

F5000 IN-CIRCUIT FLASH PROGRAMMER



High speed programming

The F5000 has been designed specifically for fast 'in-circuit' serial programming. It uses a high performance Renesas 32 MHz processor and local storage of data to minimise programming time. In principle, any memory or micro-controller with a serial interface can be programmed. Algorithms are produced as required. Bespoke requirements, such as adding serial numbers, can be implemented.

Small size

The programmer is housed in a small box (hardly bigger than a large matchbox) so it can easily fit into an ATE jig or an operator's hand.

No PC needed for programming

The user starts by setting up a job using a PC. Once set up, a PC is no longer required since all information is stored in the F5000.

Local data storage

Up to seven different sets of data can be stored in the F5000's flash memory for any target device or a plug-in eeprom can be fitted. Either USB or RS232 can be used to download code from a PC with the USB option being much faster and more convenient for laptops.

Once data has been stored in the F5000, there is no need for a PC and there are no delays for data to be downloaded from a PC during programming.

High speed communications with target

Data can be programmed into the target at 'non standard' baud rates which minimise programming times particularly for targets with low clock speeds. Targets with high clock speeds can communicate at over 1M bits/second.



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SPECIFICATIONS

Serial protocols

Asynchronous/RS232 (5V)
Clock synchronous
SPI and I²C

Data transmission speeds over 1M bits/second are possible.

Logic levels

5V to 1.8V
The target Vcc is automatically measured to set logic levels. Processors with two Vccs are supported by a second circuit.

Logic interface

Optically isolated.
Outputs are: Pass, Fail, Busy & Fault.
Inputs are: Program and which data set to use.

Target data storage

Choice of 7 blocks of 8M bit flash or plug-in eeprom.

Multiple programs

Program different code into your design without having to download data each time. 56M flash can be split into blocks.

Self-test

Full self-test of all pin drivers.

Programmable voltage generator

The F5000 has an internal voltage source which can generate up to 15V for Vpp or to power the board being programmed.

Power supply

Universal wall adaptor.
90 – 264 VAC 50/60 Hz
Output: 9V DC at 0.56A

For use in UK, USA or Europe (others on request)

Size

40mm(H) x 85mm(W) x 155mm(L)

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Using an F5000 in an ATE system

Being a little bigger than a large matchbox, the F5000 can easily be built into an ATE system. The simplest and probably the best way to control the programmer is to use the optically isolated logic interface. A logic signal is input to the F5000 which responds with a busy signal whilst the device is being programmed. On completion, the F5000 provides either a pass or fail signal. Optical isolation removes any chance of noise being generated in ground loops.

Unusually, the F5000 can also supply a high voltage (up to 15V). Such voltages are sometimes needed to put devices into programming mode.

Manual programming

The programmer can be connected to the target with a simple ribbon cable. Programming can be started by pushing a button or, in some cases, by detecting the presence of the target. Whilst the target is being programmed, a busy LED is lit. After programming, either a pass or fail LED is lit. Corresponding signals appear at the logic interface.

Service use

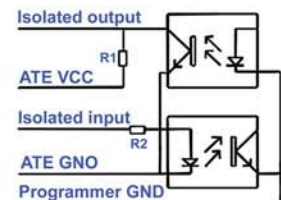
The third application for the F5000 is for field service. In a typical application, a manufacturer would send a new file to a Service Depot over the internet. The data could be downloaded to the F5000's flash and then the F5000 could be used by a Field Service Engineer to update equipment in the field.

It is possible that the Field Service Engineer may need to change programs from time to time in which case, either a laptop can be used or a 'chess key' fitted to select the required data set if no computer is available.



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ISOLATED OPTICAL INTERFACE



'CHESS KEYS'



These keys can be fitted to the Control interface to select 1 of 7 data sets. The 'King' is one of a set of 7 keys. The eighth key is fitted with a rotary switch

ADAPTOR PCB



This pcb can be used to reconfigure the 20 way ribbon cable from the programmer to an equal or smaller number of ways to suit a target board.

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