

# Hitachi SJ300 Series Introduction



The Hitachi SJ300 Series drives are robust and particularly suited for constant torque and high-starting torque applications. The SJ300

offers many features and options that make this series suitable for a wide range of applications.

## Features

- V/F control
- Sensorless vector control
- Flux vector control
- Internal dynamic braking circuit ( $\leq 15$  hp)
- PID control
- P/PI control tuning for load sharing applications
- 16 programmable speed levels
- Two-stage accel/decel selection
- Feed-back option board allows for closed loop vector control and electronic gearing
- Power phase loss detection
- Automatic fan on/off selection
- Modular construction

## Configuration methods

The SJ300 Series drives can be configured multiple ways. The drive can be configured using the removable keypad that comes with the drive (OPE-SRE), the

SJ300 Series Drives												
Motor Rating	kW	.4	.75	1.5	2.2	3.7	5.5	7.5	11	15	18.5	22
	Hp	.5	1	2	3	5	7.5	10	15	20	25	30
Three-phase 230V		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Three-phase 460V			✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

remote digital keypad with serial communications (SC-OPE3I), or the optional Windows-based programming software DOP-PRO, available for free download at [www.drivemanager.com](http://www.drivemanager.com). The DOP-PRO-CBL programming cable is required to download configurations to the drive.

## Control and monitoring

There are a variety of choices for controlling and monitoring the SJ300 drive. Some of the choices are listed below:

**Digital keypad** — The OPE-SRE digital keypad comes standard with every SJ300 drive. This keypad display allows you to program your drive as well as monitor specific parameters during operation. The OPE-SRE can be mounted on the SJ300 or mounted remotely with an optional cable.

**Intelligent terminal system** — The built-in intelligent terminal system allows you to connect a sourcing 4-20 mA / 0-10 VDC device, such as a PLC, to control the frequency and run/stop functions of the drive.

**Remote digital keypad with serial communications** — The SC-OPE3I has a 4-line, 20-character back-lit LCD display and built-in EEPROM program storage. The

SC-OPE3I gives your drive RS-232/RS-422/RS-485 connectivity and enables you to communicate with your drive using multiple serial protocols. The SC-OPE3I has complete programming and monitoring functionality. The SC-OPE3I can be mounted on the SJ300 drive in place of the standard keypad, or it can be remotely mounted.

## Accessories

- AC line reactors
- Braking resistors
- Filters
- Remote operator interface
- Remote digital keypad with serial communications
- Windows configuration software

## Option cards

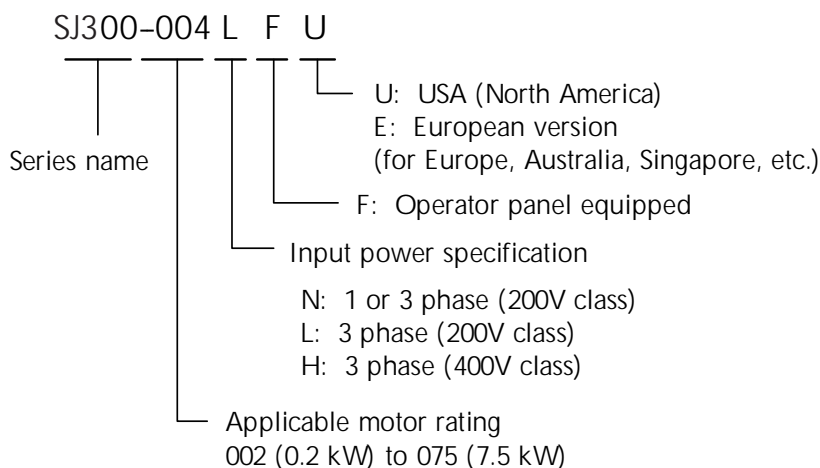
The SJ300 Series drives have two option card slots located on the interior panel of the drive. The option slots can be used for an encoder feedback card.

*The detailed descriptions and specifications for the SJ300 accessories and option cards are available later in this section. See our Web site for future additions.*

## Typical applications

- Web handling
- Grinders
- Extruding
- Strip forming
- Conveyors
- Fans/Pumps
- Spindles

## Hitachi Model Number Convention



# SJ300 Specifications

200V Class Three-phase Input							
Model		SJ300-004LFU	SJ300-007LFU	SJ300-015LFU	SJ300-022LFU	SJ300-037LFU	SJ300-055LFU
Price		<--->	<--->	<--->	<--->	<--->	<--->
Motor Rating <sup>1</sup>	HP	1/2HP	1HP	2HP	3HP	5HP	7.5HP
	kW	0.4kW	0.75kW	1.5kW	2.2kW	4.0kW	5.5kW
Rated Capacity (240V) kVA		1.2	2.0	3.1	4.3	6.8	9.9
Rated Input Voltage		Three-phase three-wire 200-240V ±10%, 50/60Hz ±5%					
Rated Output Voltage <sup>2</sup>		Corresponds to input voltage					
Rated Input Current (A)		3.8	5.5	8.3	12.0	18.0	26.0
Rated Output Current (A)		3.0	5.0	7.5	10.5	16.5	24
Dynamic Braking (without external resistor) <sup>3</sup>		50%			20%		
Dynamic Braking (with external resistor) <sup>3</sup>		200%	200%	200%	160%	100%	80%
DC Injection Braking		Performs at start under set frequency at deceleration via an external input (braking force, time and operating frequency)					
Protective Structure <sup>4</sup>		IP20 (NEMA1)					
Ambient Operating Temperature <sup>5</sup>		-10 to 40°C (14-104°F)					
Storage Temperature <sup>6</sup>		-20 to 65°C (-68-149°F)					
Humidity		20 to 90% humidity, (no condensation)					
Vibration <sup>7</sup>		5.9m/s <sup>2</sup> (0.6G), 10 to 55 Hz					
Location		Altitude 1,000 m or less, indoors, (no corrosive gases or dust)					
Coating Color		Gray					
Watt Loss 100% (I) <sup>8</sup>		70W	88W	125W	160W	235W	325W
Weight: kg (lb)		3.5 (7.7)					
Dimensions (HxWxD) (mm)		255x150x140					
Accessories							
AC Reactor		HRL005L	HRL010L	HRL020L	HRL030L	HRL050L	HRL075L
Braking Resistor		Refer to “SJ300 Dynamic Braking Resistor Selection Charts” in the “SJ300 Accessories” section of this chapter					
Braking Unit		built into drive					
RF Capacitive Filter		CFI-L					
RF Inductive Filter		ZCL-B40					
EMI Filter		NF-CEH7		NF-CEH10	NF-CEH20		NF-CEH30
Remote Operator Interface		SC-OPE3I					
Remote Operator Interface Cables		SC-OPE3BK					
Pulse Width Modulation Filter for Analog Output Metering		FA-4PWM					

## Notes:

- 1: The applicable motor refers to Hitachi standard 3-phase motor (4 pole). To use another motor, the rated motor current must NOT exceed the rated output current of the inverter.
- 2: The output voltage decreases as the main power supply voltage decreases. (Except when using the AVR function.)
- 3: The braking torque at capacitive feedback is the average deceleration torque at the shortest deceleration (stoppage from 50/60 Hz) of the motor itself. It is not the continuous regenerative braking torque. And the average deceleration torque varies with motor loss. This value decreases when operating beyond 50/60 Hz. Note that a braking resistor is not included in the inverter. If a large regeneration torque is required, the optional regenerative braking resistor should be used.
- 4: The protection method conforms to JEM 1030/NEMA (U.S.)
- 5: To use the inverter at 40°C or higher, it is necessary to reduce the output current and carrier frequency values.
- 6: The storage temperature refers to the short-term temperature during transport.
- 7: Conforms to the test method specified in JIS C0911 (1984).
- 8: Rated output current (In). Based upon output frequency 50 Hz or 60 Hz. Carrier frequency 5kHz.

# SJ300 Specifications

200V Class Three-phase Input						
Model		SJ300-075LFU	SJ300-110LFU	SJ300-150LFU	SJ300-185LFU	SJ300-220LFU
Price		<--->	<--->	<--->	<--->	<--->
Motor Rating <sup>1</sup>	HP	10HP	15HP	20HP	25HP	30HP
	kW	7.5kW	11.5kW	15kW	18.5kW	22kW
Rated Capacity (240V) kVA		13.3	19.1	26.6	31.5	39.4
Rated Input Voltage		Three-phase three-wire 200-240V ±10%, 50/60Hz ±5%				
Rated Output Voltage <sup>2</sup>		Corresponds to input voltage				
Rated Input Current (A)		35	51	70	84	105
Rated Output Current (A)		32	46	64	76	95
Dynamic Braking (without external resistor) <sup>3</sup>		20%	10%	10%	10%	10%
Dynamic Braking (with external resistor) <sup>3</sup>		80%	70%	110%	90%	110%
DC Injection Braking		Starts at set frequency at deceleration via an external input (braking force, time and operating frequency)				
Protective Structure <sup>4</sup>		IP20 (NEMA 1)				
Ambient Operating Temperature <sup>5</sup>		-10 to 40°C (14-104ZX°F)				
Storage Temperature <sup>6</sup>		-20 to 65°C (-68-149°F)				
Humidity		25 to 90% humidity, (no condensation)				
Vibration <sup>7</sup>		5.9m/s² (0.6G), 10 to 55 Hz				
Location		Altitude 1,000 m or less, indoors, (no corrosive gases or dust)				
Coating Color		Gray				
Watt Loss 100% (I) <sup>8</sup>		425W	600W	800W	975W	1150W
Weight: kg (lb)		5 (11)		12 (26.4)		
Dimensions (HxWxD) (mm)		260x210x170		390x250x190		
Accessories						
AC Reactor		HRL110L	HRL115L	HRL120L	HRL130L	HRL130L
Braking Resistor		Refer to "SJ300 Dynamic Braking Resistor Selection Charts" in the accessories section		Refer to "Resistor and Braking Unit Combinations" selection tables (Braking Unit required)		
Braking Unit		built into drive		Not available from AutomationDirect; visit <a href="http://www.hitachi.us/inverters">www.hitachi.us/inverters</a>		
RF Capacitive Filter		CFI-L				
RF Inductive Filter		ZCL-B40				
EMI Filter		NF-CEH40	NF-CEH60	NF-CEH80	NF-CEH100	NF-CEH150
Remote Operator Interface		SC-OPE3I				
Remote Operator Interface Cables		SC-OPE3BK				
Pulse Width Modulation Filter for Analog Output Metering		FA-4PWM				

## Notes:

- 1: The applicable motor refers to Hitachi standard 3-phase motor (4 pole). To use another motor, the rated motor current must NOT exceed the rated output current of the inverter.
- 2: The output voltage decreases as the main power supply voltage decreases. (Except when using the AVR function.)
- 3: The braking torque at capacitive feedback is the average deceleration torque at the shortest deceleration (stoppage from 50/60 Hz) of the motor itself. It is not the continuous regenerative braking torque. And the average deceleration torque varies with motor loss. This value decreases when operating beyond 50/60 Hz. Note that a braking resistor is not included in the inverter. If a large regeneration torque is required, the optional regenerative braking resistor should be used.
- 4: The protection method conforms to JEM 1030/NEMA (U.S.)
- 5: To use the inverter at 40°C or higher, it is necessary to reduce the output current and carrier frequency values.
- 6: The storage temperature refers to the short-term temperature during transport.
- 7: Conforms to the test method specified in JIS C0911 (1984).
- 8: Rated output current (In) based upon output frequency 50 Hz or 60 Hz. Carrier frequency 5kHz.

# SJ300 Specifications



PLC  
Overview

DL05/06  
PLC

DL105  
PLC

DL205  
PLC

DL305  
PLC

DL405  
PLC

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Software

C-more  
HMI's

Other HMI

AC Drives

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Servos

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400V Class Three-phase Input						
Model		SJ300-007HFU	SJ300-015HFU	SJ300-022HFU	SJ300-040HFU	SJ300-055HFU
Price		<--->	<--->	<--->	<--->	<--->
Motor Rating <sup>1</sup>	HP	1HP	2HP	3HP	5HP	7.5HP
	kW	.75kW	1.5kW	2.2kW	3.7kW	5.5kW
Rated Capacity (480V) kVA		2.1	3.1	4.4	7.1	9.9
Rated Input Voltage		Three-phase three-wire 380-480V ±10%, 50/60Hz ±5%				
Rated Output Voltage <sup>2</sup>		Corresponds to input voltage				
Rated Input Current (A)		2.8	4.2	5.8	9.5	13
Rated Output Current (A)		2.5	3.8	5.3	8.6	12
Dynamic Braking (without optional resistor) <sup>3</sup>		50%	50%	20%	20%	20%
Dynamic Braking (with optional resistor) <sup>3</sup>		200	200	200	140%	100%
DC Injection Braking		Starts at set frequency at deceleration via an external input (braking force, time and operating frequency)				
Protective Structure <sup>4</sup>		IP20 (NEMA 1)				
Ambient Operating Temperature <sup>5</sup>		-10 to 40°C (14-104°F)				
Storage Temperature <sup>6</sup>		-20 to 65°C (-68-149°F)				
Humidity		25 to 90% humidity, (no condensation)				
Vibration <sup>7</sup>		5.9m/s² (0.6G), 10 to 55 Hz				
Location		Altitude 1,000 m or less, indoors, (no corrosive gases or dust)				
Coating Color		Gray				
Watt Loss 100% (I) <sup>8</sup>		88W	125W	160W	235W	325W
Weight: kg (lb)		3.5 (7.7)				
Dimensions (mm) (HxWxD)		255x150x140				
Accessories						
AC Reactor		HRL010H	HRL030H	HRL030H	HRL050H	HRL075H
Braking Resistor		Refer to "SJ300 Dynamic Braking Resistor Selection Charts" in the "SJ300 Accessories" section of this chapter				
Braking Unit		built into drive				
RF Capacitive Filter		CFI-H				
RF Inductive Filter		ZCL-B40				
EMI Filter		NF-CEH7			NF-CEH10	NF-CEH20
Remote Operator Interface		SC-OPE3I				
Remote Operator Interface Cables		SC-OPE3BK				
Pulse Width Modulation Filter for Analog Output Metering		FA-4PWM				

## Notes:

- 1: The applicable motor refers to Hitachi standard 3-phase motor (4 pole). To use another motor, the rated motor current must NOT exceed the rated output current of the inverter.
- 2: The output voltage decreases as the main power supply voltage decreases. (Except when using the AVR function.)
- 3: The braking torque at capacitive feedback is the average deceleration torque at the shortest deceleration (stoppage from 50/60 Hz) of the motor itself. It is not the continuous regenerative braking torque. And the average deceleration torque varies with motor loss. This value decreases when operating beyond 50/60 Hz. Note that a braking resistor is not included in the inverter. If a large regeneration torque is required, the optional regenerative braking resistor should be used.
- 4: The protection method conforms to JEM 1030/NEMA (U.S.)
- 5: To use the inverter at 40°C or higher, it is necessary to reduce the output current and carrier frequency values.
- 6: The storage temperature refers to the short-term temperature during transport.
- 7: Conforms to the test method specified in JIS C0911 (1984).
- 8: Rated output current (In). Based upon output frequency 50 Hz or 60 Hz. Carrier frequency 5kHz.

# SJ300 Specifications

400V Class Three-phase Input						
Model		SJ300-075HFU	SJ300-110HFU	SJ300-150HFU	SJ300-185HFU	SJ300-220HFU
Price		<--->	<--->	<--->	<--->	<--->
Motor Rating <sup>1</sup>	HP	10HP	15HP	20HP	25HP	30HP
	kW	7.5kW	11kW	15kW	18.5kW	22kW
Rated Capacity (480V) kVA		13.3	19.1	26.6	31.5	39.9
Rated Input Voltage		Three-phase three-wire 380-480V ±10%, 50/60Hz ±5%				
Rated Output Voltage <sup>2</sup>		Corresponds to input voltage				
Rated Input Current (A)		18	25	35	42	53
Rated Output Current (A)		16	23	32	38	48
Dynamic Braking (without optional resistor) <sup>3</sup>		20%	10%	10%	10%	10%
Dynamic Braking (with optional resistor) <sup>3</sup>		100	70%	200%	200%	200%
DC Injection Braking		Starts at set frequency at deceleration via an external input (braking force, time and operating frequency)				
Protective Structure <sup>4</sup>		IP20 (NEMA 1)				
Ambient Operating Temperature <sup>5</sup>		-10 to 40°C (14-104°F)				
Storage Temperature <sup>6</sup>		-20 to 65°C (-68-149°F)				
Humidity		25 to 90% humidity, (no condensation)				
Vibration <sup>7</sup>		5.9m/s <sup>2</sup> (0.6G), 10 to 55 Hz				
Location		Altitude 1,000 m or less, indoors, (no corrosive gases or dust)				
Coating Color		Gray				
Watt Loss 100% (I) <sup>8</sup>		425W	600W	800W	975W	1150W
Weight: kg (lb)		5 (11)			12 (26.4)	
Dimensions (mm) (HxWxD)		260x210x170			390x250x190	
Accessories						
AC Reactor		HRL110H	HRL115H	HRL120H	HRL130LH	HRL130H
Braking Resistor		Refer to "SJ300 Dynamic Braking Resistor Selection Charts" in the accessories section			Refer to "Resistor and Braking Unit Combinations" selection tables <i>(Braking Unit required)</i>	
Braking Unit		built into drive			Not available from AutomationDirect; visit <a href="http://www.hitachi.us/inverters">www.hitachi.us/inverters</a>	
RF Capacitive Filter		CFI-H				
RF Inductive Filter		ZCL-A				
EMI Filter		NF-CEH20	NF-CEH30	NF-CEH40	NF-CEH50	NF-CEH60
Remote Operator Interface		SC-OPE3I				
Remote Operator Interface Cables		SC-OPE3BK				
Pulse Width Modulation Filter for Analog Output Metering		FA-4PWM				

## Notes:

- 1: The applicable motor refers to Hitachi standard 3-phase motor (4 pole). To use another motor, the rated motor current must NOT exceed the rated output current of the inverter.
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- 3: The braking torque at capacitive feedback is the average deceleration torque at the shortest deceleration (stoppage from 50/60 Hz) of the motor itself. It is not the continuous regenerative braking torque. And the average deceleration torque varies with motor loss. This value decreases when operating beyond 50/60 Hz. Note that a braking resistor is not included in the inverter. If a large regeneration torque is required, the optional regenerative braking resistor should be used.
- 4: The protection method conforms to JEM 1030/NEMA (U.S.)
- 5: To use the inverter at 40°C or higher, it is necessary to reduce the output current and carrier frequency values.
- 6: The storage temperature refers to the short-term temperature during transport.
- 7: Conforms to the test method specified in JIS C0911 (1984).
- 8: Rated output current (In). Based upon output frequency 50 Hz or 60 Hz. Carrier frequency 5kHz.

# SJ300 Specifications — General



SJ300 Drives Specifications		
Control Method		Sine-wave pulse width modulation (PWM) control
Voltage/Frequency Characteristics		V/F free setting (30-400Hz of base frequency), constant torque and reduced torque of V/F control, sensorless vector control
Speed Fluctuation		±0.5% (sensorless vector control)
Overload Current Rating		150% for 60 seconds, 200% for 0.5 seconds
Acceleration/Deceleration Time		0.1-3000 sec. (linear/curve, acceleration/deceleration selection), two-stage acceleration/deceleration
Starting Torque		200% at 0.5Hz (sensorless vector control), 150% at 0Hz (sensorless vector control with a motor one size frame down
Output Frequency Range <sup>1</sup>		0.1 to 400 Hz
Frequency Accuracy		Digital command: ±0.01% of the max. frequency. Analog command:±0.2% of the max frequency (25°C ± 10°C)
Frequency Setting Resolution		Digital: 0.1 Hz, analog: max. frequency/4000 (O terminal: 12bit 0 to 10V, O2 terminal: 12bit -10 to 10V)
Control Input Signal		
Frequency Setting	Digital Operator Panel	Up and Down keys & value setting and potentiometer
	External Signal	0 to 10VDC (input impedance 10kΩ) -10V to 10V (input impedance 10kΩ), 4-20mA (input impedance 100Ω),
	External Port	Set by external device
Forward/Reverse Start/Stop	Digital Operator Panel	Run key/Stop key (Forward/reverse run change by function command)
	External Signal	Forward run/stop (NO contact), Reverse operation command available at terminal assignment (NO/NC selectable), 3-wire input connection
	External Port	set by external device
Intelligent Input Terminal		Selection of 8 functions from: RV(Reverse), CF1-CF4(Multispeed command), JG(Jogging), DB(External DC braking), SET(Second motor constants setting), 2CH(Second accel./decel.), FRS(Free-run stop), EXT(External trip), USP(Unattended start protection), CS(Change to/from commercial power supply), SFT(Software lock), AT(Analog input selection), SET3(Third motor constants setting), RS(Reset), STA(3-wire start), STP(3-wire stop), F/R(3-wire fwd./rev.), PID(PID On/Off), PIDC(PID reset), CAS(Control gain setting), UP/DWN(Remote-controlled accel./decel.) UDC(Remote-controlled data clearing), OPE(Operator control), SF1-SF7(Multispeed bit command 1-7), OLR(Overload limit change), TL(Torque limit enable), TRQ1,TRQ2(Torque limit selection (1)(2)), PPI(P/PI selection), BOK(Brake verification), ORT(Orientation), LAC(LAD cancel), PCLR(Positioning deviation reset), STAT(90-degree phase difference permission), NO(Not selected)
Thermistor Input		One terminal (PTC characteristics)
Control Output Signal		
Intelligent Output Terminals		Five open collector terminals and one NO-NC combined contact. Selection from: RUN(Run signal), FA1(frequency arrival signal (at the set frequency)), FA2(Frequency arrival signal (at or above the set frequency)), OL(Over-load advance notice signal), OD(Output deviation for PID control), AL(Alarm signal), FA3(Frequency arrival signal (only at the set frequency)),OTQ(Over-torque), IP(Instantaneous power failure signal), UV(Under-voltage signal), TRQ(In torque limit), RNT(Operation time over), ONT(Plug-in time over), THM(Thermal alarm), BRK(Brake release), BER(Brake error), ZS(Zero speed), Frequency arrival signal (at or above the set frequency)(2)), Frequency arrival signal (only at the set frequency)(2), OL2(Overload advance notice signal(2)),(Terminal 11-13 or 11-14 are automatically configured as AC0-AC2 or AC0-AC3 when alarm code output is selected at C62.)
Intelligent Monitor Output Terminals		Analog voltage, analog current, pulse line output
Display Monitor		Output frequency, output current, motor torque, scaled value of output frequency, trip history, I/O terminal condition, input power, output voltage
Other Functions		V/f free-setting (up to 5 points), frequency upper/lower limit, frequency jump, accel./decel. curve selection, manual torque boost value and frequency adjustment, analog meter tuning, start frequency setting, carrier frequency setting, electronic thermal free-setting, external frequency output zero/span reference, external frequency input bias start/end, analog input selection, retry after trip, restart after instantaneous power failure, various signal outputs, reduced voltage start, overload restriction, default value setting, deceleration and stop after power failure, AVR function, fuzzy accel./decel., auto-tuning (on-line/off-line), high-torque multi-operation
Carrier Frequency Range		0.5-15kHz
Protective Functions		Over-current protection, overload protection, braking resistor overload protection, over-voltage protection, EEPROM error, under-voltage error, CT (Current transformer) error, CPU error, external trip, USP error, ground fault, input over-voltage protection, instantaneous power failure, option 1 connection error, option 2 connection error, inverter thermal trip, phase failure detection, IGBT error, thermistor error

**Note:** To operate the motor above 60 Hz, refer to the motor manufacturer's specification of maximum rotation speed.

PLC Overview

DL05/06 PLC

DL105 PLC

DL205 PLC

DL305 PLC

DL405 PLC

Field I/O

Software

C-more HMIs

Other HMI

AC Drives

Motors

Steppers/ Servos

Motor Controls

Proximity Sensors

Photo Sensors

Limit Switches

Encoders

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Pushbuttons/ Lights

Process

Relays/ Timers

Comm.

TB's & Wiring

Power

Circuit Protection

Enclosures

Appendix

Part Index

# SJ300 Specifications — Installation

It is important to understand the installation requirements for your SJ300 drive. This will help to insure that the SJ300 series drives operate within their environmental and electrical limits.

**Never use only this catalog for installation or operation of equipment; refer to the user manual.**

Environmental Specifications	
<b>Protective Structure<sup>1</sup></b>	IP20 (NEMA 1)
<b>Ambient Operating Temperature<sup>2</sup></b>	-10 to 40°C (14-104°F)
<b>Storage Temperature<sup>3</sup></b>	-20 to 65°C (-68-149°F)
<b>Humidity</b>	20 to 90% RH (no condensation)
<b>Vibration<sup>4</sup></b>	5.9 m/S² (0.6G), 10 to 55 Hz
<b>Location</b>	Altitude 1,000 m or less, indoors (no corrosive gases or dust)
<b>Coating Color</b>	Gray

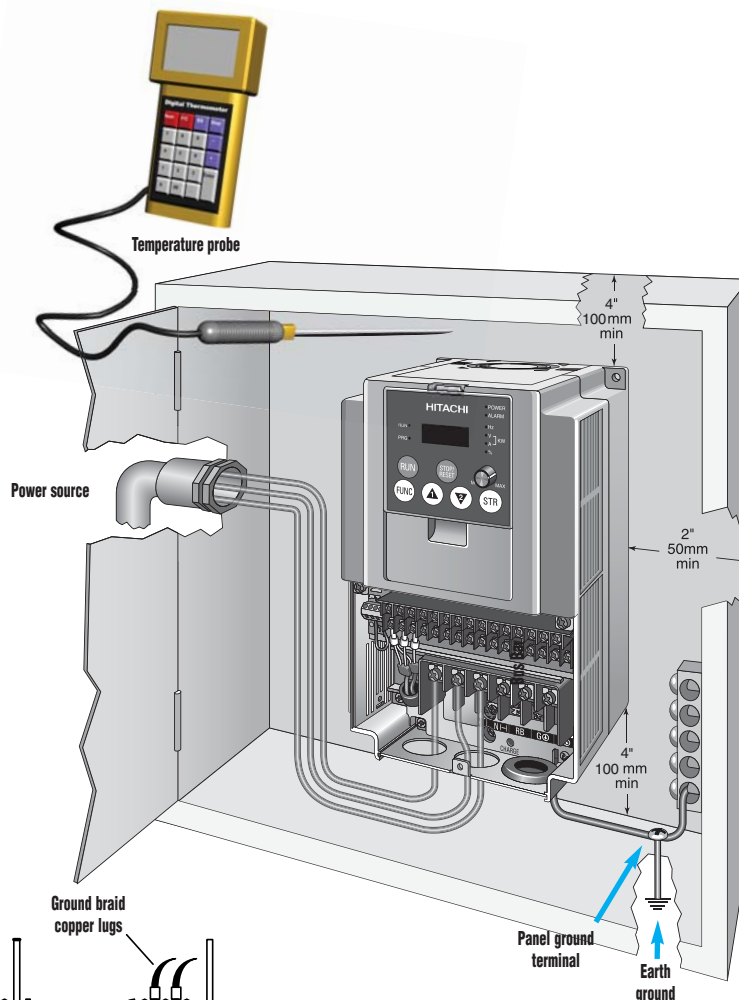
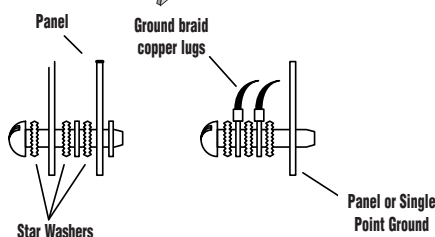
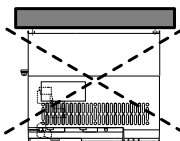
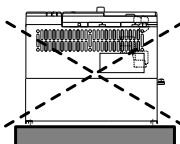
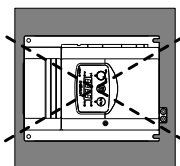
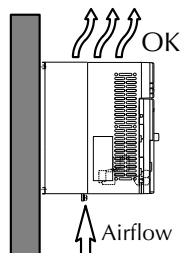
**1:** The protection method conforms to JEM 1030/ NEMA (U.S.)

**2:** To use the inverter at 40°C or higher, it is necessary to reduce the output current and carrier frequency values.

**3:** The storage temperature refers to the short-term temperature during transport.

**4:** Conforms to the test method specified in JIS C0911 (1984)

## Installation Notes



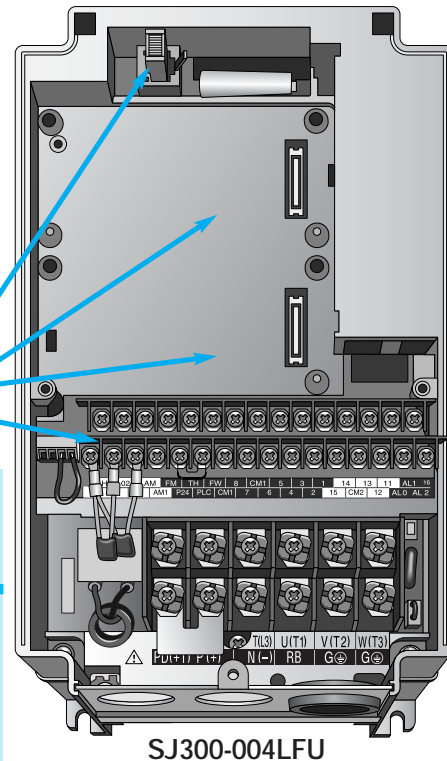
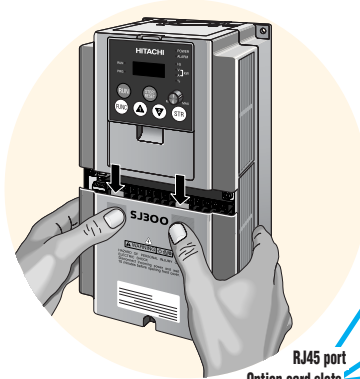
## Watt-loss Chart

SJ300 Drive Model	100% I*
004LFU/HFU	70W
007LFU/HFU	88W
015LFU/HFU	125W
022LFU/HFU	160W
037LFU/040HFU	235W
055LFU/HFU	325W
075LFU/HFU	425W
110LFU/HFU	600W
150LFU/HFU	800W
185LFU/HFU	975W
220LFU/HFU	1150W
300LFU/HFU	1550W
370LFU/HFU	1900W
450LFU/HFU	2300W
550LFU/HFU	2800W

\*Rated output current  
Based on output frequency 50 Hz or 60 Hz  
Carrier frequency 5kHz

# SJ300 Specifications — Terminals

Main Circuit Terminals	
Symbol	Description
<b>R(L1), S(L2), T(L3)</b>	Main power supply input terminals
<b>U(T1), V(T2), W(T3)</b>	Inverter output terminals
<b>PD(+1), P(+)</b>	DC link choke connection terminals
<b>P(+), RB(RB)</b>	External braking resistor connection terminals
<b>P(+), N(-)</b>	External braking unit connection terminals
<b>G or <math>\perp</math></b>	Ground terminal
<b>RO(RO), TO(TO)</b>	Control power supply input terminals



## Terminal arrangement

004LFU, 007-055LFU/HFU

R<sub>L1</sub>

S<sub>L2</sub>

T<sub>L3</sub>

U<sub>T1</sub>

V<sub>T2</sub>

W<sub>T3</sub>

R<sub>0</sub>

T<sub>0</sub>

PD<sub>+1</sub>

P<sub>+</sub>

N<sub>-</sub>

RB<sub>RB</sub>

⊕<sub>G</sub>

⊕<sub>G</sub>

075-110LFU/HFU

R<sub>L1</sub>

S<sub>L2</sub>

T<sub>L3</sub>

U<sub>T1</sub>

V<sub>T2</sub>

W<sub>T3</sub>

PD<sub>+1</sub>

P<sub>+</sub>

N<sub>-</sub>

RB<sub>RB</sub>

⊕<sub>G</sub>

⊕<sub>G</sub>

R<sub>0</sub>

T<sub>0</sub>

150-185LFU, 150-220HFU

R<sub>0</sub>

T<sub>0</sub>

⊕<sub>G</sub>

R<sub>L1</sub>

S<sub>L2</sub>

T<sub>L3</sub>

PD<sub>+1</sub>

P<sub>+</sub>

N<sub>-</sub>

U<sub>T1</sub>

V<sub>T2</sub>

W<sub>T3</sub>

⊕<sub>G</sub>

220LFU

R<sub>0</sub>

T<sub>0</sub>

R<sub>L1</sub>

S<sub>L2</sub>

T<sub>L3</sub>

PD<sub>+1</sub>

P<sub>+</sub>

N<sub>-</sub>

U<sub>T1</sub>

V<sub>T2</sub>

W<sub>T3</sub>

⊕<sub>G</sub>

SJ300-004LFU

Standard Wiring				
Inverter Model SJ300-	Motor Output kW (Hp)	Wiring		Fuse (Class J)
		Power Wires	Signal Lines	
004LFU	0.4 (0.5)	AWG 16	0.75mm <sup>2</sup> shielded wire 18AWG	5A
007LFU	0.75 (1)	AWG 16		10A
015LFU	1.5 (2)	AWG 14		15A
022LFU	2.2 (3)	AWG 14		20A
037LFU	3.7 (5)	AWG 10		30A
055LFU	5.5 (7.5)	AWG 8		40A
075LFU	7.5 (10)	AWG 6		60A
110LFU	11 (15)	AWG 4		80A
150LFU	15 (20)	AWG 2		100A
185LFU	18.5 (25)	AWG 1		120A
220LFU	22 (30)	AWG 1/0		150A
007HFU	0.75 (1)	AWG 16		6A
015HFU	1.5 (2)	AWG 16		10A
022HFU	2.2 (3)	AWG 16		15A
040HFU	3.7 (5)	AWG 14		20A
055HFU	5.5 (7.5)	AWG 12		30A
075HFU	7.5 (10)	AWG 10		40A
110HFU	11 (15)	AWG 8		50A
150HFU	15 (20)	AWG 6		60A
185HFU	18.5 (25)	AWG 6		80A
220HFU	22 (30)	AWG 4		

# SJ300 Specifications — Control Terminals

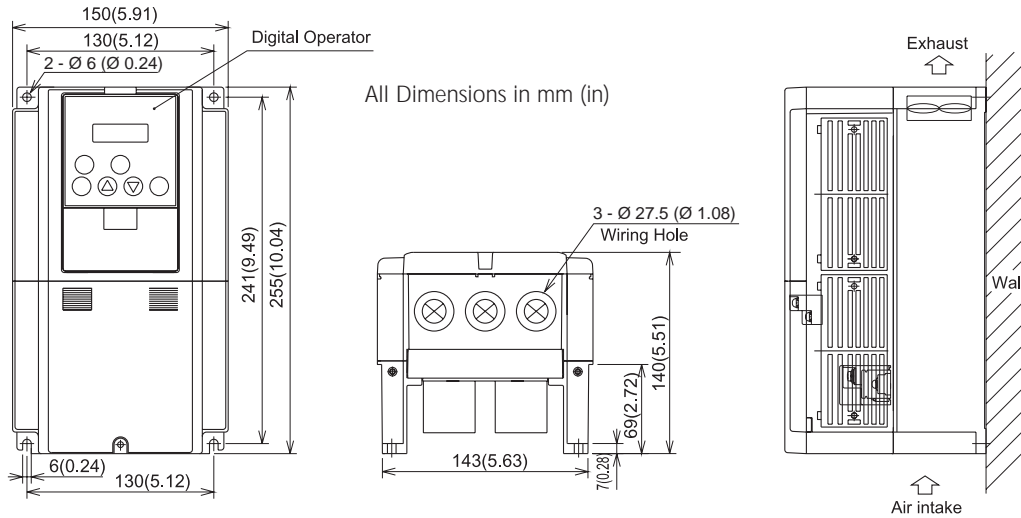
## Control terminal arrangement

	H	O2	AM	FM	TH	FW	8	CM1	5	3	1	14	13	11	AL1
L	O	OI	AM1	P24	PLC	CM1	7	6	4	2	15	CM2	12	AL0	AL2

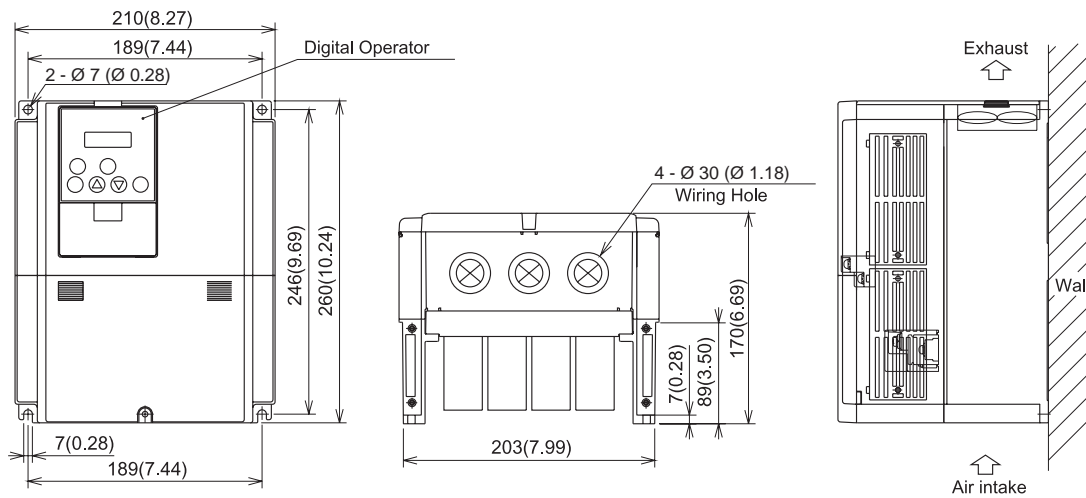
Control Terminal Specifications					
		Symbol	Name	Explanation of Terminals	Ratings
Power Supply		L	Common terminal for analog power source	Common terminal for H, O, O2, OI, AM, and AM1. <b>Do not ground.</b>	—
Frequency Setting		H	Power source for frequency	Power supply for frequency command input	DC 10V, 20mA max.
		O	Frequency command terminal	Maximum frequency is attained at DC 10V in DC 0-10V range. Set the voltage at AO14 to command maximum frequency below DC 10V.	Input impedance: 10kΩ, Allowable input voltage range: DC -0.3 to +12V
		O2	Frequency command extra terminal (Voltage)	O2 signal is added to the frequency command of O or OI in DC 0±10V range. By changing configuration, frequency command can be inputted also at O2 terminal.	Input impedance: 10kΩ, Allowable input voltage range: DC 0 to±12V
		OI	Frequency command terminal (Current)	Maximum frequency is attained at DC 20mA in DC 4-20mA range. When the intelligent terminal configured as AT is on, OI signal is enabled.	Input impedance: 100kΩ, Allowable input voltage range: DC 0-24mA
Monitor Output		AM	Analog output monitor (Voltage)	Selection of one function from: output frequency, output current, torque, output voltage, input power, electronic thermal load ratio	DC 0-10V, 2mA max
		AM1	Analog output monitor (Current)		DC 4-20mA, 250Ω max.
Monitor Output		FM	Digital monitor (Voltage)	DC0-10V output (PWM output) Selection of one function from: Output frequency, output current, torque, output voltage, input power, electronic thermal load ratio. Digital pulse output (Pulse voltage DC 0/10V) Outputs the value of output frequency as digital pulse (duty50%)	Digital output frequency range: 0-3.6kHz, 1.2mA max.
Power Supply		P24	Power terminal for interface	Internal power supply for input terminals. In case of source type logic, common terminal for contact input terminals.	DC 24V, 100mA max.
		CM1	Common terminal for interface	Common terminal for P24, TH, and FM. In case of sink type logic, common terminal for contact input terminals. <b>Do not ground.</b>	—
Contact Input	Run Command	FW	Forward command input	Forward command input	Input ON condition Voltage between each terminal and PLC: DC 18V min.  Input OFF condition Voltage between each terminal and PLC: DC 3V max. Input impedance between each terminal and PLC: 4.7kΩ Allowable maximum voltage between each terminal and PLC: DC 27V
	Functions	1	Intelligent input terminals	Selection of 8 functions from: RV(Reverse), CF1-CF4(Multispeed command), JG(Jogging), DB(External DC braking), SET(Second motor constants setting), 2CH(Second accel./decel.), FRS(Free-run stop), EXT(External trip), USP(Unattended start protection), CS(Change to/from commercial power supply), SFT(Software lock), AT(Analog input selection), RS(Reset), STA(3-wire start), STP(3-wire stop), F/R(3-wire fwd./rev.), PID(PID On/Off), PIDC(PID reset), UP/DWN(Remote-controlled accel./decel.) UDC(Remote-controlled data clearing), SF1-SF7(Multispeed bit command 1-7), OLR(Overload limit change), and NO(Not selected)	
		2			
		3			
		4			
		5			
		6			
		7			
	8				
Common Terminal	PLC	Common terminal for intelligent input terminals	Select sink or source logic with the short-circuit bar on the control terminals. Sink logic: Short P24 to PLC / Source logic: Short CM1 to PLC. When applying external power source, remove the short-circuit bar and connect PLC terminal to the external device.		
Open Collector Output	State	11	Intelligent output terminals	Select 5 functions of inverter state and configure them at terminal 11-15. When the alarm code is selected at CO62, terminal 11-13 or 11-14 are reserved for error codes of inverter trip. Both sink and source logic is always applicable between each terminal and CM1.	Decrease in voltage between each terminal and CM2: 4V max. during ON Allowable maximum voltage: DC 27V Allowable maximum current: 50mA
		12			
		13			
		14			
	15				
CM2	Common terminal for intelligent output terminals	Common terminal for intelligent output terminal 11-15.			
Thermistor Input	Sensor	TH	Thermistor input terminal	The inverter trips when the external thermistor detects abnormal temperature. Common terminal is CM1 [recommended thermistor characteristics]. Allowable rated power: 100mW or over. Impedance in case of abnormal temperature: 3kΩ Note: Thermal protection level can be set between 0-9999Ω	—
Relay Output	State/Alarm	AL0	Alarm output terminals	In default setting, an alarm is activated when inverter output is turned off by a protective function.	Maximum capacity of relays AL1-AL0: AC 250V, 2A(R load)/0.2A(I load)
		AL1			AL2-AL0: AC 250V, 1A(R load)/0.2A(I load)
		AL2			Minimum capacity of relays AL1-AL0: AC100V, 10mA DC5V, 100mA

# SJ300 Specifications — Dimensions

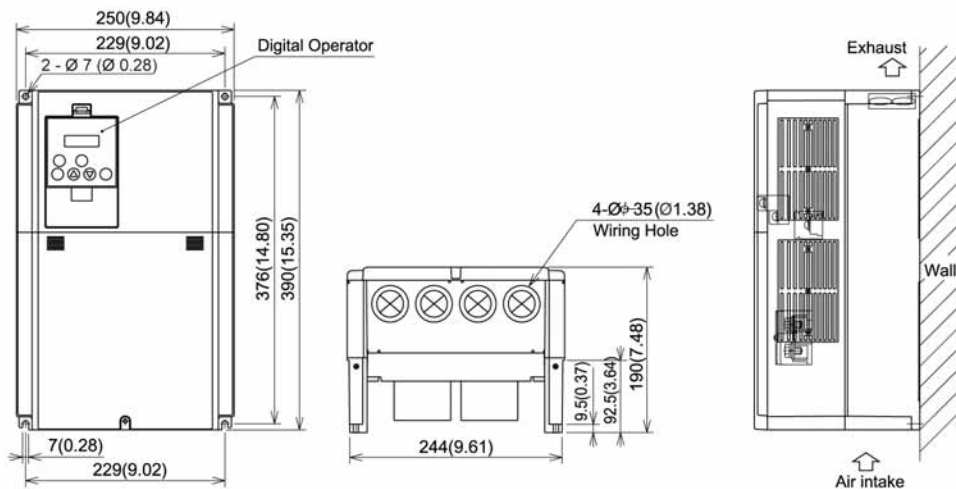
## SJ300 -004LFU, 007-055LFU/HFU



## SJ300 -075 - 110LFU/HFU

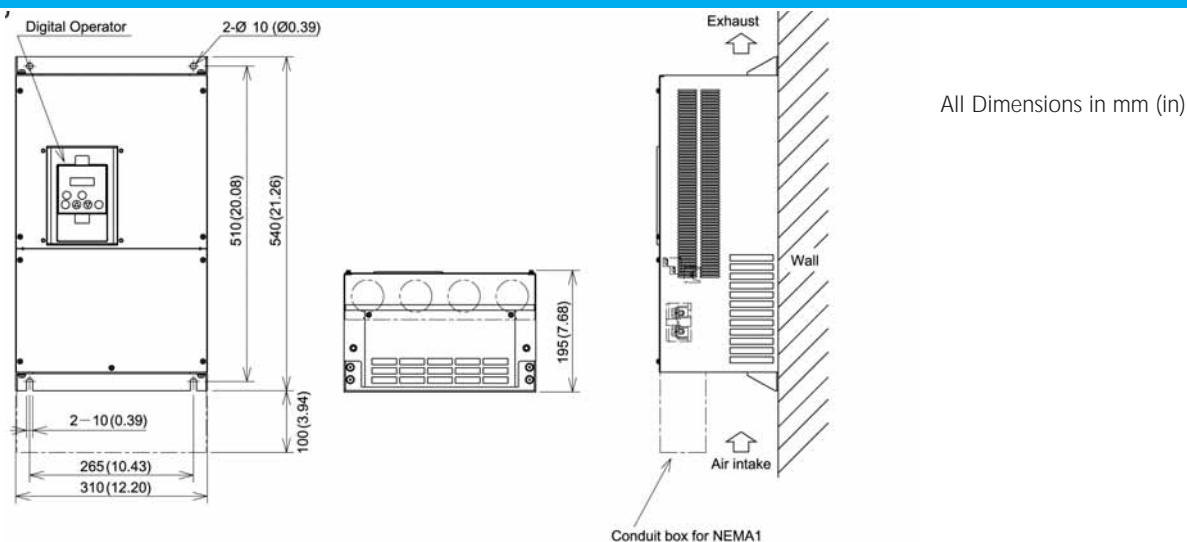


## SJ300 -150 - 220LFU/HFU

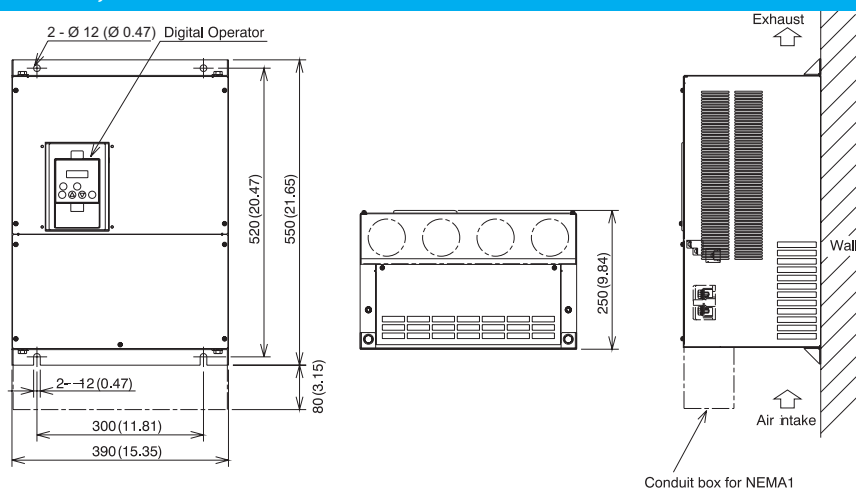


# SJ300 Specifications — Dimensions

## SJ300 -300LFU/HFU



## SJ300 -370 – 450LFU, SJ370-550HFU



## SJ300-550LFU

