

QUASAR PROJECT 3128v21 - ALL-FLASH USB PIC PROGRAMMER with ICSP

This documentation was written 20 Nov 2006.

PLEASE READ IN FULL BEFORE ROCEEDING!!

WARNING! To avoid damaging your programmer, please ensure devices are placed in the programming socket with the correct orientation and position as indicated by the Micropro software interface. The programming socket should be empty when powering the programmer up or down or applying a reset. Extreme caution should be exercised when using the ICSP header to avoid incorrect connection and damage to your programmer.

3128v21 is the updated version of our popular All-Flash USB PIC programmer. The v21 board changes to a type 'B' USB connector and adds a 5-pin ICSP.

The components are mostly surface mount and are presoldered on the board. The only thing you need to add is your choice of programming socket as detailed below (unless you have purchased the AS3128ZIF in which case it is already soldered in place for you).

Software

Download the micropro25.zip file from <http://www.quasarelectronics.com/zip/micropro25.zip>

!! DO NOT USE ANY OTHER VERSION YET !!

Unzip and run Micropro25.exe to install the software. Please print the README and 3128 User Manual (see Windows Start Menu > Quasar Electronics > Micropro25) and read in conjunction with this document.

Programming Socket (AS3128 only)

Please note that we do NOT solder the programming socket in place but instead leave this open for you to choose from either:

- the 0.6" wide 40 pin DIL socket supplied by us as standard (limiting you to programming 0.6" wide devices)
- our optional 40-pin Wide ZIF socket (Order Code ZIF40W). Order online at <http://www.quasarelectronics.com/zif40w.htm>). This allows the full range of 8, 18, 28 and 40 pin devices to be programmed.
- or your own programming socket.

Do NOT solder the ZIF socket in place until AFTER you have tested the programmer and know there are no dry joints or other problems. The ZIF socket is almost impossible to remove without damaging the board.

Programming Socket Over-Soldering Warning!!

The 3M ZIF socket has spade style legs but if you use an Arises ZIF socket with smaller pins then do not feed too much solder into the pin/pads when soldering. **You will**

just short-circuit to an adjacent pad with excess solder.

Fitting into the Box

Our original idea was to screw the PCB into the box provided. However, as you can see the heads of the screws will hit the ZIF socket. So what we have done is made the PCB slightly over-size so some filing will be needed to tight fit the PCB into the box so no screws are required.

A couple of sweeps with a fine file is all that is needed to create a tight, friction fit of the PCB without screws. Blow off the filed dust. Do **NOT** use a nylon brush as static damage to the FT chip could occur.

USB VCP Driver Installation

You will need to download and install the FT232BM USB Virtual COM port (VCP) drivers from <http://www.ftdichip.com>. These drivers are being updated frequently. At this time they can be found at <http://www.ftdichip.com/Drivers/VCP.htm>

Select the file for your Windows OS version. We downloaded the XP Certified Version [2.00.00](#) (CDM 2.00.00.zip) dated 19th May 2006. Unzip it to a new folder in a convenient location on your hard drive or an external disk. Connect the programmer and follow the driver installation program pointing it to the new driver's folder when asked. You can download a Help file AN232-05 from <http://www.ftdichip.com/FTApp.htm> to guide you through the USB driver installation if you are unsure of how to do it.

The first time MicroPro is run you must set the COM Port to the appropriate number (under File>Port). You can find the COM port number of the USB driver in the Control Panel under Ports (COM & LPT). In our system it is 4. MicroPro will auto detect the programmer once the correct COM port is selected.

NB Only COM PORT numbers 1 to 9 are supported by the programmer due to hardware limitations. If you find the driver is allocated a COM Port number higher than this you just need to plug the programmer into a different USB socket and a new number will be allocated.

Connecting Up

Use a USB type A-B cable (Order Code LDC644 @ £2.95). Order online at <http://www.quasarelectronics.com/ldc644.htm>

Remove any target devices from the programmer before powering it up or down.

Connect the programmer to the USB port and check the LED lights up. Next start the MicroPro software. Make sure the correct COM port is selected (see above).

Note the 'Fly Window' under Options that allows the programmer to be used with MPLAB when a new hex file is compiled.

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MicroChip C Compiler Error - MicroChip's C compilers have a problem in that they create hex files based on 8-bit words. Never in Microchip's history have ANY of the PICs had 8-bit words. So naturally, MicroPro gets choked up on them because it never expected them to be used. This same problem afflicted several other popular programmers as well. We have written a "corrector" which changes 8-bit references to word references and allows MicroPro to accept the data. The program can be downloaded from our website at:
<http://www.quasarelectronics.com/zip/fixhex.zip>

Just run FIXHEX before trying it in MicroPro and it will fix the "problem".

No-Keypress Programming - Flash chips are automatically erased in this mode if they are not blank.

ICSP

!! YOUR BOARD MAY USE DIFFERENT WIRE COLOURS TO THOSE SHOWN IN THE MICROPRO SOFTWARE – USE PCB OVERLAY TO DETERMINE CORRECT CONNECTIONS!!

ICSP is still a 'black' art for some PIC chips. It is not the purpose of this product to teach ICSP. That is assumed.
Remember to proceed with caution at all times to avoid any damage!

This programmer does **not support** low voltage programming. The LOW pin is an open collector output, which will pull the LOW pin to ground. It can be used in ICSP to hold the LVP pin low while programming, or OSC1 pin, or any part of the target board which may need control in the manner) during programming. Click Options/ICSP Mode to use.

Refer to the MicroPro software help file for detailed operational and safety advice before using ICSP mode.

Software and Firmware Upgrades

The USB drivers and MicroPro software are frequently upgraded to add new features and extend the range of PICs supported. For the latest information look at
<http://www.quasarelectronics.com/micropro.htm>.

Build Number

MicroPro firmware now uses a build number and looks for the protocol number in the firmware. If they are the same version then the software and firmware are matched. The programmed firmware in this product release is version P018. You can perform a protocol check from the MicroPro Help menu.

Product Support

We offer Technical Support for a period of 12 months following the purchase of a new PIC Programmer or PIC Programmer Firmware Upgrade20 from us. Please submit your Support Questions to us via the form at
<http://www.quasarelectronics.com/micropro.htm> ensuring

that you provide the **invoice number** on which the product was purchased.

Mailing List

If you would like to receive the latest information on new products and software updates join our mailing list at:
http://www.quasarelectronics.com/mailling_list.htm

Please visit our website for details of our complete kit range: <http://www.QuasarElectronics.com>

QUASAR ELECTRONICS LIMITED

PO Box 6935, Bishops Stortford, CM23 4WP, UK
TEL: +44 (0)870 246 1826
FAX: +44 (0)870 460 1045
EMAIL: Sales@QuasarElectronics.com

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