



CHAPTER 1: PRODUCT OVERVIEW

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MANUAL OVERVIEW

OVERVIEW OF THIS PUBLICATION

The SureServo™ AC Servo Systems User Manual describes the installation, wiring, configuration, inspection, and operation of the SureServo™ series AC servo drives and motors.

WHO SHOULD READ THIS MANUAL

This manual contains important information for people who will install, configure, maintain, and/or operate any of the SureServo™ series AC servo systems.

SUPPLEMENTAL PUBLICATIONS

The National Electrical Manufacturers Association (NEMA) publishes many different documents that discuss standards for industrial control equipment. Global Engineering Documents handles the sale of NEMA documents. For more information, you can contact Global Engineering Documents at:

**15 Inverness Way East
Englewood, CO 80112-5776
1-800-854-7179 (within the U.S.)
303-397-7956 (international)
www.global.ihs.com**

NEMA documents that might assist with your AC servo systems are:

- NEMA ICS 16 - Motion/Position Control Motors, Controls, and Feedback Devices

TECHNICAL SUPPORT

**By Telephone: 800-633-0405
(Mon.-Fri., 9:00 a.m.-6:00 p.m. E.T.)**

On the Web: www.automationdirect.com

Our technical support group is glad to work with you in answering your questions. If you cannot find the solution to your particular application, or, if for any reason you need additional technical assistance, please call technical support at 800-633-0405. We are available weekdays from 9:00 a.m. to 6:00 p.m. Eastern Time (U.S.A.). We also encourage you to visit our web site where you can find technical and non-technical information about our products and our company. Visit us at www.automationdirect.com.

SPECIAL SYMBOLS



When you see the “notepad” icon in the left-hand margin, the paragraph to its immediate right will be a special note.



WHEN YOU SEE THE “EXCLAMATION MARK” ICON IN THE LEFT-HAND MARGIN, THE PARAGRAPH TO ITS IMMEDIATE RIGHT WILL BE A WARNING. THIS INFORMATION COULD PREVENT INJURY, LOSS OF PROPERTY, OR EVEN DEATH (IN EXTREME CASES).

Wiring

Parameters

DI/DO Codes

Monitoring

Alarms

SURESERVO2™ AC SERVO SYSTEMS INTRODUCTION

Before using the SureServo 2 series servo drive, please pay attention to the description of the inspection, nameplate, and model type. You can find a suitable motor model for your SureServo2 servo drive in the table in Section 1.3.

1.1 - COMPONENTS OF THE SERVO SET

A complete servo set includes:

- A servo drive and a servo motor.
- A UVW motor power cable: one end of the U, V, and W wires connects to the servo drive and the other end to the motor.
- A green ground wire: connects to the ground terminal of servo drive.
- An encoder cable: one end of it connects the motor's encoder connection and other end to the CN2 connector on the servo drive.
- CN1 connector: A 50-pin cable and breakout board or a 20-pin breakout board that mounts to the drive.
- An ethernet patch cable for serial RS-485 (PLC/HMI) communication (Optional purchase).
- Mini-USB cable (CN4): for PC connection programming.
- Power supply for the servo drive:

Model	Control Circuit	Main Circuit
100W - 400W	L1C, L2C, P1, P2, ⊖ quick connector	R, S, T quick connector

- A 3-pin Motor quick connector (U, V, W). Included with drive.
- STO connector (CN10) on all drives. Included with drive.
- A 3-pin quick connector (P3, D, C). Included with drive.
- Two metal jumpers for short circuiting the connection terminals. Included with drive
- A plastic lever for inserting wires into the connectors. Included with drive.

1.2 - MODEL OVERVIEW

1.2.1 - NAMEPLATE INFORMATION

Example of servo drive nameplate:

SureServo Drive → SureServo2 AC SERVO DRIVE

Model Number → MODEL:SV2A-2040

Capacity Specification → POWER:400W

Input Specifications → INPUT: 100-120V 1Ph50/60Hz X.XXA
200-230V 1Ph50/60Hz X.XXA
200-220V 3Ph50/60Hz X.XXA

Output Specifications → OUTPUT: 230V 0-500Hz X.XXA

Serial Number → SV2A2040+T0410001
1.04

AutomationDirect.com
3505 Hutchinson Road, Cumming, GA, USA 30040

MADE IN TAIWAN

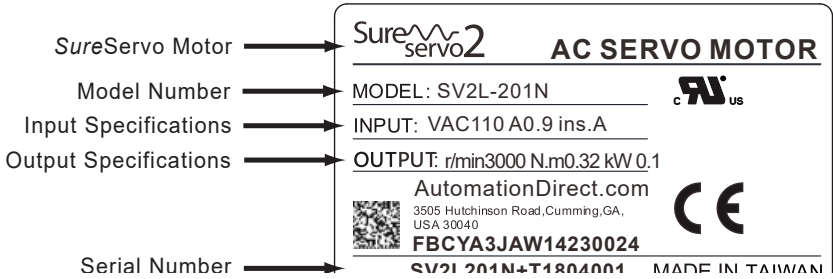
WARNING DISCONNECT ALL POWER AND WAIT XX MINUTES BEFORE SERVICING RISK OF ELECTRIC SHOCK.

CAUTION DO NOT TOUCH HEATSINK WHEN POWER IS ON. MAY CAUSE BURN

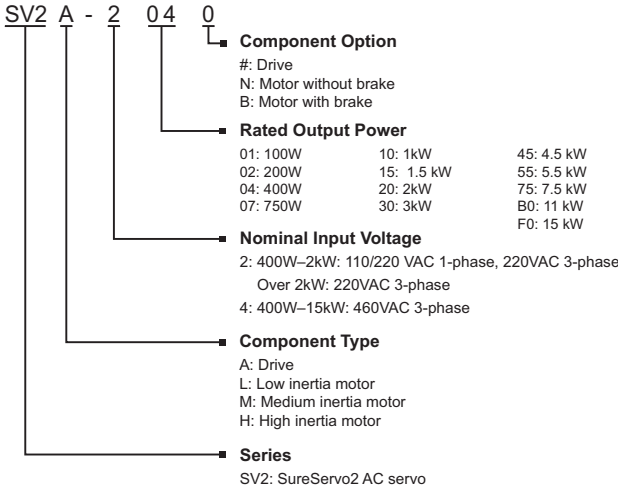
CAUTION READ THE USER MANUAL BEFORE OPERATION

USE PROPER GROUNDING TECHNIQUES

Example of servo motor nameplate:



1.2.2 - MODEL EXPLANATION



Wiring

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DI/DO Codes

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1.3 - SURESERVO2 SERVO DRIVE AND MOTOR COMBINATIONS

	Servo Motor			Servo Drive
Power	Input (V)	Output (W)	Model Number	Model Number
Low Inertia				
Single- /Three-phase	230	100	SV2L-201x	SV2A-2040
		200	SV2L-202x	
		400	SV2L-204x	
		750	SV2L-207x	SV2A-2075
		1000	SV2L-210x	SV2A-2150
Three-phase	460	400	SV2L-404x	SV2A-4040
		750	SV2L-407x	SV2A-4075
		1000	SV2L-410x	SV2A-4150
		1500	SV2L-415x	SV2A-4150
		2000	SV2L-420x	SV2A-4200
Medium Inertia				
Single- /Three-phase	230	1000	SV2M-210x	SV2A-2150
		1500	SV2M-215x	
		2000	SV2M-220x	SV2A-2200
Three- phase	460	3000	SV2M-230x	SV2A-2300
		1000	SV2M-410x	SV2A-4150
High Inertia				
Three-phase	230	4500	SV2H-245x	SV2A-2550
		5500	SV2H-255x	
		7500	SV2H-275x	SV2A-2750
		11000	SV2H-2B0x	SV2A-2F00
		15000	SV2H-2F0x	
	460	3000	SV2H-430x	SV2A-4300
		4500	SV2H-445x	SV2A-4550
		5500	SV2H-455x	
		7500	SV2H-475x	SV2A-4750
		11000	SV2H-4B0x	SV2A-4F00
		15000	SV2H-4F0x	

For motor and drive specifications, please see "A.2 - SureServo2 Series Drive Specifications" on page A–2 and "A.4 - SureServo2 Motor Specifications" on page A–13.

For motor and drive specifications, please see "A.2 - SureServo2 Series Drive Specifications" on page A-2 and "A.4 - SureServo2 Motor Specifications" on page A-13.

Wiring

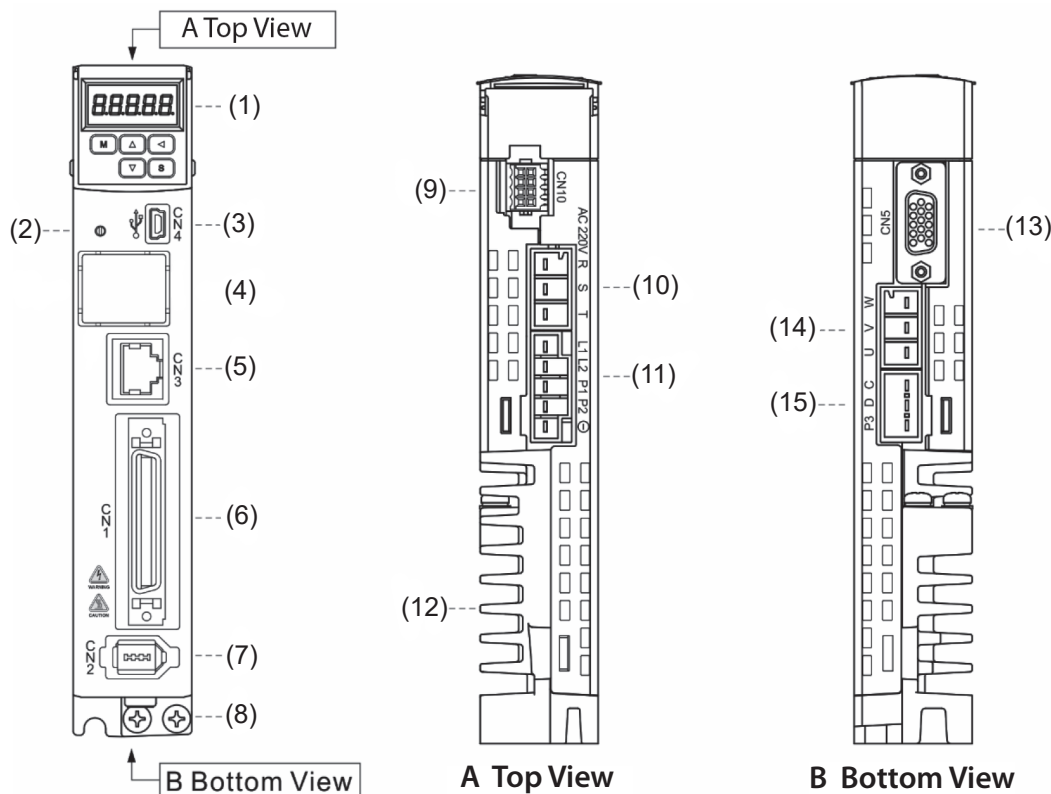
Parameters

DI/DO Codes

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1.4 - DESCRIPTION OF THE DRIVE INTERFACE



Number	Description
(1)	7-segment display
(2)	CHARGE: power indicator
(3)	CN4 - Mini USB connector: connects to PC
(4)	CN9 – Ethernet Card Connector (located on the right side of the drive)(card not shown)
(5)	CN3 - RS-485 communication connector: connects to PLC or controller's communication ports.
(6)	CN1 - I/O signal interface: connects to PLC and controls I/O.
(7)	CN2 - Encoder connector: connects to the motor's encoder.
(8)	Ground terminal: connects to grounding wire for the power supply and servo motor.
(9)	CN10 – STO (Safety Torque Off)
(10)	RST main circuit power terminal: connects to the commercial power source.
(11)	Control circuit power terminal (L1 c/ L2 c for 230v and 24V / 0V for 460V): Short circuit P1 and P2
(12)	Heat sink: for securing the servo drive and heat dissipation.
(13)	CN5 - Connector for receiving auxiliary feedback signals from a second encoder such as a linear tape or lay-on encoder.
(14)	UVW motor power output: connects to motor power connector (UVW). Do not connect to the main circuit power. Incorrect wiring will damage the servo drive.
(15)	Regenerative resistor: 1) Install the external regenerative resistor: P3 and C contacts connect to the resistor; P3 and D contacts are left open. 2) To use the built-in regenerative resistor: P3 and C contacts are left open; P3 and D contacts are short circuited (connected). All models (400W–15kW) have built-in regeneration braking resistors. 3) Connect external regenerative brake unit: P2 and \ominus contacts connect to the brake unit; P3 & C contacts and P3 & D contacts are left open.