AMETEK®

PATRIOT SENSORS

Series 1995L
Gemco™
Analog Input Micro-Set PLS

- Economical, Compact Six-Circuit Design (expandable to 30)

- 0-10 VDC or 4-20 mA Input, ± 15 VDC or 24 VDC Output for Use With Gemco Series 940, 950A or 951 Linear Displacement Transducers

- 12-Bit Resolution

- Fault-Check Self Diagnostics Monitor Microprocessor

- Program Security Input Prevents Unauthorized Program Changes

- Programmable Offset and Scale Factor

- Mechanical and Solid-State Relay Outputs

- Programmable Motion Detect

- Nonvolatile Memory-No Memory Loss from Power Failure

- Multiple Program Storage for Fast Job Setup

- Keypad Programming With Display and Active Output LEDs

- Input Power 115VAC or 230VAC, 50/60 Hz

- NEMA 4 or 12 Enclosure Option
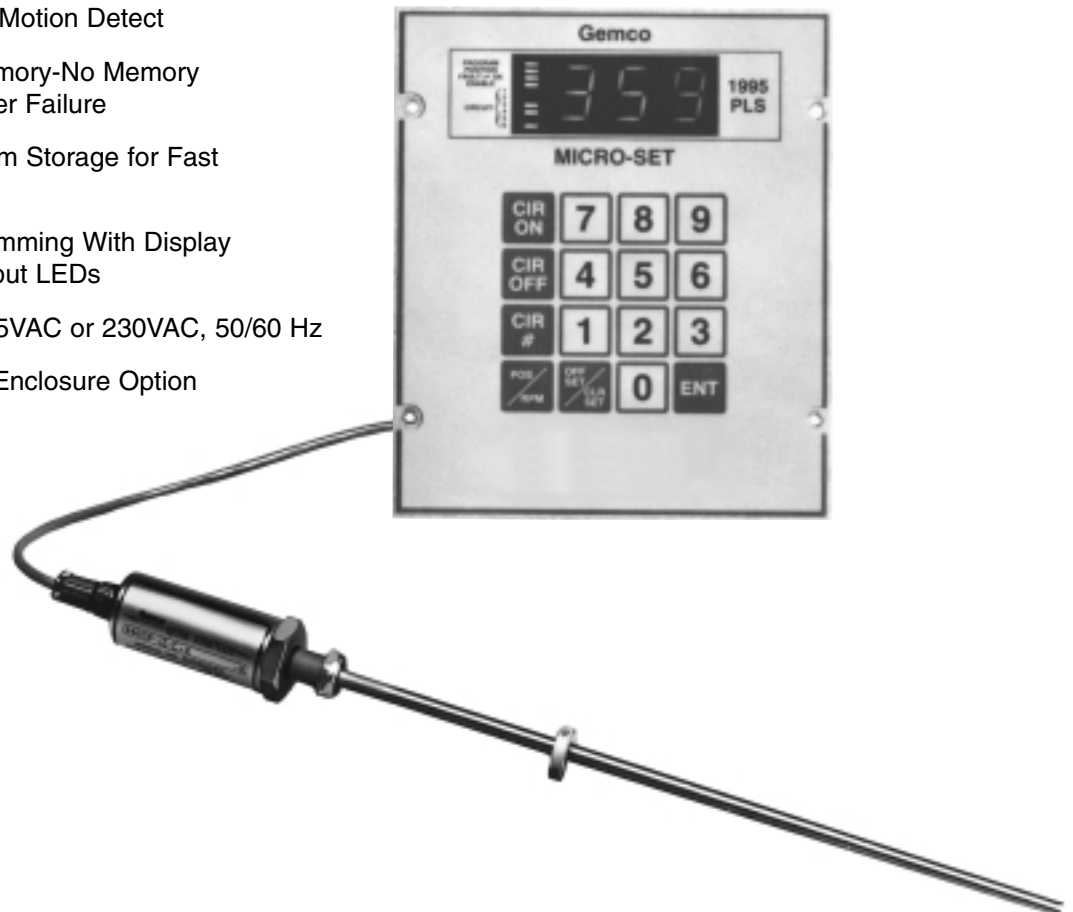
DESCRIPTION:

The 1995L Micro-Set PLS was designed for use in linear machine control applications. It incorporates many features for safe, efficient machine operation.

This completely self-contained unit can turn up to 30 independent outputs (six standard) on or off based on the position of a linear displacement transducer or feedback from other analog devices such as pressure transducers, potentiometers, etc.

It offers 0-10 VDC input with a built-in ± 15 VDC & 24 VDC power supply to feed a Gemco Series 940, 950A or 951 linear displacement transducer. Other input voltages are available (0-5 VDC, -10 to +10 VDC, 4-20 mA) for use with other devices. Consult the factory for full ordering details.

A programmable motion detect output (speed measured in scale factor increments per second) will energize a relay when the transducer speed exceeds the customer preprogrammed speed value.

Software options further enhance the system by offering . . .

. . . **Multiple Programs** — Allows storage of job setups for future use. This saves time reprogramming and lessens the chance of programming errors when tooling is changed.

. . . **Reset-to-Preset** — Allows an external contact closure to reset the unit to a programmed preset value.

PROGRAMMING

The Micro-Set provides simple and versatile keypad programming, including the following features:

- Large, Easy-to-Read Keypad to Simplify Programming
- Status Lights to Indicate Program Mode, Position/IPS, Fault Check, Enable/Disable, and Circuit On/Off
- Large LED Display Readout Showing Position, IPS, Programmed Information, Editing, Offset, and Error Codes
- Security Input to Prevent Unauthorized Personnel From Changing Programmed Functions

DISPLAY ERROR/FAULT MESSAGES

DISPLAY ERROR MESSAGE
EEE – INCORRECT PROGRAMMING SEQUENCE OR PROGRAMMER FAULT

NO MESSAGE – Microprocessor failure or 5-Volt Power Supply Failure

---

GENERAL ORDERING INFORMATION -A Series 1995L PLS system consists of a Linear Displacement Transducer (L.D.T.), L.D.T.-to-programmer cable assembly, and the programmer, which provides six limit switch outputs and one fault-check output. The optional output expansion module will add six additional limit switch outputs per module, and up to four expansion modules can be driven by the programmer, for a total of thirty limit switch outputs.

The programmer and expansion modules can be ordered as separate items for mounting in your own enclosure or they can be ordered mounted and prewired in an enclosure from the factory. To order as separate items, assemble the programmer part number specifying the desired options and insert an "X" as the last digit of the part number in the area labeled "enclosure type." The expansion module is then ordered as a separate item using the part number sequence starting with the number 1995E. The cable assembly between the programmer and the output expansion module consists of two twisted pairs. A six-foot cable will be provided as standard with the output expansion module at no additional charge. The last digit of the output expansion module part number allows you to specify a cable assembly up to 300 feet long. An additional charge will be added for every foot of cable length over the standard six-foot length.

OUTPUT TYPE

The next portion of the numbering sequence specifies the type of output relay. Mechanical relays, AC solid-state and DC solid-state relays are available and any combination can be specified. The example in the catalog shows three AC and three DC solid-state relays being specified. There is a fixed price adder for any combination of relays other than all mechanical (6M). The fault-check relay will always be a mechanical relay regardless of the type of output relays specified.

SOFTWARE OPTIONS

The standard software or optional software package "P" are specified next. The standard software provides a motion detect output. This output allows the programming of a motion detect speed value in scale factor increments per second. When the speed is exceeded, the motion detect output energizes. A circuit allows the programming of the speed measurement intervals in .050-second increments. Another circuit allows you to view the speed resolution in scale factor increments based on the programmed values.

Multiprogram — This feature allows the storage of multiple sets of output sequences that are preprogrammed based on the changing requirements of different tooling. When dies or tooling are changed, the new program is simply called up on the keypad and all outputs are automatically set to the new output sequences. The number of available programs will vary based on the number of output relays and setpoints programmed on each relay. A typical six-output system with one ON and one OFF setpoint per output will be capable of storing twenty programs in memory.

ENCLOSURE TYPE

The programmer can be ordered as an open chassis unit for mounting in an enclosure in the field. Insert an "X" in this location of the part number if the open chassis version is desired.
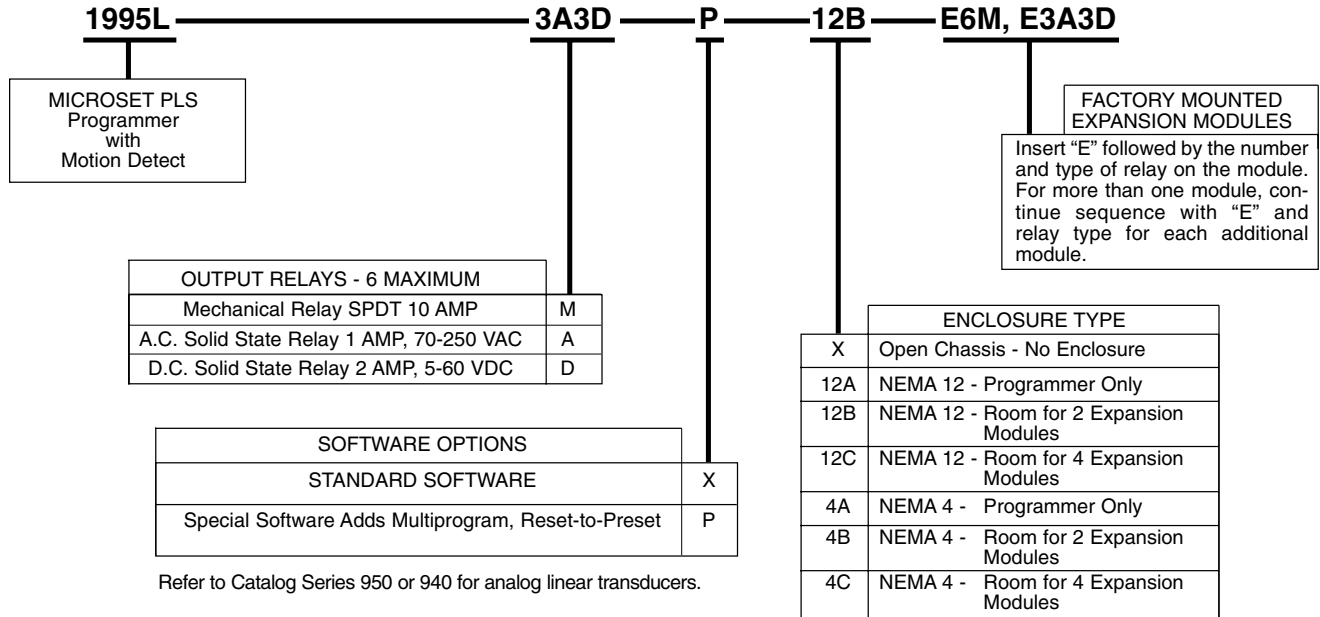
All enclosures are provided with the programmer mounted on a swing plate with the LED display positioned behind a Plexiglas window in the enclosure door.

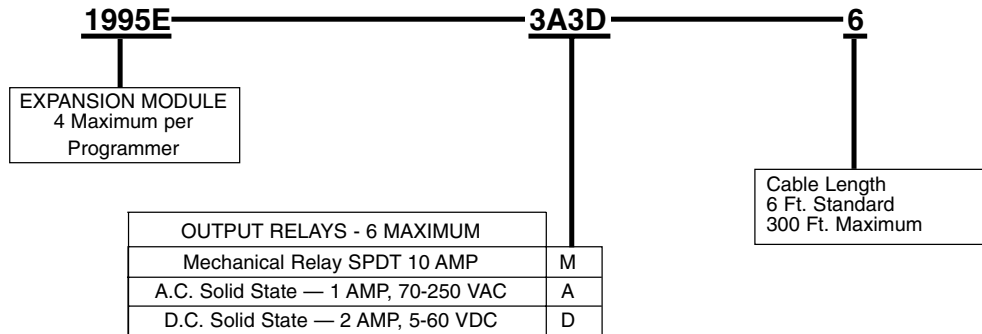### FACTORY-MOUNTED OUTPUT EXPANSION MODULES

This portion of the catalog number specifies the number of expansion modules and the type of output relays on modules that are to be mounted and interwired in the enclosure at the factory. The "E" indicates one expansion module with the following number indicating the number and type of output relays mounted on that module. When more than one output expansion module is required, each additional expansion module is specified by an "E" followed by the number and type of relay on that module. The first expansion module will be factory labeled as circuits seven through twelve, the second as circuits thirteen through eighteen, etc. The example in the catalog shows a system having two output expansion modules. The first will have six mechanical relays and will be labeled circuits seven through twelve. The second module will have three AC solid-state and three DC solid-state relays and will be labeled circuits thirteen through eighteen. The total number of output expansion modules cannot exceed four.

If the output expansion modules are not being ordered as factory mounted and prewired in an enclosure, the programmer catalog number should end after the enclosure type is specified. The output modules are then ordered as separate items using the catalog number starting with 1995E.

CATALOG NUMBERING SEQUENCE
Programmer with Factory Installed Hardware Options

1995L ———————— **3A3D** —— **P** —— **12B** —— **E6M, E3A3D**

MICROSET PLS
Programmer
with
Motion Detect

FACTORY MOUNTED
EXPANSION MODULES

Insert "E" followed by the number and type of relay on the module. For more than one module, continue sequence with "E" and relay type for each additional module.

OUTPUT RELAYS - 6 MAXIMUM	
Mechanical Relay SPDT 10 AMP	M
A.C. Solid State Relay 1 AMP, 70-250 VAC	A
D.C. Solid State Relay 2 AMP, 5-60 VDC	D

ENCLOSURE TYPE	
X	Open Chassis - No Enclosure
12A	NEMA 12 - Programmer Only
12B	NEMA 12 - Room for 2 Expansion Modules
12C	NEMA 12 - Room for 4 Expansion Modules
4A	NEMA 4 - Programmer Only
4B	NEMA 4 - Room for 2 Expansion Modules
4C	NEMA 4 - Room for 4 Expansion Modules

SOFTWARE OPTIONS	
STANDARD SOFTWARE	X
Special Software Adds Multiprogram, Reset-to-Preset	P

Refer to Catalog Series 950 or 940 for analog linear transducers.

Output Expansion Modules Purchased as Separate Items

1995E ———————— **3A3D** ———————— **6**

EXPANSION MODULE
4 Maximum per
Programmer

Cable Length
6 Ft. Standard
300 Ft. Maximum

OUTPUT RELAYS - 6 MAXIMUM	
Mechanical Relay SPDT 10 AMP	M
A.C. Solid State — 1 AMP, 70-250 VAC	A
D.C. Solid State — 2 AMP, 5-60 VDC	D

OPTIONAL RESET-TO-PRESET INPUT RELAY

PART NUMBER	DESCRIPTION
SD0395100	Reset Input Relay - Solid-State 110VAC Input

SPECIFICATIONS

MICRO-SET PLS PROGRAMMER

Resolution	— 12 Bit (4096)
Scale Factors	— Programmable from 2-1,000
Scan Time	— Standard 200 Microseconds
Temperature Range	— 32˚F to 125˚F (Operating)
	0˚F to 150˚F (Storage)
Operating Voltage	— 110/120VAC 50/60 Hz 300mA; Optional 230VAC 50/60 Hz consult factory

INPUTS

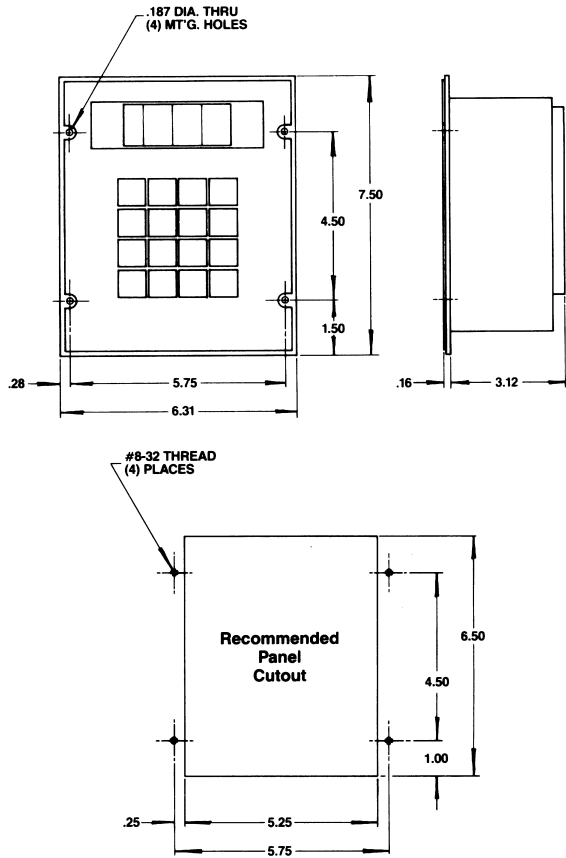|	
Transducer	— Linear Displacement Transducer (0-10 VDC out) ± 15 VDC & 24 VDC input supplied by 1995L; Optional 4-20 mA consult factory.
Logic	— Fault-Check and Security (5VDC at 10 mA). May be operated by isolated contact, current sourcing, or current sinking device.

OUTPUTS (Plug-in Relays)

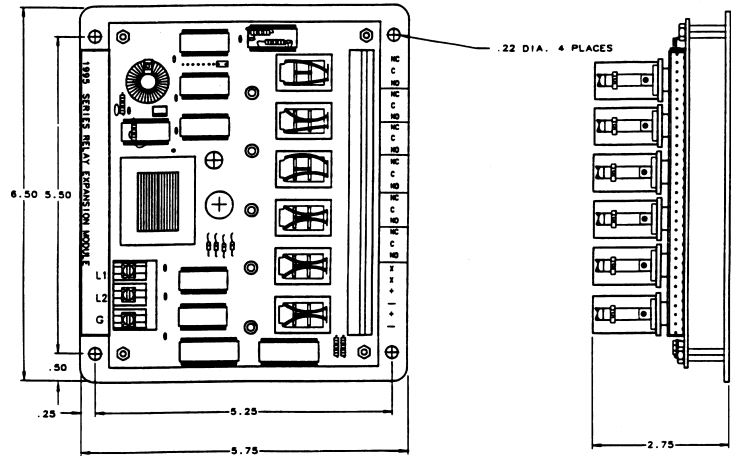|	
Mechanical Relays	— Single-pole, double-throw 10 Amp, Pickup 2 ms, dropout 15 ms.
A.C. Solid-State Relays	— Single-pole, N.O., 1 Amp, 70 to 250VAC, zero voltage switching, leakage current, 3 mA at 120VAC.
D.C. Solid-State Relays	— Single-pole, N.O., 2 Amps maximum, 5 to 60VDC, leakage current 2 mA maximum.

OUTPUT EXPANSION MODULE

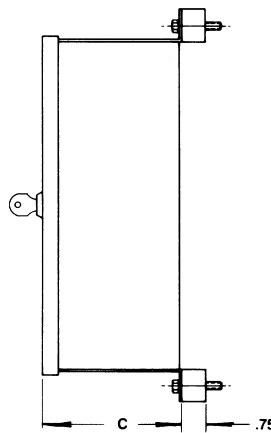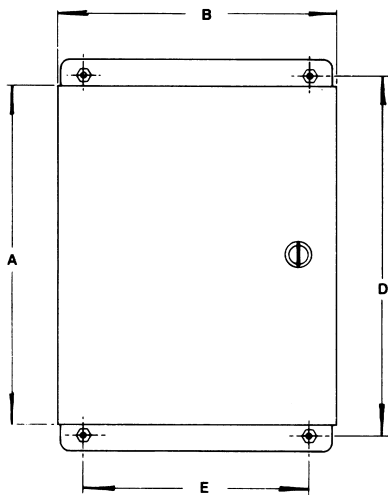|	
Operating Voltage	— 110/120VAC, 50/60 Hz,100 mA; Optional 230VAC 50/60 Hz consult factory
Temperature Range	— Same as programmer

MICRO-SET PROGRAMMER DIMENSIONS

.187 DIA. THRU
(4) MT'G. HOLES

7.50

4.50

1.50

.28

5.75

6.31

.16

3.12

#8-32 THREAD
(4) PLACES

Recommended
Panel
Cutout

6.50

4.50

1.00

.25

5.25

5.75

EXPANSION MODULE DIMENSIONS

1995 SERIES RELAY EXPANSION MODULE

.22 DIA. 4 PLACES

6.50 5.50

.50

.25

5.25

5.75

2.75

ENCLOSURE DIMENSIONS

DIM.	NEMA 4A	NEMA 12A
A	14.64	11.46
B	11.89	9.43
C	6.89	5.15
D	15.04	12.00
E	9.44	7.50

DIM.	NEMA 4B	NEMA 12B
A	15.48	15.48
B	14.05	14.05
C	7.31	7.31
D	16.25	16.25
E	12.50	12.50

DIM.	NEMA 4C	NEMA 12C
A	20.82	20.82
B	14.05	14.05
C	7.31	7.31
D	21.58	21.58
E	12.50	12.50

AMETEK®
PATRIOT SENSORS

1995L.C1
6/99 • Z53
2M