



DLR-PR001-XX Family

RFID Portal Reader 4 Antennas



Quick Reference Guide

Datalogic S.r.l.

Via San Vitalino 13
40012 Calderara di Reno (BO)
Italy
Tel. +39 051 3147011
Fax +39 051 3147205

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- END -



RFID Portal Reader 4 Antennas

Product Description

The DLR-PR001-XX is an RFID reader optimized for portal installations, featuring full power to up 4 antennas*, GEN2 Dense Reader Mode management and high speed read rates. Based on an embedded HW architecture (x86) and standard operating system (Linux), it eases the development of custom software and solutions. The on-board computing power and connectivity remove the need for an external PC and related cabling. This results in deployment and operations cost savings, thus reducing the total cost of ownership of installed devices. It is best suited for complex AutoID scenarios, where the information can be collected and fed directly to the reader from multiple sources such as Smart Card readers, Barcode readers and other in-field sensors. All data can be handled locally through data buffering, filtering and aggregation, in order to directly provide decision making data to higher level Business Intelligence processes. The same data can also trigger local actuators and screen displays for in-field real-time processes in a standalone mode. As a result of all the above, the DLR-PR001-XX allows solution providers to customize the reader to each application, thus creating their own specialized devices accordingly. It is offered in three different models to fit the different frequency standards in the EU, US and China regions.

Table 1 - Models P/N

Model P/N	RF carrier frequency
DLR-PR001-EU	865.7 - 867.5 MHz
DLR-PR001-US	902.75 - 927.25 MHz
DLR-PR001-CN	920.625-924.375 MHz

* You can add more antennas with the "4 antenna multiplexer" accessory (see Accessories list and Product Reference Guide for more details).

General Features

The DLR-PR001-XX is an RFID UHF Portal reader and can be used with dedicated antennas (up to 4 antennas), refer to the [Products list and accessories on page 5](#) for part numbers.

You can connect to the DLR-PR001-XX using the serial port or the Ethernet port (see [External Interfaces Description on page 6](#) for more details).

Two USB ports are presents, they can be used to connect external devices like Wi-Fi or Bluetooth adapters, flash pens and others devices.

Lastly, the DLR-PR001-XX has a bidirectional port with 13 GPIOs (General Purpose Input/Output lines) to be used to control external devices or to send trigger signals to the reader (see "GPIO port" in "External Interfaces description" paragraph for more details).

Getting Started

The DLR-PR001-XX reader can be used with an Ethernet cable or with the standard serial port.

To begin, you need first to download and install the .NET framework 2.0 (only if .NET is not already installed on your PC). Follow the steps below to familiarize yourself with the product.

1. Download the latest version of the Demo software or a similar application from the Datalogic website and install it on your PC.
2. Connect the antenna to conn. #1 through an appropriate antenna cable.
3. Connect the power supply.
4. Connect the reader directly to your PC using the serial port or via Ethernet (see dedicated paragraphs).
5. Launch the Demo Software and connect to the interface (TCP/IP or COM port).
6. Place a tag under the antenna field, click on "start inventory" and see the tag information on the main window of application.

Connecting to the Reader Using the Serial Port

You can connect to the DLR-PR001-XX using the RS232 serial port through a standard DB9 serial cable.

By default, the serial port of the reader is configured as a configuration console; you have first to configure your preferred serial terminal monitor (Hyperterminal, Tera Term, Putty, etc.).

(For more details about reader connection using the serial port, please see the Product Reference Guide).

Connecting to the Reader via Ethernet

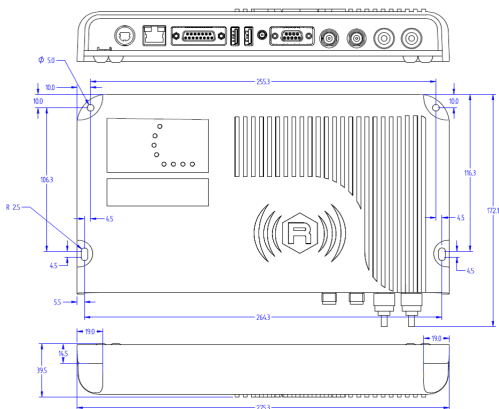
You can connect to the DLR-PR001-XX via Ethernet through an Ethernet crossover cable. By default, the reader is configured with the static IP address 192.168.0.1. If your private network matches the default network configuration of the reader, you can connect to it. Otherwise, you can change the network configuration of the reader by connecting to it with a serial communication program (see the Product Reference Guide for more details). Remember to select the TCP/IP connection option and insert the IP address in the Datalogic demo tool, or eventually in your application.

Mechanical Dimensions and Installation Notice

The DLR-PR001-XX could be mounted either horizontally or vertically. Locate the four mounting slots on the reader, as illustrated below.

All measurements are in millimeters.

Figure 1. DLR-PR001-XX Technical drawing



Kit and Accessories

Figure 2. shows the DLR-PR001-XX kit for a complete RFID set-up:

Figure 2. DLR-PR001 kit



- RFID Portal Reader 4 Antenna
- Datalogic Power Supply
- RFID Antenna
- Connection cable (antenna cable)

Table 2 - Products list and accessories

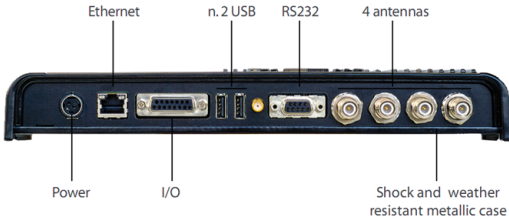
Models Description	Part Number
RFID PORTAL READER 4 ANTENNA EU	DLR-PR001-EU
RFID PORTAL READER 4 ANTENNA US	DLR-PR001-US
RFID PORTAL READER 4 ANTENNA CHINA	DLR-PR001-CN
RFID PORTAL READER KIT EU	DLR-PR001-K1-EU
RFID PORTAL READER KIT US	DLR-PR001-K1-US
INTERFACE BOARD FOR I/O	IF-DLR-PR002
RFID ANTENNA FOR DLR-PR001 EU	AN-DLR-PR002-EU
RFID ANTENNA FOR DLR-PR001 US/CN	AN-DLR-PR002-US
CONNECTION CABLE 5 MT. FOR DLR-PR002	CAB-002
CONNECTION CABLE 15 MT. FOR DLR-PR002	CAB-003
POWER SUPPLY FOR DLR-PR001 EU/US/CN	PS-DLR-PR001
4 ANTENNA MULTIPLEXER	MP-DLR-PR002

External Interfaces Description

Connectors

The DLR-PR001-XX reader is equipped with the followings ports:

Figure 3. DLR-PR001-XX Connectors View



Power Supply Connector

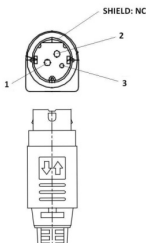
The power supply connector shall be used to provide the reader with the DC supply voltage in the range 9V to 36V.

The part number of the connector is KPJX-3S-S by Kycon, the pinout of the connector is shown in the following table:

Pin #	Signal	Description
1	GND	Ground
2	V+	DC input Voltage
3	GND	Ground

The external shield can be connected to Ground.

Figure 4. Power supply connector





It is strongly recommended to use only the Datalogic power supply AC/DC adapter 24Vdc output voltage.

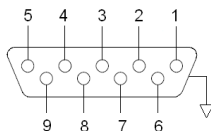
NOTE

RS232 Port

The DLR-PR001-XX RS232 port is available on a DB9 connector, the pinout is the following:

Pin #	Signal	Description
1	-	Not connected
2	TX	TX output
3	RX	RX input
4	-	Not connected
5	GND	Ground
6	-	Not connected
7	CTS	Clear to Send
8	RTS	Req. to send
9	-	Not connected
	Shell	Ext. shell conn. To GND

Figure 5. RS232 port DB9 socket connector pinout



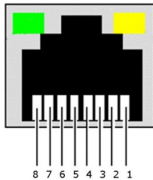
Ethernet Port

The Ethernet port can be used to connect the reader to a 10/100/1000 Base-T network using a RJ45 cable.

The Ethernet connector pinout is the following:

Pin #	Signal	Description
1	DA+	Bidirectional pair A+
2	DA-	Bidirectional pair A-
3	DB+	Bidirectional pair B+
4	DC+	Bidirectional pair C+
5	DC-	Bidirectional pair C-
6	DB-	Bidirectional pair B-
7	DD+	Bidirectional pair D+
8	DD-	Bidirectional pair D-

Figure 6. Ethernet connector



NOTE

The DLR-PR001 does not support Power Over Ethernet (POE).

USB Host Ports

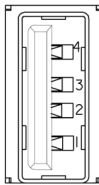
The DLR-PR001 reader has 2 USB 2.0 high speed ports that can be used to connect external devices like Wi-Fi or Bluetooth adapters, GPS receivers or flash pen drives.

Each port is able to provide up to 500mA supply current at 5VDC voltage.

The connector is a 4 pins Type A receptacle:

Pin #	Signal	Description
1	Vbus	+5V DC USB bus
2	D-	D- signal
3	D+	D+ signal
4	GND	Ground
	Shell	External shell

Figure 7. USB connector type A

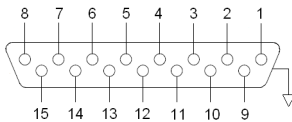


GPIO Port

The reader has 13 GPIO bidirectional pins to be used to control external devices or to send trigger signals to the reader. All GPIOs are TTL Levels. (See the Product Reference Guide for more details and instructions on how to use them). A DB15 external connector is available:

Pin #	Signal	Description
1	GPIO0	General Purpose I/O 0
2	GPIO2	General Purpose I/O 2
3	GPIO4	General Purpose I/O 4
4	GPIO6	General Purpose I/O 6
5	GPIO8	General Purpose I/O 8
6	GPIO10	General Purpose I/O 10
7	GPIO12	General Purpose I/O 12
8	GND	Ground
9	GPIO1	General Purpose I/O 1
10	GPIO3	General Purpose I/O 3
11	GPIO5	General Purpose I/O 5
12	GPIO7	General Purpose I/O 7
13	GPIO9	General Purpose I/O 9
14	GPIO11	General Purpose I/O 11
15	DC_BYPASS	Input supply voltage bypass (500mA max)
	Shell	External shell

Figure 8. DB15 Socket Connector



RFID Antenna Ports

The reader has 4 antenna ports available on 50 Ohm RP-TNC jack connectors.



RF output (32dBm peak max.)

In order to achieve the best reading performance, the VSWR of the antenna shall be lower than 1.5 : 1.

LEDs

The DLR-PR001-XX top cover panel houses the following LEDs:

LED	Function	Type
POWER	Power ON	Green LED
RF ACTIVE	RFID Transmitting activity	Blink Yellow LED
GSM/GPRS	Not Present	No LED
FAULT	Boot phase	Red LED
	Ready to work	OFF
ANTENNA*	Selected TX Antenna	Yellow LED

* The LED indicates the antenna configured via software to transmit. By default the selected antenna is Ant1. Please note that the LED does not indicate if an antenna is physically attached to the reader or not.



NOTE

Fault LED is on only during boot phase.



DLR-PR001-XX Configuration

The reader can be configured using a standard Linux bash shell available via serial port.

Reader Configuration Using the Serial Port

By default, a standard bash shell is available via serial port; to access the reader using this method, you have first to configure your preferred serial terminal monitor (Hyperterminal, Tera Term, Putty, etc...) with the following settings:

Baud rate: 115200 b/s

Data bit: 8

Stop bit: 1

Parity: none

Flow control: none

To login, type "root" in the Username text box and "rooroot" as Password.

(For more details and complete procedure for reader configuration using the serial port, please see the Products Reference Guide).

Restore Factory Default Settings

Restoring factory default settings of DLR-PR001-XX is possible only using the serial port and a USB pen drive. For complete detailed procedure, see the Products Reference Guide.

Technical Specifications

Item	Description
Physical Characteristics	
Reader Dimension	(W-L-H) 27.5 x 15.5 x 3.9 cm ³ / 10.8 x 6.1 x 1.5 in ³
Weight	1300 g / 45.86 oz
Electrical Characteristics	
Electrical Power	9÷36 VDC - 60W
RF Characteristics	
Type	UHF - RFID
Standard Compliance	EPC C1 G2/ISO 18000-6C
Frequency Bands	865.60 ÷ 867.60 MHz European standard (ETSI EN 302 208) 902.00 ÷ 928.00 MHz US standard (FCC part 15) 920.50÷924.50 MHz (SRRRC Standard)
RF Output Power	Up to 32 dBm (1.6W) conducted (ETSI) Up to 30 dBm (1W) conducted (FCC) Up to 30 dBm (1W) conducted (SRRRC)
Antenna	Up to 4 external antennas (RP-TNC connectors)
Receiving Capability	Gen 2 Dense Reader Mode Management Data rate up to 400 Kb/s
Technical Characteristics	
CPU	Intel Atom E3815 CPU @ 1.46Ghz
Memory	2 Gbytes RAM 8 Gbytes MicroSD
Operating System	Linux (Debian)
Connectivity	RS232 serial com (DB9) 2 X USB 2.0 ports (conn. type A) Ethernet 10/100/1000 Base-T (RJ45)
Digital I/O	13 GPIO pins, TTL level

Item	Description
User Environment	
Partic. & Water Sealing	IP42
Operat. Temperature	-10°C to 50°C / 14°F to 122°F
Storage Temperature	-20°C to 60°C / -4°F to 140°F

Datalogic Limited Factory Warranty

Warranty Coverage

Datalogic warrants to Customer that Datalogic's products will be free from defects in materials and workmanship for a period of one year from product shipment. Datalogic ("Datalogic") hardware products are warranted against defects in material and workmanship under normal and proper use. The liability of Datalogic under this warranty is limited to furnishing the labor and parts necessary to remedy any defect covered by this warranty and restore the product to its normal operating condition. Repair or replacement of product during the warranty does not extend the original warranty term. Products are sold on the basis of specifications applicable at the time of manufacture and Datalogic has no obligation to modify or update products once sold.

If Datalogic determines that a product has defects in its material or workmanship, Datalogic shall, at its sole option repair or replace the product without additional charge for parts and labor, or credit or refund the defective products duly returned to Datalogic. To perform repairs, Datalogic may use new or reconditioned parts, components, subassemblies or products that have been tested as meeting applicable specifications for equivalent new material and products. Customer will allow Datalogic to scrap all parts removed from the repaired product. The warranty period shall extend from the date of shipment from Datalogic for the duration published by Datalogic for the product at the time of purchase (Warranty period). Datalogic warrants repaired hardware devices against defects in workmanship and materials on the repaired assembly for a 90 day period starting from the date of shipment of the repaired product from Datalogic or until the expiration of the original warranty period, whichever is longer. Datalogic does not guarantee, and it is not responsible for, the maintenance of, damage to, or loss of configurations, data, and applications on the repaired units and at its sole discretion can return the units in the "factory default" configuration or with any software or firmware update available at the time of the repair (other than the firmware or software installed during the manufacture of the product). Customer accepts responsibility to maintain a backup copy of its software and data.

Warranty Claims Process

In order to obtain service under the Factory Warranty, Customer must notify Datalogic of the claimed defect before the expiration of the applicable Warranty period and obtain from Datalogic a return authorization number (RMA) for return of the product to a designated Datalogic service center. If Datalogic determines Customer's claim is valid, Datalogic will repair or replace product without additional charge for parts and labor. Customer shall be responsible for packaging and shipping the product to the designated Datalogic service center, with shipping charges prepaid. Datalogic shall pay for the return of the product to Customer if the shipment is to a location within the country in

which the Datalogic service center is located. Customer shall be responsible for paying all shipping charges, duties, taxes, and any other charges for products returned to any other locations. Failure to follow the applicable RMA policy, may result in a processing fee. Customer shall be responsible for return shipment expenses for products which Datalogic, at its sole discretion, determines are not defective or eligible for warranty repair.

Warranty Exclusions

The Datalogic Factory Warranty shall not apply to:

- (i) any product which has been damaged, modified, altered, repaired or upgraded by other than Datalogic service personnel or its authorized representatives;
- (ii) any claimed defect, failure or damage which Datalogic determines was caused by faulty operations, improper use, abuse, misuse, wear and tear, negligence, improper storage or use of parts or accessories not approved or supplied by Datalogic;
- (iii) any claimed defect or damage caused by the use of product with any other instrument, equipment or apparatus;
- (iv) any claimed defect or damage caused by the failure to provide proper maintenance, including but not limited to cleaning the upper window in accordance with product manual;
- (v) any defect or damage caused by natural or man-made disaster such as but not limited to fire, water damage, floods, other natural disasters, vandalism or abusive events that would cause internal and external component damage or destruction of the whole unit, consumable items;
- (vi) any damage or malfunctioning caused by non-restoring action as for example firmware or software upgrades, software or hardware reconfigurations etc.;
- (vii) the replacement of upper window/cartridge due to scratching, stains or other degradation and/or
- (viii) any consumable or equivalent (e.g., cables, power supply, batteries, keypads, touch screen, triggers etc.).

No Assignment

Customer may not assign or otherwise transfer its rights or obligations under this warranty except to a purchaser or transferee of product. No attempted assignment or transfer in violation of this provision shall be valid or binding upon Datalogic.

DATALOGIC'S LIMITED WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, ORAL OR WRITTEN, STATUTORY OR OTHERWISE, INCLUDING, WITHOUT LIMITATION, ANY IMPLIED WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, OR NON-INFRINGEMENT. DATALOGIC SHALL NOT BE LIABLE FOR ANY DAMAGES SUSTAINED BY CUSTOMER ARISING FROM DELAYS IN THE REPLACEMENT OR REPAIR OF PRODUCTS UNDER THE ABOVE.

THE REMEDY SET FORTH IN THIS WARRANTY STATEMENT IS THE CUSTOMER'S SOLE AND EXCLUSIVE REMEDY FOR WARRANTY CLAIMS. UNDER NO CIRCUMSTANCES WILL DATALOGIC BE


LIABLE TO CUSTOMER OR ANY THIRD PARTY FOR ANY LOST PROFITS, OR ANY INCIDENTAL, CONSEQUENTIAL INDIRECT, SPECIAL OR CONTINGENT DAMAGES REGARDLESS OF WHETHER DATALOGIC HAD ADVANCE NOTICE OF THE POSSIBILITY OF SUCH DAMAGES.

Risk of Loss

Customer shall bear risk of loss or damage for product in transit to Datalogic. Datalogic shall assume risk of loss or damage for product in Datalogic's possession. In the absence of specific written instructions for the return of product to Customer, Datalogic will select the carrier, but Datalogic shall not thereby assume any liability in connection with the return shipment.

Support Through the Website

Datalogic provides several services as well as technical support through its website. Log on to www.datalogic.com.

For quick access, from the home page click on the search icon  , and type in the name of the product you're looking for. This allows you access to download Data Sheets, Manuals, Software & Utilities, and Drawings.

Hover over the Support & Service menu for access to Services and Technical Support.

NOTES



www.datalogic.com

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Datalogic S.r.l.

Via San Vitalino 13 | Calderara di Reno (BO) | 40012 | Italy
Telephone: +39 051 3147011 | Fax: +39 051 3147205



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