



ProxID Micro Reader GP11-00 Instruction Manual

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Information in this manual is subject to change without notice.

1. Introduction

The GP11-00 is a low cost high performance proximity reader module. The module has an internal antenna and an internal capacitor, hence it does not need an external antenna and capacitor. The module features a medium read range and small dimensions. The GP11-00 also has a good read range at 5 Volts, making it ideally suited to a wide variety of applications, particularly access control. The same basic unit can be configured to most of the common output formats, including Wiegand and Magstripe, making it easy to upgrade existing installations.

2. Features

- * **Low cost**
- * **Medium read range**
- * **Small outline**
- * **Wide Voltage range**
- * **Potted for environmental protection**
- * **Externally programmable interface**
- * **Plug-in fitting**

3. Theory

The reader generates a 125KHz inductive field that extends some way beyond the reader module. When a transponder is placed within the vicinity of the reader module, it draws power from this field and providing the field is of sufficient strength the internal microcircuits contained in the transponder begin to function. Data is transferred from the transponder by means of amplitude modulation in such a manner that the transponder varies the rate at which it draws power from the field in a way that corresponds to the internal identity code programmed in this internal memory. These changes in field power can be detected by the reader and converted back into a copy of the original data.

4. Specifications

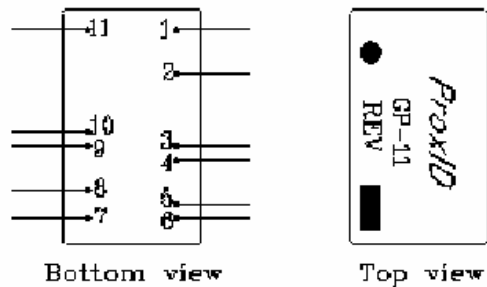
Power Requirements	5-13.5 Volts regulated DC at 60 mA typical with a 12V supply. A linear regulator is recommended.
Interface	Wiegand, Magstripe, 9.6 K Baud Serial ASCII (RS232) or special to customer specifications.
Read Range	Production Pass range is 11.0cm @ 12V with ISO card
Typical Maximum Read - in ideal conditions	Range 7.0 cm at 12.0V with ISO card.
Frequency	125KHz standard or 134.2KHz to special order.
Transponder	Read Only.
Audio/visual Indication	LED output and Buzzer
Dimensions	41 x 24 x 10mm
Weight	<50gm

5. Pin Assignment

Pin1)	Power 0 Volt
Pin2)	Power 5.0-13.5 Volts
Pin3)	Program Input
Pin4)	Card Present Output with internal 4K7 pull-up
Pin5)	Data Output RS232, Magstripe data & Wiegand0, with internal 4K7 pull-up (pull up only for Wiegand and Magstripe)
Pin6)	Magstripe clock & Wiegand1, with internal 4K7 pull-up
Pin7)	External Beep control input *
Pin8)	LED Drive (use 470-1K series resistor)
Pin9)	Buzzer pre-driver (requires driver transistor)
Pin10)	Do not connect
Pin11)	Do not connect

Note * Connect Pin1 to Pin7 if external beeper control is not required

GP-11 Module



6. Programming

The output format can be customer programmed. The available formats are Wiegand, Magnetic Emulation and Serial ASCII (RS232)

Wiegand

Pin 1	Ground 0V
Pin 2	Power +V
Pin 5	Data0
Pin 6	Data1
Pin 3	Connect to Pin 6
Pin 4	No Connection

Magstripe

Pin 1	Ground 0V
Pin 2	Power +V
Pin 6	Clock (Strobe)
Pin 5	Data
Pin 4	Card Present
Pin 3	Connect to Pin 4

Serial ASCII (RS232)

Pin 1	Ground 0V
Pin 2	Power +V
Pin 5	Data
Pin 3	No Connection
Pin 4	No Connection
Pin 6	No Connection

7. Data Structure

7-1. Data Structure (ASCII)

BAUD RATE : 9600,N,8,1

STX(02 HEX)	DATA (10 HEX)	CR	LF	ETX (03 HEX)
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The start character is factory defined as an 'STX' (02 HEX). This is followed by 10 Hex characters of data. The CR\LF characters serve to bring the received screen text back to the left hand side and on the line below after the data bytes have been sent. The 'ETX ' (03 HEX) character denotes the end of the current transmission.

7-2. Data Structure (Magstripe)

Speed : Simulated to 40 IPS (Inch per Second)

10 LEADING ZEROS	SS	DATA (14 DIGITS)	ES	LRC	10 TRAILING ZEROS
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The 10 leading zeros prepare the receiving unit to accept the data. The data is 14 digits long. SS is the Start Sentinel consisting of 11010. ES is the End Sentinel consisting of 11111. LRC is the Longitudinal Redundancy Check character. Lastly there are 10 trailing zeros. Magstripe 8 digits and 6 digits are available for special request.

The hexadecimal data from the card is first converted to a denary string before transmission. For example, a card containing the hexadecimal data (0411115EA6) , will be converted to denary and sent as denary **00017466220198** (14 digits)

The calculation is performed as follows.

$$(6 * 16^0 + 10 * 16^1 + 14 * 16^2 + 5 * 16^3 + 1 * 16^4 + 1 * 16^5 + 1 * 16^6 + 1 * 16^7 + 4 * 16^8) = \mathbf{00017466220198}$$

7-3 Data Structure (Wiegand Format-26 Bit)

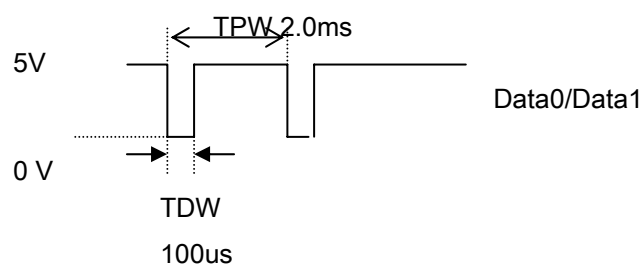
0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	
P	S	S	S	S	S	S	S	S	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	P
P	E	E	E	E	E	E	E	E	E	E	E	E														P
													O	O	O	O	O	O	O	O	O	O	O	O	O	P
SUMMED FOR EVEN PARITY (E)													SUMMED FOR ODD PARITY (O)													

Note:

- P Parity (Even or Odd) Start Bit and Stop Bit
- S Site Bits from Card or Reader
- C Card Number Bits from Card
- SYRDSSW1-W26 Site bits from Card (24 bits Card Data)
- MSB Normal 01
- LSB Normal 24

Data Timing Specification

- Pulse Interval(TPW) 2.0mS +/- 3%
- Pulse Width (TDW) 100uS +/- 3%



8. Trouble Shooting

In case of problems the following procedure should be followed.

Failure to read

- 1) Turn off the power to the GP11
- 2) Check the power input connections making sure that they are not reversed.
- 3) Check the programming pin is correctly connected.
- 4) Measure the supply voltage and confirm it is in the range 5-13.5V.
- 5) If the supply has a current limit, set this to 100mA.
- 6) Turn on the power.
- 7) Ensure the current is below 100mA, if there is no current being drawn or the

current is in excess of 100mA, then the unit has possibly sustained damage.

- 8) Check that the LED drive goes high immediately upon switch on. This will indicate that the processor is functioning.
- 9) Ensure the external buzzer (pin7) is at logic '0'(off) or logic '1'(on)
- 10) Ensure the power supply output is free from ripple and noise.