

# SureServo™ AC SERVO SYSTEMS

## Servo drive overview

**LED Display**  
The LED display has 5 full digits and is used to indicate servo status and alarms

**Power On LED**  
Main power is ON

**Control Power Terminal**  
Single-phase power 230 VAC, 50/60 Hz is connected to L1 and L2

**Main Power Terminal**  
Three-phase power 230 VAC, 50/60 Hz is connected to R, S and T (Single-phase power 230 VAC 50/60 Hz may be connected to R and S for the low inertia systems)

**Motor Output Terminal**  
The servo motor power cable is connected to U, V and W. Use our factory made and tested cables available in 10, 20, 30 or 60 foot lengths for easy connection.

**Regenerative Resistor Terminal**  

- When the internal regenerative resistor is used, the P and D terminal are connected together while the P and C connection is left open.
- When the external regenerative resistor is used, it is connected across the P and C terminals while the P and D connection is left open. Use our factory approved resistors for "sure" results.

**Ground Terminals**

**Keypad**  
Five Function keys:  
 MODE: Press to select or change mode  
 NEXT: Press to shift left  
 UP: Press to increase values  
 DOWN: Press to decrease values  
 ENTER: Press to enter value

**I/O Interface**  
50-pin connector for interfacing the host controller (such as DirectLOGIC PLC) and other types of I/O signals.  
 Use our ZIPLink kit which provides DIN-rail mounted screw terminals for easy connection.  
 • Command inputs  
     • Pulse and Direction  
     • Encoder Follower  
     • Analog Velocity/Torque  
 • (8) Digital Inputs  
 • (5) Digital Outputs  
 • (2) Analog Monitors  
 • Encoder Output  
 A+, A-, B+, B-, Z+, Z-

**Encoder Interface**  
20-pin connector for interfacing the servo motor encoder.  
 Use our factory-made and tested cable available in 10, 20, 30 or 60 foot lengths for easy connection.

**Serial Communication Interface**  
6-pin RS-485/422/232 interface to personal computer with SureServo Pro set-up software or host controller with Modbus RTU/ASCII protocol. Use our factory-made cables for easy connection to the PC or the host controller.

### SureServo™ systems run "out-of-the-box" ... but may be reconfigured for many applications!

The SureServo drives are fully digital and include over 165 programmable parameters. For convenience, the parameters are grouped into five categories:

- 1) Monitor parameters
- 2) Basic parameters
- 3) Extended parameters
- 4) Communication parameters
- 5) Diagnostic parameters.

All parameters have commonly used default values which allow you to operate the SureServo system "out-of-the-box". However, the programmability and large variety of parameters make the SureServo systems suitable for a very broad range of applications, including almost all types of general purpose industrial machinery such as assembly, test, packaging, machine tool, and robotics.



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## Servo drive specifications

General Drive Specifications	
<b>Permissible Frequency</b>	50 / 60Hz ±5%
<b>Encoder Resolution / Feedback Resolution</b>	2500 lines / 10000 ppr
<b>Control of Main Circuit</b>	SVPWM (Space Vector Pulse Width Modulation) Control
<b>Tuning Modes</b>	Easy / Auto / Manual
<b>Dynamic Brake</b>	Built-in control
<b>Analog Monitor Outputs (2)</b>	Monitor signal can be set by parameters (Output voltage range: ±8V)
<b>8 Programmable Digital Inputs (45 selectable functions)</b>	Servo enable, Alarm reset, Gain switching, Pulse counter clear, Fault stop, CW/CCW overtravel
	Internal parameter selection, Torque limit activation, Velocity limit activation, Control mode selection
<b>Scalable Encoder Output</b>	Encoder signal output A, /A, B, /B, Z, /Z, Line Driver
<b>5 Programmable Outputs (9 selectable indicators)</b>	Servo ready, Servo On, Low velocity, Velocity reached, In Position, Torque limiting, Servo fault, Electromagnetic brake control, Home search completed
<b>Communication Interface</b>	RS-232 / RS-485 / RS-422 / Modbus ASCII & RTU up to 115k Baud
<b>Protective Functions</b>	Overcurrent, Overvoltage, Undervoltage, Overload, Excessive velocity/position error, Encoder error, Regeneration error, Communication error
<b>Installation Site</b>	Indoor location (free from direct sunlight), no corrosive liquid and gas (far away from oil mist, flammable gas, dust)
<b>Altitude</b>	Altitude 1000m or lower above sea level
<b>Operating Temperature</b>	0 to 55°C (If operating temperature is above 50°C [131°F], forced cooling will be required). For long-term reliability, the ambient temperature of SureServo systems should be under 45°C (143°F).
<b>Storage Temperature</b>	-20° to 65°C (-4° to 149°F)
<b>Humidity</b>	0 to 90% (non-condensing)
<b>Vibration</b>	9.81m/s <sup>2</sup> (1G) less than 20Hz, 5.88m/s <sup>2</sup> (0.6G) 20 to 50Hz
<b>Protection</b>	IP 20
<b>Agency Approvals</b>	CE; UL listed (U.S. and Canada)

# Sure servo™ AC SERVO SYSTEMS

## Servo drive specifications (continued)

Model and Mode Specific Drive Specifications				
AC Servo Model		SVA-2040	SVA-2100	SVA-2300
Price		\$479.00	\$599.00	\$999.00
Voltage Phase		Single-phase or Three-phase		Three-phase
Voltage and Frequency Range		3-phase: 170-255 VAC @ 50/60 Hz ±5%; 1-phase: 200-255 VAC @ 50/60 Hz ±5%		170-255 VAC @ 50/60 Hz ±5%
Main Circuit Input Current	Single Phase	3.4A @ 400W	8.0A @ 1 kW	-
	Three Phase	2.6A @ 400W	6.2A @ 1 kW	13.6A @ 3 kW
Main Circuit Inrush Current		44A	77A	87A
Main Circuit Power Cycling		Maximum 1 power cycle per minute		
Control Circuit Current and Voltage		43 mA @ 200-255 VAC, 1 phase		
Control Circuit Inrush Current		32A maximum		
Cooling System		Natural Air Circulation	Internal Cooling Fan	
Weight		1.5 kg	2.0 kg	3.0 kg
Position Control Mode	Max. Input Pulse Frequency		Max. 500kPPS (Line driver); Max. 200 kPPS (Open collector)	
	Pulse Type		Pulse + Direction, A phase + B phase Quadrature, CCW pulse + CW pulse	
	Command Source		External pulse train / Onboard indexer	
	Smoothing Strategy		Low-pass and P-curve filter	
	Electronic Gear		Electronic gear N/M multiple N: 1-32767, M: 1-32767(1/50<N/M<200)	
	Torque Limit Operation		Set by parameters or by analog input	
	Feed Forward Compensation		Set by parameters	
	Velocity Control Mode	Analog Input Command	Voltage Range	Bipolar ±10 VDC
Input Resistance			10 k $\Omega$	
Time Constant			2.2 $\mu$ s	
Speed Control Range		1:5000		
Command Source		External analog signal / Onboard indexer		
Smoothing Strategy		Low-pass and S-curve filter		
Torque Limit Operation		Set by parameters or via analog input		
Frequency Response Characteristic		Maximum 450 Hz		
Speed Accuracy (at rated rotation speed)		0.01% or less at 0 to 100% load fluctuation		
		0.01% or less at ±10% power fluctuation		
		0.01% or less at 0 to 50°C ambient temperature fluctuation		
Torque Control Mode	Analog Input Command	Voltage Range	Bipolar ±10 VDC	
		Input Resistance	10 k $\mu$ $\Omega$	
		Time Constant	2.2 $\mu$ s	
	Permissible Time for Overload		8 sec. under 200% rated output	
	Command Source		External analog signal / Onboard indexer	
Smoothing Strategy		Low-pass filter		
Speed Limit Operation		Set by parameters or via analog input		