

FS2009 USB

Supporting

ARM FLASH microcontrollers

Portable ISP Programmer for Field-Service and Production applications



The FS2009USB (ARM) programmer being used in **Standalone Mode**



FS2009USB programmer with 20-way ISP cable

The **FS2009USB(ARM)** is a high-speed **portable programmer** designed for field-service and production **In-System Programming (ISP)** applications. It supports programming of many popular **ARM FLASH microcontroller** devices via the **ARM JTAG Debug Interface**. 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 popular ARM FLASH microcontroller families from Atmel, NXP Energy Micro and ST
- Supports high-speed programming via the **ARM JTAG or SWD Debug Interface**
- Supports **'Standalone'** operation - no PC required after programmer has been configured
- Capable of storing up to 64 completely independent **'Standalone Programming Projects'**.
- Low power consumption allows the programmer to be powered from most Target Systems (no external supply required)
- High-speed USB connection to PC



ARM Devices Supported...

Atmel AT91SAM7xx

NXP LPCxxxx

ST STM32

STM32 F1 STM32 F2 STM32 F4 STM32 L1
Mainstream MCUs High-performance MCUs High-performance MCUs with DSP and FPU Ultra-low-power MCUs

Support coming soon for...



ST STM32
STM32 F0 STM32 F3 STM32 W
Entry level MCUs Mixed-signal MCUs with DSP and FPU Wireless MCUs IEEE 802.15.4



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Programming Interfaces:

- Supports programming of ARM microcontrollers via the **ARM JTAG or SWD Debug Interface**
- 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

Control methods:

- PC control via on-board USB port
- Manual operator control in **Standalone Mode** via the display and keypad

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 **AT91SAM7 A / L / S / SE / X / XC** - ARM7 FLASH microcontrollers
- Energy Micro - **EFM32 GECKO** ARM microcontroller families
- NXP - **LPC11xx, PC17xx, LPC2xxx** - ARM7 FLASH microcontrollers
- ST **STM32** - ARM FLASH microcontrollers
- Support for other ARM microcontrollers can be added on request

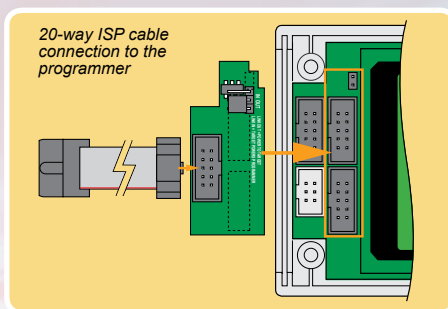
Special ARM features:

- Very fast programming due to downloaded **'programming agent'** and use of the high-speed ARM JTAG port
- NXP LPC devices - automatic FLASH checksum generation and validation
- Atmel SAM7 - supports hardware Erase via the Erase pin

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 @ 80mA)
 - PC USB Port (PC dependent)
 - External USB Power Pack (+5V only)
 - Programmer can supply either +3.3V or +5.0V regulated power to the Target System when it is powered from an external supply
 - Power supply is reverse-polarity protected
- ## ISP connectors / headers:
- A **20-pin ARM ISP cable** (2 x 10-pin 0.1" pitch IDC connector) is supplied with the programmer (see illustration below)



- A 10-pin ARM ISP cable is 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

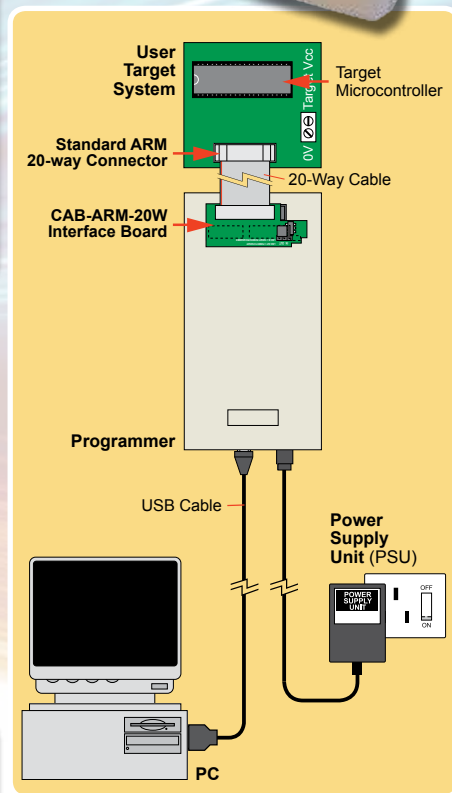
Typical applications:

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

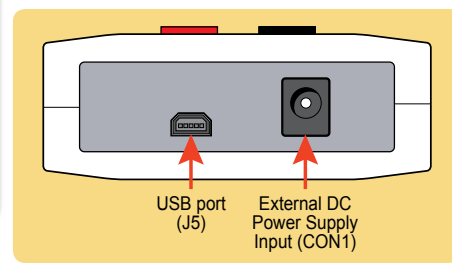


System Contents:

The picture shows the typical contents of the FS2009USB(ARM) programming kit.



Typical programmer connection to PC and Target System



Bottom panel connections

Ordering information:

- FS2009USB(ARM)** - Programmer supporting ARM microcontrollers
- CAB-ARM-20W** - Spare ARM 20-way ISP cable assembly (This cable is included with the programmer)
- CAB-ARM-10W** - Spare ARM 10-way ISP cable assembly

It is possible to purchase separate **'Device Library upgrades'** for other device families. Please see the Equinox website for further details.

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