

General specifications

Item		General specifications		
PWM system		Sine-wave PWM system		
Output frequency range		0.00 to 590.00 Hz		
Frequency accuracy		For the highest frequency, Digital: $\pm 0.01\%$, Analogue: $\pm 0.2\%$ ($25 \pm 10^\circ\text{C}$)		
Frequency resolution		Digital: 0.01 Hz, Analogue: Max. frequency / 4000 (Ai1 terminal / Ai2 terminal: 12bit / 0 to +10V or 0 to +20 mA, Ai3 terminal 12bit / -10 to +10V)		
Volt./Freq. characteristic	IM	V/F control (constant torque / reduced torque / free), Automatic boost control, V/F control with encoder (constant torque / reduced torque / free), Automatic boost control with encoder, Cascade type sensorless vector control, 0 Hz sensorless vector control		
	SM / PMM	Method of synchronous startup for smart sensorless vector control		
Acceleration / Deceleration time		0.00 to 3600.00 seconds (Linear, S-curve, U-curve, Inverted-U-curve, EL-S-curve)		
DC braking		Variable operating frequency, delay time, braking force, time		
Input signal	Digital	11 terminals, NO/NC switchable, Sink/Source changeable by switch (A or B terminal accept a pulse train)		
	Analog	4 terminals Ai1 / Ai2 terminal (0 to 10VDC or 0 to 20 mA, Input impedance: 10 k Ω), Ai3 terminal (-10 to +10VDC, Input impedance: 10 k Ω) Thermistor input terminal (PTC/NTC resistor allowed)		
	Pulse train (These can be used as digital input terminal too)	2 terminals (Maximum 27VDC, 5.6 mA, 32 kHz)		
Output signal	Digital	5 transistor output terminals		
	Analog	2 terminals (0 to 10VDC or 0 to 20 mA)		
	Pulse train	1 terminal (0 to 10VDC, Maximum 1.2 mA, 3.60 kHz)		
	Relay	1 1a contact relay, 1 1c contact relay		
Network	Standard	RS485 (Modbus RTU), USB micro B port, RJ45 port		
	Option	Ethernet, EtherCAT, Profibus-DP, ProfiNET		
Other functions		V/F free setting (7 points), Upper and lower frequency limit, Frequency jump, Curve acceleration and deceleration, Manual torque boost, Energy-saving operation, Analogue output adjustment, Minimum speed, Carrier frequency adjustment, Motor electronic thermal function (free is possible), Inverter thermal function, External start-end (speed and rate), Frequency input selection, Trip retry, Restart stop, Various signal output, Initialization setting, PID control, Auto-decel at shut-off, Brake control function, Commercial switching function, Auto-tuning (on/offline), etc.		
Functional safety		STO: SIL3, Cat. 3 / PLe		
Protection functions		Overcurrent error, Overload error, Brake resistor overload, Over voltage error, Memory error, Undervoltage error, Current detector error, CPU error, External trip error, USP error, Ground error, Supply overvoltage error, Phase output error, Thermistor error, Brake error, Low-speed range overload error, Inverter overload, RS485 communication error, RTC error, etc.		
Operating environment	Ambient temperature	VLD	-10 to 50 °C	
		LD	-10 to 45 °C	
		ND	-10 to 40 °C	
	Storage temperature		-20 to 65 °C	
	Humidity		20 to 90% RH (No condensation allowed)	
	Vibration	P1-00041-H (P1-004H) to P1-00620-H (P1-220H)	5.9 m/s ² (0.6 G), 10 to 55 Hz	
P1-00770-H (P1-300H) to P1-03160-H (P1-1320H)		2.94 m/s ² (0.3 G), 10 to 55 Hz		
Installation place		A maximum altitude of 1000 m, without gases or dust		
Certification		UL, c-UL, CE marking, RCM (planned: KC, EAC, NK)		
Options		Option cassette: Input/Output option (Analog input/output option, Relay output option), Communication (Ethernet, EtherCAT, Profibus-DP, ProfiNET), Feedback (Line drive output 00041, Push-pull output, Resolver output), Temperature detector (Optional temperature measuring sensor) Others: Braking resistor, AC/DC reactor, Noise filter, Operator cable, Harmonics suppression unit, Noise filter, LCR filter, Analog panel, Regenerative braking unit, PC software "ProDriveNext", Relay expansion terminal board		

Conformity to global standards

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

Sink/source logic is standard

Logic input and output terminals can be configured for sink or source logic.

Wide input power voltage range

Input voltage range from 380V to 500V as standard.



Standard specifications

Model name P1-****-H		00041	00054	00083	00126	00175	00250	00310	00400	00470	
Enclosure		IP20									
Applicable motor capacity (4 poles) (kW)	VLD	1.5	2.2	3.7	5.5	7.5	11	15	18.5	22	
	LD	1.5	2.2	3.7	5.5	7.5	11	15	18.5	22	
	ND	0.75	1.5	2.2	3.7	5.5	7.5	11	15	18.5	
Rated capacity (kVA)	400V	VLD	2.8	3.7	5.8	8.7	12.1	17.3	21.5	27.7	32.6
		LD	2.1	3.3	4.6	7.7	11.1	15.2	20.1	25.6	29.8
		ND	1.7	2.8	3.8	6.4	10.3	13.2	17.3	22.2	27.0
	500V	VLD	3.6	4.7	7.2	10.9	15.2	21.7	26.8	34.6	40.7
		LD	2.7	4.2	5.8	9.6	13.9	19.1	25.1	32.0	37.2
		ND	2.2	3.5	4.8	8.0	12.8	16.5	21.7	27.7	33.8
Rated input AC voltage		Control power: Single-phase supply 380 to 500V (+10%, -15%), 50 Hz/60 Hz (±5%) Main power: 3-phase (3 wire) 380 to 500V (+10%, -15%), 50 Hz/60 Hz (±5%)									
Rated output current (A)	VLD	4.1	5.4	8.3	12.6	17.5	25.0	31.0	40.0	47.0	
	LD	3.1	4.8	6.7	11.1	16.0	22.0	29.0	37.0	43.0	
	ND	2.5	4.0	5.5	9.2	14.8	19.0	25.0	32.0	39.0	
Overload current rating	VLD	110 % 60 sec / 120 % 3 sec									
	LD	120 % 60 sec / 150 % 3 sec									
	ND	150 % 60 sec / 200 % 3 sec									
Rated output voltage		3-phase (3 wire): 380 to 500V (proportional to input voltage)									
Starting torque (ND)		200 % / 0.3 Hz									
Regenerative braking		Internal BRD circuit (external discharge resistor)									
Minimum resistance value (Ω)		100	100	100	70	70	35	35	24	24	
H (height) (mm)		255	255	255	255	260	260	260	390	390	
W (width) (mm)		150	150	150	150	210	210	210	245	245	
D (depth) (mm)		140	140	140	140	170	170	170	190	190	
Weight (kg)		4	4	4	4	7	7	7	16	16	

Model name P1-****-H		00620	00770	00930	01160	01470	01760	02130	02520	03160	
Enclosure		IP20					IP00				
Applicable motor capacity (4 poles) (kW)	VLD	30	37	45	55	75	90	110	132	160	
	LD	30	37	45	55	75	90	110	132	160	
	ND	22	30	37	45	55	75	90	110	132	
Rated capacity (kVA)	400V	VLD	43.0	53.3	64.4	80.4	101.8	121.9	147.6	174.6	218.9
		LD	39.5	48.5	58.9	72.7	93.5	110.9	135.1	159.3	200.9
		ND	33.3	42.3	52.0	63.0	77.6	103.9	124.7	150.3	180.1
	500V	VLD	53.7	66.7	80.5	100.5	127.3	152.4	184.5	218.2	273.7
		LD	49.4	60.6	73.6	90.9	116.9	138.6	168.9	199.2	251.1
		ND	41.6	52.8	65.0	78.8	97.0	129.9	155.9	187.9	225.2
Rated input AC voltage		Control power: Single-phase supply 380 to 500V (+10%, -15%), 50 Hz/60 Hz (±5%) Main power: 3-phase (3 wire) 380 to 500V (+10%, -15%), 50 Hz/60 Hz (±5%)									
Rated output current (A)	VLD	62.0	77.0	93.0	116	147	176	213	252	316	
	LD	57.0	70.0	85.0	105	135	160	195	230	290	
	ND	48.0	61.0	75.0	91.0	112	150	180	217	260	
Overload current rating	VLD	110 % 60 sec / 120 % 3 sec									
	LD	120 % 60 sec / 150 % 3 sec									
	ND	150 % 60 sec / 200 % 3 sec									
Rated output voltage		3-phase (3 wire): 380 to 500V (proportional to input voltage)									
Starting torque		200 % / 0.3 Hz					180 % / 0.3 Hz				
Regenerative braking		Internal BRD circuit			opt. internal			Ext. regen. braking unit			
Minimum resistance value (Ω)		20	15	15	10	10	-	-	-	-	
H (height) (mm)		390	540	550	550	550	700	700	740	740	
W (width) (mm)		245	300	390	390	390	390	390	480	480	
D (depth) (mm)		190	195	250	250	250	270	270	270	270	
Weight (kg)		16	22	30	30	30	55	55	70	70	