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SALES SPECIFICATIONS LA-WIW-PROXKEY-M

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1. Contents

2. Purpose of this document

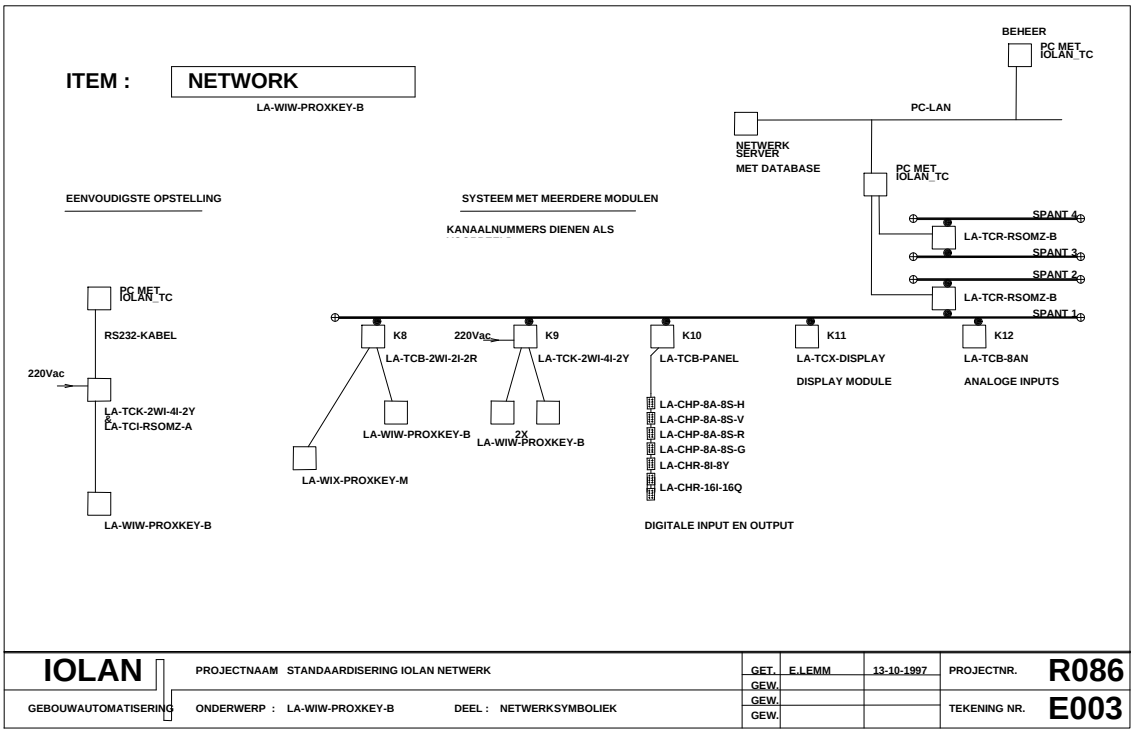
This document gives a full explanation of the possibilities of the LA-WIW-PROXKEY-M. This information can be used, for example, in sales documentation.

3. Description of the reader

The LA-WIW-PROXKEY-M is a ‘wallmount-module,’ a reader for MIFARE® tags. The module is designed for identification purposes. It uses a Wiegand data-interface to read a card number, or any other kind of data, and to send it to the connecting unit. There are three indicators: red, green and yellow. The yellow lamp blinks when the card is successfully read. A buzzer is available to give signals as programmed

4. Data and Relation with TC Network

The reader can be connected to a network as shown in this scheme:



5. Technical data

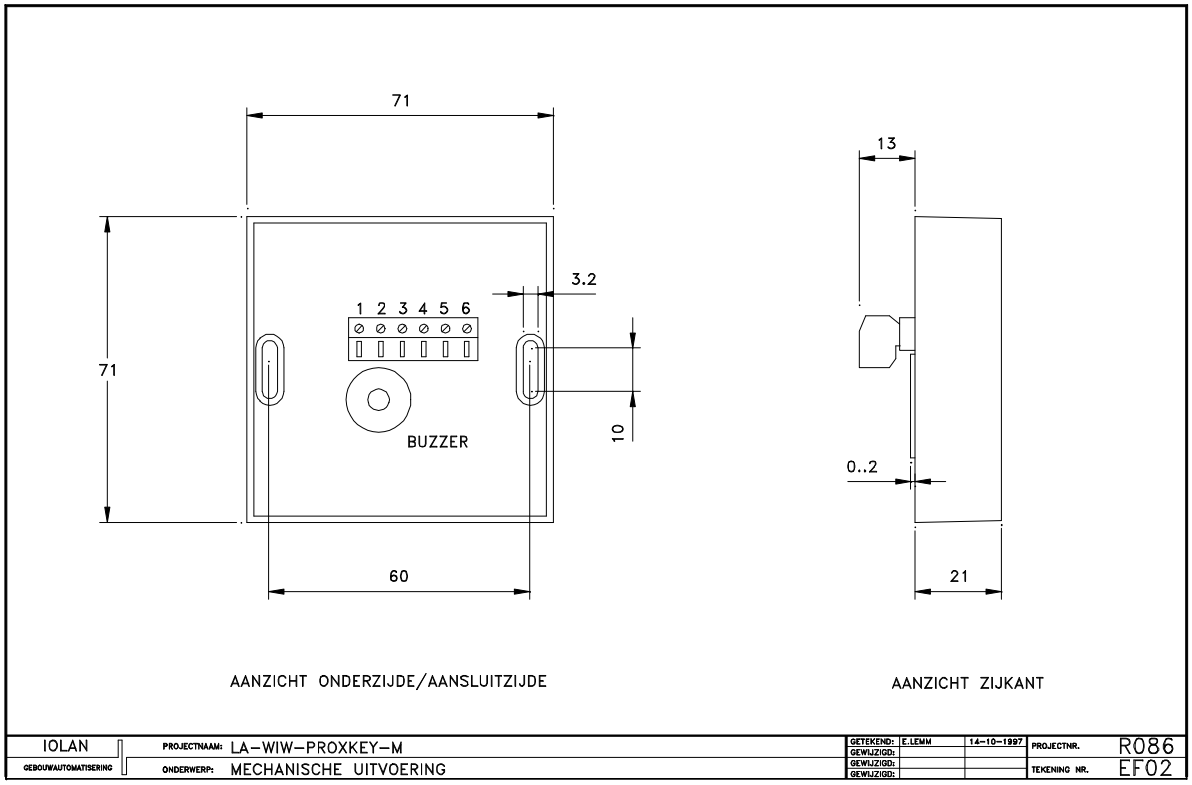
Input	
Input	• 5..0 Volt. The power input is included in the 6 pins connector. In cooperation with IOLAN-modules the power is supplied. • 50..80mA.
Technical data	
WI interface	• 6 pins connector with: • 2x power supply • 2x lamp switcher • 2x data. Wiegand 'clock-data' • Data structure according to ISO 7811/2-1986 TRACK 2
Reading distance	• 20mm typical, min 10mm max 30mm met transponder types : MF1-S50, MF1-P60 en MF1-L10
Operating frequency	• 13,56mhz.
Data-transport transmitting speed	• 106kBd
Security	• Data encrypted, protected against recording and 'replay-attack'.
Possibilities	
Transponders	• Can read from MIFARE® card types 1, 2, and 3. • Reader can hold one key (A or B) and one read location for transponder-identification. • Flexible transponder-code length.
Indicators	• Yellow LED-lamp and buzzer for successful reading action • Red LED-lamp and green LED-lamp for logistic matters. E.g.: red: no access; green: access allowed.
Mechanical aspects	
Material housing	• Typical W-housing • Black plastic housing, ABS plastic house. • Dimensions (without connectors; HxBxL mm) 21x71x71mm. See drawing R086EF02.
Connection to wall	• 2x 3mm opening on 60mm distance. See drawing R086EF02.
Cable connectors	• Max. diameter 1.5 mm^2 • Connectors 1x6 pins
Protection	• When connector-protected IP66.
Temperature	• Stock -10..70 ^{o} Celsius • Operating temp 0..50 ^{o} Celsius
Installation	
Connectors	• 6 pins. Thus maximum of 6 connecting wires
Mounting place	• When mounting, outside connector must be protected with lacquer, or the edges must be made watertight.
Ordering information	
Type	LA WIW Proxkey M
Order number	LA 0110 01

6. Parameters of the module

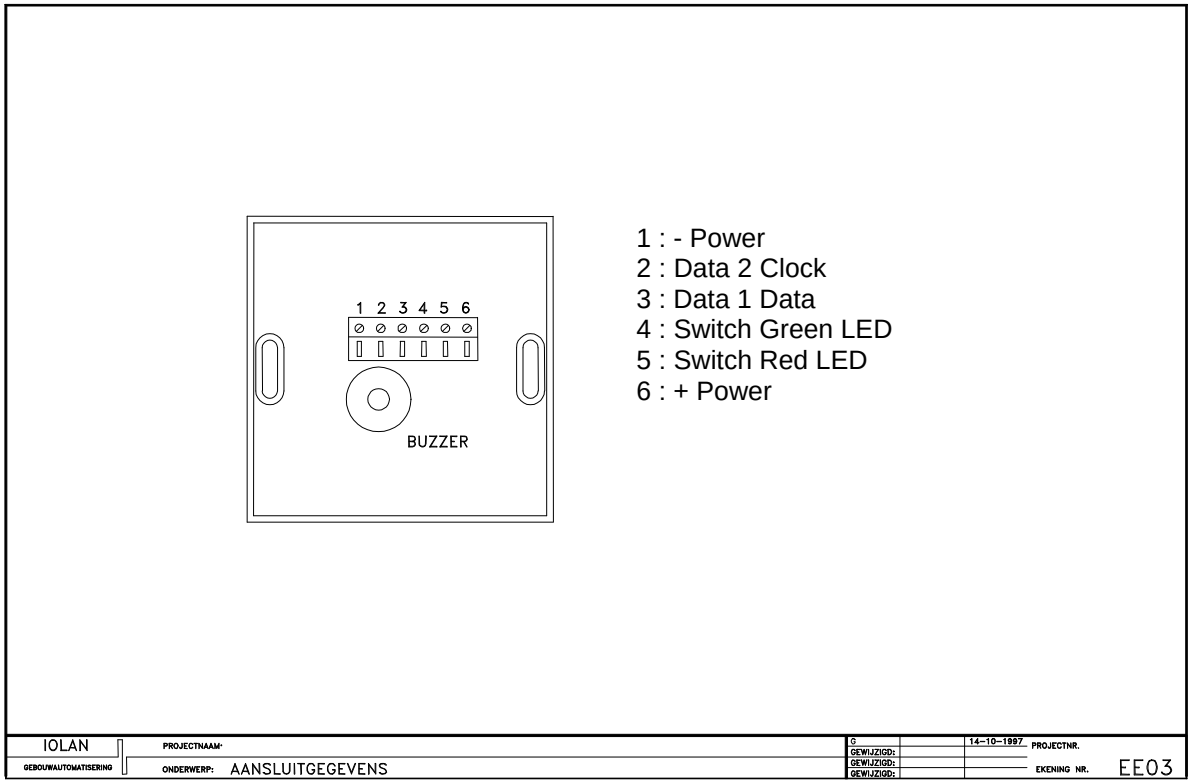
There are no switches on the module; however, according to the MIFARE® protocol the readers must be personalized. There is a procedure available which accomplishes this.

During this personalization-procedure, the key and pointers are downloaded. The key is necessary to gain access to an application on the transponder. The pointers determine where the information is located. The reader is constructed in such a way that downloaded keys can never be read from the reader; reading from the reader is physically impossible; encryption also negates this possibility.

7. Dimensions of the module:

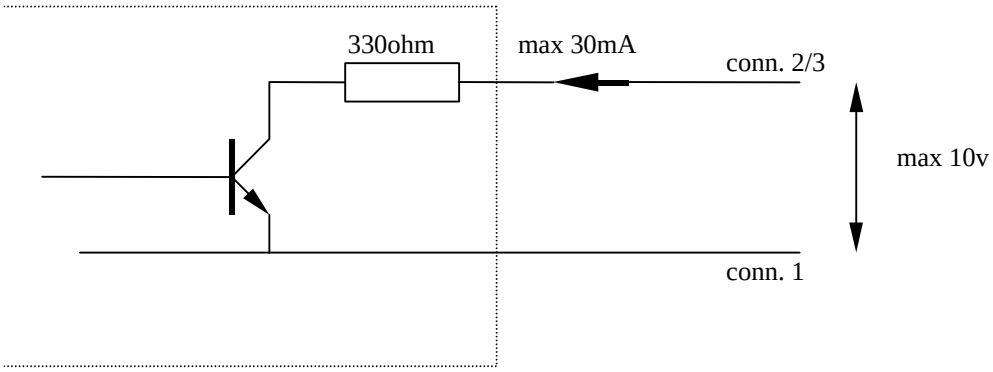


8. Connecting



9. The Wiegand Interface

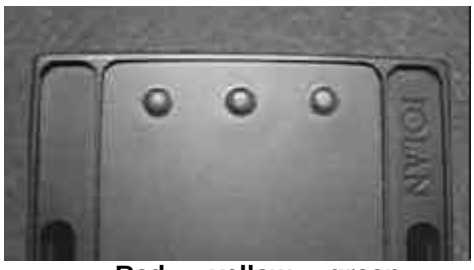
The data interface is a 'clock-data' interface. The following scheme shows the hardware of the lines:



- Connector 1, the negative is the reference for the data lines.
- The circuit is similar for clock and data.
- Maximum current through the transistor is 30mA
- The maximum open power is 10 volt. For ESD protection a zenerdiode (12V) is applied parallel over the emitter en collector.
- There is no pull-up resistance.

10. The LED interface

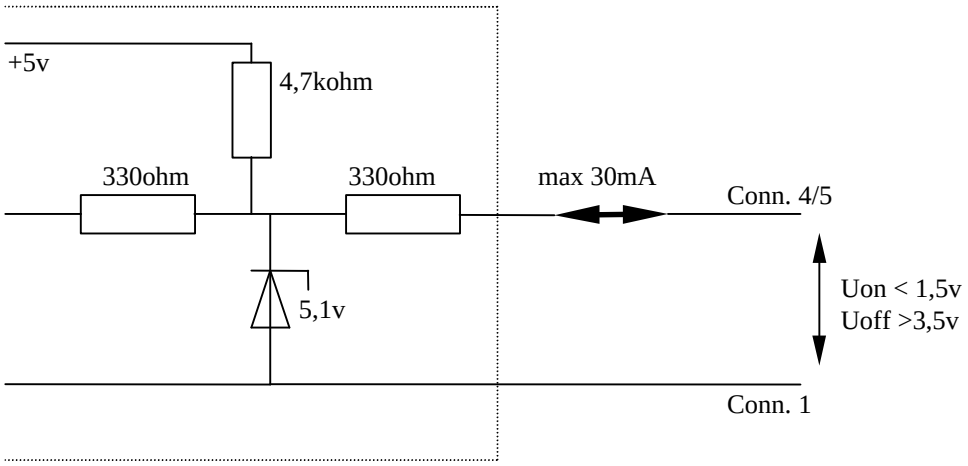
Two LED's are externally controlled, the red and the green LED. The yellow LED lights up when a card is being read.



Red yellow green

The controller can steer the LED's. Typical use is showing: red = no access, green = access. In case of using IOLAN modules the controller would be of type LA-TCK-2WI-4I-2Y.

The hardware from the two connections is shown in the next scheme:



The circuits for the green and red LED are similar. The maximum current is ±30mA. Typical use is pulling the dataline to 0 volt.

11. Wiegand protocol

This version of the IOLAN mifare readers sends out data according to the Wiegand protocol. Sending a string of digits with a maximum length of 16 is possible.

12. Character composition

Immediately after reading a card the reader sends out a string. This string is composed according to ISO 1711/2 track 2:

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ITEM : CHARACTER DEFINITION

* ALL CHARACTERS ACCORDING TO ISO 7811/2-1986 TRACK 2

* LIST :

TEXT IN DRAWINGS	DISCRIPTION	CHARACTER BITSTREAM * INCLUDING PARITY LSB MSB	PARITY
0	0 DIGIT	0 0 0 0	1
1	1 DIGIT	1 0 0 0	0
2	2 DIGIT	0 1 0 0	0
3	3 DIGIT	1 1 0 0	1
4	4 DIGIT	0 0 1 0	0
5	5 DIGIT	1 0 1 0	1
6	6 DIGIT	0 1 1 0	1
7	7 DIGIT	1 1 1 0	0
8	8 DIGIT	0 0 0 1	0
9	9 DIGIT	1 0 0 1	1
UNUSED	UNUSED CHARACTER	0 1 0 1	0
START	START SENTINEL	1 1 0 1	0
UNUSED	UNUSED CHARACTER	0 0 1 1	1
FIELD	FIELD SEPARATOR	1 0 1 1	0
UNUSED	UNUSED CHARACTER	0 1 1 1	0
STOP	END SENTINEL	1 1 1 1	1

* FIELD IS THE ABREVIATION FOR 'FIELD SEPARATOR'

* EXAMPLE: MESSAGE IS : TWO FIELDS : FIELD 1 = "12" FIELD 2 = "3"

00000000000000000 (EDGE) 11010 (START SENTINEL) 10000 <"1"> 01000 <"2"> 10110 (FIELD SEPARATOR) 11001 <"3"> 11111 01101 (END SENTINEL) 00000000000000000 (EDGE)

<START> <FIELD> <STOP><LRC>

IOLAN	PROJECTNAAM : STANDAARDISERING IOLAN NETWERK	GET.	E.LEMM	28-08-1995	PROJECTNR.	S041
		GEW.				
GEBOUWAUTOMATISERING	ONDERWERP : LA-IOB-PROXKEY DEEL : MAGSTRIPE INTERFACE DATA CHARACTER DEFINITION	GEW.			TEKENING NR.	E102
		GEW.				

The string forwarded by the LA-WIW-PROXKEY-M is default:

(edge) **<START> <D0> <D1> <D2> <D3> <D4> <D5> <D6> <D7> <D8> <D9> <END><LRC>** (edge)

- The length of the string is defined in the EEPROM and is variable. Standard the length is set to 10 digits.
- The LRC is the XOR of all data characters.
- The 'edge' is 2 characters long.
- There is no 'Card-load' signal.
- D0 ..D9 is the card identification - number.

13. Method of sending and timing

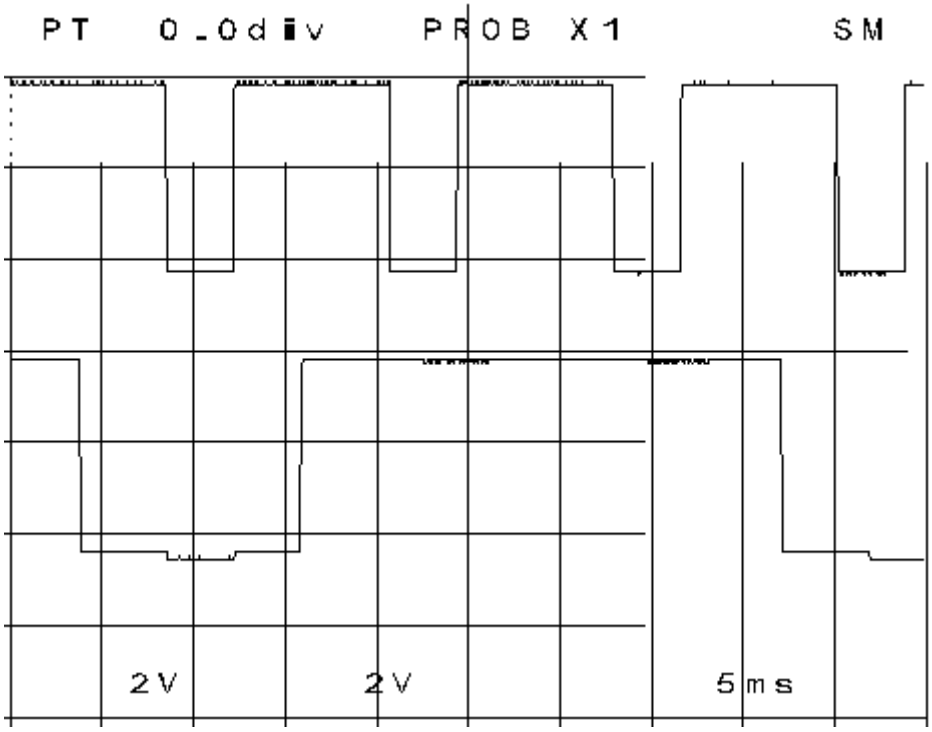
The to be transmitted data is split up into characters and they are send out one by one Each character gets its own paritybit. The string as a whole gets an extra parity-character. The character structure is explained later in this document.

A character consists of 5 bits. 4 databits and 1 paritybit. These are transmitted 1 by 1:

1. Dataline setup
2. clockline goes low.
3. clockline goes up

This gives the following pattern:

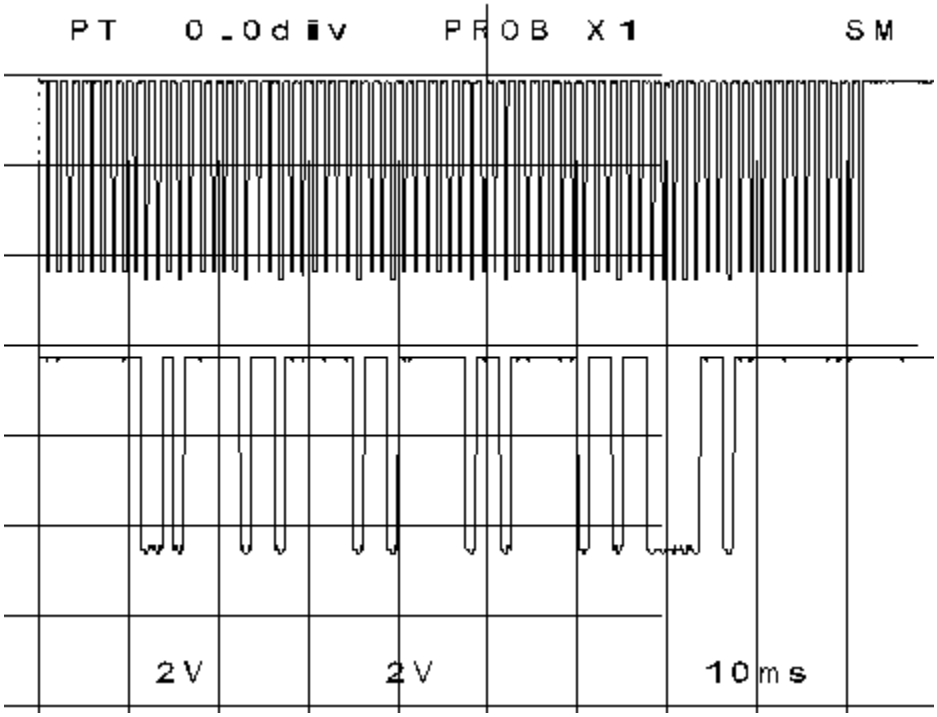
file:R086EE01.BMP



- The upper signal line is the clockline. (connector 2)
- The lower signal line is the dataline. (connector 3)
- The setuptime for data 3..5 mS.
- The clock low period is 3..5 mS
- The timelap the data remains up after going up of the clock is 3mS

A whole string of 10 characters would look like this:

file:R086EE02.BMP



In this case card number 0404040400 is send.

- The upper signal line is the clockline. (connector 2)
- The lower signal line is the data line. (connector 3)