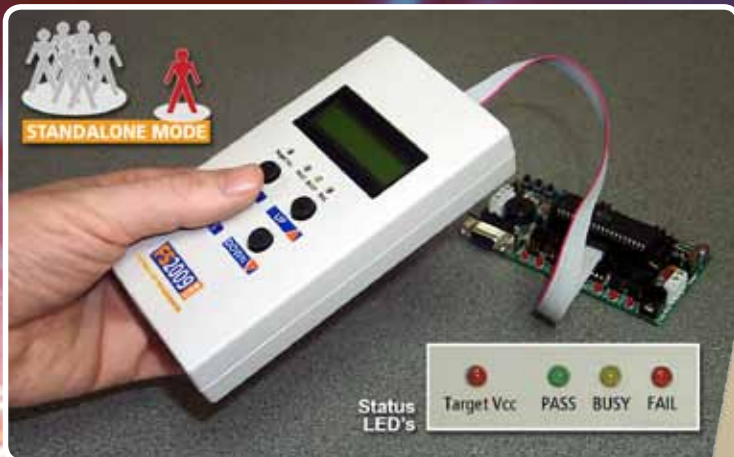


# FS2009 USB

## Portable ISP Programmer for Field-Service and Production applications



The FS2009USB programmer being used in standalone mode



The **FS2009USB** is a **portable ISP programmer** designed for field-service and production programming applications. The programmer is capable of operating in '**Standalone Mode**' (without PC) allowing an operator to select from 1 of 64 '**Standalone Programming Projects**' using the display and keypad. A single '**Autoprogram**' key is then used to repetitively program the selected project.

- Portable In-System (ISP) Programmer
- Ideal for Field-service or low-volume Production programming
- Supports In-system Programming (ISP) of many different programmable microcontrollers and serial memory devices
- Supports programming via SPI, JTAG, I2C and UART interfaces
- Supports '**Standalone**' operation - no PC required after programmer has been configured
- Low power consumption allows the programmer to be powered from most Target Systems (no external supply required)
- High-speed USB connection to PC
- Backwards compatible with FS2003 and FS2009 programmers

FIELD-SERVICE

PRODUCTION PROGRAMMING

TARGET / USB POWERED

FIRMWARE UPGRADEABLE



The Embedded Solutions Company

# FS2009 USB

## Programming Interfaces:

- Supports most ISP hardware interfaces / protocols including JTAG, SPI, I2C, ATtiny AVR HV mode, 8051 UART Bootloader
- Very fast programming speeds suitable for high-throughput production environments
- Robust I/O driver stage
- Individually configurable programmer I/O pins
- Supports programming of target ICs between 3.0 and 5.0V.
- Programmable frequency generator output on SCK2 pin - supports external clocking of AVR microcontrollers to speed up programming

## Control methods:

- PC control via on-board USB port
- Standalone keypad / display operation

## Standalone Mode:

- Supports loading of up to 64 x 'Standalone Programming Projects' into the programmer memory (4 Mbytes capacity)
- Project selection via the keypad and display (no PC required)
- Single-button **auto-program** operation allows repetitive execution of the selected project



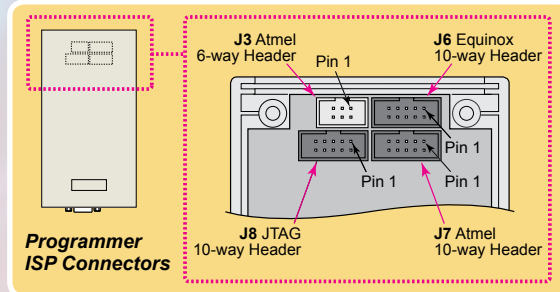
## Device support:

- Atmel AVR (not XMEGA or ATtiny TPI)
- ARM FLASH microcontrollers - ARM7TDMI®, Cortex M3, Cortex M4
- Selected 8051 FLASH microcontrollers
- Serial EEPROMs (I2C)
- Zensys Z-wave devices

## Power supply:

- The programmer can be powered from:
  - User Target System (3.1 - 5.0V @ 60mA)
  - External power supply via jack socket (6.0 - 12.0V @ 60mA)
  - PC USB Port (PC dependent)
  - External USB Power Pack (+5V only)
- Programmer can supply +5V regulated power to the Target system when it is powered from an external supply

- Power supply is reverse-polarity protected
- Fixed +12V **Target VPP** voltage generator for ATtiny HV devices



## ISP connectors / headers:

- Most popular ISP connectors are catered for
- ARM standard 20-pin and 10-pin JTAG connectors requires a special 'ARM JTAG cable' (available separately)

## Software (as standard):

- EQTools** - creates 'Standalone Programming Projects'
- EDS** - Development Mode for testing under PC control
- Upload Wizard** - uploads projects to the programmer

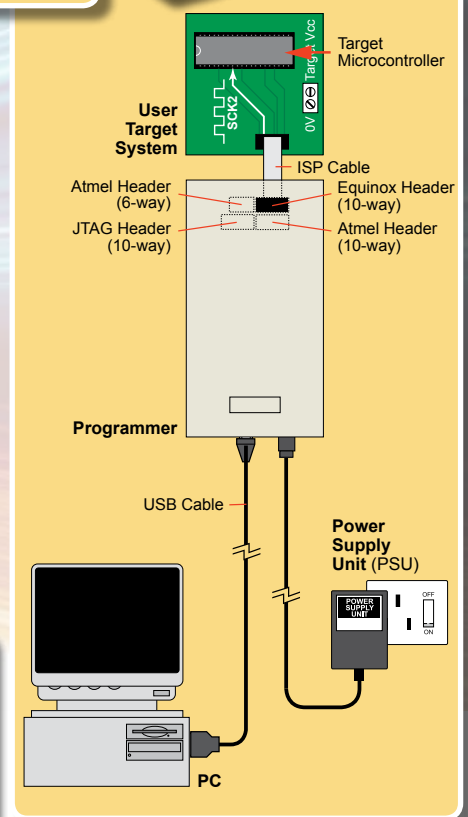
## Typical applications:

- Field-service programming** - supports up to 64 different customer firmware / product versions
- Low to medium volume **production programming**

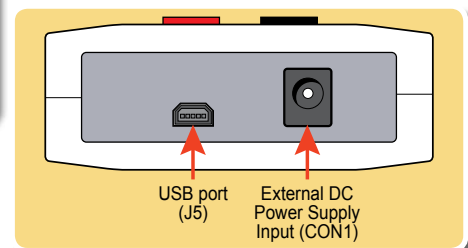


## System Contents:

The picture shows the typical contents of the FS2009USB programming kit. The programmer is also available separately without any power supply or cables.



Typical programmer connection to PC and Target System (DUT)



Bottom panel connections

## Ordering information:

There are three different versions of the FS2009USB programmer each with different device support...

**FS2009USB(UN)** - Programmer supporting AVR microcontrollers via the SPI interface, 8051, Zensys devices

**FS2009USB (AVR-JTAG)** - Programmer supporting AVR microcontrollers via the JTAG interface only

**FS2009USB(ARM)** - Programmer supporting ARM microcontrollers

It is possible to purchase separate 'Device Library upgrades' for any version of the programmer.

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