SP200

AC Drives

A low cost, compact AC drive for applications up to 2HP

Standard Features	Optional Features	Adjustable Features	Application Data
Power Ratings	Analog Input Characteristics
Digital Input Characteristics	Service Conditions	Instruction Manual
Control Model Terminal Functions	Keypad Options	Keypad Dimensions	Remote and CopyCat Cables	Keypad Instruction Manuals	Input Mains Filter

The Reliance SP200 AC drive provides OEMs and users with an excellent choice where cost, size, and ease-of-use are the most important considerations for control of three-phase induction motors. Typical applications include fans, pumps, conveyors and other small machines where inside panel or inside machine mounting is available.

Standard Features

- Compact packaging (5.5” H x 2.8” W x 5.5” D) conserves panel space. Panel or DIN rail mounting without an adapter.
- Robust out-of-the-box performance and a carefully chosen parameter set make startups a snap.
- Single-phase input ratings (up to 1.5 HP) operate on 115 V or 230 V and produce 230 V, three-phase output in both cases.
- Three-phase ratings available in both 230 V and 460 V.
- Feed through power design for simple wiring of input and output. Also provides an easy retrofit from constant speed to variable speed.
- Spring-style control terminals for quick and reliable control connections.
- Isolated 0 - 10 V or 4 - 20 mA analog inputs (models A & C) for problem free analog connections.
- Isolated digital inputs activated by either the drive's own +10V supply or an external 24V supply without the use of an interface card.
- Electronic drive & motor protection with diagnostic fault indication for easy troubleshooting.
- Finger safe protected chassis (IP20).

- Built-In MOVs for protection against input voltage transients.
- UL listed, C-UL listed and CE marked for global use.
- Three different control models to match specific needs:
  Model A, Single Channel Analog: for control from one analog signal or a speed pot
  Model B, Preset Speed: for up to 8 specific speeds controlled by 3 on/off digital inputs
  Model C, Dual Channel Analog: for applications that can take advantage of an operation between two analog signals. Choose from PI, add, or multiply functions.

Optional Features

- Local Keypad - Provides access to settings and operation. Plugs directly onto drive for temporary or permanent use.
- CopyCat Keypad - Handheld device provides quick editing and transfer of settings to multiple drives (one at a time). Non volatile memory maintains multiple program sets.
- Remote Keypad - Provides access to settings and operation from the outside of an enclosure. Mounts flush to the outside of a panel.
- Input Mains Filter - Allows compliance with European Union EMC directive. Piggy-back design requires no extra panel space.

Adjustable Features

Analog Offset & Gain (models A & C)

Process Operations - PI, add, or multiply (model C)

8 Preset Speeds (model B)

Minimum and Maximum Speeds (0 - 240 Hz)

2 Acc & Dec Rates (0 - 600 sec.)

2 & 3 Wire Remote Control Modes

3 Stop Modes: Ramp, Coast, DC Injection

Automatic Torque Boost

Current Limit

Configurable Input: jog, alternate speed reference, coast stop, 2nd acc/dec, reverse (model C)

Configurable Output: fault, run, at speed, above speed, above current

Scaleable Speed Display

V / Hz Settings

Auto Restart (0 - 10 attempts)

Reverse Lockout

Program Password

Avoidance Frequency & Band

Carrier Frequency (2-8 kHz, derating required > 2 kHz)

Application Data

Maximum Load: 150% for 60 seconds, 200% for 10 seconds

Control Ride Through: 100 msec

Power Ratings

HP (kW)	Voltage	Input Current	Output Current	Watts Loss
0.5 (0.37)	1 phase 115V or 230V in 3 phase 230V out	9.4 / 4.7	2.3	25
1.0 (0.75)		17.2 / 8.6	4.2	45
1.5 (1.1)		24.6 / 12.3	6.0	70
2.0 (1.5)	1 phase 230V in 3 phase 230V out	14.3	7.0	75
0.5 (0.37)	3 phase 230V	2.7	2.3	25
1.0 (0.75)		5	4.2	40
2.0 (1.5)		8.3	7.0	70
0.5 (0.37)	3 phase 460V	1.5	1.3	25
1.0 (0.75)		2.4	2.0	30
2.0 (1.5)		4.1	3.5	50

Analog Input Characteristics

Resolution: 8 bit (0.4%)

Impedance: 0 - 10 V input $\geq$ 100 K Ohms
4 - 20 mA input $\approx$ 250 Ohms

Digital Input Characteristics

Rated voltage (active high): 10 to 24 VDC ± 10%

Load (each): min of 10 mA at 10V, max of 20 mA at 24 V

Maximum off-state level: 2mA / 1.5V

Service Conditions

0 to 50° C at 95% relative humidity, non condensing and 3300 ft

AC Input Tolerance: 47 to 63 Hz

115 V Ratings: 100 - 120 VAC ± 10%

230 V Ratings: 200 - 240 VAC ± 10%

460 V Ratings: 380 - 460 VAC ± 10%

Drive Instruction Manuals

Quick Start Guide: D2-3418

Instruction Manual: D2-3408

Control Model Terminal Functions

Inputs

Outputs

Control Terminal	Model A Single Channel Analog	Model B Preset Speed	Model C Dual Channel Analog	
1	Shield/Common	Shield/Common	Shield/Common	
2	+ 10 VDC	+ 10 VDC	+ 10 VDC	
3	Function Loss / Reset	Function Loss / Reset	Configurable Input (Funct. Loss)	
4	Forward Run	Forward Run	Forward Run	
5	Reverse Run	Reverse Run	0 - 10 VDC Analog Input	Channel 1
6	Configurable Input (Jog)	Preset Speed	4 - 20 mA DC Analog Input	
7	0 - 10 VDC Analog Input	Preset Speed	Analog Input Common	

8	4 - 20 mA DC Analog Input	Configurable Input (Preset Speed)	0 - 10 VDC Analog Input	Channel 2
9	Analog Input Common	Common	4 - 20 mA DC Analog Input	
10	Relay N.C. Contact	Relay N.C. Contact	Analog Input Common	
11	Relay Common	Relay Common	Relay Common	
12	Relay N.O. Contact	Relay N.O. Contact	Relay N.O. Contact	

Keypad Options

Local Keypad

Use this cost-effective keypad for adjustments and operation directly on the SP200. The keypad can be removed when finished programming to save cost or prevent setting changes. It can also be left installed for permanent access to settings.

Remote Keypad

Use this keypad when you need permanent flush-mounting of a large keypad/display, or NEMA 4 rating for food and beverage industry applications.

CopyCat Keypad

Use the CopyCat keypad when you need to perform efficient set-up of multiple drives with the same settings. The CopyCat keypad can upload, download, and store up to 15 different parameter sets.

	Local Keypad M/N S20-LK1	Remote Keypad M/N S20-RK1	CopyCat Keypad M/N S20-CK1
Keypad Feature Summary			
Key Features	• Cost-effective • Mounts on Drive	• NEMA 4 • Large display • Large keys • Jog key • Direction key	• Handheld programming • Stores up to 15 complete parameter sets

		• Forward and reverse indicators	• Uploads from drive or downloads to drive • User-definable parameter set names • Direct entry of parameter values via numeric keys • Esc key for menu navigation • Jog key • Reverse indicator
Mounting Style	Onboard-plugs onto drive	Flush on panel (with 1, 3, or 5 meter cable)	Handheld (with 1, 3, or 5 meter cable)
Display Type	4-character LED	Large 4-character LED	2-row, 16-column backlit LCD
Display Content	• Parameter values (format: P-00) • Display values (format: D-00)	• Parameter values (format: P-00) • Display values (format: D-00)	• Parameter name and number • Display value name and number • Fault code and name • Upload/download status
Status indicators	• Run • Program	• Run • Program • Reverse • Forward	• Run • Program • Reverse • Load

Keypad Dimensions

Keypad	Dimensions mm (in.)		
	Ht.	Width	Depth
Local S20-LK1	n/a (1)	n/a (1)	n/a (1)
Remote S20-RK1	168.2 (6.62)	128.6 (5.06)	34.23 (1.35)
CopyCat S20-CK1	129.5 (5.10)	89.69 (3.53)	24.23 (0.95)

(1) The Local keypad mounts onto the drive and fits within the drive dimensions

Remote and CopyCat Cables

Order cables for the Remote and CopyCat keypads separately. The same cables can be used for both keypads.

Cable M/N	Cable Length
S20-KC1	1 meter
S20-KC2	3 meters
S20-KC3	5 meters (max)

Keypad Instruction Manuals

Keypad	Instruction Manual
Local S20-LK1	D2-3418 (SP200 Quick Reference) D2-3408 (SP200 Instruction Manual)
Remote S20-RK1	D2-3431
CopyCat S20-CK1	D2-3437

Input Mains Filter

- For reduction of line side high frequency conducted emissions.
- Tested and certified for use with the SP200 to meet European EMC directive 89/336/EEC (standards EN5008-1, EN5008-2, and parts of EN61800-3 for EMC included).
- Meets class A without shielded metal enclosure, Class B with shielded metal enclosure.
- Piggyback design eliminates the need for additional panel space because the filter can be mounted directly between the SP200 and the panel. Side by side mounting is also possible where enclosure depth is limited.

HP (kW)	SP200	Input Mains Filter(2)					
	Model Number	Model Number	Dimensions in.(mm)				List Price
			Height	Width	Depth	Weight	
Single-Phase 200-240V Input(1)							
1/2 (0.37) 1 (0.75) 1-1/2 (1.1) 2 (1.5)	S20-X02P3_1000 S20-X04P2_1000 S20-X06P0_1000 S20-Y07P0_1000	S20-MF1-Y014	7.17(182)	2.95(75)	1.87(47.5)	.8 kg	**$160**

Three-Phase 200-240V Input							
1/2 (0.37) 1 (0.75)	S20-202P3_1000 S20-204P2_1000	S20-MF1-45P0	7.17(182)	2.95(75)	1.38(35)	.48 kg	**170**
2 (1.5)	S20-207P0_1000	S20-MF1-49P5	7.17(182)	2.95(75)	1.87(47.5)	.8 kg	**180**
Three-Phase 380-460V Input							
1/2 (0.37) 1 (0.75) 2 (1.5)	S20-401P3_1000 S20-402P0_1000 S20-402P3_1000	S20-MF1-45P0	7.17(182)	2.95(75)	1.87(47.5)	.8 kg	**170**

(1) Filters for use on 115 V input are not available at this time.
(2) Contact Reliance Electric for availability.

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Note: This material is not intended to provide operational instructions. Appropriate Reliance Electric Industrial Company instruction manuals and precautions should be studied prior to installation, operation, or maintenance of equipment.