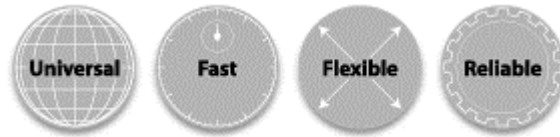




**FlashRunner I Series
 Universal, Standalone In-System
 Programmers**



- Fast and Reliable for the Industrial Environment
- Programming Algorithms as Fast as Memory Technology Limit
- Easy Integration in Programming Lines (ATE, ICT, Test Fixtures)
- Universal and Fully Upgradeable



Overview

FlashRunner I series (patent pending) is a range of high-performance, standalone In-System Programmers specific for Flash-based microcontrollers and serial memories. FlashRunner I series is targeted at production environments and can work either in full standalone mode or controlled by a host system.

- Fastest programming algorithms (as fast as target device's memory technology limit), approved by silicon manufacturers;
- Easy ATE integration;
- Standalone operations (projects and code images stored on a memory card);
- Also controllable by any host system via RS-232 or Ethernet (depending on the model);
- Supports most ISP protocols (BDM, JTAG, SPI, I2C, MON, ICC, SCI, etc.);
- Flexible, fully configurable;
- Compact and robust design for production environments;
- Data integrity guaranteed (every data transfer to/from the host system or Secure Digital card is CRC tagged).

All of the models of the FlashRunner I series have been designed for maximum performance and reliability.

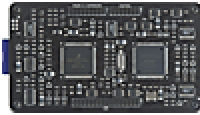
Request Information

To learn more about FlashRunner, please visit our website (www.ttc.com) or contact a TTCI sales engineer, for product literature and quotes.

Phone: 410-526-2800

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Hardware Features



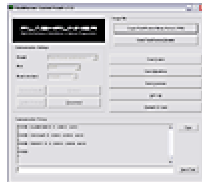
FlashRunner Core

FlashRunner features state-of-the-art electronics to provide you with high integration flexibility in a compact footprint.

- 9 to 24V DC power supply input (110/220V AC for the FR01PRO model);
- Five digital I/O lines;
- Two digital I/O or analog output lines;
- Two programmable output voltages (0 to 15V, 0.25A and 0 to 5V, 0.5A);
- One analog input line;
- One programmable clock output;
- Secure Digital memory card (up to 2 GB);
- 512 bytes on-board dynamic memory;
- On-board timekeeper and calendar;
- I/O protection;
- Opt isolated inputs for project selection;
- Two opt isolated command inputs (START and STOP);
- Three opt isolated status outputs (FAIL, PASS, BUSY);
- Opt isolated RS-232/Ethernet channel.

FlashRunner's open architecture makes its firmware easily upgradeable to support both new devices and new features.

Software Features



FlashRunner Control Panel

FlashRunner is set up and controlled via ASCII-based commands. FlashRunner can receive and execute commands in two ways:

- Over the RS-232 or Ethernet connection (Host mode);
- Via "scripts" stored in its SD card (Standalone mode).

In the first case, FlashRunner is controlled by a host system (e.g. Windows HyperTerminal); in the latter case, FlashRunner works in standalone mode and is fully autonomous.

- Fully autonomous standalone mode thanks to its SD memory card (FAT16);
- Controllable by any host system through a terminal utility and simple ASCII protocol;
- Unlimited projects (scripts);
- Log files;
- Erase, blank check, program, read, verify, oscillator trimming, etc.

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FlashRunner comes with a Windows utility that allows you to communicate with the instrument and perform the most common operations: send commands, manage SD card files, update the instrument's firmware, etc.

Available Models

The FlashRunner I series includes the following models:

FR01ENG	Programming engine (piggyback, RS-232)	
<u>FR01AT0</u>	ATE-oriented programming engine (RS-232/LAN)	
<u>FR01M01</u>	8-site programming engine (piggyback, RS-232/LAN)	
FR01LAN	Programming engine (RS-232/LAN)	
FR01PRO	Rackmount/Desktop programmer (RS-232/LAN)	

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