

P5+ General Purpose AC Inverters Constant & Variable Torque



OMRON

CONTROLS, INC.

P5+ SERIES AC INVERTER

Get superior control with the best value for a wide range of applications

The Omron IDM Controls P5+ inverter is a great choice for variable torque & general purpose constant torque applications.



The Omron IDM Controls P5+ series AC inverter, with both constant and variable torque ratings, is the right choice for general purpose and fan/pump applications. With standard features such as full range automatic torque boost, Energy Savings software, and UL listed electronic thermal overload protection, the P5+ is the economical choice for most applications. The standard digital keypad offers simple programming and a two-line, 16 character alphanumeric display operator. The P5+ also has PID control built in for improved process control.

The benefits of using the P5+ inverter in an HVAC application include energy savings, improved power factor, inverter and motor protection and quiet motor operation. With features such as DC injection at starting, jump frequencies, power loss ride-through, and PID control, the P5+ offers outstanding built-in control for the application.

For general purpose constant torque applications, the P5+ is a feature rich package as well. With features such as preset speeds, I/O configurability, and stall prevention, the P5+ is a great choice for over 90% of industrial applications.

Serial Communications

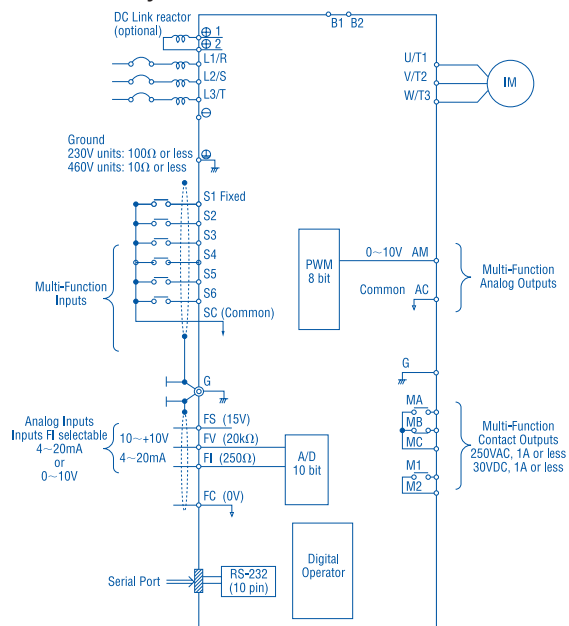
- Apogee System 600 (P1)
- Metasys (N2)
- LonWorks
- MODBUS
- RS-485/RS-422/RS-232

Outstanding design features

- V/Hz operation
- 16-bit microprocessor
- 0.1-400 Hz control range
- Adjustable carrier frequency (up to 15kHz)
- UL/cUL/CE labeled on 460v models
- UL/cUL labeled on 230v and 600v models
- UL recognized electronic thermal overload

HVAC VT5 package

- Optional package for 230v and 460v
- P5+ inverter with 3 contactor bypass
- Self contained compact package
- Easy installation and programming
- NEMA 1 enclosure
- Fused input disconnect
- Motor overload relay
- VFD-OFF-BYPASS selector switch
- Normal-Test selector switch
- 4 pilot lights
- 115V control power
- Customer terminal block w/safety interlock
- Local/remote selection
- Local run/stop selection
- Manual speed control
- Quick delivery



Specifications

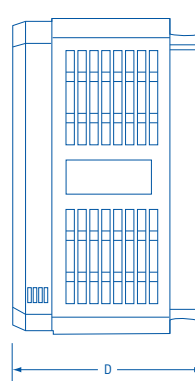
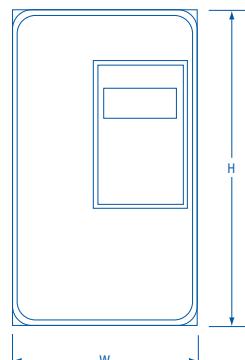
Power Supply	230V Rated Input Voltage & Frequency	3-Phase, 200 to 230 VAC 50/60Hz
	Allowable Voltage Fluctuation	-15% of 200 VAC; +10% of 230 VAC
	460V Rated Input Voltage & Frequency	3-Phase, 380 to 460 VAC 50/60 Hz
	Allowable Voltage Fluctuation	-15% of 380 VAC; +10% of 460 VAC
	600V Rated Input Voltage & Frequency	3-Phase, 500/575/600 VAC, 50/60Hz
	Allowable Voltage Fluctuation	-15% of 500 VAC, +10% of 600 VAC
Control Characteristics	Allowable Frequency Fluctuation	±5%
	Control Method	Sine Wave PWM
	Frequency Control Range	0.1 to 400 Hz
	Frequency Accuracy	Digital Operator Reference: 0.01% Analog Reference: 0.1%
	Frequency Setting Resolution	Digital Operator Reference: 0.01Hz Analog Reference: 0.06Hz/60Hz
	Output Frequency Resolution	0.01Hz
	Overload Capacity	120% rated output current for one minute (150% for constant torque rating)
	Frequency Setting Signal	0 to +10V (20kΩ) 4 to 20mA (250 Ω)
Protective Functions	Accel/Decel	0.01 to 3600.0 sec (Accel/Decel time setting independently; 0.1sec)
	Braking Torque	Approximately 20%
	Motor Overload Protection	UL-recognized electronic thermal overload relay (I ² T)
	Instantaneous Overcurrent	Motor coasts to a stop at approximately 180% rated output current
	Fuse Protection	Motor coasts to a stop at blown fuse
	Overload	Motor coasts to a stop after one minute at 120% rated output current (150% for constant torque)
	Overvoltage	Motor coasts to a stop if converter output voltage exceeds 410VDC at 230VAC input Motor coasts to a stop if converter output exceeds 820VDC at 460VAC input
	Undervoltage	Motor coasts to a stop if converter output voltage drops below user adjustable value
	Momentary Power Loss	Immediate stop after 15ms or longer power loss (Continuous system operation during power loss less than 2 sec is equipped as standard)
	Fin Overheat	Thermistor – OH1,OH2
	Stall Prevention	Stall prevention during accel/decel and constant speed operation
Environmental Conditions	Ground Fault	Provided by electronic circuit
	Power Charge Indication	Charge LED stays on until bus voltage drops below 50VDC
	Location	Indoor (Protected from corrosive gases and dust)
	Humidity	95%RH (Non-condensing)
	Storage Temperature	-4 to 140° F (-20 to 60° C)
	Ambient Temperature	+14 to 104° F (-10 to 40° C) for NEMA 1 type (not frozen) +14 to 113° F (-10 to 45° C) for Open Chassis Type
	Elevation	1000m (3281 feet) or below
Other Functions	Vibration	9.8m/s ² (1G) less than 20Hz, up to 1.96 m/s ² (0.2G) at 20 to 50Hz
	Wiring Distance	328 ft (100 m) or less between inverter and motor
	Input Signals	Multi-Function Inputs
	Output Signals	Multi-Function Outputs
Standard Functions		DC injection braking, PID control, Energy Saving mode, 2 accel/decel times with S-curve, 4 preset speeds, selectable for constant or variable torque, 2 jump frequencies, stall prevention, auto restart, power-loss ride through, and many other standard features.



Omron IDM Controls, Inc., headquartered in Houston, Texas, has been providing AC and DC Drives, Engineered Systems and Service for over 25 years. Omron IDM Controls, Inc. is the North American Drives and Systems arm of Omron, a worldwide manufacturer of industrial control products.

Dimensions

Rated Voltage	Inverter Part Number	Nominal HP VT ¹	Nominal HP CT ¹	Rated Amps VT ²	Rated Amps CT ²	Overall HxWxD (in.)	Approximate Weight (lb.)
230VAC 3-Phase	P5U-20P4-N1	0.75	0.75	3.2	3.2	11.02x5.51x6.30	6.5
	P5U-20P7-N1	1.5	1.5	6	6	11.02x5.51x6.30	6.5
	P5U-21P5-N1	2	2	8	8	11.02x5.51x6.30	6.5
	P5U-22P2-N1	3	3	11	11	11.02x5.51x7.09	10
	P5U-23P7-N1	5	5	17.5	17.5	11.02x5.51x7.09	10
	P5U-25P5-N1	7.5/10	7.5	27	25	11.81x7.87x8.07	12
	P5U-27P5-N1	10/15	10	36	33	11.81x7.87x8.07	13
	P5U-2011-N1	15/20	15	54	49	14.96x9.48x8.86	24
	P5U-2015-N1	25	20/25	68	64	15.75x9.84x8.86	24
	P5U-2018-N1	30	20/25	80	64	24.02x12.99x11.22	71
	P5U-2022-N1	40	30	104	83	26.57x12.99x11.22	71
	P5U-2030-N0*	50	40	130	104	26.57x16.73x13.78	134
	P5U-2037-N0*	60	50	160	128	26.57x16.73x13.78	137
	P5U-2045-N0*	75	60	192	154	31.50x18.70x13.78	176
P5U-2055-N0*	100	75	248	198	31.50x18.70x13.78	176	
P5U-2075-N0*	125	100	312	250	36.42x22.64x15.75	298	
460VAC 3-Phase	P5U-40P4-N1	1	1	1.9	1.9	11.02x5.51x6.30	6.5
	P5U-40P7-N1	2	2	3.6	3.6	11.02x5.51x6.30	6.5
	P5U-41P5-N1	3	3	5.1	5.1	11.02x5.51x7.09	8.8
	P5U-42P2-N1	3	3	6.6	6.6	11.02x5.51x7.09	10
	P5U-43P7-N1	5	5	8.5	8.5	11.02x5.51x7.09	10
	P5U-44P0-N1	7.5	7.5	11.7	11.7	11.02x5.51x7.09	10
	P5U-45P5-N1	10	10	14.8	14.8	11.81x7.87x8.07	13
	P5U-47P5-N1	15	10	21	18	11.81x7.87x8.07	13
	P5U-4011-N1	20	20	28.6	28.6	14.96x9.84x8.86	24
	P5U-4015-N1	25	25	34	34	14.96x9.84x8.86	24
	P5U-4018-N1	30	25	41	32	24.02x12.99x11.22	68
	P5U-4022-N1	40	30	52	42	24.02x12.99x11.22	68
	P5U-4030-N1	50	40	65	52	30.91x12.99x11.22	106
	P5U-4037-N1	60	50	80	64	30.91x12.99x11.22	106
	P5U-4045-N1	75	60	96	77	33.46x12.99x11.22	106
	P5U-4055-N0*	100	75	128	102	32.28x17.91x13.78	174
	P5U-4075-N0*	150	100	180	144	32.28x17.91x13.78	176
	P5U-4110-N0*	200	150	240	182	36.42x22.64x14.76	298
	P5U-4160-N0*	250	200	302	242	36.42x22.64x15.75	320
P5U-4185-N0	300	250	380	304	57.09x37.40x17.13	794	
P5U-4220-N0	400	300	506	404	57.09x37.40x17.13	794	
P5U-4300-N0	500	400	675	540	62.99x37.80x17.91	926	
600VAC 3-Phase	P5M-51P5-N1	2/3	N/A	3.9	N/A	11.02x5.51x7.08	9
	P5M-53P7-N1	5		7		11.81x7.87x8.07	13
	P5M-55P5-N1	7.5/10		11		11.81x7.87x8.07	14
	P5M-5011-N1	15		19		14.96x9.89x8.85	29
	P5M-5015-N1	20		25		14.96x9.89x8.85	29
	P5M-5018-N1	25		30		29.53x15.75x11.22	97
	P5M-5022-N1	30		36		29.53x15.75x11.22	97
	P5M-5030-N1	40		46		33.47x22.64x11.81	159
	P5M-5037-N1	50		58		33.47x22.64x11.81	159
	P5M-5045-N1	60		69		33.47x22.64x11.81	159
	P5M-5055-N1	75		86		41.34x22.64x12.80	198
	P5M-5075-N1	100		111		41.97x22.64x12.80	198
	P5M-5090-N0*	125/150		145		49.21x22.64x12.99	267
	P5M-5110-N0*	200		192		62.99x22.64x13.98	324



* These units are open chassis. Consult factory for NEMA 1 dimensions.
 1 Nominal HP rating based on standard 1800RPM motor amperage.
 2 VT ratings have 120% overload for 1 minute. CT ratings have 150% overload for 1 minute.



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