RDR001 User Manual

Specifications, device installation and compliance information

Updated: 2022-11-16

CONFIDENTIAL

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Revision History

Name	Date	Description	Version
RORIE	2022/09/12	CE, FCC, instructions	1.0
RORIE	2022/09/29	Added safety warning	2.0
MARIA	2022/10/04	Added IP Protection Class	3.0
RORIE	2022/11/16	Update CE section	4.0

Introduction

The RDR001 COREInsight® BLE Reader reads COREInsight® BLE tags. Once tags are read, their information is saved and uploaded over the reader's internet connection. The reader will connect to the internet over a 3G or 4G cellular connection.

The reader has two LEDs on the front of the case. The left LED will illuminate Blue once the reader has started up and is running. The right LED will change depending on whether the reader is connected to the internet. Red indicates offline, yellow indicates connecting to the server and green indicates it is online.

The COREInsight® Reader comes supplied with the following equipment:

- Cellular Antenna
- 12V Power Supply
- Power Supply Adapters
- This Instruction Manual

Once the antenna is connected, the device is connected to the power socket and the green light is on, it is ready to use. Please follow the usage instructions which include pictures showing how to connect the antenna and mount the device.

The reader has been tested to ensure compliance with FCC and CE RED regulations. Please read the relevant compliance sections for more information.

Specifications

Name of the Product:	COREInsight® Reader
Model:	RDR001
Revisions:	RDR001i
Description:	Bluetooth Low Energy (BLE) Reader used to monitor movement of goods and equipment with attached Core Tags.
Size:	8.246" L x 5.151" W x 3.125" (209.45mm x 130.84mm x 79.38mm*) excluding cellular antenna*
DC Input:	12VDC, 3A
DC Socket:	Molex Mini-fit 2way plug (rating with Molex Mini-fit 2way receptacle)
External Power Supply:	Switching Power Supply, Input 100~240VAC 50/60Hz, Output 12VDC 3A
Power Consumption:	700mA – Idle 2300mA - Max
Temperature Range:	0˚C to +50˚C
Reader Weight:	35.41 oz. (1004 grams)
IP Protection Class:	IPX0

Compute Board:	Up Board
CPU:	Intel® Atom™ x5 Z8350 Processor
Memory:	32GB eMMC Flash, 4GB DDR3L RAM

Indication LEDs:	Blue and Green/Red
Bluetooth Type:	Bluetooth Low Energy 4.2
Bluetooth Sensitivity	-98dBm

Bluetooth Max Power Output:	+4dBm
Bluetooth Antenna:	< +2.8dBi Gain Antenova AMORIS External Antenna, Omni Directional
Support Frequencies:	2.4GHz ISM, 40 BLE Channels & Adv. Ch. No. 37, 38, 39
No. of BLE Modules	4 (built in)

Cellular:	Quectel EG25-G Mini PCIe
Cellular Sensitivity:	-108dBm
Cellular Max Power Output:	+33dBm (2W)
Cellular Antennas:	< +1dBi Gain EAd WTR7270 External Antenna, Omni Directional YF002A8AA internal adhesive diversity Antenna
Supported Frequencies:	LTE-FDD: B1/B2/B3/B4/B5/B7/B8/B12/B13/B18/B19/B20/B25/B26/B28 LTE-TDD: B38/B39/B40/B41 WCDMA: B1/B2/B4/B5/B6/B8/B19 GSM: B2/B3/B5/B8
Cellular Data Rate:	< 50 Mbps (UL)
SIM Card Size:	Micro Sim
Cellular SIMS supported:	Spark Jasper / AT&T Jasper SIMS

WiFi Interface:	LB Link USB WiFi Dongle
WiFi Type:	802.11b/g/n
WiFi Security:	WPA2 Personal and Enterprise Security
WiFi TX Power:	18dBm Max
WiFi RX Sensitivity:	-95dBm Max
WiFi Frequency:	2.4-2.4835GHz
WiFi Antenna:	Built in, Omni Directional

Compliance

If you have any queries regarding certification and compliance, feel free to contact us:

Manufacturer

Descartes Systems Group Inc.
Address: 105 Trafalgar Street, Floor 2, 7011, Nelson, New Zealand
Telephone number: +64 (3) 547-8205 (New Zealand)
E-Mail address: ServiceDesk@descartes.com
Website: www.descartes.com

FCC

FCC Compliance Statement

CAUTION: The manufacturer is not responsible for any changes or modifications not expressly approved by the party responsible for compliance. Such modifications could void the user's authority to operate the equipment.

NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy, and if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Any changes or modifications to this unit not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

Supplier's Declaration of Conformity
47 CFR § 2.1077 Compliance Information

Product Name: COREInsight® Reader

Product Model: RDR001

Manufacturer:
Descartes Systems Group Inc.
Address: 105 Trafalgar Street, Floor 2, 7011, Nelson, New Zealand
Telephone number: +64 (3) 547-8205 (New Zealand)
E-Mail address: ServiceDesk@descartes.com
website: www.descartes.com

Modular Components Used:
NAME: LTE Module
MODEL: EG25-G MINIPCIE
FCC ID: XMR201903EG25G

NAME: U-Blox Bluetooth Low Energy Module
MODEL: NINA-B111
FCC ID: XPYNINAB1

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

CE: Radio Equipment Directive (RED)

CE covers certification regulations for the European Economic Area (EEA), Turkey and countries that are part of the EU 's single market. This includes EU countries, Iceland, Liechtenstein, Norway and Switzerland.

Manufacturer:
Descartes Systems Group Inc.
Address: 105 Trafalgar Street, Floor 2, 7011, Nelson, New Zealand
Telephone number: +64 (3) 547-8205 (New Zealand)
E-Mail address: ServiceDesk@descartes.com

Descartes Systems Group Inc. declares under our sole responsibility that:
Product Name: COREInsight® Reader
Product Model(s): RDR001

Complies with the following European Directives:
2014/30/EU Electromagnetic Compatibility (EMC)
2014/53/EU Radio Equipment Directive (RED)
2014/35/EU Low Voltage (LVD)
2011/65/EU on the Restriction of Hazardous Substance (RoHS)

The following standards have been applied:

Safety & Health (Article 3.1a):
EN 62368-1:2014+A11:2017
EN IEC 62311:2020 / EN 50665:2017

EMC & Immunity (Article 3.1b):
EN 55032:2015+A11:2020 / EN 55035:2017+A11:2020
EN IEC 61000-3-2:2019 / EN 61000-3-3:2013+A1:2019
EN 301 489-1 V2.2.3 / EN 301 489-17 V3.2.4 / EN 301 489-52 V1.2.1

RF Spectrum Efficiency (Article 3.2):
EN 300 328 V2.2.2
EN 301 908-1 V15.1.1 / EN 301 908-13 V13.2.1 (LTE)
EN 301 908-1 V15.1.1 / EN 301 908-2 V13.2.1 (WCDMA)

Additional Compliance:
EN IEC 63000:2018

The technical documentation required to demonstrate that the products meet the requirements of the aforementioned directives has been compiled and is available for inspection by the relevant enforcement authorities.

Signed: Simon Gutschlag
Title: VP, Product Management
Date: 2022/09/09

COREInsight® Reader

The COREInsight® Reader comes supplied with the following equipment:

- Cellular Antenna
- 12V Power Supply
- Power Supply Adapters
- This Instruction Manual

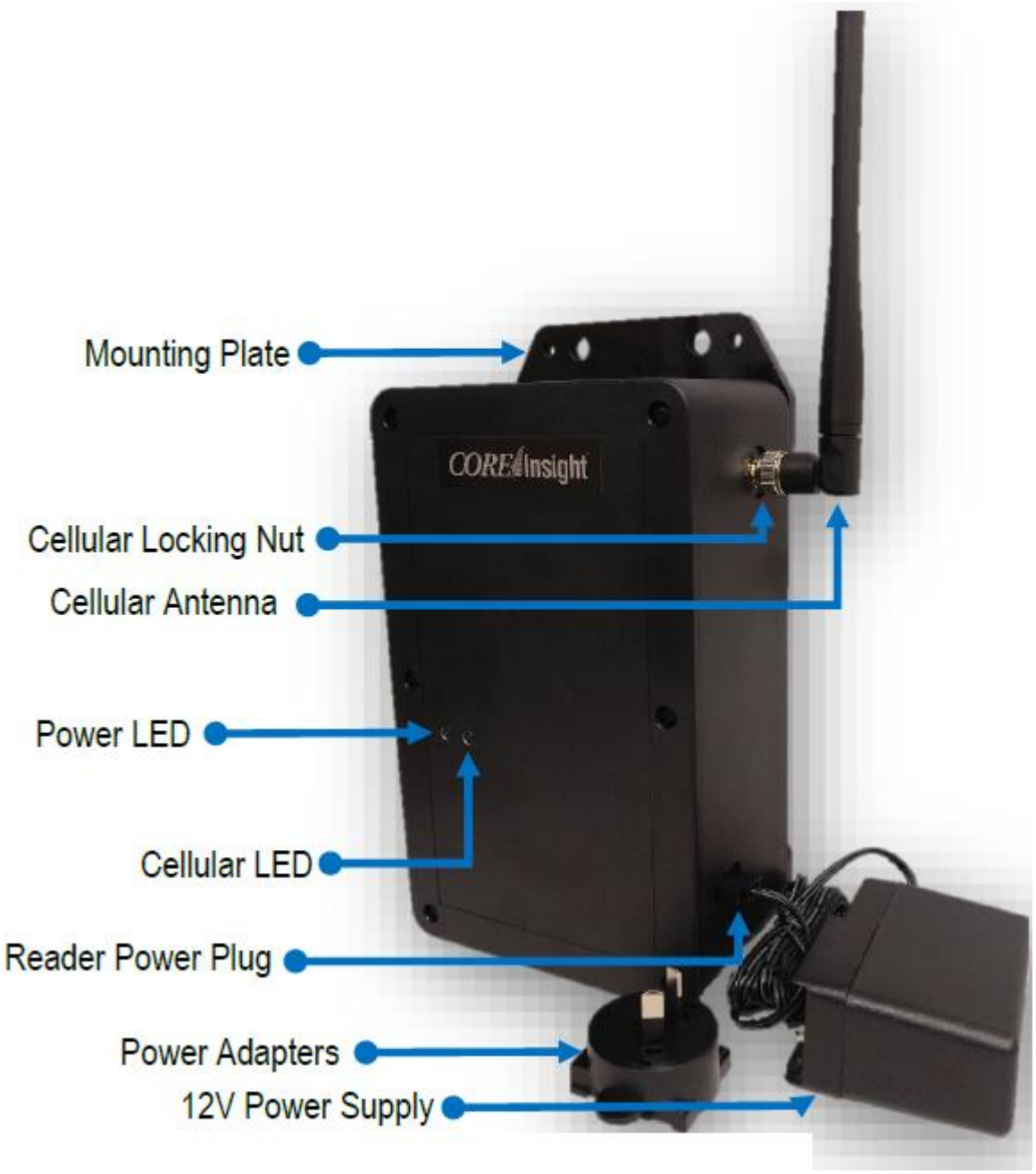
Once the antenna is connected, the device is connected to the power socket and the green light is on, it is ready to use. Please follow the operating instructions with pictures included below showing how to connect the antenna and mount the device.

Operating Instructions

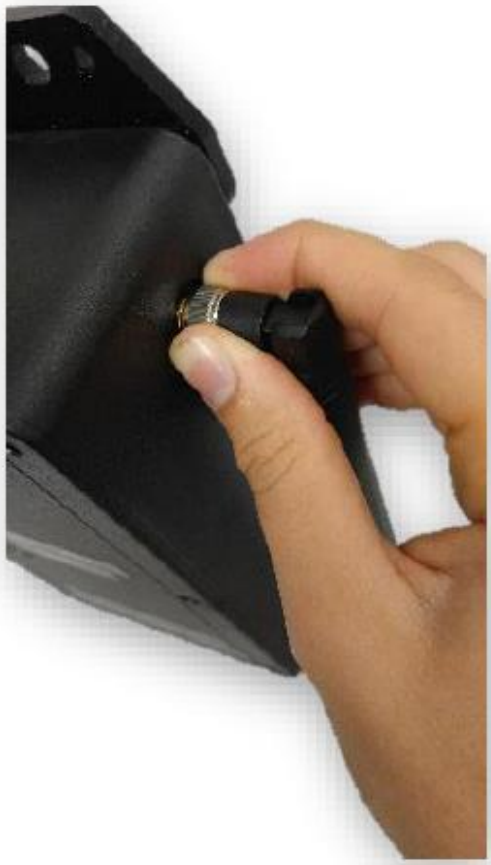
1. Screw in the cellular antennae to the locking nut.
2. Select a power supply adapter that suits and connect it to the power supply wall wart.
3. Plug the power supply connector into the reader power plug.
4. Plug the reader into either 110v or 240v mains.
5. Wait at least 5 minutes for the Power LED to illuminate BLUE. The corresponding cellular LED light should also illuminate from RED to GREEN to indicate it is connected to the network.
6. If neither of the lights illuminate, please contact CORE Transport Technology.

Safety Warning

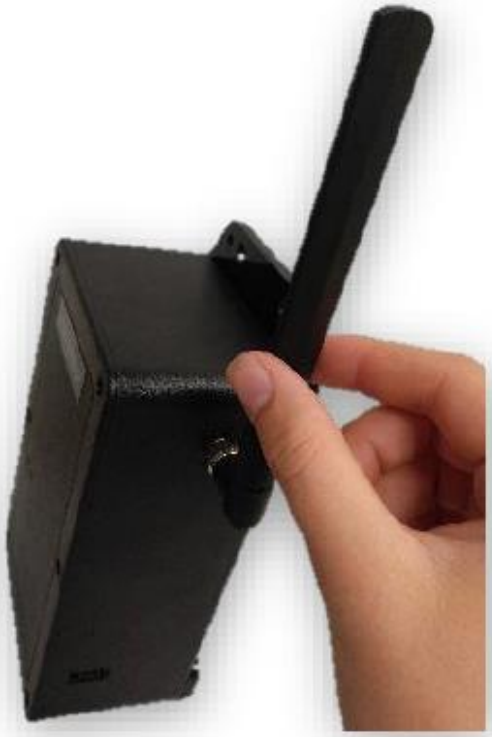
Per FCC KDB 784748, Section A.8: To satisfy RF exposure requirements, this device and its antenna must operate with a separation distance of at least 20 cm from all persons. Please maintain at least a 20 cm spacing from the antenna and device.


Mounting Plate
CORE Insight
Cellular Locking Nut
Cellular Antenna
Power LED
Cellular LED
Reader Power Plug
Power Adapters
12V Power Supply

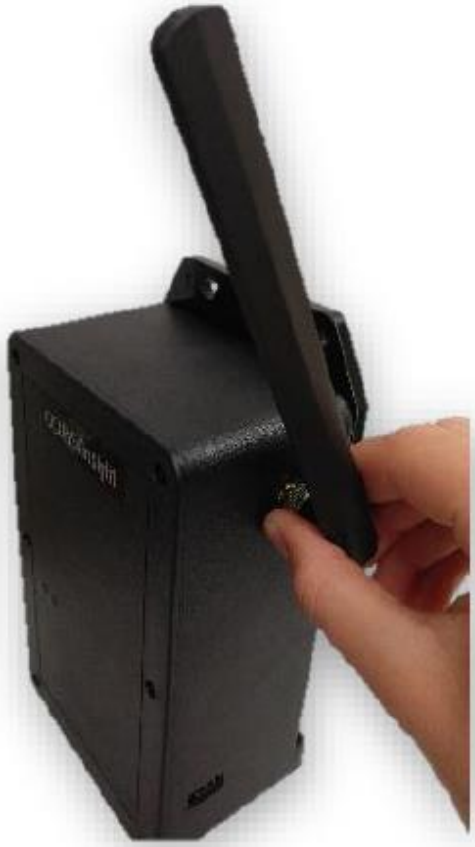
Adjusting Antenna Orientation:



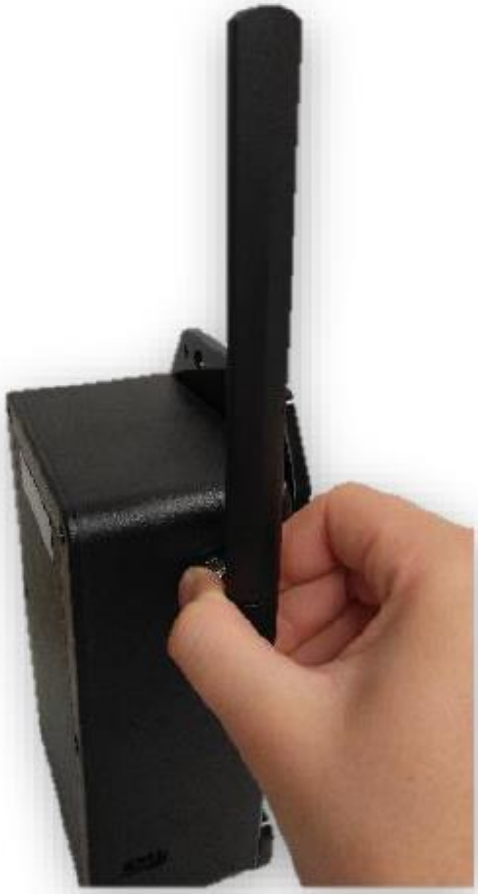
To untighten the antenna, hold the locking nut and antenna and twist in an anti-clockwise direction.



Once the antenna moves freely let go of the locking nut and rotate the antenna to the location that you want it.

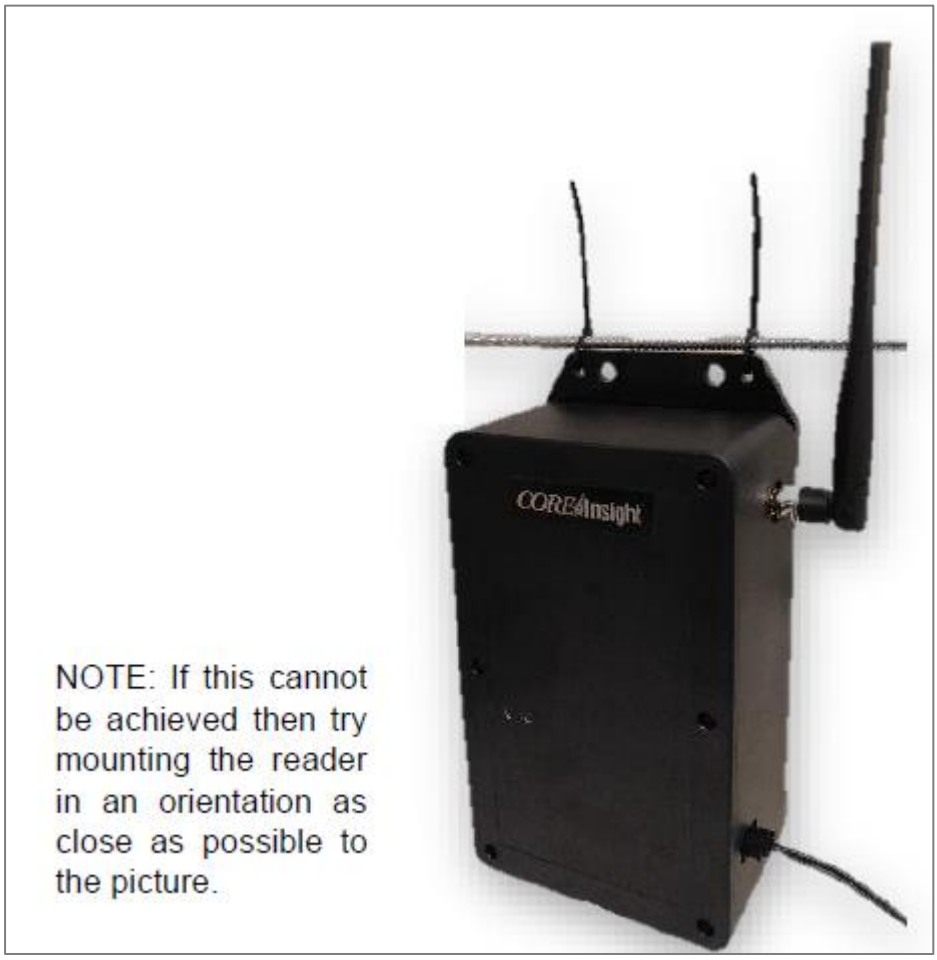


To fully tighten, move the antenna slightly anti-clockwise. Tighten the locking nut back up. Then holding the locking nut and antenna, rotate clockwise.



The locking nut should go tight and the antenna will lock in the location desired. **DO NOT OVER TIGHTEN!**

Optimal hanging mount:



Optimal sitting mount: