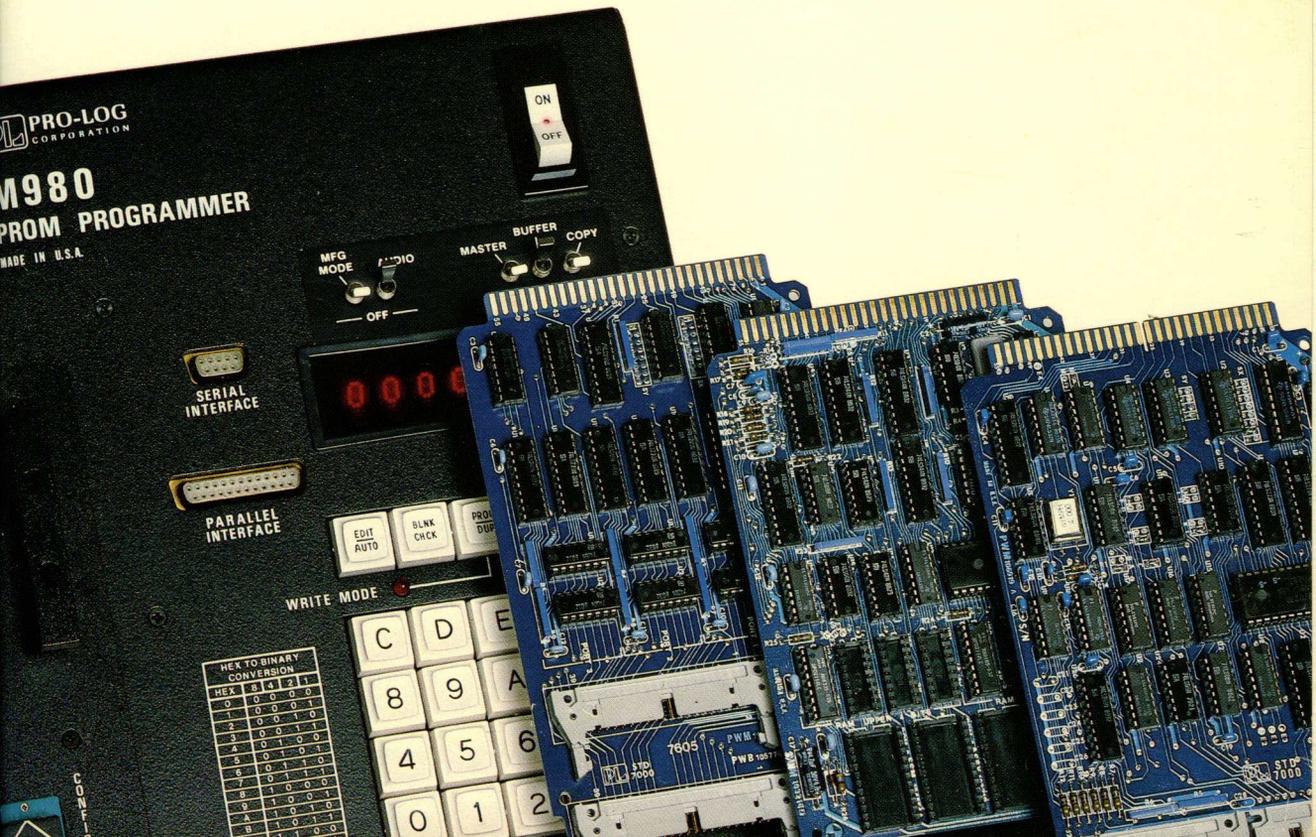


Price List and Short Form Catalog 1981

U.S. domestic prices effective April 5, 1981.
Prices subject to change without notice.



PRO-LOG
CORPORATION
M980
PROM PROGRAMMER
MADE IN U.S.A.

ON
OFF

MFG MODE
OFF

MASTER BUFFER COPY

SERIAL INTERFACE

0000

PARALLEL INTERFACE

EDIT AUTO BLNK CHCK PROG DUP

WRITE MODE

C D E
8 9 A
4 5 6
0 1 2

HEX TO BINARY CONVERSION				
HEX	3	4	2	1
0	0	0	0	0
1	0	0	0	1
2	0	0	1	0
3	0	0	1	1
4	0	1	0	0
5	0	1	0	1
6	0	1	1	0
7	0	1	1	1
8	1	0	0	0
9	1	0	0	1
A	1	0	1	0
B	1	0	1	1
C	1	1	0	0
D	1	1	0	1
E	1	1	1	0
F	1	1	1	1

1-120C

How Pro-Log Supports You

PRO-LOG was one of the first to recognize and contribute to the tremendous impact microprocessors and PROMs have on the design of electronic equipment and systems. When we started (in 1972) "microprocessor" was a buzz word that not too many people took seriously, and solid state PROMs were in their infancy. Our first products, the PLS-401 Microprocessor System and M810 PROM Programmer, were unique to the industry because they presented a new concept. Things have changed. Now most engineers know that, to remain competitive, microprocessor-based designs are necessary. The questions have changed. No longer is it, "Should we use a microprocessor?" Now it's "Which microprocessor and which PROMs should we use?" and "How should we approach our design?" Now, as then, PRO-LOG can help you.

• PROM Programmers

PRO-LOG has supplied PROM programmers to industry since early 1973. In addition to providing rugged, reliable, and PROM vendor-approved designs, PRO-LOG has contributed to the state of the art by inventing and pioneering the Iterative Programming Technique (now an industry standard method of programming some MOS PROMs) and by supplying up-to-date information on the entire PROM industry each year in the *PROM User's Guide*. PRO-LOG's Series 90 Programmers are the first UL Listed PROM programmers. The Underwriters Laboratory listing indicates our commitment to your safety.

• Microprocessor Systems and Support Hardware

The continually expanding line of single and multicard systems now includes designs utilizing the 8080A, 6800, 8085, and Z80 Microprocessors. Our wide range of support cards, including I/O, memory, interface, and associated accessories, ease your design effort. By providing these "unbundled" systems, you only buy what you need. Our STD BUS products, introduced by PRO-LOG in 1978, have become an industry standard.

• Microprocessor Test Instruments

The M800 Analyzers are easy to use, low cost alternatives to complicated hardware or software debugging aids, applicable to all phases of engineering, production, and field service.

• Education

PRO-LOG shares its microprocessor knowledge and experience with you by providing courses and seminars nationwide. A free economics and management seminar tells how to evaluate microprocessors. A hands-on course teaches microprocessor design and programming techniques.

• Quality Control/Warranty

High quality, reliability, and customer satisfaction are the prime requirements of PRO-LOG products. To this end, we use only the best commercial grade products, follow a rigid inspection, burn-in, testing program, and provide complete documentation and customer service facilities. The results? A Two-Year Parts and Labor Warranty on our M980 and M910A PROM programmer control units and a One-Year Parts and Labor Warranty on all other products.

• Products You May Manufacture

We allow you to be your own second source when you buy cards from PRO-LOG. After payment for 250 systems, we give you free of charge, all necessary documentation and non-exclusive manufacturing rights!

• GSA and FSC

PRO-LOG also extends GSA pricing to appropriate government agencies. Contact PRO-LOG for GSA pricing. PRO-LOG's Federal Supply code number is 55051.

"Microprocessors at your fingertips"

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Pro-Log's Series 90 programmers are micro-processor-based instruments for programming and testing PROMs and other programmable devices. Each programmer consists of a control unit and a plug-in personality module.

Control units to fit your needs

Two control units are available from Pro-Log: the M980 and M910A. The M980 is a versatile, general purpose unit for use in engineering, manufacturing, quality assurance, and field service environments.

With the M980 control unit and plug-in personality modules, you can program, copy, and test most MOS and bipolar PROMs and logic devices—and you're ready for new devices as they come along, including PROMs as large as 64K x 16 bits.

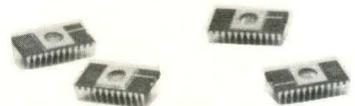
Pro-Log's other control unit, the M910A, is tailored specifically to the manufacturing and field service environments.

Modules that are always up to the minute

Pro-Log's personality modules form the hardware interfaces between the control units and particular programmable devices. More than 450 types of PROMs and programmable devices are available today. They vary in the number of bits, pinouts, package size, power requirements, and programming techniques. By keeping in close touch with the rapid changes in programmable circuit technology, Pro-Log is ready with new or modified personality modules, whenever new devices are introduced or old ones change their algorithms.

Pro-Log makes four kinds of personality modules: dedicated, gang, generic, and generic gang. You can use our *dedicated* modules for specific PROMs whose characteristics are unique. Our *gang* modules enable you to program multiple PROMs simultaneously. With our *generic* modules, you can program families of PROMs by utilizing appropriate pinout adapters and configurators. And our *generic gang* modules allow you to program multiple units of PROM families simultaneously, using appropriate gang configurators.

All our personality modules function with either the M980 or M910A control unit.



PROM Programmiers

Reliable performance, worldwide

Pro-Log has shipped over 9,000 control units and 20,000 of its personality modules since 1973.

These products are human-engineered. Their controls are simple and minimal. Operating instructions are easy to understand and follow.

Separate master and copy sockets on our personality modules eliminate the danger of accidental alterations to the master PROM, giving you programming security.

You can depend on precise, fixed voltage regulation—periodic calibration is **not** needed. Separate power supplies in the control unit and personality module assure stable regulation.

Backed by the industry's longest warranties

Our enviable record of dependability is not accidental, but intentional. It stems from our selection of quality components, combined with simple internal construction and rigid test procedures. Because we build quality into our products, Pro-Log includes a full two-year parts and labor warranty with the M980 and M910A control units, and a one-year parts and labor warranty on our personality modules.

UL listed and vendor approved

Our products are listed by Underwriters Laboratories - an assurance that what you buy from Pro-Log is made to exacting safety standards and that we are dedicated to such a philosophy.

As a matter of policy, Pro-Log submits its personality modules to PROM manufacturers for their evaluation, testing, and approval. As a result, when using our modules, you can feel confident you are programming to the manufacturer's specifications.

Options and accessories support

Pro-Log supports its older control units, including the M900, M900B, M910, and M920, with options and accessories on a continuing basis. We also provide updating services and accept the older control units as trade-ins on the new M980 control unit. For further information on PROM programmers, contact Pro-Log directly or Pro-Log's local sales representative (see page 61).



M980 for quality PROM programming

Pro-Log's M980 is a portable, microprocessor-based control unit in our Series-90 family of PROM programmers. With the M980 and plug-in personality modules, you can program, copy, and test PROMs and other programmable devices. The M980 can use any of our field-proven personality modules, including dedicated, generic, gang, and generic gang modules. Its software enables you to implement a host of optional plug-in interfaces—to terminals, computers, development systems, and other equipment.

Whether a design engineer, manufacturer, or field-service engineer, you'll find that the M980 meets your current needs—as well as your future needs—now.

As a company manager, you'll welcome the M980 as a cost-effective ally in your fight to keep the lid on your engineering, production, and field-service costs.

Using the M980 and Pro-Log's plug-in personality modules, you can:

- Program, compare, read, and duplicate more than 450 different devices, including PROMs and PALs.
- Perform blank checks, six-digit checksums, and illegal-bit checks.
- Edit data in the CMOS RAM buffer memory, including move, insert, delete, and nibble swap.
- Retain data in the CMOS RAM buffer for 7 days with power off.
- Interface with computers, development systems, paper tape readers, and TTYs.
- Utilize visible and audible prompting to ensure proper programming operations.
- Use the manufacturing mode for single keystroke duplicating.
- Select built-in, self-test functions.
- Operate with a safe, UL listed, product.

M980 Control Unit Includes

- Microprocessor controller with crystal clock and program expansion capability
- CMOS RAM buffer memory with battery backup
- Cooling fan



M980 Control Unit shown with PM9046C Personality Module and the 9103A UV Erase Light

- Eight-digit hexadecimal display
- Audio tone for pass and fail indications
- Receptacle and connectors for personality module
- Base plate and tilt bar
- Power on/off control-lighted circuit breaker
- Attaché carrying case
- Two-volume user's manual.

Physical Characteristics

- Housed in a high-impact, plastic carrying case (23x12x6.5 in. or 584x305x165 mm)
- Maximum weight with personality module and erase light: 24 lb (10.87 kg).

Power Requirements

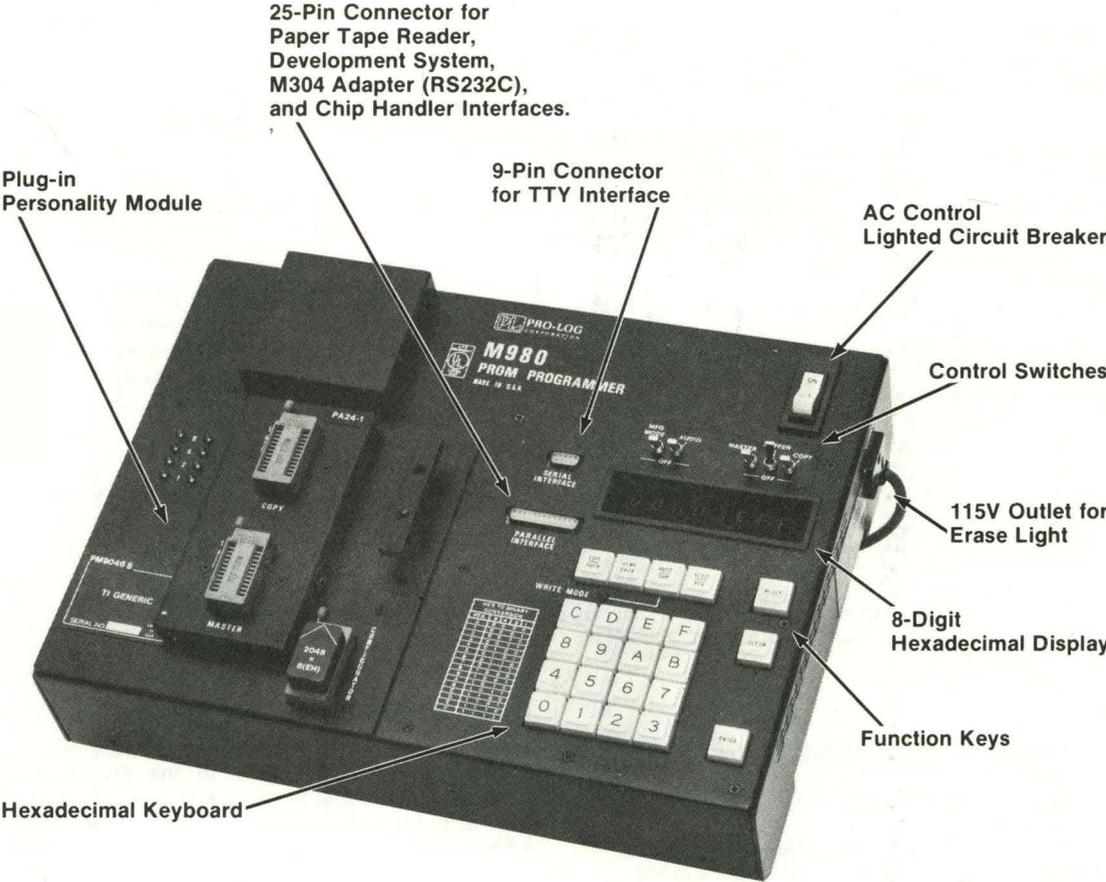
- Factory wired for either 115VAC 50-60 Hz, 230VAC 50-60 Hz or 100VAC 50 Hz
- Maximum power: 100 W.

Optional hardware and accessories, including UV erase light, paper tape reader, and an RS3232C interface adapter, are described on pages 9 and 10.

Send for free 32-page brochure *Series 90 PROM Programmer* (Document #106830) that features the M980 control unit.

\$2450.00	M980-041*	Control Unit with 4Kx8 RAM Buffer (115 VAC)
\$2750.00	M980-081*	Control Unit with 8Kx8 RAM Buffer (115 VAC)
\$3450.00	M980-161*	Control Unit with 16Kx8 RAM Buffer (115 VAC)

* Part numbers shown are for operation on 115 VAC line voltage. The 230 VAC and 100 VAC versions are also available. To order 230 VAC version, change last digit in part number from "1" to "2." To order 100 VAC version, change last digit in part number from "1" to "0."

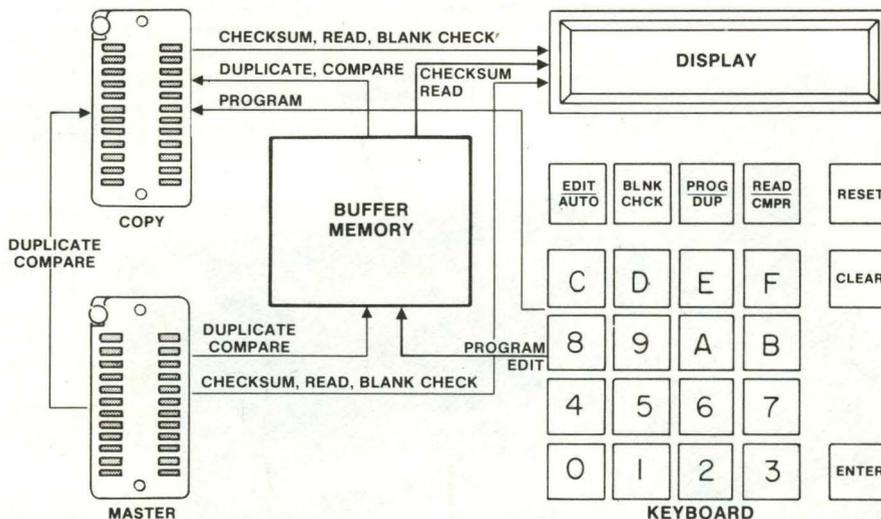


M980 shown with PM9046B Personality Module but without Attache' Case.



M980 User's Manual and Brochure

Standard M980 Operations



Features

- Program, list, duplicate, and compare modes of operation
- Performs blank check, illegal bit check, and checksum
- Ability to edit data in the RAM buffer
- Allows data substitution in duplicate mode
- User can define address field of operation
- Built-in self-test features
- Fully portable (attaché case included)
- UL listed.

Buffer Memory Operations

The Buffer Memory in the M980 Control Unit is used to manipulate data before PROM programming.

The buffer can be loaded from the keyboard, master, or remote interface by various options. The buffer can be read to the display one location at a time and can be automatically compared with the master or the copy. An automatic checksum can be performed on the buffer.

The buffer can be manipulated by a series of edit operations such as: character fill, data invert, nibble swap, insert, delete, and others.

All buffer operations can be done either over a full address field or a partial address field.

Buffer Memory Retains Data for Seven Days

The M980's CMOS RAM buffer memory provides operating features unique to the programming industry. The basic memory size is 4,096 words of 8 bits, but it is also available in 8Kx8 or 16Kx8 sizes. The memory is backed up with a rechargeable battery so that it holds data for a minimum of seven days. The battery recharges whenever power is on and is completely recharged in under 15 hours. A user can load the memory with data at one location and take the programmer on a plane half-way around the world, or on a train between Boston and New York, and have the data ready to use when he arrives at his destination.

Buffer Memory Readily Edited

The M980's buffer memory can be put to many uses. Data can be written into memory from the keyboard, from one of the many peripheral interfaces such as RS232C, TTY, Paper Tape Reader, or its Parallel Interface, and from either the master or the copy socket of a personality module. Data in the memory can be manipulated from the keyboard in a number of ways including: invert, nibble swap, and insert. Other editing features allow the operator to rearrange data from 4-bit PROMs so that it can be put into 8-bit PROMs and from 8-bit PROMs to 16-bit PROMs, or to assemble data in small PROMs to be transferred to larger PROMs.

M980 Interface Capability

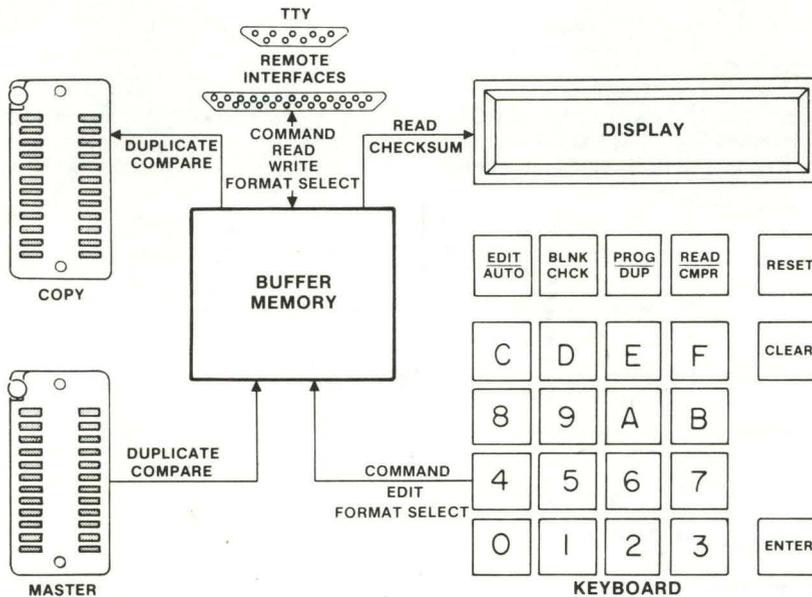
The M980 programmer contains all software needed to interface with computers, development systems, tape readers, chip handlers, and TTYs through parallel and serial communication channels in numerous formats. The interfaces and formats are keyboard-selectable or remotely selectable. Optional hardware is required to implement the RS232C (9818), and the paper tape reader (9811). (See p. 8 for details on all interfaces.) A chip handler interface option (9817) is scheduled for Q3, 1981.

Development System Interfaces

Software is resident in the M980 to provide interfaces for popular development systems including

those manufactured by Futuredata, Intel, Motorola, MOS Technology, RCA, Tektronix, and Zilog. Software to interface with Digital Research CP/M is also included.

Interfaces for other development systems may be added. Contact Pro-Log for a current list. See the *Series 90 PROM Programmer* brochure (Document #106830) for further information on development system interfaces.



Accessories

9103A UV Erase Light

Model 9103A is an ultraviolet (UV) erase light that accommodates a quantity of UV erasable PROMs. It consists of two high-intensity UV lamps mounted in an enclosed case with hinged lid and safety interlock, a presettable 0-60 minute timer, ON and OFF controls, and AC power cord.

Features

- Automatic shutoff with presettable timer
- Programmer-mountable
- Interlock, to prevent eye exposure to UV
- Safety-view hole to check lamp
- Conductive foam pad that holds ten 24-pin DIPs
- UL-listed.

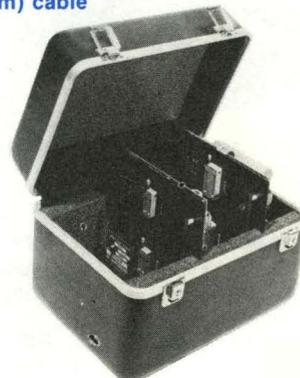


\$210.00	9103A	UV Erase Light for M980 convenience outlet
210.00	9103A-1	UV Erase Light (115 VAC) with 6 ft. (1.8 m) cable
210.00	9102A-2	UV Erase Light (230 VAC) with 6 ft (1.8 m) cable

Personality Module Case

Pro-Log offers convenient storage/carrying cases to accommodate either generic or dedicated personality modules. One case houses the personality module, configurators, and pinout adapters for a complete generic family. The other case houses up to four individual modules.

Each case is made of high-impact resistant PVC. The dimensions are 8.5x11.75x8.5 in. (216x298x216 mm). Foam plastic inserts accommodate and protect the personality modules.



\$ 95.00	9203	Dedicated Personality Module Carrying Case Will house up to 4 personality modules.
110.00	9204	Generic Personality Module Carrying Case Will house up to 2 personality modules, 10 pinout adapters, and 7 configurators.

9202 Attaché Case

The 9202 case provides protection for the M980 or the M910A control unit during storage and transit. It also provides a mounting area for the 9103A UV erase light. The lid may be detached, if desired, for

bench-top use. The case, which measures 23x12x6.5 in. (584x305x165 mm), is made of high-impact resistant plastic and meets airline carry-on limitations. (The 9202 case is included at no charge with the M980.)

\$100.00	9202	Attaché case
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M910A Control Unit

The M910A is designed for the production and field service environments. It offers high-volume users separately selectable blank-check, duplicate, and compare functions. An auto mode is provided for automatic sequencing of all three functions. The simplified keyboard and display are easy to operate and easy to understand. A wide selection of gang personality modules, or an optional chip handler interface (available Q3 1981), can provide a high level of production throughput.

An optional RS232C interface (available Q3 1981) and a chip handler interface (available Q3 1981)

enhance the usefulness of the M910A in manufacturing and field service applications. The M910A is delivered as a bench-top unit, but it can be easily installed in an optional 9202 attaché case (see p. 10).

Features

- Color-coded LED PASS, FAIL, and function indicators
- Audio tone pass and fail indicators
- Single push-button operation in AUTO mode
- UL listed.



M910A Control Unit
Shown with PM9061A Personality Module
and M305 Checksum Option Display Adapter

\$1,500.00	M910A-000	Control Unit (100 VAC)
1,500.00	M910A-001	Control Unit (115 VAC)
1,500.00	M910A-002	Control Unit (230 VAC)
250.00	M305	Checksum Option Display Adapter Plugs into parallel interface.

Ready for over 450 programmable devices...and growing.

With Pro-Log's powerful new M980 control unit and plug-in personality modules, you can program, copy and test most MOS and bipolar PROMs and logic devices. And you're ready for new devices as they come along...including ICs as large as 64K × 16 bits.

Modules that are always up-to-the-minute.

By keeping close touch with the rapid changes in programmable IC technology, we're ready with new or modified personality modules whenever new devices are introduced or old ones change their algorithms. We have modules for individual PROMs, for whole PROM families, and for gang pro-

gramming 8 devices simultaneously. Plus a generic module for PALs. All our modules have been tested, evaluated and approved by the device manufacturers, so you program exactly to their specifications.

Backed by the industry's longest warranties.

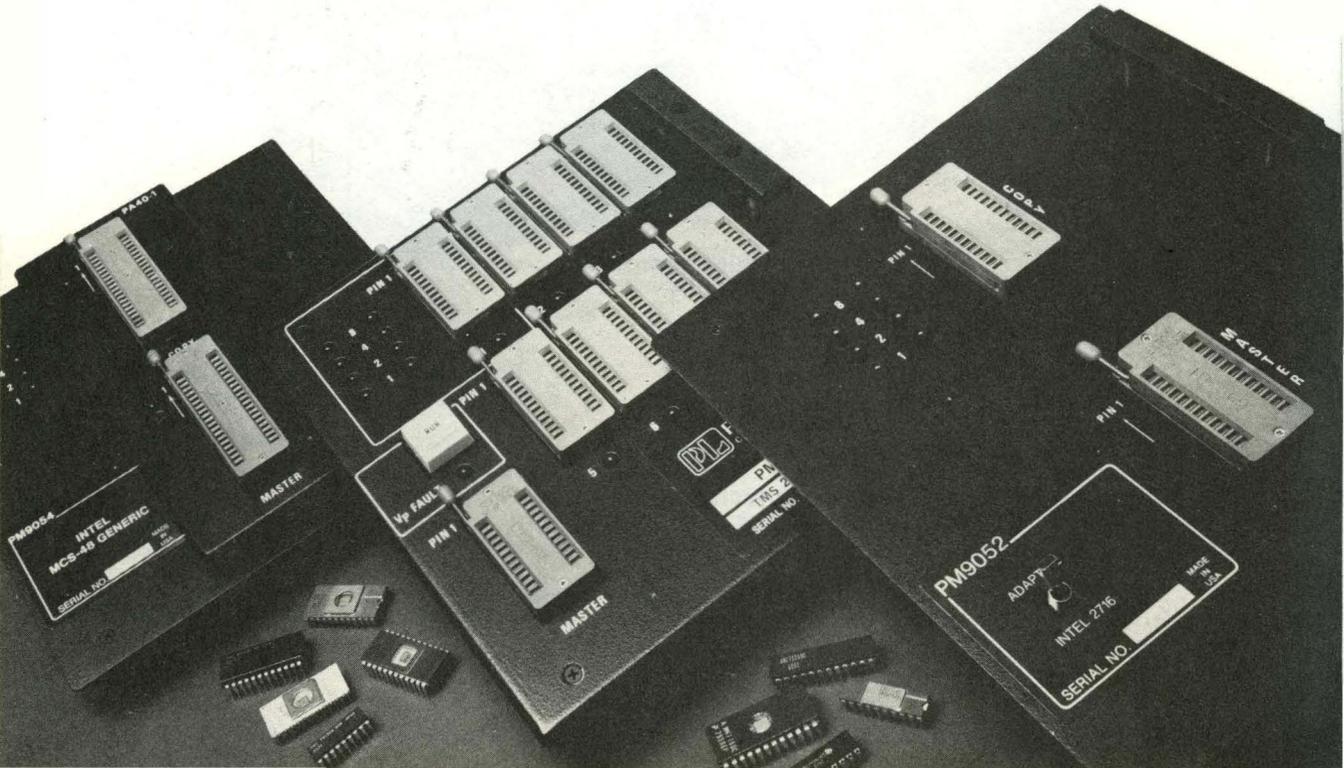
Based on the proven quality of over 9,000 Series 90 programmers and 20,000 personality modules now performing reliably worldwide, Pro-Log gives you a one-year warranty on all modules and a two-year warranty on control units.

Get the facts. Send for our new M980 brochure.

A definitive description of the M980's expanded performance features. Write or call Pro-Log Corporation, 2411 Garden Road, Monterey, CA 93940, phone (408) 372-4593.



PRO-LOG PROM PROGRAMMER



Personality Modules

The PM9000 series of plug-in modules offer you a cost-effective approach to programming an ever expanding range of bipolar and MOS PROMs. Each module has self-guiding connectors to the control unit.

All personality modules include the circuitry for timing, voltages, and currents necessary for programming the PROM. Using this approach, Pro-Log eliminates the need for expensive periodic calibration.

Pro-Log maintains a close, but independent relationship with the PROM manufacturers, to always provide you with current programming technology. Our ongoing program of vendor approval for all personality modules assures you of correct programming specifications. Contact Pro-Log for specific vendor approvals.

Pro-Log now offers four categories of modules: dedicated, gang, generic, and generic gang, which provide you with alternatives for specific programming applications.

Personality modules PM9001 through PM9074 were designed for use in any of Pro-Log's Series 90 control units. As PROM programming and PROM test requirements became more complex, a new series of personality modules had to be designed. Personality modules, starting with the PM9075, require the functional capability of the M980 or M910A control units and may not function in Pro-Log's M900, M900B, M910, and M920 control units.

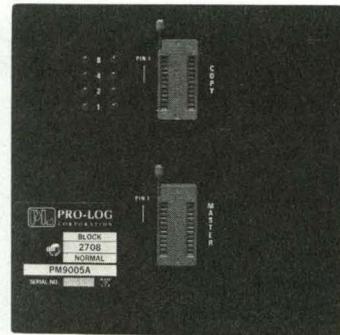
Personality modules can be selected by using the selection guide on pages 16-23.

Dedicated Modules

Dedicated modules include all the circuitry necessary to program specific bipolar or MOS PROMs. They are normally limited to one size of PROM and one programming algorithm.

Features

- Modules include separate master and copy sockets for master data protection
- Binary data display for copy PROM
- Zero-insertion-force sockets
- Can be used with any Series 90 control unit.

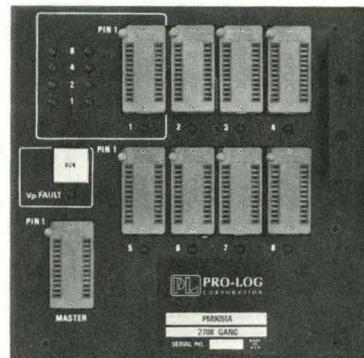


Gang Modules*

Gang modules provide a cost-effective alternative to expensive and cumbersome automated high-production programming. They automatically program and compare up to eight PROMs simultaneously.

Features

- Separate master with eight copy sockets
- Zero-insertion-force sockets
- Automatic self-check compare for all 8 copy PROMs
- Single copy socket can be listed or manually programmed with gang module
- Binary display for single copy socket
- Can be used with any Series 90 control unit



* Due to the increased current drain of multiple device programming, M900 and M920 control units manufactured prior to October 1, 1977 (Serial No. 2300) cannot be used with gang modules.

Generic Modules

The generic personality modules offer a cost-effective solution to programming PROMs from manufacturers who offer a family of PROMs with similar programming parameters, but with different pin arrangements, PROM sizes, and bit structures.

The modules include the control electronics for the PROM's voltage, current, and timing parameters. To program the entire generic family is simply a matter of accommodating the pin requirements and bit structures of a given PROM in the generic family.

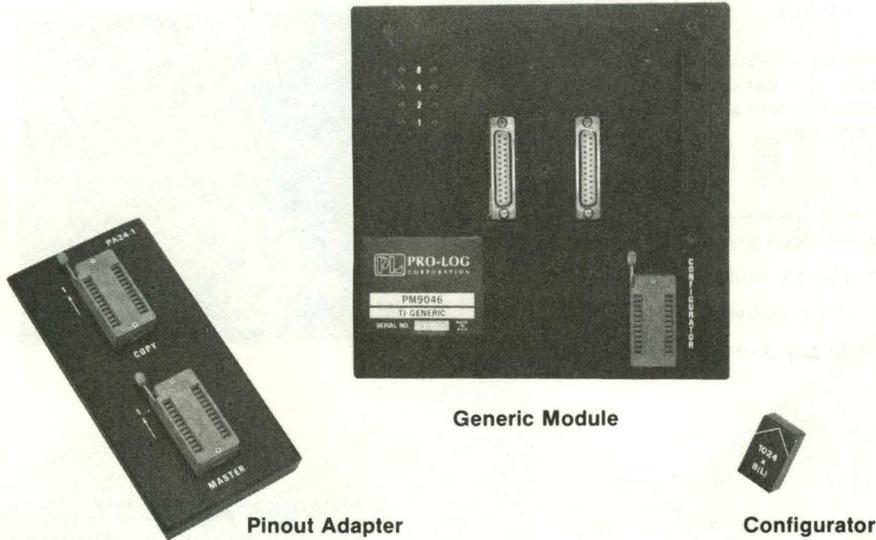
To accommodate the various PROM pinout configurations, the generic module is designed to accept one of a series of pinout adapters (PA). The PROM bit structures are handled by a plug-in configurator (CA) that adapts the system to the appropriate

PROM configuration. A zero-insertion-force socket is provided on the generic module to accept the configurator.

The PM Selection Guide (pages 16-23) shows the various generic module pinout adapters and configurators necessary for programming. Note that several PROMs may utilize the same pinout adapter and configurator.

Features

- Pinout adapters contain separate master and copy sockets
- Binary data display for copy PROM
- Zero-insertion-force sockets
- Can be used with any Series 90 control unit.



Field Assurance Confidence Test (FACT)

A FACT is your assurance that the generic personality module (PM90XX) is programming to latest specifications.

A FACT consists of one special configurator that forces the personality module into continuous cycling of programming pulses, chip select output, and address lines, allowing rapid testing with an oscilloscope. A FACT includes a written test procedure, with references to test loads to be used, and

a set of schematic/assembly drawings for the personality module to be tested. Should adjustments appear necessary, return the personality module to the factory.

FACTs are available for all generic personality modules offered by Pro-Log. To order a FACT, simply specify FACT, followed by the last two digits of the personality module number.

Example: For PM9046A, order FACT-46A.

Generic Gang Modules

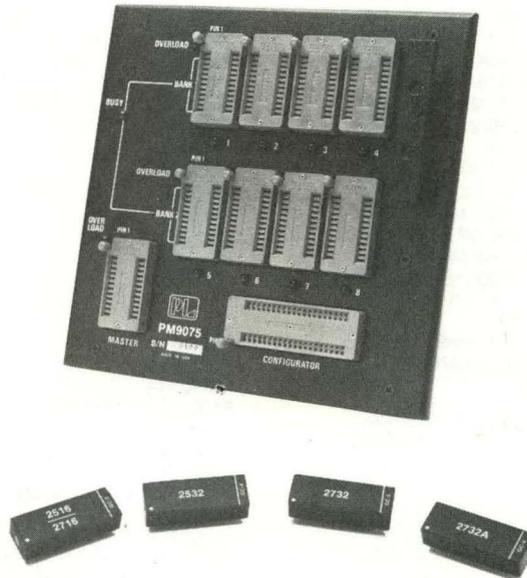
Generic gang modules are capable of programming, simultaneously, eight PROMs from any family of 5V MOS devices available at the time of printing. Programming algorithms and PROM pinouts are reconfigured by simply plugging in the appropriate 40-pin gang configurator (GC).

The generic gang personality modules program and bulk-erase the latest E² PROMs. When used with E² PROMs, two gang configurators are needed: one for programming and one for bulk-erasing the parts. Both gang configurators are provided under one part number (GC-2X). Refer to the PM Selection Guide (pages 16-23) for appropriate part numbers.

Pro-Log's generic gang modules are presently available in 24- and 28-pin versions. **Note:** Generic gang modules will function only in the M980 and M910A master control units.

Features

- Cold sockets (power off) during PROM insertion or removal
- Built-in self-test algorithm enables programming wave-form verification with simple test equipment
- High/low V_{cc} verification of PROMs after programming
- Will easily accommodate future algorithm changes
- LED identification of passed and failed devices
- V_{pp} and V_{cc} overload test and indicator LED
- Tests for shorted address lines and inverted PROMs.



PROM User's Guide (PUG)

Due to the ever changing PROM market, we publish a PROM User's Guide containing all the latest PROM and PROM programmer information. The guide contains articles on PROM technology and applications, as well as easy-to-use cross-reference tables providing specifications on various PROMs.

Fill in the order blank at the back and mail it to Pro-Log for your free copy of the 96-page *PROM User's Guide* (scheduled for publication in July 1981).

Personality Module Selection Guide

The following selection guide lists all PROM manufacturers in alphabetical order (column 1). Manufacturers' part numbers of the PROMs are given in column 2. Appropriate personality modules for specific PROMs are listed in column 3.

The last two columns apply to generic modules only. They identify the appropriate pinout adapter (PA) and configurator (CA) or (GC) for use in conjunction with the generic module, when programming a specific PROM. As you proceed through the table,

note that a given personality module may accommodate various PROMs, through the use of different pinout adapters and configurations.

As indicated in the list, certain PROMs can be programmed by more than one personality module. In such cases, all personality modules that apply are listed. Note too that we list only commercial part numbers; however, each module will program the corresponding military equivalent and/or speed range.

PROM MANUFACTURER	PROM PART NUMBER	PERSONALITY MODULE	PINOUT ADAPTER	CONFIGURATOR
ADVANCED MICRO DEVICES (AMD)	Bipolar			
	Am27S20/21, 29760A/61A	PM9058	PA16-5	256x4(L)
	Am27S12/13, 29770/71	PM9058	PA16-5	512x4(L)
	Am27S32/33, 29780/81	PM9058	PA18-6	1Kx4(L)
	Am27S184/185	PM9058	PA18-8	2Kx4(L)
	Am27S40/41/40A/41A/PS41	PM9058	PA20-9**	4Kx4(L)
	Am27S09/LS09	PM9058	PA16-6	32x8(H)
	Am27S18/19, LS18/19	PM9058	PA16-6	32x8(L)
	Am29750A/51	PM9058	PA16-6	32x8(L)
	Am27LS18/19	PM9058	PA16-6	32x8(L)
	Am27S28/29, 29772/73	PM9058	PA20-4	512x8(L)
	Am27S26/27, 29774/75	PM9058	PA22-4	512x8(L)
	Am27S15	PM9058	PA24-14	512x8(L)
	Am27S30/31	PM9058	PA24-13	512x8(L)
	Am27S24/25	PM9058	PA24-16	512x8(L)
	Am27S180/181	PM9058	PA24-13	1Kx8(L)
	Am27S35/37	PM9058	PA24-18	1025x8(L)
	Am27S190/191/PS191	PM9058	PA24-17	2Kx8(L)
	Am27S290/291/290A/291A/PS291	PM9058	PA24-28**	2Kx8(L)
	MOS UV			
	Am1702A/Am9702A	PM9001A	—	—
	Am2708/Am9708	PM9005A	—	—
		PM9053A	—	—
		PM9051A (GANG)	—	—
	Am2716	PM9052A	—	—
		PM9064C	PA24-1	2Kx8(EH)
		PM9061A (GANG)	—	—
		PM9075A (GEN. GANG)	—	GC-03
	Am2732	PM9064C	PA24-10	4Kx8(EH)
		PM9075A (GEN. GANG)	—	GC-05
	Am2764***	PM9074	PA28-2	8Kx8 (EH)
		PM9076 (GEN. GANG)	—	GC-08
AMERICAN MICROSYSTEMS INC. (AMI)	MOS UV			
	S5204A	PM9057	PA24-7	512x8(L)
	S6834	PM9057	PA24-5	512x8(L)
FAIRCHILD	Bipolar			
	93417/427	PM9045	PA16-1	256x4(H)
	93436/446	PM9045	PA16-1	512x4(H)
	93452/453	PM9045	PA18-2	1Kx4(H)
	93438/448	PM9045	PA24-1 or -8	512x8(H)
	93450/451, L450/L451	PM9045	PA24-1 or -8	1Kx8(H)
	93460/461	PM9045	PA24-1 or -8	1Kx8(H)
	93465/466	PM9045	PA24-1 or -8	1Kx8(H)
	93510/511	PM9045	PA24-8	2Kx8(H)

** Under development.

An 8K byte buffer is recommended for programming convenience with M980.

PROM MANUFACTURER	PROM PART NUMBER	PERSONALITY MODULE	PINOUT ADAPTER	CONFIGURATOR	
FAIRCHILD (continued)	MOS UV				
	F2708	PM9005A	—	—	
		PM9053A	—	—	
		PM9051A (GANG)	—	—	
	F2716	PM9052A	—	—	
		PM9064C	PA24-1	2Kx8(EH)	
		PM9061A (GANG)	—	—	
		PM9075A (GEN. GANG)	—	GC-03	
	F2532	PM9064C	PA24-12	4Kx8(EH)	
		PM9075A (GEN. GANG)	—	GC-04	
	F2732	PM9064C	PA24-10	4Kx8(EH)	
		PM9075A (GEN. GANG)	—	GC-05	
	F2564***	PM9064C	PA28-3	8Kx8 (EH)	
		PM9076 (GEN. GANG)	—	GC-07	
	F2764***	PM9074	PA28-2	8Kx8 (EH)	
		PM9076 (GEN. GANG)	—	GC-08	
		Microprocessor			
F38E70	—	—	—		
FUJITSU	Bipolar				
	MB7052/57	PM9007C	—	—	
	MB7053/58	PM9007C	—	—	
	MOS UV				
	MB8518H	PM9005A	—	—	
		PM9053A	—	—	
		PM9051A (GANG)	—	—	
	MBM2716	PM9052A	—	—	
		PM9064C	PA24-1	2Kx8(EH)	
		PM9061A (GANG)	—	—	
		PM9075A (GEN. GANG)	—	GC-03	
	MBM2732	PM9064C	PA24-10	4Kx8(EH)	
		PM9075A (GEN. GANG)	—	GC-05	
HARRIS SEMICONDUCTOR	Bipolar				
	HM7610/10A/11/11A	PM9039A	PA16-1	256x4(H)	
	HM7620/20A/21/21A	PM9039A	PA16-1	512x4(H)	
	HM7644/44A	PM9039A	PA16-3	1Kx4(H)	
	HM7642/42A/42P/43/43A/43P	PM9039A	PA18-2	1Kx4(H)	
	HM7684/84P/85/85P	PM9039A	PA18-2	2Kx4(H)	
	HM7602/03	PM9039A	PA16-2 or -4	32x8(H)	
	HM7625R	PM9039A	PA24-9	256x8(H)	
	HM7629	PM9039A	PA24-1 or -8	256x8(S2)	
	HM7648/49	PM9039A	PA20-1	512x8(H)	
	HM7640/40A**/41/41A	PM9039A	PA24-1 or -8	512x8(H)	
	HM7608	PM9039A	PA24-1 or -8	1Kx8(H)	
	HM7680/A/P/R/RP	PM9039A	PA24-1 or -8	1Kx8(H)	
	HM7681/A/P/R/RP	PM9039A	PA24-1 or -8	1Kx8(H)	
	HM7616	PM9039A	PA24-20	2Kx8(H)	
	HM76160/161	PM9039A	PA24-8	2Kx8(H)	
	JAN-0512	PM9055A	—	—	
		CMOS Fusible Link			
	HM6611	PM9056	—	—	

** Under development.

An 8K byte buffer is recommended for programming convenience with M980.

PROM MANUFACTURER	PROM PART NUMBER	PERSONALITY MODULE	PINOUT ADAPTER	CONFIGURATOR
HITACHI	MOS UV			
	HN462716	PM9052A	—	—
		PM9064C	PA24-1	2Kx8(EH)
		PM9061A (GANG)	—	—
		PM9075A (GEN. GANG)	—	GC-03
	HN462532	PM9064C	PA24-12	4Kx8(EH)
		PM9075A (GEN. GANG)	—	GC-04
	HN462732	PM9064C	PA24-10	4Kx8(EH)
		PM9075A (GEN. GANG)	—	GC-05
	MOS E²			
HN48016	PM9064C	PA24-26**	CP-2Kx8(S3)	
	PM9075A (GEN. GANG)	—	GC-23	
INTEL	Bipolar			
	3625/25-2	PM9048	PA18-2	1Kx4(H)
	3625A/25A-1	PM9048	PA18-3	1Kx4(H)
	3624A/24A-2	PM9048	PA24-2	512x8(H)
	3628/28-4	PM9048	PA24-1 or -8	1Kx8(H)
	3632**	—	—	—
	3636/36-1	PM9048	PA24-8	2Kx8(H)
	MOS UV			
	4702A*, 1702A* (All Versions)	PM9001A	—	—
	2708, 8708 (All Versions)	PM9005A	—	—
		PM9053A	—	—
		PM9051A (GANG)	—	—
	2758	PM9052A	—	—
		PM9064C	PA24-1	1Kx8(EH)
		PM9075A (GEN. GANG)	—	GC-01
	2716 (All Versions)	PM9052A	—	—
		PM9064C	PA24-1	2Kx8(EH)
		PM9061A (GANG)	—	—
		PM9075A (GEN. GANG)	—	GC-03
	2732 (NMOS All Versions)	PM9064C	PA24-10	4Kx8(EH)
		PM9075A (GEN. GANG)	—	GC-05
	2732A	PM9074	PA24-10	4Kx8(EH)
		PM9075A (GEN. GANG)	—	GC-06
	2764# (All Versions)	PM9074	PA28-2	8Kx8(EH)
		PM9076 (GEN. GANG)	—	GC-08
	Microprocessor			
	8741A/48	PM9054	PA40-1	1Kx8(EL)
	8749	**	**	**
	8751	**	**	**
	8755A	PM9054	PA40-2	2Kx8(EH)
	MOS E²			
	2808	PM9064C	PA24-24**	1Kx8(S1)
	PM9075A (GEN. GANG)	—	GC-21**	
2816	PM9064C	PA24-24**	2Kx8(S1)	
	PM9075A (GEN. GANG)	—	GC-22**	
INTERSIL	Bipolar			
	IM5603/23	PM9007C	—	—
	IM5604/24	PM9007C	—	—
	IM5600/10	PM9016C	—	—
	IM5605/25	PM9028C	—	—
	CMOS UV			
	IM6653	PM9065	PA24-11	1Kx4(EH)
	IM6654	PM9065	PA24-1	512x8(EH)

* Obsolete device.

** Under development.

An 8K byte buffer is recommended for programming convenience with M980.

PROM MANUFACTURER	PROM PART NUMBER	PERSONALITY MODULE	PINOUT ADAPTER	CONFIGURATOR	
MARUMAN INTEGRATED CIRCUITS	MOS UV				
	2716	PM9052A	—	—	
		PM9064C	PA24-1	2Kx8(EH)	
		PM9061A (GANG)	—	—	
		PM9075A (GEN. GANG)	—	GC-03	
mitsubishi	MOS UV				
	M5L1702S*	PM9001A	—	—	
	M5L2708K	PM9005A	—	—	
		PM9053A	—	—	
		PM9051A (GANG)	—	—	
	M5L2716K	PM9052A	—	—	
		PM9064C	PA24-1	2Kx8(EH)	
		PM9061A (GANG)	—	—	
		PM9075A (GEN. GANG)	—	GC-03	
	M5L2732K	PM9064C	PA24-10	4Kx8(EH)	
		PM9075A (GEN. GANG)	—	GC-05	
	MONOLITHIC MEMORIES (MMI)	Bipolar Type 1			
		6300-1/01-1	PM9037	PA16-1	256x4(H)
6305-1/06-1		PM9037	PA16-1	512x4(H)	
6350-1/51-1		PM9037	PA18-1	1Kx4(H)	
6352-1/53-1		PM9037	PA18-2	1Kx4(H)	
6330-1/31-1		PM9037	PA16-2	32x8(H)	
6308-1/09-1		PM9037	PA20-2	256x8(H)	
6335-1/36-1		PM9037	PA24-1 or -8	256x8(H)	
6348-1/49-1		PM9037	PA20-1	512x8(H)	
6340-1/41-1		PM9037	PA24-1	512x8(H)	
6386-1/87-1		PM9037	PA22-1	1Kx8(H)	
6380-1/81-1		PM9037	PA24-1 or -8	1Kx8(H)	
6384-1/85-1		PM9037	PA24-1 or -8	1Kx8(H)	
Bipolar Type 2					
63S140/S141		PM9066	PA16-1	256x4(L)	
63S240/S241		PM9066	PA16-1	512x4(L)	
63S440/S441		PM9066	PA18-2	1Kx4(L)	
63RA441/RS441		PM9066	PA18-5	1Kx4(L)	
63S840/S841		PM9066	PA18-2	2Kx4(L)	
63RS840/S841		PM9066	PA20-6	2Kx4(L)	
63RA840/A841		PM9066	PA20-6	2Kx4(L)	
63S1640/S1641		PM9066	PA20-11**	4Kx4(L)	
PAL					
PAL10H8		PM9068	—	512x4(S1)	
PAL12H6		PM9068	—	512x4(S1)	
PAL14H4		PM9068	—	512x4(S1)	
PAL16H2		PM9068	—	512x4(S1)	
PAL10L8		PM9068	—	512x4(S2)	
PAL12L6		PM9068	—	512x4(S2)	
PAL14L4		PM9068	—	512x4(S2)	
PAL16L2		PM9068	—	512x4(S2)	
PAL16L8		PM9068	—	512x4(S2)	
PAL16R8		PM9068	—	512x4(S2)	
PAL16R6	PM9068	—	512x4(S2)		
PAL16R4	PM9068	—	512x4(S2)		
PAL16A4	PM9068	—	512x4(S2)		
PAL16X4	PM9068	—	512x4(S2)		
PAL16C1	PM9068	—	512x4(S3)		

* Obsolete device.
** Under development.

PROM MANUFACTURER	PROM PART NUMBER	PERSONALITY MODULE	PINOUT ADAPTER	CONFIGURATOR
MOSTEK	MOS UV			
	MK3702-1* (All Versions)	PM9001A	—	—
	MK2708	PM9005A	—	—
		PM9053A	—	—
		PM9051A (GANG)	—	—
	MK2716 (All Versions)	PM9052A	—	—
		PM9064C	PA24-1	2Kx8(EH)
		PM9061A (GANG)	—	—
		PM9075A (GEN. GANG)	—	GC-03
	MK2764#	PM9064C	PA28-4**	8Kx8(S2)**
	PM9076 (GEN. GANG)	—	GC-09**	
MOTOROLA	Bipolar			
	5003*/04**	PM9055A	—	—
	7620/21	PM9039A	PA16-1	512x4(H)
	7642/43	PM9039A	PA18-2	1Kx4(H)
	7684/85	PM9039A	PA18-2	2Kx4(H)
	7640/41	PM9039A	PA24-1	512x8(H)
	7680**/81**	PM9039A	PA24-1 or -8	1Kx8(H)
	82707**/08**	PM9039A	PA24-1 or -8	1Kx8(H)
	MOS UV			
	MCM68708, 2708	PM9005A	—	—
	MCM68A708, 27A08	PM9053A	—	—
		PM9051A (GANG)	—	—
	TMS2716	PM9053A	—	—
		PM9060A (GANG)	—	—
	MCM2716/L16	PM9052A	—	—
		PM9064C	PA24-1	2Kx8(EH)
		PM9061A (GANG)	—	—
		PM9075A (GEN. GANG)	—	GC-03
		PM9077 (GEN. GANG)	—	GC-03
	MCM2532/L32	PM9064C	PA24-12	4Kx8(EH)
		PM9075A (GEN. GANG)	—	GC-04
		PM9077 (GEN. GANG)	—	GC-04
	MCM68764/L764#†	PM9064C	PA24-15	8Kx8(S1)
	PM9077 (GEN. GANG)	—	GC-11	
MCM68766#†	PM9064C	PA24-15	8Kx8(S1)	
	PM9077 (GEN. GANG)	—	GC-11	
NATIONAL SEMICONDUCTOR	Bipolar			
	74S287/387	PM9047	PA16-1	256x4(L)
	74S570/571	PM9047	PA16-1	512x4(L)
	74S572/573	PM9047	PA18-2	1Kx4(L)
	74S574	PM9047	PA18-4	1Kx4(L)
	74S184/185	PM9047	PA18-2	2Kx4(L)
	74S188/288	PM9047	PA16-2 or -4	32x8(L)
	74S470*/471*	PM9047	PA20-2	256x8(L)
	74S472/473	PM9047	PA20-1	512x8(L)
	74S474/475	PM9047	PA24-1 or -8	512x8(L)
	87S180/181	PM9047	PA24-1 or -8	1Kx8(L)
	87S190/191	PM9047	PA24-8	2Kx8(L)

* Obsolete device.

** Under development

An 8K byte buffer is recommended for programming convenience with M980.

† Cannot manually program on M900 or M900B as 8K word buffer is required to implement.

PROM MANUFACTURER	PROM PART NUMBER	PERSONALITY MODULE	PINOUT ADAPTER	CONFIGURATOR	
NATIONAL SEMICONDUCTOR (continued)	PAL				
	DMPAL10H8	PM9068	—	512x4(S1)	
	DMPAL12H6	PM9068	—	512x4(S1)	
	DMPAL14H4	PM9068	—	512x4(S1)	
	DMPAL16H2	PM9068	—	512x4(S1)	
	DMPAL10L8	PM9068	—	512x4(S2)	
	DMPAL12L6	PM9068	—	512x4(S2)	
	DMPAL14L4	PM9068	—	512x4(S2)	
	DMPAL16L2	PM9068	—	512x4(S2)	
	DMPAL16L8	PM9068	—	512x4(S2)	
	DMPAL16R8	PM9068	—	512x4(S2)	
	DMPAL16R6	PM9068	—	512x4(S2)	
	DMPAL16R4	PM9068	—	512x4(S2)	
	DMPAL16A4	PM9068	—	512x4(S2)	
	DMPAL16X4	PM9068	—	512x4(S2)	
	DMPAL16C1	PM9068	—	512x4(S3)	
		MOS UV			
		MM1702AQ*	PM9001A	—	—
		MM5203Q	PM9002A	—	—
		MM5204Q/Q-1	PM9006A	—	—
		MM2708Q/Q-1	PM9005A	—	—
			PM9053A	—	—
			PM9051A (GANG)	—	—
		MM2758Q-A	PM9052A	—	—
			PM9064C	PA24-1	1Kx8(EH)
			PM9075A (GEN. GANG)	—	GC-01
		MM2758Q-B	PM9052A	—	—
			PM9064C	PA24-1	1Kx8(S1)
			PM9075A (GEN. GANG)	—	GC-02
		MM2716	PM9052A	—	—
			PM9064C	PA24-1	2Kx8(EH)
		PM9061A (GANG)	—	—	
		PM9075A (GEN. GANG)	—	GC-03	
	NMC2532**	PM9064C	PA24-12	4Kx8(EH)	
		PM9075A (GEN. GANG)	—	GC-04	
	NMC2732**/L32**	PM9064C	PA24-10	4Kx8(EH)	
		PM9075A (GEN. GANG)	—	GC-05	
	NMC2732A**/L32A**	PM9074	PA24-10	4Kx8(EH)	
		PM9075A (GEN. GANG)	—	GC-06	
	NMC2564**#	PM9064C	PA28-3	8Kx8(EH)	
		PM9076 (GEN. GANG)	—	GC-07	
	NMC2764**#	PM9074	PA28-2	8Kx8(EH)	
		PM9076 (GEN. GANG)	—	GC-08	
	CMOS UV				
	27C16	PM9052A	—	—	
		PM9064C	PA24-1	2Kx8(EH)	
		PM9061A (GANG)	—	—	
NIPPON ELECTRIC (NEC)	Bipolar				
	μ PB403D, μ PB423D	PM9007C	—	—	
	μ PB405E, μ PB425E	PM9028C	—	—	
	MOS UV				
	2716	PM9052A	—	—	
		PM9064C	PA24-1	2Kx8(EL)	
	PM9075A (GEN. GANG)	—	GC-03		
Microprocessor					
8741A, 8748	PM9054	PA40-1	1Kx8(EL)		

* Obsolete device.

** Under development.

An 8K byte buffer is recommended for programming convenience with M980.

PROM MANUFACTURER	PROM PART NUMBER	PERSONALITY MODULE	PINOUT ADAPTER	CONFIGURATOR
OKI SEMICONDUCTOR	MOS UV			
	MSM2708	PM9005A	—	—
		PM9053A	—	—
		PM9051A (GANG)	—	—
	MSM2758	PM9052A	—	—
		PM9064C	PA24-1	1Kx8(EH)
		PM9075A (GEN. GANG)	—	GC-01
	MSM2716	PM9052A	—	—
		PM9064C	PA24-1	2Kx8(EH)
		PM9061A (GANG)	—	—
		PM9075A (GEN. GANG)	—	GC-03
	MSM2532AS**	PM9064C	PA24-12	4Kx8(EH)
		PM9075A (GEN. GANG)	—	GC-04
RAYTHEON	Bipolar			
	29611/13	PM9037	PA16-1	512x4(H)
	29651/53	PM9037	PA18-2	2Kx4(H)
	29601/03	PM9037	PA20-2	256x8(H)
	29621/23	PM9037	PA20-1	512x8(H)
	29625/27	PM9037	PA24-1 or -8	512x8(H)
	29631/33	PM9037	PA24-1 or -8	1Kx8(H)
	29635/37	PM9037	PA24-1 or -8	1Kx8(H)
	29681D/83D	PM9037	PA24-8	2Kx8(H)
	29681S/83S	PM9037	PA24-27**	2Kx8(H)
SIGNETICS	Bipolar			
	82S126/129	PM9059	PA16-1	256x4(L)
	82S130/131	PM9059	PA16-1	512x4(H)
	82S137	PM9059	PA18-2	1Kx4(L)
	82S185/HS185	PM9059	PA18-2	2Kx4(L)
	82S195	PM9059	PA20-11	4Kx4(L)
	82S23/123	PM9059	PA16-2 or -4	32x8(L)
	82S114	PM9059	PA24-9	256x8(S1)
	82S146/147	PM9059	PA20-1	512x8(L)
	82S115	PM9059	PA24-9	512x8(S1)
	82S141	PM9059	PA24-1 or -8	512x8(L)
	82S180, 82S2708	PM9059	PA24-1 or -8	1Kx8(L)
	82S181/LS181/S183	PM9059	PA24-1 or -8	1Kx8(L)
	82HS181/PS181	PM9059	PA24-1 or -8	1Kx8(L)
	82S191/HS191	PM9059	PA24-8	2Kx8(L)
	82S321	PM9059	PA24-25**	4Kx8(L)
	ECL			
	10149	PM9072	PA16-7	256x4(L)
	10139	PM9072	PA16-4	32x8(S1)
	SYNERTEK	MOS UV		
SY2716		PM9052A	—	—
		PM9064C	PA24-1	2Kx8(EH)
		PM9061A (GANG)	—	—
		PM9075A (GEN. GANG)	—	GC-03

** Under development.

PROM MANUFACTURER	PROM PART NUMBER	PERSONALITY MODULE	PINOUT ADAPTER	CONFIGURATOR
TEXAS INSTRUMENTS (TI)	Bipolar Type 1			
	TBP14S10/SA10**	PM9046B	PA16-1	256x4(H)
	TBP18S030/SA030	PM9046B	PA16-4	32x8(L)
	TBP18S22/SA22	PM9046B	PA20-2	256x8(L)
	TBP18S42/SA42	PM9046B	PA20-1	512x8(L)
	TBP18S46/SA46	PM9046B	PA24-1 or -8	512x8(L)
	Bipolar Type 2			
	TBP24S10/SA10	PM9067	PA16-8**	256x4(H)
	TBP24S41/SA41	PM9067	PA18-7	1Kx4(H)
	TBP24SA81/SA81	PM9067	PA18-9**	2Kx4(H)
	TBP28L22	PM9067	PA20-10**	256x8(H)
	TBP28S42/L42/P42**	PM9067	PA20-1	512x8(H)
	TBP28S45/L45/P45**	PM9067	PA24-23**	512x8(H)
	TBP28S46	PM9067	PA24-1 or -8	512x8(H)
	TBP28S85/L85/P85**	PM9067	PA24-23**	1Kx8(H)
	TBP28S86/L86/SA86	PM9067	PA24-1	1Kx8(H)
	TBPS2708*	PM9067	PA24-1 or -8	1Kx8(H)
	TBP28P166**/S166**/L166**	PM9067	PA24-22**	2Kx8(H)
	TBP28R45**	—	—	—
	TBP28R85**	—	—	—
	TBP28R166**	—	—	—
	MOS UV			
	TMS2508 (All Versions)	PM9052A	—	—
		PM9064C	PA24-1	1Kx8(EH)
		PM9075A (GEN. GANG)	—	GC-01
	TMS2758-JL0	PM9052A	—	—
		PM9064C	PA24-1	1Kx8(S1)
		PM9075A (GEN. GANG)	—	GC-02
	TMS2758-JL1	PM9052A	—	—
		PM9064C	PA24-1	1Kx8(EH)
		PM9075A (GEN. GANG)	—	GC-01
	TMS2708 (All Versions)	PM9005A	—	—
		PM9053A	—	—
		PM9051A (GANG)	—	—
	TMS2516 (All Versions)	PM9052A	—	—
		PM9064C	PA24-1	2Kx8(EH)
		PM9061A (GANG)	—	—
		PM9075A (GEN. GANG)	—	GC-03
TMS2716	PM9053A	—	—	
	PM9060A (GANG)	—	—	
TMS2532 (All Versions)	PM9064C	PA24-12	4Kx8(EH)	
	PM9075A (GEN. GANG)	—	GC-04	
TMS2564#	PM9064C	PA28-3	8Kx8(EH)	
	PM9076 (GEN. GANG)	—	GC-07	
Microprocessor				
9940E	—	—	—	
TOSHIBA	MOS UV			
	TMM322	PM9005A	—	—
		PM9053A	—	—
		PM9051A (GANG)	—	—
	TMM323	PM9052A	—	—
		PM9064C	PA24-1	2Kx8(EH)
		PM9061A (GANG)	—	—
	PM9075A (GEN. GANG)	—	GC-03	

* Obsolete device.

** Under development.

An 8K byte buffer is recommended for programming convenience with M980.

Pricing Summary

All prices shown are for single quantities F.O.B. Monterey. GSA prices are listed in a separate price list and can be obtained upon request. Quantity prices are quoted by the factory.

All prices are subject to Pro-Log's general terms and conditions found on page 60 of this price list, on the reverse side of our standard quotation form, and on

the reverse side of Pro-Log's order acknowledgments.

A three-digit suffix on a control unit model number designates buffer size and operating voltage. The first two digits (04, 08, or 16) of the suffix designate a 4K, 8K, or 16K byte buffer. The last digit (0, 1, or 2) of the suffix designates the operating voltages of 100V, 115V, or 230V AC, respectively.

M980 Control Units

\$2450*	M980-041	Control Unit with 4Kx8 RAM Buffer (115VAC)
2750*	M980-081	Control Unit with 8Kx8 RAM Buffer (115VAC)
3450*	M980-161	Control Unit with 16Kx8 RAM Buffer (115VAC)

* Price also applies to 100VAC and 230VAC versions purchased in the USA.

M980 Options

\$1050	M301-1	Paper Tape Reader for M980 only (115VAC)
1050	M301-2	Paper Tape Reader for M980 only (230VAC)
250	M304	RS232C Adapter
30	RC12	TTY Interface Cable
60	RC18	RS232C Interface Cable
70	RC50-6	M980/STD Interface Cable
210	9103A	UV Erase Light for M980 Convenience Outlet

M910A Control Units and Options

\$1500	M910A-001	Control Unit, Unbuffered (115VAC)
1500	M910A-002	Control Unit, Unbuffered (230VAC)
250	M305	Checksum Display Adapter

Accessories

\$ 210	9103A-1	UV Erase Light (115VAC) with 6 ft (1.83m) Power Cord
210	9103A-2	UV Erase Light (230VAC) with 6 ft (1.83m) Power Cord
20	9103 Bulb	UV Erase Light Bulb (Replacement Bulb)
100	9202	Attaché Case
95	9203	Dedicated Personality Module Case
110	9204	Generic Personality Module Case
10	—	M910A Operating Manual
25	—	M980 Operating Manual (Vol. I & II)

NOTE: The M980 and M910A control units replace the discontinued M900 and M900B, and the M910 and M920, respectively. Technical support, repair service, and option installation on these discontinued control units will continue.

Pro-Log will provide special quotations for the discontinued control units, when additional units are required to meet instrumentation continuity for an existing customer.

Personality Modules Pricing

PRICE	PERSONALITY MODULE	PROMs PROGRAMMED (For details see Personality Module Selection Guide)
\$ 600.00	PM9001A	1702A, 4702A, 8702A, 58563S, 3702, 9702A
625.00	PM9002A	National 5202*, 5203, 5203A
500.00	PM9005A	2704, 4704, 8704, 2708, (and compatible)
750.00	PM9006A***	National 5204
650.00	PM9007C	Intersil 5603A/23/04/24; Fujitsu MB7052/53/57/58; NEC μ PB403D/423D
650.00	PM9016C	Intersil 5600, 5610; Fujitsu MB7051, MB7056
950.00	PM9018***	Harris HPROM 1024*, HPROM 1024A*
950.00	PM9028C	Intersil 5605, 5625; NEC μ PB405, μ PB425
490.00	PM9037	MMI, Raytheon Generic Type 1
490.00	PM9039A	Harris, Motorola Generic
490.00	PM9045	Fairchild Generic
490.00	PM9046B	T.I. Generic Type 1
490.00	PM9047	National Generic
600.00	PM9048	Intel Generic
1050.00	PM9051A	2708 (and compatible)
450.00	PM9052A	Intel 2716 (and compatible)
650.00	PM9053A	2708 and TMS2716 (and compatible)
500.00	PM9054	Microprocessor Generic
750.00	PM9055A***	Motorola 5003, 5004; Harris 0512; T.I. 74186
750.00	PM9056***	Harris 6611
750.00	PM9057***	AMI Generic
490.00	PM9058	AMD Generic
490.00	PM9059	Signetics Generic
1050.00	PM9060A	T.I. TMS2716 (and compatible) Gang Module
950.00	PM9061A	Intel 2716 (and compatible) Gang Module
550.00	PM9064C	5 Volt NMOS EPROM Generic
490.00	PM9065	Intersil CMOS Generic
490.00	PM9066	MMI Generic Type 2
490.00	PM9067	T.I. Generic Type 2
950.00	PM9068	PAL Generic (includes all configurators)
530.00	PM9072	Signetics ECL Generic Module
550.00	PM9074	5V HMOS EPROM Generic (Intel compatible)
1200.00	PM9075A†	5V MOS PROM 24-Pin Generic Gang
1300.00	PM9076†	5V MOS PROM 28-Pin Generic Gang
1200.00	PM9077**†	Motorola 5V MOS 24-Pin Generic Gang

Configurators, Pinout Adapters, and Accessories

\$ 35.00	CA-X	Configurators for Generic Modules
70.00	CP-2Kx8(S3)	Configurator pair for Hitachi E ² PROMs (Program and Bulk Erase)
50.00	FACT-XX	Configurator for Field Assurance Confidence Test
150.00	GC-0X thru -1X	Gang Configurator
200.00	GC-2X	Gang Configurator pair for E ² PROMs (Program and Bulk Erase)
120.00	PA16-XX thru PA24-XX	Pinout Adapters for Generic Modules (exceptions listed below)
175.00	PA24-16, 18, 28	Special 24-Pin Pinout Adapters
175.00	PA24-23, 24, 27	Special 24-Pin Pinout Adapters
175.00	PA28-XX	Pinout Adapter for Generic Modules
175.00	PA40-1	Pinout Adapter for PM9054
175.00	PA40-2	Pinout Adapter for PM9054

* Consult PROM manufacturers before ordering

** Under development

*** Special order only - allow 12 weeks for delivery

† Personality module will function only with M980 and M910A.

M800 System Analyzers

A system analyzer is a test instrument capable of monitoring the operation of a microprocessor-based system, not just the microprocessor itself. It is the primary instrument for verification and troubleshooting in the design, manufacture, and field service of your microprocessor-based product.

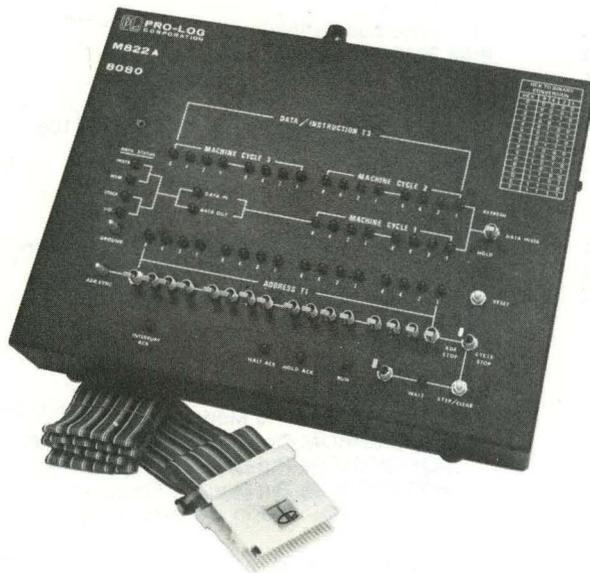
A system analyzer does two things: it tracks and displays what's going on in your product at any step in its microprocessor's program, and it synchronizes an oscilloscope or other test equipment to the program when signal measurements are necessary.

A system analyzer looks like a computer control panel and it provides some of the same controls, such as the ability to stop and step the microprocessor. Functionally, however, the analyzer is similar to a digital storage oscilloscope. It captures

microprocessor bus information and separates it into address, instruction, data, and status at any step in the program. It can also capture and hold dynamic control states and data passing between the microprocessor and the system it controls. Critical timing need not be interrupted for analysis.

Common Features Include:

- Displays of address, instruction, and execution data
- Scope trigger outputs
- Clip-on (DIP) connector for quick, easy interfacing
- Static and dynamic display modes
- External system reset
- Self-referencing power supply
- Special test and control features pertinent to the processor it tests.



M822A System Analyzer

\$950.00	M822A-1	8080A SYSTEM ANALYZER (115VAC) Self-powered test and debug instrument that clips to 8080A Microprocessor. Includes RUN/WAIT and single instruction operation feature. (Will not be manufactured after 1984.)
950.00	M822A-2	8080A SYSTEM ANALYZER (230VAC)
950.00	M823-1	6800 SYSTEM ANALYZER (115VAC) Self-powered test and debug instrument that clips to 6800 microprocessor. Includes RUN/WAIT and single instruction operation feature.
950.00	M823-2	6800 SYSTEM ANALYZER (230VAC)

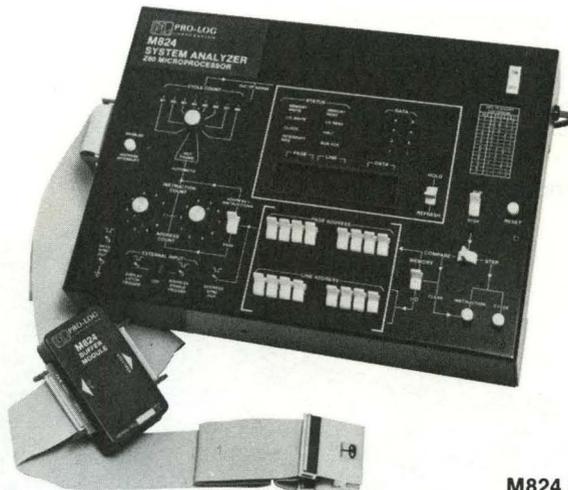
System Analyzers

Second Generation M800 System Analyzers

The M824 and the M825 System Analyzers are portable, cost-effective instruments that support the design, development, production, and field service of Z80, 8085, and 8085A microprocessor-based systems. Each analyzer functions as a program-to-hardware integrator, and provides many of the display functions of a computer control panel. Each analyzer is self-contained and easily connected to your system microprocessor by means of a single DIP clip or low profile connector. It is useful as an alternative or complement to software techniques for program development or debugging of microprocessor-based systems. Since it is easily connected, the system analyzer, together with adequate program documentation, is an ideal tool for field service or production.

Common Features Include:

- Displays of address, data, machine cycle, and status
- Static and dynamic display modes
- System run/step control
- System reset push button
- Connections to processor chip via clip-on or low profile connector
- Oscilloscope trigger at address compare or data display time
- Delayed data capture
- Memory or I/O address select
- Nonmaskable interrupt capability at address compare
- External control of data display
- Address stop
- Interrupt trap and display
- Interface buffer to minimize microprocessor loading
- High-impact attaché case
- Self-referencing power supply.



M824 System Analyzer

\$1750.00	M824-1	Z80 SYSTEM ANALYZER (115VAC) Test and debug instrument that clips to Z80 microprocessor. UL tested.
1750.00	M824-2	Z80 SYSTEM ANALYZER (230VAC)
1750.00	M825-1	8085A SYSTEM ANALYZER (115VAC) Test and debug instrument that clips to 8085 or 8085A microprocessor. UL listed.
1750.00	M825-2	8085A SYSTEM ANALYZER (230VAC)

Cards and Systems

Pro-Log's microprocessor cards and systems support four different microprocessors: Z80, 6800, 8080, and 8085. In addition, Pro-Log offers memory, input/output, interface, and other support cards.

Pro-Log builds security into its cards by using only devices that are "industry standards"—those that have at least two viable sources and are used by over 10% of the market. Thus, the user is assured that the parts he buys today should be available in 10 years.

Two configurations are available in Pro-Log's 8-bit microprocessor card line: single-card microprocessor systems and STD BUS expandable systems.

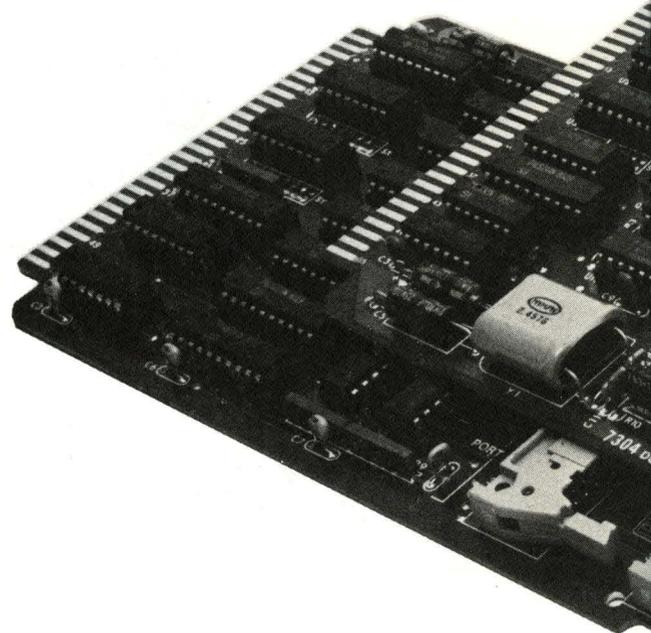
The second-sourced parts are common to most of our microprocessor cards. Other common features of our cards are:

- **Size:** All cards are 4½x6½ in. (114.3x165.1 mm).
- **Edge Connection:** Standard 56 pin on 0.125 in. (3.18 mm) centers.
- **Testing:** All cards receive 48 hr power-on burn-in at 70°C with 100% performance testing before and after burn-in.
- **Documentation:** All cards delivered include data sheets, assembly prints, schematics, and application notes where appropriate.
- **Manufacturing Rights:** Pro-Log offers free manufacturing rights after purchase of 250 cards (one type).
- **Warranty:** All cards are under a 1-year parts and labor warranty.

The STD Concept

Pro-Log's STD 7000 is a full line of cards, support documentation, and support hardware specifically designed to meet the physical and electrical requirements of the STD BUS. STD 7000 cards include 8085, 6800, and Z80 Microprocessor Cards, RAM and EPROM Memory Cards, Digital and Industrial I/O Cards, Peripheral Interface Cards, and a wide range of Utility Cards.

All STD 7000 cards are designed to provide the user with minimum system cost and maximum system flexibility by using only readily available, second-sourced, industry standard parts, and by allowing



Microprocessor Cards

the user the option of selecting only that particular combination of cards necessary to fulfill his particular needs.

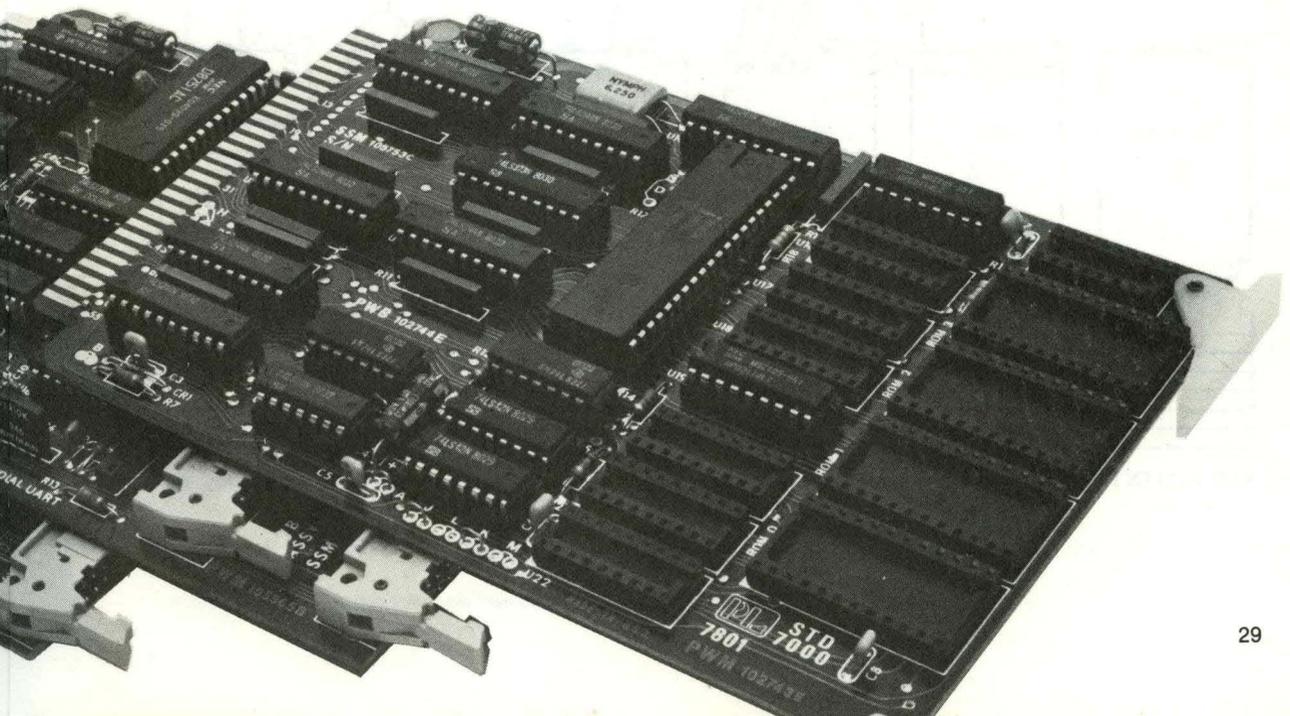
All STD 7000 cards feature the high functional density offered on Pro-Log's standard 4½x6½ in. (114.3x165.1 mm) edge-connected card. The size of these STD 7000 cards conforms to the STD BUS requirements, while providing the ideal card size for the harsh environment of industrial control.

All STD 7000 cards are supported by Pro-Log's easy-to-read documentation, written in plain English and geared towards the engineer, test technician, manufacturer, and customer service.

Prototyping Systems

Pro-Log's 8-bit STD BUS prototyping systems are shown on pages 44 and 45. Each system includes everything needed to begin designing with microprocessors: Series 90 PROM programmer, STD BUS microprocessor subsystem, associated hardware, and system analyzer. A substantial savings is offered in these package prices.

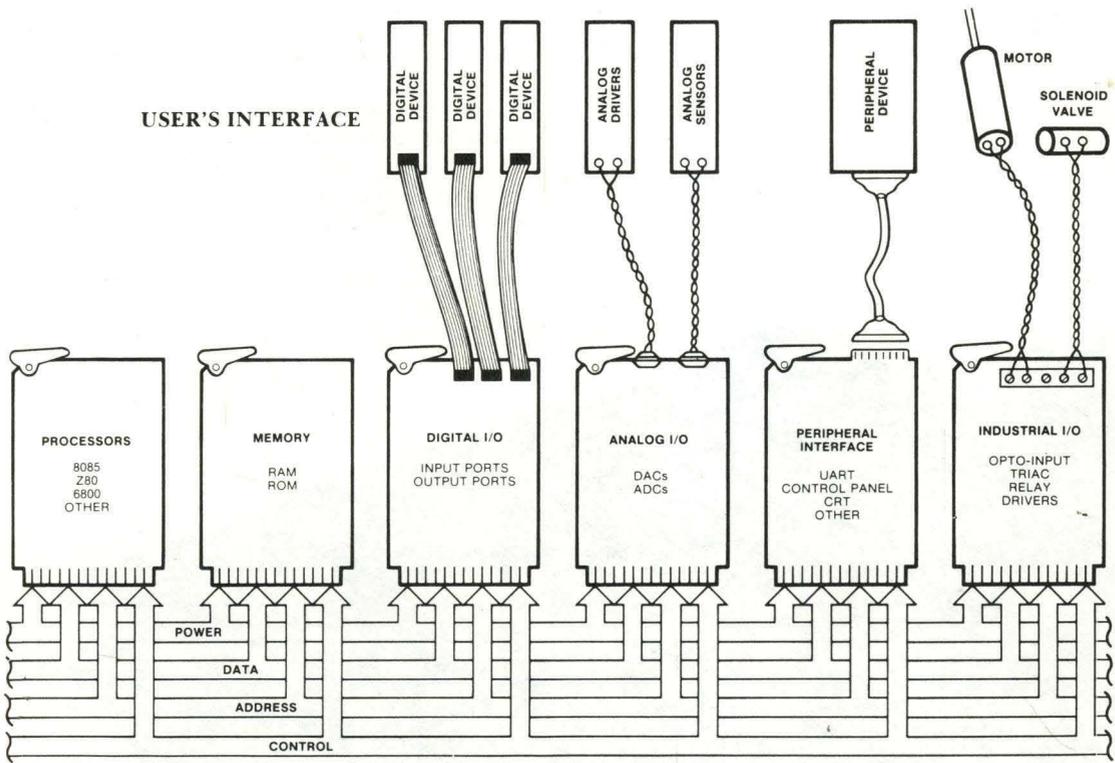
From its earliest days, Pro-Log has espoused the "engineering method"—a decentralized, production-oriented method that keeps technology under human control. The objective of this approach is not simply to make an operational prototype, but to produce easily understood **documents** that serve the needs of engineering, manufacturing, and field service people. These documents are the key to producing and maintaining any product. Pro-Log's prototyping systems and support documentation are designed to support the "engineering method."



SERIES 7000 Cards (STD BUS)

The STD BUS standardizes the physical and electrical aspects of modular 8-bit microprocessor card systems. It provides a dedicated and orderly interconnection scheme. The standardized pinout and 56-pin connector lend themselves to a bused motherboard that permits any card to work in any slot.

The STD BUS is dedicated to internal communications. All other interconnections are made via suitable connectors at the I/O interface card edge. The concept gives an orderly signal flow across the cards. Peripheral and I/O devices can be connected to the system, according to their own unique connector and cabling requirements.



STD BUS INTERFACE

Series 7000 Cards (STD BUS)

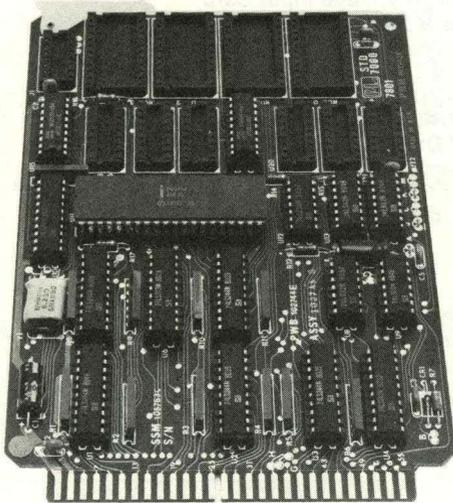
TYPE	MODEL	DESCRIPTION
PROCESSORS	7801-x	8085A Processor Card
	7802	6800 Processor Card
	7803	Z80 Processor Card
	7804	Z80A Processor Card
MEMORY	7701-x	16K Byte Static RAM Memory Card
	7702	16K Byte 2716 EPROM Memory Card
	7703-x	Battery-Backed CMOS RAM Card
	7704	Byte-Wide Memory Card
	7705	32K Byte 2732 EPROM Memory Card
DIGITAL I/O	7601	TTL Input/Output Port Card
	7602	TTL Output Port Card
	7603	TTL Input Port Card
	7604	TTL Universal Input/Output Card
	7605-x	Programmable TTL I/O Card
INDUSTRIAL I/O	7501	Medium Power DC Driver Card
	7502	SPST Relay Output Card
	7503	Optoisolated Low Voltage AC Input Card
	7504	Triac Output Card (2A,280VAC)
	7506	Optoisolated High Voltage Input Card
	7507	General Purpose Interface Card
PERIPHERAL INTERFACE	7301	RS-232-C and TTY Driver/Receiver Card
	7303	Keyboard and Display Card
	7304	Dual UART Card
	7308	Counter/Timer Card
	7320	Priority Interrupt Card
MISCELLANEOUS	7901	Utility Extender Card
	7902	Utility DIP Card
	7903	General Utility Card
	7904	Decoded Input/Output Utility Card
	7920	In-rack Power Supply (+5V, 5A)
	7921	In-rack Power Supply (+5V, 3.0A; $\pm 12V$, 0.2A)
MOTHERBOARDS	7101	8-Slot Motherboard with Power Cable
	7102	16-Slot Motherboard with Power Cable
	7105	4-Slot Motherboard with Power Cable
	7106	24-Slot Motherboard with Power Cable

-X Indicates unit is available in more than one version.

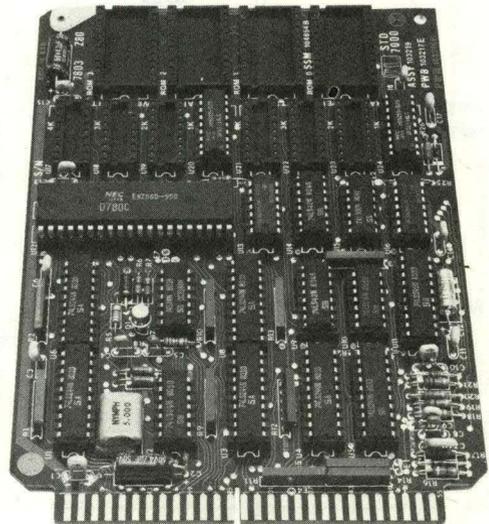
Series 7000 Cards (STD BUS)

PROCESSORS

\$195.00	7801-0	<p>8085A PROCESSOR CARD (6.250 MHz Crystal) Combines a buffered and fully expandable 8085A microprocessor with on-board RAM and EPROM sockets. The 7801 includes 1K byte of RAM with sockets for up to 4K bytes, and sockets for up to 8K bytes of ROM or EPROM (D2002 or equivalent).</p>
195.00	7801-1	<p>8085A PROCESSOR CARD (6.144 MHz Crystal) Same as 7801-0, except crystal frequency.</p>
220.00	7802	<p>6800 PROCESSOR CARD Provides a buffered and fully expandable 6800 microprocessor with on-board RAM and PROM sockets. The 7802 includes 1K byte of RAM with sockets for up to 4K bytes, and sockets for up to 8K bytes of ROM or EPROM (D2002 or equivalent).</p>
195.00	7803	<p>Z80 PROCESSOR CARD Combines a buffered and fully expandable Z80 microprocessor with on-board RAM and PROM sockets. The 7803 includes 1K byte of RAM with sockets for up to 4K bytes, and sockets for up to 8K bytes of ROM or EPROM (D2002 or equivalent).</p>
● 250.00	7804	<p>Z80A PROCESSOR CARD Provides a 4 MHz implementation of the Z80A microprocessor with on-board timer/counter, 4 byte-wide memory sockets, power-on reset and push-button reset input conditioning. Selectable memory mapping, reset address start-up, and counter/timer I/O addressing.</p>



7801 8085A Processor Card



7803 Z80 Processor Card

● Indicates new product.

Series 7000 Cards (STD BUS)

MEMORY

\$ 120.00 | 7701-0

16K BYTE STATIC RAM MEMORY CARD

Provides sockets for up to 16,384 bytes of READ/WRITE or PROM memory. The card uses 2114 (D1004 or equivalent) type RAMs and has sockets for 16 pairs of RAMs.

See Table | 7701

STATIC MEMORY CARD

Provides memory card loaded with NMOS or CMOS memory and tested. Table below shows configurations and pricing.

PRICE	MODEL	AMT & TYPE RAM
\$ 225.00	7701-04N	4K bytes NMOS
285.00	7701-08N	8K bytes NMOS
425.00	7701-16N	16K bytes NMOS
290.00	7701-04C	4K bytes CMOS
450.00	7701-08C	8K bytes CMOS
665.00	7701-16C	16K bytes CMOS

96.00 | 7702

16K BYTE 2716 EPROM MEMORY CARD

Provides sockets for up to 16,384 bytes of EPROM memory. The card uses 2716 EPROMs (D2002 or equivalent) and has sockets for 8 EPROMs.

See Table | 7703

BATTERY-BACKED CMOS RAM CARD

This card provides nonvolatile RAM memory in various configurations as shown in the table below. The lithium battery provides data retention of at least two years from purchase date.

PRICE	MODEL	AMT CMOS RAM
\$ 240.00	7703-01C	1K bytes
290.00	7703-02C	2K bytes
375.00	7703-04C	4K bytes
535.00	7703-08C	8K bytes
850.00	7703-16C	16K bytes

• 160.00 | 7704

BYTE-WIDE MEMORY CARD

Provides eight 28-pin sockets compatible with JEDEC 28-pin standard dual-inline package pinout. Jumper selection of memory map and device type. Usable for mixtures of 2K bytes or greater ROM, PROM, or RAM.

• 99.00 | 7705

32K BYTE 2732 EPROM MEMORY CARD

Provides sockets for up to 32K bytes of EPROM memory. This card uses 2732 EPROMs and holds up to 8 devices.

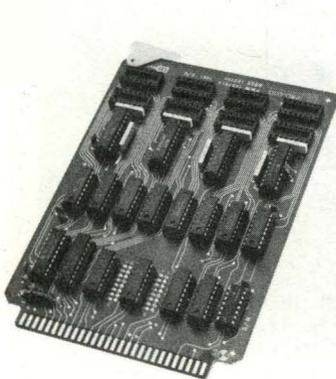
• Indicates new product.

Series 7000 Cards (STD BUS)

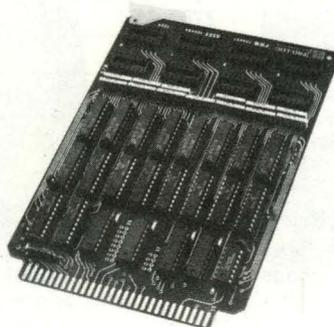
DIGITAL I/O

\$140.00	7601	<p>TTL INPUT/OUTPUT PORT CARD Provides four 8-bit gate input ports (32 input lines) and four 8-bit latched output ports (32 output lines). Input port lines and output port lines are accessed at 16-pin DIP sockets on the card.</p>
135.00	7602	<p>TTL OUTPUT PORT CARD Provides eight 8-bit latched output ports (64 output lines). Output port lines are accessed at 16-pin DIP sockets on the card. A reset line is available to clear all ports simultaneously.</p>
135.00	7603	<p>TTL INPUT PORT CARD Provides eight 8-bit gated input ports (64 input lines). Input port lines are accessed at 16-pin DIP sockets on the card.</p>
175.00	7604	<p>TTL UNIVERSAL INPUT/OUTPUT CARD Provides 8 ports of which any number can be input or output ports, or output ports with readback (64 I/O lines total). The ports are accessed at 16-pin DIP sockets on the card.</p>
195.00	7605-0	<p>PROGRAMMABLE TTL I/O CARD (Inverting) Provides four 8-bit I/O ports that can be programmed as input/output or output with read back (32 programmable I/O lines). Ports are accessed by two 40-pin latch connectors. Signals are active-low on this card.</p>
195.00	7605-1	<p>PROGRAMMABLE TTL I/O CARD (Noninverting) Same as 7605-0 above, except signals are active-high on this card.</p>

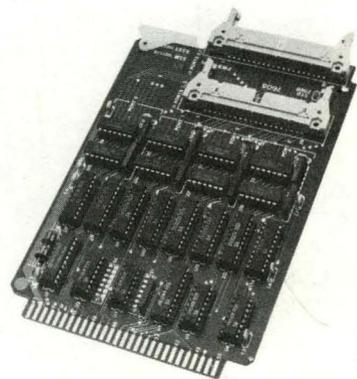
NOTE: All digital I/O cards are operable at system clock speeds to 4 MHz.



7601 TTL I/O Port Card



7604 TTL Universal I/O Card



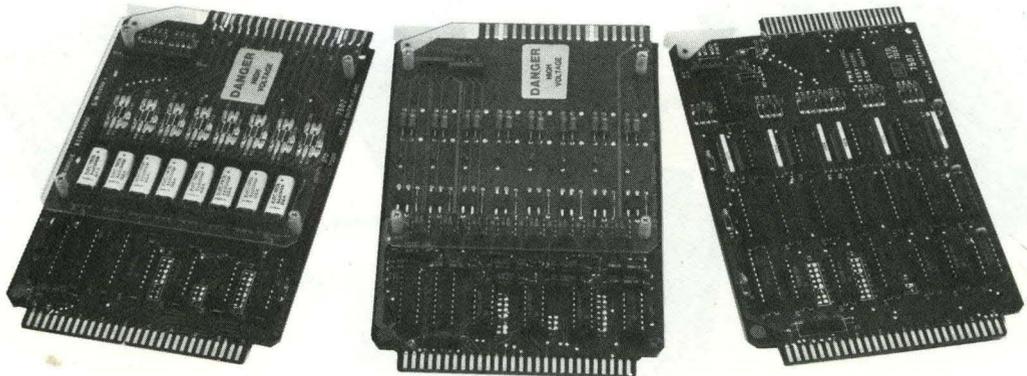
7605 Programmable TTL I/O Card

Series 7000 Cards (STD BUS)

INDUSTRIAL I/O

\$175.00	7501	<p>MEDIUM POWER DC DRIVER CARD Provides 16 independent 50VDC, 225mA open collector output circuits. Diode clamping is provided to limit the output voltage excursion when driving inductive loads.</p>
165.00	7502	<p>SPST RELAY OUTPUT CARD Consists of eight independent SPST dry reed relays controlled by a fully decoded, latched 8-bit output port. Each 7502 gives the processor direct control of 8 additional reed relay switches.</p>
245.00	7503	<p>OPTOISOLATED INPUT CARD (4.5 to 80VAC/VDC) Provides eight independent, optically coupled AC/DC inputs. The input voltage ranges from 4.5VAC/VDC to 80VAC/VDC.</p>
325.00	7504	<p>TRIAC OUTPUT CARD Consists of eight independent solid state AC relays (Triacs) controlled by a fully decoded latched 8-bit output port. Each 7504 gives the processor direct control of 8 additional switched AC power circuits.</p>
245.00	7506	<p>OPTOISOLATED INPUT CARD (70 to 280VAC/VDC) Provides eight independent, optically coupled AC/DC inputs. The input voltage ranges from 70VAC/VDC to 280VAC/VDC.</p>
165.00	7507	<p>GENERAL PURPOSE INTERFACE CARD Provides three 8-bit ports of bidirectional signals (24 bidirectional lines). In addition, a 4.7V 500mA port-controlled power source is available. This card provides interconnection directly with I/O module mounting racks from Opto 22, Gordos, Crydom, or equivalent. (Request Application Note PLAN 128 for details.)</p>

NOTE: All industrial I/O cards are operable at system clock speeds to 4 MHz.



7502 SPST Relay Output Card

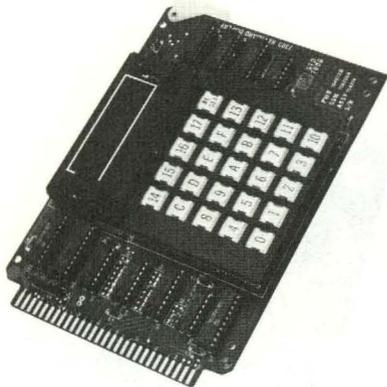
7503 Optoisolated Input Card

7507 General Purpose Interface Card

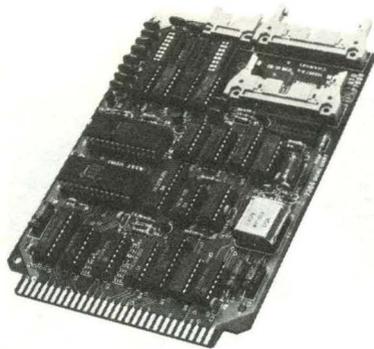
Series 7000 Cards (STD BUS)

PERIPHERAL INTERFACE

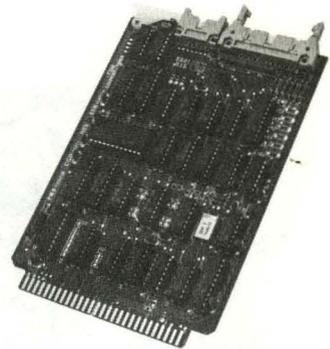
\$145.00	7301	<p>RS232C AND TTY DRIVER/RECEIVER INTERFACE Combined I/O ports and voltage translation needed to interface a micro-processor to both RS232C and TTY serial data communications lines. Note: This card does not provide parallel-to-serial conversion.</p>
295.00	7303	<p>KEYBOARD AND DISPLAY CARD General purpose control panel card that provides data input and display capability. Includes an 8-position alphanumeric display, keyboard with 24 program-definable keys, plus system reset, an 8-bit binary LED display, and two rocker switches.</p>
295.00	7304	<p>DUAL UART CARD Contains two fully independent, asynchronous communication channels featuring separate baud rates and full RS232C specifications. Note: This card provides parallel-to-serial conversion.</p>
195.00	7308	<p>COUNTER/TIMER CARD A fully programmable multichannel counter/timer function. Three 16-bit counters with eight input multiplexers for each channel. Provides frequency or event counting from DC to 2.5 MHz, pulse marker or square wave generation, time interval measurements, and one-shot generation.</p>
210.00	7320	<p>PRIORITY INTERRUPT CARD Functions as an 8-input priority interrupt controller for the 7800 Series processors.</p>



7303 Keyboard and Display Card



7304 Dual Uart Card

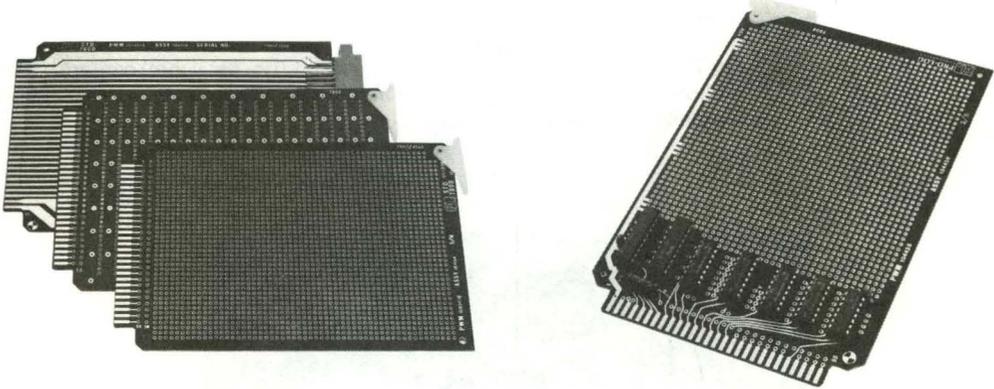


7308 Counter/Timer Card

Series 7000 Cards (STD BUS)

MISCELLANEOUS CARDS

\$ 35.00	7901	<p>UTILITY EXTENDER CARD A printed circuit card for extending cards out of card cage for easy access. The 7901 card can be used with all Pro-Log edge connected cards.</p>
30.00	7902	<p>UTILITY DIP CARD A printed circuit card for prototyping with Dual-In-Line (DIP) packaging.</p>
30.00	7903	<p>GENERAL UTILITY CARD A printed circuit card for prototyping with 0.100 in. (2.5 mm) grid hole pattern.</p>
70.00	7904	<p>DECODED INPUT/OUTPUT UTILITY CARD A printed circuit card for prototyping I/O circuitry. The 7904 provides complete STD BUS buffering and decoding for I/O functions implemented in the card's 0.1 in. (2.5 mm) grid prototype area.</p>



7901, 7902 and 7903

7904 Decoded Input/Output Utility Card

\$375.00	7920	<p>IN-RACK POWER SUPPLY (115VAC) AC line-operated power supply with high efficiency switching module for compact size and cool operation in STD BUS card rack. Provides +5V/5A logic power.</p>
495.00	7921	<p>IN-RACK POWER SUPPLY (115VAC) Same as the 7920 but provides +5V/3A logic power and $\pm 12V/0.2A$ each for STD auxiliary power buses.</p>

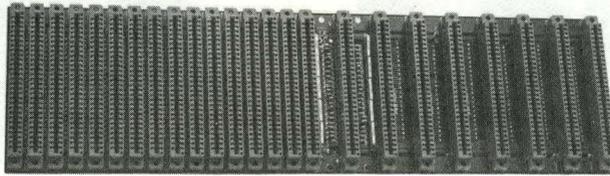


7920/21 In-rack Power Supply

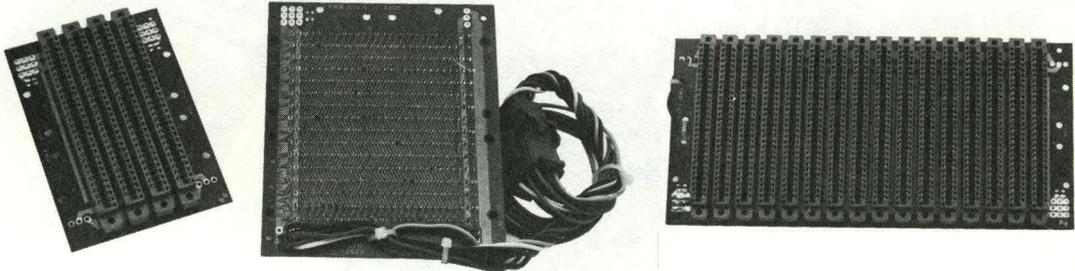
Series 7000 Motherboards (STD BUS)

MOTHERBOARDS

\$110.00	7101	<p>8-SLOT MOTHERBOARD Implements the STD BUS backplane interconnection scheme, as defined by the STD BUS general specifications. Provides 8 edge connectors on 0.5 in. (12.7 mm) centers. Comes with power cable assembly.</p>
175.00	7102	<p>16-SLOT MOTHERBOARD Implements the STD BUS backplane interconnection scheme, as defined by the STD BUS general specifications. Provides 16 edge connectors on 0.5 in. (12.7 mm) centers. Comes with power cable assembly.</p>
95.00	7105	<p>4-SLOT MOTHERBOARD Implements the STD BUS backplane interconnection scheme, as defined by the STD BUS general specifications. Provides 4 edge connectors on 0.5 in. (12.7 mm) centers. Comes with power cable assembly.</p>
375.00	7106	<p>24-SLOT MOTHERBOARD Implements the STD BUS backplane interconnection scheme, as defined by the STD BUS general specifications. Provides 16 edge connectors on 0.5 in. (12.7 mm) centers, or 8 edge connectors on 1.0 in. (24.4 mm) centers. AC termination of each line provides low noise and crosstalk. Comes with power cable assembly.</p>



7106 Motherboard



7105, 7101 and 7102 Motherboards

Series 7000 Accessories (STD BUS)

POWER SUPPLIES & ACCESSORIES

\$205.00	M280	STD DC POWER SUPPLY Open frame power supply, which includes power cable CP9S. Provides +5V/6A and -12V/2A.
225.00	M281-1	STD DC POWER SUPPLY (115VAC) Completely enclosed power supply with line cord, circuit breaker switch, and power cable CP9S. Provides +5V/10A and $\pm 12V/1A$.
240.00	M281-2	STD DC POWER SUPPLY (230VAC) Same as M281-1 above, except input voltage.
15.00	CP9P	POWER SUPPLY CONNECTOR ASSEMBLY; PLUG Consists of a 9-pin, 12 in. (304.8 mm) cable with nine 18-gauge wires that connect to the motherboard or card rack.
15.00	CP9S	POWER SUPPLY CONNECTOR ASSEMBLY; SOCKET Mating socket with 12 in. (304.8 mm) cable that wires to the power supply.



M281 STD DC Power Supply

CONNECTORS

\$ 20.00	CT56	TRANSITION CONNECTOR Mates discrete cable wires to CW56. Includes pack of 60 self-crimp connections.
7.00	CW56-0	WRAP CONNECTOR Card edge 56-pin, 3-level wire wrap connector. Fits all Pro-Log card racks. Pins are 0.025 in. (0.64 mm) square and spaced on 0.125 in. (3.18 mm) centers.
7.00	CW56-1	SOLDER TAIL CONNECTOR Same as CW56-0 above, except 1-level wire wrap pins.
30.00	CB18	BARRIER STRIP CONNECTOR CB18 Includes tubular contact plate for wire size #22-#12 AWG. UL listed.
20.00	CS18	SOLDER TAIL CONNECTOR The CB18 and CS18 are I/O edge card 18-pin connectors. They are used on industrial interface cards where $\geq 50VDC$ and/or $\geq 0.5A$ per contact is required. The material used in both connectors are UL flame rated 94V-0. CS18 Includes pierced solder tails, each of which accepts three AWG wires.

Series 7000 Accessories (STD BUS)

\$ 60.00

WK1

WIRE WRAPPING KIT

The kit includes:

- One 30 AWG wrap, unwrap, and stripping tool
- Precut and stripped 30 AWG Blue Kynar wire
 - 200 pieces 2 in. (50.8 mm) insulation length
 - 150 pieces 4 in. (101.6 mm) insulation length
 - 100 pieces 6 in. (152.4 mm) insulation length
 - 50 pieces 8 in. (203.2 mm) insulation length
- One 100 ft. (30.48 m) roll 30 AWG Blue Kynar wire

CABLES

70.00

RC50-6

CABLE ASSEMBLY

6-ft (1.83 m), 50-line cable assembly. Allows interface between the 7507 Industrial I/O Module Interface card and the Opto-22 Motorola cards.

35.00

RC701-3

INTERCONNECT CABLE

3-ft. (0.91 m) ribbon cable converts 26-pin transition connector to 25-pin male "D" connector.

35.00

RC702-3

INTERCONNECT CABLE

3-ft. (0.91 m) ribbon cable converts 26-pin transition connector to 25-pin female "D" connector.

35.00

RC703-3

INTERCONNECT CABLE

3-ft. (0.91 m) ribbon cable converts 26-pin transition connector to 9-pin female "D" connector.

10.00

RC704-1

INTERCONNECT CABLE

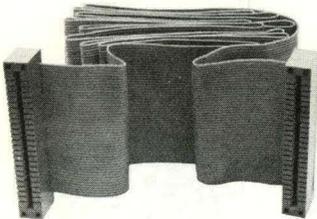
1-ft. (304.8 mm) long twisted pair cable with connectors to mate with 0.025 in. (0.64 mm) square or round post headers on 0.1 in. (2.54 mm) centers.

10.00

RC704-2

INTERCONNECT CABLE

Same as RC704-1 above, except 2 ft. (0.61 m) long.



RC50-6 Cable Assembly



RC702-3 Interconnect Cable



RC704-1 Interconnect Cable

SOCKETS

\$ 20.00

SZ-24

ZERO INSERTION SOCKET

24-pin socket adapted to mate with PROMs and PROM sockets. Expedites changing of 24-pin PROMs. SZ-24s do not fit in adjacent sockets on most Pro-Log memory cards.

Series 7000 Accessories (STD BUS)

Memory Devices

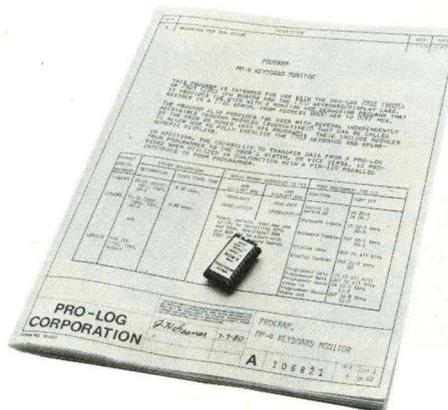
Pro-Log provides memory devices for the convenience of its customers. These devices are available from semiconductor manufacturers and their distri-

butors. They are sold by Pro-Log **only** with card orders.

\$ 30.00	D256	UV ERASABLE PROM PROM contains 256 8-bit words (1702A type). 1.0 microsecond access time. Works with all PLS and most MPS systems. Uses +15VDC or +5 and -10VDC.
27.00	D1002	READ/WRITE MEMORY Static RAM (2102 type) provides 1024 8-bit words in eight packages. 0.30 microsecond access time. +5VDC. Used with 8122 RAM card.
27.00	D1004	READ/WRITE MEMORY Static RAM (2114 type or equivalent) provides 1024 8-bit words in two packages. 0.45 microsecond access time. +5VDC.
30.00	D1024	UV ERASABLE PROM PROM contains 1024 8-bit words (2708 type). 0.5 microsecond access time suitable for PLS-881 or 8812 cards. Uses +12, +5, -5VDC.
24.00	D2002	UV ERASABLE PROM PROM contains 2048 eight-bit words (Intel 2716 type). 0.450 microsecond access time. Uses +5VDC.

STD BUS MONITOR PROGRAM

100.00	MP-4	MONITOR PROGRAM, 7801 & 7803 An easy-to-use and useful monitor/debugging program for use with the 7303 Keyboard/Display Card. Allows machine language editing, execution with breakpoint, and PROM programmer interface. Contained in one 2716 EPROM with listing, instructions, and applications software.
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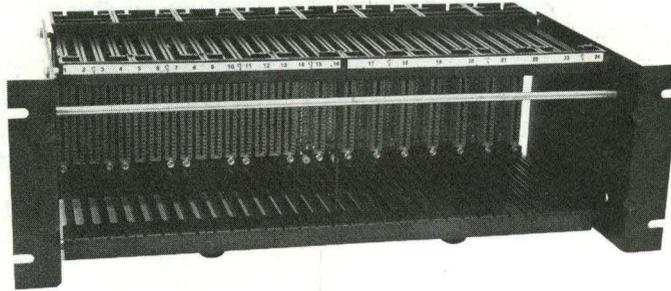
MP4 Monitor Program

BR-, ER- & WR- SERIES CARD RACKS

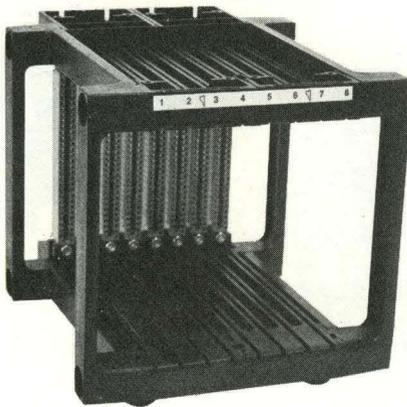
The Pro-Log card racks are assembled from modular elements, allowing the designer a wide choice of rack designs. The four-slot card-rack modules are made from injection molded, glass filled, thermo-plastic polycarbonate. They are assembled with mounting hardware in 36 different basic models. This allows the system designer an even wider range of card rack implementations, using a full-width based motherboard, or one or more less-than-full-width based motherboards in combination with unwired, wirewrap card-edge connectors.

These card racks accept all 4.5 by 6.5 in. (114.3 x 165.1 mm) STD BUS circuit cards and feature improved convection cooling.

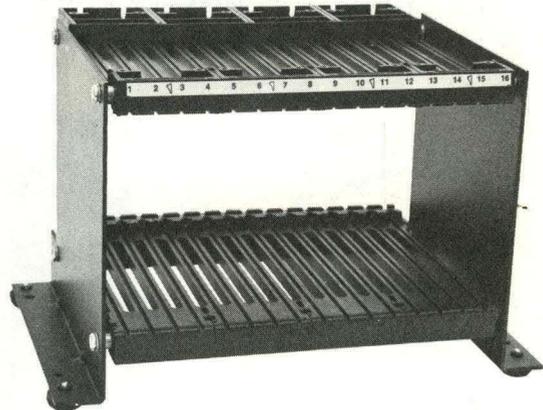
Card spacing is on 0.5 in. (12.7 mm) centers, except for the BR24 models, which have 16 card slots on 0.5 in. (12.7 mm) centers and 8 card slots on 1.0 in. (25.4 mm) centers.



BR24R



WR8H



ER16T

Card Racks

BR-, ER-, & WR- Series Card Racks**CARD RACKS WITH STD BUS MOTHERBOARD**

PRICE 1-9	MODEL NUMBER	CARD SLOTS	MOUNTING STYLE	REPLACES	MOTHER- BOARD INSTALLED
\$135.00 135.00 115.00	BR04R BR04T BR04H	4 4 4	RETMA Rack Mount Table Mount Molded Handles	CR4A-2	7105
180.00 180.00 155.00	BR08R BR08T BR08H	8 8 8	RETMA Rack Mount Table Mount Molded Handles	CR8 CR8A-2	7101
260.00 260.00 240.00	BR16R BR16T BR16H	16 16 16	RETMA Rack Mount Table Mount Molded Handles	CR16 CR16A-2	7102
490.00 490.00 470.00	BR24R BR24T BR24H	24 24 24	RETMA Rack Mount Table Mount Molded Handles	CR24-A	7106

CARD RACKS WITH WIRE-WRAP CONNECTORS

PRICE 1-9	MODEL NUMBER	CARD SLOTS	MOUNTING STYLE	REPLACES
\$ 90.00 90.00 70.00	WR04R WR04T WR04H	4 4 4	RETMA Rack Mount Table Mount Molded Handles	
125.00 125.00 105.00	WR08R WR08T WR08H	8 8 8	RETMA Rack Mount Table Mount Molded Handles	CR5A CR5B
230.00 230.00 205.00	WR16R WR16T WR16H	16 16 16	RETMA Rack Mount Table Mount Molded Handles	CR10A
395.00 395.00 395.00	WR32R WR32T WR32H	32 32 32	RETMA Rack Mount Table Mount Molded Handles	CR19A

CARD RACKS WITHOUT CONNECTORS OR MOTHERBOARDS

PRICE 1-9	MODEL NUMBER	CARD SLOTS	MOUNTING STYLE	REPLACES
\$ 53.00 53.00 31.00	ER04R ER04T ER04H	4 4 4	RETMA Rack Mount Table Mount Molded Handles	
65.00 65.00 45.00	ER08R ER08T ER08H	8 8 8	RETMA Rack Mount Table Mount Molded Handles	
85.00 85.00 65.00	ER16R ER16T ER16H	16 16 16	RETMA Rack Mount Table Mount Molded Handles	
125.00 125.00 105.00	ER32R ER32T ER32H	32 32 32	RETMA Rack Mount Table Mount Molded Handles	

Prototyping Systems

Pro-Log introduces two STD BUS prototyping systems designed for the 8085A and Z80 microprocessors.

Pro-Log's STD BUS prototyping systems include STD BUS hardware, test equipment, PROM-based applications and operating software, and complete documentation. These systems comprise the same

equipment that is used in Pro-Log's Microprocessor Design Course. This equipment is all that is required to design, document, and debug programs using Pro-Log's engineering methods.

Pro-Log's STD BUS prototyping systems offer the user a complete system at a substantial discount.



PS1B, PS3B Prototyping Systems

Prototyping Systems

	STD BUS HARDWARE
BR08H	Card Rack/Motherboard
M281-1	Power Supply
7904	Decoded I/O Utility Card
7901	Utility Card Extender
780x	Processor Card (7801-1, 8085A; 7803, Z80)
7605-0	Programmable TTL I/O Card
7303	Keyboard/Display Card
PIN114	Parallel Interface Adapter
MP4	Monitor Program
(2) D2002	2716 EPROMs (Blank)
SZ24	Zero-Insertion-Force Socket
(2) AUG1	Augat Sockets

	ENGINEERING INSTRUMENTS
M980-081	Buffered Universal PROM Programmer with Personality Module
PM9052A	UV Erase Light Option
9103A	System Analyzer (Z80, M824/8085A, M825)
M82x	

	LITERATURE AND DOCUMENTATION
STD Manual	Series 7000 STD BUS Technical Manual
MUG	Microprocessor User's Guide
M980 Manual	Buffered Universal PROM Programmer Operating Manual
M82x Manual	System Analyzer Operating Manual (Z80, M824, 8085A, M825)
MP4	Monitor Program Listing and Operating Instructions
CF1	Program Assembly Forms
	Programming Aid Cards
	Schematics and Assembly Drawings

\$5500.00	PS1B-1	8085 STD BUS PROTOTYPING SYSTEM (115VAC) Includes the 7801 (8085A Processor Card), the M825 System Analyzer for the 8085A Microprocessor, in the items listed above.
5500.00	PS1B-2	8085 STD BUS PROTOTYPING SYSTEM Same as above except 230VAC input voltage.
5500.00	PS3B-1	Z80 STD BUS PROTOTYPING SYSTEM (115VAC) Includes the 7803 (Z80 Processor Card), the M824 System Analyzer for the Z80 Microprocessor in the items listed above.
5500.00	PS3B-2	Z80 STD BUS PROTOTYPING SYSTEM Same as above except 230VAC input voltage.

Single-Card 8-Bit Microprocessors

The Pro-Log single-card programmed logic system has been designed as a complete system with processor, clock circuit, data memory, program

memory, and I/O. Pin compatibility has been maintained where possible to offer maximum flexibility and interchange of processors.

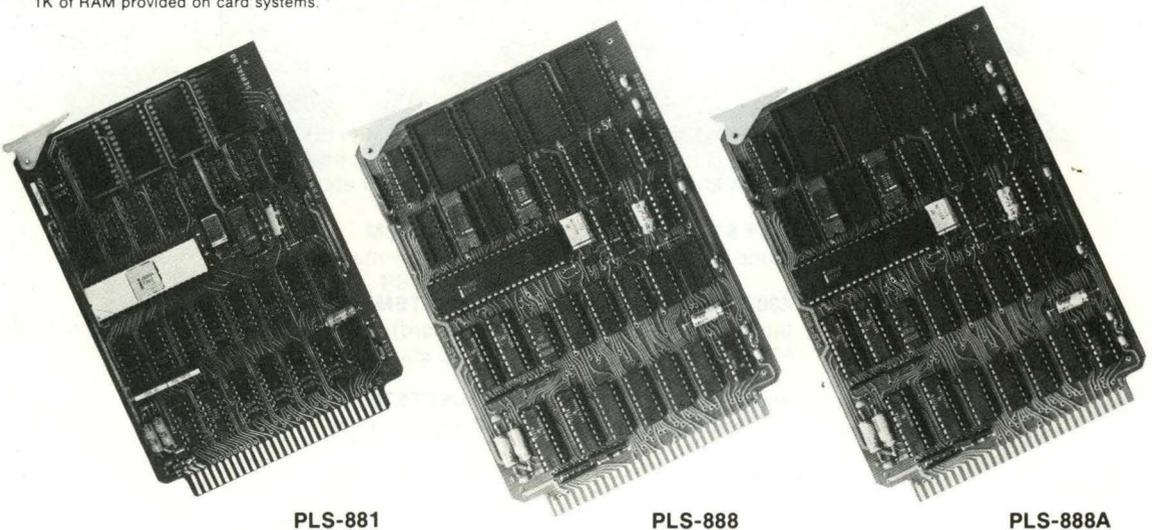
Single 8-Bit Systems

	PLS-881	PLS-888	PLS-888A	PLS-858	PLS-868	PLS-898
PROCESSOR	8080A	8080A	8080A	8085A	6800	Z80
PROM CAPACITY¹	4K (2708)	8K (TMS2716)	8K (2716)	8K (2716)	8K (2716)	8K (2716)
RAM CAPACITY²	1K	2K	2K	2K	2K	2K
INPUT PORTS (8 LINES⁰)	2	2	2	2	2	2
OUTPUT PORTS (8 LINES)	3	3	3	3	3	3
I/O EXPANSION (TOTAL PORTS)	VIA MULTIPLEXING	8/8 VIA RIBBON CABLE	8/8 VIA RIBBON CABLE	8/8 VIA RIBBON CABLE	8/8 VIA RIBBON CABLE	8/8 VIA RIBBON CABLE
STATE TIME	488 ns	488 ns	488 ns	320 ns	1.0 μ s (CYCLE TIME)	400 ns
PIN COMPATIBLE (except power)	YES	YES	YES	YES	YES	YES
POWER REQUIREMENTS	+12,+5,-5	+12,+5,-5	+12,+5,-5	+5	+5	+5

Note: Data sheets are available on request.

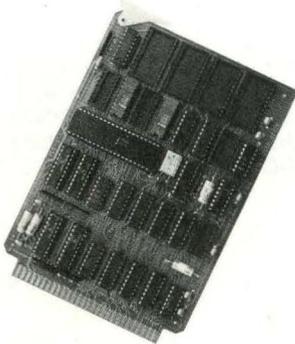
¹ PROM not included on card systems.

² 1K of RAM provided on card systems.

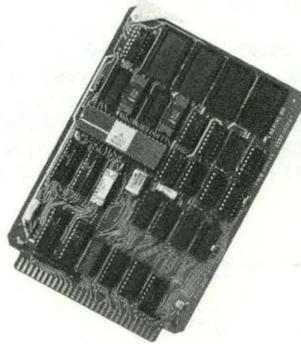


Single 8-Bit Systems

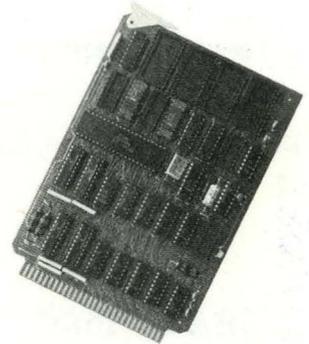
\$215.00	PLS-881	<p>ONE CARD 8080A/2708 SYSTEM Includes 8080A Processor with 0.488 microsecond state time (crystal clock), single level interrupt, power-on and external reset, 1024 bytes of D1002 RAM (2102 or equivalent), and sockets for 4096 bytes of D1024 PROM (2708 or equivalent), 16 TTL input lines, and 24 TTL output latches. Requires +12, +5, -5VDC. Does not include PROM.</p>
215.00	PLS-888	<p>ONE CARD 8080A/TMS2716 SYSTEM Includes 8080A Processor with 0.488 microsecond state time (crystal clock), single level interrupt, power-on and external reset, 1024 bytes of D1004 RAM (2114 or equivalent), sockets for an additional 1024 bytes, sockets for 8192 bytes of D2001 PROM (TMS 2716 or equivalent), 16 TTL input lines, and 24 TTL output latches. Requires +12, +5, -5VDC. Does not include PROM.</p>
215.00	PLS-888A	<p>ONE CARD 8080A/2716 SYSTEM Identical to PLS-888, but with sockets for 8192 bytes D2002 PROM (Intel 2716 or equivalent).</p>
195.00	PLS-858	<p>ONE CARD 8085/2716 SYSTEM Includes 8085 Processor with 0.320 microsecond state time crystal clock, two interrupt inputs, power-on and external reset, 1024 bytes of D1004 RAM (2114 or equivalent), sockets for an additional 1024 bytes, sockets for 8192 bytes of D2002 PROM (Intel 2716 or equivalent), 16 TTL input lines, and 24 TTL output latches. Requires +5VDC. Does not include PROM.</p>



PLS-858



PLS-868



PLS-898

235.00	PLS-868	<p>ONE CARD 6800/2716 SYSTEM Includes 6800 Processor with one microsecond cycle time (crystal clock), two interrupt inputs, power-on and external reset, 1024 bytes of D1004 RAM (2114 or equivalent), sockets for additional 1024 bytes, sockets for 8192 bytes of D2002 PROM (Intel 2716 or equivalent), 16 TTL input lines, and 24 TTL output latches. Requires +5VDC. Does not include PROM.</p>
195.00	PLS-898	<p>ONE CARD Z80/2716 SYSTEM Includes Z80 Processor with 0.400 microsecond state time (crystal clock), two interrupt inputs, power-on and external reset, 1024 bytes of D1004 RAM (2114 or equivalent), sockets for additional 1024 bytes, sockets for 8192 bytes of D2002 PROM (Intel 2716 or equivalent), 16 TTL input lines, and 24 TTL output latches. Requires +5VDC. Does not include PROM.</p>

Wired Backplane Card Components

The Series 8000 cards will be discontinued by December 1982, because parts for some of these cards are becoming obsolete. We suggest that new customers take advantage of the new technology offered in the Series 7000 STD BUS products. Pro-Log strongly urges that the wired backplane card components be ordered only by customers who have existing 8000 systems. We will support

previous customers committed to these systems until December 1982. Pro-Log recommends that the user choose one of three alternatives:

1. Redesign, using Series 7000 STD BUS cards.
2. Acquire manufacturing rights from Pro-Log.
3. Order sufficient quantities to insure product maintenance.

8-Bit Wired Backplane Card Components

PROCESSOR CARDS

\$265.00	8611 8611-1	PROCESSOR CARD (6800) Implements the 8-bit 6800 microprocessor as a fully TTL buffered Microprocessor card with clock, reset, data, address, memory control, and I/O control. Includes 6800 Microprocessor, with 1.600 microsecond state time crystal clock. Timing is compatible with D256 PROM (1702A or equivalent). Requires +5VDC. For 1.000 microsecond state time clock, specify 8611-1. 8611-1 requires 0.5 microsecond memory.
265.00	8811A	PROCESSOR CARD (8080A) Includes 8080A with 1.000 microsecond state time crystal clock, DMA buffers, and interrupt input with optional power-on restart, and 1024 bytes of RAM (D1002). Provides fully TTL buffered address and data buses for full memory and I/O expansion. Requires +12, +5, -10VDC.
265.00	8821	PROCESSOR CARD (8080A) Includes 8080A Microprocessor with 0.488 microsecond state cycle crystal clock, DMA buffers, and interrupt input with optional power-on restart, 1024 bytes of RAM (D1002), and sockets for up to 4096 bytes of 1024 PROM (2708 or equivalent). Provides fully TTL buffered address and data buses for full memory and I/O expansion. Requires +12, +5, -5VDC. Does not include PROM.

MEMORY CARDS

120.00	8112-1	PROM/RAM CARD Suggested for 6800 based systems only. Capacity to 1024 bytes of D256 PROM (1702A or equivalent) and 2048 bytes of D1002 RAM (2102 or equivalent). Requires +5, -10VDC. Does not include PROM or RAM.
105.00	8116	PROM CARD Capacity to 2048 bytes of D256 PROM (1702A or equivalent). Requires +5, -10VDC. Does not include PROM.
145.00	8117	RAM CARD Capacity to 4096 bytes of D1002 RAM (2102 or equivalent). Requires +5VDC. Does not include RAM.
165.00	8119	RAM CARD Capacity to 16,384 bytes of D1004 RAM (2114 or equivalent) Requires +5VDC. Does not include RAM.

8-Bit Wired Backplane Card Components

MEMORY CARDS (continued)

\$165.00	8120	PROM/RAM CARD Capacity to 16,384 bytes of D2001 PROM (TMS2716 or equivalent) and 2048 bytes of D1004 RAM (2114 or equivalent). Interfaces with 8821 processor card. Avoid mixing with 8112 or 8116 cards because of conflicting power supply. Requires +12, +5, -5VDC. Does not include PROM or RAM.
155.00	8812	PROM/RAM CARD Capacity to 8192 bytes of D1024 PROM (2708 or equivalent) and 1024 bytes of D1002 RAM (2102 or equivalent). Interfaces with 8821 processor card. Avoid mixing with 8112 or 8116 because of conflicting power supply requirements. Requires +12, +5, -5VDC. Does not include PROM or RAM.

I/O AND SUPPORT CARDS

120.00	8113-1	I/O CARD Contains 28 TTL universal lines, field-selectable in groups of four as input gates or output latches. Requires +5VDC. 8113-1 connects to 8811A, 8821, or 8611.
90.00	8114	TTL INPUT GATE CARD Contains 32 input gates. Requires +5VDC. Can be used as input multiplexer.
105.00	8115-1	TTL OUTPUT LATCH CARD Contains 32 output latches. Requires +5VDC. 8115-1 connects to 8811A, 8821, or 8611.
155.00	8118-1	8-LEVEL PRIORITY INTERRUPT CARD Expands interrupt to 8 levels of priority interrupt. Requires +5VDC. 8118-1 connects to 8811A or 8821.

INTERFACE CARDS

150.00	8401-2	DRIVER OUTPUT CARD 16 driver outputs. Each output sinks 300mA maximum. Each output rated for 28VDC maximum. Includes 16 LED status indicators on card and screwdriver lug cable attachment. Uses +5VDC.						
190.00	8402-2	RELAY OUTPUT CARD 8 relays, Form A (SPST) isolated contacts; includes 8 LED status indicators on card and screwdriver lug cable attachment. Uses +5VDC.						
280.00	8403	OPTOISOLATED AC/DC INPUT CARD <table> <tr> <td>24VAC (8403-1)</td> <td>115VAC (8403-3)</td> <td>48VDC (8403-5)</td> </tr> <tr> <td>48VAC (8403-2)</td> <td>24VDC (8403-4)</td> <td>115VDC (8403-6)</td> </tr> </table>	24VAC (8403-1)	115VAC (8403-3)	48VDC (8403-5)	48VAC (8403-2)	24VDC (8403-4)	115VDC (8403-6)
24VAC (8403-1)	115VAC (8403-3)	48VDC (8403-5)						
48VAC (8403-2)	24VDC (8403-4)	115VDC (8403-6)						
290.00	8404-4	TRIAC OUTPUT CARD Switches up to 240 VAC @ 2A on each of four independent loads. Screwdriver lug cable attachment.						
75.00	8405	TERMINAL STRIP INTERFACE CARD Implements 50 screwdriver lug cable attachment points for transition to MPS-800 card rack mounted microprocessor systems.						

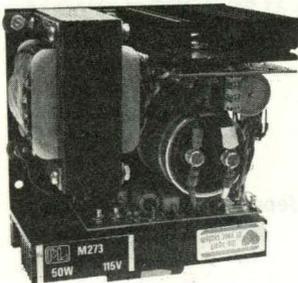
8-Bit Wired Backplane Card Components

INTERFACE CARDS (continued)

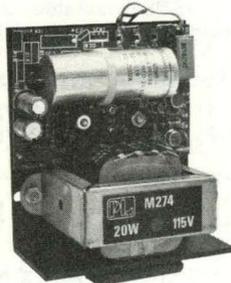
\$105.00	8406	<p>SERIAL TTY INTERFACE CARD Provides interface with ASR33 20mA current loop. Output on 9-pin connector. Uses +5VDC and -9 to -12VDC.</p>
175.00	8407	<p>CURRENT LOOP AND RS232C HARDWARE INTERFACE Provides interface with ASR33 20mA current loop on 9-pin connector. Provides RS232C interface with 25-pin connector. Uses +5VDC and -9 to -12VDC.</p>
175.00	8409	<p>RECEIVER DRIVER CARD Contains eight line driver circuits each capable of driving up to 1000 ft. (304.8 m) of twisted pair (50-500 ohms impedance) and eight line receivers for twisted pair cables. Includes terminal strip connectors for cable hook-up. Uses +15VDC.</p>
175.00	8419	<p>DRIVER OUTPUT CARD Eight drivers. Each driver switches 1.0A to 35VDC. Terminal strip for outputs, GND, and external supply. Each output has a diode clamped to the external supply and an LED display. Each display is visible with card plugged into rack. Uses +15VDC.</p>

POWER SUPPLIES

220.00	M273	<p>DUAL DC SUPPLY Provides +5VDC @ 6A and -10VDC @ 2A. For MPS-800 systems.</p>
95.00	M274	<p>DC SUPPLY Provides +12VDC @ 1A. Used with M273 in 8080A systems.</p>
155.00	M276	<p>DUAL DC SUPPLY Provides +12VDC @ 1A and -5VDC @ 2A. For 8080A systems.</p>
110.00	M277	<p>DC POWER SUPPLY Provides +5VDC @ 3A. Used with PLS cards requiring only +5VDC.</p>



M273 Dual DC Supply



M274 DC Supply



M277 DC Power Supply

Courses, Seminars, and Literature

Microprocessor Design Course

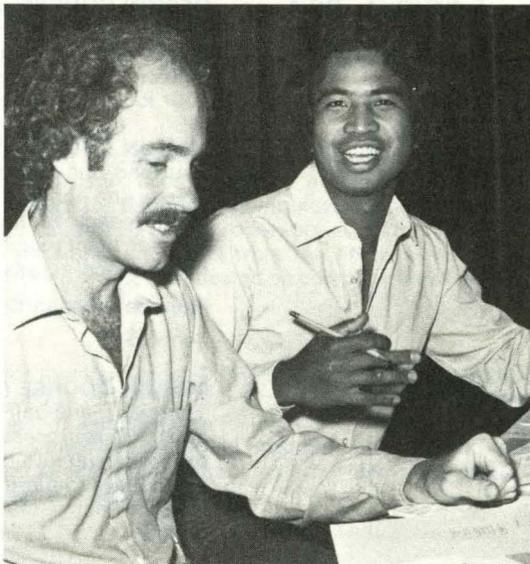
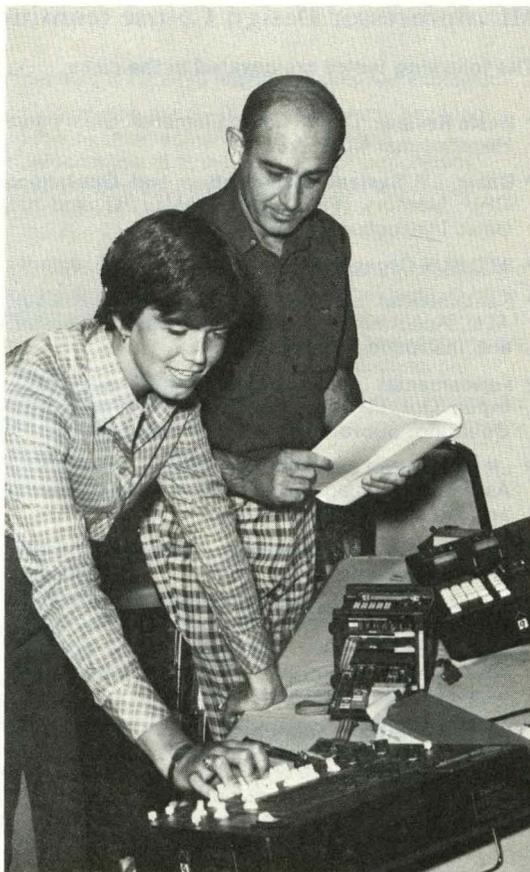
Pro-Log's course teaches you:

- How a microprocessor can be used as a universal logic element for solving your control problems
- The fundamentals of microprocessor operation, programming, and I/O integration
- To design and properly document software for use by manufacturing and field service
- How to connect the microprocessor to external loads such as lights, switches, relays, and displays
- How to troubleshoot hardware and software problems with an easy-to-use clip-on tester
- Independence from computer-aided software design.

Pro-Log's design course teaches the professional engineer how to handle the microprocessor in his design, by using proven engineering design and documentation techniques. Our course offers you an intensive, hands-on learning experience with the popular 8085 and Z80 microprocessors. Course material is also applicable to the 8080 user. Familiarity with digital logic and binary arithmetic is all you need; no previous microprocessor experience is required. The course begins with fundamentals and builds toward the control system level. Even if you have had some experience with microprocessors, you will find this course of great value to you.

Classes are held from 8:00 a.m. to 5:00 p.m. each day (concluding at 12:00 noon on the final day). Alternating lecture and lab sessions allow students to experiment with the concepts and methods they are learning.

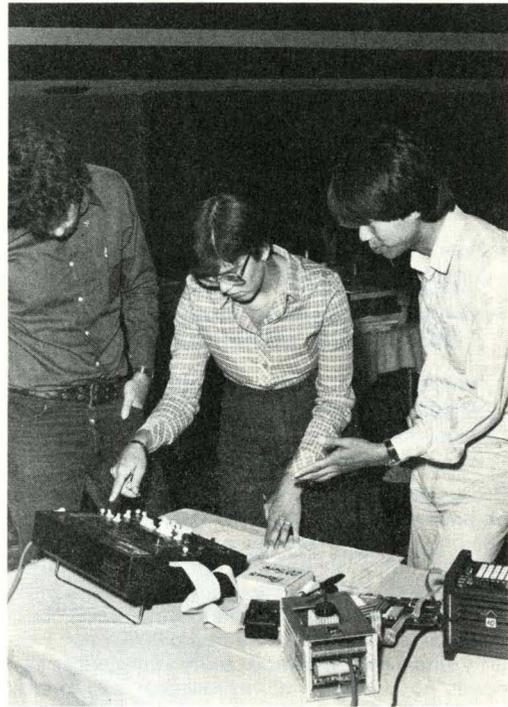
Our approach to software design and documentation is engineer-oriented, and has been taught to more than 4000 engineers. This design technique was developed by Pro-Log and is based on common engineering methods for the design and documentation of hardware. The engineering approach is far easier to work with than the data processing method, and we use it exclusively in all of our own designs. Instead of using complex and expensive computer-aided design tools, such as assemblers, compilers, and high level languages, the engineering method incorporates block diagrams, flowcharts, schematics, pencil, paper, tape, and scissors.



Microprocessor Design Course (continued)

The following topics are covered in the class:

- **Basic Review:** Digital Logic Elements, Binary and Hexadecimal Numbers
- **Basic μ P System Organization and Operation:** CPU, Memory (PROM and RAM), I/O, and the Basic Instruction Cycle
- **STD BUS Organization:** Decoding and Modularity
- **Fundamental μ P Architecture (8085 and Z80):** ALU, Accumulator, Registers, Program Counter, and Instruction Register
- **Fundamental μ P Operations (8085 and Z80):** Input, Output, Logic, Decisions, Timing Loops, Counting, Subroutine Jumps, and Interrupts
- **μ P Instruction Set (8085 and Z80):** Use of STD Assembly Language Mnemonics, Instruction Timing, and Execution Characteristics
- **Introductory Programming Techniques:** Flow-chart Fundamentals, Modular Programming, Using Subroutines, Engineering Approach to Programming, Direct and Indirect Addressing, Lookup Tables, Input Scanning, Output Strobing Output Multiplexing, Loop Control, Debouncing, Serial I/O, and Interrupt Handling
- **Documentation Standards:** STD Mnemonics Assembly Forms, Maps, Flow Charts, and Software Specifications.



\$ 400.00

DC-4

DESIGN COURSE (Regional locations only)

Three-and-one-half-day, hands-on lab and lecture course. Includes lunches, course and application notes, *Microprocessor User's Guide*, *STD BUS Specification and Practice*, and programming and design aids. Contact Pro-Log or your local representative (p. 61) for a schedule.

400.00

DC-5

DESIGN COURSE (Monterey location only)

Four-and-one-half-day, hands-on lab and lecture course. Includes lunches, course and application notes, *Microprocessor User's Guide*, *STD BUS Specification and Practice*, and programming and design aids. Time allowed for Pro-Log plant tour and interface with applications engineers. Contact Pro-Log or your local representative (p. 61) for a schedule.

Monterey Design Course Schedule 1981

June 15-19

August 31-September 4

December 7-11

5000.00

DC-1H

DESIGN COURSE (In-house at your location)

Three-and-one-half-day, hands-on lab and lecture course. Includes application notes, *Microprocessor User's Guide*, *STD BUS Specification and Practice*, and programming and design aids. The base price allows enrollment of up to 20 individuals from your organization. Up to 10 additional students may be enrolled for \$250 each. Contact Pro-Log or your local representative (p. 61) for further details.

Microprocessor and STD BUS Seminars

Pro-Log's management seminar explains how to:

- Use microprocessors as "black box" logic
- Design with microprocessors, using the same approach for designing hard-wired logic
- Evaluate the important business factors involved in selecting a microprocessor
- Document microprocessor-based systems for manufacturing and field service
- Unlock success and profits, designing with microprocessors in Pro-Log's engineering way.

The free half-day management seminar focuses on the advantages and pitfalls of designing with microprocessors. Geared to the corporate decision maker, engineering managers, and anyone looking for a cost-effective approach to designing with microprocessors.

Pro-Log's STD BUS technical seminar explains:

- How to use the STD BUS as "black box" logic
- How to interface with the STD BUS
- Advantages of Pro-Log's design philosophy
- Real-world applications and your application
- Factors in make/buy decisions
- Where the real design creativity lies.

The free half-day technical seminar reinforces the management seminar on a technical level. It introduces the STD BUS and explains how you can use it to solve your problems. Real-world applications are presented with adequate time for discussion.

Both these seminars are conducted throughout the country. Contact Pro-Log or your local representative (p.61) for a seminar schedule.

Literature

\$ 7.50

DG-3

DESIGNER'S GUIDE TO PROGRAMMED LOGIC (8080A)

The *Designer's Guide* provides the engineer with a complete description of the microprocessor, as well as the actual application of the microprocessor's capabilities. The guide implements graphic aids such as block diagrams, flowcharts, and program forms to illustrate and explain the concepts being discussed. Time Delay, Instruction Timing, Microprocessor Instructions, and other reference materials have been organized into convenient and easy-to-use tables that give the engineer the necessary tools to design his system. The *Designer's Guide* was initially conceived as an aid in educating the engineer in microprocessor technology and design. It now serves as a much used reference book for anyone utilizing the microprocessor in his design.

Includes:

- Full Instruction Descriptions
- Hexadecimal Notation
- System Organization (data flow, memory organization, addressing notes)
- Timing.

2.00

MUG

MICROPROCESSOR USER'S GUIDE

An 80 page booklet on designing with microprocessors. Includes information on the engineering design approach, microprocessor architectures, single-chip microprocessors, a proposal for standard mnemonics; and programming aids for the 8080, 8085, Z80, and 6800 microprocessors and the STD BUS. Articles are written by professional engineers from the perspective of the engineering culture. (One free copy when requested on company letterhead or by completing the request form on p. 63.)

2.00

PUG

PROM USER'S GUIDE

A 96 page booklet on PROMs and the Series 90 PROM programmers. Includes such articles as, "An Introduction to PROM Technology" and "How to Use the 1702A MOS PROM Reliably." It also includes PROM cross-reference tables and complete data sheets on the Pro-Log PROM programmers, options, and personality modules. (One free copy when requested on company letterhead or by completing the request form on p. 63.)

Literature (continued)

- | | | |
|-------|-----------------------|--|
| 10.00 | STD
MANUAL | SERIES 7000 STD BUS TECHNICAL MANUAL
The manual defines the standards constituting the STD BUS and the parameters common to the Series 7000 cards. The Series 7000 data sheets are included to illustrate the compatibility of the Series 7000 cards and provide design guidelines and application information. The Series 7000 STD BUS <i>Technical Manual</i> is aimed at the professional engineer who contemplates using the STD BUS in his company's products. (One free copy when requested on company letterhead or by completing the request form on p. 63.) |
| 10.00 | PLUS | STANDARD FOR ASSEMBLY-LEVEL DOCUMENTATION FOR PRO-LOG USERS' SOFTWARE (PLUS)
The exchange of documentation for software requires standardization. This document describes the Pro-Log standard PLUS (Pro-Log Users' Group Software documentation standard). PLUS was created by Pro-Log to provide its customers and users of the STD BUS with a ready library of usable, well-documented software. Membership in PLUS is granted for one calendar year and is renewable annually. Initial charter membership is \$50 to offset handling, printing, and mailing costs. It may be increased in subsequent years to new members. The annual renewal fee is \$50 to current members. In any case, the fee is not charged any member who submits, with his membership application, a software entry that is acceptable for publication in the PLUS library. Upon joining PLUS, each member is issued the PLUS binder complete with all programs published to date. For more information, write to Pro-Log, Attn: PLUS Membership. (One free copy when requested on company letterhead or by completing the request form on p. 63.) |

Microprocessor Card Index and Quantity Pricing

The following prices for cards, systems, and support items are listed in numeric and alphanumeric order. Quantity pricing is shown for most items and offers substantial discounts over unit prices. A dash in the quantity price column indicates that a factory quote is required. Price and delivery for quantities over 250 units requires a special factory quotation.

All pricing is given for reference purposes only. Pro-Log reserves the right to change prices without notice. Actual pricing is based on the price in effect on the date an order is placed or quoted. Quantity pricing is determined separately on each card model of multicard orders.

Prices listed in this catalog are subject to the terms and conditions mentioned on page 60.

MODEL	TITLE	QUANTITY PER SHIPMENT		25/SHIP. MINIMUM
		1-9	10-99	100-249
7101	8-SLOT MOTHERBOARD W/CABLE	110.00	95.00	87.00
7102	16-SLOT MOTHERBOARD W/CABLE	175.00	155.00	145.00
7105	4-SLOT MOTHERBOARD W/CABLE	95.00	85.00	80.00
7106	24-SLOT MOTHERBOARD W/CABLE	375.00	335.00	310.00
7301	RS232 & TTY DRIVER/RECEIVER CARD	145.00	130.00	115.00
7303	KEYBOARD & DISPLAY CARD	295.00	265.00	245.00
7304	DUAL UART CARD	295.00	275.00	260.00
7308	COUNTER/TIMER CARD	195.00	160.00	145.00
7320	PRIORITY INTERRUPT CARD	210.00	185.00	165.00
7501	MED. POWER DC DRIVER CARD	175.00	155.00	140.00
7502	SPST RELAY OUTPUT CARD	165.00	150.00	135.00
7503	OPTOISOLATED LOW VOLTAGE INPUT CARD	245.00	215.00	185.00
7504	TRIAC OUTPUT CARD	325.00	290.00	270.00
7506	OPTOISOLATED HIGH VOLTAGE INPUT CARD	245.00	215.00	185.00
7507	GEN. PURPOSE I/O INTERFACE CARD	165.00	150.00	135.00
7601	TTL I/O CARD	140.00	125.00	110.00
7602	TTL OUTPUT CARD	135.00	115.00	95.00
7603	TTL INPUT CARD	135.00	115.00	95.00
7604	TTL UNIVERSAL I/O CARD	175.00	155.00	140.00
7605-0	PROG. TTL I/O CARD (inverting)	195.00	185.00	170.00
7605-1	PROG. TTL I/O CARD (noninverting)	195.00	185.00	170.00
7701-0	16K BYTE STATIC RAM CARD	120.00	105.00	95.00
7701-04C	4K CMOS RAM CARD	290.00	255.00	225.00
7701-04N	4K NMOS RAM CARD	225.00	210.00	190.00
7701-08C	8K CMOS RAM CARD	450.00	395.00	315.00
7701-08N	8K NMOS RAM CARD	285.00	270.00	245.00
7701-16C	16K CMOS RAM CARD	665.00	595.00	515.00
7701-16N	16K NMOS RAM CARD	425.00	395.00	350.00
7702	16K EPROM CARD (2716)	96.00	90.00	85.00

INDEX AND QUANTITY PRICING

MODEL	TITLE	QUANTITY PER SHIPMENT		25/SHIP. MINIMUM
		1-9	10-99	100-249
7703-01C	1K CMOS BATTERY RAM CARD	240.00	215.00	190.00
7703-02C	2K CMOS BATTERY RAM CARD	290.00	255.00	225.00
7703-04C	4K CMOS BATTERY RAM CARD	375.00	335.00	295.00
7703-08C	8K CMOS BATTERY RAM CARD	535.00	485.00	425.00
7703-16C	16K CMOS BATTERY RAM CARD	850.00	765.00	675.00
7704	BYTE-WIDE MEMORY CARD	160.00	145.00	130.00
7705	32K EPROM CARD (2732)	99.00	93.00	87.00
7801-0	8085A PROCESSOR CARD (6.250 MHz CRYSTAL)	195.00	175.00	155.00
7801-1	8085A PROCESSOR CARD (6.144 MHz CRYSTAL)	195.00	175.00	155.00
7802	6800 PROCESSOR CARD	220.00	195.00	170.00
7803	Z80 PROCESSOR CARD	195.00	175.00	155.00
7804	Z80A PROCESSOR CARD	250.00	230.00	210.00
7901	UTILITY EXTENDER CARD	35.00	30.00	27.00
7902	UTILITY DIP CARD	30.00	27.00	25.00
7903	GENERAL UTILITY CARD	30.00	27.00	25.00
7904	DECODED I/O UTILITY CARD	70.00	65.00	55.00
7920	IN-RACK +5V POWER SUPPLY	375.00	—	-
7921	IN-RACK +5V±12 POWER SUPPLY	495.00	—	-
8112-1	PROM/RAM CARD	120.00	105.00	95.00
8113-1	I/O CARD (8080A, 6800)	120.00	105.00	95.00
8114	TTL INPUT GATE CARD	90.00	80.00	72.00
8115-1	TTL OUTPUT CARD	105.00	95.00	85.00
8116	PROM CARD	105.00	95.00	85.00
8117	RAM CARD	145.00	125.00	110.00
8118-1	8-LEVEL INTERRUPT CARD	155.00	135.00	115.00
8119	RAM CARD	165.00	145.00	125.00
8120	PROM/RAM CARD	165.00	145.00	125.00
8401-2	DRIVER OUTPUT CARD	150.00	130.00	120.00
8402-2	RELAY OUTPUT CARD	180.00	165.00	145.00
8403-1	OPTOISOLATED AC/DC INPUT CARD	280.00	250.00	230.00
8403-2	OPTOISOLATED AC/DC INPUT CARD	280.00	250.00	230.00
8403-3	OPTOISOLATED AC/DC INPUT CARD	280.00	250.00	230.00
8403-4	OPTOISOLATED AC/DC INPUT CARD	280.00	250.00	230.00
8403-5	OPTOISOLATED AC/DC INPUT CARD	280.00	250.00	230.00
8403-6	OPTOISOLATED AC/DC INPUT CARD	280.00	250.00	230.00
8404-4	TRIAC OUTPUT CARD	290.00	280.00	—

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MODEL	TITLE	QUANTITY PER SHIPMENT		25/SHIP. MINIMUM
		1-9	10-99	100-249
8405	TERMINAL STRIP CARD	75.00	65.00	60.00
8406	SERIAL TTY INTERFACE CARD	105.00	95.00	85.00
8407	SERIAL TTY & RS232 INTERFACE CARD	175.00	150.00	140.00
8409	RECEIVER/DRIVER CARD	175.00	150.00	140.00
8419	DRIVER OUTPUT CARD	175.00	150.00	140.00
8611	6800 PROCESSOR CARD	265.00	230.00	210.00
8611-1	6800 PROCESSOR CARD	265.00	230.00	210.00
8811A	8080A PROCESSOR CARD	265.00	230.00	210.00
8812	PROM/RAM CARD	155.00	130.00	120.00
8821	8080A PROCESSOR CARD	265.00	230.00	210.00
BR04H	4-SLOT BUSED RACK w/HANDLE	115.00	102.00	93.00
BR04R	4-SLOT BUSED RACK w/RACK MOUNT	135.00	120.00	110.00
BR04T	4-SLOT BUSED RACK w/TABLE MOUNT	135.00	120.00	110.00
BR08H	8-SLOT BUSED RACK w/HANDLE	155.00	139.00	123.00
BR08R	8-SLOT BUSED RACK w/RACK MOUNT	180.00	162.00	144.00
BR08T	8-SLOT BUSED RACK w/TABLE MOUNT	180.00	162.00	144.00
BR16H	16-SLOT BUSED RACK w/HANDLE	240.00	215.00	193.00
BR16R	16-SLOT BUSED RACK w/RACK MOUNT	260.00	234.00	210.00
BR16T	16-SLOT BUSED RACK w/TABLE MOUNT	260.00	234.00	210.00
BR24H	24-SLOT BUSED RACK w/HANDLE	470.00	420.00	380.00
BR24R	24-SLOT BUSED RACK w/RACK MOUNT	490.00	440.00	400.00
BR24T	24-SLOT BUSED RACK w/TABLE MOUNT	490.00	440.00	400.00
CB18	BARRIER STRIP CONNECTOR	30.00	25.00	23.00
CF1	PROGRAMMER ASSEMBLY FORM	5.00	4.00	3.50
CP9P	P.S. CABLE (PLUG)	15.00	13.50	12.50
CP9S	P.S. CABLE (SOCKET)	15.00	13.50	12.50
CS18	I/O EDGE CONNECTOR	20.00	18.00	16.00
CT56	TRANSITION CONNECTOR	20.00	18.00	16.00
CW56-0	56-PIN WIREWRAP CONNECTOR	7.00	6.00	5.50
CW56-1	56-PIN WIREWRAP CONNECTOR	7.00	6.00	5.50
D1002	RAM (8 EA. 2102 TYPE)	27.00	24.00	21.00
D1004	RAM (2 EA. 2114 TYPE)	27.00	24.00	22.00
D1024	UV EPROM (2708)	30.00	25.00	23.00
D2002	UV EPROM (2716)	24.00	21.00	18.00
D256	UV EPROM (1702)	30.00	25.00	22.00

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MODEL	TITLE	QUANTITY PER SHIPMENT		25/SHIP. MINIMUM
		1-9	10-99	100-249
ER04H	4-SLOT EMPTY RACKw/HANDLES	31.00	28.00	25.00
ER04R	4-SLOT EMPTY RACK w/RACK MOUNT	53.00	47.00	42.00
ER04T	4-SLOT EMPTY RACK w/TABLE MOUNT	53.00	47.00	42.00
ER08H	8-SLOT EMPTY RACKw/HANDLES	45.00	40.00	35.00
ER08R	8-SLOT EMPTY RACK w/RACK MOUNT	65.00	58.00	52.00
ER08T	8-SLOT EMPTY RACK w/TABLE MOUNT	65.00	58.00	52.00
ER16H	16-SLOT EMPTY RACKw/HANDLES	65.00	58.00	53.00
ER16R	16-SLOT EMPTY RACK w/RACK MOUNT	85.00	76.00	69.00
ER16T	16-SLOT EMPTY RACK w/TABLE MOUNT	85.00	76.00	69.00
ER32H	32-SLOT EMPTY RACKw/HANDLES	105.00	95.00	86.00
ER32R	32-SLOT EMPTY RACK w/RACK MOUNT	125.00	113.00	103.00
ER32T	32-SLOT EMPTY RACK w/TABLE MOUNT	125.00	113.00	103.00
M273	+5V-10V POWER SUPPLY	220.00	195.00	185.00
M274	+12V POWER SUPPLY	95.00	85.00	80.00
M276	+12-5V POWER SUPPLY	155.00	140.00	—
M277	+5V POWER SUPPLY	110.00	77.00	—
M280	STD +5-12V POWER SUPPLY	205.00	185.00	—
M281-1	STD +5±12V POWER SUPPLY (115VAC)	225.00	200.00	—
M281-2	STD +5±12V POWER SUPPLY (230VAC)	240.00	215.00	—
M822A-1	8080A ANALYZER (115VAC)	950.00	—	—
M822A-2	8080A ANALYZER (230VAC)	950.00	—	—
M823-1	6800 ANALYZER (115VAC)	950.00	—	—
M823-2	6800 ANALYZER (230VAC)	950.00	—	—
M824-1	Z80 ANALYZER (115VAC)	1,750.00	—	—
M824-2	Z80 ANALYZER (230VAC)	1,750.00	—	—
M825-1	8085 ANALYZER (115VAC)	1,750.00	—	—
M825-2	8085 ANALYZER (230VAC)	1,750.00	—	—
MP4	MONITOR PROGRAM	100.00	—	—
MUG	MICROPROCESSOR USER'S GUIDE	2.00	1.25	1.00
PIN114	PARALLEL INTERFACE (STD TO M980)	250.00	—	—
PLS858	8085 ONE CARD SYSTEM	195.00	180.00	165.00
PLS868	6800 ONE CARD SYSTEM	235.00	205.00	180.00
PLS881	8080A ONE CARD SYSTEM (2708 PROM)	215.00	190.00	175.00
PLS888	8080A ONE CARD SYSTEM (TMS2716)	215.00	190.00	175.00
PLS888A	8080A ONE CARD SYSTEM (2716)	215.00	190.00	175.00
PLS898	Z80 ONE CARD SYSTEM	195.00	180.00	165.00

INDEX AND QUANTITY PRICING

MODEL	TITLE	QUANTITY PER SHIPMENT		25/SHIP. MINIMUM
		1-9	10-99	100-249
PS1B-1	8085 PROTOTYPING SYSTEM (115VAC)	5,500.00	—	—
PS1B-2	8085 PROTOTYPING SYSTEM (230VAC)	5,500.00	—	—
PS3B-1	Z80 PROTOTYPING SYSTEM (115VAC)	5,500.00	—	—
PS3B-2	Z80 PROTOTYPING SYSTEM (230VAC)	5,500.00	—	—
RC50-6	CABLE	70.00	—	—
RC701-3	CABLE	35.00	—	—
RC702-3	CABLE	35.00	—	—
RC703-3	CABLE	35.00	—	—
RC704-1	CABLE	10.00	—	—
RC704-2	CABLE	10.00	—	—
SZ24	ZERO INSERTION FORCE SOCKET	20.00	17.00	—
WK1	WIREWRAP KIT	60.00	—	—
WR04H	4-SLOT RACK w/CONNECTOR & HANDLES	70.00	63.00	56.00
WR04R	4-SLOT RACK w/CONNECTOR & RACK MOUNT	90.00	81.00	73.00
WR04T	4-SLOT RACK w/CONNECTOR & TABLE MOUNT	90.00	81.00	73.00
WR08H	8-SLOT RACK w/CONNECTOR & HANDLES	105.00	95.00	86.00
WR08R	8-SLOT RACK w/CONNECTOR & RACK MOUNT	125.00	113.00	103.00
WR08T	8-SLOT RACK w/CONNECTOR & TABLE MOUNT	125.00	113.00	103.00
WR16H	16-SLOT RACK w/CONNECTOR & HANDLES	205.00	190.00	175.00
WR16R	16-SLOT RACK w/CONNECTOR & RACK MOUNT	230.00	205.00	190.00
WR16T	16-SLOT RACK w/CONNECTOR & TABLE MOUNT	230.00	205.00	190.00
WR32H	32-SLOT RACK w/CONNECTOR & HANDLES	375.00	335.00	308.00
WR32R	32-SLOT RACK w/CONNECTOR & RACK MOUNT	395.00	355.00	325.00
WR32T	32-SLOT RACK w/CONNECTOR & TABLE MOUNT	395.00	355.00	325.00

Ordering Information

General Information

Placing An Order

Orders may be placed in Pro-Log's name through your local Pro-Log Representative or directly with the factory. Telephone orders are accepted pending credit verification and confirming paperwork. When telephoning an order to Pro-Log, ask for the Order Desk. We have specially trained personnel to handle your order promptly.

Product Availability

Pro-Log's normal shipment time for 1-9 pieces of a product is 2 weeks ARO on most products. Should you require faster delivery, Pro-Log will try to accommodate you.

If You Should Need Service or Technical Support

Contact your local Representative or call Pro-Log direct and ask for the Customer Service Desk. If it is necessary to return some equipment to Pro-Log for repair, the Service Desk will provide you with a return number and the instructions to expedite handling of your equipment by Pro-Log.

Functions and Limitations of Pro-Log Representatives

Pro-Log is represented domestically by a network of sales representatives (see page 61). These people are ready to answer most of your questions about Pro-Log and its products and can assist you in getting the support and information you need to solve your problems. Our representatives are not authorized to quote prices other than those listed in our published Price List, nor can they commit Pro-Log to any contractual arrangements. Such pricing and arrangements can be made only in writing by an officer of Pro-Log Corporation.

Special Configurations

Pro-Log is a manufacturer of standard products and as such does not normally consider special purpose designs or hardware configurations. However,

Pro-Log may be willing to quote specialized product configurations, specialized packaging and additional products, and services and documentation as part of an OEM agreement.

Terms

1. 2%-10 Days, Net 30 Days; F.O.B. Monterey, California. Pro-Log reserves the right to deny this discount under certain conditions.
2. A charge of 2% per month will be added to past due accounts.
3. Future orders from a customer who takes over 60 days will be accepted only on a C.O.D. or cash-with-order basis until credit is re-established to Pro-Log's satisfaction.
4. Cancellation charges on orders for standard products will be charged at the rate of 10 percent of the amount of the purchase order covering standard products. This will apply in all instances where orders for standard products are cancelled after Pro-Log acceptance of purchase order.
5. Minimum Order: \$100.00; all orders subject to credit verification.

International Ordering Information

We require a confirmed irrevocable letter of credit for all sales not handled by one of our international distributors. Our normal delivery time on initial orders is four to six weeks after receipt of order, pending completion of export licensing.

In order for us to obtain an export license, we must have a Purchase Order number and the necessary documents required for importation (i.e., import certificate, DIB 629). After receiving these documents, we can then apply for the export license, which takes approximately three to four weeks to process. All sales are F.O.B. Monterey, California.



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