



DLR-BT001-XX Family

RFID UHF Bluetooth® Pocket Reader



Quick Reference Guide

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NOTES



RFID Reader DLR-BT001

General Information

The DLR-BT001-XX is a feature-rich hand-held UHF RFID reader. It is available in three different models to fit the different frequency standards in the EU, US and China regions.

The reader is compliant with the standard **ISO 18000-6C / EPC-C1G2** of the UHF RFID protocol. The reference document is "EPC Radio-Frequency Identity Protocols Class-1 Generation-2 UHF RFID Protocol for Communications at 860 MHz - 960 MHz", Version 1.1.0 (December 17, 2005).

The DLR-BT001-XX has an integrated antenna suited for short to medium range applications. Thanks to the Bluetooth® communication interface, it is a perfect UHF RFID add-on for any Bluetooth® enabled host, such as a PC, a smartphone, a PDA or a tablet. The reader is compatible with Windows XP/7, Windows CE/Mobile, and Android. A micro-USB port, conceived mainly for power recharge purposes, is also a useful auxiliary communication interface.

Table 1 - Models P/N

Model P/N	RF carrier frequency
DLR-BT001-EU	865.7 - 867.5 MHz
DLR-BT001-US	902.75 - 927.25 MHz
DLR-BT001-CN	920.625-924.375 MHz

General Features

The DLR-BT001-XX supports a Bluetooth® native keyboard emulation allowing to interact directly with legacy applications, office automation SW or any other generic solution requiring manual input. When paired to a smartphone or to a tablet, the device is a cost-effective alternative to more expensive hand-held devices. Designed for mobile operators in indoor or outdoor areas, DLR-BT001-XX is ideal for in-store inventory management, field sales mobility, service and maintenance applications. The device easily performs the reading of a population of UHF Tags being located in its proximity and preferably in front of it.

When the Host / Reader Link is not available, the reader is able to operate in "Buffer Profile" (see Setup Configuration Paragraph), allowing the storage of EPC codes into its internal memory for a later download.

Special attention has been given to minimize the current consumption by limiting the active reading time due to extended battery duration.

A USB connection is mainly dedicated to battery charge, but could act as an auxiliary virtual com port (VCP), useful during setup, configuration and downloading actions.

Using the DLR-BT001

The DLR-BT001-XX normal behavior is to capture all the sensed identification codes associated to the reachable UHF Tags. The reader's front panel is the user interface.

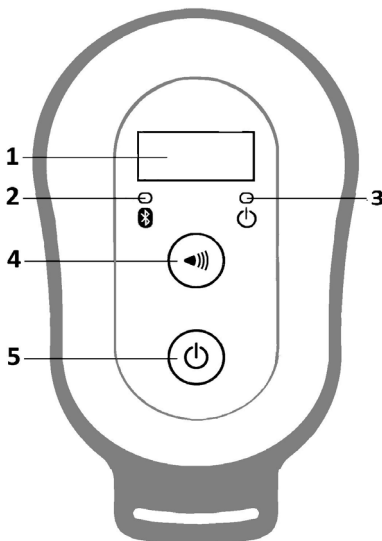


Figure 1 - DLR-BT001-XX Front Panel

Front Panel Description

The front panel is illustrated in [Figure 1](#), and its five main components are described in the table below:

Table 2 - Front Panel LEDs and Buttons

N°	NAME	DESCRIPTION
1	Display	LCD Alphanumeric Display (8 chars by 2 lines)
2	Link LED	Indicates the Bluetooth® and USB/charger connection (refer to Table 4, ' - Bluetooth® / USB LED Status," on page 5)
3	Power LED	Indicates the reader status and battery level (refer to Table 3, ' - Power LED Status," on page 5)
4	Trigger Button	In Inventory mode: press it shortly to perform a single inventory cycle (hold it down to repeat multiple inventory cycles). From initial ON state: press it within 2 seconds to enter the Main Menu Mode. In Menu mode: quick press to scroll. Hold down for a few seconds to activate the option displayed.
5	Power Button	From OFF: Press it to switch the reader ON. From initial ON state: press it shortly to enter the second Aux Display Option Menu Mode. From ON: hold down for more than 2 second ^a s to switch reader OFF. In Menu mode: press to return to the main menu.

a. Only in DLR-SW or HID profile.

Table 3 - Power LED Status

STATUS	DESCRIPTION
Green	The reader is active and the battery charge is in the range 35: 100%
Orange	The reader is active and the battery charge is in the range 15: 35%
Red	The reader is active and the battery charge is in the range 0: 15%

Table 4 - Bluetooth® / USB LED Status

STATUS	DESCRIPTION
OFF	No Connection established
Orange	USB Cable connected (either to a PC or to the AC adapter)
Blue	Bluetooth® connected

Acoustic and Vibration

For events signaling, two more resources exist to complete the User Interface:

- Two tones Buzzer
- Vibrator

Charging the Battery

The DLR-BT001-XX unit is supplied with a USB cable and a power supply for battery charging. When the reader is in charge, the display lights up and shows the blinking charge indicator. A fixed indication "*charge 100%*" informs when the charge is complete.



WARNING

If the battery is completely low, the display may not turn on when the charger is connected. In this case, leave the reader connected to the charger for at least 5 minutes, then disconnect the USB cable, perform the reset procedure (refer to paragraph "Reset" on page 11), switch off the reader by pressing the power button and then connect the USB cable again.

USB connector

A micro USB Type B socket connector located in the bottom side of DLR-BT001-XX can be used to connect the reader to a USB host port or to an AC/DC battery charger.

Non-removable Battery

Due to its nature and dimensions, DLR-BT001 has a fixed rechargeable battery. It is strictly forbidden to remove it for charging or any other purpose.

The charge will be performed using exclusively the micro USB connector (refer to "Accessories" on page 7).



WARNING

Any attempt to access or replace the battery will cause an infringement of the warranty. In case of battery malfunction, call Datalogic technical assistance.

Accessories

A micro USB connector cable and a DC Power Supply Unit are also provided (refer to the Product Reference Guide).



NOTE

An additional Power Supply unit (Multi Battery Charger, Code MBC-DLRBT001 for 3 units supply), is available, too.

Technical Specifications

Item	Description
Physical Characteristics	
Reader Dimensions	9.9 x 5.4 x 2.0 cm3 / 3.9 x 2.1 x 0.8 in3
Length of USB Cable	1.5 m / 4.9 ft
Weight	57.0 g / 2.0 oz
Electrical Characteristics	
Battery	Battery Type: Li-Ion 3.7V, 570 mAh
Battery Life	Operating: >12 hours with 40,000 tag readings; Standby: 15 days
Battery Charging Time	2 hours (typical)
Internal Buffer Size	48 kByte (equivalent to 4096 EPC codes @ 96 bit)
Reader - Tag Link	
Type	UHF - RFID
Antenna	Integrated linear (horizontal)
Standard Compliance	ISO 18000-6C/EPC C1G2
Frequency Bands	865.6 - 867.6 MHz - European Standard 902 - 928 MHz - US standard 920.5 - 924.5 MHz - CN standard
RF Power	Programmable in 14 levels from 5 dBm e.r.p. (3 mW e.r.p.) to 18 dBm e.r.p. (60 mW e.r.p.)
Reading Range	Up to 90 cm / 35.4 in

Item	Description
Reader - Host Link	
Type	Bluetooth® (wireless) USB (corded)
Bluetooth®	Class 2 with output power 4dBm e.i.r.p. Bluetooth® 2.1 - 2.4GHz
USB	USB 2.0 Full Speed (12 Mbit/s) device port
Virtual COM Port	Baudrate: 115.200 kbps; Databits: 8; Stopbits: 1 Parity: none; Flow control: none
User Environment	
Particulate and Water Sealing	IP40
Operating Temperature	0° to 45 °C / 32° to 113 °F
Storage Temperature	-20° to 60°C / 4° to 140°F

Reader-Tag Link Profiles

The DLR-BT001-XX readers support different modulations and RF return link profiles according to EPC Class1 Gen2 protocol. Main profiles have been tested for the compliance with ETSI and FCC regulations (Refer to the Product Reference Guide).

Radiation Patterns

The DLR_BT001-XX products, due to their internally placed antenna, are field directive with a maximum sensitivity in the front/display direction. Their radiation patterns are reported in the Product Reference Guide.

Getting Started

The reader can be connected to almost all the devices supporting the Bluetooth® HID profile (keyboard emulation): tablets, smartphones, Windows PC, Android devices, iOS, etc.

The reader has two communication interfaces: **Bluetooth®** and **USB**. Bluetooth® is the main interface, it uses the SPP profile (Serial Port Profile), while the USB interface is mainly used for battery charging and firmware updating.

The reader has a factory default configuration enabling, at power-on, the Bluetooth® communication. The reader is ready to accept connection requests (discoverable) coming from most of the Bluetooth® enabled hosts.

At power on, a **DL-RFID** logo is displayed for a few seconds. About communication protocol, the reader has three different profiles, DLR-SW, HID or BUFFER, selectable through the configuration menu.

READER RESET & INTERNAL PARAMETERS CONFIGURATION

Only the user interface is needed to perform the following actions.
The reader needs no active host connection.

Reset

To reset the reader, press simultaneously the power and the trigger buttons for about six seconds and then release them.

It is recommended to disconnect the USB cable before, otherwise the reader enters in the firmware upgrade state.



When the reader is set in BUFFER profile, the reset will delete all codes stored into the internal memory.

Set Internal Parameters

The configuration menu for the reader parameters is given in the following table:

Profile	Comm. Type: DLR-SW, HID or BUFFER
Beep	Enable or disable Audio feedback at startup, power-down or during tags identification.
Vibrate	Enable or disable Vibration feedback at startup, power-down or during tags identification.
Power	Select 4 different RF Power levels.
Clock	Time - Date setting

READER-HOST COMMUNICATION SETUP CONFIGURATION

The communication between the reader and the host varies depending on:

- the **Profile**
- the **Operating System** and the **selected Host**.

The USB port can be also used for the communication between the reader and a the host. VCP with USB is equivalent to SPP with Bluetooth®.

The profiles are DLR-SW, HID, BUFFER.

1. DLR-SW: the reader communicates with a Host (Tablet, PC, etc.) and manages the data using a software application.
2. HID: the reader interfaces with a Host through keyboard emulation.
3. BUFFER: the EPC codes are stored into the reader’s internal memory for a later download to the Host.

The most frequent cases are reported in the table below.

Table 5 - DLR-BT001-XX - Communication Setup.

EXAMPLE	INTERFACE	PROFILE	OPERATING SYSTEMS
1	BT (/SPP)	DLR - SW	ANDROID (Tablet, PDA, etc)
2	BT (/SPP)	DLR - SW	WINDOW (PCs with BT)
3	USB (/VCP)	DLR - SW	WINDOW (PCs with USB)
4	BT	HID (kb-emu)	ANDROID (Tablet, PDA, etc)
5	BT	HID (kb-emu)	WINDOW (PCs with BT)
6	BT	HID (kb-emu)	iOS (iDev with BT)

Example of Communication Setup

The reader with Bluetooth® is interfacing an Android host-machine or Windows PC based, using the DLR-SW profile. To get wider info and images, refer to the Product Reference Guide.

Download the proper software controller and drivers from the Datalogic website (section *Downloads > Software & Utilities*).

FIRMWARE UPDATE

The DLR-BT001-XX firmware upgrade is managed only via USB by using a SW upgrade program.

The upgrade tool is available for free at the Datalogic website www.datalogic.com. In order to upgrade the firmware, you must follow the steps described here below:

1. Connect the reader to the USB port of the PC.
2. Press simultaneously the trigger and the power buttons for about six seconds on the DLR-BT001-XX reader.
3. Run the firmware/software upgrade and follow the steps as suggested in the Product Reference Guide.

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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 prod-

uct). 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.



www.datalogic.com

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