SERVICE TOOL USER GUIDE FOR EPSILON 5 AVR PROGRAMMER

Table of contents

General Information

This service manual contains information about how to use the Epsilon 5 field programmer for firmware updates on Martin atmospheric effect products.

Safety instructions

Before you carry out service work, read this document. Installation and service work must comply with local regulations and accepted codes of good practice.
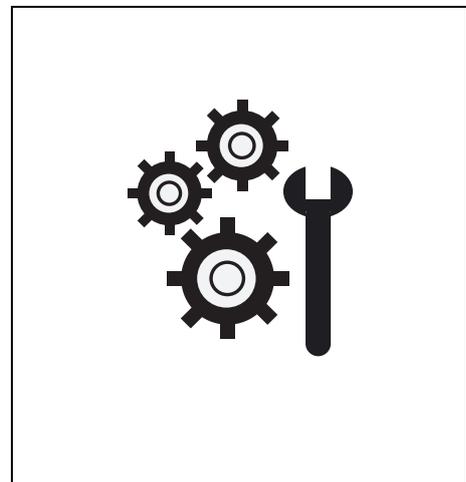
Observe the safety instructions in the user manual for the product.

Tools

Make sure that the tools below are available before you start working on the product.

- ESD mat and wristband
- Gloves
- PH1 and PH2 screwdriver
- Small flat-headed screwdriver
- Hex 6 key
- Radio pliers
- Flat-headed pliers
- Thermocouple calibration tool

Important! Take the necessary precautions to prevent static electricity from damaging the product during modification or repair.

Spare parts and software downloads

To obtain information about spare parts, and download diagnostic software and firmware, login to the Martin website www.martin.com using your support login details.

General overview

Target ISP connectors (1)

- 10-way and 6-way
  connectors are fitted

Programming status LEDs (2)

- Showing the progress
  of the programming operation

Programming Cycle control (3)

- Allows start and stop of
  the programming cycle

Power connector [5VDC] (4)

- Power the unit here when no power is
  available from the target machine
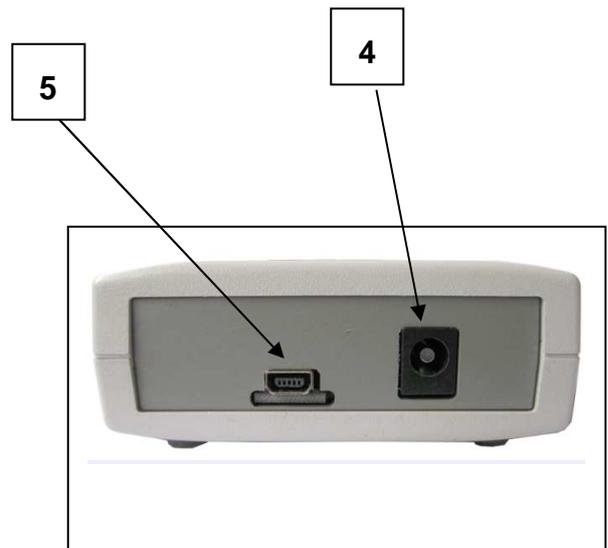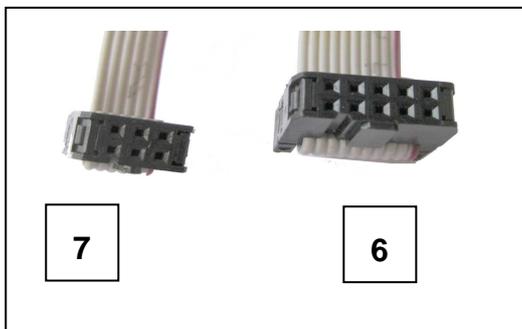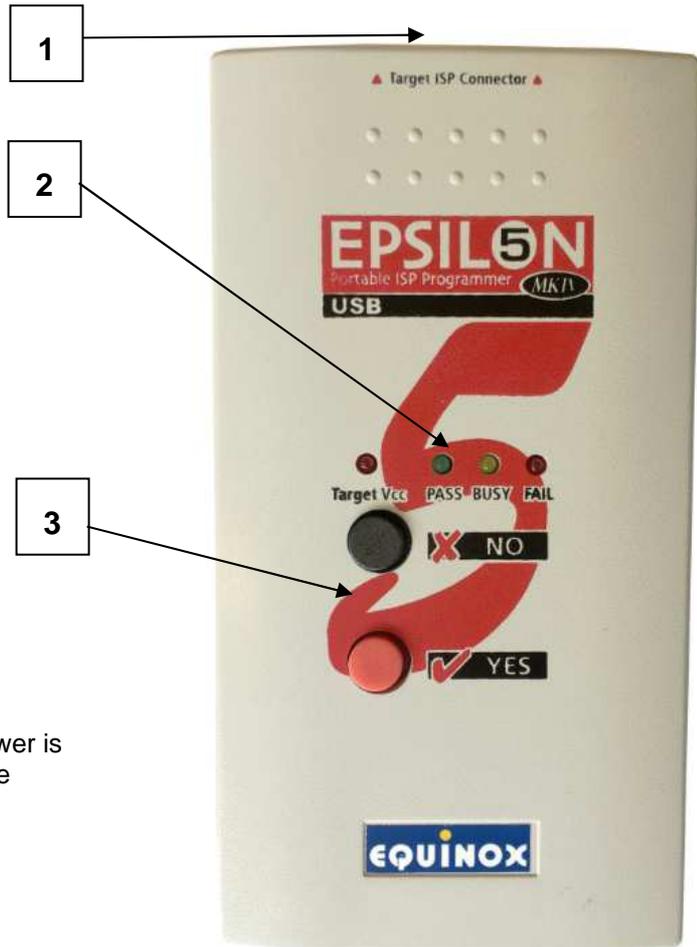
Mini USB connector (5)

- Used to connect to the host PC
  for loading firmware

10 way connector (6)

- Used for programming PCBs using the
  ATtiny15 processor

6 way connector (7)

- Used for most AVR based PCBs

General Description

The Epsilon 5 is a multi-purpose firmware upgrade tool which is supplied configured for Martin brand atmospheric effect products. The programmer is typically powered from the host PCB 5V supply when the programming interface connector (6 or 10 way) is connected to the product.
The programmer must be powered when up-loading the firmware files to the on-board buffer memory. Typically, this is done using an optional external power supply, or by plugging the Epsilon 5 into the target machine. The USB is not configured to provide power, thus avoiding any risk of power supply contention if the USB connection is still in place when programming the machine.

Once the firmware files are transferred to the programmer, the USB cable can be disconnected and the programmer operated from the front panel buttons.

Using Epsilon EQ tools

Installation

Follow the installation instructions supplied with the Epsilon 5 unit, and install the EQ tools application from the supplied CD ROM. Latest software can always be found on the Equinox technologies website http://www.equinox-tech.com/, or on the Martin website www.Martin.com.

Refer to the Equinox driver installation application note to install the VCP drivers for the virtual comport.

Connecting the Programmer

Using a spare USB port on the PC, connect the programmer to the system, and start EQ tools.
Use the *Programmer* menu to get the port selection dialogue:-
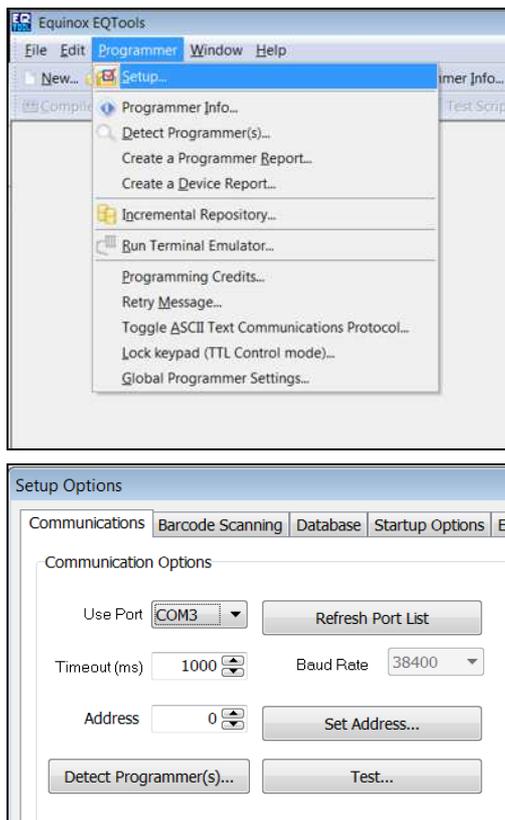
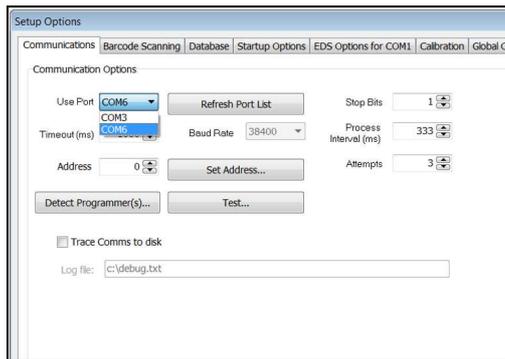Select the appropriate COM port found during the driver installation process, then use the *Detect Programmers* option button. If the port is not shown, press *Refresh Port List*
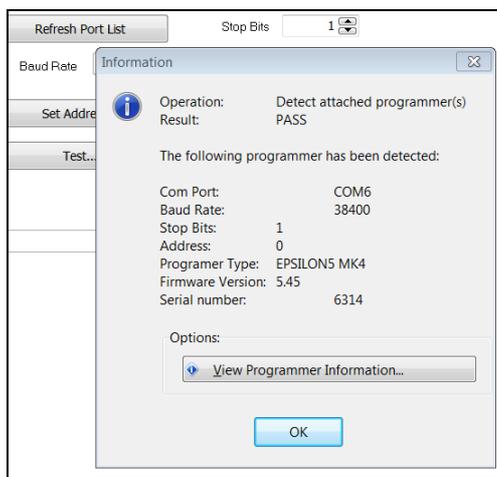
This action will only succeed if the programmer is powered from a target PCB (ie a programming port on the machine to be updated) or via the 5V power input socket adjacent to the USB connector.

Firmware Upload

Once the programmer is connected and identified, the appropriate firmware update file can be loaded into the programmer ready for updating the flash memory in the target PCB.

Use the *Open* dialogue from the file menu or the toolbar, and navigate to the appropriate directory. Open the .ppc file supplied. This will open into a new window as shown.
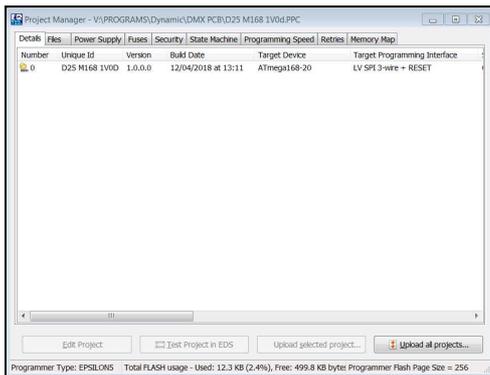
Select and highlight the programming project, then use the Upload Wizard button from the main window toolbar, to start the transfer process to the programmer.
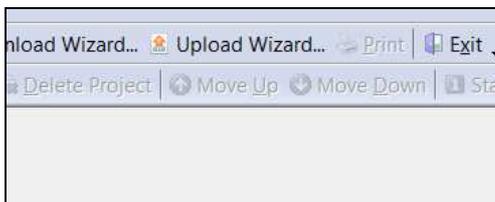
The upload window dialogue appears:-
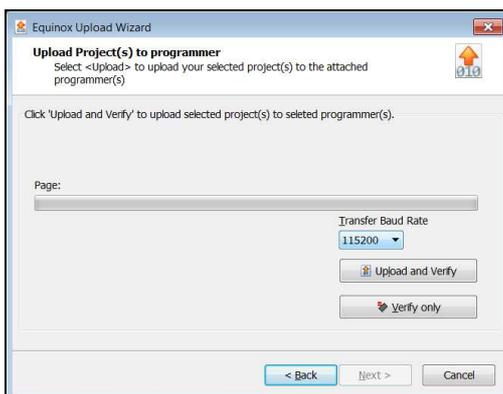
Use the *Upload and Verify* option to start the process.

After uploading, the success dialogue is displayed.

The programmer is now ready to use and can be disconnected from the USB connection and the 5V supply (if used).

Programming the target PCB

Once the firmware update has been loaded, the programmer can be connected to the target PCB. This must be done with the power to the PCB OFF. Once connected, the system can be repowered and the programmer used to perform the update.

Press the *Yes* button to start the programming process, then wait until the *Pass* LED illuminates, indicating successful programming.

Power down the machine and remove the programmer. Repower the machine, and test for correct functionality.

Technical Specifications

Physical
Length...152 mm (6 in.)
Width...82mm (3.3 in.
Height ....38 mm(1.5 in.)
Weight...204 g (0.45 lb.)

Construction
Housing .... Plastic
Color ....Beige

System requirements
Computer type .... PC only
Operating System.............................Microsoft Windows XP, Vista, 7, 8, 8.1, 10, x86 or x64
Connectivity required.. USB 2.0

Connections
DC Power inlet .... 2.5mm socket
Computer interface.. Mini USB socket
AVR interface A .... 6-way IDC SP Cable lead, 178 mm (7 in.)
AVR interface B .... 10-way IDC SP Cable lead, 178 mm (7 in.)

Electrical
DC power.. (optional external supply): 6-12 V, 500 mA
DC power over USB 5V

Approvals

$C\!E$

EU EMC... EU EMC: EN 61000-6-1, EN 61000-6-3 + A1

Included items:
USB Connection cable, Mini-USB to USB-A, 1.8 m (6 ft.)
DC Power cable, 2.5 mm jack plug to bare ends, center positive, 1.8 m (6 ft.)
EQ Tools Management Utility CD-ROM

Supported fixtures*
Martin JEM branded fixtures and accessories

Martin RUSH Club Smoke Dual and accessories

Martin Magnum branded fixtures and accessories

Contact Martin Service and Support for details

Ordering information
Epsilon 5 AVR Programmer ....P/N 50502004

Specifications subject to change without notice.
For the latest product specifications, see www.martin.com