



## READER K-1-B and READER K-3-B – PROTOCOL READER

Readers are used as external readers for access controllers Populus V9. Access controller needs to be connected to the network switch with protocol readers connected to its RS485 line. Communication between the controller and the reader is RS485 and it is encrypted. The Reader can have 125kHz or 13.56MHz reading frequency. The device signals normal operation with flashing red and green LED.

### TECHNICAL DATA

READER B	
READER K-1-B reading frequency	125kHz
READER K-1-B reading distance	Up to 13cm
READER K-1-B current consumption	50mA
READER K-3-B reading frequency	13.56MHz
READER K-3-B reading distance	Up to 7cm
READER K-3-B current consumption	65mA
Dimensions (mm)	58x120x17 (WxHxD)
Protection	IP65
Communication	RS485
Operating voltage	From 9V to 14V DC
Operating temperature	From -20°C to 70°C
Cabel	Flat cable 20cm

### CONNECTION CABLE

Wire-Color	Description	Specification
1 – red	9-14V DC	Power supply
2 – gray	GND	Ground
3 – gray	CA	RS485 A line
4 – gray	CB	RS485 B line

### LED DIODES

Color	Description
Flashing red/green	Normal mode
Lit green	El. strike is unlocked
Lit red	Card has no rights

### Voltage drops and cable signal interferences

When you connect the reader, use cable with a diameter of at least 0.22mm<sup>2</sup>. If the cable length exceeds 25m, use one twisted pair of UTP cables for the positive (+) pole and one for the negative (-) pole. To achieve cable distances of over 200m, use one twisted pair (two wires) of UTP cable, for each data line. From each twisted pair, use one wire for the Reader's negative pole (connect them to the readers and controllers GND). In this way you create a shield over the data wires, which remove's interferences between them. Take into consideration that a 0.22mm<sup>2</sup> cable has a resistance of approximately 9 ohm per 100m. The power supply at the end of cable should be a minimum of 9V. If you are using el. strike, it is highly recommended that the voltage drop is calculated. At greater distances, a thicker cable of 0.5mm<sup>2</sup> or more should be used wherever possible. If the load is, for example, 0.5A (with el. strike) then, on the 0.22mm<sup>2</sup> cable voltage drop will be 4.5V at 100m. For the device with 60mA consumption, the voltage drop is 0.5V.

**For READER K-3-B to comply with EMC directives (CE), you have to put ferrite core on the cable as close to the reader as possible, making two turns!**

### Environment:

Device has IP65 protection, but you must assure good cable joints, protected against moisture, otherwise corrosion may damage the device. Damage in such cases is not covered by the warranty.

### Reading range:

The reader has a program algorithm that, at power start, sets parameters based on the installation environment, so as to ensure an optimal reading range. **DO NOT** install the reader directly on metal surfaces and/or cover it with a metal cover; it may stop working/reading. If you plan to test the controller and move it onto different surfaces, then you have to reset it (power off/on) on each surface. Reading distance depends on where the reader is installed. The presence of metal or interferences can significantly reduce reading distance. It is **not recommended** to install readers closer than **30cm** from each other in any direction. Otherwise, it may result in inaccurate readings or, indeed, in the device **not reading at all**.



### Installation of Reader K

Remove black plastic screw covers on the top and the bottom of the Reader. Install it to the wall with two supplied screws. Use diagonal holes - it enables a small correction of the position of the device (up, down, left, right). When the reader is installed, put the screw covers back on.

### Connection:

Access controller which is used with protocol readers must not be connected to common RS485 line. To ensure proper operation, the access controller must be connected to the network switch.

Protocol readers must be connected to:

- connector for reader connection (RDR1 ... - Power supply 12V, GND)
- connector for communication (RDR - RS485 line CA, CB)

### Usage:

In connection with the protocol readers the access controllers are used only with V9 communication protocol. When you are searching for the controller and readers in the Codeks Device Manager software, you must enable checkbox "V9 communication". In the Codeks AC or Codeks TA program you need to set for the communication line the function "Protocol - V9" under the "Options" tab.

Protocol readers have a default address 50 to 100. The address can be changed in Codeks Device Manager software to the address from 1 to 8 to improve transparency in the program Codeks. The choice of address number depends on the placement of the reader in the system. In the Codeks AC or Codeks TA software simply select the type (Protocol) and address of the reader individually for each reader.

## ORDERING CODES

**READER** [box]-[card]-[software]

Box:

**K**

Card:

**1** – reading frequency 125kHz (cards)

**3** – reading frequency 13.56MHz (cards)

Model:

**B** – Black line

**Software:** CODEKS (from v. 9.0.1.53)

CODEKS DEVICE MANAGER (from v. 9.6.)

Code	Description
<b>READER K-1-B</b>	125kHz Protocol reader in <b>K</b> box
<b>READER K-3-B</b>	13,56MHz Protocol reader in <b>K</b> box

## OTHER

Please read through our warranty and disclaimer statements.

Connection scheme and additional support for the use of this product can be found on:

<http://www.jantar.si/forum/en>

### CONTACT:

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