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Rockwell Automation

DATA SHEET

SP600

AC DRIVES

SP600 Series of AC Drives from 0.5 to 200 Horsepower

A full-featured industrial AC drive suitable for wall, machine, flange, and washdown mounted installations

The SP600 provides the benefits of more expensive full-featured drives in a compact, versatile, and cost effective design. Multiple enclosure/packaging options along with a drive mounted graphical keypad and embedded braking circuitry make this drive very versatile. The wide range of network options available for this product will allow you to maximize data acquisition, speed control and application flexibility.



- Aggregate/Cement
- ✓ Food
- Mining
- ✓ Forest/Paper
- ✓ Petro/Chem
- ✓ Unit/Baggage Handling
- ✓ HVAC/Industrial Air Handling
- ✓ Environmental/Fluid Power
- ✓ Automotive
- Metals

Features/Specifications

- Control Modes
  - Volts/Hertz
  - Sensorless Vector Control
    Each method can operate either a single or multi-motor application from one SP600. SVC is limited to mechanically coupled identical motors.
- Input Voltages/Power Ratings
  - 200, 208, 240 (0.5 to 10 HP)
  - 380, 400, 415, 480 (0.5 to 200 HP)
  - 575 (0.5 to 150 HP)[1]
- Switching Frequency
  - Full HP rating at 50°C for (45° for 50 HP; 40° for 200 HP):
    - 4 kHz Frames A - D
    - 4 kHz Frames 2 -5
    - 4 kHz Frame 6 (2 KHz for 200 HP)
  - Derating may apply for higher switching frequencies
- Zero-stacking (side by side) panel mounting possible for all frames.

[1] *575 VAC models are UL and cUL only*

- Terminal Block Control
  - 6 configurable digital inputs
  - Up to 8 pre-set speeds
  - Start/Stop, Forward/Reverse,Auto/Manual, Jog, Preset Speed, Function Loss, ProcessPI Control, etc.
  - 2 Analog inputs
  - 1 Analog output
  - 2 Relay outputs, form C contacts.
- Drive Serial Interface
  - PC configuration and monitoring of a single drive or multiple drives when using V*S Utilities Software.
- Overload Protecting
  - Intelligent Thermal Management (ITM™) system can reduce carrier frequency or trip the drive in overtemp conditions.
  - UL and NEC approved electronic motor overload protection.
- Enclosures/Mounting
  - Wall or machine mount NEMA 1 (IP20)
  - Flange mount NEMA 1 (IP20)
  - See RAPS-958-2 for NEMA 4x/12
- Internal Braking transistor as standard (optional Frames 4, 5, and 6) requires optional drive mounted or externally mounted braking resistor
  - Drive mounted resistor available for Frames A, B, C, D, and 2

RELIANCE ELECTRIC

DODGE®

- Ramp Control
  - 2 accel/decel rates
  - Frequency avoidance bands (3) to lock out mechanical resonance points.
  - "S" curve acceleration and deceleration for smooth speed transitions
- Time Stamped Fault Log
  - User Interlock Open
  - High DC Bus Voltage
  - Low DC Bus Voltage
  - Over-Current
  - Over-Frequency
  - Over-Temperature
  - Electronic Motor Overload
  - Ground Fault
  - Others
- Option Kits
  - Braking resistors
  - Remote NEMA 4 operator interface
  - PC based V*S Utilities
  - EMC line filters
  - Network communications modules
    - ControlNet
    - DeviceNet
    - Profibus
    - Others
- Stopping Modes
  - DB Braking
  - Ramp Stop
  - Coast Stop
  - DC Injection Braking
- Operator Interface Modules
  - Multi-line, 6-language graphical LCD OIM for local or remote operation. Allows drive control, configuration, monitoring and diagnostics. Function keys are configurable for desired functions.
- Drive Protection
  - Line-to-line and line-toground and output short circuit protection.

Instruction Manuals

- D2-3485
  (6SP Series - Frames A, B, C, D)
- D2-3501
  (6SB Series - Frames 2, 3, 4, 5, 6)

Service Conditions

- Elevation to 3300 ft.
  (1000 meters); Derate 3% for every 1000 ft. above 3300 ft.
- Operating temperature ranges:
  - NEMA enclosures:
    - 0°C to 40°C (external ambient)
  - IP20 enclosures:
    - 0°C to 50°C
      (50 HP - 45°C; 200 HP - 40°C)
      (panel ambient)
- Atmosphere non-condensing relative humidity: 5% to 95%
- AC line voltage variation: rated input voltage ±10%
- AC line frequency variation (50/60 Hz): 48 - 62 Hz
- Storage temperature:
  - - 40°C to 65°C
    (-40°F to 149°F)

Application Data

- Pulse width modulation (PWM) sensorless vector control
- Maximum load:
  - 110% continuous for one minute (Normal Duty Rating)
  - 150% continous for one minute (Heavy Duty Rating)
- Frequency stability long term: 0.01% of base speed with digital keypad 0.5% of base speed with analog speed reference.
- Linearity (speed reference to output frequency): ± 1.0%



Quiet Motor Operation Up to 200 Feet

- The SP600 controller uses IGBT transistors switched at frequencies up to 10kHz to reduce PWM induced motor audible noise.
- Unique transistor control circuits also allow drive to motor distances of up to 300 feet when applied with Reliance motors before output filtering considerations must be applied.
- Tested to ensure that the waveform at the motor conduit box will not exceed the limits specified in NEMA MG1 31.40.4.2. at lead lengths of 200 ft.

Standard stock models of SP600 Variable frequency AC Drives. Units include OIM.[1]

Normal Duty HP	Input Voltage	Output Amps			Model Number	Package	
		Cont.	3 sec. OL	1 min. OL		Frame	Style
200 - 240 VAC, 3-phase, 50/60 Hz (6SP201- Series)							
0.5	230	2.2	3.3	2.4	6SP201-2P2CTNN	A	NEMA 1
1.0	230	4.2	6.4	4.8	6SP201-4P2CTNN	A	NEMA 1
2.0	230	6.8	12.0	9.0	6SP201-6P8CTNN	B	NEMA 1
3.0	230	9.6	14.4	10.6	6SP201-9P6CTNN	B	NEMA 1
5.0	230	15.3	23.2	17.4	6SP201-015CTAN	C	NEMA 1
7.5	230	22.0	33.0	24.2	6SP201-022CTAN	D	NEMA 1
10.0	230	28.0	44.0	33.0	6SP201-028CTAN	D	NEMA 1
380 - 480 VAC, 3-phase, 50/60 Hz (6SP401- Series)							
0.5	480	1.1	1.6	1.2	6SP401-1P1CTNN	A	NEMA 1
1.0	480	2.0	3.2	2.4	6SP401-2P1CTNN	A	NEMA 1
2.0	480	3.4	6.0	4.5	6SP401-3P4CTNN	B	NEMA 1
3.0	480	5.0	7.5	5.5	6SP401-005CTNN	B	NEMA 1
5.0	480	8.0	12.0	8.8	6SP401-008CTNN	B	NEMA 1
7.5	480	11.0	16.5	12.1	6SP401-011CTAN	C	NEMA 1
10.0	480	14.0	22.0	16.5	6SP401-014CTAN	C	NEMA 1
15.0	480	22.0	33.0	24.2	6SP401-022CTAN	D	NEMA 1
20.0	480	27.0	44.0	33.0	6SP401-027CTAN	D	NEMA 1
25.0	480	34.0	54.0	40.5	6SP401-034CTAN	D	NEMA 1
30.0	480	40.0	68.0	51.0	6SP401-040CTAN	D	NEMA 1
40.0	480	52.0	80.0	60.0	6SP401-052CTAN	E	NEMA 1
50.0	480	65.0	104	78.0	6SP401-065CTAN	E	NEMA 1
380 - 480 VAC, 3-phase, 50/60 Hz (6SB401- Series)[3]							
20.0	480	27.0	44.0	33.0	6SB401-027CTANA	2	NEMA 1
25.0	480	34.0	54.0	40.5	6SB401-034CTANA	2	NEMA 1
30.0	480	40.0	68.0	51.0	6SB401-040CTANA	3	NEMA 1
40.0	480	52.0	80.0	60.0	6SB401-052CTANA	3	NEMA 1
50.0	480	65.0	104	78.0	6SB401-065CTANA	3	NEMA 1
60.0	480	77.0	130	97.5	6SB401-077CNANA	4	NEMA 1
75.0	480	96.0	144	106	6SB401-096CNANA	5	NEMA 1
100	480	125	163	138	6SB401-125CNANA	5	NEMA 1
125	480	156	234	172	6SB401-156CNANA	6	NEMA 1
150	480	180	270	198	6SB401-180CNANA	6	NEMA 1
200	480	248	372	273	6SB401-248CNANA	6	NEMA 1
575 VAC, 3-Phase, 50/60 Hz [2] (6SP501- Series)							
0.5	575	0.9	1.4	1.0	6SP501-0P9CTNN	A	NEMA 1
1.0	575	1.7	2.6	2.0	6SP501-1P7CTNN	A	NEMA 1
2.0	575	2.7	4.8	3.6	6SP501-2P7CTNN	B	NEMA 1
3.0	575	3.9	5.8	4.3	6SP501-3P9CTNN	B	NEMA 1
5.0	575	6.1	9.1	6.7	6SP501-6P1CTNN	B	NEMA 1
7.5	575	9.0	13.5	9.9	6SP501-9P0CTNN	C	NEMA 1
10.0	575	11.0	18.0	13.5	6SP501-011CTNN	C	NEMA 1
15.0	575	17.0	25.5	18.8	6SP501-017CTNN	D	NEMA 1
20.0	575	22.0	34.0	25.5	6SP501-022CTNN	D	NEMA 1
575 VAC, 3-Phase, 50/60 Hz [2] (6SB501- Series)[3]							
20.0	575	22.0	34.0	25.5	6SB501-022CTNNA	2	NEMA 1
25.0	575	27.0	44.0	33.0	6SB501-027CTNNA	2	NEMA 1
30.0	575	32.0	54.0	40.5	6SB501-032CTNNA	3	NEMA 1
40.0	575	41.0	64.0	48.0	6SB501-041CTNNA	3	NEMA 1
50.0	575	52.0	82.0	61.5	6SB501-052CTNNA	3	NEMA 1
60.0	575	62.0	104	78.0	6SB501-062CTNNA	4	NEMA 1
75.0	575	77.0	116	85.0	6SB501-077CTNNA	5	NEMA 1
100	575	99.0	126	109	6SB501-099CTNNA	5	NEMA 1
125	575	125	188	138	6SB501-125CTNNA	6	NEMA 1
150	575	144	216	158	6SB501-144CTNNA	6	NEMA 1

1. Consult catalog for non-stock or enhanced models, such as NEMA 4, Flange mount and other available models.
2. 575 VAC models are UL and cUL only.
3. To use 115 V I/O, replace xxxxxxxA with xxxxxxxB. 115 V I/O models are non-stock.

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This material is not intended to provide operational instructions. Appropriate Rockwell Automation instruction manuals and precautions should be studied prior to installation, operation or maintenance of equipment.

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