



slo-syn[®]
**NUMERICAL
CONTROLS**
with
**HIGH
POWER
DC SERVO DRIVES**

CLOSED LOOP SLO-SYN[®] NUMERICAL CONTROLS

- UP TO 3.7 HP PER AXIS
- AVAILABLE IN POINT-TO-POINT, CONTOURING OR LATHE MODELS
- ACCOMMODATE INCH OR METRIC LEAD SCREW SYSTEMS

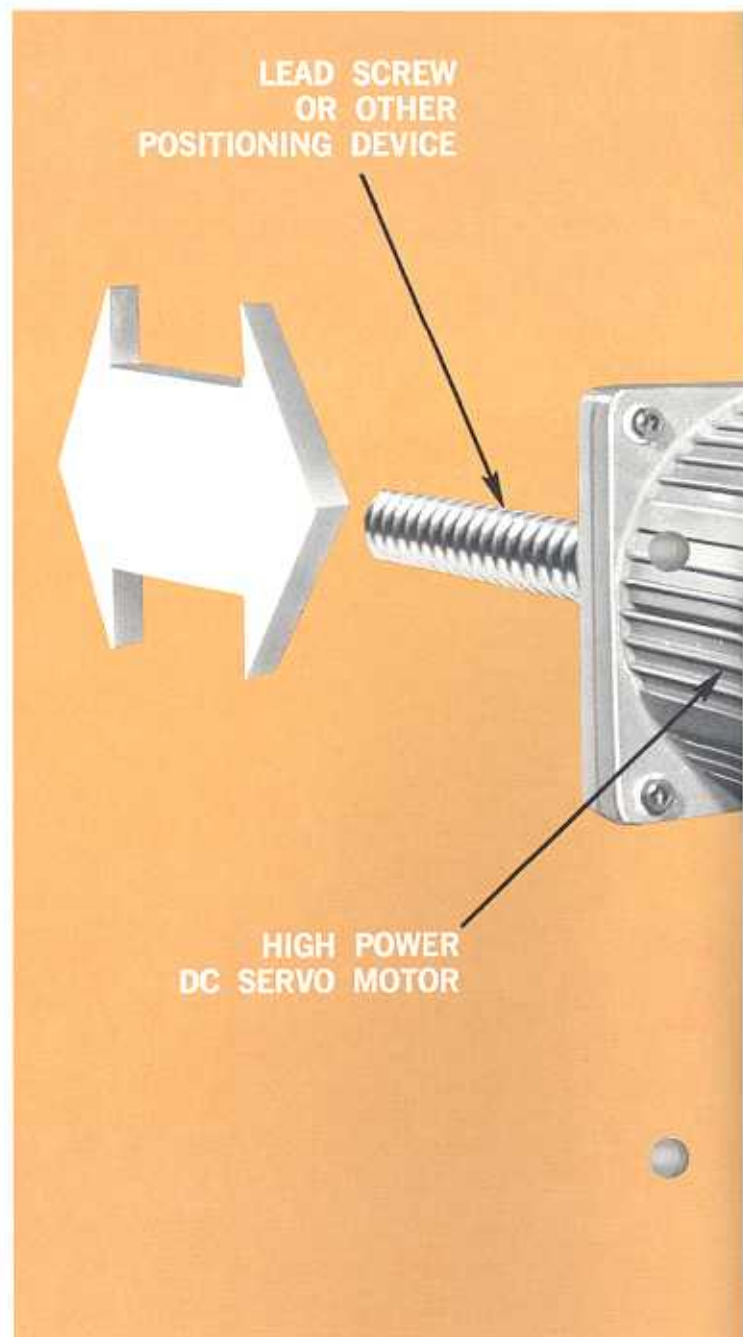
These closed loop controls incorporate high power closed loop d-c servo drive motors to provide the torque needed for accurate positioning of large machines or machines with heavy loading or high traverse rate. Models are available for point-to-point (PDC types), contouring (MDC types) or lathe contouring (LDC types).

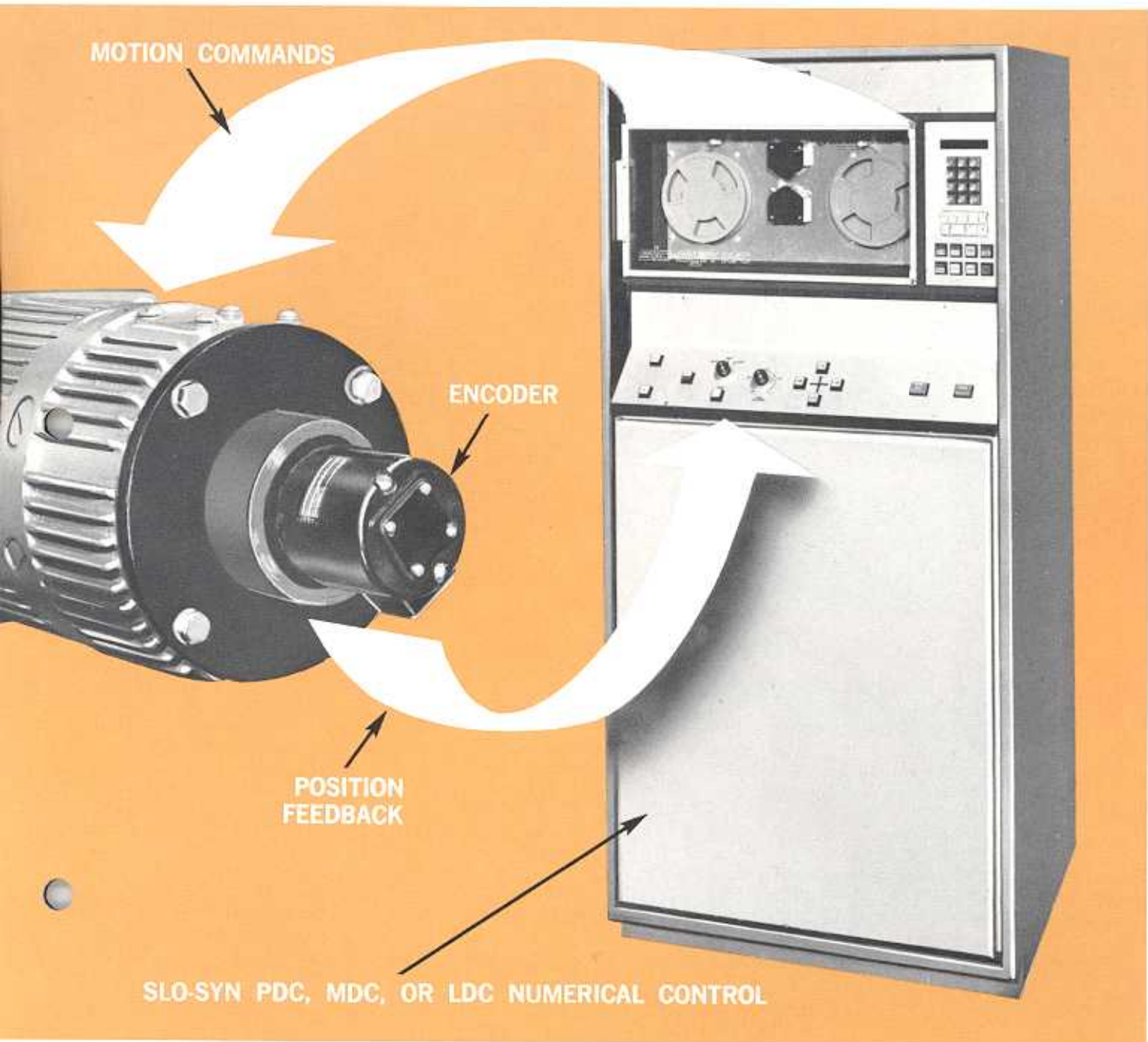
A wide range of options allows each control type to be tailored to the needs of the application.

FEATURES

All closed loop SLO-SYN Numerical Controls offer the following features as standard:

- Sequence number and data input display
- Single block or continuous operation
- Mirror image
- Closed loop operation using motor shaft coupled encoder
- High resolution (2000 increments at motor shaft typical)
- High efficiency
- Integrated circuits with high noise immunity for reliability and long life
- Hard-wired for computer interface
- Keyboard for manual data input of all functions
- Incremental programming
- EIA codes, ASCII optional
- Slide hold switch with provisions for remote control
- External emergency stop
- Jog switches with provisions for remote control
- Travel limit safety interlocks
- High motor shaft power (up to 3.7 HP per axis)
- High motor peak torque (up to 8 times rated)
- High load inertia tolerance
- Quiet operations





SERVO MOTOR SPECIFICATIONS

MOTOR TYPE	MOTOR HP	TORQUE		SINGLE-PHASE SERVICE FOR TYPICAL 3-AXIS CONTROLS	
		RATED	PEAK	240 volts, 50 or 60 hertz	480 volts, 50 or 60 hertz
A1120	1.5	1050 ounce-inches (75.6 kg-cm)	6000 ounce-inches (432 kg-cm)	50 amps	25 amps
A1220	2.8	1920 ounce-inches (138 kg-cm)	12,000 ounce-inches (864 kg-cm)	100 amps	50 amps
A1315	3.7	2500 ounce-inches (180 kg-cm)	18,000 ounce-inches (1296 kg-cm)	125 amps	70 amps

SLO-SYN® CLOSED LOOP NUMERICAL CONTROLS

PDC types

PDC models are two-, three- or four-axis controls for point-to-point applications such as drilling, punching or jig boring.



STANDARD FEATURES

- 6-digit positioning data input
- Automatic tool cycle
- 3 unassigned miscellaneous functions
- Incremental programming
- Automatic tape rewind
- Program stop for tool change
- Photoelectric tape reader with 6" (152.4mm) reels
- EIA codes

OPTIONAL FEATURES

- 2.5-pitch lead screw control
- Metric lead screw controls
- 50 hertz or 60 hertz models
- ASCII codes
- Backlash compensation
- Absolute/Incremental programming
- Independent third axis
- Position displays
- QUILTROL Actuator interface
- Tool length compensations
- Feed rate from tape
- Homing circuit
- 99 M functions
- Metric / inch programming for inch machines
- Program memory file
- Program storage
- Single block tape back-up
- Computer interface
- 7½" (194.5mm) tape reels

TYPICAL SPECIFICATIONS

INCH LEAD SCREW APPLICATIONS*

	1" per revolution (1-pitch) lead screw, direct drive	0.200" per revolution (5-pitch) lead screw, direct drive
Program Increment	0.001"	0.0001"
Motion Increment	0.001"	0.0001"
Max. Programmed Motion	999.998"	99.9998"
Max. Positioning Rate	1500 inches per minute	300 inches per minute
Max. Motor Shaft Speed	1500 RPM	1500 RPM

METRIC LEAD SCREW APPLICATIONS*

	20mm per revolution lead screw, direct drive	4mm per revolution lead screw, direct drive
Program Increment	0.01mm	0.001mm
Motion Increment	0.01mm	0.001mm
Max. Programmed Motion	9999.98mm	999.998mm
Max. Positioning Rate	30 meters per minute	6 meters per minute
Max. Motor Shaft Speed	1500 RPM	1500 RPM

*Refer to servo motor specifications chart, page 3, for motor torque ratings.

MDC types

MDC models are two-, three- or four- axis controls for contour milling and other applications requiring linear and circular interpolation

STANDARD FEATURES

- Linear and circular interpolation effective over entire feed range
- 7-digit positioning data input
- Programmed feed rate
- 99 M functions
- Buffer storage
- Block delete switch actuation causes deletion of blocks containing a / (slash) code
- Automatic tool cycle
- Incremental programming
- Automatic tape rewind
- EIA codes
- Programmed stop for tool change
- Program optional stop from M01 code



OPTIONAL FEATURES

- 2.5-pitch lead screw control
- Metric lead screw controls
- 50 hertz or 60 hertz models
- ASCII codes
- Absolute/incremental programming
- Independent Third axis
- Position displays
- QUILTROL Actuator interface
- Tool length compensations
- Cutter diameter compensations including tool length compensations
- Metric/inch programming for inch machines
- Homing circuit
- 99 S functions
- 99 T functions
- Continuous velocity contouring
- Program memory file
- Program storage
- Computer interface
- 7½" (194.5mm) diameter tape reels
- Plane selection

TYPICAL SPECIFICATIONS

INCH LEAD SCREW APPLICATIONS*

Program Increment	0.0001"
Motion Increment	0.0001"
Max. Programmed Motion	999.9998"
Max. Contour Radius	9999.9998"
Lead Screw	0.200 inch per revolution (5-pitch), direct drive
Max. Positioning Rate	300 inches per minute
Max. Motor Shaft Speed	1500 RPM

METRIC LEAD SCREW APPLICATIONS*

Program Increment	0.001mm
Motion Increment	0.001mm
Max. Programmed Motion	9999.998mm
Max. Contour Radius	99999.998mm
Lead Screw	4mm per revolution, direct drive
Max. Positioning Rate	6 meters per minute
Max. Motor Shaft Speed	1500 RPM

* Refer to servo motor specifications chart, page 3, for motor torque ratings.

SLO-SYN[®] CLOSED LOOP NUMERICAL CONTROLS

LDC types

LDC models are two-axis controls specifically designed for lathes.

STANDARD FEATURES

- Linear and circular interpolation effective over entire feed range
- 7-digit positioning data input
- Programmed feed rate
- Buffer storage
- Programmed stop for tool change
- Block delete switch actuation causes deletion of blocks containing a / (slash) code
- Incremental programming
- 99 M, 99 S and 99 T functions
- Automatic tape rewind
- EIA codes
- Program optional stop from M01 code



OPTIONAL FEATURES

- Metric lead screw controls
- 50 hertz or 60 hertz models
- ASCII codes
- Absolute/incremental programming
- Position displays
- Straight thread cutting
- Taper or straight thread cutting
- Continuous velocity contouring
- Tool offsets
- Computer interface
- 7½" (194.5mm) diameter tape reels
- Program memory file
- Program storage

TYPICAL SPECIFICATIONS

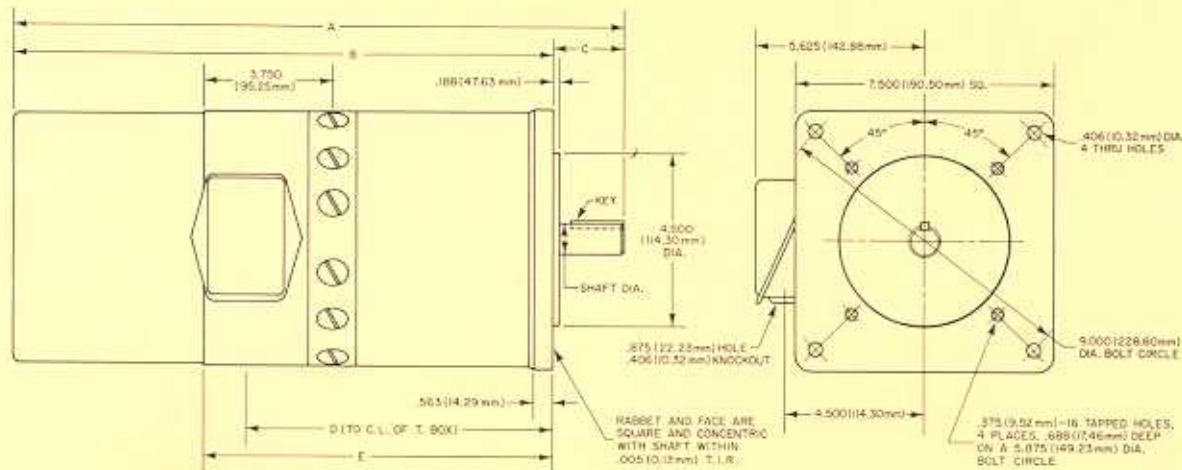
INCH LEAD SCREW APPLICATIONS*

Program Increment	0.0001"
Motion Increment	0.0001"
Max. Programmed Motion	999.9998"
Max. Contour Radius	9999.9998"
Lead Screw	0.200 inch per revolution (5-pitch), direct drive
Max. Positioning Rate	300 inches per minute
Max. Motor Shaft Speed	1500 RPM

METRIC LEAD SCREW APPLICATIONS*

Program Increment	0.001mm
Motion Increment	0.005mm
Max. Programmed Motion	9999.998mm
Max. Contour Radius	99999.998mm
Lead Screw	6mm per revolution, direct drive
Max. Positioning Rate	10 meters per minute
Max. Motor Shaft Speed	1670 RPM

*Refer to servo motor specifications chart, page 3, for motor torque ratings.



NOTES

1. FOR C.W. ROTATION, DRIVE END, CONNECT POSITIVE (+) TO MOTOR LEAD A), CONNECT NEGATIVE (-) TO MOTOR LEAD B).
2. MAXIMUM SHAFT END PLAY IS .005 (0.13 mm).
3. MAXIMUM ALLOWABLE COMBINATION THRUST AND RADIAL SHAFT LOAD IS 500 lbs.

H.L.I. MODEL	DIMENSIONS						
	A	B	C	D	E	KEY	SHAFT DIA.
A1120	17.688 (449.28 mm)	15.588 (399.48 mm)	2.063 (52.40 mm)	8.813 (225.85 mm)	10.125 (257.18 mm)	.168 SQ. X 1.375 (4.12 mm SQ. X 34.93 mm)	.875 \pm .005 (22.23 \pm .13 mm)
A1220	21.188 (538.18 mm)	18.438 (468.23 mm)	2.750 (69.85 mm)	11.625 (295.28 mm)	11.625 (295.28 mm)	.313 SQ. X 2.000 (7.95 mm SQ. X 50.80 mm)	1.375 \pm .005 (34.93 \pm .13 mm)
A1315	24.000 (609.60 mm)	21.250 (539.75 mm)	2.750 (69.85 mm)	14.438 (366.67 mm)	15.750 (400.05 mm)	.313 SQ. X 2.000 (7.95 mm SQ. X 50.80 mm)	1.375 \pm .005 (34.93 \pm .13 mm)

SERVO MOTOR DIMENSIONS

WARRANTY

Superior Electric Nederland B.V., The Hague, Netherlands warrants its apparatus to be free from defects in material and workmanship under normal use and service for a period of one year from date of shipment by Superior Electric Nederland B.V. The obligation under this warranty is limited to repair or replacement of the apparatus or parts thereof at Superior Electric Nederland B.V., The Hague, Netherlands. This warranty is in lieu of all other warranties, expressed or implied, and no other representative or person is authorized to assume for us any other liability. This warranty does not apply to any apparatus which has been tampered with or altered in any way or which has been subjected to misuse, neglect or accident.

Before returning any apparatus or parts thereof under the terms of this warranty, written authorization must be obtained from Superior Electric Nederland B.V., otherwise the shipment cannot be accepted.

The sender is responsible for all transportation charges to and from Superior Electric Nederland B.V., The Hague, Netherlands.

SUPERIOR ELECTRIC NEDERLAND B.V., The Hague, Netherlands

ALL PRODUCTS ARE MANUFACTURED IN THE UNITED STATES BY THE SUPERIOR ELECTRIC COMPANY, BRISTOL, CONNECTICUT.

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OPEN LOOP

Series C **slo-syn** NUMERICAL CONTROLS

Series C SLO-SYN Numerical Controls are open loop controls which offer higher performance and greater flexibility per dollar than other numerical controls in their price range. Options such as plug-in computer interface, independent third axis and program memory file add more benefits than ever before. Feature for feature, SLO-SYN NC has consistently provided the best value for the investment.

ENC TYPES

Economical two-axis point-to-point and straight-line milling numerical controls offering high performance at a low price. Ideally suited for retrofitting small milling and drilling machines, assembly and test equipment and similar manufacturing operations. Standard features include push button keyboard for manual data input and control, automatic backlash compensation, data register examination at any time and durable, compact construction utilizing TTL integrated circuits and silicon power drive. Standard options include ASCII tape codes and computer interface.



PNC TYPES

Low-cost two-axis or three-axis point-to-point and straight-line milling controls which have greater speed and control flexibility than ENC types. A number of options are available to provide increased versatility such as independent third axis, full feed range, QUILTROL Actuator Interface, ASCII tape codes, 4mm lead screw control, backlash compensation and encoder operated position readout. All PNC controls are prewired to allow field installation of the plug-in computer interface.

MNC TYPES

Two-axis and three-axis contouring controls for milling machines, cutting and welding machines and other production equipment which require high speed contouring capabilities. MNC controls provide linear and circular interpolation over the entire feed range and are hard-wired at the factory to permit plug-in addition of the optional computer interface. Standard features also include tape control of feed rate and keyboard manual data input. Available options include ASCII tape codes, position readout, 4mm lead screw control, QUILTROL Actuator Interface and independent third axis.

LNC TYPES

Two-axis contouring controls specifically designed for lathe use. These units have 99 standard S, T and M functions to allow tape control of a wide range of external operations required in turning. The controls provide positioning resolution of 0.0002 inch when driving 5-pitch lead screws with 2½:1 speed reduction. Minimum programming increment is 0.0001". Linear and circular interpolation throughout the entire feed range permit high feed contour turning.

The right to make engineering refinements on all products is reserved. Dimensions and other details are subject to change. When dimensions are critical, detailed drawings should be obtained from the factory.

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