# HITACHI
## Inspire the Next

# HITACHI VARIABLE FREQUENCY DRIVES

**NEW**

**NE-S1** series
Economical Inverter with
Simple Operation

**WJ200** series
Pursuing the Ideal
Compact Inverter

**X200** series
Simple, Trip-suppression and
Eco-friendly Compact Inverter

**L700** series
Inverter designed for
fans & pumps plus conveyors

**SJ700** series
High performance with Many useful
Functions and, yet User Friendly

# Hitachi Has Developed Intelligent and Sophisticated Variable Frequency Drives to Meet Various Requirements from a Wide Range of Demanding Applications!

## ● Specifications

| Series | | | NE-S1 | WJ200 | | X200 | SJ700 | L700 |
|---|---|---|---|---|---|---|---|---|
| Appearance | | |  |  | |  |  |  |
| Power Source | Rated input voltage | 1-phase (100V) | — | 100−120V +/−10%, 50/60Hz +/−5% | | — | — | — |
| | | 1-phase (200V) | 200−240V +10%/−15% 50/60Hz +/−5% | 200−240V +10%/−15%, 50/60Hz +/−5% | | 200−240V +10%/−15%, 50/60Hz +/−5% | — | — |
| | | 3-phase (200V) | 200−240V +10%/−15% 50/60Hz +/−5% | 200−240V +10%/−15%, 50/60Hz +/−5% | | 200−240V +10%/−15%, 50/60Hz +/−5% | 200−240V +10%/−15%, 50/60Hz +/−5% | 200−240V +10%/−15%, 50/60Hz +/−5% |
| | | 3-phase (400V) | — | 380−480V +10%/−15%, 50/60Hz +/−5% | | 380−480V +10%/−15%, 50/60Hz +/−5% | 380−480V +10%/−15%, 50/60Hz +/−5% | 380−480V +10%/−15%, 50/60Hz +/−5% |
| Applicable motor | | | 0.2−2.2kW | 0.1−15kW | | 0.2−7.5kW | 0.4−400kW | 11−160kW |
| Output frequency range | | | 0.5−400.0Hz | 0.1−400Hz | | 0.5−400Hz | 0.1−400Hz[*1] | 0.1−400Hz |
| Starting torque[*5] | | | 100% or greater (Torque boost mode) | 200% or greater (at 0.5Hz) (Sensorless vector control) | | 100% or greater (Torque boost mode) | 200%, or greater (at 0.3Hz) 75 to 132kW: 180%, or greater (at 0.3Hz), 185kW and over:150%, or greater (at 0.3Hz) 150%[*2] at around 0Hz, 75kW and over:130%[*2] at around 0Hz | 150%(120)[*3], or greater (at 0.5Hz) (Sensorless vector control) |
| Braking torque | Dynamic brake (capacitor feedback) | | 20−50% | 10−50% | | 20−50% | 10−20% | 10−20% |
| | DC brake | | Variable operating frequency, time, and braking force | Variable operating frequency, and braking force | | Variable operating frequency, time, and braking force | Variable operating frequency, time, and braking force | Variable operating frequency, time, and braking force |
| Overload capacity | | | 150%, 60sec. | Dual rating: CT (Heavy duty) : 150%, 60sec. VT (Normal duty) : 120%, 60 sec. | | 150%, 60sec. | 150%, 60sec., 200%, 3sec. (185kW and over : 150%, 60sec., 180%, 0.5sec.) | 120%, 60sec., 150%, 3sec. |
| Acceleration/deceleration time | | | 0.00−3,600sec. | 0.01−3,600sec. | | 0.01−3,000sec. | 0.01−3,600sec. | 0.01−3,600sec. |
| Multispeed operation | | | Max. 8-stage | Max. 16-stage | | Max. 16-stage | Max. 16-stage | Max. 16-stage |
| Analog input for frequency control | | | 0−10VDC, 4−20mA | 0−10VDC, 4−20mA | | 0−10VDC, 4−20mA | 0−10VDC, 4−20mA −10 to +10VDC | 0−10VDC, 4−20mA −10 to +10VDC |
| Protective functions | | | Over-current, Over-voltage, Under-voltage, Overload, Overheat, Ground fault at power-on, Input over-voltage, External trip, Memory error, CPU error, USP error, Driver error, Output phase loss protection | Over-current, over-voltage, under-voltage, overload, brake resistor overload, CPU error, memory error, external trip, USP error, ground fault detection at power on, temperature error, internal communication error, driver error, thermistor error, brake error, safe stop, overload at low speed, modbus communication error, option error, encoder disconnection, speed excessive, EzSQ command error, EzSQ nesting error, EzSQ execution error, EzSQ user trip | | Over-current, over-voltage, under-voltage, overload, overheat, ground fault at power-on, input over-voltage, external trip, EEPROM error, CPU error, USP error, Thermistor error, Driver error, Emergency stop | Over-current protection, over-voltage protection, under-voltage protection, electronic thermal protection, temperature error protection, instantaneous power failure protection, phase loss input protection, braking-resistor overload protection, ground-fault current detection at power-on, USP error, external trip, emergency stop trip, CT error, communication error, option board error | Over-current protection, over-voltage protection, under-voltage protection, electronic thermal protection, temperature error protection, instantaneous power failure protection, phase loss input protection, braking-resistor overload protection, ground-fault current detection at power-on, USP error, external trip, emergency stop trip, CT error, communication error, option board error |
| Other functions | | | AVR (Automatic Voltage Regulation), V/f characteristic selection, accel./decel. curve selection, frequency upper/lower limit, 8 stage multispeed, PID control, frequency jump, external frequency input bias start/end, jogging, trip history | Free V/f setting (7 breakpoints), PM motor control (corresponds more than Ver.2.0), Simple positioning control, Easy sequence programming function, Safe stop, Password, Peer-to-Peer communication, frequency upper/lower limit, jump (center) frequency, manual torque boost level/breakpoint, energy-saving operation, analog meter adjustment, Minimum time deceleration, Over-current Suppress, electronic thermal function (available also for free setting), external start/end frequency/frequency rate, restart after instantaneous power failure, Controlled deceleration on power loss, auto-tuning | | AVR (Automatic Voltage Regulation), V/f characteristic selection, accel./decel. curve selection, frequency upper/lower limit, 16 stage multispeed, PID control, frequency jump, external frequency input bias start/end, jogging, cooling fan On/Off, trip history | Free V/f setting (7 breakpoints), frequency upper/lower limit, jump (center) frequency, acceleration/deceleration according to characteristic curve, manual torque boost level/breakpoint, energy-saving operation, analog meter adjustment, start frequency setting, carrier frequency adjustment, electronic thermal function (available also for free setting), external start/end frequency/frequency rate, analog input selection, retry after trip, restart after instantaneous power failure, output of various signals, starting with reduced voltage, overload restriction, initial-value setting, automatic deceleration at power failure, AVR function, fuzzy acceleration/deceleration, online/offline auto-tuning, high-torque multi-motor operation (sensorless vector control of two motors by one inverter) | Free V/f setting (7 breakpoints), frequency upper/lower limit, jump (center) frequency, acceleration/deceleration according to characteristic curve, manual torque boost level/breakpoint, energy-saving operation, analog meter adjustment, start frequency setting, carrier frequency adjustment, electronic thermal function (available also for free setting), external start/end frequency/frequency rate, analog input selection, retry after trip, restart after instantaneous power failure, output of various signals, starting with reduced voltage, overload restriction, initial-value setting, automatic deceleration at power failure, AVR function, online/offline auto-tuning |
| Environmental conditions | Ambient operating temperature | | −10 to 50 degrees C[*4] | −10 to 50 degrees C[*4] | | −10 to 50 degrees C[*4] | −10 to 50 degrees C[*4] | −10 to 40 degrees C[*4] |
| | Humidity | | 20 to 90%RH (No condensation) | 20 to 90%RH (No condensation) | | 20 to 90%RH (No condensation) | 20 to 90%RH (No condensation) | 20 to 90%RH (No condensation) |
| | Location | | Less than 1,000m of altitude, indoors (no corrosive gas nor dust) | Less than 1,000m of altitude, indoors (no corrosive gas nor dust) | | Less than 1,000m of altitude, indoors (no corrosive gas nor dust) | Less than 1,000m of altitude, indoors (no corrosive gas nor dust) | Less than 1,000m of altitude, indoors (no corrosive gas nor dust) |

*1 : 400kW is 0.1−120Hz   *2 : When inverter is one frame size larger than motor.   *3 : 90kW and over   *5 : The characteristic is different according to the motor combination.
*4 : See derating data and carrier frequency adjustment in instruction manual when ambient operating temperature is 40 degrees C or over.

## Product Range

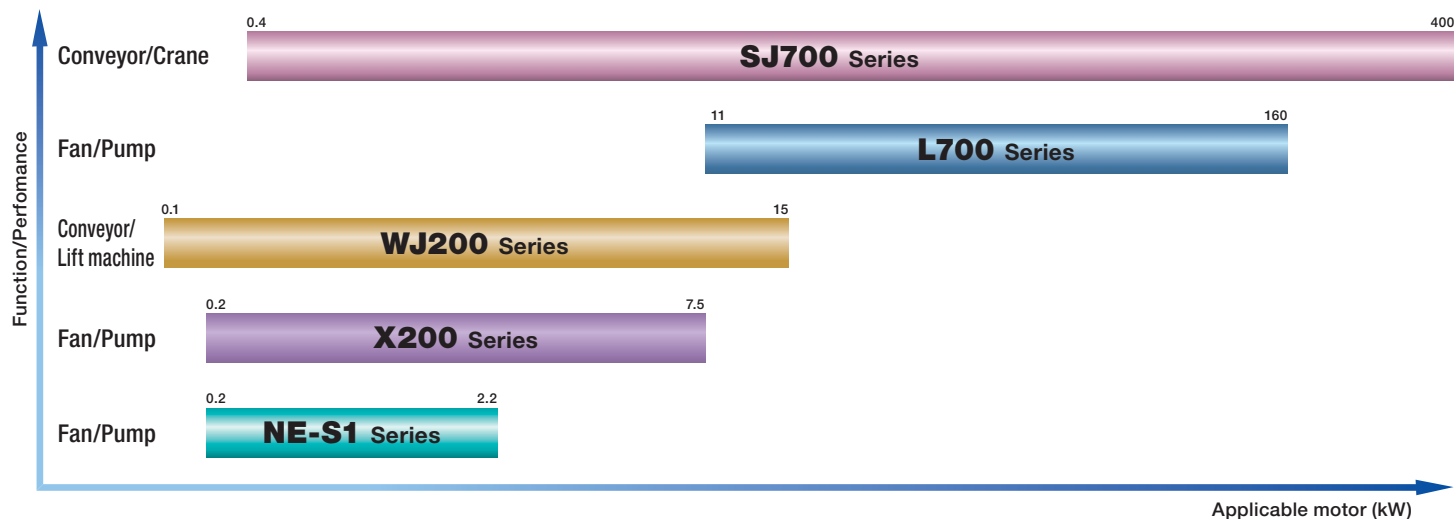| Model | | kW (HP) | 0.1 (1/8) | 0.2 (1/4) | 0.4 (1/2) | 0.55 (3/4) | 0.75 (1) | 1.1 (1.5) | 1.5 (2) | 2.2 (3) | 3 (4) | 3.7 (5) | 4 (5) | 5.5 (7.5) | 7.5 (10) | 11 (15) | 15 (20) | 18.5 (25) | 22 (30) | 30 (40) | 37 (50) | 45 (60) | 55 (75) | 75 (100) | 90 (125) | 110 (150) | 132 (175) | 150 (200) | 160 (220) | 185 (250) | 220 (300) | 315 (400) | 400 (500) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| NE-S1 | 1-phase 200V class | | | ● | ● | | ● | | ● | ● | | | | | | | | | | | | | | | | | | | | | | | |
| | 3-phase 200V class | | | ● | ● | | ● | | ● | ● | | | | | | | | | | | | | | | | | | | | | | | |
| WJ200 | 1-phase 100V class | | | ● | ● | | ● | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 1-phase 200V class | | ● | ● | ● | ● | ● | ● | ● | ● | | | | | | | | | | | | | | | | | | | | | | | |
| | 3-phase 200V class | | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | | ● | ● | ● | ● | | | | | | | | | | | | | | | | |
| | 3-phase 400V class | | | | ● | ● | ● | ● | ● | ● | ● | ● | | ● | ● | ● | ● | | | | | | | | | | | | | | | | |
| X200*1 | 1-/3-phase 200V class | | | ● | ● | Note 3 | ● | Note 3 | ● | ● | | | | | | | | | | | | | | | | | | | | | | | |
| | 3-phase 200V class | | | ● | ● | ● | ● | ● | ● | ● | | | ● | ● | ● | | | | | | | | | | | | | | | | | | |
| | 3-phase 400V class | | | | | ● | ● | ● | ● | ● | Note 3 | | Note 4 | ● | ● | | | | | | | | | | | | | | | | | | |
| SJ700 | 3-phase 200V class | | | | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | | | | | | | | | | |
| | 3-phase 400V class | | | | ● | ● | ● | ● | ● | ● | Note 5 | Note 4 | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | Note 2 | Note 2 | ● | ● | ● |
| L700 | 3-phase 200V class | | | | | | | | | | | | | | | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | | | | | | | |
| | 3-phase 400V class | | | | | | | | | | | | | | | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | | | | |

Note 1 : European version have EMC filter as standard. (EN61800-3 cat. C1 for SFEF series, cat. C2 for HFEF series)
Note 2 : European version and JP version does not have 150kW model. US version does not have 132kW model.
Note 3 : Available only for European version
Note 4 : Available only for European version and US version
Note 5 : Available only for JP version



Function/Performance vs Applicable motor (kW)

- Conveyor/Crane: **SJ700** Series (0.4 – 400)
- Fan/Pump: **L700** Series (11 – 160)
- Conveyor/Lift machine: **WJ200** Series (0.1 – 15)
- Fan/Pump: **X200** Series (0.2 – 7.5)
- Fan/Pump: **NE-S1** Series (0.2 – 2.2)

## Model Name Indication

**X200 - 004 S F E F 2**

- Series Name
- 2 : Version
- F : Integrated noise filter
- U : US version
- E : European version
- F : With digital operator
- B : Without digital operator
- S : 1-phase 200V class
- N : 1-/3-phase 200V class
- L : 3-phase 200V class
- H : 3-phase 400V class
- M : 1-phase 100V class

### Applicable Motor Capacity in kW (HP)

| | |
|---|---|
| 001 - 0.1 (1/8) | 220 - 22 (30) |
| 002 - 0.2 (1/4) | 300 - 30 (40) |
| 004 - 0.4 (1/2) | 370 - 37 (50) |
| 005 - 0.55 (3/4) | 450 - 45 (60) |
| 007 - 0.75 (1) | 550 - 55 (75) |
| 011 - 1.1 (1.5) | 750 - 75 (100) |
| 015 - 1.5 (2) | 900 - 90 (125) |
| 022 - 2.2 (3) | 1100 - 110 (150) |
| 030 - 3 (4) | 1320 - 132 (175) |
| 037 - 3.7 (5) | 1500 - 150 (200) |
| 040 - 4 (5) | 1600 - 160 (220) |
| 055 - 5.5 (7.5) | 1850 - 185 (250) |
| 075 - 7.5 (10) | 2200 - 220 (300) |
| 110 - 11 (15) | 3150 - 315 (400) |
| 150 - 15 (20) | 4000 - 400 (500) |
| 185 - 18.5 (25) | |

# NE-S1 series

## Economical Inverter with Simple Operation

*NEW*

## N*ext & New*

**Next generation inverter opens the door to New market segments**

## E*cological & Economical*

**Ecological - saves energy
Economical - simple to install and easy to use**

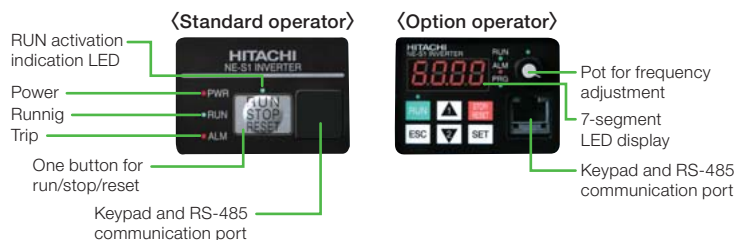## S*mall & Simple*

**Simple functions in a Small package**

---

# ■Feature

## Among the smallest form-factors in their category

- 43% smaller than equivalent X200 (0.2 kW).
- Side-by-side installation to save panel space.

## Simple Operation

- Run/Stop/Reset is integrated in one button for simple operation.
- Full-function attachable operator available as an option.

〈Standard operator〉

RUN activation indication LED
Power
Runnig
Trip
One button for run/stop/reset
Keypad and RS-485 communication port

〈Option operator〉

Pot for frequency adjustment
7-segment LED display
Keypad and RS-485 communication port

## Global Standards

- Conformity to global standards. CE, UL, c-UL, C-Tick approvals.

< CE >        < UL,c-UL >        < c-Tick >

- Logic input is compatible with both sink and source logic.
- Wide input power voltage range.
  (Input voltage 200V to 240V for 200V class and 380V to 480V for 400V class as standard)
- RS-485 Modbus® RTU Communication port is standard

---

**NE-S1 Series**
Applicable motor rating in kW (HP)

| | | 0.2 (1/4) | 0.4 (1/2) | 0.75 (1) | 1.5 (2) | 2.2 (3) |
|---|---|---|---|---|---|---|
| 3-phase 200V | LB | ● | ● | ● | ● | ● |
| 1-phase 200V | SB | ● | ● | ● | ● | ● |
| 3-phase 400V | HB | | ○ | ○ | ○ | ○ |

●: Available    ○: Plan model

● Modbus is a registered trademark of Modicon Inc. (Schneider Automation International).

# WJ200 Series

## Pursuing the Ideal Compact Inverter

## ■Feature

### Industry-leading Levels of Performance

- High starting torque of 200% or greater achieved by sensorless vector control (when sized for heavy duty).
- Speed regulation at low-speed is improved.
- Trip avoidance functions (Minimum time deceleration function and over-current suppress function).
- Simple positioning control (when feedback signal is used.).
- Induction motor & Permanent magnetic motor* control with one inverter (*corresponds from Ver. 2.0).

### Pursuit of Ease of Use

- Easy sequence [EzSQ] programming function.
- Safe stop function. (Cat. 3, PLd to EN / ISO 13849-1 and SIL CL2 to EN 62061 / IEC 61508 /EN 61800-5-2)
- Password function.
- USB (Mini-B connector) port and RS-422 (RJ45 connector) port are standard.
- Ease of wiring.
- Easy to maintain.
- Side-by-side installation.
- Allows manual adjustment of the inverter output frequency by turning the optional potentiometer module.

Potentiometer Option

### Ease of Maintenance

- Long life time components (Design life time 10 years or more).
- Cooling fan ON/OFF control for longer fan life.
- Life time warning function.
- Easy-removable cooling fan.

### Environmental Friendliness

- Micro surge voltage suppress function.
- EU RoHS compliant (ordered items).
- Varnish coating of internal PC board is standard. (Logic PCB and I / F PCB are excluded.)

### Global standards

- Conformity to global standards. CE, UL, c-UL, C-Tick approvals.

< CE >  < UL,c-UL >  < c-Tick >

- A serial RS-485 Modbus® RTU port is standard. DeviceNet™, with optional expansion card (planned).
- Wide input power voltage range. (Input voltage 200V to 240V for 200V class and 380V to 480V for 400V class as standard)
- Logic input and output terminal can be configured for sink or source logic.

| WJ200 Series Applicable motor rating in kW (HP) | | 0.1 (1/8) | 0.2 (1/4) | 0.4 (1/2) | 0.75 (1) | 1.5 (2) | 2.2 (3) | 3.0 (4) | 3.7 (5) | 4.0 (5) | 5.5 (7.5) | 7.5 (10) | 11 (15) | 15 (20) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1-phase 100V | MF | | | ● | ● | | | | | | | | | |
| 1-phase 200V | SF | ● | ● | ● | ● | ● | ● | | | | | | | |
| 3-phase 200V | LF | ● | ● | ● | ● | ● | ● | | ● | | ● | ● | ● | ● |
| 3-phase 400V | HF | | | ● | ● | ● | ● | ● | | ● | ● | ● | ● | ● |

●: Available

- Modbus is a registered trademark of Modicon Inc. (Schneider Automation International).
- DeviceNet is a trademark of Open DeviceNet Vendor Association.

# X200 Series

## Simple, Trip-suppression and Eco-friendly Compact Inverter

## ■Feature

### Environmental Friendliness

- Integrated EMC filter saves cost and space (European version only).
  Single-phase input : EN61800-3 cat.C1
  Three-phase input : EN61800-3 cat.C2
- RoHS compliance for all models.
- Micro Surge Voltage suppress function.
- Varnish coating of internal PC boards is standard, for longer life in harsh environments.

### Useful fan and pump functions

- Improved Trip Avoidance Function (Over-current, over-voltage).
- Automatic energy-saving function delivers "realtime" energy-saving operation for fan and pump applications.
- Improved PID control.
- Allows for smooth restart when an IPF (Instantaneous Power Failure) occurs. This is especially useful in fan and pump applications.

### Ease of Maintenance and space reduction

- Easily replacable cooling fan.
- Cooling fan ON/OFF control extends fan life.
- Side-by-side installation.
- Safe Stop Function. (EN954-1 : 1997, category 3, EN60204-1 : 1997 Category 0)

### Global Performance

- CE, UL, c-UL and c-Tick approvals.

< CE >   < UL,c-UL >   < c-Tick >

- Logic input terminal apply sink and source logic.
- Wide Input power voltage range (Input voltage 200V to 240V for 200V class and 380V to 480V for 400V class as standard).
- RS-485 is provided as standard for Modbus® RTU serial communication.

| X200 Series Applicable motor rating in kW (HP) | | 0.2 (1/4) | 0.4 (1/2) | 0.55 (3/4) | 0.75 (1) | 1.1 (1.5) | 1.5 (2) | 2.2 (3) | 3.0 (4) | 3.7 (5) | 4.0 (5) | 5.5 (7.5) | 7.5 (10) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1-phase 200V | SFEF2 | ● | ● | ● | ● | ● | ● | ● | | | | | |
| 1-/3-phase 200V | NFU2 | ● | ● | | ● | | ● | ● | | | | | |
| 3-phase 200V | LFU2 | | | | | | | | | ● | | ● | ● |
| 3-phase 200V | LFRF2 | ● | ● | ● | ● | ● | ● | ● | | ● | | ● | ● |
| 3-phase 400V | HFEF2 | | ● | | ● | | ● | ● | ● | | ● | ● | ● |
| 3-phase 400V | HFU2 | | ● | | ● | | ● | ● | | | ● | ● | ● |
| 3-phase 400V | HFRF2 | | ● | | ● | | ● | ● | | ● | | ● | ● |

● : Available

- Modbus is a registered trademark of Modicon Inc. (Schneider Automation International).

# SJ700 Series

## High performance with Many useful Functions and, yet User Friendly

## ■Feature

### High starting Torque, Powerful Drive and easy set up

- High Starting Torque 200% at 0.3Hz.
  (75 to 132kW : 180% at 0.3Hz, 185kW and over : 150%, at 0.3Hz)
- Hitachi exclusive 0Hz Domain sensorless vector control.
- High accuracy & improved Auto-tuning function.
- Full Vector Control with Feedback option
  (Torque Control, Position Control).

### Many useful Functions

- Over current & voltage suppress function.
- Sequence operation is realized by downloading to an inverter a program created with Hitachi's Pro Drive Next software.
- EMI Filter will be built-in (Category C3 up to 150kW*).
  (*European Version and JP Version does not have 150kW.)
- Internal Braking Circuit will be built-in up to 22kW.
- Emergency Stop Function.
- DC Bus AVR Function During Deceleration.
- Using optional WOP operator, SJ300 parameters can be transferred easily to SJ700.

### Long lifetime components & Ease of Maintenance

- Long life components for improved maintainability.
- Easily replaceable cooling fans and bus capacitors speed field maintenance.
- Common wiring terminals with previous model series simplifies replacement wiring.

### Easy Operation

- Data comparison function shows only parameters changed from factory default.
- Ability to define 12 user-selectable parameters for display.
- Basic mode shows only most commonly used parameters.

### Environmental Friendliness

- Micro Surge Voltage suppress function.
- EU RoHS compliant by restricting to use hazardous substances (except solder in power module).
- Varnish coating of internal PC board & plating of main circuit copper bus bar as standard.

### Global standards

- Conformity to global standards. CE, UL, c-UL, C-Tick approvals.

< CE >  < UL,c-UL >  < c-Tick >

- RS-485 communication port with Modbus® RTU protocol is available as standard for all models.
- Compatibility with networks such as DeviceNet™ and PROFIBUS®, with communication options.
- Logic input & output terminals are selectable for sink & source logic.
- Wide Input power voltage range.

### SJ700 Series — Applicable motor rating in kW (HP)

| | | 0.4 (1/2) | 0.75 (1) | 1.5 (2) | 2.2 (3) | 3.7 (5) | 4.0 (5) | 5.5 (7.5) | 7.5 (10) | 11 (15) | 15 (20) | 18.5 (25) | 22 (30) | 30 (40) | 37 (50) | 45 (60) | 55 (75) | 75 (100) | 90 (125) | 110 (150) | 132 (175) | 150 (200) | 185 (250) | 220 (300) | 315 (400) | 400 (500) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3-phase 200V | LFUF2 | ● | ● | ● | ● | ● | | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | | | | | | | | | |
| | LFF2 | ● | ● | ● | ● | ● | | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | | | | | | | | | |
| 3-phase 400V*1 | HFEF2 | | ● | ● | ● | | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| | HFUF2 | | ● | ● | ● | | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | | | | | | ● | ● | ● | ● |
| | HFF2 | ● | ● | ● | ● | | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |

●: Available

- Modbus is a registered trademark of Modicon Inc. (Schneider Automation International).
- DeviceNet is a trademark of Open DeviceNet Vendor Association.
- PROFIBUS is a registered trademark of Profibus Nutzer Organization.

*1 : Model name (185kW to 400kW) : HF2, HFE2, HFU2

# L700 Series

## Inverter designed for fans & pumps plus conveyors

## ■ Feature

### High starting torque 150% (90kW and over: 120%) at 0.5Hz

- Sensorless Vector Control so the L700 can be applied to constant torque loads where high starting torque is needed.
- On-line/off-line auto-tuning.

### Long lifetime components & Ease of Maintenance

- Design lifetime 10 Years or more for DC bus capacitors & Cooling Fan.
- Life time warning function.
- Field replacement of cooling fan(s) and DC bus capacitors (18.5kW and over) can be accomplished in a fraction of the time.
- Move existing L300P logic terminal strip to L700 without wiring change.
  *L700 series standard control terminals are the same as SJ700/SJ300. Output terminals are all open collector type.
- Read L300P parameters via WOP remote operator and write them to L700.

### Various versatile functions and compact design to save space

- Sequence operation is realized by downloading to an inverter a program created with Hitachi's Pro Drive Next software.
- External components can be simplified or eliminated, resulting in cost-savings.
- EMC Filter is built in for all models.
- Dynamic brake circuit is included up to 30kW.
- Over-current suppress functions reduce nuisance tripping.

### Global standards

- Conformity to global standards. CE, UL, c-UL, C-Tick approvals.

< CE >   < UL,c-UL >   < c-Tick >

- Logic input & output terminals are selectable for sink & source logic.
- Input voltage 200V to 240V for 200V class and 380V to 480V for 400V class as standard.
- A serial RS-485 Modbus® RTU port is standard.
- The L700 can communicate via DeviceNet™ and PROFIBUS® with optional expansion cards.

| L700 Series Applicable motor rating in kW (HP) | | 11 (15) | 15 (20) | 18.5 (25) | 22 (30) | 30 (40) | 37 (50) | 45 (60) | 55 (75) | 75 (100) | 90 (125) | 110 (150) | 132 (175) | 160 (220) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3-phase 200V | LFF | ● | ● | ● | ● | ● | ● | ● | ● | ● | | | | |
| 3-phase 400V | HFF | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |

● : Available

- DeviceNet is a trademark of Open DeviceNet Vendor Association.
- PROFIBUS is a registered trademark of Profibus Nutzer Organization.
- Modbus is a registered trademark of Modicon Inc. (Schneider Automation International).

# Dimensions [Unit: mm(inch)] (Inches for reference only)

| NE-S1- | | | | | | |
|---|---|---|---|---|---|---|
| SB | 002 | 004 | — | 007 | 015 | 022 |
| LB | 002 | 004 | 007 | — | 015 | 022 |
| Width | 68 | 68 | 68 | 108 | 108 | 108 |
| Height | 128 | 128 | 128 | 128 | 128 | 128 |
| Depth | 76 | 91 | 115 | 96 | 107 | 125 |

| WJ200- | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| MF | — | — | 004 | — | 007 | — | — | — | — | — |
| SF | 001, 002 | 004 | — | — | — | 007-022 | — | — | — | — |
| LF | 001, 002 | 004 | — | 007 | — | 015, 022 | 037 | 055, 075 | 110 | 150 |
| HF | — | — | — | — | 004 | 007-030 | 040 | 055, 075 | 110, 150 | — |
| Width | 68(2.68) | 68(2.68) | 68(2.68) | 68(2.68) | 108(4.25) | 108(4.25) | 140(5.51) | 140(5.51) | 180(7.09) | 220(8.66) |
| Height | 128(5.04) | 128(5.04) | 128(5.04) | 128(5.04) | 128(5.04) | 128(5.04) | 128(5.04) | 260(10.24) | 296(11.65) | 350(13.78) |
| Depth | 109(4.29) | 122.5(4.82) | 132.5(5.22) | 145.5(5.73) | 143.5(5.65) | 170.5(6.71) | 170.5(6.71) | 155(6.10) | 175(6.89) | 175(6.89) |

| X200- | | | | | |
|---|---|---|---|---|---|
| SFEF2 | 002 | 004 | 005, 007 | 011-022 | — |
| HFEF2 | — | — | 004 | 007-040 | 055, 075 |
| NFU2 | 002 | 004 | 007 | 015, 022 | — |
| LFU2 | — | — | — | 037 | 055, 075 |
| HFU2 | — | — | 004 | 007-040 | 055, 075 |
| Width | 80(3.15) | 80(3.15) | 110(4.33) | 110(4.33) | 180(7.09) |
| Height | 155(6.10) | 155(6.10) | 189(7.44) | 189(7.44) | 250(9.84) |
| Depth | 93(3.66)(*1) | 107(4.21)(*1) | 128(5.04)(*1) | 155(6.10)(*1) | 165(6.50)(*1) |

| SJ700- | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| HFEF2 | 007-040 | 055-110 | 150-220 | 300 | 370-550 | — | 750, 900 | 1100, 1320 | 1850, 2200 | 3150 | 4000 |
| LFUF2 | 004-037 | 055-110 | 150-220 | 300 | 370-450 | 550 | — | — | — | — | — |
| HFUF2 | 007-040 | 055-110 | 150-220 | 300 | 370-550 | — | 750, 900 | 1100, 1500 | 1850, 2200 | 3150 | 4000 |
| Width | 150(5.91) | 210(8.27) | 250(9.84) | 310(12.20) | 390(15.35) | 480(18.90) | 390(15.35) | 480(18.90) | 695(27.36) | 680(26.77) | 1050(41.34) |
| Height | 255(10.04) | 260(10.24) | 390(15.35) | 540(21.26) | 550(21.65) | 700(27.56) | 700(27.56) | 740(29.13) | 995(39.17) | 1300(51.18) | 1700(66.93) |
| Depth | 140(5.51) | 170(6.69) | 190(7.48) | 195(7.68) | 250(9.84) | 250(9.84) | 270(10.63) | 270(10.63) | 370(14.57) | 450(17.72) | 450(17.72) |

| L700- | | | | | | | |
|---|---|---|---|---|---|---|---|
| HFF | 110-150 | 185-300 | 370 | 450-750 | — | 900, 1100 | 1320, 1600 |
| LFF | 110-150 | 185-300 | 370 | 450, 550 | 750 | — | — |
| Width | 210(8.27) | 250(9.84) | 310(12.20) | 390(15.35) | 480(18.90) | 390(15.35) | 480(18.90) |
| Height | 260(10.24) | 390(15.35) | 540(21.26) | 550(21.65) | 700(27.56) | 700(27.56) | 740(29.13) |
| Depth | 170(6.69) | 190(7.48) | 195(7.68) | 250(9.84) | 250(9.84) | 270(10.63) | 270(10.63) |

*1: Add 4.4mm (0.17inch) for potentiometer.

**MEMO**

◎**Hitachi Industrial Equipment Systems Co., Ltd.**

**ISO 14001**

JAB
CM021

ISO 14001 JACO
EC97J1095

UKAS
MANAGEMENT
SYSTEMS
051

Hitachi variable frequency drives (inverters) in this brochure are produced at the factory registered under the ISO 14001 standard for environmental management system and the ISO 9001 standard for inverter quality management system.

**ISO 9001**
JQA-1153