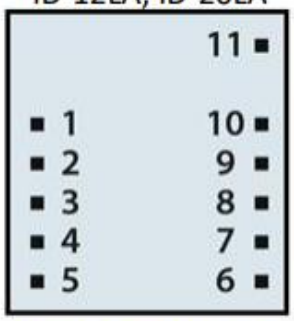
Product: **ID-3LA**
Product Code: **IDI015**

1. Overview

ID2-LA, ID12-LA and the ID20-LA series are small footprint 2.8-5.0volt reader modules that support ASCII, Wiegand26 and Magnetic ABA Track2 data formats. The modules are pin and function compatible with the ID2/12/20 series.

2. Pin Out for ID12-LA and ID20-LA

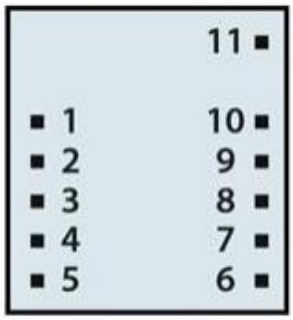
ID-12LA, ID-20LA



Bottom View

1. GND
2. RES (Reset Bar)
3. Do not connect
4. Do not connect
5. CP
6. Tag in Range
7. Format Selector
8. D1 (Data Pin 1)
9. D0 (Data Pin 0)
10. Read (LED / Beeper)
11. +2.8V thru +5.0V

ID-3LA



Bottom View

1. GND
2. RES (Reset Bar)
3. ANT (Antenna)
4. ANT (Antenna)
5. CP
6. Tag in Range
7. Format Selector
8. D1 (Data Pin 1)
9. D0 (Data Pin 0)
10. Read (LED / Beeper)
11. +2.8V thru +5.0V

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Device Operational Characteristics

Parameter	ID-3LA, ID-12LA, ID-20LA
Frequency	125 kHz nominal
Card Format	EM 4001 or compatible
Read Range ID-3LA	Up to 30 using suitable antenna using ID-Innovations clamshell card @5v
Read Range ID-12LA	Up to 12cm using ISO card, up to 18cm using ID-Innovations clamshell card @5v
Read Range ID-20LA	Up to 18cm using ISO card, up to 25cm using ID-Innovations clamshell card @5v
Encoding	Manchester 64-bit, modulus 64
Power Requirement	+2.8 VDC thru +5 VDC @ 35mA ID-12LA, 45mA ID-20LA
RF I/O Output Current	+/- 200mA PKPK
Certification	CE, C-TICK, ROHS, FCC

4. Data Formats

Output Data Structure - ASCII - 9600 Baud, No Parity, 1 stop bit.

Output = CMOS (Push Pull) 0-Vdd

STX (02h)	DATA (10 ASCII)	CHECK SUM (2 ASCII)	CR	LF	ETX (03h)

Example for Calculation of Checksum for ASCII

Suppose the output Data is 0C000621A58E

Here the actual data is 0C,00,00,06,21,A5 and the checksum is 6E

Using binary we Exclusive OR the bit columns

0C	=	00001100
00	=	00000000
06	=	00000110
21	=	00100001
A5	=	10100101
CHECKSUM		10001110 (8E)

Output Data Structure - Wiegand26 – 1mS repeat, 50uS pulse. Open Drain

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	26
P	E	E	E	E	E	E	E	E	E	E	E	E	O	O	O	O	O	O	O	O	O	O	O	O	P
Even parity (E)													Odd parity (O)												

P = Parity start bit and stop bit

Output Data Magnetic ABA Track2 – At Approx. 80cm/sec. Open Drain

10 Leading Zeros	SS	Data	ES	LCR	10 Ending Zeros

[SS is the Start Character of 11010, ES is the end character of 11111, and LRC is the Longitudinal Redundancy Check.]

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Connection direct to a computer

Direct connection to a computer RS232 can be made by connecting Pin8 to a 1k series resistor and connecting the other end of the resistor to the computer RS232 input. The mode is called pseudo RS232. On a standard D9 socket, connect module Pin8 via the series 1k to pin2 of the D-type. Connect the ground to Pin5 on the D-type. Leave the TX pin3 open. See "Useful Information" below for free terminal download information.

Note that a +2.8v rail will result in the data outputs having a lower swing and may not be suitable for all computers.

Connection to a Processor UART

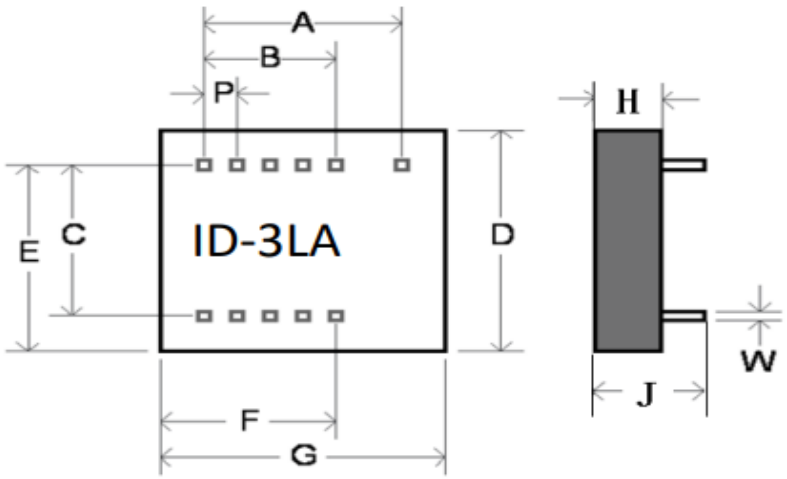
Direct connection to UART is made by connecting Pin9 to the UART Rx in pin

Connecting a Read LED

Sometimes the user may not want to drive a beeper but may still need to drive an LED. In this case a driver transistor may not be necessary because the Beeper Output Pin can supply 5mA continuously. Connect a 1k5 resistor to the Beeper Pin. This will limit the current. Connect the other end of the resistor to the LED anode and connect the cathode to ground.

9. Dimensions (mm)

	ID-3LA		
	Nom.	Min.	Max.
A	12.0	11.6	12.4
B	8.0	7.6	8.4
C	15.0	14.6	15.4
D	20.5	20.0	21.5
E	18.5	18.0	19.2
F	14.0	13.0	14.8
G	22.0	21.6	22.4
P	2.0	1.8	2.2
H	5.92	5.85	6.6
J	9.85	9.0	10.5
W	0.66	0.62	0.67



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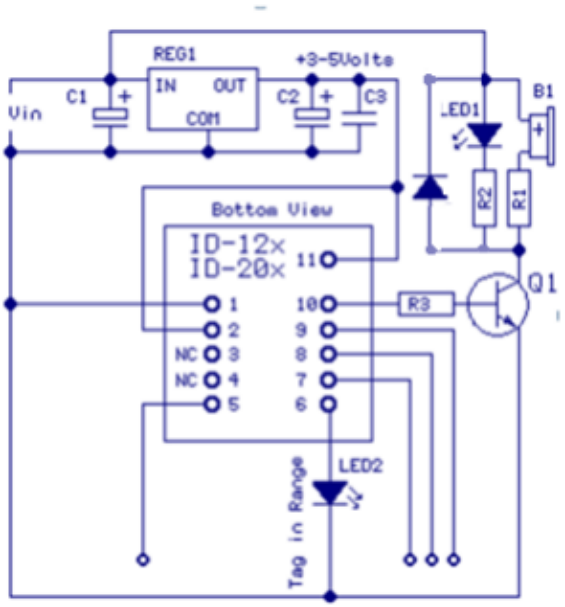
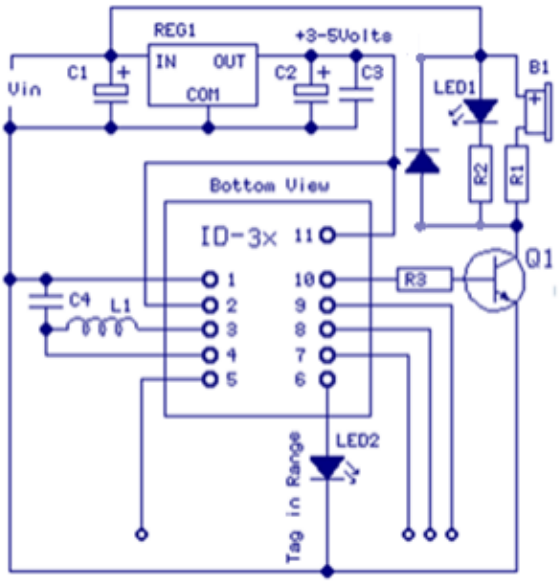


Parts List	
Part #	**Value**
R1	100R
R2	4K7
R3	2K2
C1	10uF 25v electrolytic
C2	1000uF 10v electrolytic
C3	100nF
Q1	BC457 or similar
LED1	Read LED
LED2	Tag In Range LED
B1	2.7khz – 3kHz 5v PKPK AC

8.2 Circuit Diagram for ID-3LA



Parts List	
Part #	**Value**
R1	100R
R2	4K7
R3	2K2
C1	10uF 25v electrolytic
C2	1000uF 10v electrolytic
C3	100nF
L1	1.337mH
Q1	BC457 or similar
LED1	Read LED
LED2	Tag In Range LED
B1	2.7khz – 3kHz 5v PKPK AC

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