The background of the page features a city skyline at sunset, with buildings silhouetted against a warm, orange and yellow sky. The scene is partially obscured by large, overlapping red geometric shapes: a large triangle on the left and a diagonal band crossing the right side. The text is centered on the white space created by these shapes.

# NODER MD-R/W

Noder MIFARE/DESFire Controller

## Technical Documentation

## Protection

Before installing this device, read these instructions. Failure to follow the instructions may result in malfunction or even damage to the equipment. The manufacturer is not liable for damages caused by negligence. Entering any modifications to the device that are not authorized by the manufacturer or performing independent repairs results in the loss of rights resulting from the warranty.

## 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. The assembly should be made by person with appropriate electrical qualifications.

## 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.

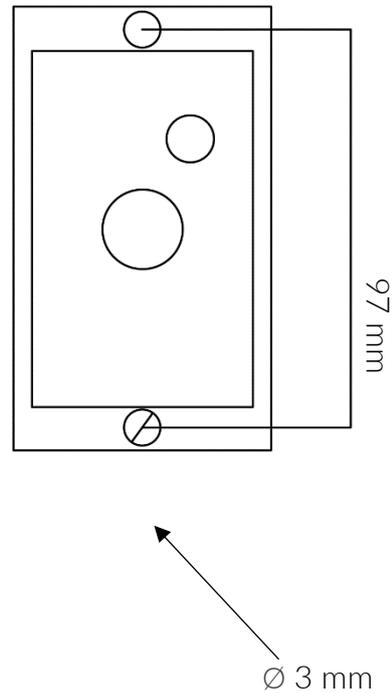
Reader with an already assigned address immediately after connecting to the power supply will always signal its address with sound and flash of the green diode. MD-W reader is programmed with card 1, key will be loaded and then it will be restarted. MD-W address readers are not suitable.

## Device construction

Cover



Plate and mounting holes



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.

## Characteristic

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

## Technical specifications

STANDARD	MIFARE DESFire
WORKING TYPE	Only reading
FREQUENCY	13,65 MHz
MAXIMUM READING RANGE	Up to 4 cm
READER-CONTROLLER DISTANCE	MD-R - up to 1000 m (without power) MD-W - up to 50 m
DIODE	two-color
LOUDSPEAKER	built-in
KEYBOARD	no
ACCELEROMETER	built-in
TAMPER	built-in (optical)
TEMPERATURE SENSOR	built-in
SUPPLY VOLTAGE	12 VDC
ENERGY CONSUMPTION	typically ~85 mA (max. ~105 mA)
DIMENSIONS	41 x 98 x 16 mm (1,61 x 3,86 x 0,63 in)
WEIGHT	85 g (0,19 lb)
WORKING TEMPERATURE	-40°C - +65°C
STORAGE TEMPERATURE	-50°C - + 80°C
AMBIENT RELATIVE HUMIDITY	<80%
INGRESS PROTECTION	IP65
NORMS	CE

## 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 are include in DTR - suitable for controllers