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WebENTRA R500 Series SE Mobile Reader User Manual

Document History

Description
Aug 2022 1st Release

Federal Communication Commission Interference Statement

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 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.

FCC Caution: To assure continued compliance, any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment. (Example - use only shielded interface cables when connecting to computer or peripheral devices).

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.

Foreword

This manual is for R500 Series SE Mobile Reader. It contains all technical information pertaining to the installation of this reader to the access control system: wiring requirement, connection to devices and reader settings.

ASIS Technologies reserve the right to change product design at any time for product improvement. Information in this manual is subjected to change without further notice.

ASIS Technologies make all efforts to ensure this Manual is up to date and corresponds to the product being shipped. However, ASIS Technologies assumes no responsibility for any errors that may occur in this manual.

For enquiries and support in installing the R500 Series SE Mobile Readers, please contact ASIS Technologies or any representative in your region.

Limited Warranty

ASIS Technologies warrants its products to be defect free in material and workmanship when they have been installed in accordance with the manufacturer's instructions.

The warranty will not apply if the product is tampered with or misused, unauthorized modification and improper maintenance. Consumables items, such as batteries, have no warranty.

ASIS Technologies does not assume any responsibility for damage or injury to person or property due to improper care, storage handling, abuse, misuse, normal wear and tear, or an act of God.

The product warranty shall expire one (1) year after shipping date. Except as stated above, ASIS Technologies makes no other warranty or condition, whether written or oral, expressed or implied, as to any matter whatsoever, including their merchantability, or fitness for any particular application.

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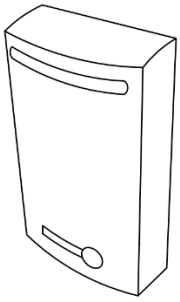
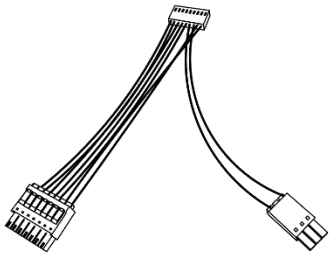
1. Packaging List

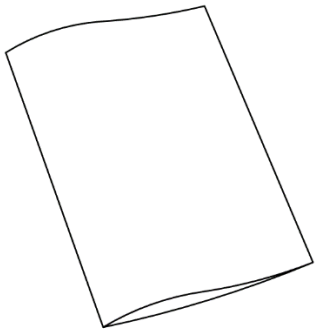


Reader x1

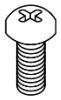
(Appearance may differ based on model)



Cable x1



User Manual x1



Screw x1

2. R500 Series BLE NFC Reader Overview

The R500 Series BLE NFC Reader is a new generation BLE NFC reader. The R500 Series BLE NFC reader can read a wide range of contactless smart card covering single size UID card to double size UID card. Card ID data can be output via industry standard Wiegand, OSDP or ASIS Proprietary ADNET. Three models are available to cater for various modes of security and operation needs.

Model	Form Factor	Keypad	Bluetooth	NFC	SAM Support	Ethernet Support
R502	Mullion	No	Yes	20-40mm	No	No
R512	Wall switch	No	Yes	20-80mm	No	No
R513	Wall switch	No	Yes	20-80mm	Yes	No
R512K	Wall switch	Yes	Yes	20-80mm	No	No
R513K	Wall switch	Yes	Yes	20-80mm	Yes	No
R514K	Wall switch	Yes	Yes	20-80mm	Yes	Yes

Table 1 Model Components

3. Reader Wiring and Color Code

Table 2 show Cable color of the reader and it function description

Terminal Point Label	Description	Cable Color
Dev+	RS485+	Blue
Dev-	RS485-	Grey
+V	+12VDC	Red
GND	DC Ground	Black
D0	Wiegand Data 0	White
D1	Wiegand Data 1	Green
ERL	Red LED	Brown
OKL	Green LED	Orange
BUZ	Buzzer	Yellow

Table 2 Wiring and Cable Color code

4. DIP Switch Setting

R500 series reader has 8 way DIP switch with function as show in below table.

Bit	Label	Function in RS485	Function in Wiegand
1	A0	Address bit 0 (refer table 4)	Card format setting (refer table 5)
2	A1	Address bit 1 (refer table 4)	Card format setting (refer table 5)
3	A2	Address bit 2 (refer table 4)	Card format setting (refer table 5)
4	A3	Address bit 3 (refer table 4)	Card format setting (refer table 5)
5	Mode RS485/ Wiegand	OFF – Wiegand, ON – RS485	
6	8/4 Byte	OFF – 8 byte, ON – 4 byte	
7	CSN/CAN	OFF – CSN, ON – CAN	
8	TST	OFF – Run, ON - Testing	

Note: Bit 7 CAN refer to Card Application Number found on Ez-Link card.

Table 3 DIP Switch function explain

Reader Zone	Hex Address	Bit 1	Bit 2	Bit 3	Bit 4
		A	A1	A2	A3
1	80	0	0	0	0
2	81	1	0	0	0
3	82	0	1	0	0
4	83	1	1	0	0
5	84	0	0	1	0
6	85	1	0	1	0
7	86	0	1	1	0
8	87	1	1	1	0
9	88	0	0	0	1
10	89	1	0	0	1
11	8A	0	1	0	1
12	8B	1	1	0	1
13	8C	0	0	1	1
14	8D	1	0	1	1
15	8E	0	1	1	1
16	8F	1	1	1	1

Table 4 RS485 Readers Address DIP Switch Setting

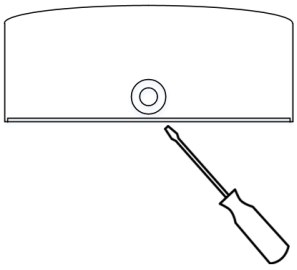
Bit Format	Bit 1	Bit 2	Bit 3	Bit 4
	A0	A1	A2	A3
26bit	off	off	off	off
32bit	on	off	off	off
32bit(8bit)	off	on	off	off
34bit	on	on	off	off
37bit	off	off	on	off
37bit(8digit)	on	off	on	off
40bit	off	on	on	off
40bit(8digit)	on	on	on	off
56bit	off	off	off	on
64bit	on	off	off	on
80bit	off	on	off	on
168bit(ASIS)	on	on	on	on

Table 5 Wiegand bit format DIP Switch setting

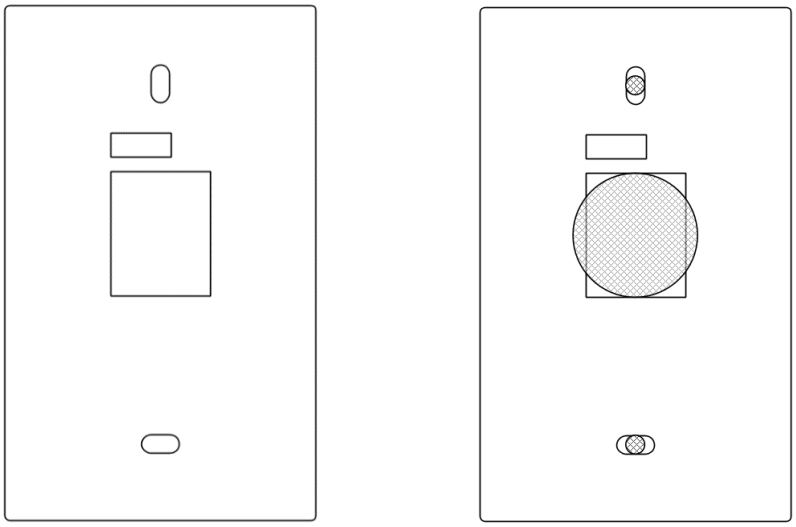
Note: Since the Contactless Smartcard CSN is 32 bit, it can be up to 10 digits decimal when converted. This is the solution to truncate the CSN and provide a result that once converted, it only give maximum of 8-digit decimal. The 37 bit odd and even priority bit is a result of getting the first and second half of total bit length.

5. Installation and Mounting Instruction

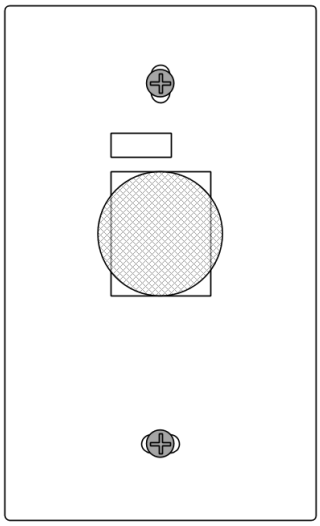
a) Identify the reader mounting location. The reader may install onto any surface, including metal.
b) Unscrew the bottom screw and remove the snap on back cover.



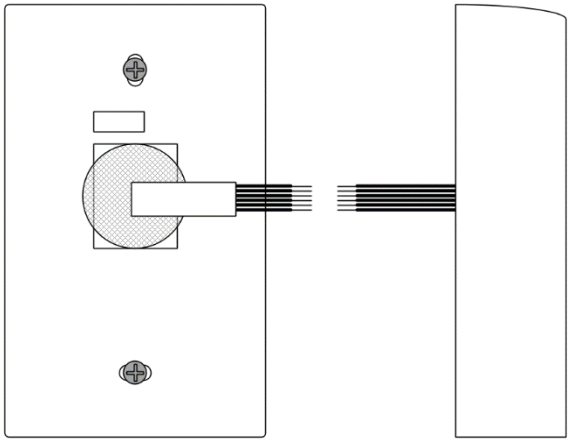
c) Use the back cover of the reader as a template, draw the mounting hole position onto the mounting surface. Drill 2 appropriate holes to install the reader. Drill a 25mm hole for the cable.



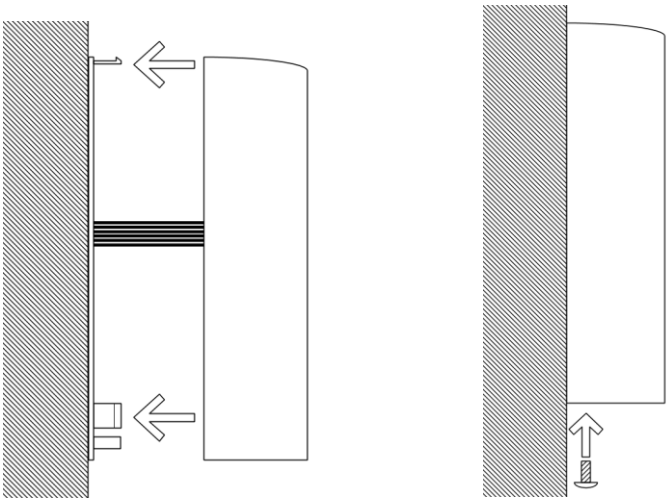
d) Mount the back cover on the wall using 2 screws.



e) Connect the external (site) cable to the terminal block on the reader according to the wiring code below. Double-check the wiring connection.



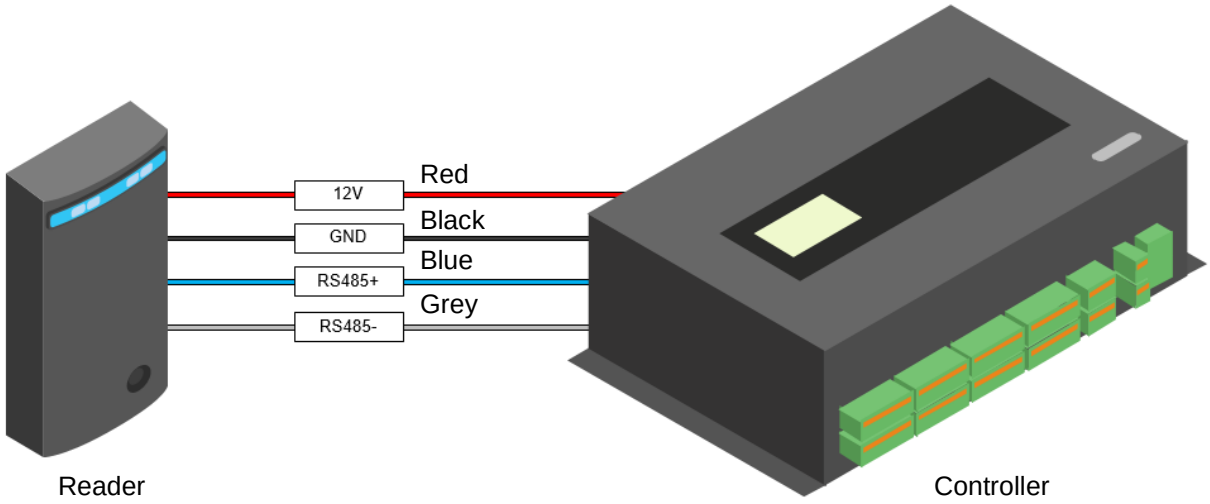
f) Replace the snap on cover and tighten it with the screw provided.



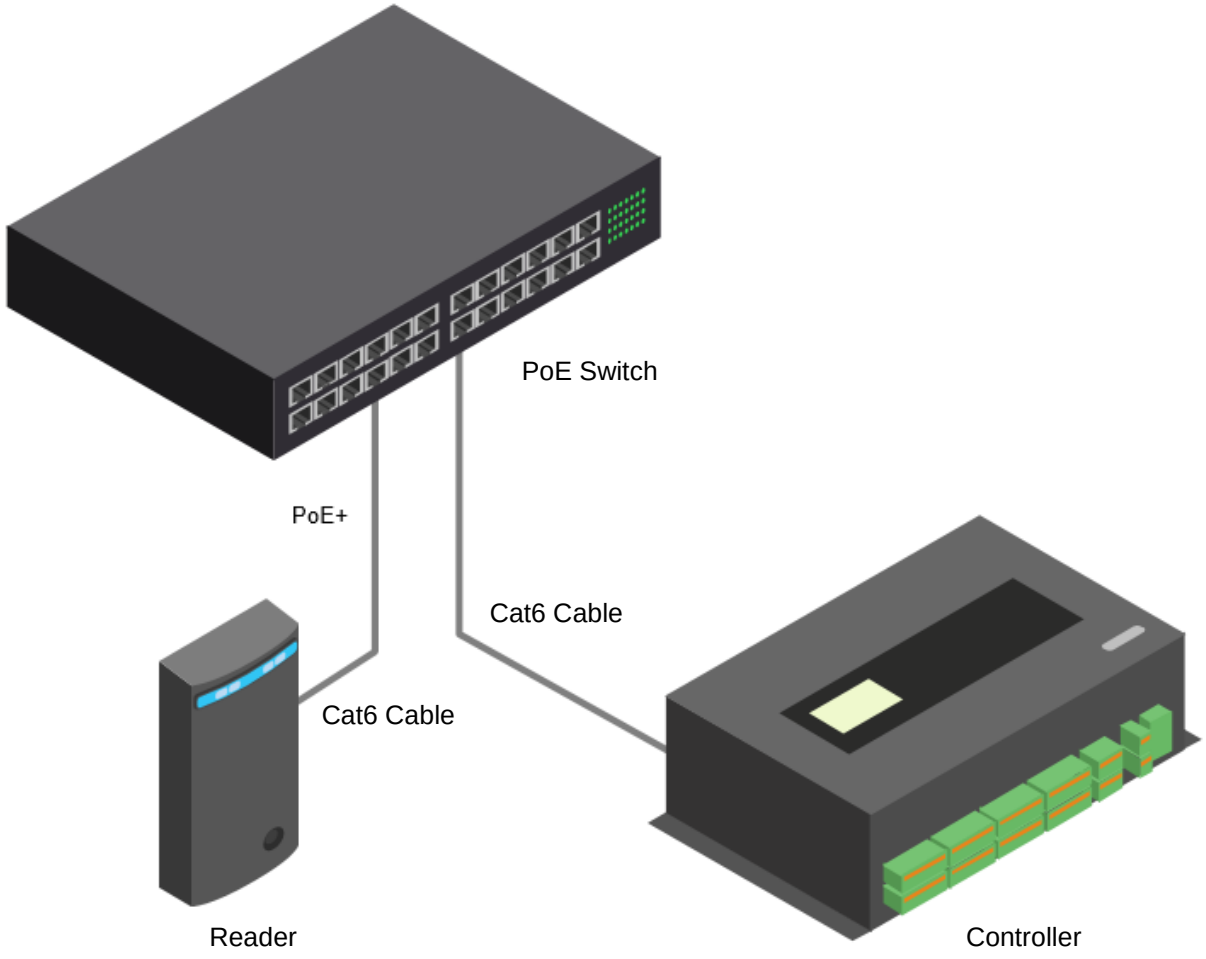
g) Switch on the power to test the reader and observe.

6. Reader Connectivity to Controller

RS485



Ethernet



7. Operation Guide

The R500 Series BLE NFC Reader can be used with NFC and BLE via following operations;

a) NFC

The NFC* mode supports highly secure and intentional operation with the use of contactless smartcards and mobile phones. Typical range of operation is 5cm.

i. Access using NFC card without PIN

Bring the card in parallel to the R500 reader for a maximum read range. The Reader will read Card for door access function.

ii. Access using NFC card with PIN

Bring the card in parallel to the R500 reader for a maximum read range. The Reader will read Card, reader LED blink red and blue to prompt user for pin. Enter PIN on the pinpad with each digit in sequence and press the # key. LED will turn Green.

b) Vicinity

The vicinity mode gives users the convenience to unlock a nearby door or barrier from their mobile device by selecting from a list of connected mobile readers. Typical operating range is 5m**. This mode of access require GoENTRA app installed on mobile phone (require subscription license).

Launch GoENTRA app on mobile device. If the reader is enabled with Bluetooth and in range, GoENTRA app will show the reader name on the list. Select the desired reader to unlock the door. Door will be unlock if access is authorized by controller or IBSSgo Cloud*** Software.

c) Wave / Auto Wave

The wave mode allows users to establish a secure connection between a mobile device and nearby reader with a simple wave. Ideal for busy executives. Typical operating range is 50cm**.

GoENTRA app on mobile phone must be run in the background for this mode to work. Walk toward the reader on the wall, wave hand on the reader light sensor. If the phone is in range, the reader will connect with the user phone thru BLE for authentication. Once authenticated, door will unlock if access is authorized by controller or IBSSgo Cloud*** Software.

** NFC require phone with NFC capability.*

*** BLE range may differ for every phone model or brand.*

**** Access via IBSSgo Cloud software require mobile phone with internet connection.*

8. Reader Transaction Indicator (R500)

Access Grant	Speaker Tone	9 LED Fan out from centre in Green
Access Denied	Speaker Tone	9 LED Blink 3 times
Access Invalid	Speaker Tone	Red LED Blink once
Door Open Too Long	Speaker Tone	Red LED fan in blinking
Door Force Open	Speaker Tone	Red accelerate right to left
Free Access	Silent	Green LED ON
Door Locked	Silent	Red LED ON

Fire Activated	Speaker Tone	Red LED wipe motion left and right
Box Tamper	Speaker Tone	Red LED Blinking
Pin Mode	Speaker Tone	Red LED switch to Blue LED
Pre-Alarm	Speaker Tone	Green LED dim and fan out

9. Radio Frequency Interference

Devices generate RF noise that may interfere with the reception of the signal from the access card. This will result in the reduction of read range. Examples of devices are radios, televisions, and cellular phones. The read range is affected by the amount of interference (noise) in the area. The reader should mount more than 1.5m away from the any devices that emits RF that may interfere with the signal received from the access control cards.

10. Product Specification

Item	Specification
Power Supply (Recommend)	Regulated linear power supply, +12VDC, 300mA
Operating Voltage Range	+9VDC - + 24VDC
Operating Current at +12VDC	85mA (average) – 185mA (peak)
Maximum Cable Distance	150meters (500feet) (based on Belden 9538 24AWG 0.6mm, 8 core cable foilshield) (for wiegand interface) (based on Belden 9534 24AWG 0.6mm, 4 core cable foilshield) (for RS485 interface)
Read Range	≤ 40mm (R502), ≤ 80mm (R51X) *Note: depending on local installation conditions*
Transmit Frequency	13.56MHz
BLE	5.0 2.4Ghz
LED	9pcs RGB LED
Light sensor	Infrared
Speaker	Polyphonic
Operating temperature Range	-20˚C to 50˚C (-22˚F to 150˚F)
Wire Termination	9 conducting wire at length approx. 300mm
Reader Mode	Card Only, Card and PIN, Mobile Phone
PIN Input	1 – 6 Digits (R1XK)
Keypad	3 x 4 Keys (R51XK)
Communication Interface	RS485 or Wiegand (selectable)
Wiegand Interface Output Bit Format	26, 32, 37, 40, 56, 80, 168(ASIS) bits format and 8-digit 32, 37, 40 bits format
Support Card Type	MIFARE (ISO 14443-A, ISO 14443-B)
EZ-Link	Output CAN or CSN (selectable)
Colour	Black
Material	ABS
Weight	350 grams
Dimension (H x W x D)	115 x 50 x 25 mm (R502), 115 x 65 x 25 mm (R51X)