RS-H0-05 *(K)* M12*

RFID reader | 13.56 MHz | Mifare

Product Card

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

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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 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.*
- *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.*

General information

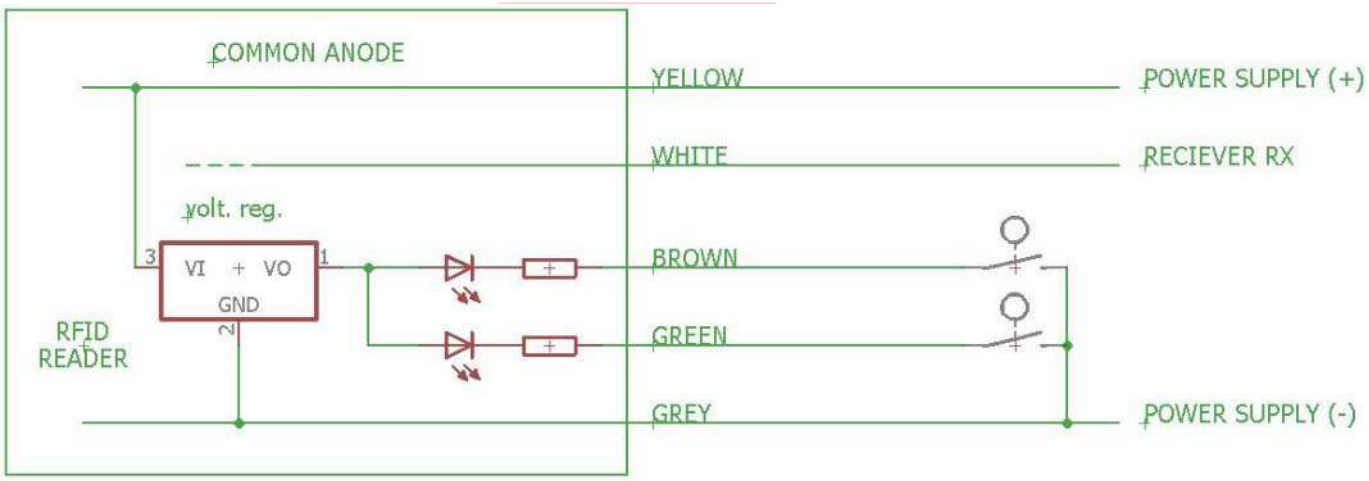
The RFID reader **RS-H0-05 (K) M12** reads identification data (UID) wireless of passive transponders (cards, tags, etc.) compatible with ISO/IEC14443-3-A (e.g. MIFARE cards). The built-in two-color LED for any use.

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.

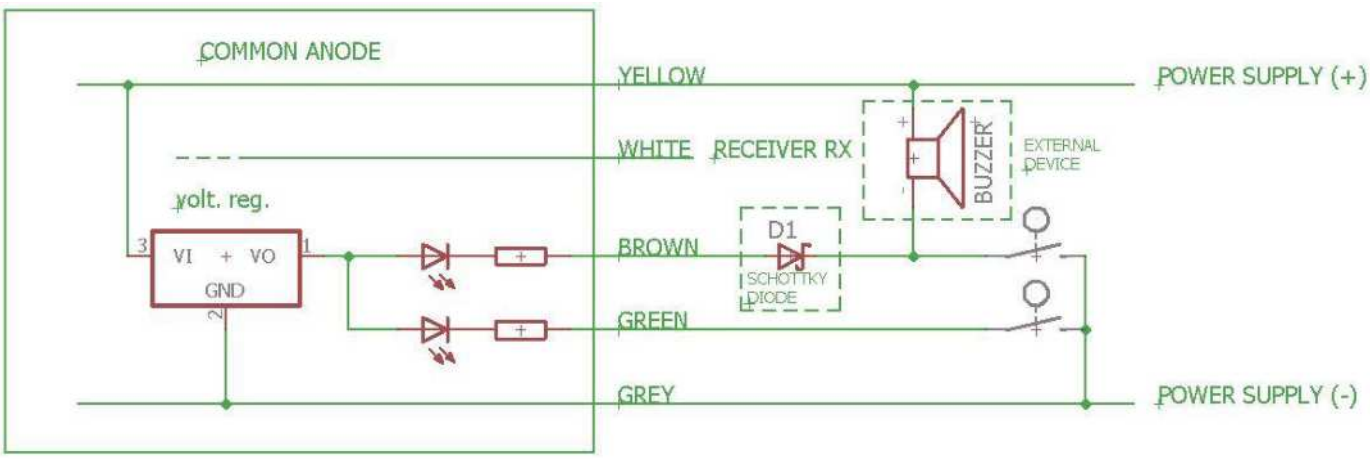
Grey	–	power supply (-)	
Yellow	–	power supply (+)	
Green	–	green LED	cathode (anode for „K" version)
Brown	–	red LED	cathode (anode for „K" version)
White	–	TX	

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



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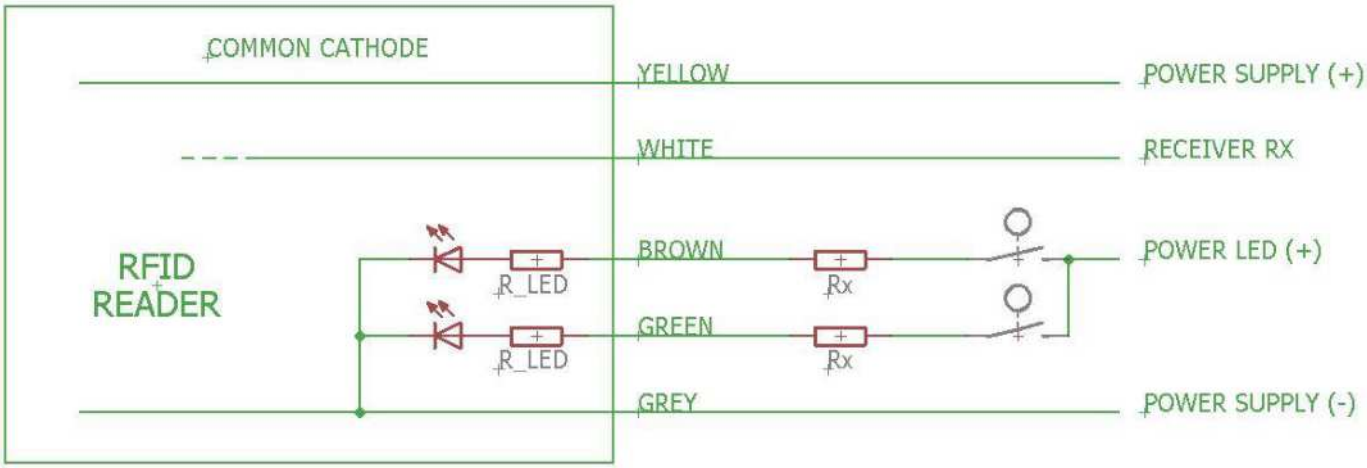
For product with common cathode: LED connected in series with a resistor 220R has a cathode connected to the negative power supply. LED is activated when is connected to plus of power supply. To connect more than 5V, it is advised to use external resistor to avoid exceeding the maximum LED current. Minimum value of resistor can be calculated from the formula:

$$R_x = \frac{(Us-1.6V)}{Id} - 220\Omega$$

where:
R_x – External resistor Us – Power supply voltage of LED Id – LED current (max. 10mA)

Connect the reader according to the scheme „C”:

SCHEME C



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Data format

The read data are sent as ASCII string via RS-232 TTL open collector. For transponder UIDs of 4 bytes, ASCII string of 12 sings is sent. While, for UIDs of 7 or 10 bytes, string of 18 or 24 bytes is sent.

For example, for UID of 4 bytes, data is sent in following order:

START	UID[3]	UID[2...1]	UID[0]	checksum CRC	STOP
0x0A	2 ASCII signs MSB LSB	4 ASCII sings MSB LSB	2 ASCII sings MSB LSB	2 ASCII sings MSB LSB	0x0D

Byte START and byte STOP help us identify the string we are receiving. Checksum is calculated as the XOR function of data read from the transponder.

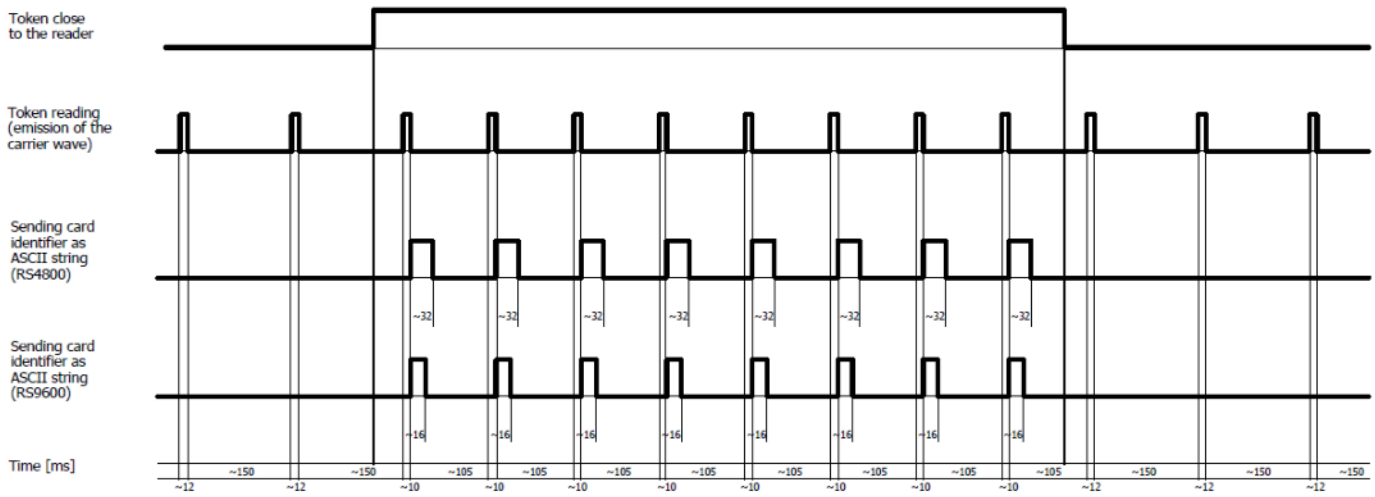
For example:

For card with UID = 5425E588h

CRC = (54h) XOR (25h) XOR (E5h) XOR (88H)=1Ch

The following string will be output:

0x0A, 0x35, 0x34, 0x32, 0x35, 0x45, 0x35, 0x38, 0x38, 0x31, 0x43, 0x0D

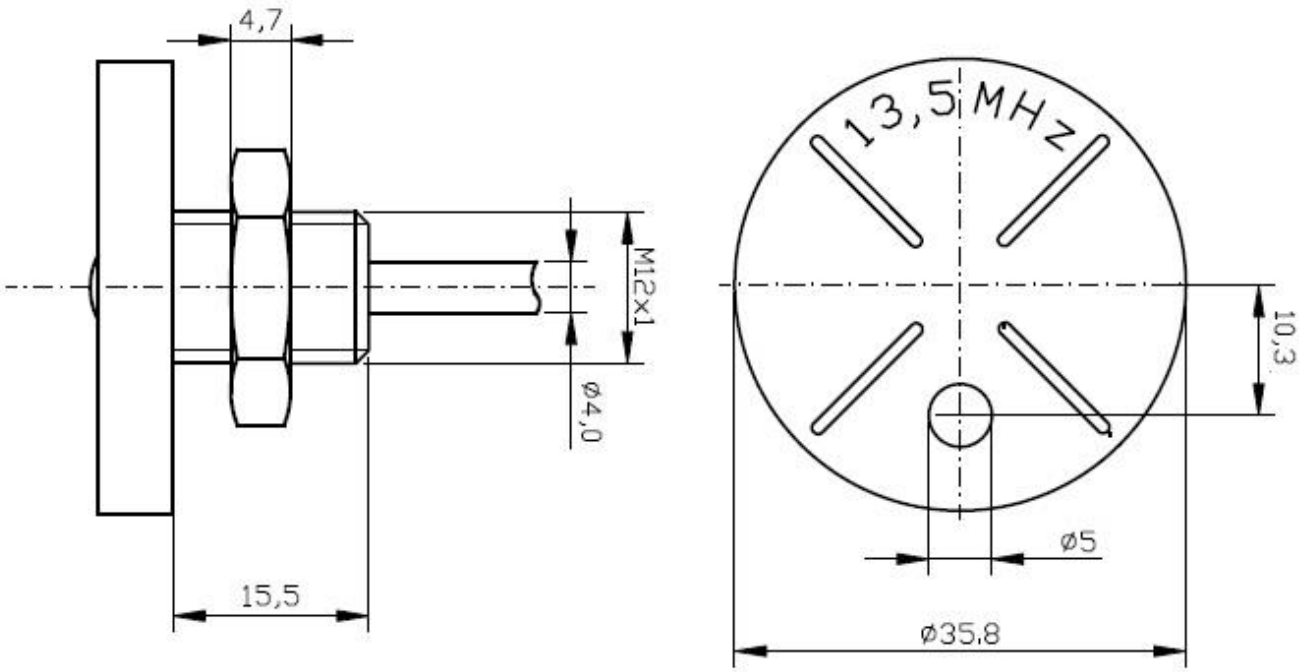


1. The reader is waiting for the proximity of the token (card) trying to read it at a frequency of about 6 times per second (~ 12 ms [checking the presence of the card] + ~ 150 ms [gap between successive checks]).

2. After the token is approached, its identifier is read (~ 10 ms) and it is sent as ASCII character strings, in subsequent sequences (~ 105 ms).

3. After dismiss the token, the reader returns to the original reading about 6 times per second, waiting for the token to be re-approached.

External dimensions



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Technical Data

Power supply	6,5-30 V DC (5-15V DC to order)
Nominal power supply voltage	12 V DC
Power supply efficiency	1 A
Peak current	60 mA
Average receiver current	15 mA (without LED)
Peak receiver current	45 mA
Green LED current	7 mA (for „K" version do not exceed 10 mA)
Red LED current	7 mA (for „K" version do not exceed 10 mA)
Frequency	13,56 MHz
Type of transponder	ISO/IEC14443-3-A
Surface of the antenna	8,6 cm^2
Reading range	~4cm
Reading frequency	6/s for identification 2/s when transponder is in range of the reader
RS232	TTL – open collector, active state 0, 4800 bps, 8 bits, without parity and 1 stop bit (8N1). Possibility of ordering 9600bps version.
Mounting method	M12 Thread
Cable length	0,4 m
Reader temperature	-20° C +55° C
ROHS	YES

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