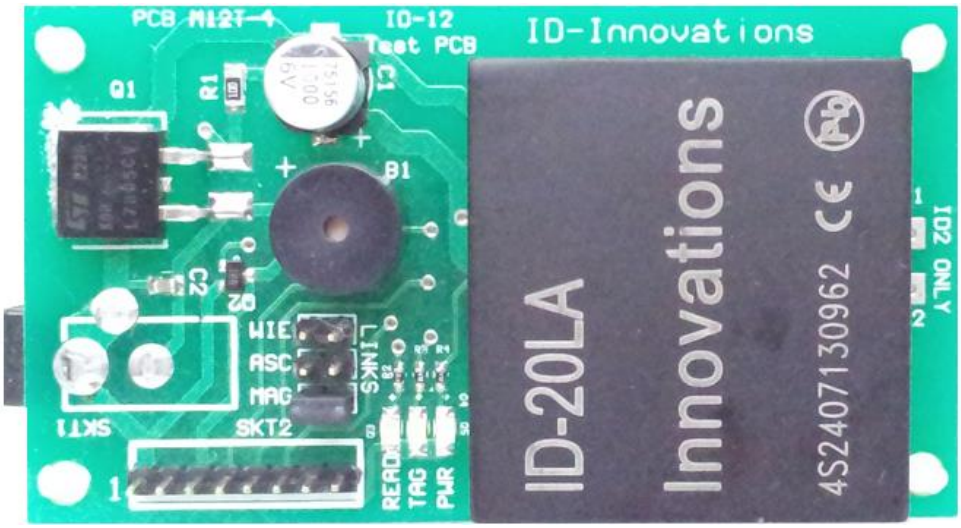
M12T-4

Kick Start Demo Board

For

ID-2-xx, ID-3-xx, ID-12-xx, ID-20-xx Series Modules

Advanced RFID Reader Technology



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Section Title Page

1. M12T-4 Kick Start Demo Board Features

- **Rapid Evaluation of ID-2xx, ID-3xx, ID-12-xx and ID-120-xx modules**
- **Selectable Output Format**
- **Low cost**

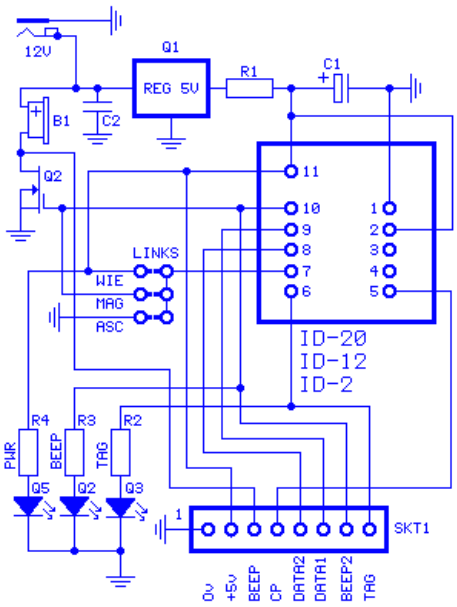
2. Overview

The ID12T-4 demo board is a cost effective tool to rapidly evaluate most ID series reader modules. It is supplied with an ID-20-LA. Developers are free to copy all or part of the PCB for use with Innovations modules.

3. Demo Board View and Circuit Diagram

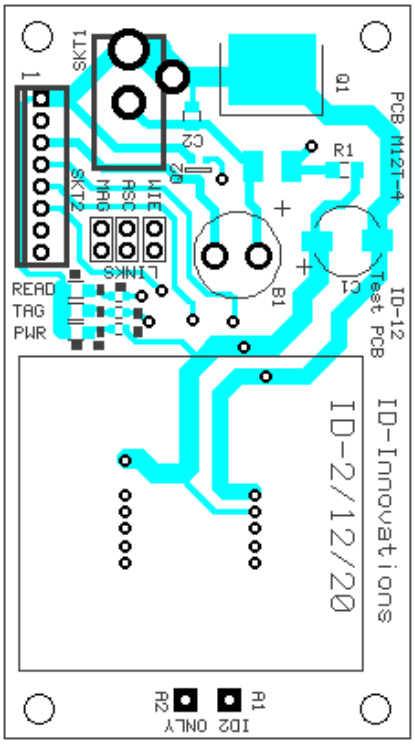
Details of the demo board are given below. Users are free to copy, use or modify all or part of the board for their own purposes. No guarantees are given as to the suitability of the board for any purpose. The board is provided only to allow customers to evaluate most ID-xx series modules. See section “Applicable ID-Innovations Modules”. The external beeper driver Q2 is a ‘Smart’ FET and is resistant to current overload and dissipation damage.

Demo Board Schematic

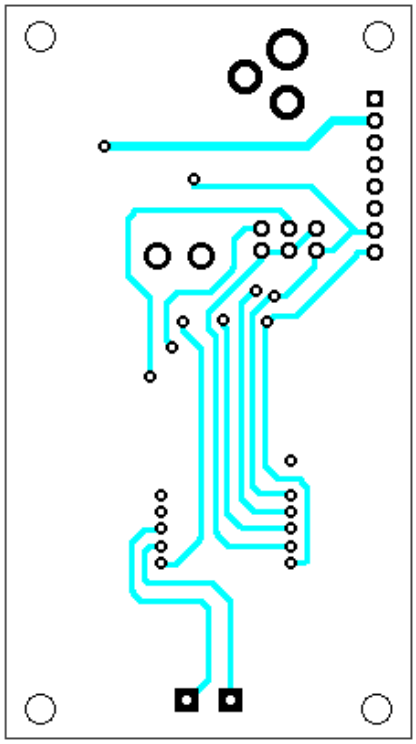


Part	Description
Module	ID-xx-xx
R1	10R
R2,R3,R4	4K7
C1	1000uF 6v
C2	2u2 25v
Q1	L7805
Q2	ZXMS6004 FCCT-ND
Led1	1206 SMD LED
Led2	1206 SMD LED
Led3	1206 SMD LED
LK1-LK8	0.1” Pitch Links
SKT1	7 pin 0.1” pitch

Table1



Demo Board PCB Top Layer



Demo Board Bottom Layer

4. Output Connections

Pin	Description
1	Ground 0V
2	5v output.
3	Beep Driver Output
4	CP (Magnetic Emulation Card Present)
5	Data2
6	Data1
7	Logic Level Beeper Output.
8	Tag in Range – LA and late version ID-series.

Table2

4.1 Output Connections Detail

Pin1 System and data ground, 0v corresponding to pin 1 of ID series module.

Pin2 This pin may be used as a +5volt for low power equipment.

Pin3 This is a common drain buffered Beeper driver. The FET Q2 is a protected smart FET. The Beeper positive should be taken to an external supply of 5 thru 24v.

Pin4 This is the so called 'Card Present' output that is used in magnetic emulation. In this mode it is open drain. Pull ups to a 5volt supply may be required depending on the module type. See the appropriate module data sheet.

Pin 5 This pin is logic level and is used for both Wiegand Odd output and for the ASCII complementary output corresponding to pin 8 of ID series module. See the appropriate module data sheet.

Pin5 This pin is logic level and is used for both Wiegand Even output and for the ASCII the normal output corresponding to pin 9 of ID series module. See the appropriate module data sheet.

Pin7 This pin is the logic level beeper output, corresponding to pin 10 of ID series module. See the appropriate module data sheet.

Pin9 This pin is used as a logical output for 'Tag in range' on most modules. See the appropriate module data sheet.

5 Setting the Output Format

The output format is selected by connecting Links as shown in table3. Note that the ID module firmware only checks the output format upon switch-on. Subsequently changing the links to select another format will only take effect after an off-on cycle. See table below.

Link#	Description
ASC	Select ASCII Output Format
WIE	Select Magnetic Output Format
MAG	Select Wiegand Output Format

Table 3

6. Device Specifications

Parameter	
Power supply	Regulated DC 12volts.
Current	Up to 80mA depending on module type.
Size	85.5mm x 48mm x 26mm
Applicable Module Types	5v ID series and most LA series. See section 8
External Antenna	Terminals A1 and A2 available

7. Using the Kick Start Demo Board

The kick start kit is intended to speed up the time the ID-xx modules learning curve and enable engineers and constructors to rapidly design and build their own systems. The kick start demo board is intended to get users up and running as fast as possible. Users are encouraged to copy all or part of the demo PCB for use with ID-Innovations modules.

Most Innovations modules have a choice of output format, namely ASCII, Wiegand and Magnetic emulation and the format can be selected using the appropriately labelled links.

8. Absolute Maximum and Minimum Ratings

Maximum voltage applied pins 4,5,6,7 & 8	5.5volt
Minimum voltage applied pins 4,5,6,7 & 8	-0.5v
Maximum pulsed current sourced by pin 3 (Ext. Beeper)	300mA
Maximum voltage applied pin 3 (Ext. Beeper)	24volt
Minimum voltage applied pin 3 (Ext. Beeper)	-0.5v
Maximum current drawn from pins 4,5,6,7 & 8	± 5mA Peak
Maximum current drawn from ext. antenna pads	See Data sheet for module
Minimum Temperature	-20 Deg C
Maximum Temperature	+55 Deg C
Supply voltage	+3.6v, -0.5v

These ratings are absolute maximums. Operation at or near the maximums may cause stress and eventual damage or unpredictable behaviour.

9. Applicable ID-Innovations Modules

The tester can be used with most Innovations ID series modules. Some modules have different functionality, for example the ID-xx-LA-HE series which are dual system and read HID compatible cards. These only have ASCII output but may still be tested. The list below indicates which modules may be used and the functionality.

Module	ASCII	Wiegand	Magnetic	Tag in Range	Antenna	Notes
ID-3	y	y	y	y	1.33mH	
ID-12-LA	y	y	y	y	-	
ID-20-LA	y	y	y	y	-	
ID-3-LA-HE	y	-	-	-	1.33mH	
ID-12-LA-HE	Y	-	-	-	-	
ID-20-LA-HE	Y	-	-	-	-	
ID-3-ISO	Y	-	-	-	1.33mH	
ID-12-ISO	Y	-	-	-	-	
ID-20-ISO	Y	-	-	-	-	
ID-2-WR	Y	-	-	-	1.07mH	
ID-12-WR	Y	-	-	-	-	
ID-20-WR	Y	-	-	-	-	
ID-2	Y	Y	Y	Y (1)	1.07mH	Not recommended for new designs
ID-12	Y	Y	Y	Y(1)	-	Not recommended for new designs
ID-20	Y	Y	Y	Y(1)	-	Not recommended for new designs

Modules Requiring *Other* Test Boards

Module	Required Demo Kit
ID-3-uP	M12UP8 Demo Kit
ID-12-uP	M12UP8 Demo Kit
ID-20-uP	M12UP8 Demo Kit
ID-3-SA	SA Demo Kit
ID-12-SA	SA Demo Kit
ID-20-SA	SA Demo Kit

10. Useful information

The Bray++ Terminal

For general testing we suggest the user downloads a terminal program free from the internet. Here is one particularly good one to consider: **http://sites.google.com/site/terminalbpp/** Truly an excellent piece of software. If this is hard to get try a search for Bray 1.9b 20100630. This version is good but any version will be also acceptable.

Technical Queries

If you have any technical queries please contact your local distributor, they have all the technical resources to help you and support you. Where no local distributor exists, our technical helpline may be contacted by writing to **help@ID-Innovations.com**

Please state your geographic region, the module serial number and where you obtained it.

Q & A

Questions and answers to technical problems are available on line at **ID-Innovations.Com**. Customer feedback is *always* appreciated.

11. Contact Information

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12. Important Safety Notice

Never use this reader in applications of sustaining life, or any application where power failure or reader failure can cause bodily harm, damage, injury or loss.

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