Frequently Asked Questions – Issue 3

Q1. What is the current consumption for a MDM-1 ?

A1. See table below, this excludes PIC outputs such as driving LED's:

Backlighting	PIC 16F877-04	OKI MSM6544	TOTAL
Off = 0mA	Sleep = 1.5µA	220µA	221.5µA
Off = 0mA	1.6mA	220µA	1.82mA
On = 50mA	1.6mA	220µA	51.82mA

The maximum current for the 16F877 at 5.5V is 4mA.

Q2. Why does the MDM-1 not always execute the selected Lascar demo applications when it is not connected to a MDM-DEV-1 board ?

A2. The MDM-DEV-1 has an RS232 detector onboard. If you are operating in standalone mode then you need to modify the software to not look for the RS232 detector or to tie pin 8 to 0V.

Q3. Do I need a reset circuit ?

A3. Not if your power supply rises at a rate of greater than 0.05 V/ms. If the rise time is slower then follow Microchip's recommendations in 30292c. The MDM-DEV-1 board has a fast power up circuit.

Q4. Why doesn't the 16F877 pinout match the MDM-1 circuit diagram ?

A4. The 16F877 used on the MDM-1 is a surface mount package. Therefore, you must use the quad flat package (QFP) pinout, this is a 44 pin device with different pin numbering to the 40 pin DIL package. Four pins are not connected.

Q5. I have a Intermitent Reset Problems !

A5. If you are not using an external reset chip i.e Microchip MCP101, then try a resistor from RESET (Pin 2) to V+ (Pin 17), the value can be anything down to 1K, the lower the better. The MDM-1 already has a 47K pull-up, but adding a parallel resistor will improve its immunity to noise and reduce the current consumption by up to 25µA.

Q6. What are the maximum and minimum voltages for the MDM-1 ?

A6. See table below, for the voltage specification:

	Min	Max
PIC 16F877	4.0	5.5
LCD Driver	3.0	6.0
LCD (Typically)	4.0	6.0
Backlighting	4.75	5.5
MAX 485 (Option)	4.75	5.25
MAX 232 (Option)	4.5	5.5

Therefore with no Options fitted:
Vmax is 5.5V
Vmin is 4.75V (with backlighting) or 4.0V (without backlighting).

Q7. Can the 16F877 be replaced with a 18F452 ?

A7. The footprint is very similar; a check of the datasheet gives the following differences:

Pin No.	16F877	18F452
11	RB3/PGM	RB3/CCP2
15	RB5	RB5/PGM
24	RA5/AN4/SS	RA5/AN4/SS/LVDIN
31	OSC2/CLKOUT	OSC2/CLKO/RA6

PGM has moved from RB3 to RB5 (Note RB2/4/5 are already used for comms to LCD driver). Therefore only High Voltage Programming (HVP) could be used.

Please note this has not yet been tested.