



NODER MD-R/W

Noder MIFARE/DESFire reader

Technical Documentation

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1. Protection

Read this instruction before installing this product. The manufacturer is not responsible for any malfunction or damage to the equipment resulting from failure to follow the instructions. Damage caused by incorrect installation, maintenance or operation is not covered by the warranty. Making any changes to the unit that are not authorized by the manufacturer or carrying out independent repairs will result in the loss of rights under the warranty. Installation should be carried out by a person with appropriate electrical authorization.

2. Warning

Electric device under voltage! Before performing any activities related to the power supply (connecting wires, installing the device, etc.), make sure that **this device is not connected to the power supply**. During installation, attention should be paid to the substrate on which the unit is to be mounted. A metal surface may interfere with the operation of the device, so it is recommended to use an additional sensor pad in this case. Installation should be carried out by a person with appropriate electrical authorization.

3. Device description

MD-R readers are devices operating at the frequency of 13.56MHz and very safe MIFARE DESFire standard, communicating with controller through the RS-485 protocol, secured with AES encryption with encapsulation which is a requirement that guarantees system security. Thanks to the use of protocol. RS-485 reader can be located up to 1000m from controller, thus allowing controllers to be mounted in the most appropriate place for architectural reasons, thus limiting the probability of sabotage acts. Readers are designed to work in indoors and outdoors (available as an option, when ordering, please specify for which application reader should be used).

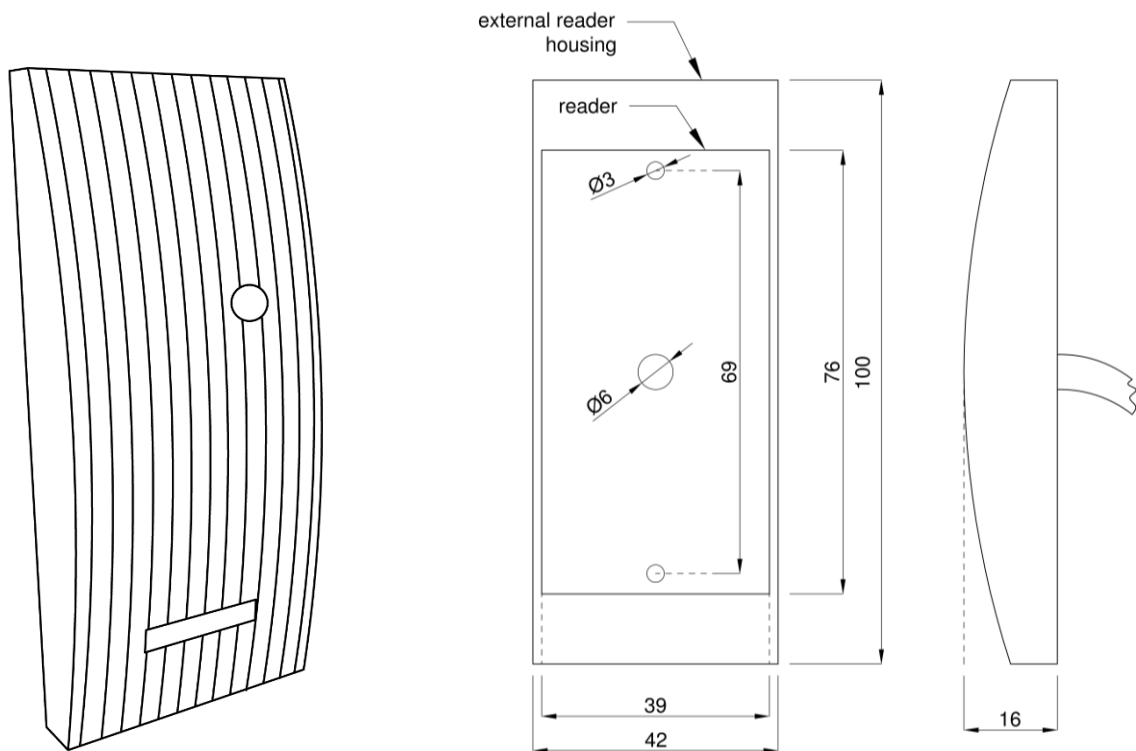
MD-W readers are devices operating at 13.56MHz frequency and a very safe MIFARE DESFire standard, communicating with controller via the Wiegand protocol. Wiegand protocol allows installation up to 150 m from controller. Readers are designed to work both indoors and outdoors (available as an option, when ordering, please specify for which application reader should be used).

Thanks to the MIFARE DESFire standard, the key loaded on readers is triple secured. For uploading key (and address in the case of MD-R readers), a set of programming cards is available for readers at the producer's. Cards and readers must have the same key loaded. In order to send a key / address to reader, it should be turned on (sending key and addressing is possible for 10 seconds after the power supply), and then addressing card should be applied.

MD-R readers are addressed with cards with addresses from 1 to 4. After applying the addressing card, the reader will be reprogrammed, then it will restart and signal with a green flash diode and sound its address by blinking one time for the first address, twice for the second, etc. the controller will not accept the address, it will be signaled by a blink of a red diode.

Reader with an already assigned address immediately after connecting to the power supply will always signal its address with sound and flash of the green diode. MD-W reader is programmed with card 1, key will be loaded and then it will be restarted. MD-W address readers are not suitable.

4. Device construction



Device consists of a printed circuit board with microprocessors, signaling diodes, antenna connectors, a beeper and a dedicated antenna. In the case of external assembly, it is possible to adapt reader to work in adverse weather conditions.

Printed circuit board is placed in a durable housing. Reader comes standard with a 40 cm connecting cable that extends centrally at the back of the device. Cable may have a different length on request.

5. Technical Specifications

| Characteristic | |
|------------------------------|---|
| COOPERATION WITH CONTROLLERS | Noder EWE4 Noder EE12 |
| COMMUNICATION INTERFACE | MD-R – RS-485 (AES-256 or own encryption) MD-W – Wiegand |

| Technical Specifications | |
|----------------------------|--|
| STANDARD | MIFARE / DESFire |
| WORKING TYPE | Reading only |
| FREQUENCY | 13,56 MHz |
| MAXIMUM READING RANGE | Up to 4cm |
| READER-CONTROLLER DISTANCE | MD-R – up to 1000m (without power) MR-W – up to 50m |
| DIODE | Two-color |
| LAUDSPEAKER | Built-in |
| KEYPAD | No |
| COLOUR | Black |
| SUPPLY VOLTAGE | 12V DC |
| ENERGY CONSUMPTION | approximately ~ 42 mA (max. ~ 75 mA) |
| DIMENSIONS | 41 x 98 x 16mm (1,61 x 3,86 x 0,63in) |
| WEIGHT | 85g (0,19lb) |
| WORKING TEMPERATURE | -40 °C - +65 °C |
| STORAGE TEMPERATURE | -50 °C - +80 °C |
| AMBIENT RELATIVE HUMIDITY | <80% |
| INGRESS PROTECTION | IP51 (can be order IP65) |
| NORMS | CE |

6. Connection to controller

MD-R readers are equipped with a four-wire connection cable. You can connect them to EE12 and EWE4 controllers. Cables colors:

- white – GND
- yellow – A+
- green – B-
- brown – +12V

MD-W readers are equipped with a seven-wire cable. You can connect them to EWE4 controllers. Cables colors:

- red – +12V
- blue – beeper
- green – Wiegand D0
- white – Wiegand D1
- black – GND
- orange – red LED
- brown – green LED

Connection methods can be found in the DTR documents - appropriate to the controllers