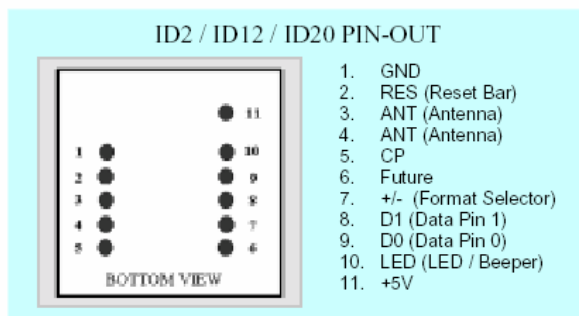
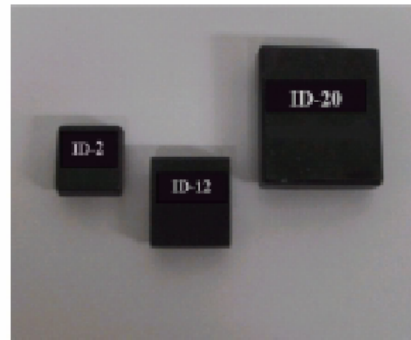


DATASHEET

Contactless R/O Readers (125 kHz) ID-2, ID-12 & ID-20

The ID2, ID12 and ID20 are similar to the ID0, ID10 and ID15 MK(ii) series devices, but they have extra pins which allow Magnetic Emulation output to be included in the functionality. The ID-12 and ID-20 come with internal antennas, and have read ranges of 12+ cm and 16+ cm, respectively. With an external antenna, the ID-2 can deliver read ranges of up to 25 cm. All three readers support ASCII, Wiegand26 and Magnetic ABA Track2 data formats.



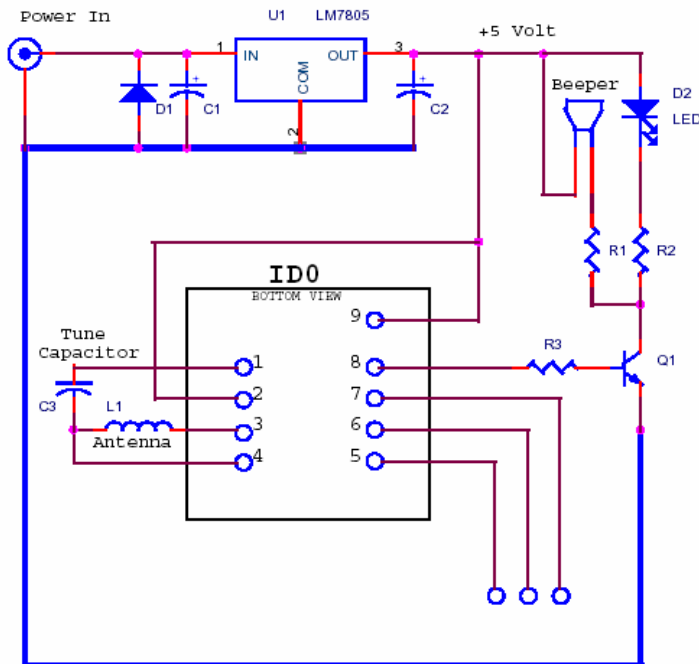
Operational and Physical Characteristics

Parameters	ID-2	ID-12	ID-20
Read Range	N/A (no internal antenna)	12+ cm	15+ cm
Dimensions	21 mm x 19 mm x 6 mm	26 mm x 25 mm x 7 mm	40 mm x 40 mm x 9 mm
Frequency	125 kHz	125 kHz	125 kHz
Card Format	EM 4001 or compatible	EM 4001 or compatible	EM 4001 or compatible
Encoding	Manchester 64-bit, modulus 64	Manchester 64-bit, modulus 64	Manchester 64-bit, modulus 64
Power Requirement	5 VDC @ 13mA nominal	5 VDC @ 30mA nominal	5 VDC @ 55mA nominal
I/O Output Current	+/-200mA PK	-	-
Voltage Supply Range	+4.6V through +5.4V	+4.6V through +5.4V	+4.6V through +5.4V

Pin Description & Output Data Formats

Pin No.	Description	ASCII	Magnet Emulation	Wiegand26
Pin 1	Zero Volts and Tuning Capacitor Ground	GND 0V	GND 0V	GND 0V
Pin 2	Strap to +5V	Reset Bar	Reset Bar	Reset Bar
Pin 3	To External Antenna and Tuning Capacitor	Antenna	Antenna	Antenna
Pin 4	To External Antenna	Antenna	Antenna	Antenna
Pin 5	Card Present	No function	Card Present	No function
Pin 6	Future	Future	Future	Future
Pin 7	Format Selector (+/-)	Strap to GND	Strap to Pin 10	Strap to +5V
Pin 8	Data 1	CMOS	Data	One Output
Pin 9	Data 0	TTL Data (inverted)	Clock	Zero Output
Pin 10	3.1 kHz Logic	Beeper / LED	Beeper / LED	Beeper / LED
Pin 11	DC Voltage Supply	+5V	+5V	+5V

Circuit Diagram for the ID0



COMPONENT LIST

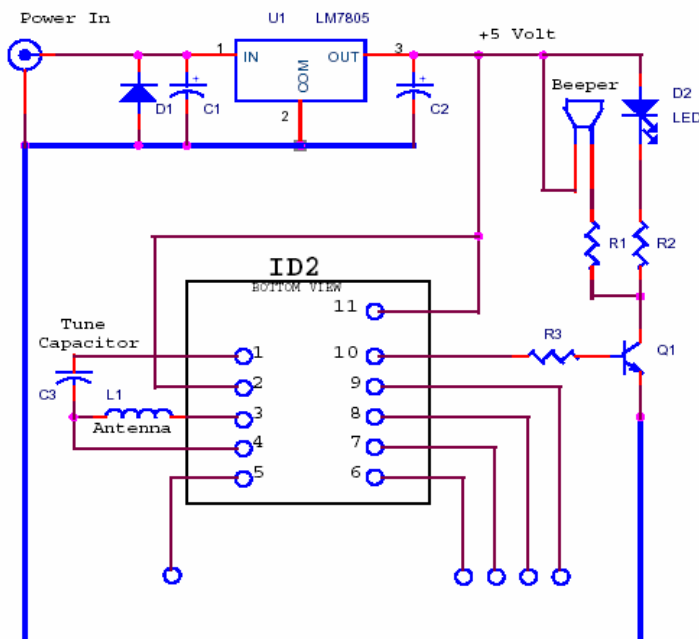
- R1 = 100R
- R2 = 1K
- R3 = 1K
- C1 = 100uF 16V
- C2 = 100uF 10V
- C3 = 1nF COG 100V *
- Beeper = 2.7-3.5KHz 100R
- D1 = 1N4001
- D2 = GREEN LED
- U1 = LM7805
- Q1 = UTC8050 (NPN)
- L1 = 640Uh

ID0 = ID Innovations ID0

* Please Note the ID0 has an internal tuning capacitor of 1.5nF and this makes the total tuning capacity = 2.5nF

The 3.1Khz Beeper Logic is centred for most Beepers in range 2.7-3.5Khz

Circuit Diagram for the ID2



COMPONENT LIST

- R1 = 100R
- R2 = 1K
- R3 = 1K
- C1 = 100uF 16V
- C2 = 100uF 10V
- C3 = 1nF COG 100V *
- Beeper = 2.7-3.5KHz 100R
- D1 = 1N4001
- D2 = GREEN LED
- U1 = LM7805
- Q1 = UTC8050 (NPN)
- L1 = 640Uh

ID2 = Innovated Devices ID2

* Please Note the ID2 has an internal tuning capacitor of 1.5nF and this makes the total tuning capacity = 2.5nF

The 3.1Khz Beeper Logic is centred for most Beepers in range 2.7-3.5Khz



Output Data Structure – ASCII

STX (02h)	DATA (10 ASCII)	CHECK SUM (2 ASCII)	CR	LF	ETX (03h)
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[The 1byte (2 ASCII characters) Check sum is the “Exclusive OR” of the 5 hex bytes (10 ASCII) Data characters.]

Output Data Structure – Wiegand26

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

P = Parity start bit and stop bit
