THE 120A/121A GANG PROGRAMMERS

DATA I/O

Manufacturer-approved algorithms provide reliable programming and increased yields

Large RAM size allows many data patterns to be stored for flexible set programming

Full alphanumeric keyboard for versatile operator input

16 character display for easy-to-read operator prompts and status messages

EEPROM test capability provides added flexibility

Operator's Guide

121 A GANG PROGRAMMER

SELF TEST -OK

DATA I/O
121 A
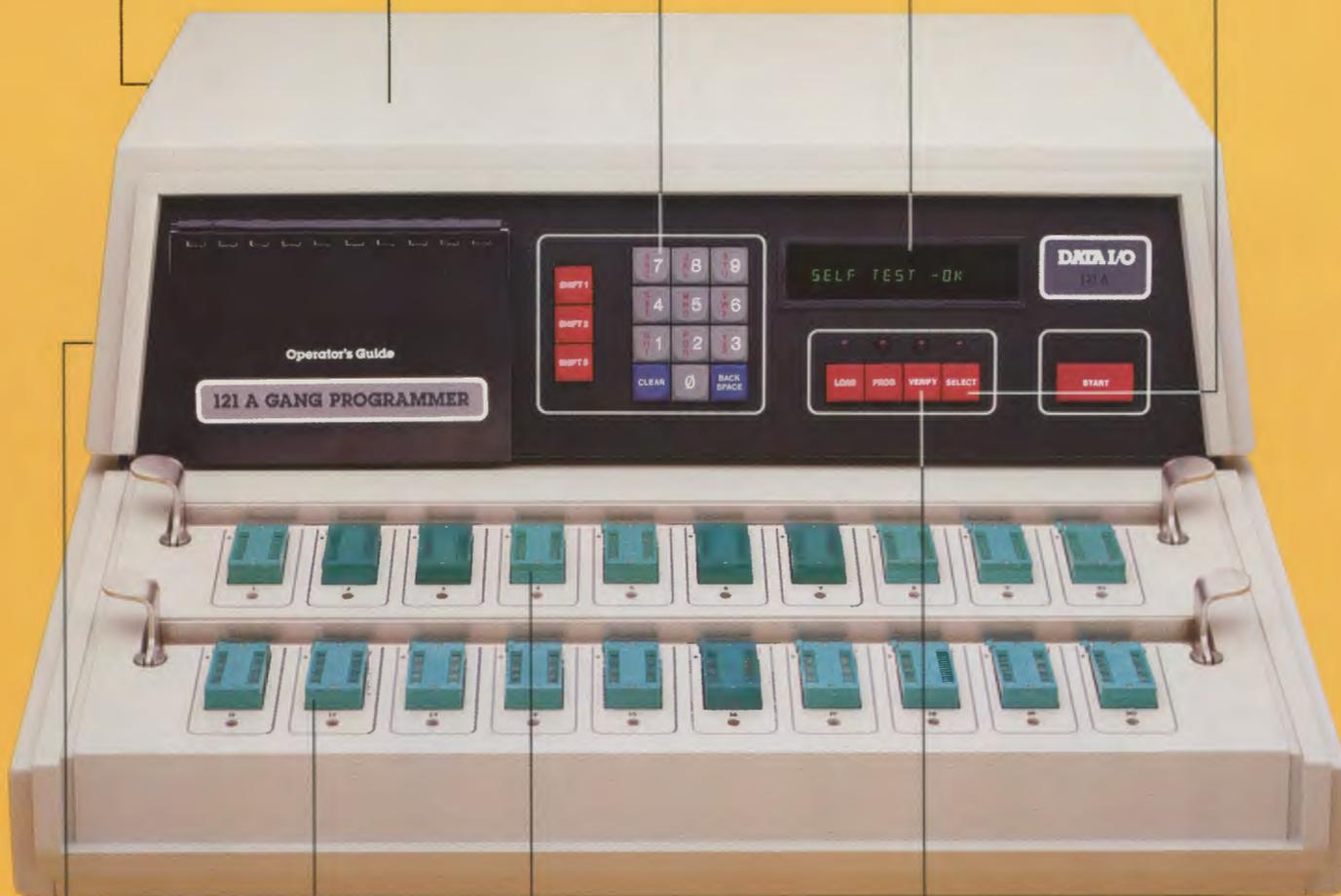
Electronic identification decreases operator error

20 sockets for greater throughput

Select one-pass verify for speed, or two-pass verify at high and low Vcc for maximum assurance

Set programming in the 121A allows several different data patterns to be programmed simultaneously

Fast algorithms speed programming time

Remote control allows data transfer, programming and verification to be controlled through serial port

120A AND 121A
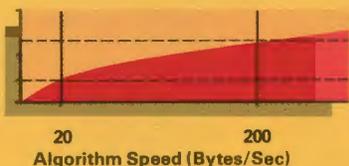# AND THROUGHPUT
MOS PROGRAMMING

Thanks to new manufacturer-approved fast algorithms and electronic identification, Data I/O's 120A/121A Gang Programmers let you program up to twenty devices simultaneously—faster than ever—and without sacrificing accuracy. It all adds up to higher throughput, increased yields and greater cost-efficiencies.

Fast algorithms mean greater throughput.

Standard programming algorithms require 50ms or more to program a single byte. But Data I/O's new fast algorithms enable your devices to be programmed up to ten times faster. Fast programming algorithms can program a byte in as little as 5ms, for quicker programming byte after byte.

FIGURE 1
Throughput EPROMs/Hr

Increased Throughput Per Programmer

20   200
Algorithm Speed (Bytes/Sec)

FIGURE 2
Programming Cost/EPROM
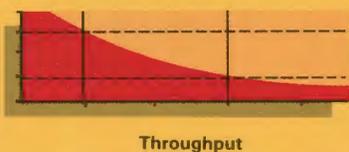
Cost Savings

Throughput

Figure 1 shows how this difference increases EPROM throughput per hour. Figure 2 shows how this translates to significant savings at the bottom line.

Electronic identification improves yield.

Data I/O is the first programmer manufacturer to support the concept of "electronic identification." To help reduce the chance of operator error and costly mistakes, both the 120A and 121A can read identification codes built into the device by the manufacturer. This special code automatically identifies the device manufacturer and the device's part number, indicating the correct programming algorithm. The chance of operator error at this stage of operation is virtually eliminated.

VERIFY ERROR 29

Close manufacturer relationship ensures best programming algorithms.

Data I/O works closely with semiconductor manufacturers to develop optimum programming algorithms. Manufacturer-approved algorithms ensure the highest possible yields. This is important when programming second-sourced parts. Data I/O doesn't assume the same algorithm applies to all second-sourced parts. We work with the manufacturer to ensure the best algorithm for each device.

It's not just a programmer—it's also a versatile development tool.

The main difference between the 120A and the 121A lies in the 121A's ability to program different sets of devices simultaneously and to edit data in RAM.

The 121A will program five sets of four 32k x 8 EPROMs each—or any other combination—simultaneously. Programming that once required separate operations for each data pattern can now be done in a single operation. The 121A also lets you alter each data byte individually—a strong asset during the debugging phase of program development.

Both the Data I/O 120A and the 121A provide computer remote control. This lets you transfer data, program parts and verify from a host computer through a serial port. The 121A provides two serial ports for even greater flexibility.

Put Data I/O to work for you.

For greater throughput and yield on the production line—and for greater versatility in the lab—the Data I/O 120A/121A Gang Programmers provide the best possible solution. Put one or more to work for you.
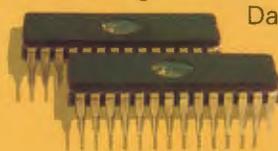
DATA I/O

THE DATA I/O COMMITMENT TO YOU

Data I/O has become the world's largest supplier of microcircuit programming equipment by working closely with you and the people who design and manufacture the devices you program.

Our close relationship with the world's leading device manufacturers ensures that Data I/O programming equipment—including the 120A/121A Gang Programmers—will always be updated with the most accurate, state-of-the-art programming algorithms. It also explains why Data I/O programmers support a wider range of devices than any other programmers on the market.

Finally, Data I/O is fully committed to providing ongoing service and support for every programmer we sell. Now and in the future.

For more information about the 120A/121A Gang Programmers, consult your Data I/O sales representative.

FUNCTIONAL SPECIFICATIONS

General Architecture:	Microprocessor-controlled (6809)
Sockets:	20 ZIF sockets with quick-release bails
Devices Programmed:	MOS, CMOS EPROMs and EEPROMs;
RAM:	32k x 8 (120A) 128K x 8 (121A), or 256K x 8 (121A)
Keyboard:	12-key pad with full alphanumeric capability via shift mechanisms
Display:	16-character alphanumeric
I/O Ports:	One (120A) or two (121A) RS232C serial ports
Baud Rates:	(Switch-selectable) 110, 150, 300, 600, 1200, 2400, 4800 or 9600 baud
Remote Control:	34 commands via RS232C port
Translation Formats:	26 formats
Select Codes:	25 via keyboard
Error Codes:	82 codes with messages

ELECTRICAL REQUIREMENTS

Operating Voltages:	100, 120, 220 or 240 V (all within 10%)
Frequency Range:	48 to 62 Hz
Power Consumption:	165W
Fuse Protection:	Primary and secondary fuse protection.

PHYSICAL AND ENVIRONMENTAL SPECIFICATIONS

Dimensions:	66cm x 27cm x 55cm (26" x 10 5/8" x 21 1/2")
Shipping Weight:	23.5kg (52 pounds)
Operating Temperature Range:	5° to 45° C (41° to 113° F)
Storage Temperature Range:	−40° to 70° C (−40° to 158° F)
Humidity:	To 90% (noncondensing)
Operational Altitude:	To 10,000 feet

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