T9600
Universal Programming System

S p e c i f i c a t i o n s

• General Specifications •

- Product Description.....Asynchronous universal programming system supporting all device types including EPROM, EEPROM, Flash, microcontroller, PLD, CPLD, FPGA, and many others
- Module Multi-Link.....Up to 24 sites
- Number of Sockets per Module.....1 (expandable to 2 or 4 sockets for memory devices)
- Sync/Async Execution .....Yes
- Universal Pin-Drivers .....112 pins
- Pin-Drivers .....V_{CCP}, V_{PP}, V_{PE}, V_{PS}, V_{IH}, V_{IL}, Z_H, Z_L, Gnd (range: 0 ~ 21.0 V)
- Test Pin Extension.....Up to 336 pins
- Hi-Voltage DAC.....3 sets (all current-mode)
- RAM Buffer.....512 Mbits standard (expandable to 1024 Mbits)
- Communication Interface.....USB / RS-232C (USB requires Windows 98/2000)

• Functional Specifications •

- Vector testing .....Yes
- Margin testing.....Yes
- V_{OH}/V_{OL} testing.....Yes
- EPROM auto identify.....Yes
- Block Erase/Program (available soon).....Yes
- Split/Set programming.....Yes
- Range programming.....Yes
- Verify with list (compare) (available soon).....Yes
- Auto-Sensing.....Yes
- ID checking.....Yes
- Insertion check.....Yes
- Pin continuity check.....Yes
- Serial code programming.....Yes
- Universal socket board.....Yes
- STAPL/JAM support.....Yes
- Green device support.....1.2 V
- Antifuse programming.....Yes
- Memory edit.....Yes
- Special bit edit .....Yes
- Programming parameter edit.....Yes
- Checksum method.....Byte, Word, CRC16, CRC32
- Job Manager/Operator-Mode.....Yes
- File format.....
  Intel Hex, Microchip INHX, Tektronix Hex, Motorola S, Signetics Hex, Extended Tekhex, HP 64000 Absolute, Spectrum, TI SDSMAC, ASCII Hex, ASCII Oct, ASCII Binary, Formatted Binary, Binary, JEDEC, POF, DIO, JAM, STAPL, and LOF

• Physical Specifications •

- Dimensions .....20.0 x 14.5 x 10.3 cm
- Shipping dimensions .....37.5 x 17.0 x 26.0 cm
- Weight .....2.40 kg (5.33 lbs)
- Shipping weight .....3.53 kg (7.84 lbs)

• Electrical Requirements •

- Operating voltage.....100-240 VACu
- Frequency range.....50/60 Hz
- Power consumption.....40 VA max.

• PC System Requirements •

- Operating system .....Windows 95/98/2000/XP
- Processor .....Pentium or above
- Free disk space .....32 MB recommended
- DRAM .....16 MB recommended
- Communication .....RS-232C or USB CD-ROM drive

• Environmental Requirements •

- Operating temperature.....5-45 °C
- Operating humidity.....90% non-condensing

• Standard Accessories •

- Power cord
- Power connection cable
- System software CD (on-line help and tutorial)
- RS-232C cable
- USB cable

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SYSTEM GENERAL

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T9600
Universal Programming System

One of the Fastest Programming Systems Ever Built

USB Interface

Product Highlights

- 112 powerful universal pin drivers (expandable to 448 pins for testing)
- Built-in 512-Mbit RAM buffer (expandable to 4096 Mbits)
- Programs a 64-Mbit Flash device in 18 seconds
- USB port for high-speed data trasmission
- Supports 1.2V V_{CC} Green devices
- Supports antifuse devices
- Multi-linkable for gang programming
- Pipelined throughput
- Windows software with job control functions
- Graphical real-time statistical display
- Online automatic failure-cause analysis
- Configurable programming parameters for fine-tuning
- Supports NAND-gate Flash programming
- ISO 9001 certified

SYSTEM GENERAL

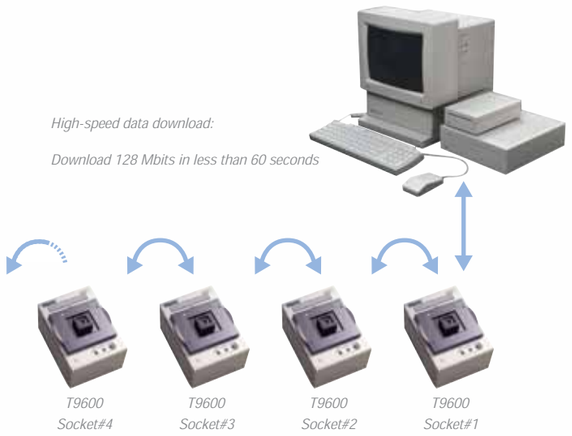
One of the Fastest Programmers Ever Built

- In 1998, System General was the first programmer company to pioneer High-Speed Programming (HSP) technology for Flash memories. Since its introduction, HSP has set the standard for the rest of the industry. Evolving from proven HSP technology, the new 9600 programmer supports virtually every type of programmable device currently available. It can program an Intel 16-Mbit Flash memory in only 12 seconds. It is internally 10 times faster than its predecessor. So, when Flash semiconductor programming technology improves, System General will be prepared to help customers take full advantage.

Rapid File Downloads

A high-speed programmer requires equally high-speed file downloads to avoid bottlenecks. The 9600 can download files from a PC at 2.2 megabits per second thanks to its USB interface. A 16-Mbit file downloads in less than 8 seconds. The versatile "Plug-n-Play" USB feature allows the user to easily swap different system configurations.

To optimize programming throughput, the Model 9600 emphasizes maximum flexibilty. A single system with multiple sites can easily be split into two or more separate systems.



Available for Manual and Automated Production

The model 9600 is available in two configurations. The T9600 table-top model is designed for manual programming, while the H9600 version performs handler interfacing.

On the T9600, engineers can use the password protected Engineer mode and the Task Manager software to program the first article. The programming conditions and parameters used for the first article are then saved as a specific task file. Once the first article passes certification in the target system, the saved task file can bring up the same programming setup on a T9600 for manual programming, or on another H9600 using any System General automatic handler. In order to minimize human error, the 9600 can be run in high-security Operator mode.

Programming times

(All times represented in seconds)

Flash Device	Blank Check	Program	Verify
Intel 28F640W18	5	26	NA *
Intel 28F128K3C	9	79	NA *
Intel 28F256K3C	18	160	NA *
Intel PXA263(256M/32bit)	11	85	NA *
Altera EPM7512AE	0.3	2.6	1.2
Lattice LC4512B	1.8	3.8	1.7
Xilinx XC95144XV	0.4	7.0	0.5
ST M28W640EC	5.7	17.6	5.7
K9F2808U0b(128Mbits)	15	29	20

* Benchmarks based on the Intel EFP/BEFP algorithms.
Verify has been included as a part of the program cycle.

More than a Programming Workstation

At System General, we are aware of the need to test programmed devices before they reach board level. Reworking rejects is prohibitively expensive. For logic devices, the 9600 supports vector tests with user-defined DC parameters for up to 448 pins. For memory devices, margin testing can ensure that the programmed memory will operate within a valid voltage range. Engineers can use margin testing as a powerful QC tool to find and eliminate potential rejects. Margin testing can also be used to pinpoint high and low margins.

The USB-enabled 9600 control and algorithm software works with Windows 98/2000/XP. A 9600 with a regular serial interface can be operated using any Windows system. Tasks can be saved in one location, and used at another location.

Covering Today's and Tomorrow's Device Technologies

When investing in a device programmer, the purchase should not only fit current programming needs, but also anticipate future device technologies. The new model 9600 is designed to meet these requirements. Its system Vcc can be set to as low as 1.2 Volts to program the next-generation of Green devices. Its powerful array of 112 analog pin drivers supports different pin definitions for each socket adapter. This can substantially reduce change-overs. With the add-on EPD adapter, you can extend the array of pin drivers to 448, to support CPLD functional testing. The 9600's current sensing capabilities are precise enough even to enable antifuse device programming. Furthermore, the 9600's asynchronous (ie, concurrent) approach starts device programming in each socket upon device insertion. The 9600 combines maximum operating efficiency with pipelined throughput.