HITACHI
Inspire the Next

Move forward to Greener & Smarter Society

WJ-C1

Compact, High-performance Inverter

NEW

The Right Drive to Succeed

Cat.3 PLe, SIL3, STO compliant as standard

New UL standards, EU directive, RoHS2

Hitachi Industrial Equipment Systems Co., Ltd.

Send Quote Requests to info@automatedpt.com
Call +1(800)985-6929 To Order or Order Online At Hitachiacdrive.com

Easy Replacement

Can we use WJ-C1 same as WJ200 series?

WJ-C1
(WJ series C1)

Basic mode

Select Basic mode
to use same as WJ200.

- Same parameters
- Same field network options available
- Same remote operators available

Extended mode

*Scheduled in future

Same Mounting Dimensions!

WJ200 series

WJ-C1 Features

User-Friendly

- Simulation function to shorten commissioning time
  *Scheduled in future
- Intuitive operation with JOG dial
- Safety function STO as standard

IoT

- Variety of networks supported

Compact

- Durable as WJ200

Diagnosis

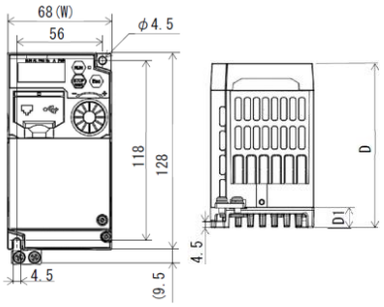
- Detection of “Not usual”
  *Scheduled in future
- Inverter diagnosis
  *Scheduled in future

Functionality

- With pulse input up to 32 kHz, Simple vector control with speed sensor and Simple position control *Scheduled in future
- Sensorless vector control for PM motor
  *When using sensorless vector control for permanent magnet motor (PM), please contact your dealer.

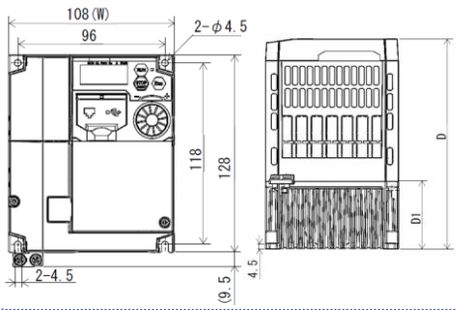
Dimensions

C1-001～004SF, C1-001～007LF



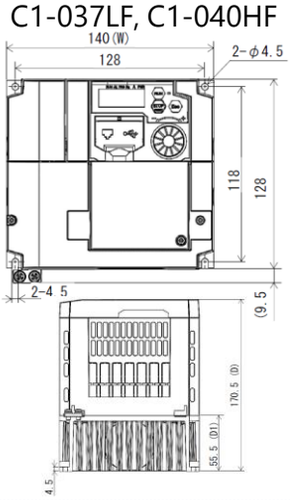
Model name	D	D1
001, 002SF / 001, 002LF	109	13.5
004SF / 004LF	122.5	27
007LF	145.5	50

C1-007～022SF, C1-015～022LF, C1-004～030HF

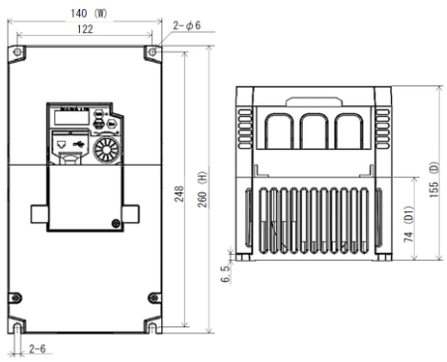


Model name	D	D1
007～022SF / 015～022LF / 007～030HF	170.5	55.5
004HF	143.5	28.5

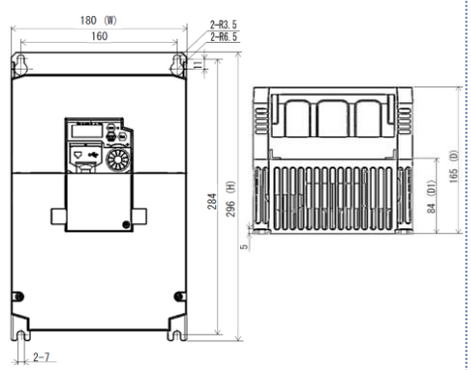
C1-037LF, C1-040HF



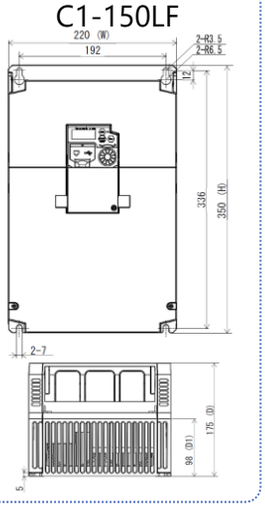
C1-055～075LF, C1-055～075HF



C1-110LF, C1-110～150HF



C1-150LF



Standard Specifications

● Single Phase 200V Class

Model name (*1) C1-□□□SF			001	002	004	007	015	022
Motor (kW) (*2)		LD	0.2	0.4	0.55	1.1	2.2	3.0
		ND	0.1	0.2	0.4	0.75	1.5	2.2
Output	Rated output current (A) (*3)	LD	1.2	1.9	3.5	6.0	9.6	12.0
		ND	1.0	1.6	3.0	5.0	8.0	11.0
	Rated output voltage (V) (*4)		Three phases 200 to 240V					
	Rated capacity (kVA) 200V	LD	0.4	0.6	1.2	2.0	3.3	4.1
		ND	0.2	0.5	1.0	1.7	2.7	3.8
	Rated capacity (kVA) 240V	LD	0.4	0.7	1.4	2.4	3.9	4.9
		ND	0.3	0.6	1.2	2.0	3.3	4.5
Rated input voltage (V)			Single phase 200V to 240V (-15%/+10%), 50/60Hz ±5%					
Braking	Regenerative braking		Built-in transistor circuit (without resistor)					
	Minimum braking resistance (Ω)		100			50		35
Cooling method			Self-cooling				Forced air cooling	
Approx. Weight (kg)			1.0	1.0	1.1	1.6	1.8	1.8

● Three Phase 200V Class

Model name (*1) C1-□□□LF			001	002	004	007	015	022	037	055	075	110	150
Motor (kW) (*2)		LD	0.2	0.4	0.75	1.1	2.2	3.0	5.5	7.5	11	15	18.5
		ND	0.1	0.2	0.4	0.75	1.5	2.2	3.7	5.5	7.5	11	15
Output	Rated output current (A) (*3)	LD	1.2	1.9	3.5	6.0	9.6	12.0	19.6	30.0	40.0	56.0	69.0
		ND	1.0	1.6	3.0	5.0	8.0	11.0	17.5	25.0	33.0	47.0	60.0
	Rated output voltage (V) (*4)		Three phases 200 to 240V										
	Rated capacity (kVA) 200V	LD	0.4	0.6	1.2	2.0	3.3	4.1	6.7	10.3	13.8	19.3	23.9
		ND	0.2	0.5	1.0	1.7	2.7	3.8	6.0	8.6	11.4	16.2	20.7
	Rated capacity (kVA) 240V	LD	0.4	0.7	1.4	2.4	3.9	4.9	8.1	12.4	16.6	23.2	28.6
		ND	0.3	0.6	1.2	2.0	3.3	4.5	7.2	10.3	13.7	19.5	24.9
Rated input voltage (V)			Three phases 200V to 240V (-15%/+10%), 50/60Hz ±5%										
Braking	Regenerative braking		Built-in transistor circuit (without resistor)										
	Minimum braking resistance (Ω)		100			50		35		20		17	10
Cooling method			Self-cooling					Forced air cooling					
Approx. Weight (kg)			1.0	1.0	1.1	1.2	1.6	1.8	2.0	3.5	3.5	4.5	6.5

● Three Phase 400V Class

Model name (*1) C1-□□□HF			004	007	015	022	030	040	055	075	110	150
Motor (kW) (*2)		LD	0.75	1.5	2.2	3.0	4.0	5.5	7.5	11	15	18.5
		ND	0.4	0.75	1.5	2.2	3.0	4.0	5.5	7.5	11	15
Output	Rated output current (A) (*3)	LD	2.1	4.1	5.4	6.9	8.8	11.1	17.5	23.0	31.0	38.0
		ND	1.8	3.4	4.8	5.5	7.2	9.2	14.8	18.0	24.0	31.0
	Rated output voltage (V) (*4)		Three phases 380 to 480V									
	Rated capacity (kVA) 380V	LD	1.3	2.6	3.5	4.5	5.7	7.3	11.5	15.1	20.4	25.0
		ND	1.1	2.2	3.1	3.6	4.7	6.0	9.7	11.8	15.7	20.4
	Rated capacity (kVA) 480V	LD	1.7	3.4	4.4	5.7	7.3	9.2	14.5	19.1	25.7	31.5
		ND	1.4	2.8	3.9	4.5	5.9	7.6	12.3	14.9	19.9	25.7
Rated input voltage (V)			Three phases 380V to 480V (-15%/+10%), 50/60Hz ±5%									
Braking	Regenerative braking		Built-in transistor circuit (without resistor)									
	Minimum braking resistance (Ω)		180			100			70			35
Cooling method			Self-cooling	Forced air cooling								
Approx. Weight (kg)			1.5	1.8	1.8	1.8	2.0	2.0	3.5	3.5	4.5	4.5

*1) The model name indicates capacity code and voltage class.
*2) LD: Light Duty, ND: Normal Duty(Dual rating).
Applicable motors are Hitachi's three-phase (4P) standard motors.
If use to other motors, be sure to prevent a rated current of a motor from exceeding the rated output current of the inverter.
*3) When Basic mode is selected.
*4) The inverter cannot output the voltage more than the input voltage (main power supply voltage).

Common Specifications

Item		Description	
Control method		PWM control	
Output frequency range (*1)		0.01 to 590.00Hz	
Frequency accuracy		±0.01% for digital input / ±0.2% for analog input (at 25±10°C) (at the maximum frequency setting)	
Frequency setting resolution		Digital input: 0.01 Hz , Analog input: (maximum frequency setting)/1000	
Voltage/ Frequency control mode (*2)		IM	V/f control (constant- or reduced-torque, free V/f, Auto-boost mode), V/f control with sensor, IM sensorless vector control
		PM (SM/PMM)	PM sensorless vector control (*3)
Rated overload current		Dual Rating: Normal Duty (ND): 150%/60sec / Light Duty (LD): 120%/60sec	
Acceleration/Deceleration time		0.00 to 3600.00 seconds (in linear or curved pattern)	
Starting torque (*4)		200%, 0.5Hz (by IM sensorless vector control)	
Regenerative braking		Built-in transistor circuit (without resistor)	
Carrier frequency range		Normal Duty (ND): 2 to 15kHz, Light Duty (LD): 2 to 10kHz (with derating)	
Monitor function (*5)		40 kinds	
Protective function (*6)		Over Current, Over Voltage, Under Voltage, Electronic thermal, Over Load and etc.	
Other functions		57 kinds	
Digital panel		5 digits 7 seg, 1 sign LED, 7 status LED, 4 keys and 1 JOG dial (non-detachable)	
Input	Frequency reference	Keypad, Remote operator, Modbus®, Field network option, External analog signal	
	RUN/STOP command	Keypad, Remote operator, Modbus®, Field network option	
	Input terminals	7 terminals (NO/NC selectable, Sinc(PLC-P24 jumper)/Source(PLC-L jumper) selectable)	
	Pulse train input	2 terminals max. 32kHz x 2 (terminal [8](fix to phase A), terminal [7](when enable phase B))	
	Analog input	2 terminals (terminal [Ai1] for DC0 to 10V voltage input, terminal [Ai2] for DC4 to 20mA current input)	
	Thermistor input	1 terminal (shared with terminal [5])(support for PTC type thermistor)	
	Safety input	2 terminals (terminal [ST1] and terminal [ST2])	
Output	Output terminals	2 terminals with open collector (NO/NC selectable, capable for Sink/Source circuit) 1 terminal for relay output (1c type)	
	Safety output	1 terminal (shared with terminal [11], switched to EDM by slide switch)	
	Analog/Pulse train output	2 terminals (terminal [Ao1] for DC0 to 10V voltage output, terminal [Ao2] for pulse train output, max. 32kHz/DC10V output)	
External interface	USB	Micro-B (for inverter configuration software ProDriveNext)	
	Modbus® (*7)	Support for Modbus-RTU (RS-485 serial communication)	
	External operator	RJ45 connector (Exclusive connector for remote operator)	
	Field network Option	WJ200 series field network options. WJ-ECT: for EtherCAT® communication, WJ-PB: for PROFIBUS® communication, WJ-PN: for PROFINET® communication, WJ-CCL: for CC-Link® communication. (*7) One unit can be mounted.	
External control power supply		External 24 VDC can be input from [P24] terminal (installation of reverse-current-prevention diode is mandatory).	
EMC noise filter		Not built-in (optional external noise filter can be connected)	
Environment	Ambient temperature	ND (normal duty):-10 to 50℃ / LD (light duty): -10 to 40℃	
	Storage temperature (*8)	-20 to 65℃	
	Humidity	20-90%RH (non-condensing)	
	Vibration	0.075 mm amplitude for 10 to 57 Hz, 9.8 m/s² (1.0G) for 57 to 150 Hz	
	Installation (*9)	Altitude: 1000m or less, indoors (free from corrosive gases, oil mist, and dust)	
Structure		Protection: IP20 (UL open type), replaceable Fan	
Standards (*10)		CE: IEC 61800-3 (EMC-filter option required), IEC 61800-5-1 UL : UL 61800-5-1, -Overvoltage Category 3, -Pollution Degree 2 Others: c-UL Safety function: STO (Safe torque off) function/ IEC 61508, IEC 61800-5-2: SIL3, ISO 13849-1: Cat.3 PLe, IEC 60204-1:Stop Cat.0	
Other optional components		Noise Filter, DC link choke, AC reactor, Braking resistor, Regenerative braking unit, Remote operator (OPE-SR/OPE-SBK/OPE-SRmini/WOP), Inverter configuration software ProDriveNext, etc.	

*1) The output frequency range depends on the control mode and the motor used. Consult the motor manufacturer for the maximum allowable frequency of the motor when operating beyond base frequency.
*2) Motor constants might need to be adjusted depending on the control mode.
*3) When using sensorless vector control for permanent magnet motor (PM), contact your dealer.
*4) The value is specified for the 4 poles Hitachi standard motor controlled by the IM sensorless vector control at ND rating. Torque characteristics may vary depending on the control mode and the motor used.
*5) Monitor function is for reference only. To obtain more accurate values, apply an external device.
*6) When a driver error [E30] occurs due to the protective function, it may be resulted from the short-circuit protection, as well as damaged IGBT. Depending on the operating conditions of the inverter, an overcurrent error may occur instead of a driver error.
*7) Trademark
- Modbus ® is a registered trademark of Schneider Automation Inc.
- EtherCAT ® is registered trademark and patented technology, licensed by Beckhoff Automation GmbH, Germany.
- PROFIBUS ® and PROFINET ® are registered trademarks of PROFIBUS Nutzerorganisation e.V. (PNO).
- CC-Link ® is a registered trademark of Mitsubishi Electric Corporation.

*8) The storage temperature is the temperature during transportation.
*9) For installation at an altitude of 1000m or more, the atmospheric pressure will decrease by approximately 1% for every 100m altitude increase.
Apply 1% current derating from the rated current for every 100m altitude increase and conduct an evaluation test. When using at an altitude of 2500m or more, please contact Hitachi Inverter distributor.
*10) The standards information on the common specifications is as of July 2022.