

HITACHI
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Pursuing the Ideal Compact Inverter

WJ200 Series

Designed for excellent performance and user friendliness



Hitachi Industrial Equipment Systems Co., Ltd.

Standard Specifications

1-phase 200V class

Models WJ200-			001SF	002SF	004SF	007SF	015SF	022SF	
Applicable motor size *1		kW	VT	0.2	0.4	0.55	1.1	2.2	3.0
			CT	0.1	0.2	0.4	0.75	1.5	2.2
		HP	VT	1/4	1/2	3/4	1.5	3	4
			CT	1/8	1/4	1/2	1	2	3
Rated capacity (kVA)		200V	VT	0.4	0.6	1.2	2.0	3.3	4.1
			CT	0.2	0.5	1.0	1.7	2.7	3.8
		240V	VT	0.4	0.7	1.4	2.4	3.9	4.9
			CT	0.3	0.6	1.2	2.0	3.3	4.5
Input Rating	Rated input voltage (V)		1-phase: 200V-15% to 240V +10%, 50/60Hz ±5%						
	Rated input current (A)		VT	2.0	3.6	7.3	13.8	20.2	24.0
			CT	1.3	3.0	6.3	11.5	16.8	22.0
Output Rating	Rated output voltage (V) *2		3-phase: 200 to 240V (proportional to input voltage)						
	Rated output current (A)		VT	1.2	1.9	3.5	6.0	9.6	12.0
			CT	1.0	1.6	3.0	5.0	8.0	11.0
Minimum value of resistor (Ω)			100	100	100	50	50	35	
Weight		kg	1.0	1.0	1.1	1.6	1.8	1.8	
		lb	2.2	2.2	2.4	3.5	4.0	4.0	

3-phase 200V class

Models WJ200-			001LF	002LF	004LF	007LF	015LF	022LF	037LF	055LF	075LF	110LF	150LF	
Applicable motor size *1		kW	VT	0.2	0.4	0.75	1.1	2.2	3.0	5.5	7.5	11	15	18.5
			CT	0.1	0.2	0.4	0.75	1.5	2.2	3.7	5.5	7.5	11	15
		HP	VT	1/4	1/2	1	1.5	3	4	7.5	10	15	20	25
			CT	1/8	1/4	1/2	1	2	3	5	7.5	10	15	20
Rated capacity (kVA)		200V	VT	0.4	0.6	1.2	2.0	3.3	4.1	6.7	10.3	13.8	19.3	23.9
			CT	0.2	0.5	1.0	1.7	2.7	3.8	6.0	8.6	11.4	16.2	20.7
		240V	VT	0.4	0.7	1.4	2.4	3.9	4.9	8.1	12.4	16.6	23.2	28.6
			CT	0.3	0.6	1.2	2.0	3.3	4.5	7.2	10.3	13.7	19.5	24.9
Input Rating	Rated input voltage (V)		3-phase: 200V-15% to 240V +10%, 50/60Hz ±5%											
	Rated input current (A)	VT	1.2	1.9	3.9	7.2	10.8	13.9	23.0	37.0	48.0	68.0	72.0	
		CT	1.0	1.6	3.3	6.0	9.0	12.7	20.5	30.8	39.6	57.1	62.6	
Output Rating	Rated output voltage (V) *2		3-phase: 200 to 240V (proportional to input voltage)											
	Rated output current (A)	VT	1.2	1.9	3.5	6.0	9.6	12.0	19.6	30.0	40.0	56.0	69.0	
		CT	1.0	1.6	3.0	5.0	8.0	11.0	17.5	25.0	33.0	47.0	60.0	
Minimum value of resistor (Ω)			100	100	100	50	50	35	35	20	17	17	10	
Weight		kg	1.0	1.0	1.1	1.2	1.6	1.8	2.0	3.3	3.4	5.1	7.4	
		lb	2.2	2.2	2.4	2.6	3.5	4.0	4.4	7.3	7.5	11.2	16.3	

3-phase 400V class

Models WJ200-			004HF	007HF	015HF	022HF	030HF	040HF	055HF	075HF	110HF	150HF		
Applicable motor size *1			kW	VT	0.75	1.5	2.2	3.0	4.0	5.5	7.5	11	15	18.5
				CT	0.4	0.75	1.5	2.2	3.0	4.0	5.5	7.5	11	15
			HP	VT	1	2	3	4	5	7.5	10	15	20	25
				CT	1/2	1	2	3	4	5	7.5	10	15	20
Rated capacity (kVA)			200V	VT	1.3	2.6	3.5	4.5	5.7	7.3	11.5	15.1	20.4	25.0
				CT	1.1	2.2	3.1	3.6	4.7	6.0	9.7	11.8	15.7	20.4
			240V	VT	1.7	3.4	4.4	5.7	7.3	9.2	14.5	19.1	25.7	31.5
				CT	1.4	2.8	3.9	4.5	5.9	7.6	12.3	14.9	19.9	25.7
Input Rating	Rated input voltage (V)			3-phase: 380V-15% to 480V +10%, 50/60Hz ±5%										
	Rated input current (A)	VT	2.1	4.3	5.9	8.1	9.4	13.3	20.0	24.0	38.0	44.0		
		CT	1.8	3.6	5.2	6.5	7.7	11.0	16.9	18.8	29.4	35.9		
Output Rating	Rated output voltage (V) *2			3-phase: 380 to 480V (proportional to input voltage)										
	Rated output current (A)	VT	2.1	4.1	5.4	6.9	8.8	11.1	17.5	23.0	31.0	38.0		
		CT	1.8	3.4	4.8	5.5	7.2	9.2	14.8	18.0	24.0	31.0		
Minimum value of resistor (Ω)				180	180	180	100	100	100	70	70	70	35	
Weight			kg	1.5	1.6	1.8	1.9	1.9	2.1	3.5	3.5	4.7	5.2	
			lb	3.3	3.5	4.0	4.2	4.2	4.6	7.7	7.7	10.4	11.5	

*1: The applicable motor refers to Hitachi standard 3-phase motor (4p). When using other motors, care must be taken to prevent the rated motor current (50/60Hz) from exceeding the rated output current of the inverter.

*2: The output voltage varies as the main supply voltage varies (except when using the AVR function). In any case, the output voltage cannot exceed the input power supply voltage.

General Specifications

Item			General Specifications	
Protective housing *3			IP20	
Control method			Sinusoidal Pulse Width Modulation (PWM) control	
Carrier frequency			2kHz to 15kHz (derating required depending on the model)	
Output frequency range *4			0.1 to 400Hz	
Frequency accuracy			Digital command: ±0.01% of the maximum frequency Analog command: ±0.2% of the maximum frequency (25°C ±10°C)	
Frequency setting resolution			Digital: 0.01Hz; Analog: max. frequency/1000	
Volt. / Freq. characteristic			V/f control (constant torque, reduced torque, free-V/F): base freq. 30Hz– 400Hz adjustable, Sensorless vector control, Closed loop control with motor encoder feedback (only V/f control).	
Overload capacity			Dual rating: CT (Heavy duty): 60 sec. @150% VT (Normal duty): 60 sec. @120%	
Acceleration / deceleration time			0.01 to 3600 seconds, linear and S-curve accel/ decel, second accel/ decel setting available	
Starting torque			200% @0.5Hz (sensorless vector control)	
DC braking			Variable operating frequency, time, and braking force	
Input signal	Freq. setting	Operator panel	  keys / Value settings	
		External signal *6	0 to 10 VDC (input impedance 10kΩ), 4 to 20mA (input impedance 100Ω), Potentiometer (1k to 2kΩ, 2W)	
		Via network	RS485 ModBus RTU, other network option	
	FWD/ REV run	Operator panel	Run / Stop (Forward / Reverse run change by command)	
		External signal *6	Forward run/ stop, Reverse run/ stop	
		Via network	RS485 ModBus RTU, other network option	
	Intelligent input terminal	Terminals	7 terminals, sink / source changeable by a short bar	
		Functions	FW (forward run command), RV (reverse run command), CF1–CF4 (multi-stage speed setting), JG (jog command), DB (external braking), SET (set second motor), 2CH (2-stage accel./ decel. command), FRS (free run stop command), EXT (external trip), USP (startup function), CS (commercial power switchover), SFT (soft lock), AT (analog input selection), RS (reset), PTC (thermistor thermal protection), STA (start), STP (stop), F/R (forward /reverse), PID (PID disable), PIDC (PID reset), UP (remote control up function), DWN (remote control down function), UDC (remote control data clear), OPE (operator control), SF1–SF7 (multi-stage speed setting; bit operation), OLR (overload restriction), TL (torque limit enable), TRQ1 (torque limit changeover1), TRQ2 (torque limit changeover2), BOK (Braking confirmation), LAC (LAD cancellation), PCLR (position deviation clear), ADD (add frequency enable), F-TM (force terminal mode), ATR (permission of torque command input), KHC (Cumulative power clear), MI1–MI7 (general purpose inputs for EzSQ), AHD (analog command hold), CP1–CP3 (multistage-position switches), ORL (limit signal of zero-return), ORG (trigger signal of zero-return), SPD (speed/position changeover), GS1,GS2 (STO inputs, safety related signals), 485 (Starting communication signal), PRG (executing EzSQ program), HLD (retain output frequency), ROK (permission of run command), EB (rotation direction detection of B-phase), DISP (display limitation), NO (no function)	
	68 functions assignable			
	Output signal	Intelligent output terminal	Functions	RUN (run signal), FA1–FA5 (frequency arrival signal), OL,OL2 (overload advance notice signal), OD (PID deviation error signal), AL (alarm signal), OTQ (over /under torque threshold), UV (under-voltage), TRQ (torque limit signal), RNT (run time expired), ONT (power ON time expired), THM (thermal warning), BRK (brake release), BER (brake error), ZS (0Hz detection), DSE (speed deviation excessive), POK (positioning completion), ODc (analog voltage input disconnection), OIdc (analog current input disconnection), FBV (PID second stage output), NDC (network disconnect detection), LOG1–LOG3 (Logic output signals), WAC (capacitor life warning), WAF (cooling fan warning), FR (starting contact), OHF (heat sink overheat warning), LOC (Low load), MO1–MO3 (general outputs for EzSQ), IRDY (inverter ready), FWR (forward operation), RVR (reverse operation), MJA (major failure), WCO (window comparator O), WCOI (window comparator OI), FREF (frequency command source), REF (run command source), SETM (second motor in operation), EDM (STO (safe torque off) performance monitor), OP (option control signal), NO (no function)
				Monitor output (analog)
Pulse train output (0–10VDC, 32kHz max.)			[PWM output] Output freq., output current, output torque, output voltage, input power, thermal load ratio, LAD freq., heat sink temperature, general output (EzSQ) [Pulse train output] Output frequency, output current, pulse train input monitor	
		Alarm output contact		ON for inverter alarm (1c contacts, both normally open or closed available.)
Other functions			Free-V/f, manual /automatic torque boost, output voltage gain adjustment, AVR function, reduced voltage start, motor data selection, auto-tuning, motor stabilization control, reverse running protection, simple position control, simple torque control, torque limiting, automatic carrier frequency reduction, energy saving operation, PID function, non-stop operation at instantaneous power failure, brake control, DC injection braking, dynamic braking (BRD), frequency upper and lower limiters, jump frequencies, curve accel and decel (S, U, inverted U,EL-S), 16-stage speed profile, fine adjustment of start frequency, accel and decel stop, process jogging, frequency calculation, frequency addition, 2-stage accel/ decel, stop mode selection, start/end freq., analog input filter, window comparators, input terminal response time, output signal delay/ hold function, rotation direction restriction, stop key selection, software lock, safe stop function, scaling function, display restriction, password function, user parameter, initialization, initial display selection, cooling fan control, warning, trip retry, frequency pull-in restart, frequency matching, overload restriction, over current restriction, DC bus voltage AVR	
Protective function			Over-current, over-voltage, under-voltage, overload, brake resistor overload, CPU error, memory error, external trip, USP error, ground fault detection at power on, temperature error, internal communication error, driver error, thermistor error, brake error, safe stop, overload at low speed, modbus communication error, option error, encoder disconnection, speed excessive, EzSQ command error, EzSQ nesting error, EzSQ execution error, EzSQ user trip	
Operating environment	Temperature	Operating (ambient): -10 to 50°C / Storage: -20 to 65°C *7		
	Humidity	20 to 90% humidity (non-condensing)		
	Vibration *8	5.9m/s ² (0.6G), 10 to 55 Hz		
	Location	Altitude 1,000m or less, indoors (no corrosive gasses or dust)		
Coating color			Black	
Options			Remote operator unit, cables for the units, braking unit, braking resistor, AC reactor, DC reactor, EMC filter	

*3: The protection method conforms to JEM 1030.

*4: To operate the motor beyond 50 / 60Hz, consult the motor manufacturer for the maximum allowable rotation speed.

*5: The braking torque via capacitive feedback is the average deceleration torque at the shortest deceleration (stopping from 50 / 60Hz as indicated). It is not continuous regenerative braking torque. The average deceleration torque varies with motor loss. This value decreases when operating beyond 50Hz. If a large regenerative torque is required, the optional regenerative braking unit and a resistor should be used.

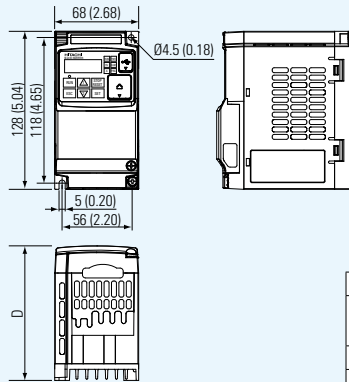
*6: The frequency command is the maximum frequency at 9.8V for input voltage 0 to 10VDC, or at 19.6mA for input current 4 to 20mA. If this characteristic is not satisfactory for your application, contact your Hitachi representative.

*7: The storage temperature refers to the short-term temperature during transportation.

*8: Conforms to the test method specified in JIS C0040 (1999). For the model types excluded in the standard specifications, contact your Hitachi sales representative.

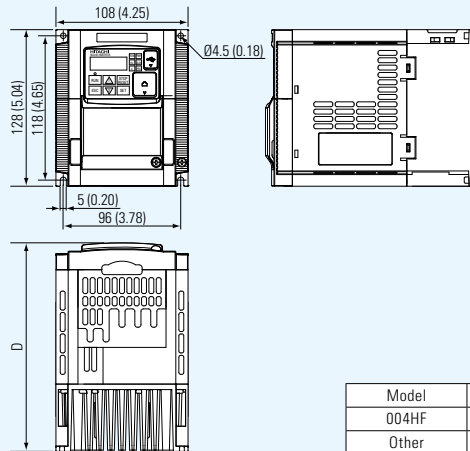
Dimensions

- WJ200-001LF-007LF
- WJ200-001SF-004SF



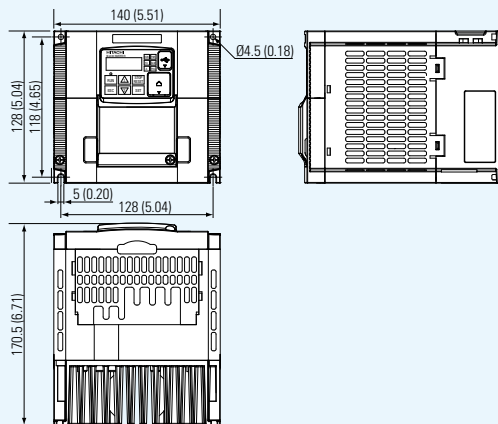
Model	D
001LF, 002LF	109 (4.29)
001SF, 002SF	122.5 (4.82)
004LF, 004SF	122.5 (4.82)
007LF	145.5 (5.73)

- WJ200-015LF, 022LF
- WJ200-007SF-022SF
- WJ200-004HF-030HF

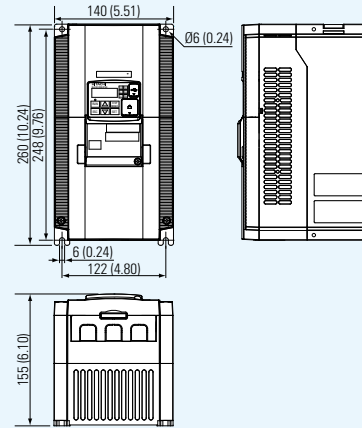


Model	D
004HF	143.5 (5.65)
Other	170.5 (6.71)

- WJ200-037LF
- WJ200-040HF

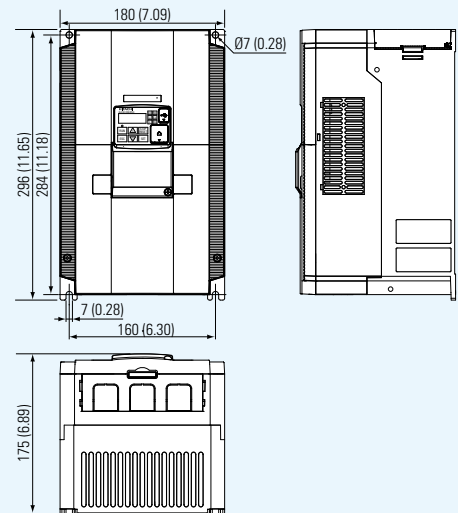


- WJ200-055LF
- WJ200-075LF
- WJ200-055HF
- WJ200-075HF



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

- WJ200-110LF
- WJ200-110HF
- WJ200-150HF



- WJ200-150LF

