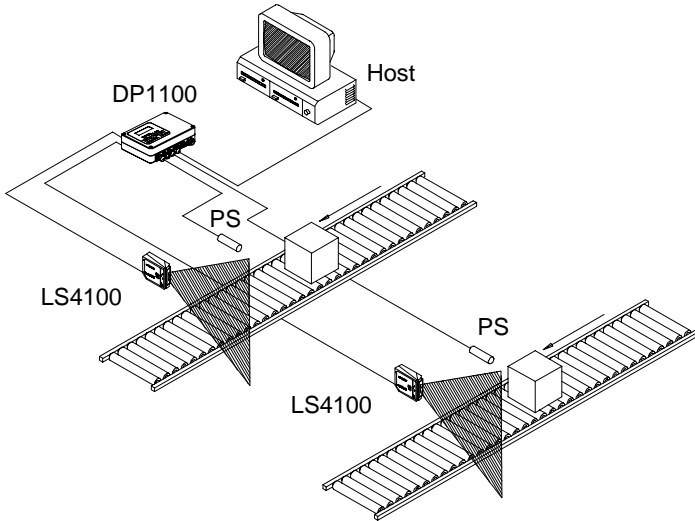**Figure 2.31- DP1100 (H2) with 2 scanners in single reading mode**

Figure 2.32 - DP1100 (H2) with 2 scanners in twin reading mode

2.10.1 Pass Through

Pass Through mode allows two or more DP1100s to be connected to a single external serial interface by chaining the Auxiliary and Main interfaces towards the Host. Each DP1100 transmits the messages received by the Auxiliary interface onto the Main interface. All messages will be passed through this chain to the host.

Both H1 and H2 models can be used in this layout, however H2 models must be used in Twin Reading Mode, see figure 2.32. See the WinHost Help On-Line for software configuration details.

The reading phase of each DP1100 is independent from the others in Pass Through mode.

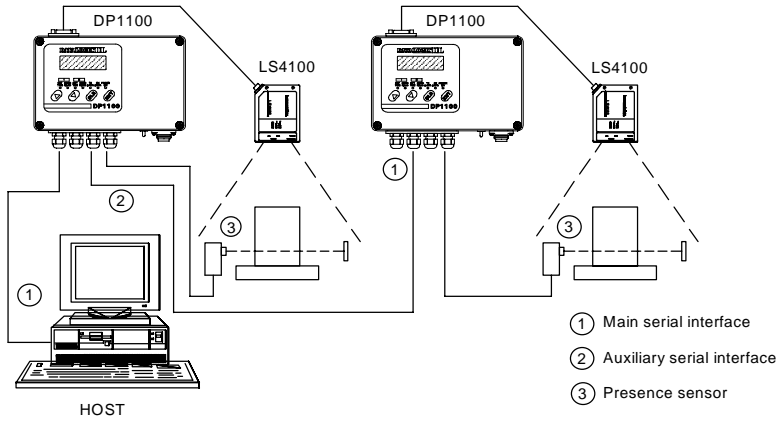Connections for a Pass Through layout are shown in the following figure:

Figure 2.33 - Pass through layout

2.10.2 Local Echo

For H1 models, in local echo mode data is transmitted on the auxiliary interface as well as on the main interface.

Host Mode programming can be accomplished either through the main interface or the auxiliary interface in local echo mode.
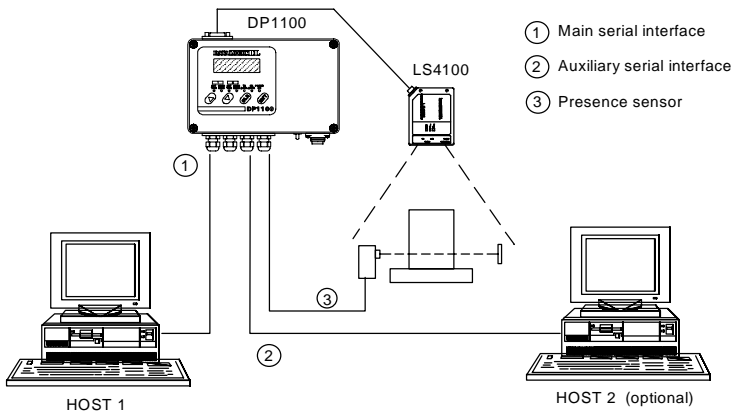

Figure 2.34 - Local echo layout

2.10.3 Master-Slave (Special software versions only)

Upon request, special versions of the DP1100 can implement a Master-Slave layout for data collection from several scanners to build a multi-sided reading system. There can be one Master and up to 9 Slaves connected together.

The Slave decoders are connected to the main and auxiliary serial interfaces using RS232 only. Each Slave DP1100 transmits the messages received by the auxiliary interface onto the main interface. All messages will be passed through this chain to the Master.

The Master decoder is connected to the Host on the main serial interface. The possible main interface types for the Master decoder are RS232 or RS485. For details see the the WINHOST Help On Line.

The P.S. signal is unique to the system; there is a single reading phase and a single message from the Master decoder to the Host PC.
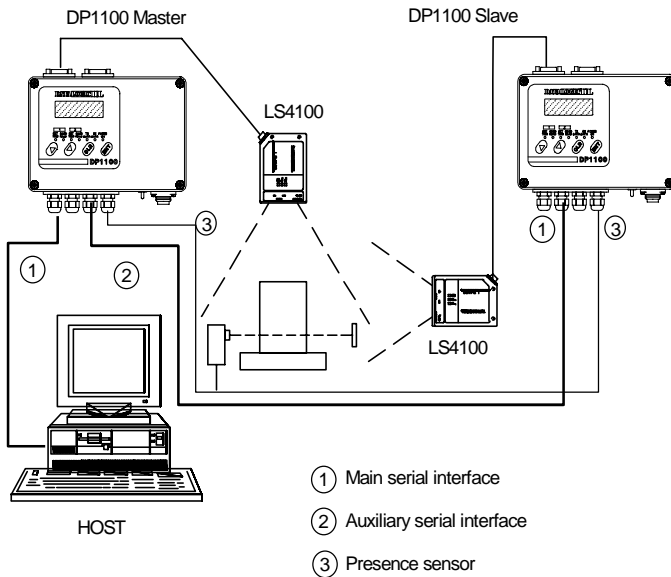

Figure 2.35 - Master-slave layout

Both H1 and H2 models can be connected in the Master-Slave layout.

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3 MAINTENANCE

⚠ 3.1 REPLACING THE PROTECTION FUSE

All the internal circuits of the DP1100 are protected by a fuse on the input power line.

The decoder must be opened to change the fuse.

⚡
> ### WARNING
>
> The decoder must be disconnected from the power supply during this operation.

Refer to paragraph 2.3 to open the decoder.

To replace the protection fuse refer to the following instructions:

1) Unscrew the screw on the protection shield indicated in figure 3.1, paying attention to the cable which is connected to the electrical ground.

2) Remove the protection shield.

3) Replace the fuse whose position is shown in figure 3.2. Make sure to use the correct value as specified in the protection fuse table below.

PROTECTION FUSE	
230 Vac version	315 mA T
110 Vac version	500 mA T

PROTECTION
SHIELD
GROUND CABLE
SCREW
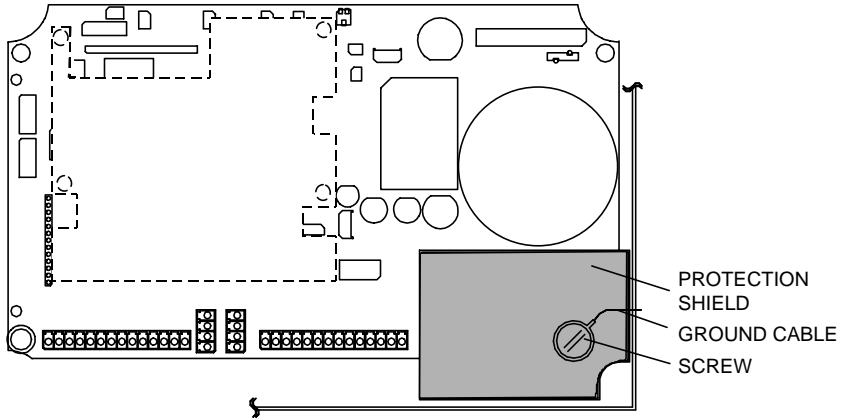
Figure 3.1 - Protection shield position

**PROTECTION
FUSE**
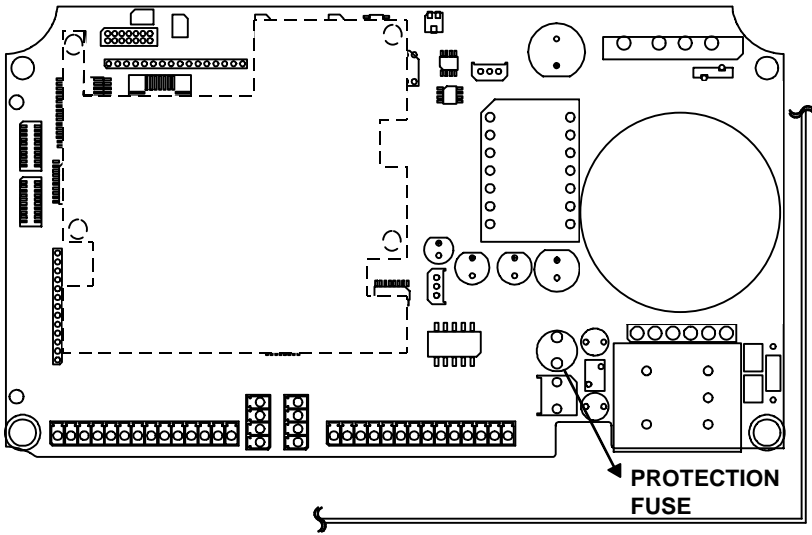
Figure 3.2 - Fuse position

4   TECHNICAL FEATURES

	DP1100 H1	DP1100 H2
ELECTRICAL FEATURES		
INPUT POWER Supply voltage Supply voltage Power consumption max.	230 Vac 50/60Hz $\pm$ 20% (184-276V) 110 Vac 50/60Hz $\pm$ 20% (88-132V) 35 VA	
SERIAL INTERFACES MAIN	RS232, RS485 Non Polled, RS485 Polled, 20 mA C. L.	
AUXILIARY	RS232	
BAUD RATES All Interfaces	150 to 19200	
CONTROL INPUTS (optocoupled NPN or PNP)	1 presence sensor 1 auxiliary presence sensor	2 presence sensors 2 auxiliary presence sensors
Voltage max. Input current max.	30 Vdc 20 mA	
CONTROL OUTPUTS (open emitter open collector)	No Read1 Right Read1 Right Read2	No Read Right Read Wrong Read
VCE max. Collector current max. VCE saturation	40 Vdc 40 mA continuous; 130 mA pulsed 1V at 10 mA	
USER INTERFACE		
LED indicators	power on, data reception, data transmission, presence sensor active, barcode decoded	

SOFTWARE FEATURES	
READABLE CODE SYMBOLOGIES	

Up to 22 readable barcode symbologies including:

- Interleaved 2/5
- Code 39 (Standard and Full ASCII)
- Codabar
- Code 93 (Standard and Full ASCII)

- EAN/UPC (including Add-on 2 and Add-on 5)
- Code 128
- EAN 128

CODE SELECTION	up to six codes during one reading phase
CODE POSITION	can be verified and displayed if necessary
DECODING SAFETY	can enable multiple good reads of same code
HEADERS AND TERMINATORS	up to four headers and four terminators
OPERATING MODES	on line, automatic, serial on line, test
CONFIGURATION MODES	• through menus using WINHOST utility • through KEYBOARD MODE • receiving commands from one of the serial ports (HOST MODE)
PARAMETER STORAGE	Non-volatile internal EEPROM

ENVIRONMENTAL FEATURES	
Operating temperature (see Note)	0 to 50 °C
Storage temperature	-20 to 70 °C
Humidity max.	90% non condensing
Vibration resistance	IEC 68-2-6 test FC 1.5 mm; 10 to 55 Hz; 2 hours on each axis
Shock resistance	IEC 68-2-27 test EA 30G; 11 ms; 3 shocks on each axis

PHYSICAL FEATURES	
Mechanical dimensions	240 x 200 x 66 mm
Weight	approx. 2.8 Kg.

NOTE

If the barcode reader connected to the DP1100 is used in high temperature environments (over 35 ºC), the use of the Beam Shutter is advised (see "Beam Shutter" in the "Reading Parameters" section of the Winhost utility program).