C-BOX IOO

Installation Manual

C-BOX 100

INSTALLATION MANUAL

DETECTION ET AUTOMATISME - 17 Rocade de la Croix St Georges -
77600 BUSSY ST GEORGES - Tél : 01.64.66.90.00 - Fax : 01.64.66.98.01 - mail : infos@dplusa.fr

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C-BOX 100

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GUIDE TO INSTALLATION

The following can be used as a checklist to verify all of the steps necessary for complete installation of the C-BOX 100.

1) Read all information in the section "Safety Precautions" at the beginning of this manual.

2) Correctly position and mount the C-BOX 100 within the reach of the barcode scanner cable, according to the information in paragraph 2.3.

3) Provide correct system cabling according to the signals necessary for your application (see all sub-paragraphs under 2.4).

The installation is now complete.

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GENERAL VIEW

C-BOX 100

Figure A

1. 25-pin scanner connector
2. Compression connectors
3. Cover screws (4)

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C-BOX 100

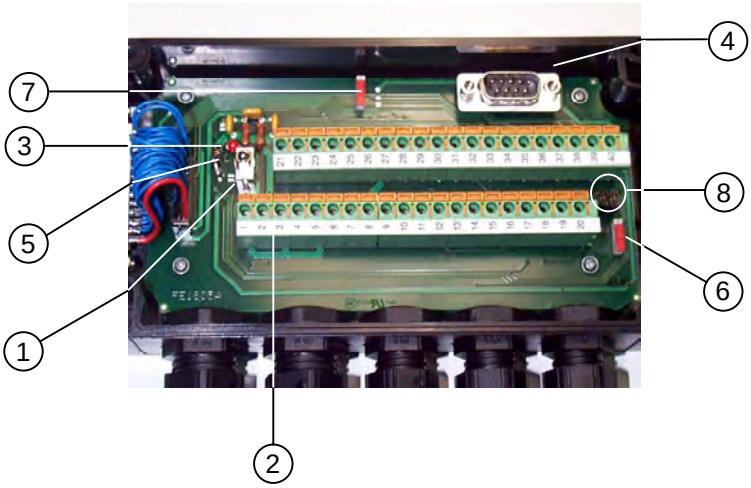

Figure B

1. Power switch (ON/OFF)
2. Spring clamp terminal blocks
3. Power on LED (red)
4. Auxiliary port connector
5. Chassis grounding selector
6. Termination resistance switch
7. Scanner selection switch
8. OM4000 jumpers

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SAFETY PRECAUTIONS

POWER SUPPLY

ATTENTION: READ THIS INFORMATION BEFORE INSTALLING THE PRODUCT

- This product is intended to be installed by Qualified Personnel only.

The C-BOX 100 is intended to be supplied by an NEC Class 2 power source, rated 10-30 V, minimum 0.50 A.

See par. 2.4.1 for correct power supply connections.

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1 GENERAL FEATURES

1.1 DESCRIPTION

The C-BOX 100 is a connection box which can be used as an accessory of the Datalogic scanners to perform the following functions:

- Facilitate the connection of the scanner signals using a spring clamp connector.

The C-BOX 100 mechanical dimensions are 167 x 115 x 40 mm (6.57 x 4.53 x 1.57 in.). It weighs about 320 g. (11.29 oz).

Electrical connection is provided through spring clamp terminal blocks inside the C-BOX 100.

The scanner is connected to the C-BOX 100 through a 25-pin connector placed on the left side of the housing.

A 9-pin connector placed inside the C-BOX 100 facilitates connection between an external PC and the auxiliary serial interface of the scanner.

1.2 SUPPORTED SCANNER MODELS

The C-BOX 100 can be connected to the following scanners through the 25-pin connector illustrated in Figure A.

DS2100	DS4300	*DS1100
DS2400	DS4600	*DS2200

* It is necessary to use 10-30 V versions for DS1100 and DS2200 scanners.

2 INSTALLATION

2.1 PACKAGE CONTENTS

Verify that the C-BOX 100 and all the parts supplied with the equipment are present and intact when opening the packaging; the list of parts includes:

1) C-BOX 100
2) Installation manual

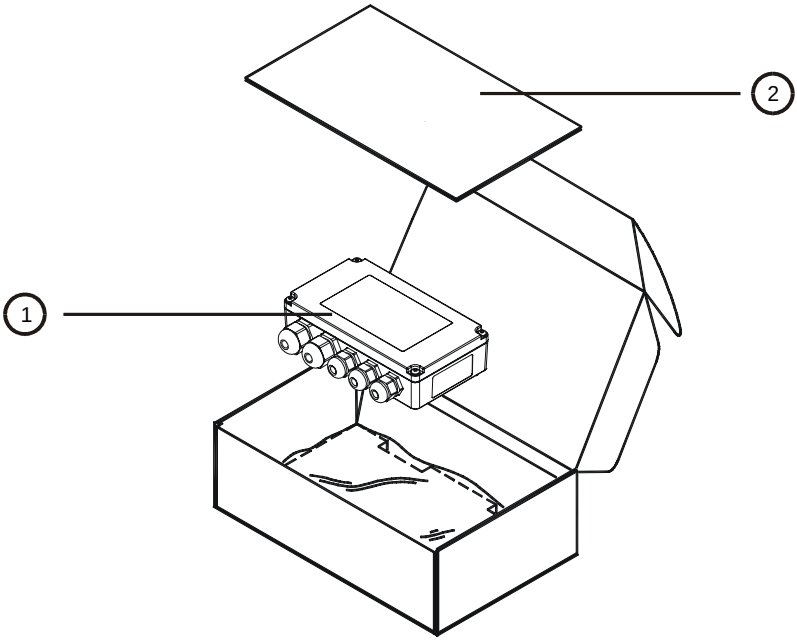

Figure 1 - C-BOX 100 package contents

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2.2 OPENING THE DEVICE

To install the C-BOX 100 or during normal maintenance, it is necessary to open it by unscrewing the four cover screws:

CAUTION

The C-BOX 100 must be disconnected from the power supply during this operation.

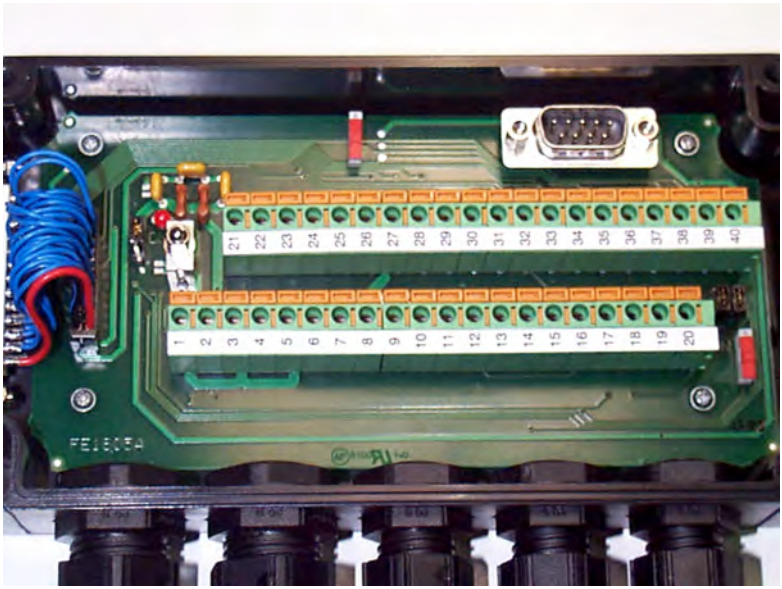

Figure 2 - Opening the C-BOX 100

It is possible to perform the following operations:

- Proceed with the cable connections (see paragraph 2.4.2).
- Mount the C-BOX 100 to a wall or panel.

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2.3 MECHANICAL INSTALLATION

The diagram below gives the overall dimensions of the C-BOX 100 and may be used for its installation.

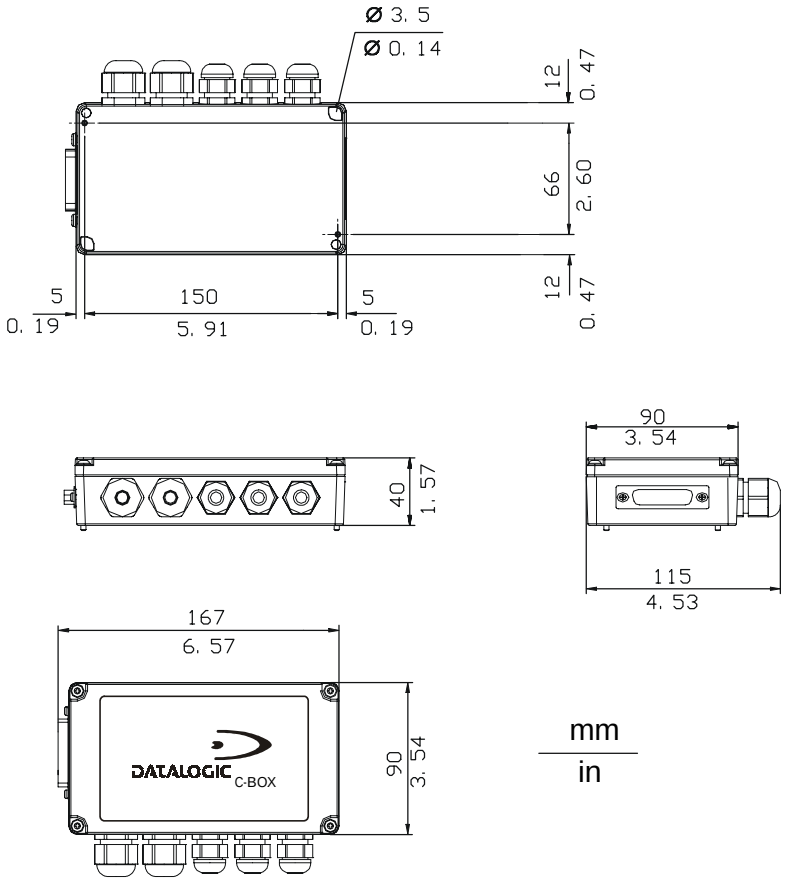

Figure 3 - Overall dimensions

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C-BOX 100 can be installed to operate in different positions. The two screw holes inside the housing of the C-BOX 100 are for mechanical fixture (Figure 4).

To mount the C-BOX 100:

1) Open the C-BOX 100 by unscrewing the 4 cover screws. If necessary, using the two mounting holes inside the device as a pattern, mark the panel with an appropriate object and then drill two holes in the panel.

2) Align the C-BOX 100 and insert two screws and screw them into the panel until tight (see Figure 4).

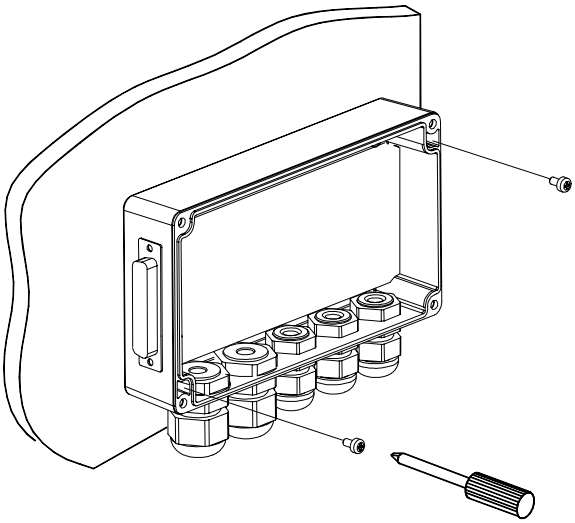

Figure 4 - Mounting C-BOX 100

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2.4 ELECTRICAL CONNECTIONS AND SETUP

The following figure shows the typical layout. The dotted line in the figure refers to an optional hardware configuration.

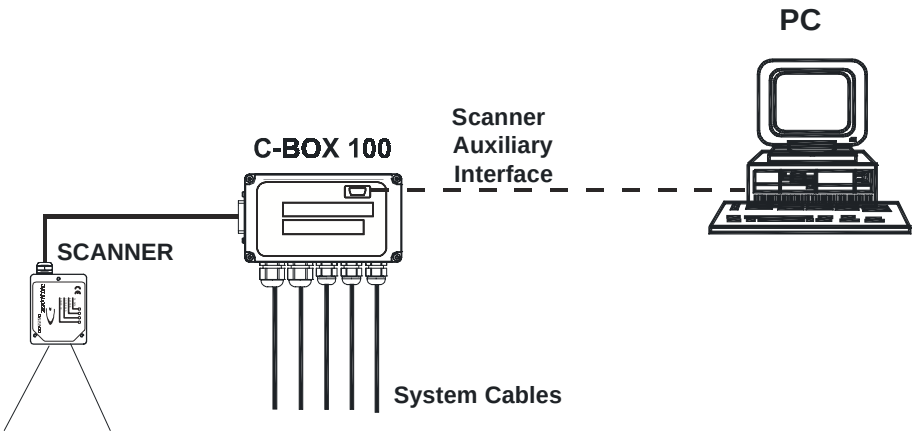

Figure 5 – System layout

A PC can be quickly connected to the C-BOX 100 (and consequently to the scanner auxiliary interface) through the internal 9-pin connector. This allows monitoring of the data transmitted by the scanner or configuration through the WinHost utility (see the scanner Installation Manual for more details). The scanner auxiliary interface signals are also available on the internal spring clamp connectors.

After making system cabling and switch settings (see sub-paragraphs under 2.4), connect the scanner to the 25-pin connector on the left side of the C-BOX 100 housing.

Switch ON the C-BOX 100 power switch (see Figure 6).

After system functioning has been verified, close the C-BOX 100 using the 4 cover screws making sure the rubber seal is fitted correctly between the parts of the housing.

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2.4.1 Power Supply

Power is supplied to the C-BOX 100 through the pins provided on the spring clamp connector.

The power switch (see Figure 6) switches the power supply ON or OFF for both the C-BOX 100 and the connected scanner.

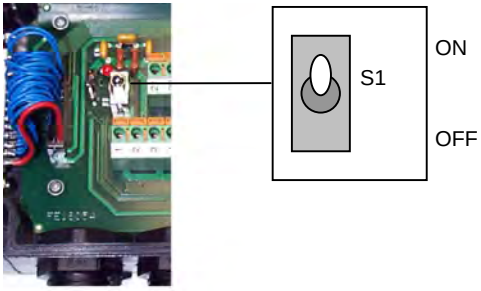

Figure 6 - Power switch ON/OFF positions

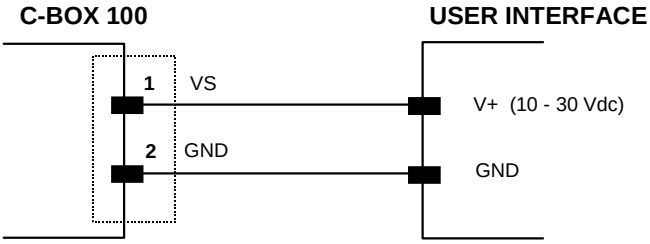

Figure 7 - Power supply connections

NOTE

Pin 1 is also electrically connected to pins 3 and 5, just as pin 2 is electrically connected to pins 4 and 6. This is useful for external trigger/inputs connections.

The power supply must be between 10 and 30 Vdc only.

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2.4.2 System Wiring

The connection and wiring procedure for C-BOX 100 is described as follows:

1) Open the C-BOX 100 as described in paragraph 2.2.

2) Verify that the C-BOX 100 power switch is off (see Figure 6).

3) Unscrew the compression connectors and pass all the system cables through them into the C-BOX 100 housing.

4) To connect the power and input/output signals:
   - Prepare the individual wires of the system cables by stripping the insulation back approximately 1 cm.
   - Using a device such as a screwdriver, push down on the lever directly next to the clamp (see Figure 8).
   - Insert the wire into the clamp and release the lever.

The wire will now be held in the spring clamp.

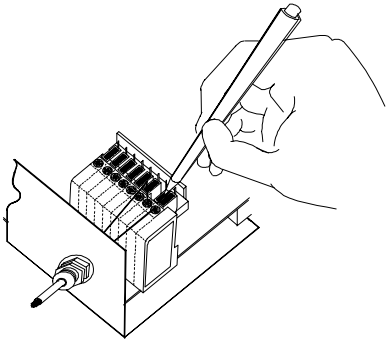

Figure 8 - System cable connections

The wiring used can be solid or stranded but must meet the following specifications.

All positions:	24 - 16 AWG	0.2 - 1.5 mm²

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The C-BOX 100 spring clamp connector pinouts are indicated in the following table.

Refer to the scanner Installation Manual for details.

Pin	Name
1, 3, 5	VS
2, 4, 6	GND
7, 8	EARTH GROUND
*9, 13	RS485 CABLE SHIELD
*10, 14, 19, 39	SGND
20, 33, 34, 40	Reserved
21	OUT1+
23	OUT2+
27	EXT TRIG+
28	EXT TRIG-
35	TXA
37	RXA

	DS2100 DS2400	DS4300 DS4600	DS1100 DS2200
22	OUT REF	OUT1-	IO REF
24	OUT REF	OUT2-	IO REF
25	NC	Reserved	NC
26	NC	Reserved	IN1-
29	NC	IN1+	NC
30	NC	IN1-	IO REF
31	NC	IN2+	NC
32	NC	IN2-	NC
36	RTSA	GND	NC
38	CTSA	SGND AUX	NC

	DS2100 DS2400 DS4300 DS4600				DS1100 DS2200
	RS232	**RS485FD**	**RS485HD**	**20mA CL**	
*11, 15	TX232	TX485+	RTX485+	CLOUT+	RTX485+
*12, 16	RTS232	TX485-	RTX485-	CLOUT-	RTX485-
17	RX232	RX485+		CLIN+	Reserved
18	CTS232	RX485-		CLIN-	Reserved

*The signals on pins 9, 10, 11 and 12 are repeated on pins 13, 14, 15 and 16 to facilitate network connections (i.e. Multiplexer connections using the RS485 half-duplex Interface). In this way the network bus can enter and exit the C-Box 100 from different spring clamps but be physically connected together.

NOTE

Pin 7 or 8 should be connected to the earth ground.

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2.4.3 Chassis Grounding Jumper Settings

The scanner chassis grounding method can be selected by positioning a jumper (see). In this way the scanner chassis can be connected to earth ground (only if pins 7 or 8 are connected to a good earth ground) or to the power supply ground signal. The scanner chassis can also be left floating but, in this case, the jumper must be removed.

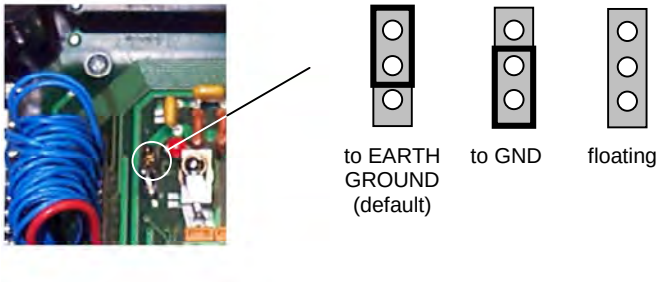

Figure 9 – Chassis grounding

The C-BOX 100 is now installed which completes the electrical connections for your scanning system.

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2.4.4 Scanner Selection

The following table indicates the correct switch position for each type of scanner. See also the scanner Installation Manual.

DS2200*	DS2400
DS1100*	DS4300
DS2100	DS4600

* It is necessary to use 10-30 V versions for DS2200 and DS1100 scanners.

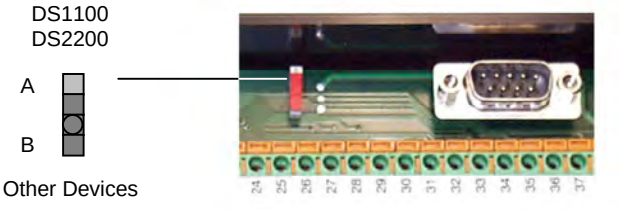

Figure 10 - Scanner selection

The switch S3 must be set to A only when a DS1100 or a DS2200 scanner (10-30 V version) is connected. For all the other scanners the switch S3 must be set to B.

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2.4.5 RS485 Bus Termination

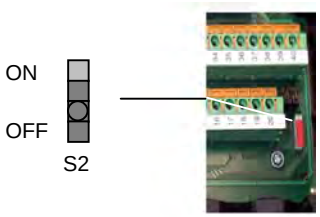

Figure 11 - Termination resistance switch

The switch S2 enables or disables the insertion of the bus termination resistor for RS485 Half Duplex Multidrop applications.

CAUTION

In Multiplexer applications the termination resistor must be enabled ONLY on the last device of the chain, the farthest away from the Multiplexer (assuming the Multiplexer is the first device of the chain). On all the other devices this resistor MUST NOT be enabled (S2 = OFF).
Normally it is not necessary to enable the terminator resistor (S2 always OFF); it is suggested only in applications where the communication speed or the bus length are critical parameters.

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2.4.6 OM4000 Jumper Settings

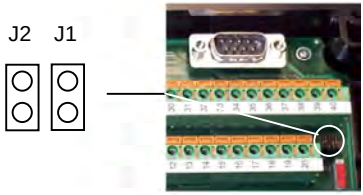

Figure 12 - OM4000 jumpers

These jumpers allow connection to the EXT TRIG signals on separate spring clamp terminals for applications which use the OM4000 Oscillating Mirror in Trigger Mode.

They are used together and have the following significance:
when a jumper is in the J1 position (see Figure above) pin 40 is connected to pin 27 (EXT TRIG+); a jumper in J2 position connects pin 20 to pin 28 (EXT TRIG-).

If the jumpers are removed pin 20 and pin 40 are disconnected.

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2.5 9-PIN SCANNER AUXILIARY SERIAL INTERFACE

The scanner auxiliary serial interface available on the internal 9-pin connector can be used either for configuration through WinHost or for data monitoring.

The details of the connector pins are indicated in the following table:

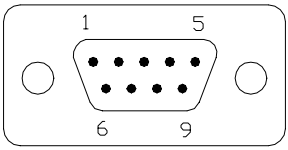

Figure 13 - 9-pin male connector

9-pin connector pinout		
Pin	**Name**	**Function**
1		N.C.
2	RXA	Auxiliary RS232
3	TXA	Auxiliary RS232
4		N.C.
5	SGND	Signal Ground
6		N.C.
9		N.C.
	DS2100 - DS2400	
7	CTSA	Auxiliary Handshake RS232
8	RTSA	Auxiliary Handshake RS232
	DS4300 - DS4600	
7	SGND AUX	Auxiliary Signal Ground
8	GND	Ground
	DS1100 - DS2200	
7	N.C.	N.C.
8	N.C.	N.C.

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3 TECHNICAL FEATURES

ELECTRICAL FEATURES	
Power	
Supply voltage	10 to 30 Vdc
Power consumption max.	(see scanner Installation Manual)
USER INTERFACE	
LED indicators	Power ON
PHYSICAL FEATURES	
Mechanical dimensions	167 x 115 x 40 mm (6.57 x 4.53 x 1.57 in.)
Weight	about 320 g. (11.29 oz.)
ENVIRONMENTAL FEATURES	
Operating temperature	-10 to 50 °C (14 to 122 °F)
Storage temperature	-20 to 70 °C (-4 to 158 °F)
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
Protection Class	IP64 (when correctly connected to the scanner)

NOTE

The features given are typical at a 25 °C ambient temperature (if not otherwise indicated).

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CE 01

dichiara che
declares that the
déclare que le
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declare que el
C-BOX 100, passive connection box

e tutti i suoi modelli
and all its models
et tous ses modèles
und seine modelle
y todos sus modelos

sono conformi alle Direttive del Consiglio Europeo sottoelencate:
are in conformity with the requirements of the European Council Directives listed below:
sont conformes aux spécifications des Directives de l'Union Européenne ci-dessous:
der nachstehend angeführten Direktiven des Europäischen Rats:
cumple con los requisitos de las Directivas del Consejo Europeo, según la lista siguiente:

89/336/EEC EMC Directive e and et und y **92/31/EEC, 93/68/EEC** emendamenti successivi
further amendments
ses successifs amendements
späteren Abänderungen
succesivas enmiendas

Basate sulle legislazioni degli Stati membri in relazione alla compatibilità elettromagnetica ed alla sicurezza dei prodotti.
On the approximation of the laws of Member States relating to electromagnetic compatibility and product safety.
Basée sur la législation des Etates membres relative à la compatibilité électromagnétique et à la sécurité des produits.
Über die Annäherung der Gesetze der Mitgliedsstaaten in bezug auf elektromagnetische Verträglichkeit und Produktsicherheit entsprechen.
Basado en la aproximación de las leyes de los Países Miembros respecto a la compatibilidad electromagnética y las Medidas de seguridad relativas al producto.

Questa dichiarazione è basata sulla conformità dei prodotti alle norme seguenti:
This declaration is based upon compliance of the products to the following standards:
Cette déclaration repose sur la conformité des produits aux normes suivantes:
Diese Erklärung basiert darauf, daß das Produkt den folgenden Normen entspricht:
Esta declaración se basa en el cumplimiento de los productos con las siguientes normas:

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

Ruggero Cacioppo
Ruggero Cacioppo
Quality Assurance Supervisor

Lippo di Calderara, 07/03/2001