

## Data Sheet

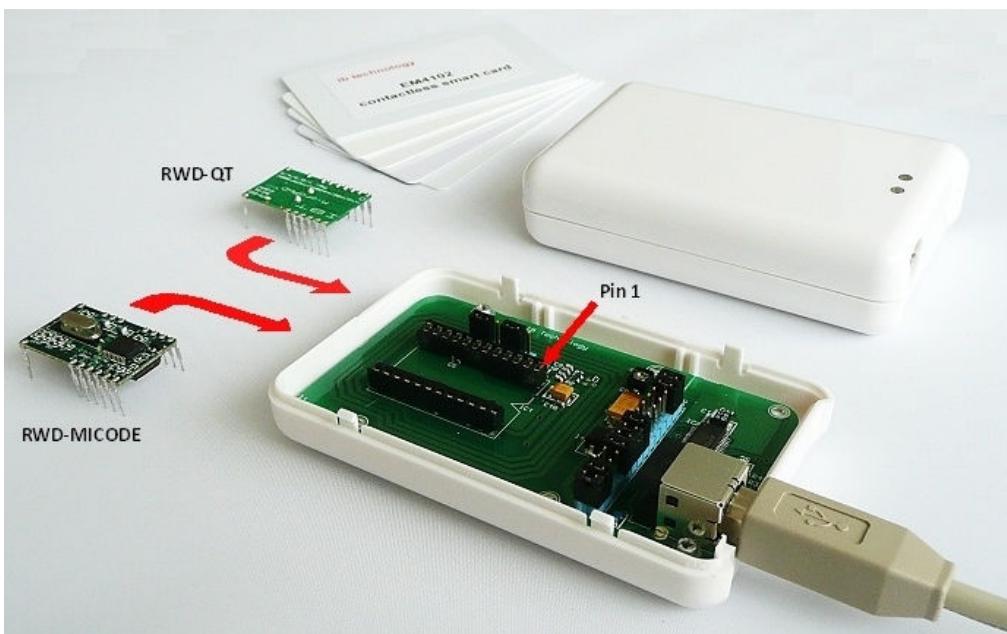
### GETTING\_STARTED.PDF

5 Pages  
Last Revised 14/01/13

### Getting Started

Thank you for purchasing the MicroRWD evaluation kit. The aim of this kit is to allow the capabilities of the MicroRWD reader module and the features of the particular RFID (Radio Frequency IDentification) transponder type to be evaluated. The MicroRWD reader module is one of the smallest and most cost effective solutions for proximity RFID read/write communication, supporting the most popular 125 kHz and 13.56 MHz contactless cards and tag types.

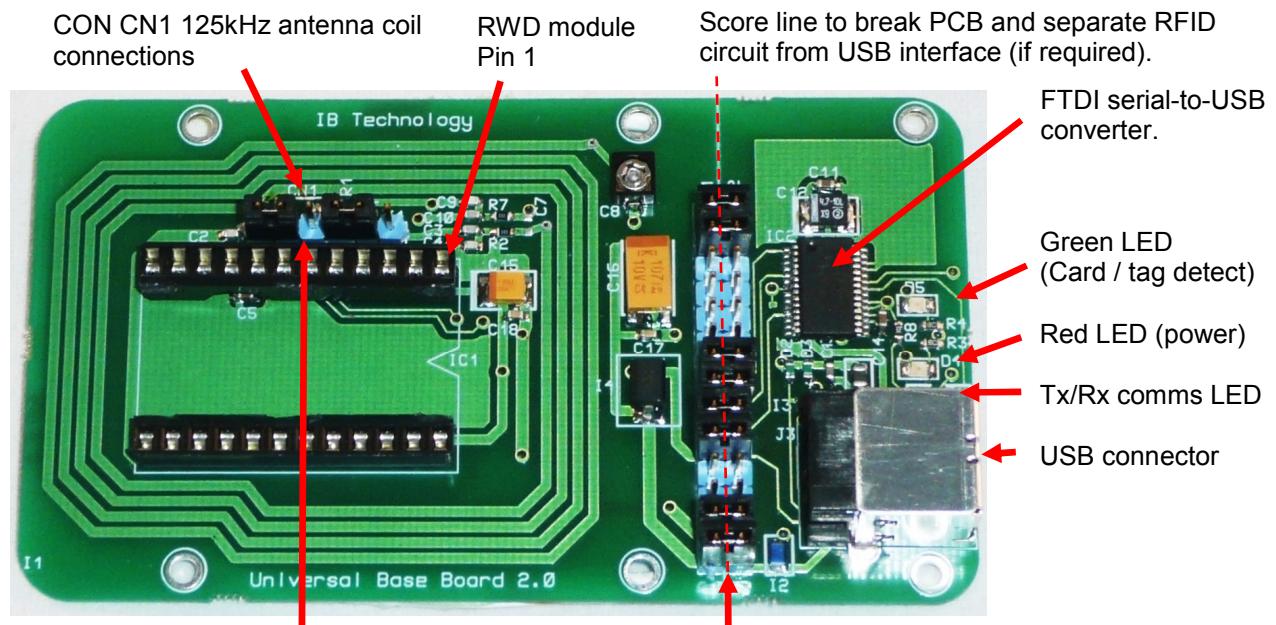
The Evaluation kit is based on the “Universal Base Board” into which any of the MicroRWD 24-pin modules can be plugged. The “Universal Base Board” has jumper links for all the available power and I/O signals and selection of the on-board antenna. The Evaluation board can be connected to the USB port of a PC with the FTDI VCP (Virtual Comm Port) driver installed, allowing the supplied Windows applications to communicate with the Reader module for simple evaluation of the Reader and card/tag type.



The Universal Base board PCB is scored along the centre line of the 14-way, 2-row header pins so that the PCB can be broken in half to separate the RFID circuit from the USB interface circuit. This allows the RFID section to be used as an embedded board for directly connecting the power and TTL communication signals to your application circuit for in-circuit evaluation.

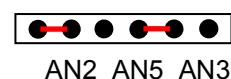
Please follow the steps below to ensure that you can begin evaluation of the system quickly.

### Universal Base Board with jumper links and USB interface



J5 and J4 links for antenna selection. J1 / J2, 14-way x 2-row links for Power and I/O signals

AN6 AN4 AN1



125kHz antenna coil

AN6 AN4 AN1



13.56MHz PCB antenna

J1 J2  
Pin 1 Pin 1

RED LED	RED LED
GRN LED	GRN LED
OP0	OP0
OP1	OP1
OP2	OP2
OP3	OP3
RX	RX
TX	TX
CTS	CTS
RWD_5V	RWD_5V
MCLR	MCLR
SW1/BEEP	SW1/BEEP
GND	GND
USB_5V	USB_5V

14 14

Red links indicate default connections for power and communication.

- 1) Unpack the items in the evaluation kit and identify the following items:



- a) Micro RWD-MICODE (13.56MHz MIFARE / ICODE) Reader module.
- b) Micro RWD-QT (125kHz Hitag1, HitagS, Hitag 2, EM4102, MCRF200/123) Reader module.
- c) Universal RFID base board with USB interface and 125kHz antenna coil fitted on back of PCB (13.56MHz antenna is spiral track on front of PCB).
- d) Plastic case for Universal Base Board.
- e) Sample Hitag1/S, Hitag 2, EM4102, MIFARE1K, ICODE cards.

2) Carefully plug one of the supplied MicroRWD modules into the 24 pin socket on the Universal base board ensuring that pin 1 is aligned correctly and that the pins are not bent or damaged.



3) Select the appropriate 125 kHz antenna coil or on-board 13.56 MHz PCB antenna type by fitting links to 6-pin header according to the diagram below:

For RWD-QT fit J5, J4 jumper links to connect AN2-AN6 and AN1-AN5

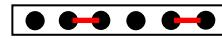
AN6 AN4 AN1



125kHz antenna coil

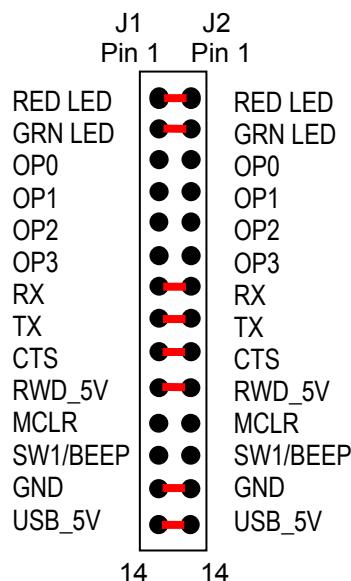
For RWD-MICODE fit J5, J4 jumper links to connect AN2-AN4 and AN1-AN3

AN6 AN4 AN1



13.56MHz PCB antenna

4) Fit links to J1, J2 14-way, 2-row header pins to connect the power and communication signals as shown below. All the power, ground and I/O signals are available on this header for experimentation and connection to an external system if required.



Red links indicate default connections for power and communication.

Note the PCB can be split along the centre line of J1, J2 header so RFID circuit can be separated from USB interface to allow direct connection to an external system for further in-circuit evaluation.

5) Download and install the latest FTDI VCP (Virtual Comm Port) driver on the PC from: <http://www.ftdichip.com/Drivers/VCP.htm>. This provides the Virtual Communication Port on the PC so that Windows applications can communicate over the USB interface using the allocated COM Port.

- 6) Connect the Universal Base Board to the PC using a standard USB cable (with type-B plug). The Universal Base Board 5-volt supply is provided by the USB interface. No external power supply is required.
- 7) For Evaluation of RWD-MICODE, download and install the (Win32) RWD-MIFARE/ICODE Windows application:  
([http://www.ibtechnology.co.uk/Win32/Win32\\_Mifare\\_Icode.ZIP](http://www.ibtechnology.co.uk/Win32/Win32_Mifare_Icode.ZIP) ).  
**OR**  
for Windows 7, 64-bit Operating Systems, use the new .NET (Win64) RWD-MIFARE-ICODE Windows version ([http://www.ibtechnology.co.uk/Win32/MicroRWD\\_MFIC-REL-1\\_0.zip](http://www.ibtechnology.co.uk/Win32/MicroRWD_MFIC-REL-1_0.zip) ).  
  
For evaluation of RWD-QT, download and install the (Win32) RWD-QT Windows application ([http://www.ibtechnology.co.uk/Win32/Win32\\_QT.ZIP](http://www.ibtechnology.co.uk/Win32/Win32_QT.ZIP) ).  
**OR**  
for Windows 7, 64-bit Operating Systems, use the new .NET (Win64) RWD-QT Windows version ([http://www.ibtechnology.co.uk/Win32/MicroRWD\\_QuadTag-REL-1\\_0.zip](http://www.ibtechnology.co.uk/Win32/MicroRWD_QuadTag-REL-1_0.zip) ).

Download the .ZIP compressed file, un-zip and run SETUP.exe to install in usual manner. Further information on the Windows programs and how to install and set-up the RS232 HEX TERMINAL PROGRAM can be found on pages 5 and 6 of OPERATION.PDF (<http://www.ibtechnology.co.uk/pdf/Operation.PDF> )

- 8) Double click on the MicroRWD program icon and once the application is running, select the COM PORT option and select the COM PORT that you are using. Windows DEVICE MANAGER can be used to locate the correct COM port number allocated by the USB VCP (Virtual Comm Port ) driver.

Your system is now ready for use, the Green LED turns ON (and Red LED turns OFF) when the appropriate card or tag is in range. This is a proximity Reader system so typical operating range is up to 5cm (using 13.56MHz RWD-MICODE) and 8cm (using 125kHz RWD-QT).

For further information on the MicroRWD Reader modules, Windows applications and datasheets, please also see:

<http://www.ibtechnology.co.uk/ibthardwareanswers.htm#evaluation>

For further information on the MicroRWD communication protocol and examples of sending commands and the responses from the Reader, please also see:  
<http://www.ibtechnology.co.uk/ibthardwareanswers.htm#communicationprotocol>

Further general information on the products and solutions can be found on the IB Technology website, <http://www.ibtechnology.co.uk/> or alternatively please send an email to: [support@ibtechnology.co.uk](mailto:support@ibtechnology.co.uk)

The aim of this Evaluation kit is to stimulate new ideas and applications where this technology can be used and to allow rapid prototyping of end products. The MicroRWD modules are complete RFID read/write units with easy to use commands and interfaces.

The MicroRWD module version that you are evaluating represents the standard product for the particular RF transponder type, with the most likely features required for evaluation. Please note that there are many other pin-compatible versions of the MicroRWD supporting other RF transponder types offering different memory sizes and levels of security as well as various connectivity options such as Wiegand and Clock/Data (Mag Stripe) output in addition to the standard TTL serial, RS232 and USB options. Please contact us at our email address for more information.

**No responsibility is taken for the method of integration or final use of MicroRWD**

More information on the Micro RWD and other products can be found at the Internet web site:

**<http://www.ibtechnology.co.uk>**

Or alternatively contact IB Technology by email at:

**[sales@ibtechnology.co.uk](mailto:sales@ibtechnology.co.uk)**