

Data Sheet

ICSP.PDF
3 Pages
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Micro RWD In-Circuit-Serial Programming Procedure **(for devices fitted with PIC 16F87-I/SS microcontroller)**

The MicroRWD RFID modules have been designed to be in-circuit programmed and re-programmed using Microchip Technology's ICSP "high voltage" programming procedure. The Microchip Promate programmer or equivalent should be used in conjunction with a 5-wire interface to the application board or a socket holding the MicroRWD module. The 5-wire interface comprises 5v supply and Ground, Vpp (Programming voltage up to 13 volts) and Clock and Data signals.

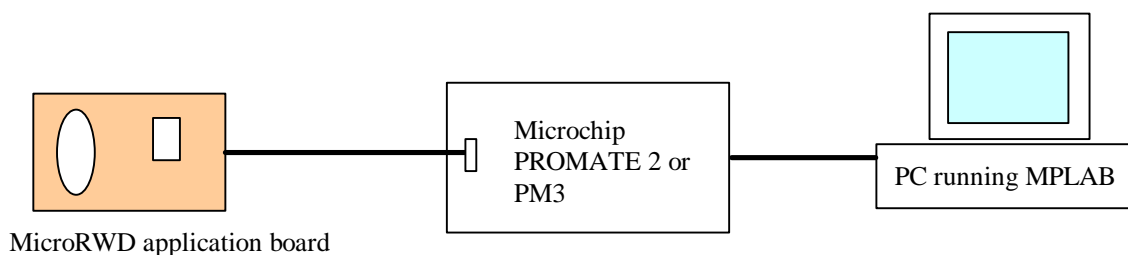
Note: In-circuit programming relies on fast rise times of programming signals and so if possible, the MicroRWD should be isolated from other parts of the application circuit and large capacitors across the supply rails should be avoided.

Requirements

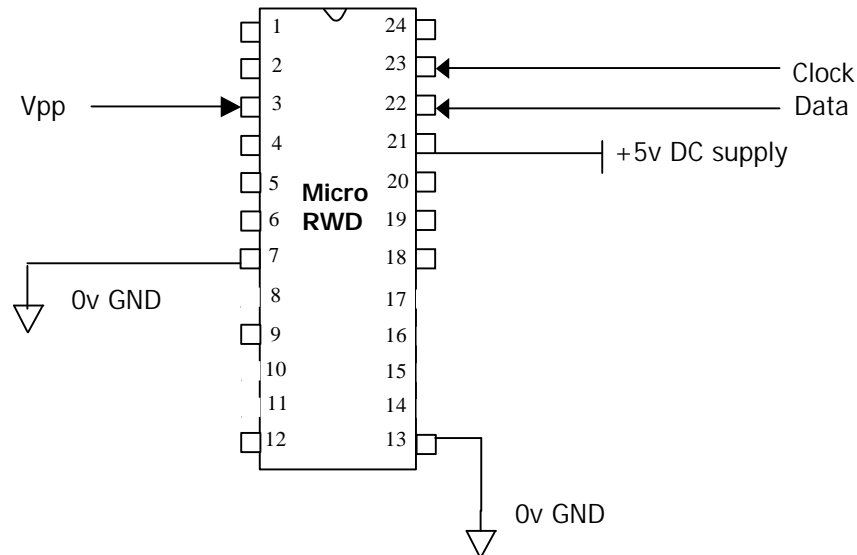
- 1) Micro RWD firmware, compiled under MPLAB and supplied as default .HEX file by IB Technology Ltd.
- 2) Microchip PROMATE 2 or PROMATE 3 (MPLAB PM3) programmer with latest firmware installed. (PROMATE 2 firmware version 5.90.14 or later).
- 3) PROMATE (2) AC164010 Socket Module fitted (for 18 pin PIC 16Cxx devices) or AC004004 ICSP programming module for PROMATE 2 and equivalent module for PROMATE 3.

PLEASE NOTE THAT ICSP (IN CIRCUIT SERIAL PROGRAMMING) MODULE IS PREFERRED PROGRAMMING METHOD BECAUSE IT HAS A HIGHER CAPACITY POWER-SUPPLY AND PROVIDES MORE RELIABLE PROGRAMMING.

- 4) PC running Microchip MPLAB Integrated Development Environment version 6.30+



Typical configuration for Micro RWD module programming



Configuration

- 1) Connect the In-circuit Programming lead to the MicroRWD application board. If possible the MicroRWD module should be isolated from other devices on the application board and large capacitors across the supply rails disconnected to ensure the programming signal rise-times are fast.
- 2) Please note following pinout for programming board header and corresponding connections to PROMATE 2 or PROMATE 3 ICSP module connectors.

In Circuit Programming

MicroRWD pin	Programming function	PROMATE 2 AC004004 ICSP 15-way D-Type connections	PROMATE 3 (PM3) ICSP pinout
Pin 3, MCLR/RST	MCLR/Programming voltage, Vpp	Pin 15, Vpp	Pin 7,8, Vpp
Pin 23, Tx	Clock	Pin 5, Clock	Pin 1, CLK
Pin 22, Rx	Data	Pin 10, Data	Pin 3, DATA
Pin 21, VDD (+5v)	VDD	Pin 11, VDD	Pin 11, VDD (pin 12, 5v))
Pin 7, VSS (0v)	VSS	Pin 6,7, GND	Pin 13, 14, GND

Note for PROMATE 2 AC004004, ICSP module, please ensure that Device Support DIP switch under module is set correctly for PIC 16F87-I/SS.

Programming Operation

- 1) Ensure that PROMATE serial lead is connected to PC in correct manner and that power is applied to PROMATE.
- 2) Ensure that PC is running MPLAB in correct manner.
- 3) Insert Floppy disk/load CDROM containing correct .HEX firmware into PC drive.
- 4) From within MPLAB application, firstly select CONFIGURE menu.
- 5) Select "SELECT DEVICE" then PIC 16F87 processor option and click OK
- 6) From main MPLAB window, select FILE menu.
- 7) Select IMPORT and DOWNLOAD TO MEMORY option.
- 8) Select floppy disk/CDROM drive.
- 9) Enter firmware .HEX filename and click OK.
- 10) Select PROGRAMMER from top command bar and SELECT PROGRAMMER option, and then select PROMATE II option.
- 11) Select PROGRAMMER from top command bar and ENABLE PROGRAMMER option; PROMATE should then display 16F87 microcontroller type.
- 12) On bottom line of PC display, check that PROMATE II, PIC16F87 and 0x0866 (Config' bits) are displayed.
- 13) DO NOT CHANGE CONFIGURATION SETTINGS
- 14) Select PROGRAMMER from top command bar and click on PROGRAM option.
- 15) PROMATE and MPLAB will report pass or failure. Verified Checksum on PROMATE should = 0866

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