

## 1W-H3-05 (K)\* M12

RFID reader | 125 kHz | UNIQUE | HID | HITAG 1,2,S

### User Manual



*\* Letter K refers to a reader with a common cathode.*

#### **Before use...**

*Please do not open the reader and do not make any changes. This results in loss of warranty.*

*In case of any questions please contact with us. We certainly answer to all questions and solve possible problems.*

*Please carefully read the following information before connecting the reader.*

*Please contact with us before sending damaged products.*

*We offer possibility to change input voltage range, cable length and terminate it with a plug. Before make an order please contact with us to determine the details.*

*Please keep in mind, that there are factors as metal surfaces, which can affect on radio communication and correct reader operation. It is advisable to consult the mounting conditions before use with our staff.*

The RFID reader **1W-H3-05 (K) M12** reads identification data wireless of passive transponders (cards, tags, etc.) compatible with UNIQUE, HID, HITAG 1,2,S standard.

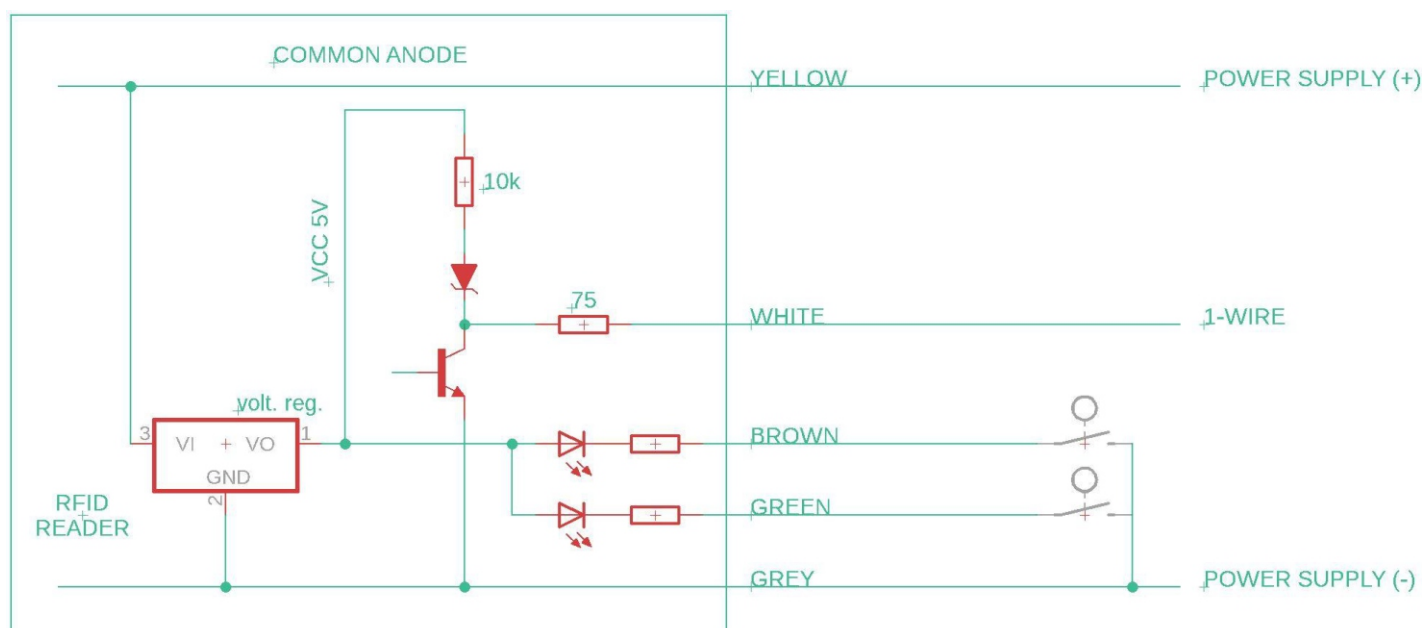
The built-in two-color LED for any use. The red LED cannot be used to indicate failure or danger.

LEDs are powered by internal voltage regulator via built-in resistor. The light is on when the appropriate LED is connected to the minus of power supply.

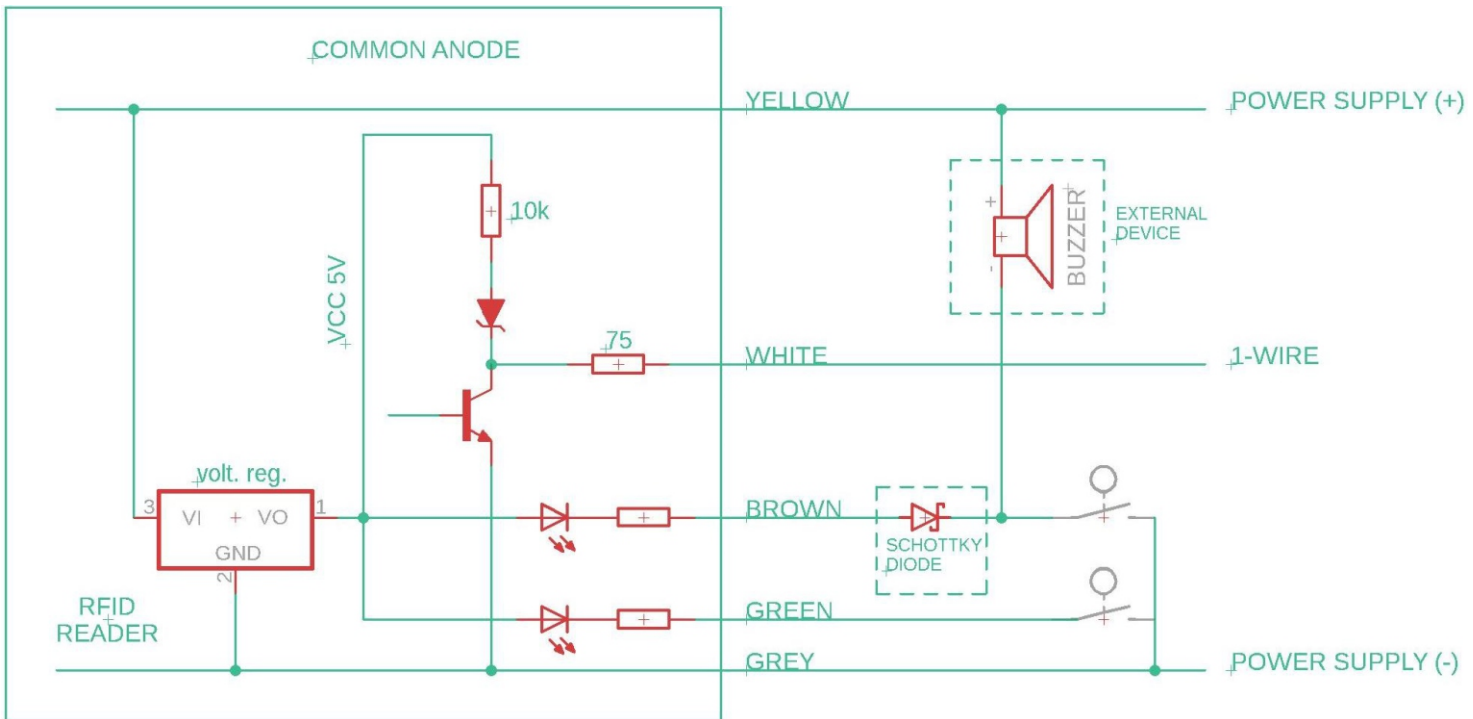
- |               |   |                  |                                 |
|---------------|---|------------------|---------------------------------|
| <b>Grey</b>   | - | power supply (-) |                                 |
| <b>Yellow</b> | - | power supply (+) |                                 |
| <b>Green</b>  | - | green LED        | cathode (anode for „K” version) |
| <b>Brown</b>  | - | red LED          | cathode (anode for „K” version) |
| <b>White</b>  | - | 1-Wire           |                                 |

The reader should be connected according to the scheme "A". In case of necessity of simultaneous control of LED and other devices (e.g. Buzzer) connect the reader according to the scheme "B":

SCHEME A



SCHEME B



**For product with common cathode:** LED connected in series with a resistor 330R has a cathode connected to the negative power supply. LED is activated when is connected to plus of power supply. To connect more than 5V, it is advised to use external resistor to avoid exceeding the maximum LED current. Minimum value of resistor can be calculated from the formula:

$$R_x = \frac{(U_s - U_{LED})}{I_d} - 330\Omega$$

where:

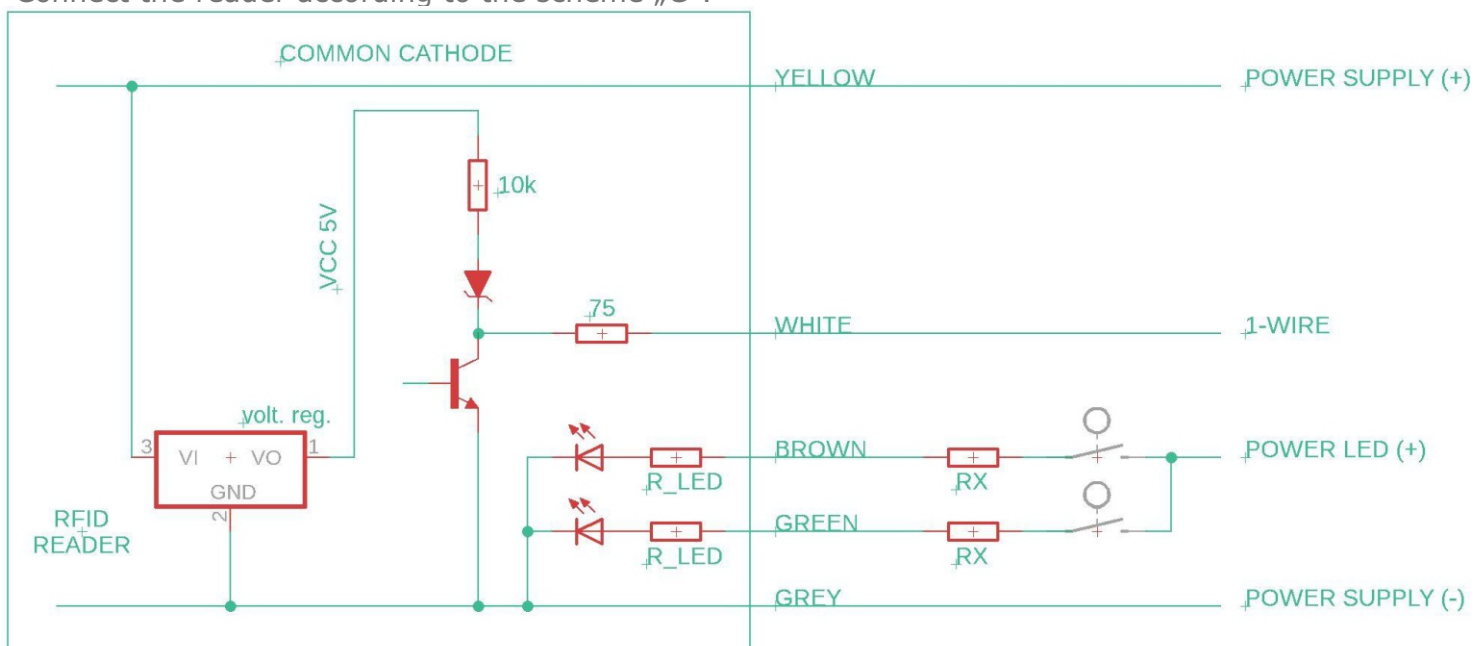
$R_x$  – External resistor

$U_s$  – Power supply voltage of LED

$I_d$  – LED current (max. 10mA)

SCHEME C

Connect the reader according to the scheme „C”.



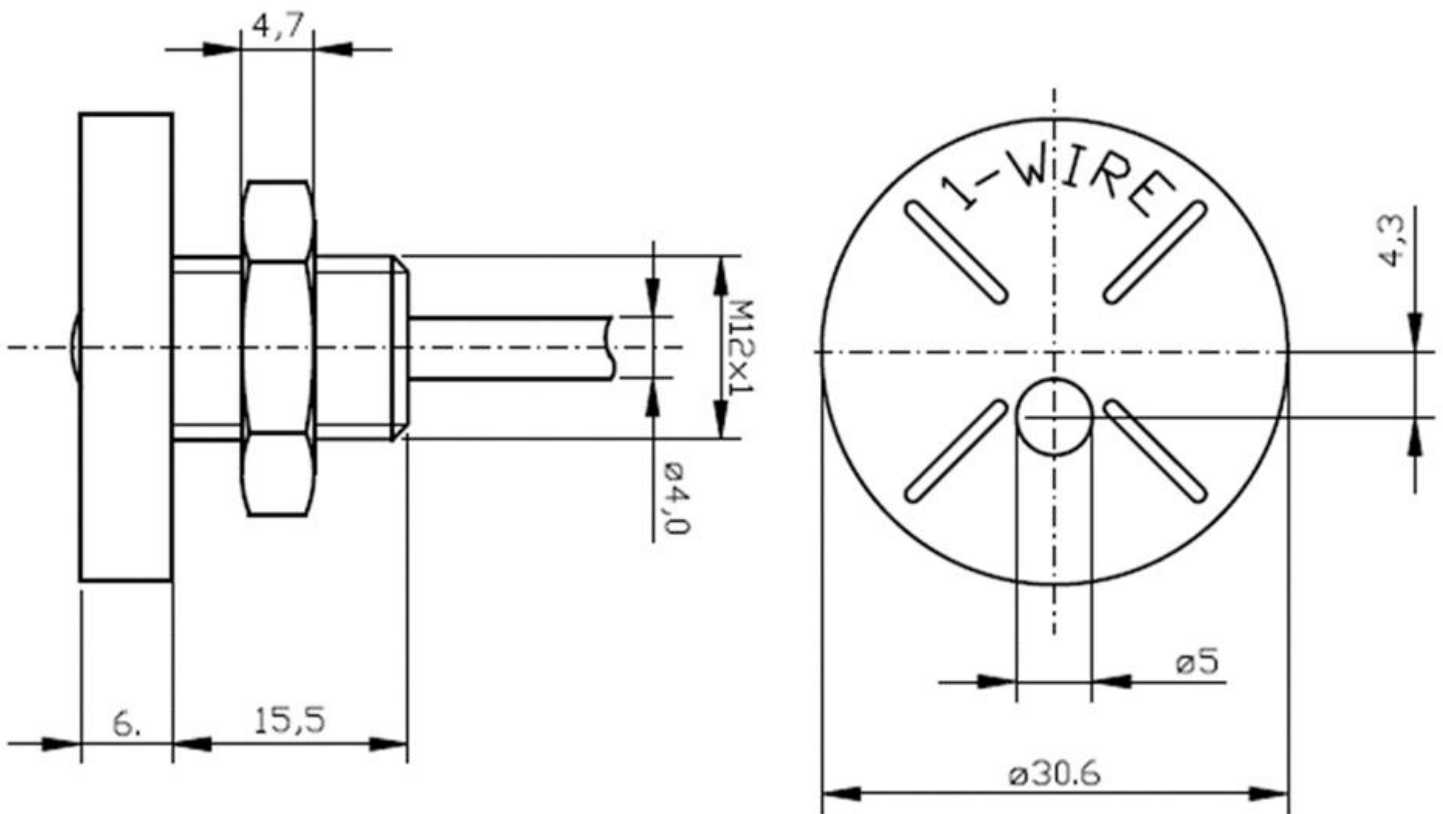
**DS1990A emulation**

After reading the card, the collected data is sent via the 1-Wire interface, emulating MAXIM's DS1990A ID. The first byte is Family Code 0x01, the next 6 bytes to the UID code of the read card are sent from the least significant UID bytes. If the UID is shorter than 6 bytes, the most significant bytes are padded with zeros. The last byte is the CRC checksum of the previous 7 bytes. Each byte sent is sent starting from the least significant bit of the LSB.

Checksum	Card UID	code DS1990A
CRC	6 bytes	0x01
MSB		LSB

To read the UID of the token, bring the token closer to the RFID reader. Token UID readings are performed cyclically every 250 ms. After correct reading of the identifier, the DS1990A system from Maxim (Dallas) is emulated through the 1-Wire interface.

External dimensions



## Technical Data

<b>Power supply</b>	6,5-30 V DC
<b>Nominal power supply voltage</b>	12 V DC
<b>Power supply efficiency</b>	1 A
<b>Peak current</b>	50 mA
<b>Receiver current</b>	12 mA (without LED)
<b>Green LED current</b>	10 mA (for „K” version do not exceed 15 mA)
<b>Red LED current</b>	10 mA (for „K” version do not exceed 15 mA)
<b>Frequency</b>	125 kHz
<b>Type of transponder</b>	UNIQUE, HID, HITAG 1,2,S
<b>Surface of the antenna</b>	6,8 cm <sup>2</sup>
<b>Reading range</b>	~4 cm
<b>Frequency range of the reader</b>	119-140 kHz
<b>Nominal frequency of the reader</b>	125 kHz
<b>Reading frequency</b>	4/s
<b>Supported 1-Wire commands</b>	0x33 (0x0F) - Read ROM 0xF0 - Search ROM
<b>Mounting method</b>	M12 Thread – maximum substrate thickness 10,5 mm
<b>Cable length</b>	0,4 m
<b>The maximum length of power and signal connections</b>	2 m
<b>Reader temperature</b>	-20° C +55° C
<b>ROHS</b>	YES

It is possible to order products with a different LED configuration.

For a product with a common cathode LED configuration, please provide the product name:  
**1W-H3-05K M12**

It is possible to order products with other supply voltages.

For a product with a 5V DC power supply, please specify the product name when ordering:  
**1W-H3-05 M12 (5V) or 1W-H3-05K M12 (5V) (for Cathode configuration)**

## ICONTROL CONTACTS

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The symbol of crossed-through waste bin on wheels means that the product must be disposed of at a separate collection point. This also applies to the product and all accessories marked with this symbol. Products labeled as such must not be disposed of with normal household waste, but should be taken to a collection point for recycling electrical and electronic equipment. Recycling helps to reduce the consumption of raw materials, thus protecting the environment.