

Description

5-100HP

P7 Slim Configured

P7S



The P7S/Configured package provides an P7 in a NEMA 1 enclosure, with space for several commonly used options, such as reactors, input filters, circuit breakers, etc. The P7 and P7S/Configured have been designed for flexibility in providing the features and options commonly specified by facility designers.

The P7 Drive is a variable torque AC drive, designed specifically for industrial applications. A new benchmark for size, cost, performance, benefits, and quality, the P7 includes numerous built-in features and energy-savings functions.

Performance Features

- VT Ratings: 5-40 HP, 208 VAC
5-100 HP, 480 VAC
- Overload capacity: 110% for 60 sec (150% peak)
- Starting torque: 100% at 3 Hz
- DC injection braking: at start or stop, adjustable, current limited (anti-windmilling)
- Motor preheat function
- Adjustable accel/decel: 0.1 to 6000 sec.
- Controlled speed range: 40:1
- Critical frequency rejection: 3 selectable, adjustable bands
- Torque limiting: 30-180%
- Energy Saving control
- Torque boost: full range, auto
- Power loss ride-thru: 2 sec
- Inertia ride-thru
- Auto restart after power loss or resettable fault, selectable, programmable
- Feedback signal loss detection
- Serial communications loss detection
- "Up/Down" floating point control capability
- Stationary motor auto-tuning
- Customizable monitor display
- Sleep function
- Run permissive input
- Ramp-to-stop or coast-to-stop selection
- Runtime changes in control and display
- Project-specific parameter reinitialization

Service Conditions

- Ambient Temperature:
-10°C to 40°C (14°F to 104°F) NEMA 1
- Humidity: 95% RH, non-condensing
- Altitude: 3300 ft; higher by derate
- Input voltage: +10%/-15%
- Input frequency: 50/60 Hz \pm 5%
- 3-phase, 3-wire, phase sequence insensitive

Protective Features

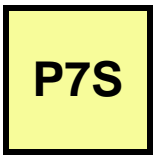
- Current limited stall prevention
- Heat sink over-temperature, speed fold-back
- Cooling fan operating hours recorded
- Bi-directional start into rotating motor at synchronized speed
- DC bus charge indicator
- Current limiting DC bus fuse
- Optically-Isolated controls
- Short circuit protection: Phase-phase and phase-neutral
- Ground fault protection
- Electronic motor overload: UL
- Current and torque limit
- Fault display: last 10 faults
- Fault circuit: OC, OV, OT
- Over torque and under torque protection
- Program security code
- "Hunting" prevention logic
- Reverse prohibit selectability

Configured Options

- Circuit breaker 65 kA or 100 kA
- Input filter
- DC bus reactor
- Engraved nameplates
- Pressure/electrical transducer
- Analog outputs: 2 programmable, 4-20 mA
- Communication Interface: LonWorks, BACnet, EtherNet/IP, Metasys N2, APOGEE FLN, Devicenet, Profibus, and Ethernet Modbus TCP/IP.
- DriveWizard™ upload/download and monitoring/graphing software

Design Features

- 32-bit microprocessor logic
- Flash upgradeable firmware
- Non-volatile memory, program retention
- Surface-mount devices
- Displacement power factor: 0.98
- Output frequency: 0.1 to 120 Hz
- Frequency resolution: 0.06 Hz
- Frequency regulation: 0.1%
- Control Terminal Board: Quick disconnect, removable
- Carrier frequency: selectable to 15 kHz
- 3% DC bus reactor: 30-40 HP, 208/240 VAC; 40-100 HP, 480 VAC; optional on lower ratings
- Keypad Operator: Start/Stop/Jog, built-in copy feature, 7 languages
- LCD display: 5 lines, 16 characters each
- 24 VDC control logic
- Transmitter/Option power supply
- Output contacts: One form C and two programmable form A
- Input/output terminal status
- Input terminals: 5 programmable multi-function input terminals
- Fault input: Programmable
- Diagnostic fault indication in selected language
- Timer function: Elapsed time, Delay on start, Delay on stop
- RS-422/485 port: Modbus
- Volts/hertz ratio: Preset and programmable V/Hz patterns
- Multi-speed settings: 5 available
- Remote speed command: 0-10 VDC or 4-20 mA, direct or reverse-acting
- Feedback signal: low pass filter
- Speed command: bias and gain
- Analog outputs: Programmable, two, 0-10 VDC
- Meter Functions: Volt, amp, kilowatt, elapsed run time, speed command
- Output Current Transformers, qty 3
- NEMA 1
- UL, cUL listed; CE marked; IEC 146
- MTBF: exceeds 28 years
- Input line disconnect switch



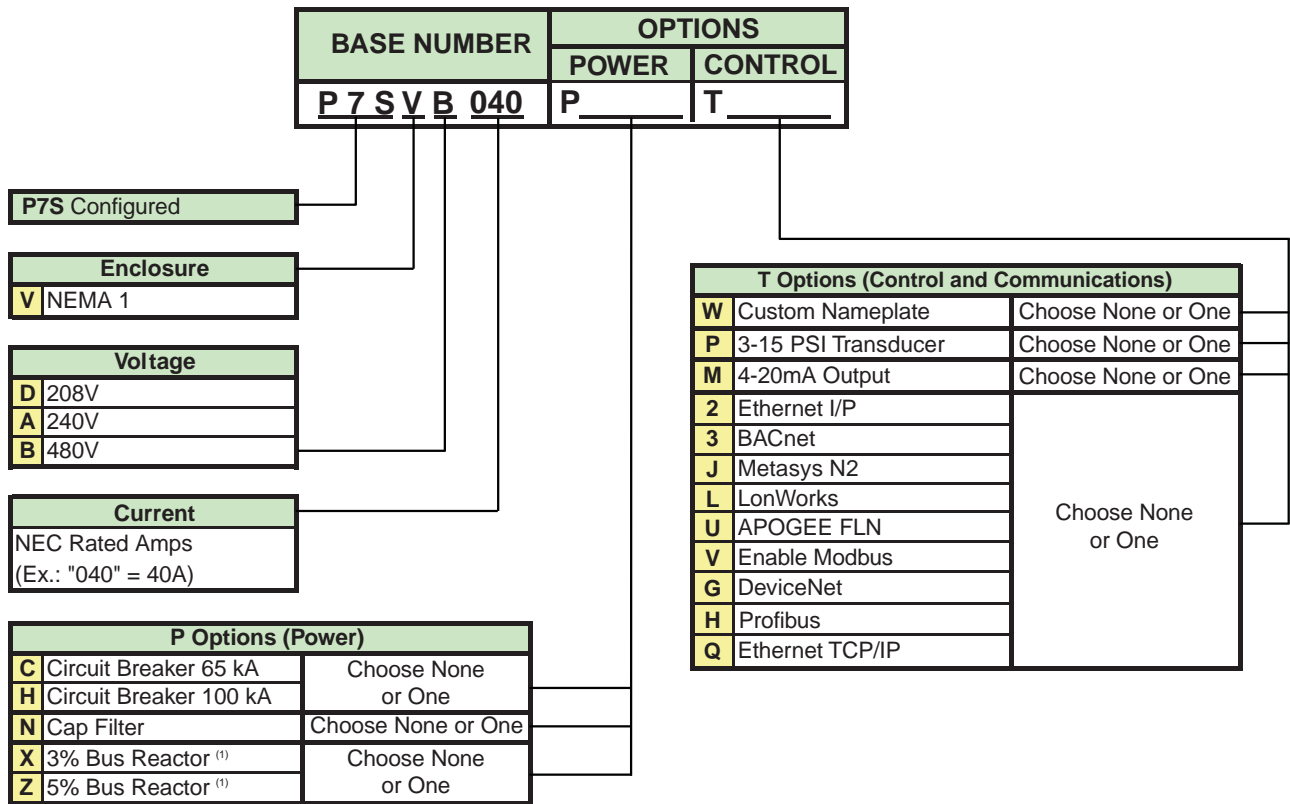
Description
5-100HP
P7 Slim Configured

Model Number Configuration & Pricing:

- Step 1.** To construct the complete Configured model number, first find the Base Number for the required enclosure type, voltage and current rating.
- Step 2.** Add the Option code letter for each required option. Choose options, in order, starting at the top of the option table and working toward the bottom. Any Power option must be preceded by **(P)**; any Control & Communications option by **(T)**. No more than eight options may be selected.
- Step 3.** Find the corresponding list price for the Base Number selected from the following pages. Add the list price of each selected option to this base price.

Example: The Model Number for a NEMA 1 Configured package (**P7SV**) with a 480V, 40 Amp P7 drive (**B040**), with a 3% bus reactor (**X**), 4-20 mA Output (**M**) and LonWorks communications card (**L**), would be **P7SVB040PXTML**.

P7SVB040PXTML



(1) 3% and 5% Bus Reactors are only available as an option on base numbers up to and including P7C_D074 and B040; larger drives have a Bus Reactor as standard.

Configured Option Descriptions:

(V) Enclosure: The drive and Configured options are provided in a NEMA Type 1 (V) ventilated enclosure, large enough to accommodate any or all of the Configured package options. Configured enclosures are intended for wall mounting.

P Options (Power)

- (C, H) Circuit Breaker:** The standard configuration, provides a line input disconnect switch, but no branch short circuit protection. Circuit breaker options are available. Option (C) is a 65 kA interrupting rated circuit breaker, and option (H) is a 100 kA interrupting rated circuit breaker. When option (C) is specified, the configured drive package will be rated at 65 kA. When option (H) is specified, the configured drive package will be rated at 100 kA.
- (N) Input Filter:** The standard configuration, does not include a filter. The cap filter, option (N), is a passive delta-wye capacitive network.
- (X, Z) Line Impedance:** The standard configuration does not provide any additional impedance. P7 Drives above Base Numbers D074 (25HP, 208V) and B040 (30HP, 480V) include a 3% bus reactor as standard. Therefore, option (X), 3% impedance, and option (Z), 5% impedance, apply only to these ratings and below.

T Options (Control and Communications)

- (W) Custom Nameplates:** Custom engraved nameplates with white lettering on black lamicaid are available with option (W), for special tagging purposes (Example: "AHU #1"). Note that this option requires the text to be specified by the customer.
- (P) 3-15 PSI Transducer:** No transducer is provided with the standard configuration. To add an optional transducer, which accepts a 3-15 PSI pneumatic signal and converts it to a 4-20mA signal that is sent to the drive, specify option (P).
- (M) 4-20mA Output:** The standard Configured package, provides two programmable 0-10VDC outputs. To convert these outputs to 4-20mA signals, specify option (M).
- (2, 3, J, L, U, V, G, H, Q) Communications:** All configurations provide the hardware and software required for Modbus network communications, but this protocol is not enabled in the standard configuration. Option (V) provides the programming and jumpers necessary to enable this protocol, at no additional cost. LonWorks option (L), EtherNet/IP option (2), BACnet option (3), DeviceNet option (G), Profibus option (H), Ethernet Modbus TCP/IP option (Q), Metasys N2 option (J) and APOGEE FLN option (U), requires the addition of an optional board and or software.

P7S

Configured Drives and Options

NEMA 1, 208/240V

P7 Slim Configured Drives - 5-100HP, 208-240 and 480V, 3-phase input, NEMA 1 enclosure, with factory-installed and wired options.

Rated Input Voltage	Rated Output Current (Amps)	Nominal HP ⁽¹⁾	NEMA 1 Configured		Circuit Breaker		Input Filter	Line Impedance	
					C=65kA H=100kA		N=Cap	X=3% Bus Reactor Z=5% Bus Reactor	
					P7SV	Base List \$	C List \$	H List \$	N List \$
208V	16.7	5	D016						
	24.2	7.5	D024						
	30.8	10	D030						
	46.2	15	D046						
	59.4	20	D059						
	74.8	25	D074						
	88	30	D088					3% Bus Reactor is included as standard	
240V	15.2	5	A015						
	22	7.5	A022						
	28	10	A028						
	42	15	A042						
	54	20	A054						
	68	25	A068						
	80	30	A080					3% Bus Reactor is included as standard	
	104	40	A104						

(1) Horsepower rating is based on standard NEMA B 4-pole motor design and NEC table 430.150 Full-Load Current, Three-Phase Alternating Current Motors

Configured Drives and Options

NEMA 1, 208/240V



P7 Slim Configured Drives (Continued)

Rated Input Voltage	Rated Output Current (Amps)	Nom. HP ⁽¹⁾	Custom Name-plates	3-15 PSI Trans-ducer	4-20 mA	Communications										Uses Basic Drive Model Number CIMR-P7U
			0=None W=NP	0=None P=3-15 PSI	M=4-20mA	2=Ethernet I/P, 3=BACnet J=N2, L=LonWorks U=APOGEE, V=Modbus G=DeviceNet, H=Profibus Q=Ethernet Modbus TCP/IP										
			W List \$	P List \$	M List \$	2 List \$	3 List \$	J List \$	L List \$	U List \$	V ⁽³⁾ List \$	G List \$	H List \$	Q List \$		
208V	16.7	5														23P71
	24.2	7.5														27P51
	30.8	10														27P51
	46.2	15														20111
	59.4	20														20151
	74.8	25														20181
	88	30														20301
114	40														20301	
240V	15.2	5														23P71
	22	7.5														25P51
	28	10														27P51
	42	15														20111
	54	20														20151
	68	25														20181
	80	30														20301
104	40														20301	

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(3) Included in the Base Price



Configured Drives and Options

NEMA 1, 480V

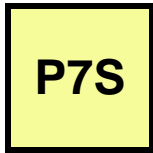
P7 Slim Configured Drives (Continued)

Rated Input Voltage	Rated Output Current (Amps)	Nominal HP ⁽¹⁾	NEMA 1 Configured		Circuit Breaker		Input Filter	Line Impedance	
					C=65kA H=100kA		N=Cap	X=3% Bus Reactor Z=5% Bus Reactor	
					P7SV	Base List \$	C List \$	H List \$	N List \$
480V	7.6	5	B007						
	11	7.5	B011						
	14	10	B014						
	21	15	B021						
	27	20	B027						
	34	25	B034						
	40	30	B040						
	52	40	B052						3% Bus Reactor is included as standard
	65	50	B065						
	77	60	B077						
96	75	B096							
	124	100	B124						

(1) Horsepower rating is based on standard NEMA B 4-pole motor design and NEC table 430.150 Full-Load Current, Three-Phase Alternating Current Motors

Configured Drives and Options

NEMA 1, 480V



P7 Slim Configured Drives (Continued)

Rated Input Voltage	Rated Output Current (Amps)	Nom. HP ⁽¹⁾	Custom Name-plates	3-15 PSI Transducer	4-20 mA	Communications										Uses Basic Drive Model Number CIMR-P7U	
			0=None W=NP	0=None P=3-15 PSI	M=4-20mA	2=Ethernet I/P, 3=BACnet J=N2, L=LonWorks U=APOGEE, V=Modbus G=DeviceNet, H=Profibus Q=Ethernet Modbus TCP/IP											
			W List \$	P List \$	M List \$	2 List \$	3 List \$	J List \$	L List \$	U List \$	V ⁽³⁾ List \$	G List \$	H List \$	Q List \$			
480V	7.6	5															43P71
	11	7.5															45P51
	14	10															47P51
	21	15															40111
	27	20															40111
	34	25															40151
	40	30															40181
	52	40															40301
	65	50															40301
	77	60															40371
96	75															40451	
124	100															40551	

(1) Horsepower rating is based on standard NEMA B 4-pole motor design and NEC table 430.150 Full-Load Current, Three-Phase Alternating Current Motors

(3) Included in the Base Price

P7S**Dimensions and Data**

Rated Input Voltage	P7SV	Rated Output Current (Amps)	Nominal HP ⁽¹⁾	Physical Dimensions (in.)			Weight (lbs.) ⁽²⁾	Dimension Drawing Number
				H	W	D		
208V	D016	16.7	5	35	9	11.6	45	DD.T1W17S.01
	D024	24.2	7.5	36.5	10	12.6	56	DD.T1W27S.01
	D030	30.8	10					
	D046	46.2	15	36.5	12.5	13.6	59	DD.T1W37S.01
	D059	59.4	20					
	D074	74.8	25	38.5	14.5	13.9	100	DD.T1W47S.01
D088	88	30						
D114	114	40						
240V	A015	15.2	5	35	9	11.6	45	DD.T1W17S.01
	A022	22	7.5	36.5	10	12.6	56	DD.T1W27S.01
	A028	28	10					
	A042	42	15	36.5	12.5	13.6	59	DD.T1W37S.01
	A054	54	20					
	A068	68	25	38.5	14.5	13.9	100	DD.T1W47S.01
A080	80	30						
A104	104	40						
480V	B007	7.6	5	35	9	11.6	45	DD.T1W17S.01
	B011	11	7.5	36.5	10	12.6	56	DD.T1W27S.01
	B014	14	10					
	B021	21	15	36.5	12.5	13.6	59	DD.T1W37S.01
	B027	27	20					
	B034	34	25	38.5	14.5	13.9	100	DD.T1W47S.01
	B040	40	30					
	B052	52	40	42.5	16.5	14.5	137	DD.T1W57S.01
	B065	65	50					
B077	77	60						
B096	96	75						
B124	124	100						

(1) Horsepower rating is based on standard NEMA B 4-pole motor design and NEC table 430.150 Full-Load Current, Three-Phase Alternating Current Motors

(2) Data represents the total approximate weight of the drive with all possible standard options, not shipping weight.