

HITACHI INVERTER

HITACHI
Inspire the Next

NJ600B SERIES

Multifunctional / Multiapplication
Universal Vector Frequency Inverter



進化

【Advanced Technology】

Universal Vector Frequency Inverter!

Widely used in fan, pump, air-condition, conveyor, wood making machine, plastic extruder, centrifugal machine and so on.

- High Starting Torque
- Easy Operation
- Smooth Performance



力

【Powerful】

High Starting Torque

- High starting torque of 150% or more at 0.5HZ.
- Smooth operation with easy adjustment.

高性能

【High Performance】

Programming Function

- Sequence operation is realized by downloading a program to an inverter.
- Significant cost can be saved by simplifying or eliminating external hardware.

省

【Saving】

Cost Effective

- Built-in EMC Filter up to 160kw
- Integrated brake circuit up to 30kw
- Saving installation space and total cost of the system

简单

【Easy】

Ten Years of Lifespan

Easier Maintenance

- High quality components with warning functions which can be easily maintained or replaced when the inverter fails to work.

环境

【Environmental】

- Internal PC board with varnish coating.
- Nickel-plated treatment of the circuit copper bus-bar.
- Meeting main environmental standards.

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HITACHI INVERTER NJ600B SERIES

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Powerful Inverter
NJ 600B

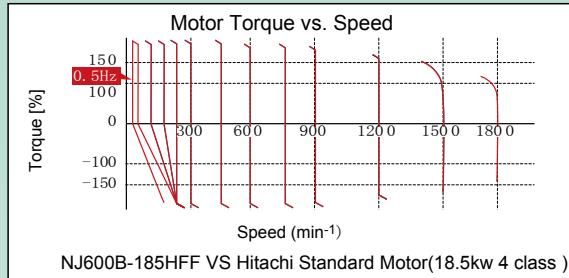
High performance, powerful

High Starting Torque, Powerful Drive and Easy Setting

Starting Torque of 150% or More at 0.5HZ

Hitachi specialized technology of Sensorless Vector Control and Auto Tuning contributes to a high starting torque of 150% or more at 0.5HZ.

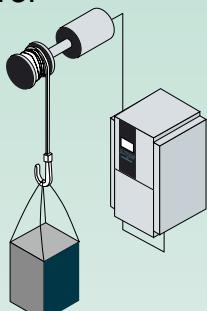
- * Much easier to set up the parameters
- * Widely used in lifts, extruders and metal working machines, which need high torque to start at low speed



Hitachi Exclusive 0Hz Domain Sensorless Vector Control

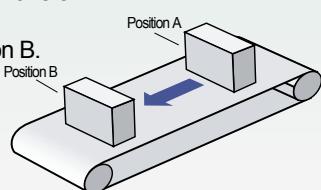
The exclusive 0Hz domain sensorless vector control technology makes it possible to develop 120% torque at 0Hz speed reference, which is ideal for cranes that require high torque to start.

* Under the condition that the inverter is one frame size larger than the motor



Position Control Function

The NJ600B, with optional feedback board installed, together with an encoder-equipped motor can perform position control. For many applications, suitable performance can be achieved at a lower cost than servo system. Based on the four motion parameters (position command, speed command, acceleration time and deceleration time), the NJ600B will move an object from original position A to target position B. After the movement, the inverter keeps servo lock status.



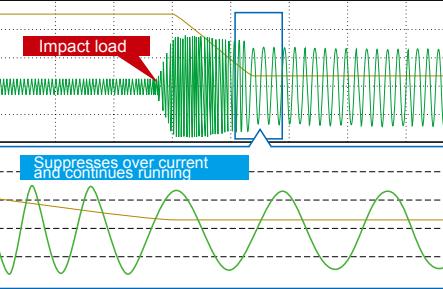
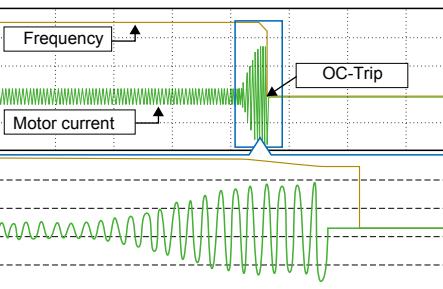
Trip Avoidance Function

Over Current&Voltage Suppress Function

Higher internal calculation speed improves current control performance. Over-current and over-voltage suppress functions avoid inverter trip during acceleration and deceleration.

Even at sudden acceleration or with impact load, the inverter keeps operating with little trips. The over-voltage suppress function helps avoid trips during deceleration.

*Three times faster than other products



functions, yet user friendly.

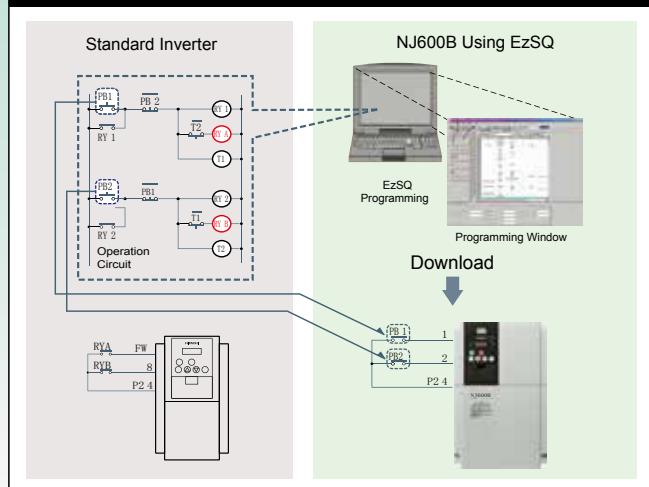
Programming 【EzSQ: Easy Sequence】 Function

Inverter Control by Built-in Programming Function

Sequence operation is realized by downloading to an inverter a program created with EzSQ (Easy Sequence). In loaded conditions, the crane or conveyor can also achieve automatic speed control. And significant cost will be saved by simplifying and eliminating external hardware.

The password protection is incorporated to prevent proprietary program data from loss or unauthorized modification.

Typical Example - Replacing External Relay Circuit



| | Item | Description | |
|-----------------|---------------------------------|---|---------------------------------|
| Language Spec | Language type | BASIC Like | |
| | Supported Device | Windows(DOS/V)OS:Windows2000, WindowsXP) | |
| | Memory area | 1,024 steps or 6k byte (Smaller of these)Program is stored in internal of inverter. | |
| | Programming environment | Editor(Windows), Display(Windows) Grammar check(Windows) Program download/upload, All clear | |
| | Executable format | Interpreter 2.0ms/command (Sub routine supported: 8 nested) | |
| I/O function | External input | Contact Signal/Open collector signal input (Internal DC24V power supply available) | |
| | | Program RUN command | FW terminal is reserved |
| | | General-purpose input | Maximum of 8 point(X(00)-X(07)) |
| | External analog input | XA(0) : 0-10V (O terminal) XA(1) : 4-20mA (OI terminal) XA(2) : 0-10V (O2 terminal) | |
| External output | General-purpose output terminal | Maximum of 8 point(Y(00)-Y(05)) | |
| | External analog output | YA(0) : Setup for FM terminal is possible. YA(1) : Setup for AM terminal is possible. YA(2) : Setup for AMI terminal is possible. | |
| | | Programmable flow control <Loop, Unconditional jump, conditional jump, Time control, Sub routine, Others> Operation command <+, -, *, /, substitution, mod, abs> I/O control(Bit input, Word input, Bit output, Word output) Timer control <on delay, off delay> Inverter parameter setting | |
| Reserved word | User | U(00)-U(31)/32 point | |
| | Timer | UL(00)-UL(07)/8 point | |
| | Set frequency | SET-Freq | |
| | Acceleration time | ACCEL | |
| | Deceleration time | DECCEL | |
| | Monitor | Output frequency, Output current, Rotative direction, PID feedback, Converted frequency, Output torque, Output voltage, Power, Cumulative RUN time, Cumulative power-on time, trip | |
| | General-purpose input contact | X(00)-X(07)/8 point | |
| | General-purpose output contact | Y(00)-Y(05)/6 point(1 point is relay output) | |
| | Internal user | UB(00)-UB(07)/8 point | |
| | Internal timer contact | TD(0)-TD(7)/8 point | |
| | Inverter input and output | In a remote operator display code. | |

*Windows® is a registered trademark of Microsoft Corporation U.S.A and other countries.

EMC Filter&Brake Circuit Integrated as Standard

Built-in EMC Filter up to 160kW

Cost and space reduction compared with external EMC Filter.
Meets EN61800-3 2nd-Environment

Brake Circuit up to 30kW

Cost and Space reduction compared with external braking Controller.

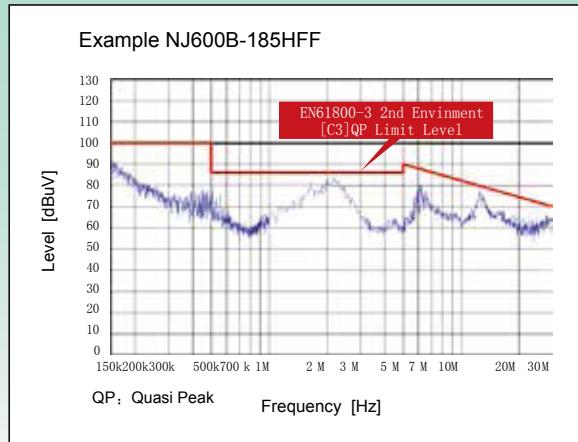
The leakage current will be increased with the EMC filter on, so please use the proper sensitivity current for residual current circuit breaker.

Leakage Current of EMC Filter(EMC Filter ON/OFF)

3 phase Δ connection, value of 1 phase ground connection
Input power supplier(400v class: 480v/60Hz)

| | 400V | |
|----------------|-----------|---------|
| | 18.5~45kW | 55~75kW |
| EMC Filter ON | 67mA | 67mA |
| EMC Filter OFF | 2mA | 2mA |

90~160kw EMC Filter. No switch between ON and OFF because of the low leakage current(0.2mA)



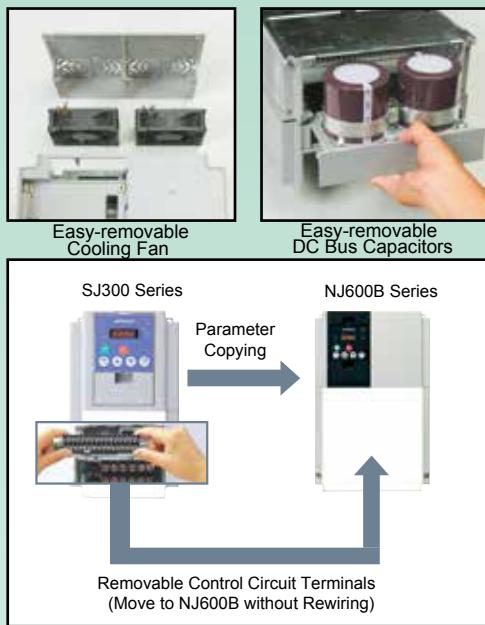
Easy Maintenance

Easy-removable Construction for Maintenance

Endured parts like cooling fans and DC bus capacitors can be quickly replaced on site, which greatly reduces the maintenance time.

Like SJ300 series, the control circuit terminals can be taken off and replaced easily without wiring change.

The parameter of SJ300 can be read via WOP and then copied into NJ600B, which greatly saves the operating time.



Durable Components with Warning Function

Components with Long Lifespan

NJ600B is composed of components with 10 years of lifespan. Besides, it features cooling fans with ON/OFF switch, which largely extends the inverters' lifespan.

* Under average annual temperature of 30 °C.

* Under conditions of oil free, dust free, mist free and corrosive gases free.

* The lifetime is estimated but not guaranteed.

Lifetime Warning Function

NJ600B sends predictive warnings when the temperature of DC bus capacitor goes up or the cooling fans get aged. It monitors the motor's temperature and alarms to avoid an inverter trip caused by aged components.

Easy Operation

User Selection of Displayed Parameters

Data Comparison Function

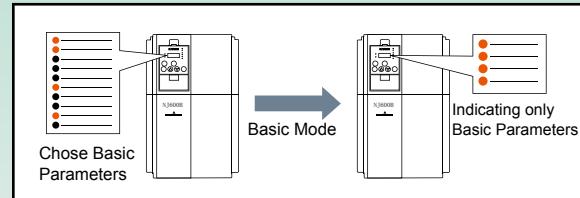
- Allows display of parameters changed from default.

User Selection Function

- Display of up to 12 user defined parameters U001 to U012.

Basic Mode (Default)

- Basic display mode for commonly used parameters.



※ Please refer to page 13 for available parameters for basic mode.

Other Functions

* The direct input of function code selection is possible rather than scrolling through the list.

* Holding down the function key for 3 seconds, users can change the display to output frequency monitor (d001) mode from any menu location.

Network Compatibility

Improving Network Scalability

NJ600B is incorporated with Standard RS-485 Modbus-RTU port. It can connect to open network such as DeviceNet, LonWorks, PROFIBUS-DP and CANopen.

* DeviceNet is the registered trademark of Open DeviceNet Vender Association, Inc

* LonWorks is the registered trademark of Echelon Corporation

* PROFIBUS-DP is the registered trademark of PROFIBUS Nutzer



Sink& Source Logic

Input and output terminals corresponds to sink& source logic.

Wide Input Power to Voltage Range

Input voltage 380v~480v class as standard.

Environmental Friendliness

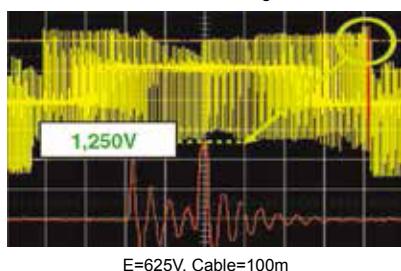
Micro Surge Voltage Suppress Function

Hitachi exclusive PWM control method limits motor terminal voltage to twice less than the inverter DC bus voltage.

When the DC bus voltage is lower than 625v, motor terminal voltage may not exceed Hitachi motor Max. insulation voltage(1,250v).

*During regeneration, the motor terminal voltage may exceed the maximum insulation voltage(1,250v)

Motor Terminal Voltage



Improvement of the Environment

Varnish coating of internal PC board & nickel-plating of main circuit copper bus bar are standard, which can much more easier adapt to the terrible environment.

Other Functions

Instantaneous Power Failure

Disregard Function

The NJ600B ignores instantaneous power failure when power fluctuation happens frequently, as long as DC bus voltage remains higher than under-voltage trip level.

Emergency Stop

Shuts down the inverter through hardware circuit, bypassing the CPU, to achieve a reliable emergency stop function.

Intelligent Input Terminal and Output

Terminal ON/OFF Delay Function

Helps simplify external circuits.

Active Frequency Matching Function

Motor frequency matches restart function operates effectively even without motor residual voltage.

Controlled Deceleration and Stop on Power Loss

Analog Input Disconnection

Detection Function

The NJ600B outputs a disconnection signal when frequency command through analog input is lost.

Acceleration/Deceleration Curve Functions

The curve shape (five kinds, such as S-curve, etc.) can be chosen according to the application requirements.

Analog Command Holding Function (AHD)

Output frequency can be changed with UP/DOWN Function, or with an analog signal as reference value. The set frequency at power shutdown can be saved, too.

Pulse Train Input Function

Pulse train input for Frequency reference or PID feed back signal, with SJ-FB (speed feed back card option).

Integrated Input Electric Power monitor

Input electric power (kW) and Integrated input electric power for monitoring energy saving.

Automatic Carrier Frequency Adjustment Function

The NJ600B detects motor current and automatically reduces carrier frequency according to the current.

The Resolution of Analog Outputs

(voltage, current) is improved to 10 bits.

Standard Specifications

● 400V Class Model

| | | | | | | | | | | | | | | | | | | | | |
|---|---|-------------------|--|------|------|--|------|------|-------------------|-------|-------|-------|-------|--|--|--|--|--|--|--|
| Model name(type name) NJ600B-□□□□ HFF | | | 185 | 220 | 300 | 370 | 450 | 550 | 750 | 900 | 1100 | 1320 | 1600 | | | | | | | |
| Max.applicable motor capability (4P, kW) | | | 18.5 | 22 | 30 | 37 | 45 | 55 | 75 | 90 | 110 | 132 | 160 | | | | | | | |
| Rated Capacity (kVA) | | 400V | 25.6 | 29.7 | 39.4 | 48.4 | 58.8 | 72.7 | 93.5 | 110.8 | 135.0 | 159.3 | 200.9 | | | | | | | |
| | | 480V | 30.7 | 35.7 | 47.3 | 58.1 | 70.6 | 87.2 | 112.2 | 133.0 | 162.1 | 191.2 | 241.1 | | | | | | | |
| Rated input AC voltage | | | Three-phase(3-wire),380~480V(+10%,-15%), 50Hz/60Hz(±5%) | | | | | | | | | | | | | | | | | |
| Rated output voltage(V) | | | Three-phase(3-wire), 380~480V (corresponding to the input voltage) | | | | | | | | | | | | | | | | | |
| Rated output current(A) | | | 39 | 45 | 60 | 72 | 88 | 105 | 142 | 168 | 208 | 253 | 305 | | | | | | | |
| Braking | Regenerative braking | | Internal BRD circuit (external discharge resistor) | | | External dynamic braking unit (optional) | | | | | | | | | | | | | | |
| | Value of Minimum connectable resistance (Ω) | | 24 | 24 | 20 | - | | | | | | | | | | | | | | |
| Approx.Weight(kg) | | | 14 | 14 | 14 | 22 | 30 | 30 | 30 | 55 | 55 | 70 | 70 | | | | | | | |
| Protective structure | | | IP20 | | | | | | IP00 | | | | | | | | | | | |
| Control system | | | Sine-wave PWM control | | | | | | | | | | | | | | | | | |
| Output frequency range | | | 0.1~400Hz (Note 1) | | | | | | | | | | | | | | | | | |
| Frequency accuracy | | | Digital setting: maximum frequency ± 0.01% Simulation setting: ± 0.2% (25 ± 10°C) | | | | | | | | | | | | | | | | | |
| Frequency setting resolution | | | Digital input: 0.01Hz Analog input: Maximum output frequency/4000 (0 terminal input: 12bit/0~+10V), (02 terminal input: 12bit/-10~+10V), (OI terminal input: 12bit/0~+20mA) | | | | | | | | | | | | | | | | | |
| Voltage/frequency characteristic | | | V/f characteristic variable with the base frequency set between 30 to 400Hz,constant- or reduced- torque V/f control, sensorless vector control, 0Hz-range sensorless vector control(carrier frequency: 3kHz below), vector control(use option SJ-FB). | | | | | | | | | | | | | | | | | |
| Speed Variation | | | ±0.5% (sensorless vector control or 0Hz-range sensorless vector control) | | | | | | | | | | | | | | | | | |
| Rated overload current | | | 120%/60s | | | | | | | | | | | | | | | | | |
| Acceleration/deceleration time | | | 0.01~3600.0sec (in liner or curved pattern) | | | | | | | | | | | | | | | | | |
| Starting torque | | | 150%/0.5Hz (in liner or curved pattern) | | | | | | 120%/0.5Hz(do to) | | | | | | | | | | | |
| DC braking | | | Triggered at motor start-up,when the actual motor frequency exceeds the acceleration frequency set by a stop command,when the actual motor frequency exceeds the frequency set by a frequency command,or by an externally input command(braking force,time,and frequency are variable) | | | | | | | | | | | | | | | | | |
| Input | Frequency setting | Standard operator | Setting with   keys | | | | | | | | | | | | | | | | | |
| | | External signal | DC0 ~ +10V , -10 ~ +10V(input impedance 10KΩ), 4 ~ 20mA(input impedance 100Ω) (Note2) | | | | | | | | | | | | | | | | | |
| | | External port | Setting via RS485 communication | | | | | | | | | | | | | | | | | |
| | Forward/reverse Start/stop | Standard operator | Start/stop(forward/reverse switching by parameter setting) | | | | | | | | | | | | | | | | | |
| | | External signal | Forward-operation start/stop commands (reverse-operation start/stop possible when relevant commands are assigned to intelligent input terminals);3-wire input possible(when relevant commands are assigned to control circuit terminals) | | | | | | | | | | | | | | | | | |
| | | External port | Setting via RS485 communication | | | | | | | | | | | | | | | | | |
| | Intelligent input terminals | | 8terminals, NO/NC switchable, sink logic/source logic switchable 【Terminal function】Select eight of 69 functions Reverse operation (RV),Multispeed 1 setting(CF1), Multispeed 2 setting (CF2), Multispeed 3 setting (CF3), Multispeed 4 setting (CF4),Jogging(JG),external DC braking (DB)Second motor control(SET), 2-stage acceleration/deceleration(2CH),free-run stop(FRS),external trip(EXIT),unattended start protection(USP),commercial power supply switching(CS),Software lock(SFT),analog input switching(AT),third motor control(SET3),reset(RS), starting by 3-wire input(STA),stopping by 3-wire input (STP),forward/reverse switching by 3-wire input(F/R), PID disable (PID), PID integration reset(PIDC),control gain switching(CAS),acceleration by remote control(UP),deceleration by remote control(DWN),date clearance by remote control(UDC),forcible operation(OPE),multispeed bit 1(SF1), multispeed bit 2(SF2), multispeed bit 3(SF3), multispeed bit 4(SF4), multispeed bit 5(SF5), multispeed bit 6(SF6),multispeed bit 7(SF7),overload restriction selection(O/LR),torque limit selection enabling(TL),torque limit1(TRQ1), torque limit 2(TRQ2), P/PI switching(PII),braking confirmation(BOK),orientation(ORT), LAD cancellation(LAC),clearance of position deviation(PCLR),permission of 90°-shift phase(STAT),trigger for frequency addition[A145](ADD),forcible-terminal operation(F-TM),permission of torque command input(ATR),cumulative power clearance(KHC),servo-ON(SON),pre-excitation(FOC),analog command holding(AHD), multistage position settings selection 1(CP1), multistage position settings selection 2(CP2), multistage position settings selection 3(CP3),Zero-return limit function (ORL), Zero-return trigger function(ORG),forward drive stop(FOT),reverse drive stop(ROT),speed/position switching(SPD),Pulse counter(PCNT), Pulse counter clear(PCC),emergency stop(EMR) (Note 3),no assignment(no) | | | | | | | | | | | | | | | | | |
| | Thermistor input terminal | | 1 terminal(positive temperature coefficient / negative temperature coefficient switchable for resistor) | | | | | | | | | | | | | | | | | |

●400V class model (continued)

| NJ600B-□□□□ HFF | | 185 | 220 | 300 | 370 | 450 | 550 | 750 | 900 | 1100 | 1320 | 1600 | | | | | | | | | |
|-----------------------------|---|---|-----|-----|-----|---|-----|-----|-----|------|------|------|--|--|--|--|--|--|--|--|--|
| Output | Intelligent output terminals | 5 open-collector output terminals: NO/NC switchable, sink logic/source logic switchable 1 relay(1c contact)output terminal: NO/NC switchable 【Terminal function】 Select six of 51 functions Running(RUN),constant-speed reached(FA1),set frequency overreached(FA2),overload notice advance signal (OL),output deviation for PID(OD),alarm signal(AL),Set frequency reached (FA3),over-torque(OTQ),instantaneous power failure(IP),under voltage(UV),torque limited(TRQ),Operation time over(RNT),plug-in time over(ONT),thermal alarm signal(THM),brake release(BRK),Braking error(BER),0Hz detection signal(ZS),speed deviation maximum(DSE),positioning completed(POK), Set frequency overreached 2(FA4),Set frequency reached 2(FA5),overload notice advance signal 2(OL2),analog O disconnection detection (ODc),analog OI disconnection detection (OIDc),analog O2 disconnection detection (O2Dc),PID feedback comparison(FBV),communication disconnection detection (NDc),logical operation result 1(LOG1),logical operation result 2(LOG2), logical operation result 3(LOG3),logical operation result 4(LOG4), logical operation result 5(LOG5),logical operation result 6(LOG6),capacitor life warning(WAC),cooling-fan speed drop (WAF),starting contact signal(FR),heat sink overheat warning(OHF),low-current indication signal(LOC),inverter ready(IRDY),forward rotation(FWR),reverse rotation(RVR),major error(MJA),window comparison function O(WCO), window comparison function OI(WCOI), window comparison function O2(WCO2), alarm code 0~3(AC0~AC3) | | | | | | | | | | | | | | | | | | | |
| | Intelligent monitor output terminals | Analog voltage output(Note4),analog current output(Note4),pulse-string output(A-F,D-F{n-fold,pulse output only},A,T,V,P and so on) | | | | | | | | | | | | | | | | | | | |
| Monitoring on display | | Output frequency ,output current,output torque,frequency conversion data,trip history,input/output terminal status,electirc power ,and others | | | | | | | | | | | | | | | | | | | |
| Other functions | | V/f free setting(7breakpoints), frequency upper/lower limit, jump center frequency, accelerartion/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/rate), Analog input selection,retry after trip, restart after instantaneous power failure, output of various signal, starting with reduced voltage, overload restriction, initial-value setting,automatic deceleration at power failure,AVR function, fuzzy acceleration/deceleration, auto-tuning (online/offline), High-torque multi-motor operation(sensorless vector control of two motors by one inverter) | | | | | | | | | | | | | | | | | | | |
| Carrier frequency variation | | 0.5~12kHz | | | | 0.5~8kHz | | | | | | | | | | | | | | | |
| Protective function | | Overcurrent protection, overvoltage protection, undervoltage 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, USPerror,external trip,emergency stop trip, CT error, communication error,option board error, and others | | | | | | | | | | | | | | | | | | | |
| Operating environment | Ambient temperature/storage temperature(Note5)/humidity | -10 ~45 °C/-20 ~65 °C/20 ~ 90%RH(no condensation allowed) | | | | | | | | | | | | | | | | | | | |
| | Vibration(Note6) | 5.9m/s ² (0.6G) 、 10 ~ 55Hz | | | | 2.94m/s ² (0.3G) 、 10 ~ 55Hz | | | | | | | | | | | | | | | |
| Installation environment | | Altitude under 1,000m(environment without corrosive gases and dust) (Note 7) | | | | | | | | | | | | | | | | | | | |
| Coating color | | (Grey) | | | | | | | | | | | | | | | | | | | |
| Internal option | | Internal | | | | | | | | | | | | | | | | | | | |
| EMC filter | | Internal (EN61800-3 Class C3) | | | | | | | | | | | | | | | | | | | |
| Parts lifespan | | Smoothing capacitor: designed lifespan 10 years | | | | | | | | | | | | | | | | | | | |
| | | Cooling fan: designed lifespan 10 years | | | | | | | | | | | | | | | | | | | |
| Option | Feedback option | Vector control with sensor | | | | | | | | | | | | | | | | | | | |
| | Digital input option | 4-digit BCD,16-bit binary | | | | | | | | | | | | | | | | | | | |
| | DeviceNet option | Option to support the open-network DeviceNet function | | | | | | | | | | | | | | | | | | | |
| | LonWorks option | Option to support the open-network LonWorks function | | | | | | | | | | | | | | | | | | | |
| | Profibus-DP option | Option to support the open-network Profibus-DP function | | | | | | | | | | | | | | | | | | | |
| | CANopen option | Option to support the open-network CANopen function | | | | | | | | | | | | | | | | | | | |
| Other option | | Braking resistor,AC reactor,DC reactor,noise filter,operator cables Harmonic-wave suppressor unit,LCR filter,analog operation panel,controllers for applications regenerative braking unit,controllers for various applications | | | | | | | | | | | | | | | | | | | |

Note 1: When motor frequency over 60Hz, please pre-acknowledge maximum allowable frequency of the inverter.

Note 2: The frequency command will equal the maximum frequency at 9.8V for input voltage DC0~10V,or at 19.6mA for input current 4~20mA.If this characteristic is not satisfactory for your application,contact your sales representative.

Note 3: When emergency stop function is effective(SW1=ON),C001 is set to 18(RS), C003 is set to 64(EMR): C003 is changed to no (no assignment) , after SW1 operate ON→OFF.

Note 4: The analog voltage monitor and analog current monitor are rough output terminal for analog meter connection. The maximum output value might shift a little by the difference of the analog output circuit than 10V or 20mA. Please inquire when there is a possibility that the inconvenience is caused.

Note 5: The storage temperature refers to the temperature during transport.

Note 6: The vibration tolerance is tested in compliance with JIS C0040 (1999).

Note 7: The density of air decreases by 1% whenever rising by 100m when the altitude exceeds 1000m, Therefore, it is necessary to decrease the calorific value. The calorific value of the main circuit semiconductor such as IGBT is proportional to the current and the voltage. Therefore, please decrease by 1% and use the current rating every time it rises by 100m. Please inquire about using in the high ground of 2500m or more.

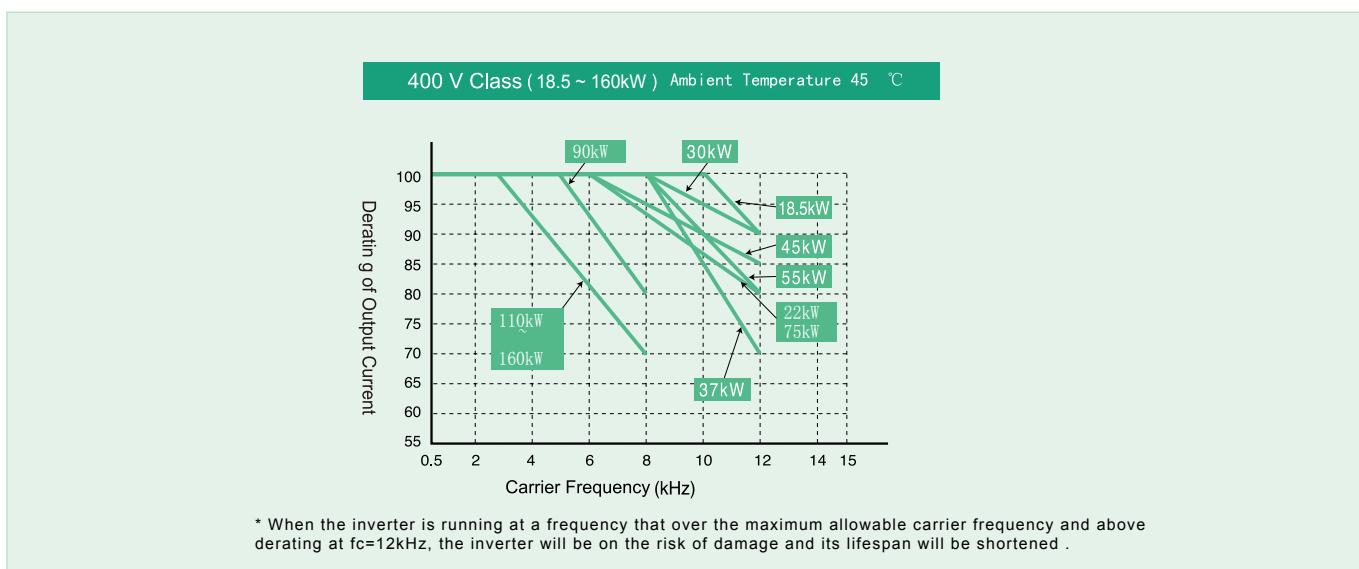
Note 8: When sensor-less vector control is selected (A044=03), you may not obtain an intended starting torque or motor may trip depending on the applied motor.

Note 9: The inverter detects IGBT error (E30) as a protection function. However, IGBT error (E30) is not a protection for an output short circuit, therefore there is a possibility that IGBT will get damaged. Moreover, over current protection (E01~04) may be detected, depending on the operational condition of the inverter .

● Model Name Indication

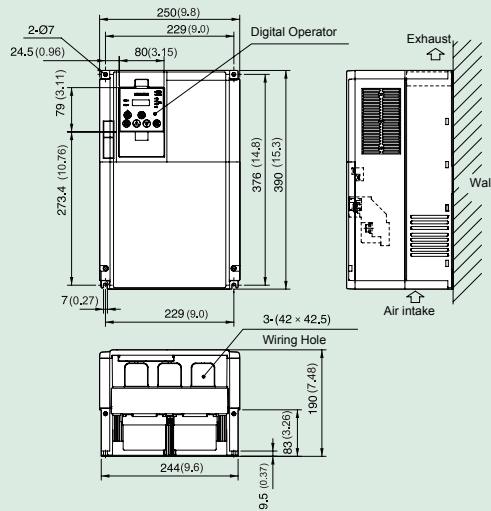
| ■ Model | ■ Model List |
|---------------------------|------------------|
| NJ600B - 185 H F F | Universal Vector |
| Series Name | 3phase400Vclass |
| Applicable Motor Capacity | HFF |
| 185 : 18.5kW | |
| | |
| 1600 : 160kW | |
| Input Power Source | |
| H: 3 phase 400Vclass | |
| F: With Keypad | |
| F: Integrated EMC Filter | |
| | 18.5 |
| | 22 |
| | 30 |
| | 37 |
| | 45 |
| | 55 |
| | 75 |
| | 90 |
| | 110 |
| | 132 |
| | 160 |

Derating Characteristics

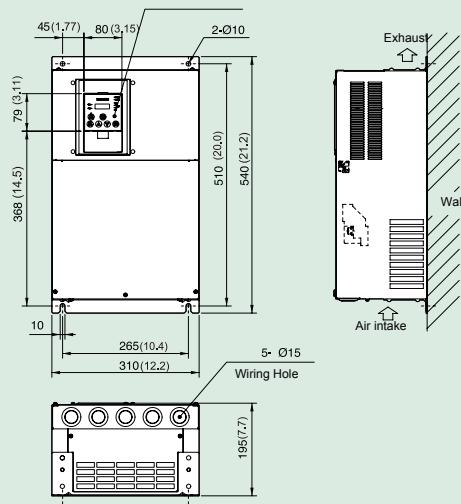


Dimensions

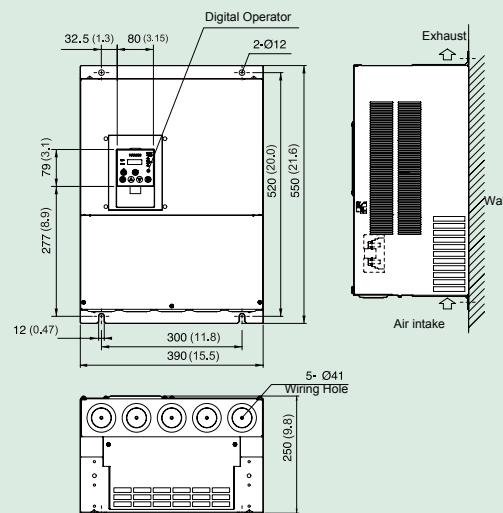
● NJ600B-185~300HFF



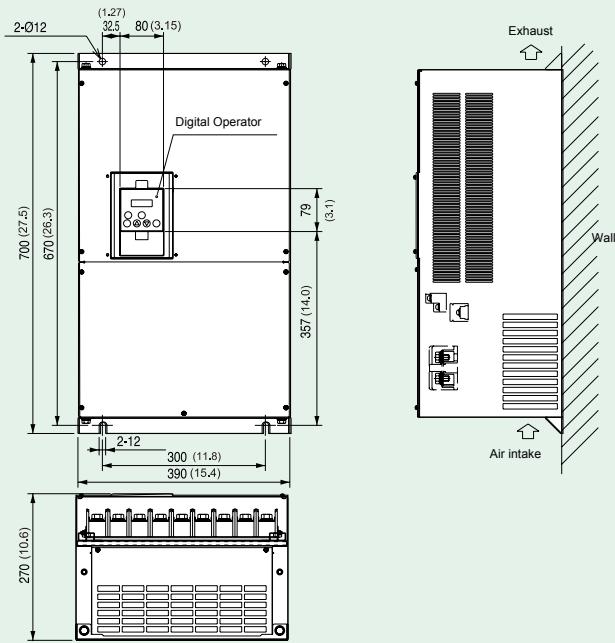
● NJ600B-370HFF



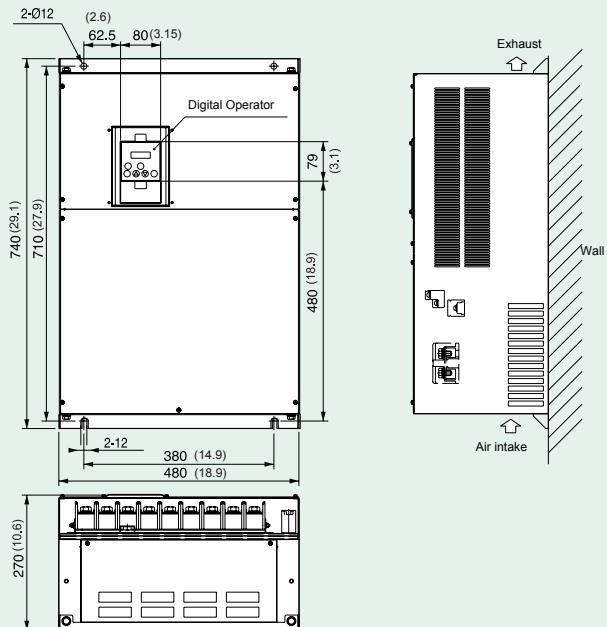
● NJ600B-450,550,750HFF



- NJ600B-900,1100HFF



- NJ600B-1320,1600HFF

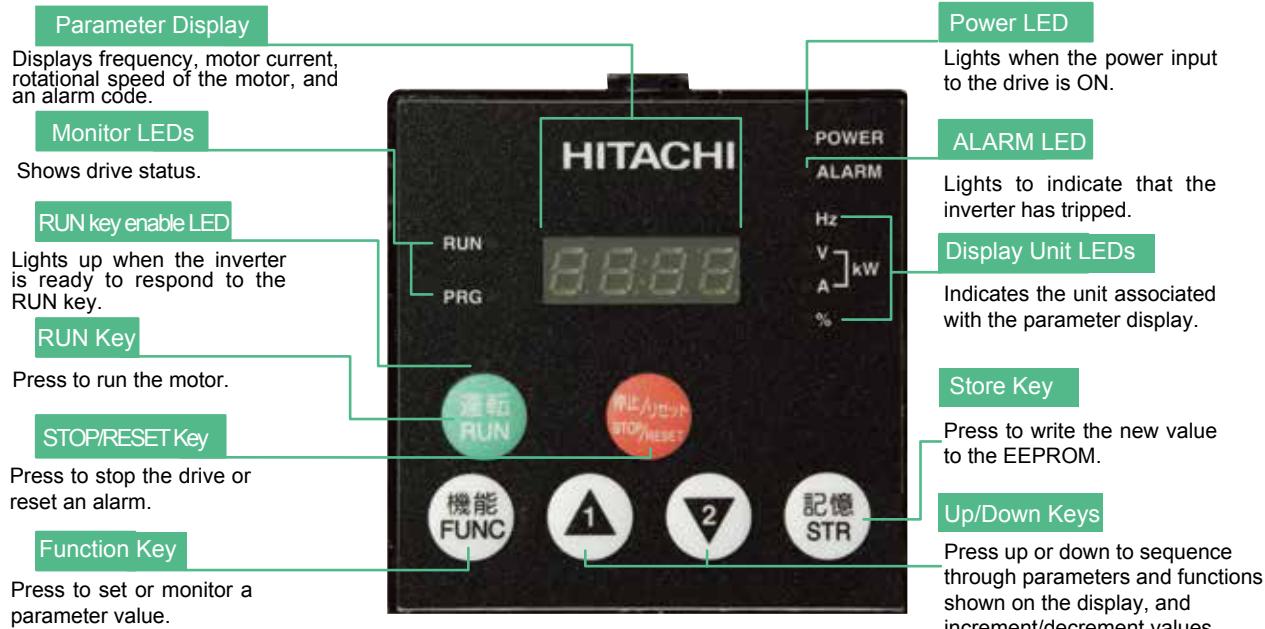


[Unit:mm(inch)]
Inches for reference only.

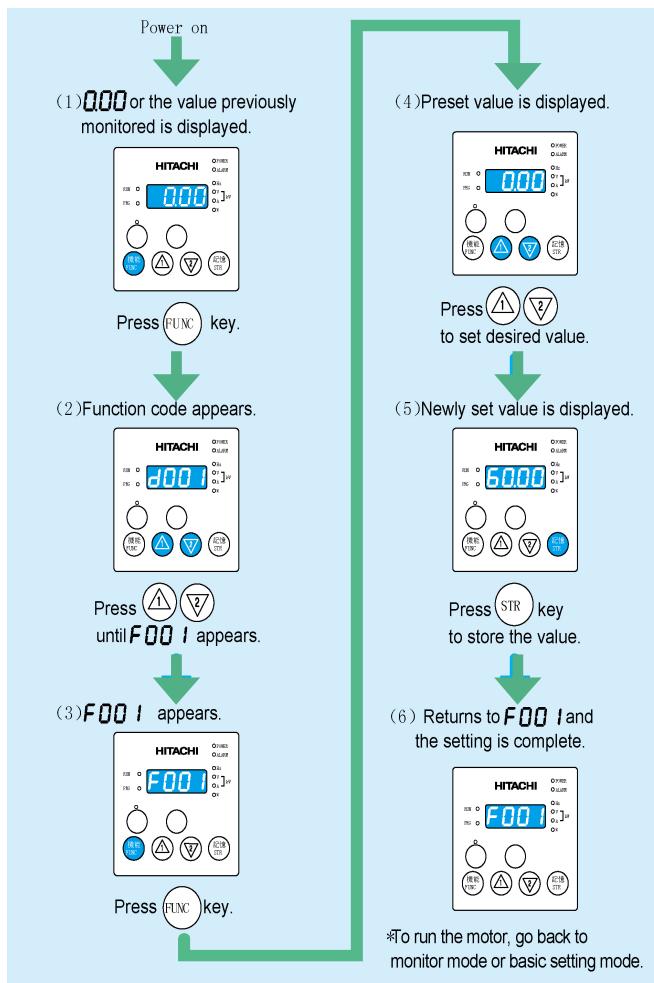
Operation

NJ600B Series can be easily operated with the digital operator provided as standard. The digital operator can also be detached and can be used for remote-control. Operator with copy function and digital operator with potentiometer are also available as options.

● Instructions



Setting the output frequency



- The contents of a basic mode display.(default)
If a desired parameter is not displayed, check the setting of function "b037" (function code display restriction). To display all parameters, specify "00" for "b037".

| No. | Display Code | Item |
|-----|--------------|---|
| 1 | d001~104 | Monitor display |
| 2 | F001 | Output frequency setting |
| 3 | F002 | Acceleration (1) time setting |
| 4 | F003 | Deceleration (1) time setting |
| 5 | F004 | Operation direction setting |
| 6 | A001 | Frequency source setting |
| 7 | A002 | Run command source setting |
| 8 | A003 | Base frequency setting |
| 9 | A004 | Maximum frequency setting |
| 10 | A005 | [AT] selection |
| 11 | A020 | Multi-speed frequency setting |
| 12 | A021 | Multi-speed 1 setting |
| 13 | A022 | Multi-speed 2 setting |
| 14 | A023 | Multi-speed 3 setting |
| 15 | A044 | 1st control method |
| 16 | A045 | V/f gain setting |
| 17 | A085 | Operation mode selection |
| 18 | b001 | Selection of restart mode |
| 19 | b002 | Allowable under-voltage power failure time |
| 20 | b008 | Retry-after-trip selection |
| 21 | b011 | Retry wait time after trip |
| 22 | b037 | Function code display restriction |
| 23 | b083 | Carrier frequency setting |
| 24 | b084 | Initialization mode selection |
| 25 | b130 | Selection of overvoltage suppression function |
| 26 | b131 | Setting of overvoltage suppression level |
| 27 | C021 | Setting of intelligent output terminal 11 |
| 28 | C022 | Setting of intelligent output terminal 12 |
| 29 | C036 | Alarm relay active state |

Function List

The default display mode limits the screens (parameters) that can be displayed on the monitor.

To enable the display of all parameters, specify "00" (full display) for the function code display restriction (b037).

To enable the parameters to be changed while the inverter is operating, specify "10" for the software lock mode selection (b031).

● Monitoring Mode

| Code | Function name | Monitored data or setting | Default | Setting during operation (allowed or not) | Change during operation (allowed or not) |
|--------------------|---------------|--|---------|---|--|
| Monitoring | d001 | Output frequency monitoring 0.00~99.99/100.0~400.0(Hz) | — | ○ | ○ |
| | d002 | Output current monitoring 0.0~999.9/1000~9999(A) | — | — | — |
| | d003 | Rotation direction monitoring F (forward rotation)/ o (stopped)/ r (reverse rotation) | — | — | — |
| | d004 | Process variable (PV), PID feedback monitoring 0.00~99.99/100.0~999.9/1000.~9999. 1000~9999(10000~99990)/「100~「999(10000~99900) | — | — | — |
| | d005 | Intelligent input terminal status  Terminals FW, 7,2,1:ON Terminals 8,6,5,4,3:OFF | — | — | — |
| | d006 | Intelligent output terminal status  Terminals 12,11:ON Terminals AL,15,14,13:OFF | — | — | — |
| | d007 | Scaled output frequency monitoring 0.00 ~ 99.99/100.0 ~ 999.9/1000. ~ 9999./ 1000 ~ 3996(10000~39960) | — | ○ | ○ |
| | d008 | Actual-frequency monitoring -400.~+100. /-99.9~0.00~99.9/100.0~400.0(Hz) | — | — | — |
| | d009 | Torque command monitoring -150.~+150.(%) | — | — | — |
| | d010 | Torque bias monitoring -150.~+150.(%) | — | — | — |
| | d012 | Torque monitoring -150.~+150.(%) | — | — | — |
| | d013 | Output voltage monitoring 0.0 ~ 600.0(V) | — | — | — |
| | d014 | Power monitoring 0.0 ~ 999.9(kW) | — | — | — |
| | d015 | Cumulative power monitoring 0.0~999.9/1000.~9999./1000~9999(10000~99990)/ 「100~「999(100000~99900) | — | — | — |
| | d016 | Cumulative operation RUN time monitoring 0.-9999./1000~9999(10000~99990)/ 「100~「999(10000~99900)(hr) | — | — | — |
| | d017 | Cumulative power-on time monitoring 0.-9999./1000~9999(10000~99990)/ 「100~「999(10000~99900)(hr) | — | — | — |
| | d018 | Heat sink temperature monitoring -020.~+200.0(°C) | — | — | — |
| | d019 | Motor temperature monitoring -020.~+200.0(°C) | — | — | — |
| | d022 | Life-check monitoring  1: Capacitor on main circuit board 2: Cooling-fan speed drop | — | — | — |
| Setting | d023 | Program counter 0~1024 | — | — | — |
| | d024 | Program number monitoring 0000~9999 | — | — | — |
| | d025 | User monitor 0 -2147483647~+2147483647(upper 4 digits) | — | — | — |
| | d026 | User monitor 1 -2147483647~+2147483647(upper 4 digits) | — | — | — |
| | d027 | User monitor 2 -2147483647~+2147483647(upper 4 digits))including “-”) | — | — | — |
| | d028 | Pulse counter 0~2147483647(upper 4 digits) | — | — | — |
| | d029 | Position setting monitor -1073741823~+1073741823(upper 4 digits) | — | — | — |
| | d030 | Position feedback monitor -1073741823~+1073741823(upper 4 digits) | — | — | — |
| | d080 | Trip Counter 0.~9999./1000~6553(10000~65530)(times) | — | — | — |
| | d081 | Trip monitoring 1 Factor, frequency (Hz), current (A), voltage across P-N (V), running time (hours), power-on time (hours) | — | — | — |
| | d086 | Trip monitoring 6 Warning code | — | — | — |
| | d090 | Programming error monitoring 0.0~999.9(V) | — | — | — |
| | d102 | DC voltage monitoring 0.0~100.0(%) | — | — | — |
| Extended Functions | d103 | BRD load factor monitoring 0.0~100.0(%) | — | — | — |
| | d104 | Electronic thermaloverload monitoring 0.0~100.0(%) | — | — | — |
| | F001 | Output frequency setting "start frequency" to "maximum frequency"/ or maximum frequency, 2nd/3rd motors)(Hz) 0.0~100.0(when PID function is enabled) | 0.00 | ○ | ○ |
| | F002 | Acceleration (1) time setting 0.01~99.99/100.0~999.9/1000.~3600.(s) | 30.00 | ○ | ○ |
| | F202 | Acceleration (1) time setting, 2nd motor 0.01~99.99/100.0~999.9/1000.~3600.(s) | 30.00 | ○ | ○ |
| | F302 | Acceleration (1) time setting, 3rd motor 0.01~99.99/100.0~999.9/1000.~3600.(s) | 30.00 | ○ | ○ |
| | F003 | Deceleration (1) time setting 0.01~99.99/100.0~999.9/1000.~3600.(s) | 30.00 | ○ | ○ |
| Functions | F203 | Deceleration time setting, 2nd motor 0.01~99.99/100.0~999.9/1000.~3600.(s) | 30.00 | ○ | ○ |
| | F303 | Deceleration time setting, 3rd motor 0.01~99.99/100.0~999.9/1000.~3600.(s) | 30.00 | ○ | ○ |
| | F004 | Keypad Run key routing 00(forward rotation)/01(reverse rotation) | 00 | × | × |
| | A--- | Casic function | | | |
| | B--- | Protecting function、 fine tuning function | | | |
| | C--- | Intelligent terminal function | | | |
| | D--- | Motor constant function | | | |
| | P--- | Expansion card | | | |
| | U--- | User selectable menu function | | | |

● A Group: Standard Functions

| Code | Function name | Monitored data or setting | Default | Setting during operation (allowed or not) | Change during operation (allowed or not) |
|----------------|---------------|---|---------|---|--|
| Basic settings | A001 | Frequency source setting 00 (keypad potentiometer) (*1), 01 (control circuit terminal block), 02 (digital operator), 03 (RS485), 04 (option 1), 05 (option 2), 06 (pulse-string input), 07 (easy sequence), 10 | 01 | × | × |
| | A002 | Run command source setting 01 (control circuit terminal block), 02 (digital operator), 03 (RS485), 04 (option 1), 05 (option 2) | 01 | × | × |

*1 This setting is valid only when the OPE-SR is connected.

| Code | Function name | Monitored data or setting | Default | Setting during operation (allowed or not) | Change during operation (allowed or not) |
|--|---------------|---|---|---|--|
| Basic settings | A003 | Base frequency setting | 30. to "maximum frequency" (Hz) | 50. | × |
| | A203 | Base frequency setting, 2nd motor | 30. to "maximum frequency, 2nd motor" (Hz) | 50. | × |
| | A303 | Base frequency setting, 3rd motor | 30. to "maximum frequency, 3rd motor" (Hz) | 50. | × |
| | A004 | Maximum frequency setting | 30. ~ 400.(Hz) | 50. | × |
| | A204 | Maximum frequency setting, 2nd motor | 30. ~ 400.(Hz) | 50. | × |
| | A304 | Maximum frequency setting, 3rd motor | 30. ~ 400.(Hz) | 50. | × |
| Analog input and others | A005 | [AT] selection | 00 (switching between O and O1 terminals), 01 (switching between O and O2 terminals), 02 (switching between O terminal and keypad potentiometer) (*1), 03 (switching between O1 terminal and keypad potentiometer) (*1), 04 (switching between O2 and keypad potentiometer) (*1) | | × |
| | A006 | [O2] selection | 00 (single), 01 (auxiliary frequency input via O and O1 terminals) (nonreversible), 02 (auxiliary frequency input via O and O1 terminals) (reversible), 03 (disabling O2 terminal) | 03 | × |
| | A011 | O start frequency | 0.00~99.99/100.0~400.0 | 0.00 | × |
| | A012 | O end frequency | 0.00~99.99/100.0~400.0 | 0.00 | × |
| | A013 | O start voltage | 0. to "[O]-[L]" input active range end voltage" (%) | 0. | × |
| | A014 | O end voltage | "[O]-[L]" input active range start voltage" to 100. (%) | 100. | × |
| | A015 | O start frequency selection | 00 (external start frequency), 01 (0 Hz) | 01 | × |
| | A016 | External frequency filter time const. | 1. to 30. or 31. (500 ms filter ±0.1 Hz with hysteresis) | | × |
| | A017 | Easy sequence function selection | 00 (disabling), 01 (enabling) | 00 | × |
| | A019 | Multispeed operation selection | 00 (binary: 16 speeds selectable with 4 terminals), 01 (bit: 8 speeds selectable with 7 terminals) | 00 | × |
| Multispeed operation and jogging | A020 | Multispeed frequency setting | 0.0 or "start frequency" to "maximum frequency" (Hz) | 0.00 | ○ |
| | A220 | Multispeed frequency setting, 2nd motor | 0.0 or "start frequency" to "maximum frequency, 2nd motor" (Hz) | 0.00 | ○ |
| | A320 | Multispeed frequency setting, 3rd motor | 0.0 or "start frequency" to "maximum frequency, 3rd motor" (Hz) | 0.00 | ○ |
| | A021 | Multispeed1-15 setting | 0.0 or "start frequency" to "1st maximum frequency" (Hz) 0.0 or "start frequency" to "2nd maximum frequency" (Hz) 0.0 or "start frequency" to "3rd maximum frequency" (Hz) 0.0 or "start frequency" to "n-th maximum frequency" (Hz) | | ○ |
| | A035 | | | 0.00 | ○ |
| | A038 | Jog frequency setting | "Start frequency" to 9.99 (Hz) | 1.00 | ○ |
| | A039 | Jog stop mode | 00 (free-running after jogging stops [disabled during operation]), 01 (deceleration and stop after jogging stops [disabled during operation]), 02 (DC braking after jogging stops [disabled during operation]), 03 (free-running after jogging stops [enabled during operation]), 04 (deceleration and stop after jogging stops [enabled during operation]), 05 (DC braking after jogging stops [enabled during operation]) | 00 | × |
| | A041 | Torque boost method selection | 00((manual torque boost)/01(automatic torque boost)) | 00 | × |
| | A241 | Torque boost method selection, 2nd motor | 00((manual torque boost)/01(automatic torque boost)) | 00 | × |
| | A042 | Manual torque boost value | 0.0~20.0(%) | 1.0 | ○ |
| V/f characteristic | A242 | Manual torque boost value, 2nd motor | 0.0~20.0(%) | 1.0 | ○ |
| | A342 | Manual torque boost value, 3rd motor | 0.0~20.0(%) | 1.0 | ○ |
| | A043 | Manual torque boost frequency adjustment | 0.0~50.0(%) | 5.0 | ○ |
| | A243 | Manual torque boost frequency adjustment, 2nd motor | 0.0~50.0(%) | 5.0 | ○ |
| | A343 | Manual torque boost frequency adjustment, 3rd motor | 0.0~50.0(%) | 5.0 | ○ |
| | A044 | V/F characteristic curve selection, 1st motor | 00 (VC), 01 (VP), 02 (free V/f), 03 (sensorless vector control), (*1)04 (0Hz-range sensorless vector), (*1)05 (vector with sensor) | 00 | × |
| | A244 | V/F characteristic curve selection, 2nd motor | 00 (VC), 01 (VP), 02 (free V/f), 03 (sensorless vector control), (*1)04 (0Hz-range sensorless vector) | 00 | × |
| | A344 | V/F characteristic curve selection, 3rd motor | 00(VC)/01(VP) | 00 | × |
| | A045 | V/f gain setting | 20.-100.(%) | 100.0 | ○ |
| | A046 | Voltage compensation gain setting for automatic torque boost, 1st motor | ~255. | 100.0 | ○ |
| DC braking | A246 | Voltage compensation gain setting for automatic torque boost, 2nd motor | 0~-255. | 100.0 | ○ |
| | A047 | Voltage compensation gain setting for automatic torque boost, 3rd motor | 0~-255. | 100.0 | ○ |
| | A247 | Voltage compensation gain setting for automatic torque boost, 4st motor | 0~-255. | 100.0 | ○ |
| | A051 | DC braking enable | | 00 | × |
| | A052 | DC braking frequency setting | 0.00~99.99/100.0~400.0(Hz) | 0.50 | × |
| | A053 | DC braking wait time | 0.0~5.0(s) | 0.0 | × |
| | A054 | DC braking force during deceleration | 0.~70.(%)<~0.~50.(%)> | 0. | × |
| | A055 | DC braking time for deceleration | 0.0~60.0(s) | 0.0 | × |
| | A056 | DC braking/edge or level detection for [DB] input | 00 (edge operation), 01 (level operation) | 01 | × |
| | A057 | DC braking force for starting | 0.~70.(%)<~0.~50.(%)> | 0. | × |
| Frequency upper/lower limit and jump frequency | A058 | DC braking time for starting | 0.0~60.0(s) | 0.0 | × |
| | A059 | DC braking carrier frequency setting | 0.5~12.0(kHz)<0.5~8.0(kHz)> | 5.0 | × |
| | A061 | Frequency upper limit setting | 0.00 or "1st minimum frequency limit" to "maximum frequency" (Hz) | 0.00 | × |
| | A261 | Frequency upper limit setting, 2nd motor | 0.00 or "2nd minimum frequency limit" to "maximum frequency, 2nd motor" (Hz) | 0.00 | × |
| | A062 | Frequency lower limit setting | 0.00 or "start frequency" to "maximum frequency limit" (Hz) | 0.00 | × |
| | A262 | Frequency lower limit setting, 2nd motor | 0.00 or "start frequency" to "maximum frequency, 2nd motor limit" (Hz) | 0.00 | × |
| | A063 | Jump (center) frequency setting 1 | 0.00~99.99/100.0~400.0(Hz) | 0.00 | × |
| | A064 | Jump (hysteresis) frequency width setting 1 | 0.00~10.00(Hz) | 0.50 | × |
| | A065 | Jump (center) frequency setting 2 | 0.00~99.99/100.0~400.0(Hz) | 0.00 | × |
| | A066 | Jump (hysteresis) frequency width setting 2 | 0.00~10.00(Hz) | 0.50 | × |
| PID control | A067 | Jump (center) frequency setting 3 | 0.00~99.99/100.0~400.0(Hz) | 0.00 | × |
| | A068 | Jump (hysteresis) frequency width setting 3 | 0.00~10.00(Hz) | 0.50 | × |
| | A069 | Acceleration stop frequency setting | 0.00~99.99/100.0~400.0(Hz) | 0.00 | × |
| | A070 | Acceleration stop time frequency setting | 0.0~60.0(s) | 0.0 | × |
| | A071 | PID Function Enable | 00 (disabling), 01 (enabling), 02 (enabling inverted-data output) | 00 | ○ |
| | A072 | PID proportional gain | 0.2~5.0 | 1.0 | ○ |
| | A073 | PID integral time constant | 0.0~999.9/1000.~3600.0(s) | 1.0 | ○ |
| | A074 | PID derivative gain | 0.00~99.99/100.0(s) | 0.00 | ○ |
| | A075 | PV scale conversion | 0.01~99.99 | 1.00 | × |
| | A076 | PV source setting | 00 (input via OI), 01 (input via O), 02 (external communication), 03 (pulse-string frequency input), 10 (operation result output) | 00 | × |
| | A077 | Output of inverted PID deviation | 00(OFF)/01(ON) | 00 | × |
| | A078 | PID variation range | 0.0~100.0(%) | 0.0 | × |
| | A079 | PID feed forward selection | 00 (disabled), 01 (O input), 02 (OI input), 03 (O2 input) | 00 | × |

*1 This setting is valid only when the OPE-SR is connected.

| Code | | Function name | Monitored data or setting | Default | Setting during operation (allowed or not) | Change during operation (allowed or not) |
|-------------------------------|------|--|---|---------|---|--|
| AVR | A081 | AVR function select | 00 (always on), 01 (always off), 02 (off during | 00 | × | × |
| | A082 | AVR voltage select | 400 V class 380/400/415/440/460/480(V) | 400 | × | × |
| | A085 | Operation mode selection | 00 (normal operation), 01 (energy-saving operation), 02 (fuzzy operation) | 00 | × | × |
| | A086 | Energy saving mode tuning | 0.0~100.0 | 50.0 | ○ | ○ |
| | A092 | Acceleration (2) time setting | 0.01~99.99/100.0~999.9/1000.~3600.(s) | 15.00 | ○ | ○ |
| | A292 | Acceleration (2) time setting, 2nd motor | 0.01~99.99/100.0~999.9/1000.~3600.(s) | 15.00 | ○ | ○ |
| | A392 | Acceleration (2) time setting, 3rd motor | 0.01~99.99/100.0~999.9/1000.~3600.(s) | 15.00 | ○ | ○ |
| | A093 | Deceleration (2) time setting, 2nd motor | 0.01~99.99/100.0~999.9/1000.~3600.(s) | 15.00 | ○ | ○ |
| | A293 | Deceleration (2) time setting, 3rd motor | 0.01~99.99/100.0~999.9/1000.~3600.(s) | 15.00 | ○ | ○ |
| | A393 | Select method to switch to Acc2/Dec2 profile | 0.01~99.99/100.0~999.9/1000.~3600.(s) | 15.00 | ○ | ○ |
| | A094 | Select method to switch to Acc2/Dec2 profile | 00 (switching by 2CH terminal), 01 (switching by setting), 02 (switching only when rotation is reversed) | 00 | × | × |
| | A294 | Select method to switch to Acc2/Dec2, 2nd motor | 00 (switching by 2CH terminal), 01 (switching by setting), 02 (switching only when rotation is reversed) | 00 | × | × |
| | A095 | Acc1 to Acc2 frequency transition point | 0.00~99.99/100.0~400.0(Hz) | 0.00 | × | × |
| | A295 | Acc1 to Acc2 frequency transition point, 2nd motor | 0.00~99.99/100.0~400.0(Hz) | 0.00 | × | × |
| | A096 | Dec1 to Dec2 frequency transition point | 0.00~99.99/100.0~400.0(Hz) | 0.00 | × | × |
| | A296 | Dec1 to Dec2 frequency transition point, 2nd motor | 0.00~99.99/100.0~400.0(Hz) | 0.00 | × | × |
| | A097 | Acceleration curve selection | 00 (linear), 01 (S curve), 02 (U curve), 03 (inverted-U curve), 04 (EL-S curve) | 00 | × | × |
| | A098 | Deceleration curve setting | 00 (linear), 01 (S curve), 02 (U curve), 03 (inverted-U curve), 04 (EL-S curve) | 00 | × | × |
| External frequency adjustment | A101 | [OI]-[L] input active range start frequency | 0.00~99.99/100.0~400.0(Hz) | 0.00 | × | ○ |
| | A102 | [OI]-[L] input active range end frequency | 0.00~99.99/100.0~400.0(Hz) | 0.00 | × | ○ |
| | A103 | [OI]-[L] input active range start current | 0. to "[OI]-[L] input active range end current" (%) | 20. | × | ○ |
| | A104 | [OI]-[L] input active range end current | "[OI]-[L] input active range start current" to 100. (%) | 100. | × | ○ |
| | A105 | [OI]-[L] input start frequency enable | 00 (external start frequency), 01 (0 Hz) | 00 | × | ○ |
| | A111 | [O2]-[L] input active range start frequency | 0.00~99.99/100.0~400.0(Hz) | 0.00 | × | ○ |
| | A112 | [O2]-[L] input active range end frequency | 0.00~99.99/100.0~400.0(Hz) | 0.00 | × | ○ |
| | A113 | [O2]-[L] input active range start voltage | -100. to 02 end-frequency rate (%) | -100. | × | ○ |
| | A114 | [O2]-[L] input active range end voltage | "02 start-frequency rate" to 100. (%) | 100. | × | ○ |
| | A131 | Acceleration curve constants setting | 01 (smallest swelling) to 10 (largest swelling) | 02 | × | ○ |
| | A132 | Deceleration curve constants setting | 01 (smallest swelling) to 10 (largest swelling) | 02 | × | ○ |
| | A141 | Operation-target frequency selection 1 | 00 (digital operator), 01 (keypad potentiometer), 02 (input via O), 03 (input via OI), 04 (external communication), 05 (option 1), 06 (option 2), 07 (pulse-string frequency input) | 02 | × | ○ |
| | A142 | Operation-target frequency selection 2 | 00 (digital operator), 01 (keypad potentiometer), 02 (input via O), 03 (input via OI), 04 (external communication), 05 (option 1), 06 (option 2), 07 (pulse-string frequency input) | 03 | × | ○ |
| Accessory deceleration | A143 | Operator selection | 00 (addition: A141 + A142), 01 (subtraction: A141 - A142), 02 (multiplication: A141 x A142) | 00 | × | ○ |
| | A145 | Frequency to be added | 0.00~99.99/100.0~400.0(Hz) | 0.00 | × | ○ |
| | A146 | Sign of the frequency to be added | 00 (frequency command + A145), 01 (frequency command - A145) | 00 | × | ○ |
| | A150 | EL-S-curve acceleration ratio 1 | 0.~50.(%) | 25. | × | × |
| | A151 | EL-S-curve acceleration ratio 2 | 0.~50.(%) | 25. | × | × |
| | A152 | EL-S-curve deceleration ratio 1 | 0.~50.(%) | 25. | × | × |
| | A153 | EL-S-curve deceleration ratio 2 | 0.~50.(%) | 25. | × | × |

*1 This setting is valid only when the OPE-SR is connected.

● B Group: Fine Tuning Functions

| Code | | Function name | Monitored data or setting | Default | Setting during operation (allowed or not) | Change during operation (allowed or not) |
|---|------|--|--|---------------|---|--|
| Restart after instantaneous power failure or tripping | b001 | Selection of restart mode | 00 (tripping), 01 (starting with 0 Hz), 02 (starting with matching frequency), 03 (tripping after deceleration and stopping with matching frequency), 04 (restarting with active matching frequency) | 00 | × | ○ |
| | b002 | Allowable under-voltage power failure time | 0.3~25.0(s) | 1.0 | × | ○ |
| | b003 | Retry wait time before motor restart | 0.3~100.0(s) | 1.0 | × | ○ |
| | b004 | Instantaneous power failure/under-voltage trip alarm enable | 00 (disabling), 01 (enabling), 02 (disabling during stopping and decelerating to stop) | 00 | × | ○ |
| | b005 | Number of restarts on power failure/under-voltage trip events | 00 (16 times), 01 (unlimited) | 00 | × | ○ |
| | b006 | Phase loss detection enable | 00 (disabling), 01 (enabling) | 00 | × | ○ |
| | b007 | Restart frequency threshold | 0.00~99.99/100.0~400.0(Hz) | 0.00 | × | ○ |
| | b008 | Selection of retry after tripping | 00 (tripping), 01 (starting with 0 Hz), 02 (starting with matching frequency), 03 (tripping after deceleration and stopping with matching frequency), 04 (restarting with active matching frequency) | 00 | × | ○ |
| | b009 | Selection of retry after undervoltage | 00 (16 times), 01 (unlimited) | 00 | × | ○ |
| | b010 | Selection of retry count after overvoltage or overcurrent | times 1~3 | 3 | × | ○ |
| | b011 | Retry wait time after tripping | 0.3~100.0(s) | 1.0 | × | ○ |
| Electronic thermal function | b012 | Electronic thermal setting (calculated within the inverter from current output) | 0.20 x "rated current" to 1.00 x "rated current" (A) | Rated current | × | ○ |
| | b212 | Electronic thermal setting (calculated within the inverter from current output), 2nd motor | 0.20 x "rated current" to 1.00 x "rated current" (A) | Rated current | × | ○ |
| | b312 | Electronic thermal setting (calculated within the inverter from current output), 3rd motor | 0.20 x "rated current" to 1.00 x "rated current" (A) | Rated current | × | ○ |
| | b013 | Electronic thermal characteristic | 00 (reduced-torque characteristic), 01 (constant-torque characteristic), 02 (free setting) | 01 | × | ○ |
| | b213 | Electronic thermal characteristic, 2nd motor | 00 (reduced-torque characteristic), 01 (constant-torque characteristic), 02 (free setting) | 01 | × | ○ |
| | b313 | Electronic thermal characteristic, 3rd motor | 00 (reduced-torque characteristic), 01 (constant-torque characteristic), 02 (free setting) | 01 | × | ○ |
| | b015 | Free setting, electronic thermal frequency (1) | 0.~400.0(Hz) | 0. | × | ○ |
| | b016 | Free setting, electronic thermal current (1) | 0.0 to rated current (A) | 0.0 | × | ○ |
| | b017 | Free setting, electronic thermal frequency (2) | 0.~400.0(Hz) | 0. | × | ○ |
| | b018 | Free setting, electronic thermal current (2) | 0.0 to rated current (A) | 0.0 | × | ○ |
| | b019 | Free setting, electronic thermal frequency (3) | 0.~400.0(Hz) | 0. | × | ○ |
| | b020 | Free setting, electronic thermal current (3) | 0.0 to rated current (A) | 0.0 | × | ○ |

| Code | Function name | Monitored data or setting | Default | Setting during operation (allowed or not) | Change during operation (allowed or not) |
|--|---------------|---|--------------------------|---|--|
| Overload restriction and overcurrent restraint | b021 | Overload restriction operation mode 00 (disabling), 01 (enabling during acceleration and deceleration), 02 (enabling during constant speed), 03 (enabling during acceleration and deceleration (increasing the speed during regeneration)) | 01 | × | ○ |
| | b022 | Overload restriction setting 0.20 x "rated current" to 1.50 x "rated current" (A) | INV rated current x 1.50 | × | ○ |
| | b023 | Deceleration rate at overload restriction 0.10~30.00(s) | 1.00 | × | ○ |
| | b024 | Overload restriction operation mode (2) 00 (disabling), 01 (enabling during acceleration and deceleration), 02 (enabling during constant speed), 03 (enabling during acceleration and deceleration (increasing the speed during regeneration)) | 01 | × | ○ |
| | b025 | Overload restriction setting (2) 0.20 x "rated current" to 1.50 x "rated current" (A) | INV rated current x 1.50 | × | ○ |
| | b026 | Deceleration rate at overload restriction (2) 0.10~30.00(s) | 1.00 | × | ○ |
| | b027 | Overcurrent suppression enable 00 (disabling), 01 (enabling) | 01 | × | ○ |
| | b028 | Active frequency matching, scan start frequency 0.20 x "rated current" to 1.50 x "rated current" (A) | INV rated current x 1.50 | × | ○ |
| | b029 | Active frequency matching, scan-time constant 0.10~30.00(s) | 0.50 | × | ○ |
| Software lock | b030 | Active frequency matching, restart frequency select 00 (frequency at the last shutdown), 01 (maximum frequency), 02 (set frequency) | 00 | × | ○ |
| | b031 | Software lock mode selection 00 (disabling change of data other than "b031" when SFT is on), 01 (disabling change of data other than "b031" and frequency settings when SFT is on), 02 (disabling change of data other than "b031"), 03 (disabling change of data other than "b031" and frequency settings), 10 (enabling data changes during operation) | 01 | × | ○ |
| | b034 | Run/power-on warning time 0. to 9999. (0 to 99990), 1000 to 6553 (100000 to 655300) (hr) | 0. | × | ○ |
| | b035 | Rotational direction restriction 00 (enabling both forward and reverse rotations), 01 (enabling only forward rotation), 02 (enabling only reverse rotation) | 00 | × | ○ |
| | b036 | Reduced voltage start selection 0 (minimum reduced voltage start time) to 255 (maximum reduced voltage start time) | 6 | × | ○ |
| | b037 | Function code display restriction 00 (full display), 01 (function-specific display), 02 (user setting), 03 (data comparison display), 04 (basic display) | 04 | × | ○ |
| | b038 | Initial-screen selection 00 (screen displayed when the STR key was pressed last), 01 (d001), 02 (d002), 03 (d003), 04 (d007), 05 (F001) | 01 | × | ○ |
| | b039 | Automatic user-parameter setting function enable 00 (disabling), 01 (enabling) | 00 | × | ○ |
| | b040 | Torque limit selection 00 (quadrant-specific setting), 01 (switching by terminal), 02 (analog input), 03 (option 1), 04 (option 2) | 00 | × | ○ |
| Torque limitation | b041 | Torque limit (1) (forward-driving in 4-quadrant mode) 0. to 150. (%) , no (disabling torque limitation) | 150. | × | ○ |
| | b042 | Torque limit (2) (reverse-regenerating in 4-quadrant mode) 0. to 150. (%) , no (disabling torque limitation) | 150. | × | ○ |
| | b043 | Torque limit (3) (reverse-driving in 4-quadrant mode) 0. to 150. (%) , no (disabling torque limitation) | 150. | × | ○ |
| | b044 | Torque limit (4) (forward-regenerating in 4-quadrant mode) 0. to 150. (%) , no (disabling torque limitation) | 150. | × | ○ |
| | b045 | Torque limit LADSTOP enable 00 (disabling), 01 (enabling) | 00 | × | ○ |
| | b046 | Reverse Run protection enable 00 (disabling), 01 (enabling) | 00 | × | ○ |
| | b050 | Controller deceleration and stop on power loss 00 (disabling), 01 (nonstop deceleration to stop), 02 (DC voltage constant control, with resume), 03 (without resume) | 00 | × | × |
| | b051 | DC bus voltage trigger level during power loss 0.0~999.9/1000.(V) | 440.0 | × | × |
| | b052 | Over-voltage threshold during power loss 0.0~999.9/1000.(V) | 720.0 | × | × |
| Non-stop operation at momentary power failure | b053 | Deceleration time setting during power loss 0.01~99.99/100.0~999.9/1000.~3600.(s) | 1.00 | × | × |
| | b054 | Initial output frequency decrease during power loss 0.00~10.00(Hz) | 0.00 | × | × |
| | b055 | Proportional gain setting for nonstop operation at power loss 0.00~2.55 | 0.20 | ○ | ○ |
| | b056 | Integral time setting for nonstop operation at power loss 0.000~9.999/10.00~65.53(s) | 0.100 | ○ | ○ |
| | b060 | Maximum-limit level of window comparators O 0. to 100. (lower limit : b061 + b062 * 2) (%) | 100. | ○ | ○ |
| | b061 | Minimum-limit level of window comparators O 0. to 100. (lower limit : b060 - b062 * 2) (%) | 0. | ○ | ○ |
| | b062 | Hysteresis width of window comparators O 0. to 10. (lower limit : b061 - b062 / 2) (%) | 0. | ○ | ○ |
| | b063 | Maximum-limit level of window comparators OI 0. to 100. (lower limit : b064 + b066 * 2) (%) | 100. | ○ | ○ |
| | b064 | Minimum-limit level of window comparators OI 0. to 100. (lower limit : b063 - b066 * 2) (%) | 0. | ○ | ○ |
| Window comparator | b065 | Hysteresis width of window comparators OI 0. to 10. (lower limit : b063 - b064 / 2) (%) | 0. | ○ | ○ |
| | b066 | Maximum-limit level of window comparators OI -100. to 100. (lower limit : b067 + b068* 2) (%) | 100. | ○ | ○ |
| | b067 | Minimum-limit level of window comparators O/OI/O2 -100. to 100. (lower limit : b066 - b068 * 2) (%) | -100. | ○ | ○ |
| | b068 | Hysteresis width of window comparators O/OI/O2 0. to 10. (lower limit : b066 - b067 / 2) (%) | 0. | ○ | ○ |
| | b070 | Operation level at O disconnection 0. to 100. (%) or "no" (ignore) | no | × | ○ |
| | b071 | Operation level at OI disconnection 0. to 100. (%) or "no" (ignore) | no | × | ○ |
| | b072 | Operation level at O2 disconnection -100. to 100. (%) or "no" (ignore) | no | × | ○ |
| | b078 | Cumulative input power data clearance Clearance by setting "01" and pressing the STR key | 00 | ○ | ○ |
| | b079 | Cumulative input power display gain setting 1.~1000. | 1. | ○ | ○ |
| Others | b082 | Start frequency adjustment 0.10~9.99(Hz) | 0.50 | × | ○ |
| | b083 | Carrier frequency setting 0.5 to 12.0 (kHz) (subject to derating) (Referring to p9) | 5.0 | × | × |
| | b084 | Initialization mode (parameters or trip history) 00 (clearing the trip history), 01 (initializing the data), 02 (clearing the trip history and initializing the data) | 00 | × | × |
| | b085 | Country code for initialization 01 (CHINA/EU) | 01 | × | × |
| | b086 | Frequency scaling conversion factor 0.1~99.0 | 1.0 | ○ | ○ |
| | b087 | STOP key enable 00 (enabling), 01 (disabling), 02 (disabling only the function to stop) | 00 | × | ○ |
| | b088 | Restart mode after FRS 00 (starting with 0 Hz), 01 (starting with matching frequency), 02 (starting with active matching frequency) | 00 | × | ○ |
| | b089 | Automatic carrier frequency reduction 00: invalid, 01: valid | 00 | × | × |
| | b090 | Dynamic braking usage ratio 0.0 to 100.0 (%) | 0.0 | × | ○ |
| | b091 | Stop mode selection 00 (deceleration until stop), 01 (free-run stop) | 00 | × | ○ |
| | b092 | Cooling fan control 00 (always operating the fan), 01 (operating the fan only during inverter operation <including 5 minutes after power-on and power-off>) | 00 | × | ○ |
| | b095 | Dynamic braking control 00 (disabling), 01 (enabling <disabling while the motor is topped>, 02 (enabling <enabling also while the motor is topped>) | 00 | × | ○ |
| | b096 | Dynamic braking activation level 660~760(V) | 720 | × | ○ |
| | b098 | Thermistor for thermal protection control 00 (disabling the thermistor), 01 (enabling the thermistor with PTC), 02 (enabling the thermistor with NTC) | 00 | × | ○ |
| | b099 | Thermal protection level setting 0.0~9999.(1/2) | 3000. | × | ○ |

| Code | Function name | Monitored data or setting | Default | Setting during operation (allowed or not) | Change during operation (allowed or not) |
|------------------------------------|--|--|-------------------|---|--|
| Free setting of V/f characteristic | b100 Free-setting V/f frequency (1) | 0. to "free-setting V/f frequency (2)" (Hz) | 0. | × | × |
| | b101 Free-setting V/f voltage (1) | 0.0~800.0 (V) | 0.0 | × | × |
| | b102 Free-setting V/f frequency (2) | 0. to "free-setting V/f frequency (3)" (Hz) | 0. | × | × |
| | b103 Free-setting V/f voltage (2) | 0.0~800.0 (V) | 0.0 | × | × |
| | b104 Free-setting V/f frequency (3) | 0. to "free-setting V/f frequency (4)" (Hz) | 0. | × | × |
| | b105 Free-setting V/f voltage (3) | 0.0~800.0 (V) | 0.0 | × | × |
| | b106 Free-setting V/f frequency (4) | 0. to "free-setting V/f frequency (5)" (Hz) | 0. | × | × |
| | b107 Free-setting V/f voltage (4) | 0.0~800.0 (V) | 0.0 | × | × |
| | b108 Free-setting V/f frequency (5) | 0. to "free-setting V/f frequency (6)" (Hz) | 0. | × | × |
| | b109 Free-setting V/f voltage (5) | 0.0~800.0 (V) | 0.0 | × | × |
| | b110 Free-setting V/f frequency (6) | 0. to "free-setting V/f frequency (7)" (Hz) | 0. | × | × |
| | b111 Free-setting V/f voltage (6) | 0.0~800.0 (V) | 0.0 | × | × |
| | b112 Free-setting V/f frequency (7) | 0.~400.(Hz) | 0. | × | × |
| | b113 Free-setting V/f voltage (7) | 0.0~800.0 (V) | 0.0 | × | × |
| Others | b120 Brake Control Enable | 00 (disabling), 01 (enabling) | 00 | × | ○ |
| | b121 Brake Wait Time for Release | 0.00~5.00(s) | 0.00 | × | ○ |
| | b122 Brake Wait Time for Acceleration | 0.00~5.00(s) | 0.00 | × | ○ |
| | b123 Brake Wait Time for Stopping | 0.00~5.00(s) | 0.00 | × | ○ |
| | b124 Brake Wait Time for Confirmation | 0.00~5.00(s) | 0.00 | × | × |
| | b125 Brake Release Frequency Setting | 0.00~99.99/100.0~400.0(Hz) | 0.00 | × | ○ |
| | b126 Brake Release Current Setting | 0.0 to 1.50 x "rated current" | INV rated current | × | ○ |
| | b127 Braking frequency | 0.00~99.99/100.0~400.0(Hz) | | 0.00 | × |
| | b130 Overvoltage suppression enable | 00 (disabling the restraint), 01 (controlled deceleration), 02 (enabling acceleration) | 00 | × | ○ |
| | b131 Overvoltage suppression level | 660 to 780 (V) (400 V class model) | 760 | × | ○ |
| | b132 Acceleration and deceleration rate at overvoltage suppression | 0.10~30.00(s) | 1.00 | × | ○ |
| | b133 Overvoltage suppression proportional gain | 0.00~2.55 | 0.50 | ○ | ○ |
| | b134 Overvoltage suppression Integral time | 0.000~9.999/10.00~65.53(s) | 0.060 | ○ | ○ |

● C Group:Intellect Terminal Functions

| Code | Function name | Monitored data or setting | Default | Setting during operation (allowed or not) | Change during operation (allowed or not) |
|------------------------------|---|--|-----------|---|--|
| Intelligent input terminals | C001 Terminal [1] function (*3) | 01 (RV: Reverse RUN), 02 (CF1: Multispeed 1 setting), 03 (CF2: Multispeed 2 setting), 04 (CF3: Multispeed 3 setting), 05 (CF4: Multispeed 4 setting), 06 (JG: Jogging), 07 (DB: external DC braking), 08 (SET: Set 2nd motor data), 09 (2CH: 2-stage acceleration/deceleration), 11 (FRS: free-run stop), 12 (EXT: external trip), 13 (USP: unattended start protection), 14: (CS: commercial power source enable), 15 (SFT: software lock), 16 (AT: analog input voltage/current select), 17 (SET3: 3rd motor control), 18 (RS: reset), 20 (STA: starting by 3-wire input), 21 (STP: stopping by 3-wire input), 22 (F/R: forward/reverse switching by 3-wire input), 23 (PID: PID disable), 24 (PIDC: PID reset), 26 (CAS: control gain setting), 27 (UP: remote control UP function), 28 (DWN: remote control DOWN function), 29 (DWN: remote control data clearing), 31 (OPE: forcible operation), 32 (SF1: multispeed bit 1), 33 (SF2: multispeed bit 2), 34 (SF3: multispeed bit 3), 35 (SF4: multispeed bit 4), 36 (SF5: multispeed bit 5), 37 (SF6: multispeed bit 6), 38 (SF7: multispeed bit 7), 39 (OLR: overload restriction selection), 40 (TL: torque limit enable), 41 (TRQ1: torque limit selection bit 1), 42 (TRQ2: torque limit selection bit 2), 43 (PPI: P/PI mode selection), 44 (BOK: braking confirmation), 45 (ORT: orientation), 46 (LAC: LAD cancellation), 47 (PCLR: clearance of position deviation), 48 (STAT: pulse train position command input enable), 50 (ADD: trigger for frequency addition [A145]), 51 (F-TM: forcible-terminal operation), 52 (ATR: permission of torque command input), 53 (KHC: cumulative power clearance), 54 (SON: servo-on), 55 (FOC: forcing), 56 (M11: general-purpose input 1), 57 (M12: general-purpose input 2), 58 (M13: general-purpose input 3), 59 (M14: general-purpose input 4), 60 (M15: general-purpose input 5), 61 (M16: general-purpose input 6), 62 (M17: general-purpose input 7), 63 (M18: general-purpose input 8), 65 (AHD: analog command holding), 66 (CP1: multistage position settings selection 1), 67 (CP2: multistage position settings selection 2), 68 (CP3: multistage position settings selection 3), 69 (ORL: Zero-return limit function), 70 (ORG: Zero-return trigger function), 71 (FOT: forward drive stop), 72 (ROT: reverse drive stop), 73 (SPD: speed / position switching), 74 (PCNT: pulse counter), 75 (PCC: pulse counter clear), no (NO: no assignment) | 18 *3) | × | ○ |
| | C002 Terminal [2] function | | 16 | × | ○ |
| | C003 Terminal [3] function (*3) | | 06 *3) | × | ○ |
| | C004 Terminal [4] function | | 11 | × | ○ |
| | C005 Terminal [5] function | | 09 | × | ○ |
| | C006 Terminal [6] function | | 13 | × | ○ |
| | C007 Terminal [7] function | | 02 | × | ○ |
| | C008 Terminal [8] function | | 01 | × | ○ |
| | C011 ~ C018 Terminal [1]-[8] active state | | 00 | × | ○ |
| | C019 Terminal [FW] active state | | 00 | × | ○ |
| Intelligent output terminals | C021 Terminal [11] function | 00 (RUN: running), 01 (FA1: constant-speed reached), 02 (FA2: set frequency overreached), 03 (OL: overload notice advance signal (1)), 04 (OD: output deviation for PID control), 05 (AL: alarm signal), 06 (FA3: set frequency reached), 07 (OTQ: over-torque), 08 (IP: instantaneous power failure), 09 (UV: undervoltage), 10 (TRQ: torque limited), 11 (RNT: operation time over), 12 (ONT: plug-in time over), 13 (THM: thermal alarm signal), 19 (BRK: brake release), 20 (BER: braking error), 21 (ZS: 0 Hz detection signal), 22 (DSE: speed deviation maximum), 23 (POK: positioning completed), 24 (FA4: set frequency overreached 2), 25 (FA5: set frequency reached 2), 26 (OL2: overload notice advance signal (2)), 27 (Odc: Analog O disconnection detection), 28 (OIDc: Analog OI disconnection detection), 29 (O2Dc: Analog O2 disconnection detection), 31 (FBV: PID feedback comparison), 32 (NDC: communication line disconnection), 33 (LOG1: logical operation result 1), 34 (LOG2: logical operation result 2), 35 (LOG3: logical operation result 3), 36 (LOG4: logical operation result 4), 37 (LOG5: logical operation result 5), 38 (LOG6: logical operation result 6), 39 (WAC: capacitor life warning), 40 (WAF: cooling-fan speed drop), 41 (FR: starting contact signal), 42 (OHF: heat sink overheat warning), 43 (LOC: low-current indication signal), 44 (M01: general-purpose output 1), 45 (M02: general-purpose output 2), 46 (M03: general-purpose output 3), 47 (M04: general-purpose output 4), 48 (M05: general-purpose output 5), 49 (M06: general-purpose output 6), 50 (IRDY: inverter ready), 51 (FWR: forward rotation), 52 (RVR: reverse rotation), 53 (MJA: major failure), 54(WCO: window comparator O), 55(WCO1: window comparator O1), 56 (WCO2: window comparator O2) (When alarm code output is selected for "C062", functions "AC0" to "AC2" or "AC0" to "AC3" [ACn: alarm code output] are forcibly assigned to intelligent output terminals 11 to 13 or 11 to 14, respectively.) | 01 | × | ○ |
| | C022 Terminal [12] function | | 00 | × | ○ |
| | C023 Terminal [13] function | | 03 | × | ○ |
| | C024 Terminal [14] function | | 07 | × | ○ |
| | C025 Terminal [15] function | | 40 | × | ○ |
| | C026 Alarm relay terminal function | | 05 | × | ○ |

*3) When the emergency stop function is enabled (SW1 = ON), "18" (RS) and "64" (EMR) are forcibly written to parameters "C001" and "C003", respectively. (You cannot arbitrarily write "64" to "C001".) If the SW1 signal is turned off and then turned on, "no" (no assignment) is set in parameter "C003".

| Code | | Function name | Monitored data or setting | Default | Setting during operation (allowed or not) | Change during operation (allowed or not) |
|--|--------------|--|--|-------------------|---|--|
| Analog monitoring | C027 | [FM] signal selection | 00 (output frequency), 01 (output current), 02 (output torque), 03 (digital output frequency), 04 (output voltage), 05 (input power), 06 (electronic thermal overload), 07 (LAD frequency), 08 (digital current monitoring), 09 (motor temperature), 10 (heat sink temperature), 12 (general-purpose output YA0) | 00 | × | ○ |
| | C028 | [AM] signal selection | 00 (output frequency), 01 (output current), 02 (output torque), 04 (output voltage), 05 (input power), 06 (electronic thermal overload), 07 (LAD frequency), 09 (motor temperature), 10 (heat sink temperature), 11 (output torque [signed value]), 13 (general-purpose output YA1) | 00 | × | ○ |
| | C029 | [AMI] signal selection | 00 (output frequency), 01 (output current), 02 (output torque), 04 (output voltage), 05 (input power), 06 (electronic thermal overload), 07 (LAD frequency), 09 (motor temperature), 10 (heat sink temperature), 14 (general-purpose output YA2) | 00 | × | ○ |
| | C030 | Digital current monitor reference value | 0.20 x "rated current" to 1.50 x "rated current" (A) (Current with digital current monitor output at 1,440 Hz) | INV rated current | ○ | ○ |
| Intelligent terminal output Levels and output terminal status | C031 C035 | Terminal [11]~[15] active state | 00 (NO) / 01 (NC) | 00 | × | ○ |
| | C036 | Alarm relay active state | 00 (NO) / 01 (NC) | 01 | × | ○ |
| | C038 | Low-current indication signal output mode selection | 00 (output during acceleration/deceleration and constant-speed operation), 01 (output only during constant-speed operation) | 01 | × | ○ |
| | C039 | Low-current indication signal detection level | 0.00 to 1.50 x "rated current" (A) | INV rated current | ○ | ○ |
| | C040 | Overload signal output mode | 00 (output during acceleration/deceleration and constant-speed operation), 01 (output only during constant-speed operation) | 01 | × | ○ |
| | C041 | Overload level setting | 0.00 to 1.50 x "rated current" (A) | INV rated current | ○ | ○ |
| | C042 | Frequency arrival setting for accel. | 0.00~99.99/100.0~400.0(Hz) | 0.00 | × | ○ |
| | C043 | Frequency arrival setting for decel. | 0.00~99.99/100.0~400.0(Hz) | 0.00 | × | ○ |
| | C044 | PID deviation level setting | 0.0~100.0(%) | 3.0 | × | ○ |
| | C045 | Frequency arrival setting for acceleration (2) | 0.00~99.99/100.0~400.0(Hz) | 0.00 | × | ○ |
| | C046 | Frequency arrival setting for deceleration (2) | 0.00~99.99/100.0~400.0(Hz) | 0.00 | × | ○ |
| | C052 | Maximum PID feedback data | 0.0~100.0(%) | 100. | × | ○ |
| | C053 | Minimum PID feedback data | 0.0~100.0(%) | 0.0 | × | ○ |
| Communication function | C055 | Over-torque (forward-driving) level setting | 0.~150.(%) | 100. | × | ○ |
| | C056 | Over-torque (reverse regenerating) level setting | 0.~150.(%) | 100. | × | ○ |
| | C057 | Over-torque (reverse driving) level setting | 0.~150.(%) | 100. | × | ○ |
| | C058 | Over-torque (forward regenerating) level setting | 0.~150.(%) | 100. | × | ○ |
| | C061 | Electronic thermal warning level setting | 0.~100.(%) | 80. | × | ○ |
| | C062 | Alarm code output | 00 (disabling), 01 (3 bits), 02 (4 bits) | 00 | × | ○ |
| | C063 | Zero speed detection level | 0.00~99.99/100.0(Hz) | 0.00 | × | ○ |
| | C064 | Heat sink overheat warning level | 0.~200.(°C) | 120.0 | × | ○ |
| | C071 | Communication speed selection | 02 (loopback test), 03 (2,400 bps), 04 (4,800 bps), 05 (9,600 bps), 06 (19,200 bps) | 04 | × | ○ |
| | C072 | Node allocation | 1.~32. | 1. | × | ○ |
| | C073 | Communication data length selection | 7 (7 bits), 8 (8 bits) | 7 | × | ○ |
| | C074 | Communication parity selection | 00 (no parity), 01 (even parity), 02 (odd parity) | 00 | × | ○ |
| Adjustment | C075 | Communication stop bit selection | 1 (1 bit), 2 (2 bits) | 1 | × | ○ |
| | C076 | Selection of the operation after communication error | 00 (tripping), 01 (tripping after decelerating and stopping the motor), 02 (ignoring errors), 03 (stopping the motor after free-running), 04 (decelerating and stopping the motor) | 02 | × | ○ |
| | C077 | Communication timeout limit before tripping | 0.00~99.99(s) | 0.00 | × | ○ |
| | C078 | Communication wait time | 0.0~1000.(ms) | 0. | × | ○ |
| Others | C079 | Communication mode selection | 00(ASCII)/ 01(Modbus-RTU) | 00 | × | ○ |
| | C081 | [O] input span calibration | 0.~ 9999./1000~ 6553(10000~ 65530) | Factory setting | ○ | ○ |
| | C082 | [OI] input span calibration | 0.~ 9999./1000~ 6553(10000~ 65530) | Factory setting | ○ | ○ |
| Meter adjustment | C083 | [Q2] input span calibration | 0.~9999./1000~6553(10000~65530) | Factory setting | ○ | ○ |
| | C085 | Thermistor input tuning | 0.0~999.9/1000. | Factory setting | ○ | ○ |
| | C091 | Debug mode enable | (Do not change this parameter, which is intended for factory adjustment.) | 00 | × | × |
| Output terminal operation function | C101 | Up/Down memory mode selection | 00 (not storing the frequency data), 01 (storing the frequency data) | 00 | × | ○ |
| | C102 | Reset mode selection | 00 (resetting the trip when RS is on), 01 (resetting the trip when RS is off), 02 (enabling resetting only upon tripping [resetting when RS is on]), 03(resetting only trip) | 00 | ○ | ○ |
| | C103 | Restart mode after reset | 00 (starting with 0 Hz), 01 (starting with matching frequency), 02 (restarting with active matching frequency) | 00 | × | ○ |
| Output terminal operation function | C105 | FM gain adjustment | 50.~200.(%) | 100. | ○ | ○ |
| | C106 | AM gain adjustment | 50.~200.(%) | 100. | ○ | ○ |
| | C107 | AMI gain adjustment | 50.~200.(%) | 100. | ○ | ○ |
| | C109 | AM bias adjustment | 0.~100.(%) | 0. | ○ | ○ |
| | C110 | AMI bias adjustment | 0.~100.(%) | 20. | ○ | ○ |
| | C111 | Overload setting (2) | 0.00 to 1.50 x "rated current" (A) | INV rated current | ○ | ○ |
| | C121 | [O] input zero calibration | 0.~ 9999./1000~ 6553(10000~ 65530) | Factory setting | ○ | ○ |
| | C122 | [OI] input zero calibration | 0.~ 9999./1000~ 6553(10000~ 65530) | Factory setting | ○ | ○ |
| | C123 | [Q2] input zero calibration | 0.~9999./1000~6553(10000~65530) | Factory setting | ○ | ○ |
| | C130 | Output 11 on-delay time | 0.0~100.0(s) | 0.0 | × | ○ |
| | C131 | Output 11 off-delay time | 0.0~100.0(s) | 0.0 | × | ○ |
| | C132 | Output 12 on-delay time | 0.0~100.0(s) | 0.0 | × | ○ |
| Output terminal operation function | C133 | Output 12 off-delay time | 0.0~100.0(s) | 0.0 | × | ○ |
| | C134 | Output 13 on-delay time | 0.0~100.0(s) | 0.0 | × | ○ |
| | C135 | Output 13 off-delay time | 0.0~100.0(s) | 0.0 | × | ○ |
| | C136 | Output 14 on-delay time | 0.0~100.0(s) | 0.0 | × | ○ |
| | C137 | Output 14 off-delay time | 0.0~100.0(s) | 0.0 | × | ○ |
| | C138 | Output 15 on-delay time | 0.0~100.0(s) | 0.0 | × | ○ |
| | C139 | Output 15 off-delay time | 0.0~100.0(s) | 0.0 | × | ○ |
| | C140 | Output RY on-delay time | 0.0~100.0(s) | 0.0 | × | ○ |
| | C141 | Output RY off-delay time | 0.0~100.0(s) | 0.0 | × | ○ |
| | C142 | Logical output signal 1 selection 1 | Same as the settings of C021 to C026 (except those of LOG1 to LOG6) | 00 | × | ○ |
| | C143 | Logical output signal 1 selection 2 | Same as the settings of C021 to C026 (except those of LOG1 to LOG6) | 00 | × | ○ |
| | C144 | Logical output signal 1 operator selection | 00(AND)/ 01(OR)/ 02(XOR) | 00 | × | ○ |
| | C145 | Logical output signal 2 selection 1 | Same as the settings of C021 to C026 (except those of LOG1 to LOG6) | 00 | × | ○ |

| Code | Function name | Monitored data or setting | Default | Setting during operation (allowed or not) | Change during operation (allowed or not) |
|------------------------------------|---------------|---|---|---|--|
| Output terminal operation function | C146 | Logical output signal 2 selection 2 | Same as the settings of C021 to C026 (except those of LOG1 to LOG6) | 00 | × |
| | C147 | Logical output signal 2 operator selection 00(AND)/ 01(OR)/ 02(XOR) | 00 | × | ○ |
| | C148 | Logical output signal 3 selection 1 | Same as the settings of C021 to C026 (except those of LOG1 to LOG6) | 00 | × |
| | C149 | Logical output signal 3 selection 2 | Same as the settings of C021 to C026 (except those of LOG1 to LOG6) | 00 | × |
| | C120 | Logical output signal 3 operator selection 00(AND)/ 01(OR)/ 02(XOR) | 00 | × | ○ |
| | C151 | Logical output signal 4 selection 1 | Same as the settings of C021 to C026 (except those of LOG1 to LOG6) | 00 | × |
| | C152 | Logical output signal 4 selection 2 | Same as the settings of C021 to C026 (except those of LOG1 to LOG6) | 00 | × |
| | C153 | Logical output signal 4 operator selection 00(AND)/ 01(OR)/ 02(XOR) | 00 | × | ○ |
| | C154 | Logical output signal 5 selection 1 | Same as the settings of C021 to C026 (except those of LOG1 to LOG6) | 00 | × |
| | C155 | Logical output signal 5 selection 2 | Same as the settings of C021 to C026 (except those of LOG1 to LOG6) | 00 | × |
| | C156 | Logical output signal 5 operator selection 00(AND)/ 01(OR)/ 02(XOR) | 00 | × | ○ |
| | C157 | Logical output signal 6 selection 1 | Same as the settings of C021 to C026 (except those of LOG1 to LOG6) | 00 | × |
| | C158 | Logical output signal 6 selection 2 | Same as the settings of C021 to C026 (except those of LOG1 to LOG6) | 00 | × |
| | C159 | Logical output signal 6 operator selection 00(AND)/ 01(OR)/ 02(XOR) | 00 | × | ○ |
| Input terminal response | C160 | Input terminal response time setting 1 0.~200.(× 2ms) | 1 | × | ○ |
| | C161 | Input terminal response time setting 2 0.~200.(× 2ms) | 1 | × | ○ |
| | C162 | Input terminal response time setting 3 0.~200.(× 2ms) | 1 | × | ○ |
| | C163 | Input terminal response time setting 4 0.~200.(× 2ms) | 1 | × | ○ |
| | C164 | Input terminal response time setting 5 0.~200.(× 2ms) | 1 | × | ○ |
| | C165 | Input terminal response time setting 6 0.~200.(× 2ms) | 1 | × | ○ |
| | C166 | Input terminal response time setting 7 0.~200.(× 2ms) | 1 | × | ○ |
| | C167 | Input terminal response time setting 8 0.~200.(× 2ms) | 1 | × | ○ |
| Other | C168 | Input terminal response time setting FW 0.~200.(× 2ms) | 1 | × | ○ |
| | C169 | Multistage speed/position determination time 0.~200.(× 10ms) | 0 | × | ○ |

● H Group: Motor Constants Functions

| Code | Function name | Monitored data or setting | Default | Setting during operation (allowed or not) | Change during operation (allowed or not) |
|-------------------|---------------|---|-----------------|---|--|
| Control constants | H001 | Auto-tuning Setting 00 (disabling auto-tuning), 01 (auto-tuning without rotation), 02 (auto-tuning with rotation) | 00 | × | × |
| | H002 | Motor data selection, 1st motor 00 (Hitachi standard data), 01 (auto-tuned data), 02 (auto-tuned data [with online auto-tuning function]) | 00 | × | × |
| | H202 | Motor data selection, 2nd motor 00 (Hitachi standard data), 01 (auto-tuned data), | 00 | × | × |
| | H003 | Motor capacity, 1st motor 18.5~160.0(kW) | Factory setting | × | × |
| | H203 | Motor capacity, 2nd motor 18.5~160.0(kW) | Factory setting | × | × |
| | H004 | Motor poles setting, 1st motor 2, 4, 6, 8, 10 (poles) | 4 | × | × |
| | H204 | Motor poles setting, 2nd motor 2, 4, 6, 8, 10 (poles) | 4 | × | × |
| | H005 | Motor speed constant, 1st motor 0.001~9.999/10.00~80.00(10.000~80.000) | 1.590 | ○ | ○ |
| | H205 | Motor speed constant, 2nd motor 0.001~9.999/10.00~80.00(10.000~80.000) | 1.590 | ○ | ○ |
| | H006 | Motor stabilization constant, 1st motor 0.~255. | 100. | ○ | ○ |
| | H206 | Motor stabilization constant, 2nd motor 0.~255. | 100. | ○ | ○ |
| | H306 | Motor stabilization constant, 3rd motor 0.~255. | 100. | ○ | ○ |
| | H020 | Motor constant R1, 1st motor 0.001~9.999/10.00~65.53(½) | (*)5 | × | × |
| | H220 | Motor constant R1, 2nd motor 0.001~9.999/10.00~65.53(½) | (*)5 | × | × |
| | H021 | Motor constant R2, 1st motor 0.001~9.999/10.00~65.53(½) | (*)5 | × | × |
| | H221 | Motor constant R2, 2nd motor 0.001~9.999/10.00~65.53(½) | (*)5 | × | × |
| | H022 | Motor constant L, 1st motor 0.00~99.99/100.0~655.3(mH) | (*)5 | × | × |
| | H222 | Motor constant L, 2nd motor 0.00~99.99/100.0~655.3(mH) | (*)5 | × | × |
| | H023 | Motor constant I _o 0.00~99.99/100.0~655.3(A) | (*)5 | × | × |
| | H223 | Motor constant I _o , 2nd motor 0.00~99.99/100.0~655.3(A) | (*)5 | × | × |
| | H024 | Motor constant J 0.001~9.999/10.00~99.99/100.0~999.9/1000.~9999. | (*)5 | × | × |
| | H224 | Motor constant J, 2nd motor 0.001~9.999/10.00~99.99/100.0~999.9/1000.~9999. | (*)5 | × | × |
| | H030 | Auto constant R1, 1st motor 0.001~9.999/10.00~65.53(½) | (*)5 | × | × |
| | H230 | Auto constant R1, 2nd motor 0.001~9.999/10.00~65.53(½) | (*)5 | × | × |
| | H031 | Auto constant R2, 1st motor 0.001~9.999/10.00~65.53(½) | (*)5 | × | × |
| | H231 | Auto constant R2, 2nd motor 0.001~9.999/10.00~65.53(½) | (*)5 | × | × |
| | H032 | Auto constant L, 1st motor 0.00~99.99/100.0~655.3(mH) | (*)5 | × | × |
| | H232 | Auto constant L, 2nd motor 0.00~99.99/100.0~655.3(mH) | (*)5 | × | × |
| | H033 | Auto constant I _o , 1st motor 0.00~99.99/100.0~655.3(A) | (*)5 | × | × |
| | H233 | Auto constant I _o , 2nd motor 0.00~99.99/100.0~655.3(A) | (*)5 | × | × |
| | H034 | Auto constant J, 1st motor 0.001~9.999/10.00~99.99/100.0~999.9/1000.~9999. | (*)5 | × | × |
| | H234 | Auto constant J, 2nd motor 0.001~9.999/10.00~99.99/100.0~999.9/1000.~9999. | (*)5 | × | × |
| | H050 | PI proportional gain for 1st motor 0.~999.9/1000. | 100. | ○ | ○ |
| | H250 | PI proportional gain for 2nd motor 0.~999.9/1000. | 100. | ○ | ○ |
| | H051 | PI integral gain for 1st motor 0.0~999.9/1000. | 100. | ○ | ○ |
| | H251 | PI integral gain for 2nd motor 0.0~999.9/1000. | 100. | ○ | ○ |
| | H052 | P proportional gain setting for 1st motor 0.01~10.00 | 1.00 | ○ | ○ |
| | H252 | P proportional gain setting for 2nd motor 0.01~10.00 | 1.00 | ○ | ○ |
| | H060 | Zero LV lmit for 1st motor 0.0~70.0 | 100. | ○ | ○ |
| | H260 | Zero LV lmit for 2nd motor 0.0~70.0 | 100. | ○ | ○ |
| | H061 | Zero LV starting boost current for 1st motor 0.~50.(%) | 50. | ○ | ○ |
| | H261 | Zero LV starting boost current for 2nd motor 0.~50.(%) | 50. | ○ | ○ |
| | H070 | Terminal selection PI proportional gain setting 0.0~999.9/1000. | 100. | ○ | ○ |
| | H071 | Terminal selection PI integral gain setting 0.0~999.9/1000. | 100. | ○ | ○ |
| | H072 | Terminal selection P proportional gain setting 0.00~10.00 | 1.0 | ○ | ○ |
| | H073 | Gain switching time 0.~9999.(ms) | 100. | ○ | ○ |

● P Group: Expansion Card Functions

| Code | Function name | Monitored data or setting | Default | Setting during operation (allowed or not) | Change during operation (allowed or not) |
|---------------------------|---------------|--|--|---|--|
| Optional functions | P001 | Operation mode on expansion card 1 error | 00 (tripping), 01 (continuing operation) | 00 | × |
| | P002 | Operation mode on expansion card 2 error | 00 (tripping), 01 (continuing operation) | 00 | ○ |
| | P011 | Encoder pulse-per-revolution (PPR) setting | 128. to 9999., 1000 to 6553(10000 to 65535) (pulses) | 1024. | × |
| | P012 | Control pulse setting | 00 (ASR), 01 (APR), 02 (APR2), 03 (HAPR) | 00 | × |
| | P013 | Pulse train mode setting | 00 (mode 0), 01 (mode 1), 02 (mode 2) | 00 | × |
| | P014 | Home search stop position setting | 0..~4095. | 0. | × |
| | P015 | Home search speed setting | "start frequency" to "maximum frequency" (up to 120.0) (Hz) | 5.00 | × |
| | P016 | Home search direction setting | 00 (forward), 01 (reverse) | 00 | × |
| | P017 | Home search completion range setting | 0. to 9999., 1000 (10000) (pulses) | 5. | × |
| | P018 | Home search completion delay time setting | 0.00~9.99(s) | 0.00 | × |
| | P019 | Electronic gear set position selection | 00 (feedback side), 01 (commanding side) | 00 | × |
| | P020 | Electronic gear ratio numerator setting | 1..~9999. | 1. | ○ |
| | P021 | Electronic gear ratio numerator setting | 1..~9999. | 1. | ○ |
| | P022 | Feed-forward gain setting | 0.00~99.99/100.0~655.3 | 0.00 | ○ |
| | P023 | Position loop gain setting | 0.00~99.99/100.0 | 0.50 | ○ |
| | P024 | Position bias setting | -204(-2048.)~999.~2048. | 0. | ○ |
| | P025 | Temperature compensation thermistor enable | 00 (no compensation), 01 (compensation) | 00 | × |
| | P026 | Over-speed error detection level setting | 0.0~150.0(%) | 135.0 | × |
| | P027 | Speed deviation error detection level setting | 0.00~99.99/100.0~120.0(Hz) | 7.50 | × |
| | P028 | Numerator of motor gear ratio | 1..~9999. | 1. | ○ |
| | P029 | Denominator of motor gear ratio | 1..~9999. | 1. | ○ |
| | P031 | Accel/decel time input selection | 00 (digital operator), 01 (option 1), 02 (option 2), 03 (easy sequence) | 00 | × |
| | P032 | Positioning command input selection | 00 (digital operator), 01 (option 1), 02 (option 2), 03 (easy sequence) | 00 | ○ |
| | P033 | Torque command input selection | 00 (O terminal), 01 (OI terminal), 02 (O2 terminal), 03 (digital operator) | 00 | × |
| | P034 | Torque command setting | 0..~150.(%) | 0. | ○ |
| | P035 | Polarity selection at the torque command input via O2 terminal | 00 (as indicated by the sign), 01 (depending on the operation direction) | 00 | × |
| | P036 | Torque bias mode | 00 (disabling the mode), 01 (digital operator), 02 (input via O2 terminal) | 00 | × |
| | P037 | Torque bias value | -150.~+150.(%) | 0. | ○ |
| | P038 | Torque bias polarity selection | 00 (as indicated by the sign), 01 (depending on the operation direction) | 00 | × |
| | P039 | Speed limit for torque-controlled operation (forward rotation) | 0.00 to "maximum frequency" (Hz) | 0.00 | ○ |
| | P040 | Speed limit for torque-controlled operation (reverse rotation) | 0.00 to "maximum frequency" (Hz) | 0.00 | ○ |
| | P044 | DeviceNet comm watchdog timer | 0.00~99.99(s) | 1.00 | × |
| | P045 | Inverter action on DeviceNet comm error | 00 (tripping), 01 (tripping after decelerating and stopping the motor), 02 (ignoring errors), 03 (stopping the motor after free-running), 04 (decelerating and stopping the motor) | 01 | × |
| | P046 | DeviceNet polled I/O: Output instance number | 20/21/100 | 21 | × |
| | P047 | DeviceNet polled I/O: Input instance number | 70/71/101 | 71 | × |
| | P048 | Inverter action on DeviceNet idle mode | 00 (tripping), 01 (tripping after decelerating and stopping the motor), 02 (ignoring errors), 03 (stopping the motor after free-running), 04 (decelerating and stopping the motor) | 01 | × |
| | P049 | DeviceNet motor poles setting for RPM | 0/2/4/6/8/10/12/14/16/18/20/22/24/26/28/30/32/34/36/38 | 0 | × |
| | P055 | Pulse-string frequency scale | 1.0~50.0(kHz) | 25.0 | ○ |
| | P056 | Time constant of pulse-string frequency filter | 0.01~2.00(s) | 0.10 | ○ |
| | P057 | Pulse-string frequency bias | -100.~+100.(%) | 0. | ○ |
| | P058 | Pulse-string frequency limit | 0..~100.(%) | 100. | × |
| Absolute position control | P060 | Multistage position setting 0 | Position setting range reverse side to forward side (upper 4 digits including "-") | 0 | ○ |
| | P061 | Multistage position setting 1 | Position setting range reverse side to forward side (upper 4 digits including "-") | 0 | ○ |
| | P062 | Multistage position setting 2 | Position setting range reverse side to forward side (upper 4 digits including "-") | 0 | ○ |
| | P063 | Multistage position setting 3 | Position setting range reverse side to forward side (upper 4 digits including "-") | 0 | ○ |
| | P064 | Multistage position setting 4 | Position setting range reverse side to forward side (upper 4 digits including "-") | 0 | ○ |
| | P065 | Multistage position setting 5 | Position setting range reverse side to forward side (upper 4 digits including "-") | 0 | ○ |
| | P066 | Multistage position setting 6 | Position setting range reverse side to forward side (upper 4 digits including "-") | 0 | ○ |
| | P067 | Multistage position setting 7 | Position setting range reverse side to forward side (upper 4 digits including "-") | 0 | ○ |
| | P068 | Zero-return mode selection | 00(Low)/ 01(Hi1)/ 02(Hi2) | 00 | ○ |
| | P069 | Zero-return direction selection | 00(FW)/ 01(RV) | 00 | ○ |
| | P070 | Low-speed zero-return frequency | 0.00~10.00(Hz) | 0.00 | ○ |
| | P071 | High-speed zero-return frequency | 0.00 to 99.99 / 100.0 to Maximum frequency setting, 1st motor (Hz) | 0.00 | ○ |
| | P072 | Position range specification (forward) | 0 to +268435455 (when P012 = 02) 0 to +1073741823 (when P012 = 03) (upper 4 digits) | 268435455 | ○ |
| | P073 | Position range specification (reverse) | 0 to +268435455 (when P012 = 02) 0 to +1073741823 (when P012 = 03) (upper 4 digits) | -268435455 | ○ |
| | P074 | Teaching selection | 00(X00)/ 01(X01)/ 02(X02)/ 03(X03)/ 04(X04)/ 05(X05)/ 06(X06)/ 07(X07) | 00 | ○ |
| Easier sequence | P100 P131 | User parameter U(00)~U(31) | 0..~9999./1000~6553(10000~65535) | 0. | ○ |

(*5) Depending on the motor capacity

● U Group: User-selected Menu Functions

| Code | Function name | Monitored data or setting | Default | Setting during operation (allowed or not) | Change during operation (allowed or not) |
|--------------|-----------------------------|---------------------------|---------|---|--|
| U001 U012 | User-selected function 1~12 | no/d001~P131 | no | ○ | ○ |

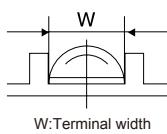
Terminals

(1) Main Circuit Terminals

- Terminal Description

| Terminal Symbol | Terminal Name | Functions |
|---|--|---|
| R(L1),S(L2),T(L3) | Main power supply input terminals | Connecting the power supply |
| U(T1),V(T2),W(T3) | Inverter output terminals | Connecting the motor |
| PD(+1),P(+) | DC reactor connection terminals | Connecting DC reactor |
| P(+),RB(RB) | External braking resistor connection terminals | Connecting braking resistor |
| P(+),N(-) | External braking unit connection terminals | Connecting braking unit |
| ⏚ (G) | Ground connection terminal | Connecting the ground(avoiding electric shock, eliminating noise) |
| R ₀ (R _b),T ₀ (T _b) | Control power supply input terminals | Connecting the control power supply |

- Screw Diameter and Terminal Width

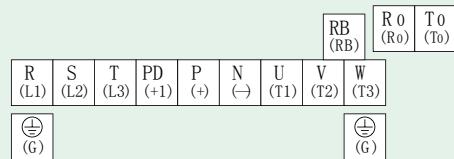


| Model | Screw diameter | Ground Screw diameter | Terminal width (mm) |
|-----------------------------|----------------|-----------------------|---------------------|
| 185-370HFF | M6 | M6 | 23 |
| 450-750HFF | M8 | M8 | 29 |
| 900,1100HFF | M10 | M8 | 29 |
| 1320,1600HFF | M10 | M8 | 40 |
| ROT0 terminals (All models) | M4 | M14 | 9 |

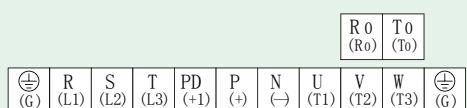
(*1) When connected with bare wire instead of press wire, please use the washers provided in the product package.

- Terminal Arrangement

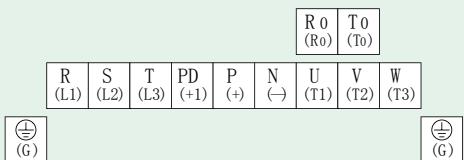
· 185~300HFF



· 370~750HFF



· 900~1600FF

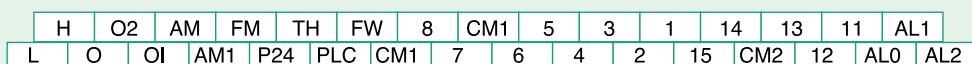


(2) Control Circuit Terminals

• Terminal Description

| | Symbol | Name | Explanation of Terminals | Ratings |
|---------|--------------------------------|--------------------------------------|--|--|
| Analog | Power Supply Frequency Setting | L | Common Terminal for Analog Power Source | Common terminal for H, O, O2, OI, AM, and AM1. Do not ground. |
| | | H | Power Source for Frequency Setting | Power supply for frequency command input |
| | | O | Frequency Command Terminal(Voltage) | Maximum frequency is attained at DC 10V in DC 0-10V range. Set the voltage at A014 to command maximum frequency below DC 10V. |
| | | O2 | Frequency Command Extra Terminal | O2 signal is added to the frequency command of O or OI in DC 0-±10V range. By changing configuration, frequency command can be input also at O2 terminal. |
| | | 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. |
| | 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, and LAD frequency, motor temperature, heat sink temperature, common output terminals. |
| | | AMI | 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, and LAD frequency, motor temperature, heat sink temperature, common output terminals. [Digital pulse output (Pulse voltage DC 0/10V)] Outputs the value of output frequency as digital pulse (duty 50%) |
| | Power Supply | P24 | Power Terminal for Interface | Internal power supply for input terminals. In the case of source type logic, common terminal for contact input terminals. |
| | | CM1 | Common Terminal for Interface | Common terminal for P24, TH, and FM. In the case of sink type logic, common terminal for contact input terminals. Do not ground. |
| Digital | Run Command Contact Input | FW | Forward Command Input | The motor runs forward when FW terminal is ON, and stops when FW is OFF. |
| | | 1 5 2 6 3 7 4 8 | Intelligent Input Terminals | Assign 8 functions to terminals. Terminal 1 and 3 is for urgent stop , |
| | | 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. |
| | | 11 12 13 14 15 | Intelligent Output Terminals | Assign 5 functions to open collector outputs. When the alarm code is selected at C062, terminal 11-13 or 11-14 are reserved for error codes of inverter trip. (Refer to the standard specifications for the functions.) Both sink and source logic are always applicable between each terminal and CM1. |
| | Open Collector Output | CM2 | Common Terminal for Intelligent Output Terminals | Common terminal for intelligent output terminal 11-15. |
| | | TH | Thermistor Input Terminals | 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 the case of abnormal temperature: 3kΩ Note: Thermal protection level can be set between 0 and 9999Ω. |
| | Analog Input | Sensor | AL0 AL1 AL2 | In default setting, an alarm is activated when inverter output is turned off by a protective function. |
| | Digital | State/Alarm | | Maximum capacity of relays AL1-AL0: AC 250V, 2A(R load)/0.2A(L load) AL2-AL0: AC 250V, 1A(R load)/0.2A(L load) Minimum capacity of relays AC100V, 10mA DC5V, 100mA |

• Terminal Arrangement



Screw diameter:M3

Terminal Width:6.4mm

Protective Function

● Error Codes

| Name | Cause(s) | Display on digital operator | Display on remote operator/copy unit |
|--|--|-----------------------------|--------------------------------------|
| Over-current protection | The inverter output was short-circuited, or the motor shaft is locked or has a heavy load. These conditions cause excessive current for the inverter, so the inverter output is turned off. | While at constant speed | ERR1**** |
| | | During deceleration | OC.Drive |
| | | During acceleration | OC.Decel |
| | | Others | OC.Accel |
| Overload protection(*1) | When a motor overload is detected by the electronic thermal function, the inverter trips and turns off its output. | E05 | Over.C |
| Braking resistor overload protection | When the regenerative braking resistor exceeds the usage time allowance or an over-voltage caused by the stop of the BRD function is detected, the inverter trips and turns off its output. | E06 | OL.BRD |
| Over-voltage protection | When the DC bus voltage exceeds a threshold, due to regenerative energy from the motor, the inverter trips and turns off its output. | E07 | Over.V |
| EEPROM error(*2) | When the built-in EEPROM memory has problems due to noise or excessive temperature, the inverter trips and turns off its output. | E08 | EEPROM |
| Under-voltage error | A decrease of internal DC bus voltage below a threshold results in a control circuit fault. This condition can also generate excessive motor heat or cause low torque. The inverter trips and turns off its output. | E09 | Under.V |
| CT(Current transformer) error | If a strong source of electrical interference is close to the inverter or abnormal operations occur in the built-in CT, the inverter trips and turns off its output. | E10 | CT |
| CPU error | When a malfunction in the built-in CPU has occurred, the inverter trips and turns off its output. | E11 | CPU |
| External trip | When a signal to an intelligent input terminal configured as EXT has occurred, the inverter trips and turns off its output. | E12 | EXTERNAL |
| USP error | An error occurs when power is cycled while the inverter is in RUN mode if the Unattended Start Protection (USP) is enabled. The inverter trips and does not go into RUN mode until the error is cleared. | E13 | USP |
| Ground fault | The inverter is protected by the detection of ground faults between the inverter output and the motor during power-up tests. This feature protects the inverter only. | E14 | GND.Flt. |
| Input over-voltage protection | When the input voltage is higher than the specified value, it is detected 60 seconds after power-up and the inverter trips and turns off its output. | E15 | OV.SRC |
| Instantaneous power failure | When power is cut for more than 15ms, the inverter trips and turns off its output. If power failure continues, the error will be cleared. The inverter restarts if it is in RUN mode when power is cycled. | E16 | Inst.P-F |
| Temperature error due to low cooling-fan speed | The inverter will display the error code shown on the right if the lowering of cooling-fan speed is detected at the occurrence of the temperature error described below. | E20 | OH.stFAN |
| Inverter thermal trip | When the inverter internal temperature is higher than the specified value, the thermal sensor in the inverter module detects the higher temperature of the power devices and trips, turning off the inverter output. | E21 | OH.FIN |
| Gate array error | Communication error has occurred between CPU and gate array. | E23 | GA.COM |
| Phase loss detection | One of three lines of 3-phase power supply is missing. | E24 | PH.Fail |
| Main circuit error (*3) | The inverter will trip if the gate array cannot confirm the on/off state of IGBT because of a malfunction due to noise or damage to the main circuit element. | E25 | Main.Cir |
| Cooling-fan speed drop signal | If the rotation speed of the internal cooling fan decreases so that the cooling effect decreases, inverter output turns OFF for protection.(available only for SJ700 1850-4000) | E29 | Fan.Slow |
| IGBT error | When an instantaneous over-current has occurred, the inverter trips and turns off its output to protect main circuit element. | E30 | IGBT |
| Thermistor error | When the thermistor inside the motor detects temperature higher than the specified value, the inverter trips and turns off its output. | E35 | TH |
| Braking error | The inverter turns off its output when it can not detect whether the braking is ON or OFF within waiting time set at b024 after it has released the brake. (When braking is enabled at b120) | E36 | BRAKE |
| Emergency stop (*4) | If the EMR signal (on three terminals) is turned on when the slide switch (SW1) on the logic board is set to ON, the inverter hardware will shut off the inverter output and display the error code shown on the right. | E37 | EMR |
| Low-speed overload protection | If overload occurs during the motor operation at a very low speed at 0.2 Hz or less, the electronic thermal protection circuit in the inverter will detect the overload and shut off the inverter output. (2nd electronic thermal control) (Note that a high frequency may be recorded as the error history data.) | E38 | OL.LowSP |
| Modbus communication error | If timeout occurs because of line disconnection during the communication in Modbus-RTU mode, the inverter will display the error code shown on the right. (The inverter will trip according to the setting of "C076".) | E41 | NET.ERR |
| Easy sequence function Error | Error indications by protective functions with the easy sequence function used. | E43 E44 E45 | PRG.CMD PRG.NST PRG.ERR1 |
| Expansion card 1 connection error | An error has been detected in an expansion card or at its connecting terminals. | E60~E69 | OP1-0 ~ OP1-9 |
| Expansion card 2 connection error | | E70~E79 | OP2-0 ~ OP2-9 |
| Modbus Communication Error | A trip occurs to display errors in case of timeout caused by offline under the terms and conditions of Modbus-RTU(according to the settings of C076) | E40 | NET.ERR |
| User trip | Errors will be displayed in case of a trip | E50~E59 | PRG-0 ~ PRG 9 |

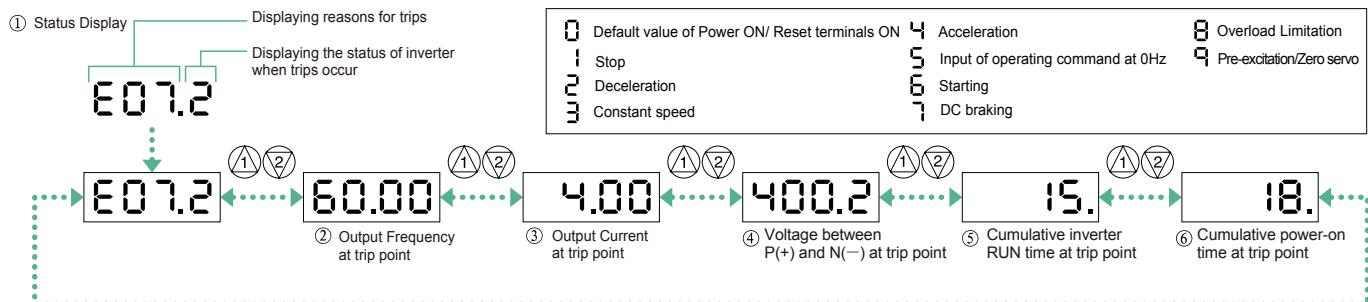
(*1): Reset operation is acceptable 10 seconds after the trip.

(*2): Check the parameters when EEPROM error occurs. If EEPROM errors reoccur after power on, please reset the parameters after default.

(*3): The inverter will not accept reset commands input via the RS terminal or entered by the STOP/RESET key. Therefore, turn off the inverter power.

(*4): The inverter will not accept the reset command entered from the digital operator. Therefore, reset the inverter by turning on the RS terminal.

● Method to Monitor Trips



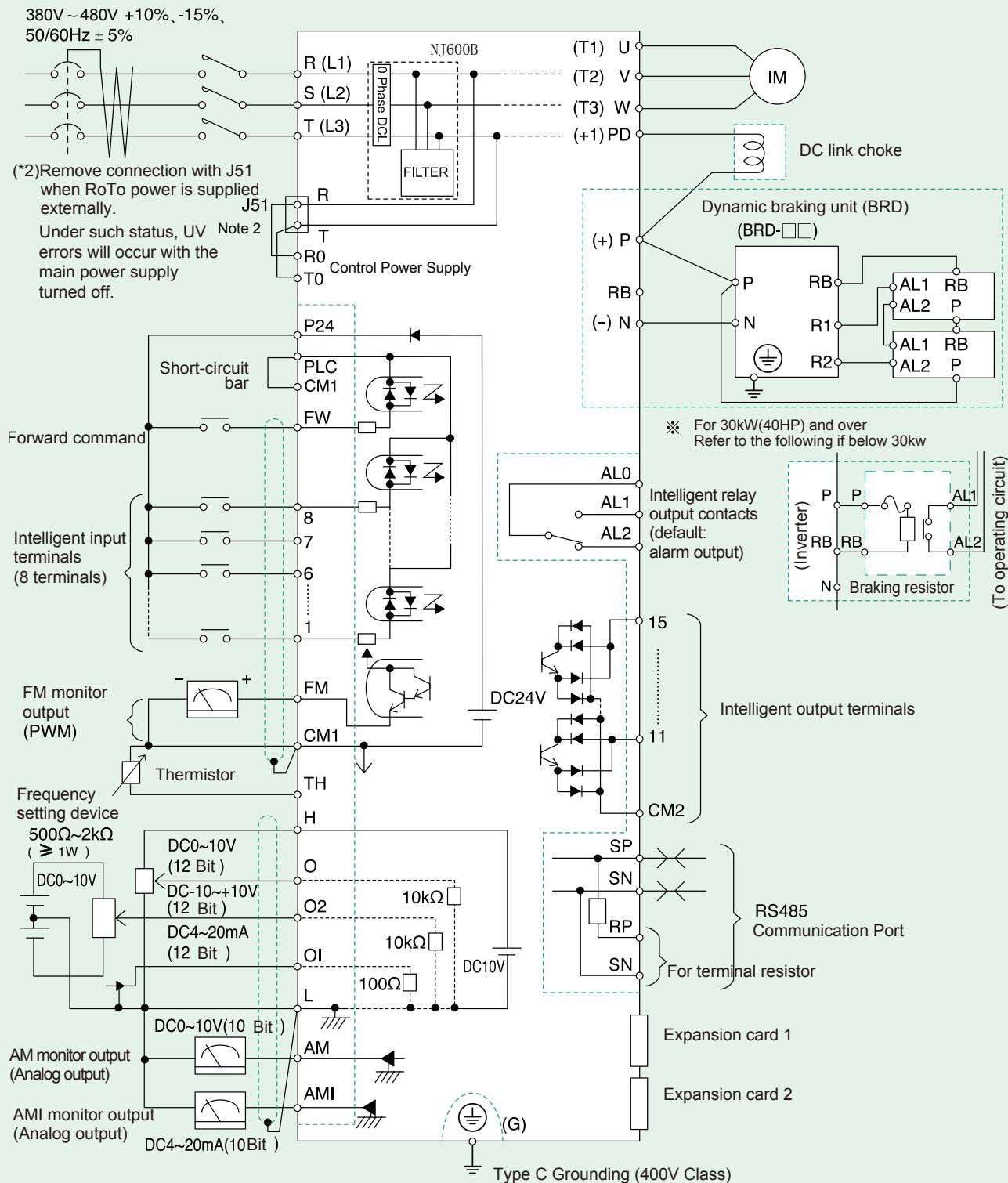
Note: This is the status during an inverter trip, not the actual status of the motor.

Eg: Under PID control command or analog signal(voltage/current) input frequency command, the motor is operating at constant speed, but the inverter displays imperceptible acceleration/deceleration because of the fluctuation of analog signals.

Connecting Diagram

• Source Type Logic

400V class



| | | | | |
|-----------------|----------------------------|--------|-----------------------|--------------------|
| Terminal Name | FW, 1, 2, 3, 4, 5, 6, 7, 8 | FM, TH | H, O, O2, OI, AM, AMI | 11, 12, 13, 14, 15 |
| Common terminal | P24 | CM1 | L | CM2 |

Note1:Please note that each common terminal is different.

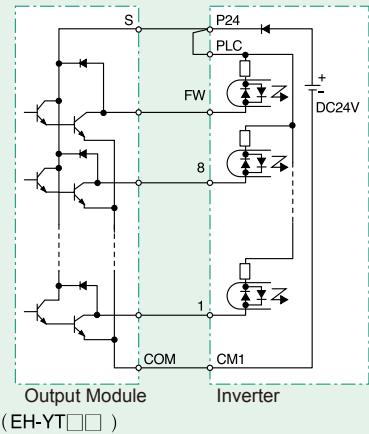
Connection to PLC

Connection to the Module of Hitachi HIDIC-H Series

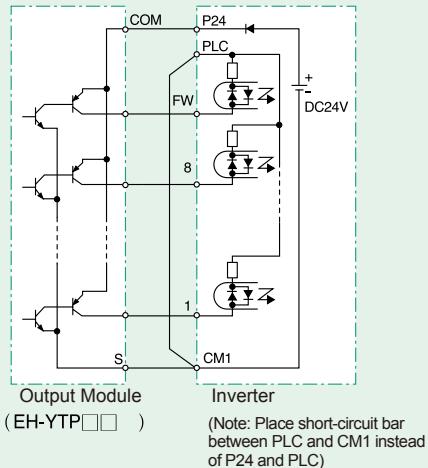
● Connection to Input Terminals

1. Using Internal Power Supply of The Inverter

1) Sink type logic

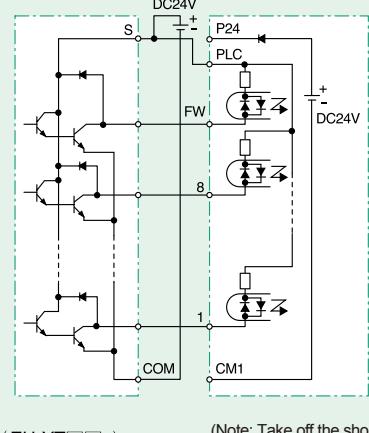


2) Source type logic

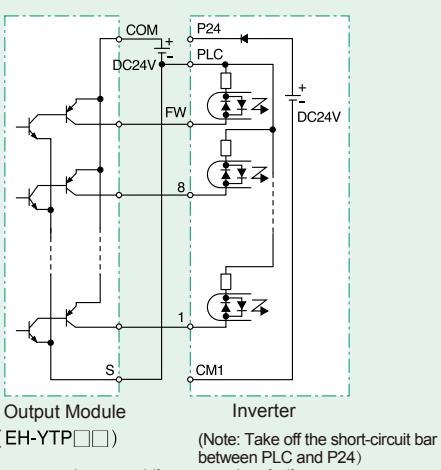


2. Using External Power Supply

1) Sink type logic



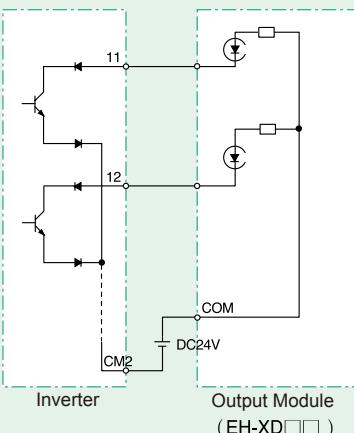
2) Source type logic



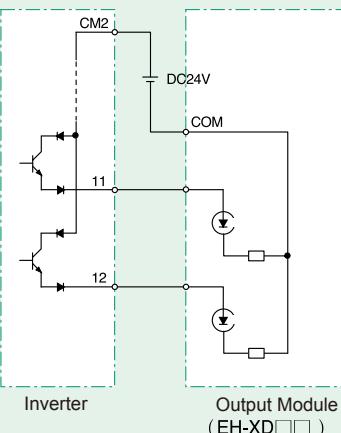
(Note: Be sure to turn on the inverter after turning on the PLC and its external power source to prevent the parameters in the inverter from being modified.)

● Connection to Output Terminals

1) Sink type logic

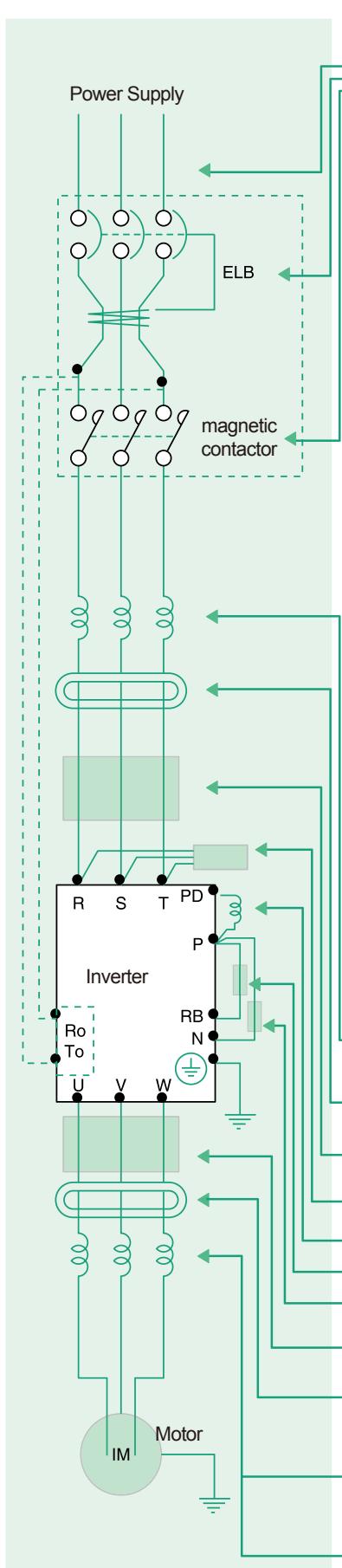


2) Source type logic



Wiring and Accessories

● Standard Wiring and Accessories



| Model | Motor Output (kW) | Wiring | | | | Accessories | |
|----------------|-------------------|---|--|---|-----------------------|-------------------------|--|
| | | AWG (mm ²) R,S,T,U,V,W,P,PD,N | External Braking Resistor P, RB [Ω] (mm ²) | Signal Lines | Leakage Breaker (ELB) | Magnetic Contactor (MC) | |
| NJ600B-185HFF | 18.5 | 8 | 8 | | EX60B(60A) | H35 | |
| NJ600B-220HFF | 22 | 14 | 14 | | EX60B(60A) | H50 | |
| NJ600B-300HFF | 30 | 14 | 14 | 0.75mm ² poles shielded wire | RX100(75A) | H50 | |
| NJ600B-370HFF | 37 | 22 | — | | RX100(100A) | H65 | |
| NJ600B-450HFF | 45 | 38 | — | | RX100(100A) | H80 | |
| NJ600B-550HFF | 55 | 38 | — | | RX225B(150A) | H100 | |
| NJ600B-750HFF | 75 | 60 | — | | RX225B(175A) | H125 | |
| NJ600B-900HFF | 90 | 100(38 x 2) | — | | RX225B(225A) | H150 | |
| NJ600B-1100HFF | 110 | 100(38 x 2) | — | | RX225B(225A) | H200 | |
| NJ600B-1320HFF | 132 | 150(60 x 2) | — | | RX400B(350A) | H250 | |
| NJ600B-1600HFF | 160 | 200(80 x 2) | — | | RX400B(350A) | H300 | |

Note1: The accessories are specially used in Hitachi 4 pole squirrel-cage motor

Note2: Please use the breaker with proper capacity(inverter compatible circuit breaker)

Note3: Be sure to use thick wire cable for power wiring if the distance exceeds 20m (66ft)

Note4: Be sure to use ELB to ensure safety

Note5: It is recommended to use heat resisting insulated wire(75°C)

Note6: The wire diameter is designed based on HIV wire

Note7: P terminals of regenerating braking units is maximum applicable size

For detailed information, please refer to the user manual.

* Please use 0.75 mm² wire for alarm output connection

| ℓ | Current Sensitivity (mA) |
|----------------|--------------------------|
| 100m and below | 50 |
| 300m and below | 100 |

Please choose the current sensitivity according to the equivalent value of inverter-power source distance and inverter-motor distance. (ℓ)

When the accessory wire is over 100m, please use CV wire instead. Because the leakage current of the HIV wire is 8 times higher than that of the CV wire. The current sensitivity is as following.(Please use 8 times higher current sensitivity when using HIV wire.)

| Name | Effectiveness | | | | Function |
|--|----------------|-----------------|-----------------|------------------------|---|
| | Radiated Noise | Conducted Noise | Harmonics Noise | Surge Voltage Suppress | |
| Input side AC reactor (ALI-□□□□) | | △ | ○ | | This is useful in suppressing harmonics induced on the power supply lines, or when the main power voltage imbalance exceeds 3% (and power source capacity is more than 500kVA), or to smooth out line fluctuations. It also improves the power factor. |
| Radio noise filter (NF-□□□) | ○ | △ | | | Electrical noise interference may occur on nearby equipment such as a radio receiver. This magnetic choke filter helps reduce radiated noise. |
| EMI filter (ZCL-□) | ○ | ○ | | | Reduces the conducted noise on the power supply wiring generated by the inverter. Connect to the inverter input side. |
| Capacitor filter (CF1-□) | ○ | △ | | | The capacitor filter reduces radiated noise from the main power wires in the inverter input side. |
| DC link (DCL-□-□□) choke | | | ○ | | Suppresses harmonics generated by the inverter. |
| Braking resistor | | | | | This is useful for increasing the inverter's control torque for high duty-cycle (on-off) applications, and improving the decelerating capability. |
| Regenerating (BRD-□□□) braking unit | | | | | |
| Output side (ACF-C□) noise filter | ○ | ○ | | △ | Reduces radiated noise from wiring in the inverter output side. |
| Radio noise filter (Zero Reactor)(ZCL-□□□) | ○ | △ | | | Electrical noise interference may occur on nearby equipment such as a radio receiver. This magnetic choke filter helps reduce radiated noise (can also be used on input). |
| Output side AC reactor (ACL-□-□□□) | | △ | | △ | This reactor reduces the vibration in the motor caused by the inverter's switching waveforms, by smoothing the waveforms to approximate commercial power quality. It is also useful when wiring from the inverter to the motor is more than 10m in length, to reduce harmonics. |
| LCR filter | △ | ○ | | ○ | Sine wave shaping filter for the output side. |

⚠ For Correct Operation

Precaution for Usage

- Before use, be sure to read through the Instruction Manual to insure proper use of the inverter.
- Note that the inverter requires electrical wiring; a trained specialist should carry out the wiring.
- The inverter in this catalog is designed for general industrial applications. For special applications in fields such as aircraft, outer space, nuclear power, electrical power, transport vehicles, clinics, and underwater equipment, please consult with us in advance.
- For application in a facility where human life is involved or serious losses may occur, make sure to provide safety devices to
- The inverter is intended for use with a three-phase AC motor. For use with a load other than this, please consult with us.

Information in this brochure is subject to change without notice.

Application to Motors

[Application to general-purpose motors]

| | |
|-------------------------------------|---|
| Operating frequency | The overspeed endurance of a general-purpose motor is 120% of the rated speed for 2 minutes (JIS C4 004). For operation at higher than 60Hz, it is required to examine the allowable torque of the motor, useful life of bearings, noise, vibration, etc. In this case, be sure to consult the motor manufacturer as the maximum allowable rpm differs depending on the motor capacity, etc. |
| Torque characteristics | The torque characteristics of driving a general-purpose motor with an inverter differ from those of driving it using commercial power (starting torque decreases in particular). Carefully check the load torque characteristic of a connected machine and the driving torque characteristic of the motor. |
| Motor loss and temperature increase | An inverter-driven general-purpose motor heats up quickly at lower speeds. Consequently, the continuous torque level (output) will decrease at lower motor speeds. Carefully check the torque characteristics vs speed range requirements. |
| Noise | When run by an inverter, a general-purpose motor generates noise slightly greater than with commercial power. |
| Vibration | When run by an inverter at variable speeds, the motor may generate vibration, especially because of (a) unbalance of the rotor including a connected machine, or (b) resonance caused by the natural vibration frequency of a mechanical system. Particularly, be careful of (b) when operating at variable speeds a machine previously fitted with a constant speed motor. Vibration can be minimized by (1) avoiding resonance points using the frequency jump function of the inverter, (2) using a tire-shaped coupling, or (3) placing a rubber shock absorber beneath the motor base. |
| Power transmission mechanism | Under continued, low-speed operation, oil lubrication can deteriorate in a power transmission mechanism with an oil-type gear box (gear motor) or reducer. Check with the motor manufacturer for the permissible range of continuous speed. To operate at more than 60 Hz, confirm the machine's ability to withstand the centrifugal force generated. |

[Application to special motors]

| | |
|--|--|
| Gear motor | The allowable rotation range of continuous drive varies depending on the lubrication method or motor manufacturer. (Particularly in case of oil lubrication, pay attention to the low frequency range.) |
| Brake-equipped motor | For use of a brake-equipped motor, be sure to connect the braking power supply from the primary side of the inverter. |
| Pole-change motor | There are different kinds of pole-change motors (constant output characteristic type, constant torque characteristic type, etc.), with different rated current values. In motor selection, check the maximum allowable current for each motor of a different pole count. At the time of pole changing, be sure to stop the motor. Also see: Application to the 400V-class motor. |
| Submersible motor | The rated current of a submersible motor is significantly larger than that of the general-purpose motor. In inverter selection, be sure to check the rated current of the motor. |
| Explosion-proof motor | Inverter drive is not suitable for a safety-enhanced explosion-proof type motor. The inverter should be used in combination with a pressure-proof explosion-proof type of motor. |
| Synchronous (MS) motor High-speed (HFM) motor | In most cases, the synchronous (MS) motor and the high-speed (HFM) motor are designed and manufactured to meet the specifications suitable for a connected machine. As to proper inverter selection, consult the manufacturer. |
| Single-phase motor | A single-phase motor is not suitable for variable-speed operation by an inverter drive. Therefore, use a three-phase motor. |

[Application to the 400V-class motor]

A system applying a voltage-type PWM inverter with IGBT may have surge voltage at the motor terminals resulting from the cable constants including the cable length and the cable laying method. Depending on the surge current magnification, the motor coil insulation may be degraded. In particular, when a 400V-class motor is used, a longer cable is used, and **criticale**s can occur, take the following countermeasures:

- (1) install the LCR filter between the inverter and the motor
- (2) install the AC reactor between the inverter and the motor
- (3) enhance the insulation of the motor coil.

Notes on Use

[Drive]

| | |
|----------------------|--|
| Run/Stop | Run or stop of the inverter must be done with the keys on the operator panel or through the control circuit terminal. Do not operate by installing a electromagnetic contactor (Mg) in the main circuit. |
| Emergency motor stop | When the protective function is operating or the power supply stops, the motor enters the free run stop state. When an emergency stop is required or when the motor should be kept stopped, use of a mechanical brake should be considered. |
| High-frequency run | A max. 400Hz can be selected on the NJ600B Series. However, a two-pole motor can attain up to approx. 24,000 rpm, which is extremely dangerous. Therefore, carefully make selection and settings by checking the mechanical strength of the motor and connected machines. Consult the motor manufacturer when it is necessary to drive a standard (general-purpose) motor above 60 Hz. A full line of high-speed motors is available from Hitachi. |

[Installation Location and Operating Environment]

Avoid installation in areas of high temperature, excessive humidity, or where moisture can easily collect, as well as areas that are dusty, subject to corrosive gasses, mist of liquid for grinding, or salt. Install the inverter away from direct sunlight in a well-ventilated room that is free of vibration. The inverter can be operated in the ambient temperature range from -10 to 45°C.(Carrier frequency and output current must be reduced in the range of 40 to 50°C.)

[Main PowerSupply]

| | |
|---|---|
| Installation of an AC reactor on the input side | <p>In the following examples involving a general-purpose inverter, a large peak current flows on the main power supply side, and is able to destroy the converter module. Where such situations are foreseen or the connected equipment must be highly reliable, install an AC reactor between the power supply and the inverter. Also, where influence of indirect lightning strike is possible, install a lightning conductor.</p> <p>(A) The unbalance factor of the power supply is 3% or higher. (Note) (B) The power supply capacity is at least 10 times greater than the inverter capacity (the power supply capacity is 500 kVA or more). (C) Abrupt power supply changes are expected.</p> <p>Examples:</p> <ul style="list-style-type: none"> (1) Several inverters are interconnected with a short bus. (2) A thyristor converter and an inverter are interconnected with a short bus. (3) An installed phase advance capacitor opens and closes. <p>In cases (A), (B) and (C), it is recommended to install an AC reactor on the main power supply side.</p> <p>Note: Example calculation with $V_{RS} = 205V$, $V_{ST} = 201V$, $V_{TR} = 200V$ V_{RS} : R-S line voltage, V_{ST} : S-T line voltage, V_{TR} : T-R line voltage</p> $\text{Unbalance factor of voltage} = \frac{\text{Max. line voltage (min.)} - \text{Mean line voltage}}{\text{Mean line voltage}} \times 100$ $= \frac{V_{RS} - (V_{RS} + V_{ST} + V_{TR})/3}{(V_{RS} + V_{ST} + V_{TR})/3} \times 100 = \frac{205 - 202}{202} \times 100 = 1.5 (\%)$ |
| Using a private power generator | An inverter run by a private power generator may overheat the generator or suffer from a deformed output voltage waveform of the generator. Generally, the generator capacity should be five times that of the inverter (kVA) in a PWM control system, or six times greater in a PAM control system. |

● Notes on Peripheral Equipment Selection

| | | |
|-----------------------------------|---------------------------|---|
| Wiring connections | | (1) Be sure to connect main power wires with R(L1), S(L2), and T(L3) terminals (input) and motor wires to U(T1), V(T2), and W(T3) terminals (output). (Incorrect connection will cause an immediate failure.) (2) Be sure to provide a grounding connection with the ground terminal (⏚). |
| Wiring between inverter and motor | Electromagnetic contactor | When an electromagnetic contactor is installed between the inverter and the motor, do not perform on-off switching during running operation. |
| | Thermal relay | When used with standard applicable output motors (standard three-phase squirrel-cage four-pole motors), the NJ600B Series does not need a thermal relay for motor protection due to the internal electronic protective circuit. A thermal relay, however, should be used: <ul style="list-style-type: none"> ● during continuous running outside a range of 30 to 60 Hz. ● for motors exceeding the range of electronic thermal adjustment (rated current). ● when several motors are driven by the same inverter; install a thermal relay for each motor. ● The RC value of the thermal relay should be more than 1.1 times the rated current of the motor. Where the wiring length is 10 m or more, the thermal relay tends to turn off readily. In this case, provide an AC reactor on the output side or use a current sensor. |
| Installing a circuit breaker | | Install a circuit breaker on the main power input side to protect inverter wiring and ensure personal safety. Choose an inverter-compatible circuit breaker. The conventional type may malfunction due to harmonics from the inverter. For more information, consult the circuit breaker manufacturer. |
| Wiring distance | | The wiring distance between the inverter and the remote operator panel should be 20 meters or less. Shielded cable should be used on the wiring. Beware of voltage drops on main circuit wires. (A large voltage drop reduces torque.) |
| Earth leakage relay | | If the earth leakage relay (or earth leakage breaker) is used, it should have a sensitivity level of 15 mA or more (per inverter). |
| Phase advance capacitor | | Do not use a capacitor for power factor improvement between the inverter and the motor because the high-frequency components of the inverter output may overheat or damage the capacitor. |

● High-frequency Noise and Leakage Current

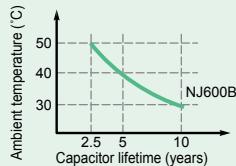
- (1) High-frequency components are included in the input/output of the inverter main circuit, and they may cause interference in a transmitter, radio, or sensor if used near the inverter. The interference can be minimized by attaching noise filters (option) in the inverter circuitry.
- (2) The switching action of an inverter causes an increase in leakage current. Be sure to ground the inverter and the motor.

● Lifetime of Primary Parts

Because a DC bus capacitor deteriorates as it undergoes internal chemical reaction, it should normally be replaced every 10 years. (10 years is not the guaranteed lifespan but rather, the expected design lifespan.) Be aware, however, that its life expectancy is considerably shorter when the inverter is subjected to such adverse factors as high temperatures or heavy loads exceeding the rated current of the inverter.

JEMA standard is the 5 years at ambient temperature 40°C used in 12 hours daily. (according to the " Instructions for Periodic Inspection of General-Purpose Inverter " (JEMA).)

Also, such moving parts as a cooling fan should be replaced. Maintenance inspection and parts replacement must be performed by only specified trained personnel. Please plan to replace new INV depends on the load, ambient condition in advance.



Memo

Memo

HITACHI

Inspire the Next[®]

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