



**KYNETICS** SERIES 1000 MODULAR AUTOMATED DRAFTING SYSTEMS





Xynetics Modular Automated Drafting Systems with the revolutionary Xynetics/Sawyer Principle linear motor drive... drawing speeds to 40 inches per second... accuracy of  $\pm 0.005''$ ... and repeatability of  $\pm 0.001''$  over areas up to 57" x 89".

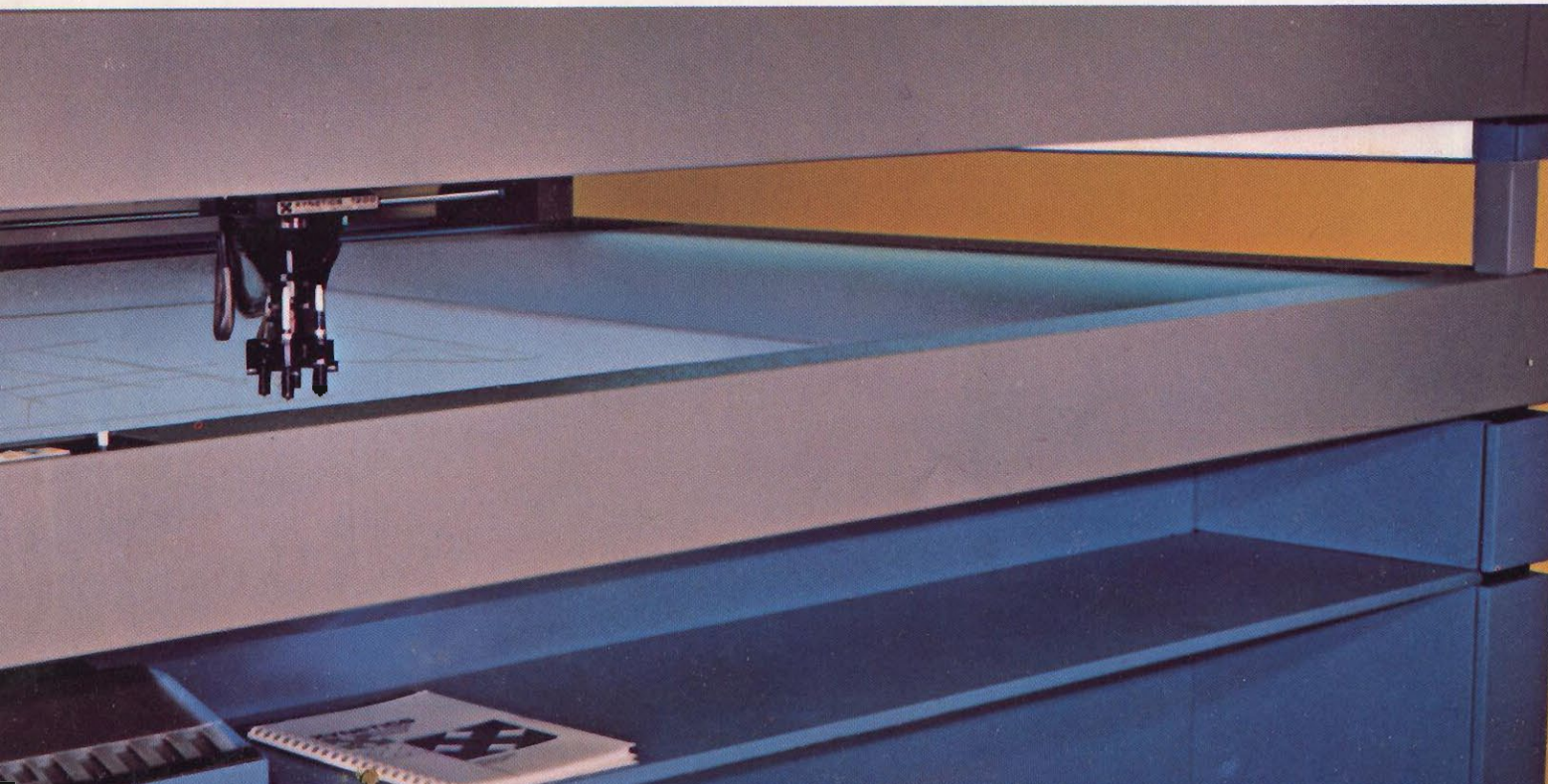
**Design your own system . . . .**

#### **Table Features and Accessories**

Models within the Series 1000 systems offer two drafting table sizes, providing work areas ranging from 42 inches by 57 inches to 57 inches by 89 inches. (See table specifications, Page 4.) All tables will accommodate a full range of cut sheet and roll type drafting media with material thicknesses up to 0.0625 inch, including vellum, mylar, photosensitive films and glass plates, scribe coat and art board. Table controls include Automatic/Manual mode selection, manual pen controls, and a joystick for manual movement of the drafting head. A vacuum hold-down accommodating small sheets or sheets as large as the entire work area is standard on both the Models 1100 and 1200. Also available as optional accessories are, an Axis Position Display which provides a lighted digital display of the X and Y axis position of the drafting head, and paper advance systems ranging from manual to fully automatic.

#### **Optional Drafting Head-Work Attachments**

The Xynetics drafting head has been designed to accept many different quick-mount work attachments. These include wet ink and ball point pens, fiber tip pens, plus scribing and cutting tools for a wide range of graphic applications and production techniques.





Xynetics Automated Drafting Systems "Building Block" concept now presents a unique drafting technique, based on the Xynetics/Sawyer linear motor drive principle, in a series of modular building blocks . . . so you can be your own graphics system architect. Utilizing the system component descriptions and pricing information detailed in Xynetics "Design Portfolio", you can build a modular automated drafting system to satisfy your specific graphic requirements . . . priced to allow you critical cost-effectiveness control of your drafting system investment. Choose the system components to optimize your present graphics activities with full freedom to add or replace system components to match future changes in your requirements. Pick the table to fit your "effective drawing area" requirements; select the drafting tools matching those you prefer in your present mode of production, or for the expansion of your graphic applications; then add the desired table accessories. Finally, choose slope generators, as well as on-line or off-line input controllers. The Series 1000 Tables and System Modules

are briefly described on Page 4. When you are ready to design your system, refer to the detailed information in the "Design Portfolio" for specific information and prices for each module.

The extremely high speed and constant high accuracy of Xynetics systems are functions of the patented Xynetics/Sawyer Principle Linear Motor Drive, based on the concept of two axis motion, controlled by the interaction of magnetic forces. Consequently, the awkward system of gears, cables and lead screws normally used to carry automated drafting tools has been eliminated. Instead, the Xynetics drafting head rides on a frictionless air-cushion.

Software programs available from Xynetics include a basic, standard Fortran Level package consisting of a versatile arrangement of call routines. Together with other available functional subroutines and application programs, the basic package provides a powerful software system.

**. for on-line or off-line operation using Xynetics proven off-the-shelf system modules and Fortran Level software programs.**

#### Off-Line Controller

Magnetic tape and paper tape off-line controllers are available for the drafting system. They include an 8K, 16-bit core memory unit for data buffering and velocity/acceleration control of the drafting head, together with an ASR-33 Teletypewriter for operator control of data scaling, drawing origin, speed, rotation and drawing selection. The larger controller also permits storage of symbols for drawing annotation.

#### On-Line Controller

The C64 On-Line Controller is provided as a general purpose interface device to permit the user to operate Xynetics plotters on-line to his host computer. It performs the complete plotter drive function, including velocity and acceleration control, and may be used for limited symbol storage, thus relieving the host computer of a major portion of the software burden that normally attends on-line operation. The C64 may be used with either the SG50 or SG51 Slope Generator.

#### Computer Interface Modules

In addition to the standard Interface Modules listed below, interfaces for connecting any Xynetics drafting system to any user computer can be supplied on a request for quote basis.

**Model SI42.** Interface for connecting Nova series, HP 2100, PDP-11 or MAC-16 computers to Xynetics C64 On-Line Controller or to the Xynetics SG50 Slope Generator.

**Model SI43.** Interface for connecting user's IBM 1130 computer to Xynetics C64 On-Line Controller or Xynetics SG50 Slope Generator.

#### Slope Generators

All Xynetics drafting systems have infinite slope resolution, which provides the capability of drawing line segments at any angle from any point of origin. From line segment end-point input information, the slope generator supplies pulse sequencing for both X and Y axes, resulting in the line segment being drawn on the correct slope to the selected end-point. Xynetics Hardware Slope Generators relieve the computer of the requirement to compute and output one mill increment instructions, thus increasing throughput by allowing the computer to read tape and perform calculations while the drafting head is plotting. The system then operates in a time-sharing mode with the computer.

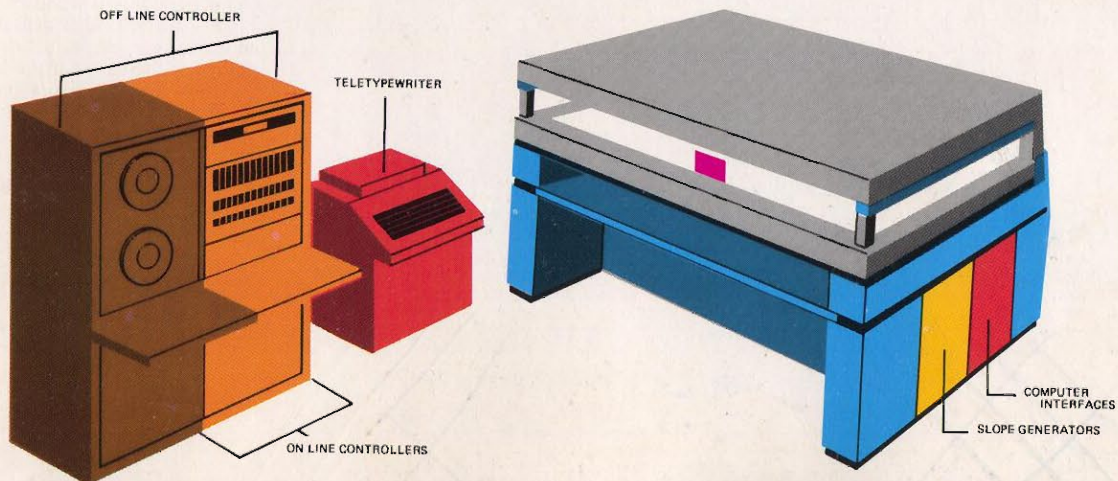
There are two Hardware Slope Generators available:

#### Model SG50 Slope Generator.

Permits full use of the response capability of the drafting head (30,000 steps per second — per axis). Computes and outputs straight line slope commands based upon end-point instructions only. Requires that the work head decelerate to zero velocity at the end of each straight line segment.

#### Model SG51 "Look Ahead" Slope Generator

Operates in conjunction with a series C60 Controller to perform a "look ahead" function, thus permitting continuous work head movement through shallow angle breaks, which results in higher average velocity for the complete plot.





## SERIES 1000 AUTOMATED DRAFTING SYSTEM MODULES

The central building block of the Series 1000 drafting system is the flatbed table, of which two standard sizes are available (Models 1100 and 1200). All tables will accommodate a full range of cut sheet and roll type drafting media

with material thicknesses up to 0.0625 inch, including vellum, mylar, photo-sensitive films and glass plates, scribe coat and art board.

### DRAFTING TABLE SPECIFICATIONS

**Resolution** 0.001 inch

**Accuracy**

±0.005 inch per axis (over total drawing area)

**Repeatability**

±0.001 inch (over total drawing area)

**Maximum Speed** 40 inches per second

**Drawing Area**

(with four pens mounted on work head)

Model	Effective Drawing Area	Maximum Sheet Size
1100	42" x 57"	48" x 64"
1200	57" x 89"	64" x 96"

**Table Controls**

Automatic/Manual mode selection

Manual pen controls

Manual movement of drafting head with joy stick

Vacuum holddown control

**Power Requirements**

115 volt, single phase, 60 Hz, 3.5 kw

### SLOPE GENERATORS, CONTROLLERS, INTERFACES, AND TABLE ACCESSORIES

Model Number	Item Description	Prerequisite	Model Number	Item Description	Prerequisite
SI42*	System Interface—Slope Generator SG50 or C64 controller to Nova Series, HP 2100, PDP-11, and MAC-16 computers.	None	TA60	Axis Position Display	Slope Generator Model SG50 or SG51
SI43*	System Interface—Slope Generator SG50 or C64 controller to IBM 1130	None	TA70	Paper Advance, unidirectional, manual	None
SG50	Hardware Slope Generator	None	TA71	Paper Advance, unidirectional, motor driven; pushbutton controlled	None
SG51	Look Ahead/Slope Generator	Series C60 Controller	TA72	Paper Advance, unidirectional, program controlled	None
C62	Controller—Magnetic Tape	Slope Generator Model SG50, SG51	WA40	Pen Kit	None
C63	Controller—Punched Tape	Slope Generator Model SG50, SG51	WA41	Scribe Kit	None
C64	On-Line Controller	Slope Generator Model SG50, SG51 & S142, or S143 Interface			

\*Interfaces to other computers quoted on request.

For further information, or assistance in designing your Xynetics Automated Drafting System, call or write: **XYNETICS, INC.**

**C. Itoh & Company, Ltd.**

4-2-Chome, Honcho  
Nihonbashi, Chuo-ku, Tokyo, Japan  
Telephone: Tokyo 662-5111  
Telex via C. Itoh America-67281

**Xynetics S.A.**

Avenue Louise 384,  
1050 Brussels, Belgium  
49.98.83  
Telex: 23764

**Central Regional Office**

5700 Plymouth Road  
Ann Arbor, Michigan 48105  
(313) 769-1960  
Telex: 235788

**Eastern Regional Office**

10750 Columbia Pike, #404  
Silver Spring, Maryland 20901  
(301) 681-5500  
Telex: 898318

**CORPORATE OFFICE**

6710 Variel Avenue  
Canoga Park, California 91303  
(213) 887-1022  
Telex: 651354



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