

Sample Electronics cable programmer

The simple cable programmer was submitted by Sample Electronics.

They produce professional programmers too. This simple programmer you can make yourself within a 10 minutes.

What you need is a DB25 centronics male connector, a flat cable and a connector that can be connected to the target MCU board.

The connections to make are as following:

DB25 pin	Target MCU pin(AT90S8535)	Target MCU M103	Target MCU pin 8515	DT104	IW3AMQ's 5 Pin Programmer
2, D0	MOSI, pin 6	PE.1, 3	MOSI, 6	J5, pin 4	4
4, D2	RESET, pin 9	RESET, 20	RESET, 9	J5, pin 8	2
5, D3	CLOCK, pin 8	PB.1,11	CLOCK, 8	J5, pin 6	5
11, BUSY	MISO, pin 7	PE.0, 2	MISO, 7	J5, pin 5	3
18-25,GND	GROUND	GROUND	GND,20	J5, pin 1	1

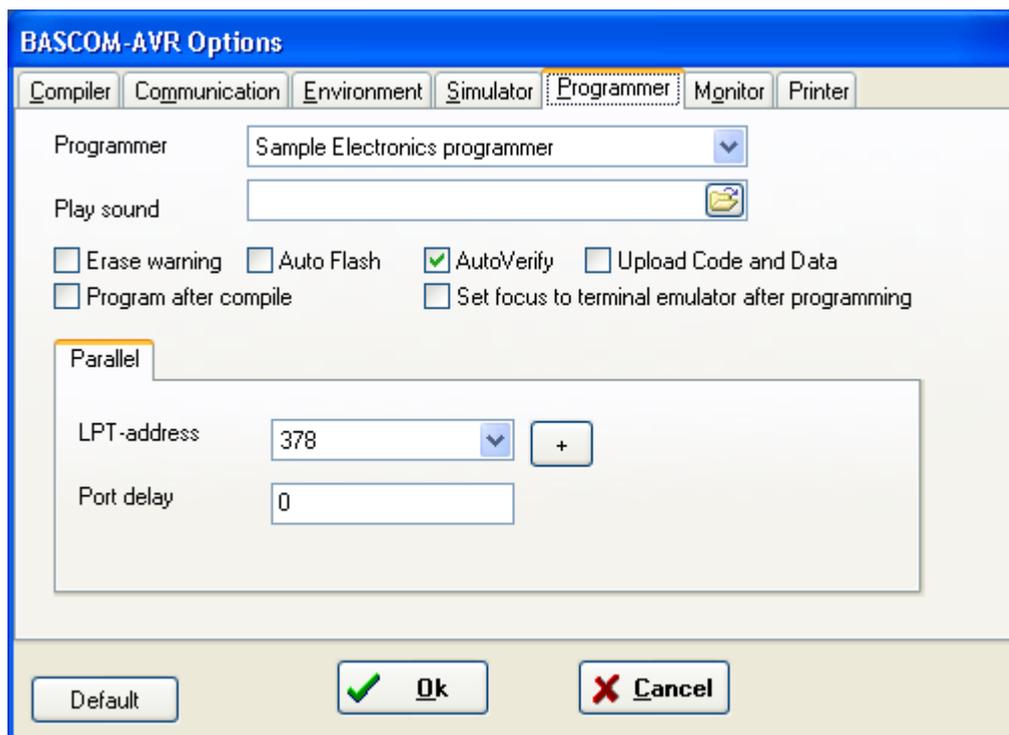
The MCU pin numbers are shown for an 8535! And 8515

Note that 18-25 means pins 18,19,20,21,22,23,24 and 25

You can use a small resistor of 100-220 ohm in series with the D0, D2 and D3 line in order not to short circuit your LPT port in the event the MCU pins are high. But it was tested without these resistors and my PC still works :-)

Tip : when testing programmers etc. on the LPT it is best to buy an I/O card for your PC that has a LPT port. This way you dont destroy your LPT port that is on the motherboard in the event you make a mistake!

The following picture shows the connections to make. Both a setup for the DT104 and stand alone PCB are shown.



I received the following useful information :

Hi Mark,

I have been having spurious success with the simple cable programmer from Sample Electronics for the AVR series.

After resorting to hooking up the CRO I have figured it out (I think). When trying to identify the chip, no response on the MISO pin indicates that the Programming Enable command has not been correctly received by the target. The SCK line Mark/Space times were okay but it looked a bit sad with a slow rise time but a rapid fall time. So I initially tried to improve the rise time with a pullup. No change ie still could not identify chip. I was about to add some buffers when I came across an Atmel app note for their serial programmer.

"During this first phase of the programming cycle, keeping the SCK line free from pulses is critical, as pulses will cause the target AVR to loose synchronisation with the programmer. When synchronisation is lost, the only means of regaining synchronisation is to release the RESET line for more than 100ms."

I have added a 100pF cap from SCK to GND and works first time every time now. The SCK rise time is still sad but there must have been enough noise to corrupt the initial command despite using a 600mm shielded cable.

This may be useful to your users.

Regards,

Mark Hayne