Power Range

Voltage Class (Input/Rated output)	Applicable Motor (kW)							
	0.2	0.4	0.75	1.5	2.2	3.7	5.5	7.5
3-phase 200V/3-phase 200V	■	■	■	■	■	■	■	■
3-phase 400V/3-phase 400V	■	■	■	■	■	■	■	■
1-phase 200V/3-phase 200V	■	■	■	■	■			

Model No.

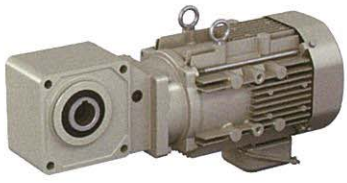
HF520 2 – A20

- **HF520**: HF520 : HF-520 series
- **2**: Power supply
  2 : 3-phase 200V
  4 : 3-phase 400V
  S : 1-phase 200V
- **A20**: Output power
  A20 : 0.2kW 1A5 : 1.5kW 5A5 : 5.5kW
  A40 : 0.4kW 2A2 : 2.2kW 7A5 : 7.5kW
  A75 : 0.75kW 3A7 : 3.7kW

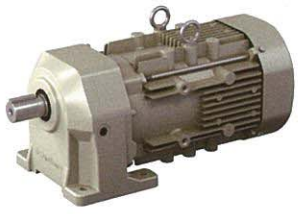
Gearmotor Product Lineup

CYCLO®

HYPONIC Gearmotor®



PREST® NEO Gearmotor



Bevel BUDDYBOX® and Helical BUDDYBOX® which can be driven by HF-520 too.

Data Display Area (5-digit)
Displays frequency, parameter number, and other data.

LO/RE Lamp
Light to indicate that the operator is set to LOCAL.

ESC Key
Return to the previous menu.

RESET & SHIFT Key
Resets to clear a fault situation.
Move the cursor to the right.

RUN Lamp
Light while the drive is operating the motor.

RUN Key
Start the drive.

Easy Operation
Used as a quick guide for the abbreviations used on the display screen.

LED Display

LO/RE Selection Key
Switch drive control between the operator (LOCAL) and the control terminals (REMOTE).

ENTER Key
Select all modes, parameters, settings, etc.
Select a menu item to move from one display screen to the next.

Communication Port
Port used for LED Operator.

Up Key
Scroll up to select parameter numbers, setting values, etc.

Down Key
Scroll down to select parameter numbers, setting values, etc.

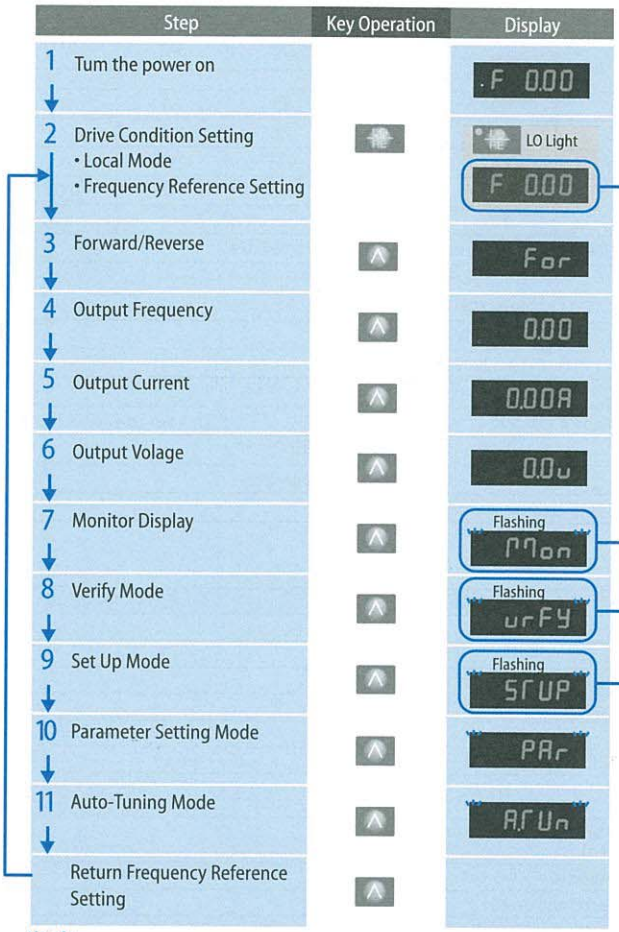
STOP Key
Stop the drive.

LED Display

LED	On	Flashing	Off
ALM	When the inverter detect the alarm	• When an alarm occurs • OPE (Operation Error) detected • When a fault or error occurs during Auto-Tuning	Normal state
REV	Motor is rotating in reverse Drive Mode.	—	Motor Forward rotation
DRV	• Drive Mode • Auto-Tuning	—	Programming mode
FOUT	Display output frequency (Hz)	—	Display except output frequency
LO RE	When the Run command is selected from the LED operator (LOCAL).	—	Other than LED operator (REMOTE)
RUN	During run	• During deceleration to stop • When the Run command is input and the frequency reference is 0.	During stop

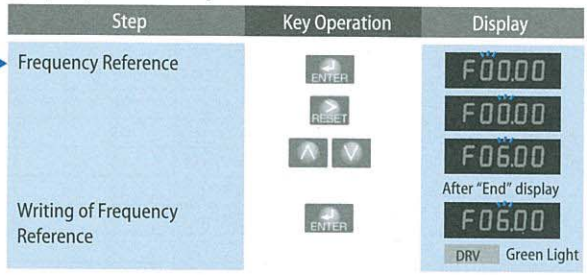
LED Operator Screen Structure

Structure for LED Operator

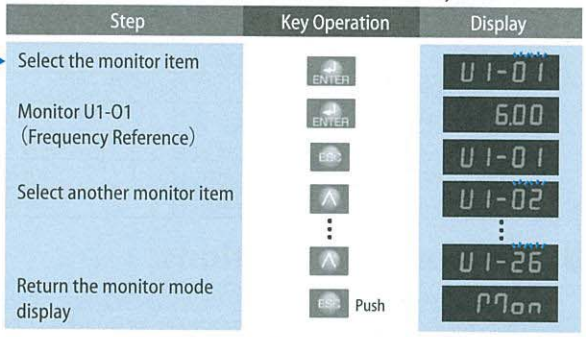


Drive Mode : Monitor the operation status of the drive (Frequency reference, Output frequency, Output current, Output voltage, etc.).

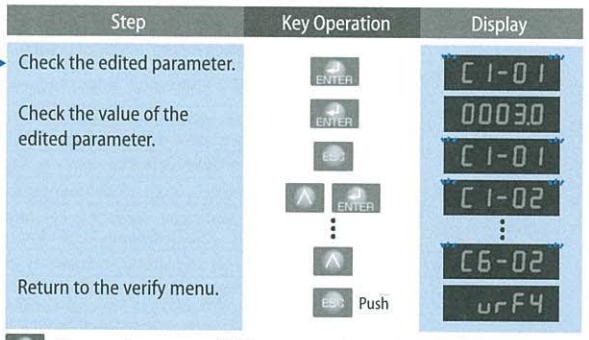
< Frequency Reference Setting >



Monitor Mode : Condition monitor, Alarm and Alarm history



Verify Mode : The Verify Menu lists edited parameters from the Programming Mode or as a result of Auto-Tuning.



After pressing one more ESC Key, return to the initial display.

Setup Mode

The application Presets function is applicable.

The parameters are changed to the optimum value for each application.

Conveyor Application

No.	Parameter Name	Default Setting
A1-02	Control Method Selection	0 : V/f Control
C1-01	Acceleration Time 1	3.0 s
C1-02	Deceleration Time 1	3.0 s
C6-01	Drive Duty Selection (ND/HD)	0 : Heavy Duty (HD)
L3-04	Stall Prevention Selection during Deceleration	1 : Enabled

Standard and Common Specifications

Standard Specifications

Item			Specifications							
Input Voltage Class			3-phase 200V / 3-phase 400V / 1-phase 200V							
Applicable Motor (kW)			0.2	0.4	0.75	1.5	2.2	3.7	5.5	7.5
Rating	Input Voltage Class	Model No.	HF520□-□□□							
	3-phase 200V	HF5202-	A20	A40	A75	1A5	2A2	3A7	5A5	7A5
	3-phase 400V	HF5204-						-	-	-
	1-phase 200V	HF520S-								
	Rated Output Capacity (kVA)	200V class	0.6	1.1	1.9	3.0	4.2	6.7	9.5	12.6
		400V class	0.9	1.4	2.6	3.7	4.2	7.0	11.3	13.7
	Rated Output Capacity (A)	3-phase 200V input	1.6	3.0	5.0	8.0	11.0	17.5	25.0	33.0
		3-phase 400V input	1.2	1.8	3.4	4.8	5.5	9.2	14.8	18.0
		1-phase 200V input	1.6	3.0	5.0	8.0	11.0	-	-	-
	Output Voltage		3-phase 200V~240V (200V class) / 3-phase 380~480V (400V class)							
	Over Load Current Rating		150% 1 minute							
Power Supply	Voltage Frequency	3-phase 200V	3-phase 200V~240V 50/60Hz							
		3-phase 400V	3-phase 380V~480V 50/60Hz							
		1-phase 200V	1-phase 200V~240V 50/60Hz							
	Allowable Fluctuation		Voltage -15~+10%, Frequency±5%							
Protective Method			Enclosed Type IP20						Enclosed Type (NEMA Type1)	
Cooling Method		3-phase 200V	Self-cooling		Cooling fan					
		3-phase 400V	Self-cooling			Cooling fan				
		1-phase 200V	Self-cooling			Cooling fan		-		

Common Specifications

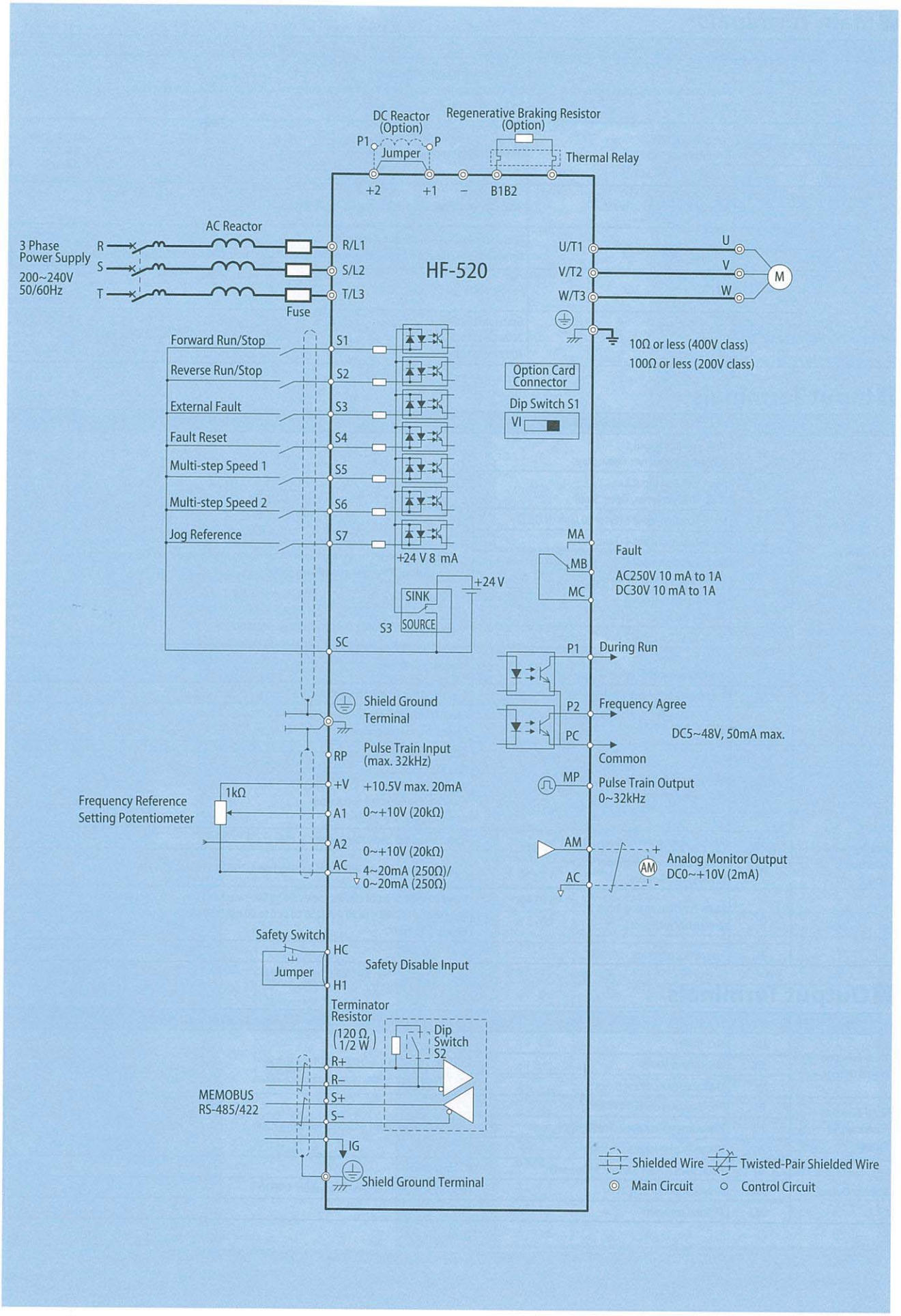
Item		Specifications
Control Characteristics	Control Method	Sensorless Vector Control , V/f Control
	Frequency Control Range	0.01 to 400 Hz
	Frequency Accuracy	Digital input: within ±0.01% of the max output frequency (-10 to +50 °C)
		Analog input: within ±0.5% of the max output frequency (25 °C ±10 °C)
	Frequency Setting Resolution	Digital inputs: 0.01 Hz
		Analog inputs: 1/1000 of maximum output frequency
	Output Frequency Calculation Resolution	1/220 x Maximum output frequency (E1-04)
	Frequency Setting Signal	Main frequency reference: 0 to +10 Vdc (20 kΩ), 4 to 20 mA (250 Ω),0 to 20 mA (250 Ω) Main speed reference: Pulse Train Input (max 32 kHz)
	Torque Limit	Sensorless Vector Control only. Adjustable in 4 quadrants.
	Accel/Decel Time	0.00 to 6000.0 s (allows four separate settings for accel and decel)
	Braking Torque	Instantaneous Average Decel Torque <2> : 0.1/0.2 kW: over 150%, 0.4/0.75 kW: over 100%, 1.5 kW: over 50%, 2.2 kW and above: over 20% Continuous Regen Torque: 20%, 125% with a Braking Resistor Unit <3> : (10% ED) 10 s with an internal braking resistor.
	V/f Characteristics	Preset V/f patterns and user-set program available.
	Functions	Momentary Power Loss Ride-Thru,Speed Search Over/Undertorque Detection,Torque Limit, Multi-Step Speed (17 steps max) Accel/Decel Time Switch,S-Curve Accel/Decel,2-Wire/3-Wire Sequence,Rotational Auto-Tuning Stationary Auto-Tuning of Line-to-Line Resistance,Dwell,Cooling Fan ON/OFF,Slip Compensation Torque Compensation,Jump Frequencies (reference dead band) Frequency Reference Upper/Lower Limit,DC Injection Braking (start and stop), High Slip Braking PID Control (with Sleep Function),Energy Saving,MEMOBUS/Modbus (RS-485/RS-422) Fault Reset,Parameter Copy,Fault Restart,Removable Terminals with Parameter Backup Function
	Carrier Frequency	5 kHz (user-adjustable from 2 to 15 kHz)
Protection Functions	Motor Protection	Motor overheat protection via output current sensor
	Overcurrent Protection	Drives stops when output exceeds 200% of the rated current
	Overload Protection	A stop command will be entered after operating at 150% for 60 s
	Overvoltage Specification	200 V Class: Stops when DC bus voltage exceeds approx. 410 V
		400 V Class: Stops when DC bus voltage exceeds approx. 820 V
	Low Voltage Protection	Drive stops when DC bus voltage falls below the levels indicated: <5> 190 V (3-phase 200 V), 160 V (single-phase 200 V) 380 V (3-phase 400 V), 350 V (3-phase 380 V)
	Momentary Power Loss Ride-Thru	3 selections available: Ride-Thru disabled (stops after 15 ms), time base of 0.5 s, and continue running as long as the drive control board is powered up.
	Heatsink Overheat Protection	Protected by thermistor
	Stall Prevention	Stall prevention is available during acceleration, deceleration, and duringrun. Separate settings for each type of stall prevention determine the current level at which stall prevention is triggered
	Ground Fault Protection	Electronic circuit protection
	DC Bus Charge LED	Remains lit until DC bus voltage falls below 50 V
Environment	Storage/Installation Area	Indoors
	Ambient Temperature	IP20/NEMA Type 1 enclosure: -10 °C to +40 °C IP20/IP00 Open-Chassis enclosure: -10 °C to +50 °C
	Storage Temperature	-20 to +60 °C allowed for short-term transport of the product
	Humidity	95% RH or less with no condensation
	Altitude	Up to 1000 meters without derating; up to 3000 meters with output current and voltage derating.
	Shock, Impact	10 to 20 Hz: 9.8 m/s2 20 to 55 Hz: 5.9 m/s2

Note 1: Instantaneous average deceleration torque refers to the torque required to decelerate the motor (uncoupled from the load) from the rated motor speed down to zero in the shortest time.

Note 2: Ensure that Stall Prevention Selection during Deceleration is disabled (L3-04 = 0) or set to 3 when using a regenerative braking resistor.

Note 3: Overload protection may be triggered when operating with 150% of the rated output current if the output frequency is less than 6 Hz.

Standard Connection Diagram



Terminal Functions

Main Terminals

No.	Terminal Name	Function
R/L1	Main circuit power supply input	Connects line power to the drive. Drives with single-phase 200 V input power use terminals R/ L1 and S/L2 only. T/L3 must not be used.
S/L2		
T/L3		
U/T1	Drive output	Connects to the motor.
V/T2		
W/T3		
B1	Regenerative braking resistor	Available for connecting a regenerative braking resistor.
B2		
+1	DC reactor connection	These terminals are shorted at shipment. Remove the shorting bar between +1 and +2 when connecting a DC reactor to this terminal.
+2		
+1	DC power supply input	For connecting a DC power supply.
–		
⏚ (2 terminals)	Ground	Grounding Terminal 200V Class 100Ω or less 400V Class 10Ω or less

Input Terminals

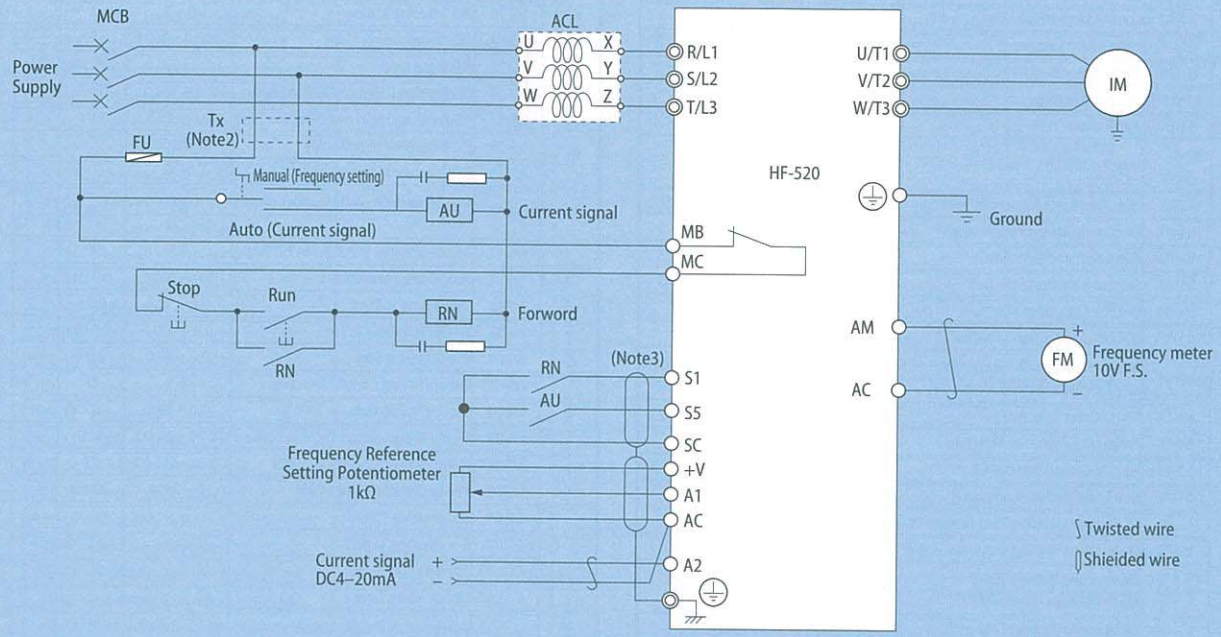
Type	No.	Terminal Name (Function)	Function (Signal Level)
Multi-Function Digital Inputs	S1	Multi-function input 1 (Closed: Forward run, Open: Stop)	Photocoupler 24 Vdc, 8 mA Note: Drive preset to sinking mode. When using source mode, set DIP switch S3 to allow for a 24 Vdc (±10%) external power supply.
	S2	Multi-function input 2 (Closed: Reverse run, Open: Stop)	
	S3	Multi-function input 3 (External fault (N.O.)	
	S4	Multi-function input 4 (Fault reset)	
	S5	Multi-function input 5 (Multi-step speed reference 1)	
	S6	Multi-function input 6 (Multi-step speed reference 2)	
	S7	Multi-function input 7 (Jog reference)	
	SC	Multi-function input common (Control common)	Sequence common
Safe Disable Input	HC	Power supply for safe disable input	+24 Vdc (max 10 mA allowed)
	H1	Safe disable input	Open: Output disabled Closed: Normal operation
Main Frequency Reference Input	RP	Multi-function pulse train input (frequency reference)	Response frequency: 0.5 to 32 kHz (Duty Cycle: 30 to 70%) (High level voltage: 3.5 to 13.2 Vdc) (Low level voltage: 0.0 to 0.8 Vdc) (input impedance: 3 kΩ)
	+V	Analog input power supply	+10.5 Vdc (max allowable current 20 mA)
	A1	Multi-function analog input 1 (frequency reference)	Input voltage 0 to +10 Vdc (20 kΩ) resolution 1/1000
	A2	Multi-function analog input 2 (frequency reference)	Input voltage or input current (Selected by DIP switch S1) 0 to +10 Vdc (20 kΩ), Resolution: 1/1000 4 to 20 mA (250 Ω) or 0 to 20 mA (250 Ω), Resolution: 1/500
	AC	Frequency reference common	0 V

Output Terminals

Type	No.	Terminal Name (Function)	Function (Signal Level) Default Setting
Multi-Function Digital Output	MA	N.O. (fault)	Digital output 30 Vdc, 10 mA to 1 A; 250 Vac, 10 mA to 1 A Minimum load: 5 Vdc, 10 mA (reference value)
	MB	N.C. output (fault)	
	MC	Digital output common	
Multi-Function Photocoupler Output	P1	Photocoupler output 1 (During run)	Photocoupler output 48 Vdc, 2 to 50 mA <2>
	P2	Photocoupler output 2 (Frequency agree)	
	PC	Photocoupler output common	
Monitor Output	MP	Pulse train output (Output frequency)	32 kHz (max)
	AM	Analog monitor output	0 to 10 Vdc (2 mA or less) Resolution: 1/1000
	AC	Monitor common	0 V

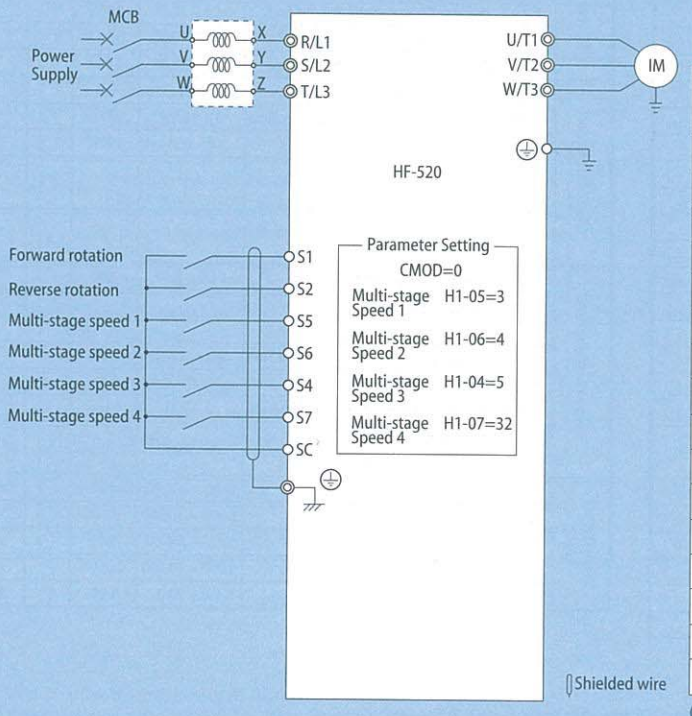
Operation by Current Signal (4-20mA)

When terminal S5 is used as a current/Voltage signal (Frequency reference setting potentiometer) Changeover signal input.



Note 1 Set parameter b1-01 to "1: Frequency Reference Selection 1".
Set parameter H3-09 to "2: Terminal A2 Signal Level Selection".
Set dip switch S1 on 「I」side.
Set parameter H1-05 to "2: Multi-Function Digital Input Terminal S5 Function Selection".
Note 2 Install a step-down transformer when the power is 400 V-class.
Note 3 Connect the earth for shielded wire to the ground.

Multispeed Operation (16-Step Speed)



Frequency setting by external signal

Frequency setting	Multi-stage Speed 1	Multi-stage Speed 2	Multi-stage Speed 3	Multi-stage Speed 4
d1-01	×	×	×	×
d1-02	○	×	×	×
d1-03	×	○	×	×
d1-04	○	○	×	×
d1-05	×	×	○	×
d1-06	○	×	○	×
d1-07	×	○	○	×
d1-08	○	○	○	×
d1-09	×	×	×	○
d1-10	○	×	×	○
d1-11	×	○	×	○
d1-12	○	○	×	○
d1-13	×	×	○	○
d1-14	○	×	○	○
d1-15	×	○	○	○
d1-16	○	○	○	○

(×.....Open, ○.....Closed)

Table of Parameters

"S" in the "Control Mode" column indicates that the parameter is available in the Set up and Parameter mode.
"○" in the "Control Mode" column indicates that the parametr is available in the Parametr mode.
"×" in the "Control Mode" column indicates that the parameter is not available in the Set up and Parameter mode .

Function	No.	Name	Range	Def. *1	Control Mode	
					V/f	SV
Initialization Parameters	A1-01	Access Level Selection	0 ~ 2	2	○	○
	A1-02	Control Method Selection	0,2	0	S	S
	A1-03	Initialize Parameters	0 ~ 5550	0	○	○
	A1-04	Password	0 ~ 9999	0	○	○
	A1-05*2	Password Setting	0 ~ 9999	0	○	○
	A1-06	Application Preset	0 ~ 8	0	○	○
User Parameters	A2-01 ~ A2-32	User Parameters, 1 to 32	b1-01 ~ o2-08	-	○	○
	A2-33	User Parameter Automatic Selection	0,1	1	○	○
Operation Mode Selection	b1-01	Frequency Reference Selection 1	0 ~ 4	1	S	S
	b1-02	Run Command Selection 1	0 ~ 3	1	S	S
	b1-03	Stopping Method Selection	0 ~ 3	0	S	S
	b1-04	Reverse Operation Selection	0,1	0	○	○
	b1-07	LOCAL/REMOTE Run Selection	0,1	0	○	○
	b1-08	Run Command Selection while in Programming Mode	0 ~ 2	0	○	○
	b1-14	Phase Order Selection	0,1	0	○	○
	b1-15	Frequency Reference Selection 2	0 ~ 4	0	○	○
	b1-16	Run Command Selection 2	0 ~ 3	0	○	○
	b1-17	Run Command at Power Up	0,1	1	○	○
DC Injection Braking	b2-01	DC Injection Braking Start Frequency	0.0 ~ 10.0	0.5 Hz	○	○
	b2-02	DC Injection Braking Current	0 ~ 75	50%	○	○
	b2-03	DC Injection Braking Time/ DC Excitation Time at Start	0.00 ~ 10.00	0.00 s	○	○
	b2-04	DC Injection Braking Time at Stop	0.00 ~ 10.00	0.00 s	○	○
	b2-08	Magnetic Flux Compensation Value	0 ~ 1000	0%	×	○
Speed Search	b3-01	Speed Search Selection at Start	0,1	0	○	○
	b3-02	Speed Search Deactivation Current	0 ~ 200	120	○	○
	b3-03	Speed Search Deceleration Time	0.1 ~ 10.0	2.0 s	○	○
	b3-05	Speed Search Delay Time	0.0 ~ 100.0	0.2 s	○	○
	b3-06	Output Current 1 during Speed Search	0.0 ~ 2.0	*5	○	○
	b3-08	Current Control Gain during Speed Search (Speed Estimation Type)	0.00 ~ 6.00	*3	○	○
	b3-10	Speed Search Detection Compensation Gain	1.00 ~ 1.20	1.05	○	○
	b3-14	Bi-Directional Speed Search Selection	0,1	0	○	○
	b3-17	Speed Search Restart Current Level	0 ~ 200	150%	○	○
	b3-18	Speed Search Restart Detection Time	0.00 ~ 1.00	0.10 s	○	○
	b3-19	Number of Speed Search Restarts	0 ~ 10	3	○	○
	b3-24	Speed Serch Method Selection	0,1	0	○	○
Timer	b4-01	Timer Function On-Delay Time	0.0 ~ 300.0	0.0 s	○	○
	b4-02	Timer Function Off-Delay Time	0.0 ~ 300.0	0.0 s	○	○
PID Control	b5-01	PID Function Setting	0 ~ 4	0	○	○
	b5-02	Proportional Gain Setting (P)	0.00 ~ 25.00	1.00	○	○
	b5-03	Integral Time Setting (I)	0.0 ~ 360.0	1.0 s	○	○
	b5-04	Integral Limit Setting	0.0 ~ 100.0	100.0%	○	○
	b5-05	Derivative Time (D)	0.00 ~ 10.00	0.00 s	○	○
	b5-06	PID Output Limit	0.0 ~ 100.0	100.0%	○	○
	b5-07	PID Offset Adjustment	-100.0 ~+100.0	0.0%	○	○
	b5-08	PID Primary Delay Time Constant	0.00 ~ 10.00	0.00 s	○	○
	b5-09	PID Output Level Selection	0,1	0	○	○
	b5-10	PID Output Gain Setting	0.00 ~ 25.00	1.00	○	○
	b5-11	PID Output Reverse Selection	0,1	0	○	○
	b5-12	PID Feedback Reference Missing Detection Selection	0 ~ 5	0	○	○
	b5-13	PID Feedback Loss Detection Level	0 ~ 100	0%	○	○
	b5-14	PID Feedback Loss Detection Time	0.0 ~ 25.5	1.0 s	○	○
	b5-15	PID Sleep Function Start Level	0.0 ~ 400.0	0.0 Hz	○	○
	b5-16	PID Sleep Delay Time	0.0 ~ 25.5	0.0 s	○	○
	b5-17	PID Accel/Decel Time	0 ~ 255	0 s	○	○
	b5-18	PID Setpoint Selection	0,1	0	○	○

Function	No.	Name	Range	Def. *1	Control Mode	
					V/f	SV
PID Control	b5-19	PID Setpoint Value	0.00 ~ 100.00	0.00%	○	○
	b5-20	PID Setpoint Scaling	0 ~ 3	1	○	○
	b5-34	PID Output Lower Limit	-100.0 ~ 100.0	0.0%	○	○
	b5-35	PID Input Limit	0 ~ 1000.0	1000.0%	○	○
	b5-36	PID Feedback High Detection Level	0 ~ 100	100%	○	○
	b5-37	PID Feedback High Level Detection Time	0.0 ~ 25.5	1.0 s	○	○
	b5-38	PID Setpoint / User Display	1 ~ 60000	*5	○	○
	b5-39	PID Setpoint Display Digits	0 ~ 3		○	○
	b5-40	Frequency Reference Monitor Content during PID	0,1	0	○	○
	b5-47	Reverse Operation Selection 2 by PID Output	0,1	1	○	○
Dwell Function	b6-01	Dwell Reference at Start	0.0 ~ 400.0	0.0 Hz	○	○
	b6-02	Dwell Time at Start	0.0 ~ 10.0	0.0 s	○	○
	b6-03	Dwell Frequency at Stop	0.0 ~ 400.0	0.0 Hz	○	○
	b6-04	Dwell Time at Stop	0.0 ~ 10.0	0.0 s	○	○
Energy Saving	b8-01	Energy Saving Control Selection	0,1	0	○	○
	b8-02	Energy Saving Gain	0.0 ~ 10.0	0.7	×	○
	b8-03	Energy Saving Control Filter Time Constant	0.00 ~ 10.00	0.50	×	○
	b8-04	Energy Saving Coefficient Value	0.00 ~655.00	*5	○	×
	b8-05	Power Detection Filter Time	0 ~ 2000	20 ms	○	×
Acceleration and Deceleration Times	C1-01	Acceleration Time 1	0.0 ~ 6000.0*4	10.0 s	S	S
	C1-02	Deceleration Time 1			S	S
	C1-03	Acceleration Time 2			○	○
	C1-04	Deceleration Time 2			○	○
	C1-05	Acceleration Time 3 (Motor 2 Accel Time 1)			○	○
	C1-06	Deceleration Time 3 (Motor 2 Decel Time 1)			○	○
	C1-07	Acceleration Time 4 (Motor 2 Accel Time 2)			○	○
	C1-08	Deceleration Time 4 (Motor 2 Decel Time 2)			○	○
	C1-09	Fast-Stop Time	0.0 ~ 6000.0*4	10.0 s	○	○
	C1-10	Accel/Decel Time Setting Units	0.1	1	○	○
	C1-11	Accel/Decel Time Switching Frequency	0.0 ~ 400.0	0.0 Hz	○	○
	C1-14	Accel/Decel Rate Frequency	0.0 ~ 400.0	0.0 Hz	○	○
S-Curve	C2-01	S-Curve Characteristic at Accel Start	0.00 ~ 10.00	0.00 s	○	○
	C2-02	S-Curve Characteristic at Accel End	0.00 ~ 10.00	0.00 s	○	○
	C2-03	S-Curve Characteristic at Decel Start	0.00 ~ 10.00	0.00 s	○	○
	C2-04	S-Curve Characteristic at Decel End	0.00 ~ 10.00	0.00 s	○	○
Slip Compensation	C3-01	Slip Compensation Gain	0.0 ~ 2.5	0.0	○	○
	C3-02	Slip Compensation Primary Delay Time	0 ~ 10000	2000 ms	○	○
	C3-03	Slip Compensation Limit	0 ~ 250	250%	○	○
	C3-04	Slip Compensation Selection during Regeneration	0,1	1	○	○
	C3-05	Output Voltage Limit Operation Selection	0,1	1	×	○
Torque Compensation	C4-01	Torque Compensation Gain	0.00 ~ 2.50	1.00	○	○
	C4-02	Torque Compensation Primary Delay Time	0 ~ 60000	200 ms	○	○
	C4-03	Torque Compensation at Forward Start	0.0 ~ 200.0	0.0%	×	○
	C4-04	Torque Compensation at Reverse Start	-200.0 ~ 0.0	0.0%	×	○
	C4-05	Torque Compensation Time Constant	0 ~ 200	10 ms	×	○
	C4-06	Torque Compensation Primary Delay Time 2	0 ~ 10000	150 ms	×	○
Speed Control (ASR)	C5-01	ASR Proportional Gain 1	0.00 ~ 300.00	0.20	○	×
	C5-02	ASR Integral Time 1	0.000 ~ 10.000	0.200	○	×
	C5-03	ASR Proportional Gain 2	0.00 ~ 300.00	0.02	○	×
	C5-04	ASR Integral Time 2	0.000 ~ 10.000	0.050 s	○	×
	C5-05	ASR Limit	0.0 ~ 20.0	5.0%	○	×

*1 : Default setting is determined by A1-02, Control Method Selection.
*2 : This parameter is hidden from view to access A1-05, first display A1-04. Then press the STOP key while holding down the up arrow key.
*3 : Default setting value is dependent on parameter A1-02, Control Method Selection.
*4 : Setting range value is dependent on parameter C1-10, Accel/Decel Time Setting Units.
*5 : Default setting value is dependent on parameter o2-04, Drive Model Selection.

Function	No.	Name	Range	Def. *1	Control Mode	
					V/f	SV
Carrier Frequency	C6-01	Drive Duty Selection	0,1	0	S	S
	C6-02	Carrier Frequency Selection	1 ~ B,F	HF-520 2	S	S
	C6-03	Carrier Frequency Upper Limit	1.0 ~ 15.0		○	○
	C6-04	Carrier Frequency Lower Limit	1.0 ~ 15.0		○	×
	C6-05	Carrier Frequency Proportional Gain	00 ~ 99		○	×
Frequency Reference	d1-01	Frequency Reference 1	0.00 ~400.00	0.00Hz	S	S
	d1-02	Frequency Reference 2			S	S
	d1-03	Frequency Reference 3			S	S
	d1-04	Frequency Reference 4			S	S
	d1-05	Frequency Reference 5			○	○
	d1-06	Frequency Reference 6			○	○
	d1-07	Frequency Reference 7			○	○
	d1-08	Frequency Reference 8			○	○
	d1-09	Frequency Reference 9			○	○
	d1-10	Frequency Reference 10			○	○
	d1-11	Frequency Reference 11			○	○
	d1-12	Frequency Reference 12			○	○
	d1-13	Frequency Reference 13			○	○
	d1-14	Frequency Reference 14			○	○
	d1-15	Frequency Reference 15			○	○
	d1-16	Frequency Reference 16			○	○
	d1-17	Jog Frequency Reference	0.00 ~ 400.00	5.00 Hz	S	S
Freq. Limits	d2-01	Frequency Reference Upper Limit	0.0 ~ 110.0	100.0%	○	○
	d2-02	Frequency Reference Lower Limit	0.0 ~ 110.0	0.0%	○	○
	d2-03	Master Speed Reference Lower Limit	0.0 ~ 110.0	0.0%	○	○
Jump Frequency	d3-01	Jump Frequency 1	0.0 ~ 400.0	0.0 Hz	○	○
	d3-02	Jump Frequency 2	0.0 ~ 400.0	0.0 Hz	○	○
	d3-03	Jump Frequency 3	0.0 ~ 400.0	0.0 Hz	○	○
	d3-04	Jump Frequency Width	0.0 ~ 20.0	1.0 Hz	○	○
Frequency Reference Hold	d4-01	Frequency Reference Hold Function Selection	0,1	0	○	○
	d4-03	Frequency Reference Bias Step (Up/Down 2)	0.00 ~ 99.99	0.00Hz	○	○
	d4-04	Frequency Reference Bias Accel/Decel (Up/Down 2)	0,1	0	○	○
	d4-05	Frequency Reference Bias Operation Mode Selection (Up/Down 2)	0,1	0	○	○
	d4-06	Frequency Reference Bias (Up/Down 2)	-99.9 ~ +100.0	0.0%	○	○
	d4-07	Analog Frequency Reference Fluctuation Limit (Up/Down 2)	0.1 ~ +100.0	1.0%	○	○
	d4-08	Frequency Reference Bias Upper Limit (Up/Down 2)	0.0 ~ 100.0	100.0%	○	○
	d4-09	Frequency Reference Bias Lower Limit (Up/Down 2)	-99.9 ~ 0.0	0.0%	○	○
	d4-10	Up/Down Frequency Reference Limit Selection	0,1	0	○	○
Offset Freq.	d7-01	Offset Frequency 1	-100.0 ~ +100.0	0.0%	○	○
	d7-02	Offset Frequency 2	-100.0 ~ +100.0	0.0%	○	○
	d7-03	Offset Frequency 3	-100.0 ~ +100.0	0.0%	○	○
V/f Pattern Characteristics	E1-01*2	Input Voltage Setting	155 ~ 255	*4	S	S
	E1-03	V/f Pattern Selection	0 ~ F	F	○	○
	E1-04	Maximum Output Frequency	40.0 ~ 400.0	60.0 Hz	S	S
	E1-05*2	Maximum Output Voltage	0.0 ~ 255.0	200.0 V	S	S
	E1-06	Base Frequency	0.0 ~ E1-04	60.0 Hz	S	S
	E1-07	Middle Output Frequency	0.0 ~ E1-04	3.0 Hz	○	○
	E1-08	Middle Output Frequency Voltage	0.0 ~ 255.0	*4	○	○
	E1-09	Minimum Output Frequency	0.0 ~ E1-04	1.5 Hz	S	S
	E1-10	Minimum Output Frequency Voltage	0.0 ~ 255.0	*4	○	○
	E1-11	Middle Output Frequency 2	0.0 ~ E1-04	0.0 Hz	○	○
	E1-12*2	Middle Output Frequency Voltage 2	0.0 ~ 255.0	0.0 V	○	○
	E1-13*2	Base Voltage	0.0 ~ 255.0	0.0 V	○	S
Motor Parameters	E2-01	Motor Rated Current	Rated Current 10 ~ 200%	*4	S	S
	E2-02	Motor Rated Slip	0.00 ~ 20.00		○	○
	E2-03	Motor No-Load Current	0 ~ E2-01 below		○	○
	E2-04	Number of Motor Poles	2 ~ 48	4pole	○	○
	E2-05	Motor Line-to-Line Resistance	0.000 ~ 65.000	*4	○	○
	E2-06	Motor Leakage Inductance	0.0 ~ 40.0		○	○
	E2-07	Motor Iron-Core Saturation Coefficient 1	0.00 ~ 0.50	0.50	×	○
	E2-08	Motor Iron-Core Saturation Coefficient 2	E2-07 ~ 0.75	0.75	×	○
	E2-09	Motor Mechanical Loss	0.0 ~ 10.0	0.0%	×	○
	E2-10	Motor Iron Loss for Torque Compensation	0 ~ 65535	*4	○	×
	E2-11	Motor Rated Output	0.00 ~ 650.00	0.40 kW	S	S
	E2-12	Motor Iron-Core Saturation Coefficient 3	1.30 ~ 5.00	1.30	×	○
Motor 2 V/f Characteristics	E3-01	Motor 2 Control Method	0,2	0	○	○
	E3-04	Motor 2 Max Output Frequency	40.0 ~ 400.0	60.0 Hz	○	○
	E3-05*2	Motor 2 Max Voltage	0.0 ~ 255.0	200.0 V	○	○
	E3-06	Motor 2 Base Frequency	0.0 ~ E3-04	60.0 Hz	○	○
	E3-07	Motor 2 Mid Output Freq.	0.0 ~ E3-04	3.0 Hz	○	○
	E3-08*3	Motor 2 Mid Output Freq. Voltage	0.0 ~ 255.0	13.6 V (26.6 V)	○	○
	E3-09	Motor 2 Min. Output Freq.	0.0 ~ E3-04	1.5 Hz	○	○
	E3-10*3	Motor 2 Min. Output Freq. Voltage	0.0 ~ 255.0	9.1 V (17.7V)	○	○
	E3-11	Motor 2 Mid Output Frequency 2	0.0 ~ E3-04	0.0 Hz	○	○
	E3-12*2	Motor 2 Mid Output Frequency Voltage 2	0.0 ~ 255.0	0.0 VAC	○	○
	E3-13*2	Motor 2 Base Voltage	0.0 ~ 255.0	0.0 VAC	○	S
Motor 2 Parameters	E4-01	Motor 2 Rated Current	Rated Current 10 ~ 200%	*4	○	○
	E4-02	Motor 2 Rated Slip	0.00 ~ 20.00		○	○
	E4-03	Motor 2 Rated No- Load Current	0 ~ E4-01 below		○	○
	E4-04	Motor 2 Motor Poles	2 ~ 48	4pole	○	○
	E4-05	Motor 2 Line-to- Line Resistance	0.000 ~ 65.000	*4	○	○
	E4-06	Motor 2 Leakage Inductance	0.0 ~ 40.0		○	○
	E4-07	Motor 2 Motor Iron-Core Saturation Coefficient 1	0.00 ~ 0.50	0.50	×	○
	E4-08	Motor 2 Motor Iron-Core Saturation Coefficient 2	Setting of E4-07 ~ 0.75	0.75	×	○
	E4-09	Motor 2 Mechanical Loss	0.0 ~ 10.0	0.0	×	○
	E4-10	Motor 2 Mechanical Loss	0 ~ 65535	*4	○	×
	E4-11	Motor 2 Rated Capacity	0.00 ~ 650.00		○	×
	E4-12	Motor 2 Iron-Core Saturation Coefficient 3	1.30 ~ 5.00	1.30	×	○
	E4-14	Motor 2 Slip Compensation Gain	0.0 ~ 2.5	0.0	○	○
	E4-15	Torque Compensation Gain Motor 2	0.00 ~ 2.50	1.00	○	○
PG Setup Parameters	F1-02	Operation Selection at PG Open Circuit (PGo)	0 ~ 3	1	○	×
	F1-03	Operation Selection at Overspeed (oS)	0 ~ 3	1	○	×
	F1-04	Operation Selection at Deviation	0 ~ 3	3	○	×
	F1-08	Overspeed Detection Level	0 ~ 120	115%	○	×
	F1-09	Overspeed Detection Delay Time	0.0 ~ 2.0	1.0	○	×

*1 : Default setting is determined by A1-02, Control Method Selection.
*2 : Values shown here are for 200 V class drives. Double the value when using a 400 V class drive.
*3 : Values shown here are for 200 V class drives. ( ) the value when using a 400 V class drive.
*4 : Default setting value is dependent on parameter o2-04, Drive Model Selection.

Table of Parameters

Function	No.	Name	Range	Def. *1	Control Mode V/f	Control Mode SV
PG Setup Parameters	F1-10	Excessive Speed Deviation Detection Level	0 ~ 50	10%	○	×
	F1-11	Excessive Speed Deviation Detection Delay Time	0.0 ~ 10.0	0.5 s	○	×
	F1-14	PG Open-Circuit Detection Time	0.0 ~ 10.0	2.0 s	○	×
Serial Communications Option Card	F6-01	Communications Error Operation Selection	0 ~ 3	1	○	○
	F6-02	External Fault from Comm. Option Selection	0,1	0	○	○
	F6-03	External Fault from Comm. Option Operation Selection	0 ~ 3	1	○	○
	F6-04	Bus Error Detection Time	0.0 ~ 5.0	2.0 s	○	○
	F6-07	NetRef/ComRef Function Selection	0,1	0	○	○
	F6-08	Reset Communication Parameters	0,1	0	○	○
	F6-10	CC-Link Node Address	0 ~ 64	0	○	○
	F6-11	CC-Link Communications Speed	0 ~ 4	0	○	○
	F6-14	BUS Error Auto Reset	0,1	0	○	○
	F6-50	DeviceNet MAC Address	0 ~ 64	*1	○	○
	F6-51	Device Net Communications Speed	0 ~ 4	*1	○	○
	F6-52	DeviceNet PCA setting	0 ~ 255	21	○	○
	F6-53	DeviceNet PPA setting	0 ~ 255	71	○	○
	F6-54	54 DeviceNet Idle Mode Fault Detection	0,1	0	○	○
	F6-55	DeviceNet Baud Rate Monitor	0 ~ 2 (Read only)	-	○	○
	F6-56	DeviceNet Speed Scaling Factor	-15 ~ 15	0	○	○
	F6-57	DeviceNet Current Scaling Factor	-15 ~ 15	0	○	○
	F6-58	DeviceNet Torque Scaling Factor	-15 ~ 15	0	○	○
	F6-59	DeviceNet Power Scaling Factor	-15 ~ 15	0	○	○
	F6-60	DeviceNet Voltage Scaling Factor	-15 ~ 15	0	○	○
	F6-61	DeviceNet Time Scaling Factor	-15 ~ 15	0	○	○
	F6-62	DeviceNet Heartbeat Interval	0 ~ 10	0	○	○
	F6-63	MAC ID Memory	0 ~ 63 (Read only)	-	○	○
Multi-Function Digital Input	H1-01	Multi-Function Digital Input Terminal S1 Function Selection	1 ~ 9F	40	○	○
	H1-02	Multi-Function Digital Input Terminal S2 Function Selection		41	○	○
	H1-03	Multi-Function Digital Input Terminal S3 Function Selection	0 ~ 9F	24	○	○
	H1-04	Multi-Function Digital Input Terminal S4 Function Selection		14	○	○
	H1-05	Multi-Function Digital Input Terminal S5 Function Selection		3(0)	○	○
	H1-06	Multi-Function Digital Input Terminal S6 Function Selection		4(3)	○	○
	H1-07	Multi-Function Digital Input Terminal S7 Function Selection		6(4)	○	○
Multi-Function Digital Outputs	H2-01	Terminal MA, MB and MC Function Selection (relay)	0 ~ 192	E	○	○
	H2-02	Terminal P1 Function Selection (open- collector)		0	○	○
	H2-03	Terminal P2 Function Selection (open- collector)		2	○	○
	H2-06	Watt Hour Output Unit Selection	0 ~ 4	0	○	○
Analog Inputs	H3-01	Terminal A1 Signal Level Selection	0,1	0	○	○
	H3-02	Terminal A1 Function Selection	0 ~ 41	0	○	○
	H3-03	Terminal A1 Gain Setting	-999.9 ~999.9	100.0%	○	○
	H3-04	Terminal A1 Bias Setting	-999.9 ~999.9	0.0%	○	○
	H3-09	Terminal A2 Signal Level Selection	0 ~ 3	2	○	○
	H3-10	Terminal A2 Function Selection	0 ~ 31	0	○	○
	H3-11	Terminal A2 Gain Setting	-999.9 ~ 999.9	100.0%	○	○
	H3-12	Terminal A2 Bias Setting	-999.9 ~ 999.9	0.0%	○	○
	H3-13	Analog Input Filter Time Constant	0.00 ~ 2.00	0.03 s	○	○
	H3-14	Analog Input Terminal Enable Selection	1,2,7	7	○	○

Function	No.	Name	Range	Def. *1	Control Mode V/f	Control Mode SV
Analog Inputs	H3-16	Terminal A1 Offset	-500 ~ 500	0	○	○
	H3-17	Terminal A2 Offset	-500 ~ 500	0	○	○
Multi-Function Analog Outputs	H4-01	Multi-Function Analog Output Terminal AM	000 ~ 999	102	○	○
	H4-02	Multi-Function Analog Output Terminal AM Gain	-999.9 ~999.9	100.0%	S	S
	H4-03	Multi-Function Analog Output Terminal AM Bias	-999.9 ~999.9	0.0%	○	○
MEMOBUS/Modbus Communications	H5-01	Drive Node Address	0 ~ FFH	1F	○	○
	H5-02	Communication Speed Selection	0 ~ 8	3	○	○
	H5-03	Communication Parity Selection	0 ~ 2	0	○	○
	H5-04	Stopping Method After Communication Error	0 ~ 3	3	○	○
	H5-05	Communication Fault Detection Selection	0,1	1	○	○
	H5-06	Drive Transmit Wait Time	5 ~ 65	5 ms	○	○
	H5-07	RTS Control Selection	0,1	1	○	○
	H5-09	CE Detection Time	0.0 ~ 10.0	2.0 s	○	○
	H5-10	Unit Selection for MEMOBUS/Modbus Register 0025H	0,1	0	○	○
	H5-11	Communications ENTER Function Selection	0,1	1	○	○
	H5-12	Run Command Method Selection	0,1	0	○	○
Pulse Train Input/Output	H6-01	Pulse Train Input Terminal RP Function Selection	0 ~ 3	0	○	○
	H6-02	Pulse Train Input Scaling	100 ~ 32000	1440 Hz	○	○
	H6-03	Pulse Train Input Gain	0.0 ~ 1000.0	100.0%	○	○
	H6-04	Pulse Train Input Bias	-100.0 ~+100.0	0.0%	○	○
	H6-05	Pulse Train Input Filter Time	0.00 ~ 2.00	0.10 s	○	○
	H6-06	Pulse Train Monitor Terminal MP Selection	000,031,101,102,105, 116,501,502,801~809	102	○	○
	H6-07	Pulse Train Monitor Scaling	0 ~ 32000	1440 Hz	○	○
	H6-08	Pulse Train Min. Frequency	0.1 ~ 1000.0	0.5 Hz	○	○
Momentary Power Loss	L1-01	Motor Overload Protection Selection	0 ~ 4,6	1	S	S
	L1-02	Motor Overload Protection Time	0.1 ~ 5.0	1.0 min	○	○
	L1-03	Motor Overheat Alarm Operation Selection (PTC input)	0 ~ 3	3	○	○
	L1-04	Motor Overheat Fault Operation Selection (PTC input)	0 ~ 2	1	○	○
	L1-05	Motor Temperature Input Filter Time (PTC input)	0.00 ~ 10.00	0.20 s	○	○
	L1-08	Electrothermal Level Setting 1	□.□□A 10~150%	*4	○	○
	L1-09	Electrothermal Level Setting 2			○	○
	L1-13	Continuous Electrothermal Operation Selection	0,1	1	○	○
	L1-22*2	Leakage Current Filter Time Constant 1	0.0 ~ 60.0	20.0S	○	○
	L1-23*2	Leakage Current Filter Time Constant 2	0.0 ~ 60.0	1.0S	○	○
Stall Prevention Function	L2-01	Momentary Power Loss Operation Selection	0 ~ 2	0	○	○
	L2-02	Momentary Power Loss Ride-Thru Time	0.0 ~ 25.5	*4	○	○
	L2-03	Momentary Power Loss Minimum Baseblock Time	0.1 ~ 5.0		○	○
	L2-04	Momentary Power Loss Voltage Recovery Ramp Time	0.0 ~ 5.0		○	○
	L2-05*3	Undervoltage Detection Level (Uv)	150 ~ 210		○	○
	L2-06	KEB Deceleration Time	0.0 ~ 200.0	0.0s	○	○
	L2-07	KEB Acceleration Time	0.0 ~ 25.5	0.0s	○	○
	L2-08	KEB Start Output Frequency Reduction	0 ~ 300	100%	○	○
	L2-11*3	Desired DC Bus Voltage during KEB	150 ~ 400	E1-01× 1.22(V)	○	○
Stall Prevention Function	L3-01	Stall Prevention Selection during Acceleration	0 ~ 2	1	○	○
	L3-02	Stall Prevention Level during Acceleration	0 ~ 150	*4	○	○
	L3-03	Stall Prevention Limit during Acceleration	0 ~ 100	50%	○	○
	L3-04	Stall Prevention Selection during Deceleration	0 ~ 4,7	1	S	S
	L3-05	Stall Prevention Selection during Run	0 ~ 2	1	○	×
	L3-06	Stall Prevention Level during Run	30 ~ 150	*4	○	×

*1 : Default setting is determined by A1-02, Control Method Selection.
*2 : Parameter can be changed and displayed at parameter C6-02=B.
*3 : Values shown here are for 200 V class drives. Double the value when using a 400 V class drive.
*4 : Default setting value is dependent on parameter o2-04, Drive Model Selection.

Function	No.	Name	Range	Def. *1	Control Mode V/f	Control Mode SV
Stall Prevention Function	L3-11	Ov Suppression Function Selection	0,1	0	○	○
	L3-17*3	Overvoltage Suppression and Stall Prevention Desired DC Bus Voltage	150 ~ 400	375 V	○	○
	L3-20	Main Power Circuit Voltage Adjustment Gain	0.00 ~ 5.00	1.00(v/f) 0.30 (sv)	○	○
	L3-21	Accel/Decel Rate Calculation Gain	0.00 ~ 200.00	1.00	○	○
	L3-23	Automatic Reduction Selection for Stall Prevention during Run	0,1	0	○	○
	L3-24	Motor Acceleration Time for Inertia Calculations	0.001 ~10.000	*3	○	○
	L3-25	Load Inertia Ratio	0.0 ~ 1000.0	1.0	○	○
Frequency Detection	L4-01	Speed Agreement Detection Level	0.0 ~ 400.0	0.0 Hz	○	○
	L4-02	Speed Agreement Detection Width	0.0 ~ 20.0	2.0 Hz	○	○
	L4-03	Speed Agreement Detection Level (+/-)	-400.0 ~ 400.0	0.0 Hz	○	○
	L4-04	Speed Agreement Detection Width (+/-)	0.0 ~ 20.0	2.0 Hz	○	○
	L4-05	Frequency Reference Loss Detection Selection	0,1	0	○	○
	L4-06	Frequency Reference at Reference Loss	0.0 ~ 100.0	80.0%	○	○
	L4-07	Frequency Detection Conditions	0,1	0	○	○
	L4-08	Speed Agreement Detection Conditions	0,1	0	○	○
Fault Reset	L5-01	Number of Auto Restart Attempts	0 ~ 10	0	○	○
	L5-02	Auto Restart Operation Selection	0,1	0	○	○
	L5-04	Fault Reset Interval Time	0.5 ~ 600.0	10.0 s	○	○
	L5-05	Fault Reset Operation Selection	0,1	0	○	○
Overtorque Detection	L6-01	Torque Detection Selection 1	0 ~ 8	0	○	○
	L6-02	Torque Detection Level 1	0 ~ 300	150%	○	○
	L6-03	Torque Detection Time 1	0.0 ~ 10.0	0.1s	○	○
	L6-04	Torque Detection Selection 2	0 ~ 8	0	○	○
	L6-05	Torque Detection Level 2	0 ~ 300	150%	○	○
	L6-06	Torque Detection Time 2	0.0 ~ 10.0	0.1 s	○	○
	L6-08	Mechanical Weakening (oL5) Detection Operation	0 ~ 8	0	○	○
	L6-09	Mechanical Weakening Detection Speed Level	-110.0 ~ 110.0	110%	○	○
	L6-10	Mechanical Weakening Detection Time	0.0 ~ 10.0	0.1 s	○	○
	L6-11	Mechanical Weakening Detection Start Time	0 ~ 65535	0	○	○
Torque Limit	L7-01	Forward Torque Limit	0 ~ 300	*3	×	○
	L7-02	Reverse Torque Limit	0 ~ 300		×	○
	L7-03	Forward Regenerative Torque Limit	0 ~ 300		×	○
	L7-04	Reverse Regenerative Torque Limit	0 ~ 300		×	○
	L7-06	Torque Limit Integral Time Constant	5 ~ 10000	50 ms	×	○
	L7-07	Torque Limit Control Method Selection during Accel/Decel	0,1	1	×	○
Hardware Protection	L8-02	Overheat Alarm Level	50 ~ 130	*3	○	○
	L8-03	Overheat Pre-Alarm Operation Selection	0 ~ 4	3	○	○
	L8-05	Input Phase Loss Protection Selection	0,1	0	○	○
	L8-07	Output Phase Loss Protection Selection	0 ~ 2	1	○	○
	L8-09	Output Ground Fault Detection Selection	0,1	*3	○	○
	L8-10	Heatsink Cooling Fan Operation Selection	0,1	0	○	○
	L8-11	Heatsink Cooling Fan Operation Delay Time	0 ~ 300	60 s	○	○
	L8-12	Ambient Temperature Setting	-10 ~ 50	40°C	○	○
	L8-15	oL2 Characteristics Selection at Low Speeds	0,1	1	○	○
	L8-18	Soft Current Limit Selection	0,1	0	○	○
	L8-19	Frequency Reduction Rate during oH Pre-Alarm	0.1 ~ 0.9	0.8	○	○
	L8-35	Installation Method Selection	0 ~ 3	*3	○	○
	L8-38	Carrier Frequency Reduction	0 ~ 2		○	○
	L8-40	Carrier Frequency Reduction Time	0.00 ~ 2.00	0.50	○	○
	L8-41	High Current Alarm Selection	0,1	0	○	○

Function	No.	Name	Range	Def. *1	Control Mode V/f	Control Mode SV
Hunting Prevention	n1-01	Hunting Prevention Selection	0,1	1	○	×
	n1-02	Hunting Prevention Gain Setting	0.00 ~ 2.50	1.00	○	×
	n1-03	Hunting Prevention Time Constant	0 ~ 500	*3	○	×
	n1-05	Hunting Prevention Gain while in Reverse	0.00 ~ 2.50	0.00	○	×
Speed Feedback Detection Control Function	n2-01	Speed Feedback Detection Control (AFR) Gain	0.00 ~ 10.00	*3	×	○
	n2-02	Speed Feedback Detection Control (AFR) Time Constant	0 ~ 2000	50 ms	×	○
	n2-03	Speed Feedback Detection Control (AFR) Time Constant 2	0 ~ 2000	750ms	×	○
High-Slip Braking	n3-01	High-Slip Braking Deceleration Frequency Width	1 ~ 20	5%	○	×
	n3-02	High-Slip Braking Current Limit	100 ~ 200	150%	○	×
	n3-03	High-Slip Braking Dwell Time at Stop	0.0 ~ 10.0	1.0 s	○	×
	n3-04	High-Slip Braking Overload Time	30 ~ 1200	40 s	○	×
	n3-13	Overexcitation Deceleration Gain	1.00 ~ 1.40	1.10	○	○
	n3-21	High-Slip Suppression Current Level	0 ~ 150	100%	○	○
	n3-23	Overexcitation Operation Selection	0 ~ 2	0	○	○
Online Tuning of Motor Line-to-Line Resistance	n6-01	Line-to-Line Motor Resistance Online Tuning	0,1	1	×	○
Display Settings	o1-01	Drive Mode Unit Monitor Selection	104 ~ 810	106	○	○
	o1-02	User Monitor Selection After Power Up	1 ~ 5	1	○	○
	o1-03	Digital Operator Display Selection	0 ~ 3	0	○	○
	o1-10	Frequency Reference Setting and User-Set Display	1 ~ 60000	*3	○	○
	o1-11	Frequency Reference Setting / Decimal Display	0 ~ 3		○	○
Operator Keypad Functions	o2-01	LO/RE Key Function Selection	0,1	1	○	○
	o2-02	STOP Key Function Selection	0,1	1	○	○
	o2-03	User Parameter Default Value	0 ~ 2	0	○	○
	o2-04	Drive Model Selection	0 ~ FF	*3	○	○
	o2-05	Frequency Reference Setting Method Selection	0,1	0	○	○
	o2-07	Motor Direction at Power Up when Using Operator	0,1	0	○	○
Copy Function	o3-01	Copy Function Selection	0 ~ 3	0	○	○
	o3-02	Copy Allowed Selection	0,1	0	○	○
Maintenance Period	o4-01	Accumulated Operation Time Setting	0 ~ 9999	0	○	○
	o4-02	Accumulated Operation Time Selection	0,1	1	○	○
	o4-03	Cooling Fan Operation Time Setting	0 ~ 9999	0	○	○
	o4-05	Capacitor Maintenance Setting	0 ~ 150	0%	○	○
	o4-07	DC Bus Pre-Charge Relay Maintenance Setting	0 ~ 150	0%	○	○
	o4-09	IGBT Maintenance Setting	0 ~ 150	0%	○	○
	o4-11	U2, U3 Initialization	0,1	0	○	○
	o4-12	kWh Monitor Initialization	0,1	0	○	○
	o4-13	Number of Run Commands Initialize Selection	0,1	0	○	○
Motor Tuning	T1-00	Motor Selection 1/2	1,2	1	○	○
	T1-01	Auto-Tuning Mode Selection	0,2,3	*3	○	○
	T1-02	Motor Rated Power	0.03 ~ 650.00		○	○
	T1-03*2	Motor Rated Voltage	0.0 ~ 255.5	200.0 V	○	○
	T1-04	Motor Rated Current	Rated Current 10 ~ 200%	*3	○	○
	T1-05	Motor Base Frequency	0.0 ~ 400.0	60.0 Hz	○	○
	T1-06	Number of Motor Poles	2 ~ 48	4pole	○	○
	T1-07	Motor Base Speed	0 ~ 24000	1750 min^{-1}	○	○
	T1-11	Motor Iron Loss	0 ~ 65535	14 W	○	×

*1 : Default setting is determined by A1-02, Control Method Selection.
*2 : Values shown here are for 200 V class drives. Double the value when using a 400 V class drive.
*3 : Default setting value is dependent on parameter o2-04, Drive Model Selection.

Outline Drawing

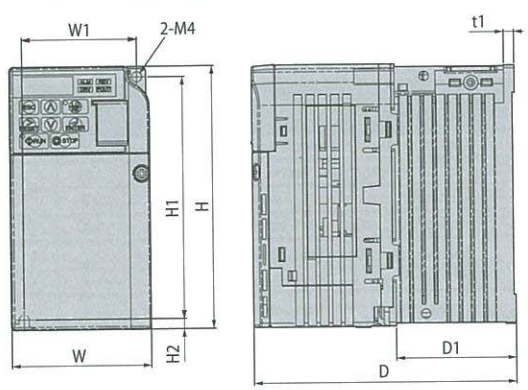


Fig.A

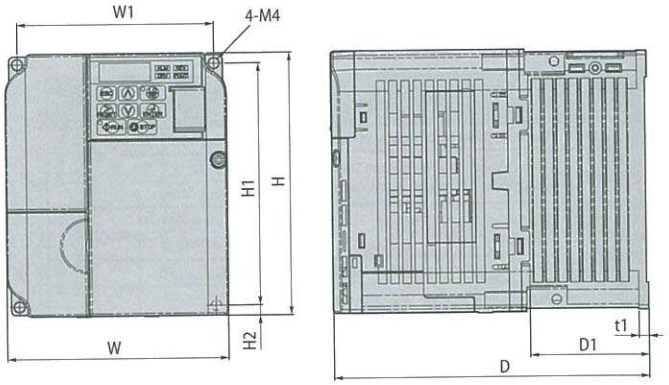
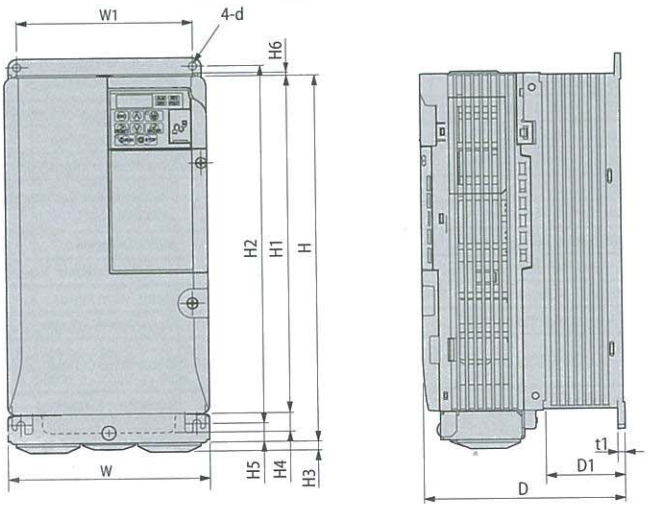


Fig.B

Input voltage	Inverter model	Dimensions (mm)									Drawing
		W	H	D	W1	H1	H2	D1	t1	Approx.weight (kg)	
1-phase 200V class	HF520S-A20	68	128	76	56	118	5	6.5	3	0.6	A
	HF520S-A40	68	128	118	56	118	5	38.5	5	1.0	
3-phase 200V class	HF5202-A20	68	128	76	56	118	5	6.5	3	0.6	
	HF5202-A40	68	128	108	56	118	5	38.5	5	0.9	
	HF5202-A75	68	128	128	56	118	5	58.5	5	1.1	

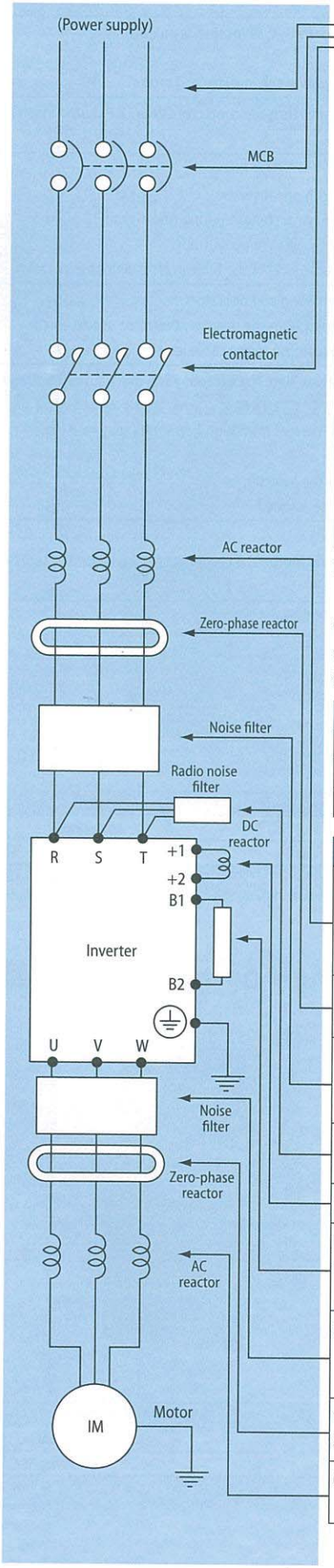
Input voltage	Inverter model	Dimensions (mm)									Drawing
		W	H	D	W1	H1	H2	D1	t1	Approx.weight (kg)	
1-phase 200V class	HF520S-A75	108	128	137.5	96	118	5	58	5	1.7	B
	HF520S-1A5	108	128	154	96	118	5	58	5	1.8	
	HF520S-2A2	140	128	163	128	118	5	65	5	2.4	
3-phase 200V class	HF5202-1A5	108	128	129	96	118	5	58	5	1.7	
	HF5202-2A2	108	128	137.5	96	118	5	58	5	1.7	
	HF5202-3A7	140	128	143	128	118	5	65	5	2.4	
3-phase 400V class	HF5204-A20	108	128	81	96	118	5	10	5	1.0	
	HF5204-A40	108	128	99	96	118	5	28	5	1.2	
	HF5204-A75	108	128	137.5	96	118	5	58	5	1.7	
	HF5204-1A5	108	128	154	96	118	5	58	5	1.7	
	HF5204-2A2	108	128	154	96	118	5	58	5	1.7	
	HF5204-3A7	140	128	143	128	118	5	65	5	2.4	



Input voltage	Inverter model	Dimensions (mm)													
		W	H	D	W1	H1	H2	H3	H4	H5	H6	D1	t1	d	Approx.weight (kg)
3-phase 200V class	HF5202-5A5	140	254	140	122	234	248	6	13	13	1.5	55	5	M5	3.8
	HF5202-7A5	140	254	140	122	234	248	6	13	13	1.5	55	5	M5	3.8
3-phase 400V class	HF5204-5A5	140	254	140	122	234	248	6	13	13	1.5	55	5	M5	3.8
	HF5204-7A5	140	254	140	122	234	248	6	13	13	1.5	55	5	M5	3.8

Applicable Wiring for Accessories and Options

Standard Accessories



Rated input voltage	Applicable motor (kw)	Inverter model	Circuit breaker (made by Mitsubishi Electric)		Electromagnetic contactor (made by Fuji Electric)	Cable size 30m (mm²)
			Rated current (A)	Type	Type	
1-phase 200V class	0.2	HF520S-A20	10	NF-30	SC-03	2
	0.4	HF520S-A40	15	NF-30	SC-03	2
	0.75	HF520S-A75	20	NF-30	SC-03	2
	1.5	HF520S-1A5	30	NF-30	SC-1N	2
	2.2	HF520S-2A2	40	NF-50	SC-2N	2
3-phase 200V class	0.2	HF5202-A20	5	NF-30	SC-03	2
	0.4	HF5202-A40	5	NF-30	SC-03	2
	0.75	HF5202-A75	10	NF-30	SC-03	2
	1.5	HF5202-1A5	15	NF-30	SC-1N	2
	2.2	HF5202-2A2	20	NF-30	SC-1N	2
	3.7	HF5202-3A7	30	NF-30	SC-2N	3.5
	5.5	HF5202-5A5	50	NF-50	SC-2N	5.5
	7.5	HF5202-7A5	60	NF-100	SC-2N	8
3-phase 400V class	0.2	HF5204-A20	5	NF-30	SC-03	2
	0.4	HF5204-A40	5	NF-30	SC-03	2
	0.75	HF5204-A75	5	NF-30	SC-03	2
	1.5	HF5204-1A5	10	NF-30	SC-03	2
	2.2	HF5204-2A2	15	NF-30	SC-1N	2
	3.7	HF5204-3A7	20	NF-30	SC-1N	2
	5.5	HF5204-5A5	30	NF-30	SC-1N	2
	7.5	HF5204-7A5	30	NF-30	SC-1N	3.5

Note: 1. The shown accessories are for use with SUMITOMO 3-phase, 4-pole motors.
2. Select the circuit breaker based on required capacity.
3. Use thicker cables when wiring distance exceeds 30 m.

*The alarm output point should be 0.75 mm².

When using an earth leakage breaker (ELB), select the breaker's trip current from the table below based on the total wire distance (R) by summing the distance from the breaker to the inverter and the inverter to the motor.

ℓ	Trip current (mA)
100m or less	30
300m or less	100
600m or less	200

Note: 1. When CV wiring is used in metal conduit, the leakage current is approximately 30mA/km.
2. Leakage current will increase eightfold with IV type cable due to higher dielectric constant. In this case, use ELB with the next higher trip rating.

Input AC reactor for harmonic suppression/power smoothing/powerfactor improvement	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 600kVA), or to smooth out line fluctuations. It also improves the power factor.
Radio noise filter Zero-phase reactor	Electrical noise interference may occur on nearby equipment such as a radio receiver. This magnetic choke filter helps reduce radiated noise.
Input noise filter	This filter reduces the conducted noise in the power supply wiring between the inverter and the power distribution system. Connect it to the inverter primary (input side).
Input radio noise filter (XY filter)	This capacitive filter reduces radiated noise from the main power wires in the inverter input side.
DC reactor	The inductor or choke filter suppresses harmonics generated by the inverter.
Regenerative braking resistor	The regenerative braking resistor is useful for increasing the inverter's control torque for high duty-cycle (on-off) applications, and improving the decelerating capacity.
Output noise filter	This filter reduces radiated noise emitted on the inverter output cable that may interfere with radio or television reception and test equipment and sensor operation.
Radio noise filter Zero-phase reactor	Electrical noise interference may occur on nearby equipment such as a radio receiver. This magnetic choke filter helps reduce radiated noise.
Output AC reactor	Install it on the output side to reduce leakage current contributed by higher harmonics. Contact our company for details.

Caution in Selecting Peripheral Equipment

Wiring and connection		1. Be sure to connect the power supply to RST (input terminals) and the motor to U, V, W (output terminals). 2. Be sure to connect the grounding terminal. (⏚ mark) Inverters generate high frequency, increasing leakage current. Be sure to ground the inverter and motor.
Wiring between inverter and motor	Electromagnetic contactor	When using an electromagnetic contactor between the inverter and motor, do not turn the contactor ON or OFF during inverter operation.
	Thermal relay	Install a thermal relay that matches the motor in the following cases: *Install a thermal relay for each motor when operating more than one motor with one inverter. *Set the current of the thermal relay at the rated motor current x 1.1. When the wiring length is long (more than 10 m), the thermal relay may be activated too quickly. Install an AC reactor or current sensor on the output side. *When motors are to be operated with the rated current exceeding the adjustable level of the built-in electronic thermal relay.
Earth leakage breaker		Install an earth leakage breaker on the input side for protection of the inverter wiring and operators. Conventional earth leakage breakers may malfunction because of high harmonics from the inverter; therefore use an earth leakage breaker that is applicable to the inverter. The leakage current differs according to the cable length. Refer to p.14.
Wiring distance		The wiring distance between the inverter and operation panel should be less than 30m. If it exceeds 30m, use a current/voltage converter, etc. Use shielded cable for wiring. When the wiring distance between the motor and inverter is long, the leakage current from high harmonics may cause the protective function of the inverter and peripheral equipment to be activated. The situation will be improved by an AC reactor installed on the output side of the inverter. Select appropriate cable to prevent voltage drop. (Large voltage drop lowers the torque.)
Phase-advanced capacitor		Do not use a phase-advanced capacitor. When a power factor improving capacitor is connected between the inverter and motor, the capacitor may be heated or broken by the higher harmonics in the inverter output.