



A510_s

Advanced Current Vector Control Drive





A510s
TECO

▲ WARNING / AVERTISSEMENT

Risk of electrical shock, shut off main power and wait for 5 minutes before servicing.
Risque de choc électrique. Couper l'alimentation principale et attendre 5 minutes avant l'intervention.

▲ Hot surface. Risk of burn.

▲ Surface chaude. Risque de brûlure.

▲ CAUTION / ATTENTION

See manual before operation.
Consultez le manuel avant l'opération.

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A510Super

Super represents

Super technology

Super excellence

Super evolution

The super evolution of A510s made it debut which combined customer responses with Innovation. Advanced current vector control inverter - A510s. Except the Auto-tuning and support for the PM motor, the core computing of A510s raises to 60%. The all new technologies make our inverters better. Please feel the charming of A510s.

A510s



A510s

7 types of motor controls

A510s can support many industries such as elevator, crane and compressor

Auto-tuning support

Advanced Rotational \ Static and Stator resistance Auto-tuning modes

Wide range of applications

Easily transfer to specific parameters for dedicated application
16 V/F curves for wide range of applications

High level sensor vector mode

Support to induction motor and permanent magnet motor
A510s promotes motors to optimum condition

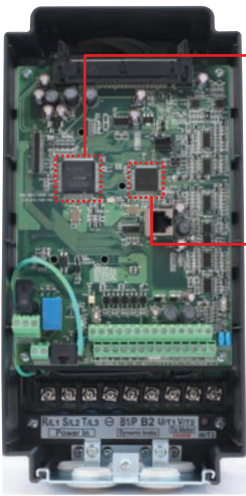
Much faster for computing ability

Dual core processors
Faster computing ability, Larger ROM and RAM.

Conformity to global standards

RoHS \ CE \ UL
Provide safety function such as fire mode

Dual Core Processors



ASIC *Above frame2 models
Prevents inrush current damage to IGBT module. Enhances the reliability and life expectancy of motor drive.

32Bit MCU
Mass computing capability for advanced current vector control technology. Minimizes the internal loop time for higher control response.

Enhanced Performance & Reliability!

More Powerful in Core Computing

- New core processors and better computing ability

Core computing **Raise 60%**

Raise **100%** ROM

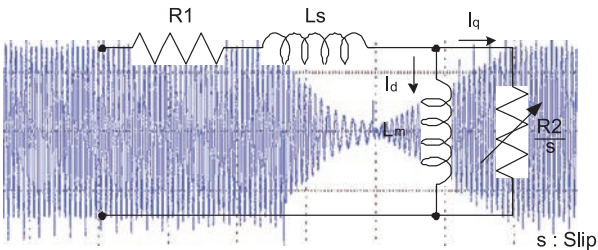
RAM **Raise 530%**

*Compare with A510

Advanced Auto-Tuning

Multiple Auto-Tuning Modes

| | |
|---|------------------------------------|
| Rotational mode | When the load can be uncoupled |
| Static mode | When the load can not be uncoupled |
| Static resistance measurement mode | When the motor cable is too long |



Motor Equivalent Circuit

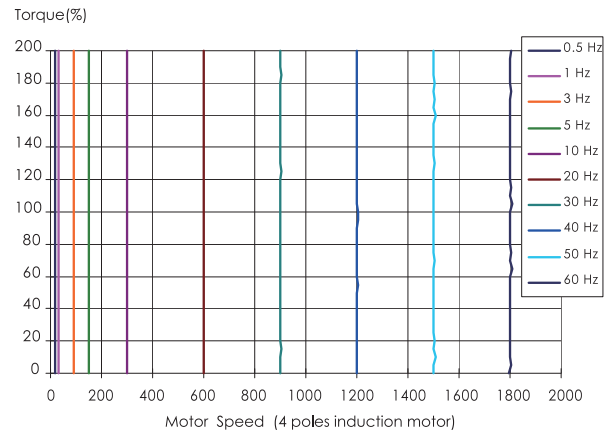
5th
Kernel

A510s is loaded with 5th generation kernel has the most advanced motor tuning function to build accurate motor equivalent model automatically.

Optimized current vector control performance provides faster commissioning.

200% @0.5Hz Starting Torque

SensorLess Vector (SLV) control mode achieves incredible 200% torque performance at extreme low speed (0.5Hz), and provides stable and reliable motor control for wide range of applications.



Sensor Vector Mode (SV) can output 200% holding torque.

Conformity to Global Standards

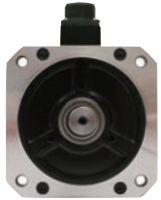
- Conformity to RoHS directive and international recognized certification

RoHS



PM Motor Control

- Simple parameter settings for permanent magnet motors control.



Surface Permanent Magnet Motor (SPM)

- Highly Efficient
- Compact Size
- Low Cogging Torque

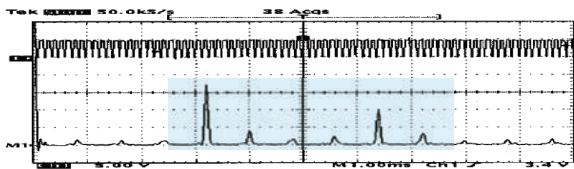


Interior Permanent Magnet Motor (IPM)

- Highly Efficient
- Compact Size
- With Reluctance Torque

Motor Noise Reduction Technology

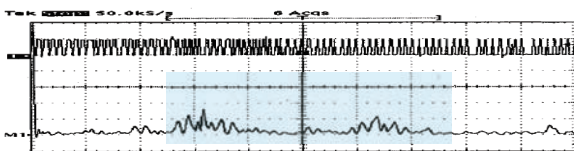
- Exclusive Soft PWM control technology reduces the radio frequency interference and motor noise.



Traditional PWM output



Soft PWM modulation method



Soft PWM output

Fan Control and Quick Release

- Lower noise and extend the life of fan.
- Quick replaceable fan makes customers be easy to change it.

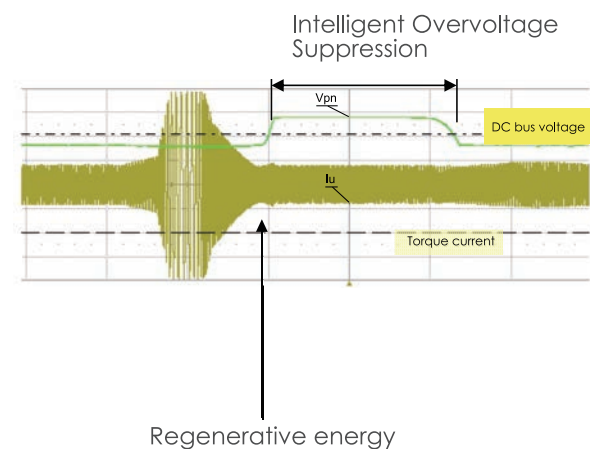


Multi-language Display

- Parameters of multi-language display are essential for international product and minimize the language barrier

Intelligent Over Voltage Suppression

- Suppress over voltage caused by regenerative loads and redirect regenerative energy back to the load. Intelligent overvoltage suppression will not only protect the drive but also no need for costly braking units.



The Complete Motor Control Solution

with powers for a wide range of applications



Gravitational Handling Equipment

| Crane, Elevator

Metal Processing Machine

| Press, Lathes

Plastics/Rubber Processing Machine

| Extruder, Injection Molding Machine

Tension Control Equipment

| Printing Machine, Reeling Machine

Textile Machine

| Dyeing and Finishing Machine

Wire/Cable Making Machine

| Wire Drawing Machine

Selection Guide

Dual rating design for heavy duty and normal duty applications.

ND. Selection Guide
Overload Capability Up To 120%/60sec

Driving higher horsepower motor in normal duty mode includes fans, pumps, HVAC, etc.

Example:
 Select A510-2002-SH model for 3HP motor in pump application. Sets 00-27=1 (ND Mode)
 *Motor parameters need to be adjusted.

HD. Selection Guide
Overload Capability Up To 150%/60sec and 200%/2sec

Driving the same horsepower motor in heavy duty mode includes lifts, press, machine tools, etc.

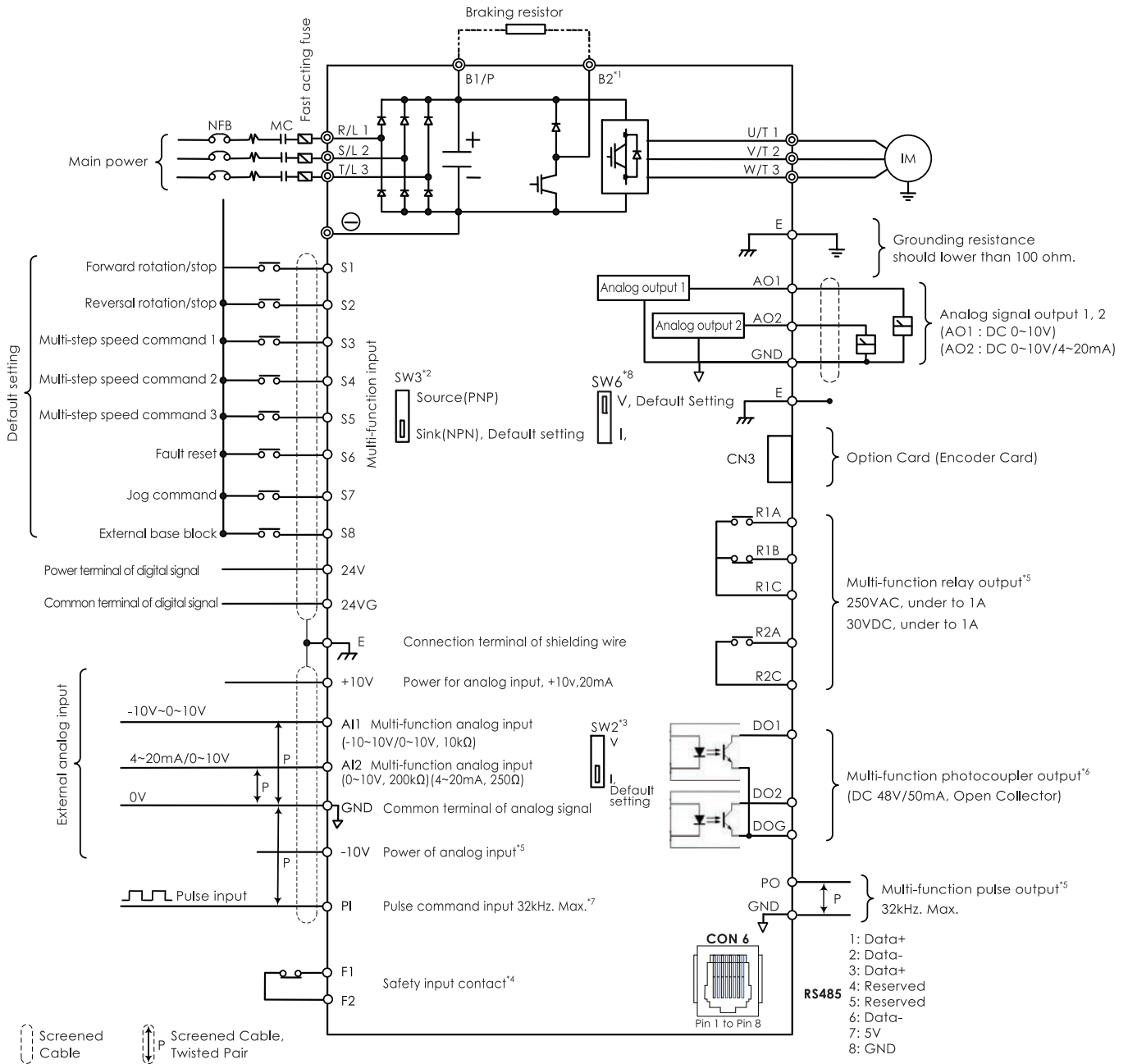
Example:
 Select A510-2015-SH3 model for 15HP motor in conveyor application. Sets 00-27=0 (HD Mode)

| Maximum Applicable Motor (HP) (kW) | | Three-Phase 200V | | | | Three-Phase 400V | | | |
|---------------------------------------|------|------------------|----------------------|-----------------|----------------------|------------------|----------------------|------------------|----------------------|
| | | Normal Duty (ND) | | Heavy Duty (HD) | | Normal Duty (ND) | | Heavy Duty (HD) | |
| | | A510s Model | Rated Output Current | A510s Model | Rated Output Current | A510s Model | Rated Output Current | A510s Model | Rated Output Current |
| 1 | 0.75 | | | A510-2001-SH | 5A | | | A510-4001-SH3(F) | 3.4A |
| 1.5 | 1.1 | A510-2001-SH | 6A | | | | | | |
| 2 | 1.5 | | | A510-2002-SH | 8A | A510-4001-SH3(F) | 4.1A | A510-4002-SH3(F) | 4.2A |
| 3 | 2.2 | A510-2002-SH | 9.6A | A510-2003-SH | 11A | A510-4002-SH3(F) | 5.4A | A510-4003-SH3(F) | 5.5A |
| 5 | 3.7 | A510-2003-SH | 12A | A510-2005-SH3 | 17.5A | A510-4003-SH3(F) | 6.9A | A510-4005-SH3(F) | 9.2A |
| 7.5 | 5.5 | A510-2005-SH3 | 22A | A510-2008-SH3 | 25A | A510-4005-SH3(F) | 12.1A | A510-4008-SH3(F) | 14.8A |
| 10 | 7.5 | A510-2008-SH3 | 30A | A510-2010-SH3 | 33A | A510-4008-SH3(F) | 17.5A | A510-4010-SH3(F) | 18A |
| 15 | 11 | A510-2010-SH3 | 42A | A510-2015-SH3 | 47A | A510-4010-SH3(F) | 23A | A510-4015-SH3(F) | 24A |
| 20 | 15 | A510-2015-SH3 | 56A | A510-2020-SH3 | 60A | A510-4015-SH3(F) | 31A | A510-4020-SH3(F) | 31A |
| 25 | 18.5 | A510-2020-SH3 | 69A | A510-2025-SH3 | 73A | A510-4020-SH3(F) | 38A | A510-4025-SH3(F) | 39A |
| 30 | 22 | A510-2025-SH3 | 80A | A510-2030-SH3 | 85A | A510-4025-SH3(F) | 44A | A510-4030-SH3(F) | 45A |
| 40 | 30 | A510-2030-SH3 | 110A | A510-2040-SH3 | 115A | A510-4030-SH3(F) | 58A | A510-4040-SH3(F) | 60A |
| 50 | 37 | A510-2040-SH3 | 138A | A510-2050-SH3 | 145A | A510-4040-SH3(F) | 73A | A510-4050-SH3(F) | 75A |
| 60 | 45 | A510-2050-SH3 | 169A | A510-2060-SH3 | 180A | A510-4050-SH3(F) | 88A | A510-4060-SH3(F) | 91A |
| 75 | 55 | A510-2060-SH3 | 200A | A510-2075-SH3 | 215A | A510-4060-SH3(F) | 103A | A510-4075-SH3 | 118A |
| 100 | 75 | A510-2075-SH3 | 250A | A510-2100-SH3 | 283A | A510-4075-SH3 | 145A | A510-4100-SH3 | 150A |
| 125 | 94 | A510-2100-SH3 | 312A | A510-2125-SH3 | 346A | A510-4100-SH3 | 168A | A510-4125-SH3 | 180A |
| 150 | 112 | A510-2125-SH3 | 400A | A510-2150-SH3 | 415A | A510-4125-SH3 | 208A | A510-4150-SH3 | 216A |
| 175 | 130 | A510-2150-SH3 | 450A | | | A510-4150-SH3 | 250A | A510-4175-SH3 | 260A |
| 215 | 160 | | | | | A510-4175-SH3 | 296A | A510-4215-SH3 | 295A |
| 250 | 185 | | | | | A510-4215-SH3 | 328A | A510-4270-SH3 | 380A |
| 270 | 200 | | | | | A510-4270-SH3 | 435A | | |
| 300 | 220 | | | | | | | A510-4300-SH3 | 450A |
| 335 | 250 | | | | | A510-4300-SH3 | 515A | | |
| 375 | 280 | | | | | | | A510-4375-SH3 | 523A |
| 425 | 315 | | | | | A510-4375-SH3 | 585A | A510-4425-SH3 | 585A |

Catalog Number Identification

| | | | | | | | | |
|-------------|---|--|-------------------------------|--------------|----------|---|--|------------------------------|
| A510 | - | 2 | 001 | - | S | H | 3 | F |
| | | Input Voltage | Horse Power | A510s Series | | Type | Power Supply | Noise Filter |
| | | 2 : 200V Class 4 : 400V Class 5 : 575V Class 6 : 690V Class | 001 : 1HP 425 : 425HP | | | H : Standard Type (LED Display) C : Graphic Type (LCD Display) | Blank : Single/Three-Phase 3 : Three-Phase | Blank : None F : Built-in |

Wiring Diagram



Notes:

- *1: The main circuit of 200V 1~25HP and 400V 1~40HP (included) with built-in braking transistor provide terminal B2. The braking resistor can be connected directly between B1 and B2. Optional braking module is available for the other models.
- *2: The multi-function digital input terminals S1~S8 can be set to Source (PNP) or Sink (NPN) mode by SW3.
- *3: Multi-function analog input 2 (AI2) can be set to the voltage command input (0~10V/-10~10V) or the current command input (4~20mA) through SW2.
- *4: When integrated safety function is NOT used, connect a link across terminals F1 & F2 for the inverter output to function. External safety circuits can be interfaced with inverter using terminals F1 and F2.
- *5: Terminals -10V S(+), S(-), R2A-R2C and PO-GND are provided for 200V 3HP and 400V 5HP ratings or above.
- *6: Terminal DO2 is provided for 200V 2HP and 400V 3HP ratings or below.
- *7: When using open collector input, it won't need resistance because of built-in pull-up resistance.
- *8: AO2 default setting is 0~+10V.
- *9: Both 200V class 50HP~150HP and 400V class 100HP~425HP have built-in DC reactors.

Basic Specifications

200V Class

| Inverter Capacity (HP) | | | 1 | 2 | 3 | 5 | 7.5 | 10 | 15 | 20 | 25 | 30 | 40 | 50 | 60 | 75 | 100 | 125 | 150 | | |
|-------------------------------|---------------------------------|--------------------------------------|---|---------|---------|------------------------------------|-----------|----------|---------|-----------|-----------|-------------------------|---------|---------|---------|----------|----------|-----------|-----------|--|--|
| Output Rating | HD*3 | Rated Output Capacity (KVA) | 1.9 | 3 | 4.2 | 6.7 | 9.5 | 12.6 | 17.9 | 22.9 | 27.8 | 32.4 | 43.8 | 55.3 | 68.6 | 81.9 | 108 | 132 | 158 | | |
| | | Rated Output Current (A) | 5 | 8 | 11 | 17.5 | 25 | 33 | 47 | 60 | 73 | 85 | 115 | 145 | 180 | 215 | 283 | 346 | 415 | | |
| | | Maximum Applicable Motor*1 HP (KW) | 1 (0.75) | 2 (1.5) | 3 (2.2) | 5 (3.7) | 7.5 (5.5) | 10 (7.5) | 15 (11) | 20 (15) | 25 (18.5) | 30 (22) | 40 (30) | 50 (37) | 60 (45) | 75 (55) | 100 (75) | 125 (90) | 150 (110) | | |
| | ND*4 | Rated Output Capacity (KVA) | 2.3 | 3.7 | 4.6 | 8.4 | 11.4 | 16.0 | 21.3 | 26.3 | 30.1 | 41.9 | 52.6 | 64.4 | 76.2 | 95.3 | 118.9 | 152.4 | 172 | | |
| | | Rated Output Current (A) | 6 | 9.6 | 12 | 22 | 30 | 42 | 56 | 69 | 80 | 110 | 138 | 169 | 200 | 250 | 312 | 400 | 450 | | |
| | | Maximum Applicable Motor*1 HP (KW) | 2 (1.5) | 3 (2.2) | 5 (3.7) | 7.5 (5.5) | 10 (7.5) | 15 (11) | 20 (15) | 25 (18.5) | 30 (22) | 40 (30) | 50 (37) | 60 (45) | 75 (55) | 100 (75) | 125 (90) | 150 (110) | 175 (130) | | |
| Maximum Output Voltage (V) | | Three-Phase, 200V to 240V | | | | | | | | | | | | | | | | | | | |
| Maximum Output Frequency (Hz) | | Based on parameter setting 0.1~599Hz | | | | | | | | | | | | | | | | | | | |
| Input Power | Rated Voltage, Frequency | | Single/Three-Phase, 200V to 240V, 50/60Hz | | | Three-Phase, 200V to 240V, 50/60Hz | | | | | | | | | | | | | | | |
| | Allowable Voltage Fluctuation | | -15% ~ +10% | | | | | | | | | | | | | | | | | | |
| | Allowable Frequency Fluctuation | | ±5% | | | | | | | | | | | | | | | | | | |
| Braking Transistor | | Built-in | | | | | | | | | | Option (Braking Module) | | | | | | | | | |
| Frame Size | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | | | | | | | | | | | | |

400V Class

| Inverter Capacity (HP) | | | 1 | 2 | 3 | 5 | 7.5 | 10 | 15 | 20 | 25 | 30 | 40 | 50 | 60 | 75 | 100 | 125 | 150 | 175 | 215 | 215H | 270 | 300 | 375 | 425 | | | |
|-------------------------------|---------------------------------|--------------------------------------|------------------------------------|---------|---------|-----------|-----------|----------|---------|-----------|-----------|-------------------------|---------|---------|---------|----------|----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|--|--|--|
| Output Rating | HD*3 | Rated Output Capacity (KVA) | 2.6 | 3.2 | 4.2 | 7 | 11.3 | 13.7 | 18.3 | 23.6 | 29.7 | 34.3 | 45.7 | 57.2 | 69.3 | 89.9 | 114 | 137 | 165 | 198 | 225 | 251 | 290 | 343 | 400 | 461 | | | |
| | | Rated Output Current (A) | 3.4 | 4.2 | 5.5 | 9.2 | 14.8 | 18 | 24 | 31 | 39 | 45 | 60 | 75 | 91 | 118 | 150 | 180 | 216 | 260 | 295 | 330 | 380 | 450 | 523 | 585 | | | |
| | | Maximum Applicable Motor*1 HP (KW) | 1 (0.75) | 2 (1.5) | 3 (2.2) | 5 (3.7) | 7.5 (5.5) | 10 (7.5) | 15 (11) | 20 (15) | 25 (18.5) | 30 (22) | 40 (30) | 50 (37) | 60 (45) | 75 (55) | 100 (75) | 125 (90) | 150 (110) | 175 (132) | 215 (160) | 215 (160) | 270 (200) | 300 (220) | 375 (280) | 425 (315) | | | |
| | ND*4 | Rated Output Capacity (KVA) | 3.1 | 4.1 | 5.3 | 9.2 | 13.3 | 17.5 | 23.6 | 29.0 | 33.5 | 44.2 | 55.6 | 67.1 | 78.5 | 111 | 128 | 159 | 191 | 226 | 250 | 282 | 332 | 393 | 446 | 446 | | | |
| | | Rated Output Current (A) | 4.1 | 5.4 | 6.9 | 12.1 | 17.5 | 23 | 31 | 38 | 44 | 58 | 73 | 88 | 103 | 145 | 168 | 208 | 250 | 296 | 328 | 370 | 435 | 515 | 585 | 585 | | | |
| | | Maximum Applicable Motor*1 HP (KW) | 2 (1.5) | 3 (2.2) | 5 (3.7) | 7.5 (5.5) | 10 (7.5) | 15 (11) | 20 (15) | 25 (18.5) | 30 (22) | 40 (30) | 50 (37) | 60 (45) | 75 (55) | 100 (75) | 125 (90) | 150 (110) | 175 (132) | 215 (160) | 250 (185) | 270 (200) | 300 (220) | 375 (280) | 425 (315) | 425 (315) | | | |
| Maximum Output Voltage (V) | | Three-Phase, 380V to 480V | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Maximum Output Frequency (Hz) | | Based on parameter setting 0.1~599Hz | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Input Power | Rated Voltage, Frequency | | Three-Phase, 380V to 480V, 50/60Hz | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | Allowable Voltage Fluctuation | | -15% ~ +10% | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | Allowable Frequency Fluctuation | | ±5% | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Braking Transistor | | Built-in | | | | | | | | | | Option (Braking Module) | | | | | | | | | | | | | | | | | |
| Frame Size | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | | | | | | | | | | | | | | | | | | | | |

Notes:

- *1. Based on the standard 4-pole induction motor. The selected inverter must have a higher output current rating than the motor.
- *2. The default setting of A510s takes HD (heavy duty mode) as the base. To switch A510s to ND (normal duty mode) set parameter (00-27) to 1. When switching to ND (normal duty mode), the frequency will change to 2kHz.
- *3. The default setting of carrier frequency in HD mode is shown in right side table, if the setting value is higher than default setting, de-rating may be required.
- *4. The default setting of carrier frequency in ND mode is 2kHz, if the setting value is higher than default setting, de-rating may be required.
- *5. If control mode is set to SLV mode and maximum frequency is larger than 80Hz, the carrier frequency range is 2~8kHz.

| Inverter Voltage and Capacity | | HD mode carrier freq range | HD mode carrier freq default setting |
|-------------------------------|------------|----------------------------|--------------------------------------|
| 200V Class | 400V Class | | |
| 1~20HP | 1~30HP | 2~16kHz | 8kHz |
| 25HP | - | 2~12kHz | 6kHz |
| 30~40HP | 40~50HP | 2~12kHz*5 | 5kHz |
| 50~100HP | 60~175HP | 2~10kHz*5 | 5kHz |
| - | 125HP | 2~10kHz | 4kHz |
| - | 215HP | 2~8kHz | 3kHz |
| 125~150HP | - | 2~5kHz | 5kHz |
| - | 270~375HP | 2~5kHz | 4kHz |
| - | 425HP | 2~5kHz | 2kHz |

General Specifications

| | | |
|-------------------------------------|---|--|
| Control Characteristics | Display | LED keypad with 5-digits seven-segment display (LCD keypad option) |
| | Control Modes | V/F, V/F+PG, SLV, SLV2, SV, PMSV, PMSLV (SVPWM Modulation) |
| | Output Frequency | 0.01~599.00Hz |
| | Frequency Accuracy | Digital references: $\pm 0.01\%$ (-10 to +40°C), Analog references: $\pm 0.1\%$ (25°C $\pm 10^\circ\text{C}$) |
| | Speed Control Accuracy ^{*2} | $\pm 0.1\%$ (Sensor Vector Control Mode, SV) $\cdot \pm 0.5\%$ (Sensorless Vector Control Mode, SLV) |
| | Frequency Setting Resolution | Digital References: 0.01Hz, Analog References: 0.03Hz at 60Hz |
| | Output Frequency Resolution | 0.01Hz |
| | Overload Tolerance | Heavy Duty Mode (HD.) : 150% rated current for 60sec, 200% rated current for 2 sec. (Factory default) Normal Duty Mode (ND.) : 120% rated current for 60sec |
| | Frequency Setting Signal | 0 to +10V, -10V to +10V, 4 to 20mA or pulse train input |
| | Acceleration / Deceleration Time | 0.0~6000.0 sec (separately set acceleration and deceleration time) |
| | Voltage / Frequency Characteristics | 15 fixed and one customized v/f pattern |
| | Braking Torque | Approximate 20% (Built-in braking transistors under 200V 25HP and 400V 40HP) |
| Main Control Functions | Auto-tuning, Zero Servo, Torque Control, Position Control, Droop, Soft-PWM, Over-Voltage Protection, Dynamic Braking, Speed Search, Frequency Traversing, Momentary Power Loss Restart, PID Control, Automatic Torque Compensation, Slip Compensation, RS-485 Communication, Close Loop Control with PG, Simple PLC Function, Two Analog Output, Safety input contact | |
| Other Functions | Records of Power ON and Operation Time, 30 Fault History Records and Latest Fault State Record, Energy-Saving Function, Phase Loss Protection, DC Braking, Dwell, S Curve Acceleration and Deceleration, Up / Down Operation, Modbus Communication Protocol, Output of Pulse Multiple, Display of Engineering Unit, SINK / SOURCE Selection | |
| Protection Functions | Stall Prevention | Current level can be adjusted. (In acceleration or constant speed, it can be set separately. In deceleration, it can be set with or without stall protection) |
| | Over Current (OC) and Output Short-Circuit (SC) Protection | It stops when the current exceeds 200% of the inverter rated current. |
| | Inverter Overload Protection (OL2) | Inverter will be stopped when the output is higher than below conditions. Heavy Duty Mode (HD.) : 150% rated current for 60sec, 200% rated current for 2 sec. (Factory default), Carrier frequency is from 2kHz to 8kHz. Normal Duty Mode (ND.) : 120% rated current for 60sec, Carrier frequency is 2kHz. |
| | Motor Overload Protection (OL1) | Electrical overload protection curve |
| | Over Voltage Protection (OV) | If the main circuit DC voltage is over 410V (200V class) / 820V (400V class), the motor stops running. |
| | Under Voltage (UV) | If the main circuit DC voltage is under 190V (200V class) / 380V (400V class), the motor stops running. |
| | Momentary Power Loss Restart | Power loss exceeds 15ms You can set the function of momentary power loss restart to up to 2 sec |
| | Overheat Protection (OH) | Thermistor sensor on heatsink |
| | Ground Fault Protection (GF) | Protection by current detection circuit |
| | Charge Indicator | When main circuit DC voltage $\geq 50\text{V}$, the CHARGE LED is on. |
| Output Phase Loss Protection (OPL) | If the OPL function acts, the motor stops rotation automatically | |
| Environment Specification | Location | Indoor (Protected from corrosive gases and dust) |
| | Ambient Temperature | -10 to +40°C without de-rating (IP20/NEMA1), -10 to +50°C (IP00), with de-rating, its maximum operation temperature is 60°C |
| | Storage Temperature | -20~+70°C |
| | Humidity | 95%RH or less (no condensation) |
| | Altitude and Vibration | Altitude of 1000 meters or lower ; 1.0G, in compliance with IEC 60068-2-6 |
| | Pollution Degree | Meet IEC 60721-3-3 Class 3C2 |
| Communication Function | Built-in RS-485 as standard (Modbus protocol with standard RJ45) | |
| Electromagnetic Interference (EMI) | In compliance with EN61800-3 standard, 400V 60HP or below can be built-in. | |
| Electromagnetic Compatibility (EMS) | In compliance with EN61800-3 standard | |
| Certification | CE | In compliance with EN61800-3 (CE & RE) and EN61800-5-1 (LVD) |
| | UL | UL508C |
| Option Card | Open collector type(IM) , line driver type(IM) and Line driver type for PM motor | |

Notes:

*1. A510s IP21 is for option, if there's any need, please contact TECO salesman.

*2. Speed control accuracy will be influenced when the motor and installation condition are different.

Dimensions

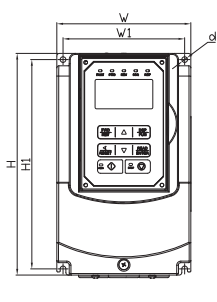


Figure A

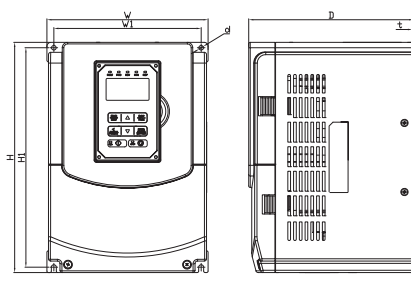


Figure B

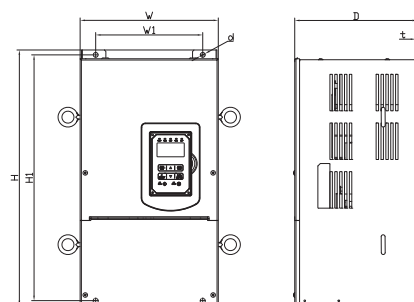
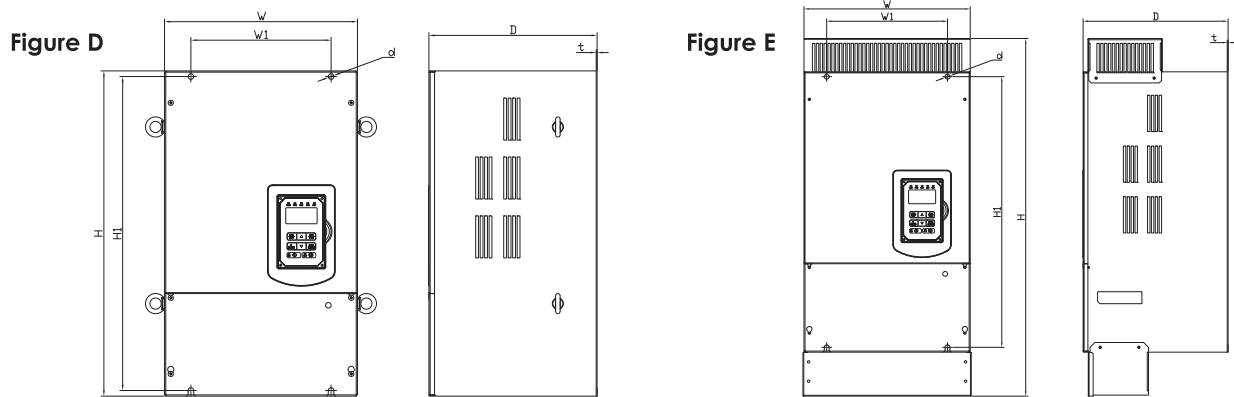


Figure C

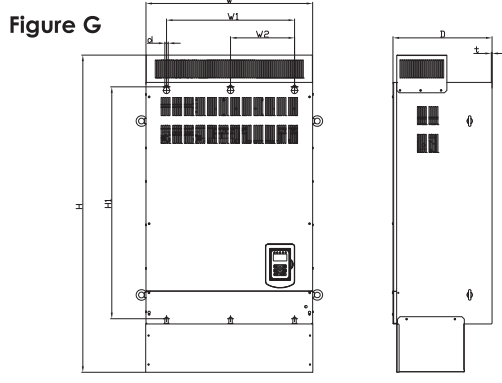
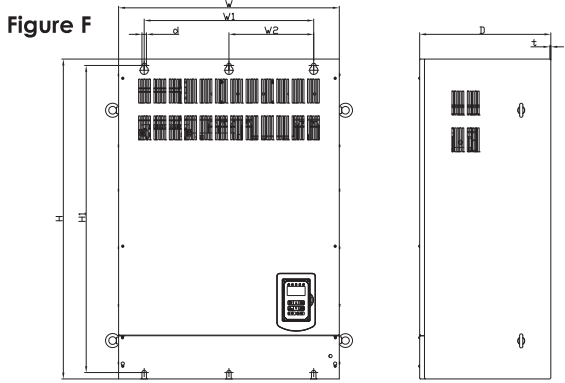
| Figure | Enclosure | Frame | Catalog No. | Dimensions (mm) | | | | | | Net Weight (kg) | |
|---------|---------------|---------|---------------|-----------------|-----|-----|-----|-----|-----|-----------------|-----|
| | | | | W | H | D | W1 | H1 | t | | d |
| A | IP20 | Frame 1 | A510-2001-SH | 130 | 215 | 150 | 118 | 203 | 5 | M5 | 2.2 |
| | | | A510-2002-SH | | | | | | | | |
| | | | A510-4001-SH3 | | | | | | | | |
| | | | A510-4002-SH3 | | | | | | | | |
| | | | A510-4003-SH3 | | | | | | | | |
| B | IP20 | Frame 2 | A510-2003-SH | 140 | 279 | 177 | 122 | 267 | 7 | M6 | 3.8 |
| | | | A510-2005-SH3 | | | | | | | | |
| | | | A510-2008-SH3 | | | | | | | | |
| | | | A510-4005-SH3 | | | | | | | | |
| | | | A510-4008-SH3 | | | | | | | | |
| | | Frame 3 | A510-2010-SH3 | 210 | 300 | 215 | 192 | 286 | 1.6 | M6 | 6.2 |
| | | | A510-4010-SH3 | | | | | | | | |
| | | | A510-4015-SH3 | | | | | | | | |
| | | | A510-4020-SH3 | | | | | | | | |
| | | | A510-2015-SH3 | | | | | | | | |
| Frame 4 | A510-2020-SH3 | 265 | 360 | 225 | 245 | 340 | 1.6 | M8 | 10 | | |
| | A510-2025-SH3 | | | | | | | | | | |
| | A510-4025-SH3 | | | | | | | | | | |
| | A510-4030-SH3 | | | | | | | | | | |
| | A510-2030-SH3 | | | | | | | | | | |
| C | IP20 | Frame 5 | A510-2030-SH3 | 286.5 | 525 | 252 | 220 | 505 | 3.3 | M8 | 24 |
| | | | A510-2040-SH3 | | | | | | | | |
| | | | A510-4040-SH3 | | | | | | | | |
| | | | A510-4050-SH3 | | | | | | | | |
| | | | A510-4060-SH3 | | | | | | | | |
| | | | A510-4075-SH3 | | | | | | | | |

Dimensions



| Figure | Enclosure | Frame | Catalog No. | Dimensions (mm) | | | | | | | Net Weight (kg) |
|--------|-----------|---------|---------------|-----------------|------|-------|-----|-----|-----|-----|-----------------|
| | | | | W | H | D | W1 | H1 | t | d | |
| D | IP00 | Frame 6 | A510-2050-SH3 | 344 | 580 | 300 | 250 | 560 | 1.6 | M8 | 40 |
| | | | A510-2060-SH3 | | | | | | | | |
| | | | A510-4100-SH3 | | | | | | | | |
| | | | A510-4125-SH3 | | | | | | | | |
| E | IP20 | Frame 6 | A510-2050-SH3 | 348.5 | 740 | 300 | 250 | 560 | 1.6 | M8 | 44 |
| | | | A510-2060-SH3 | | | | | | | | |
| | | | A510-4100-SH3 | | | | | | | | |
| | | | A510-4125-SH3 | | | | | | | | |
| D | IP00 | Frame 7 | A510-2075-SH3 | 459 | 790 | 324.5 | 320 | 760 | 1.6 | M10 | 74 |
| | | | A510-2100-SH3 | | | | | | | | |
| | | | A510-4150-SH3 | | | | | | | | |
| | | | A510-4175-SH3 | | | | | | | | |
| E | IP20 | Frame 7 | A510-2075-SH3 | 463.5 | 1105 | 324.5 | 320 | 760 | 1.6 | M10 | 81 |
| | | | A510-2100-SH3 | | | | | | | | |
| | | | A510-4150-SH3 | | | | | | | | |
| | | | A510-4215-SH3 | | | | | | | | |

Dimensions



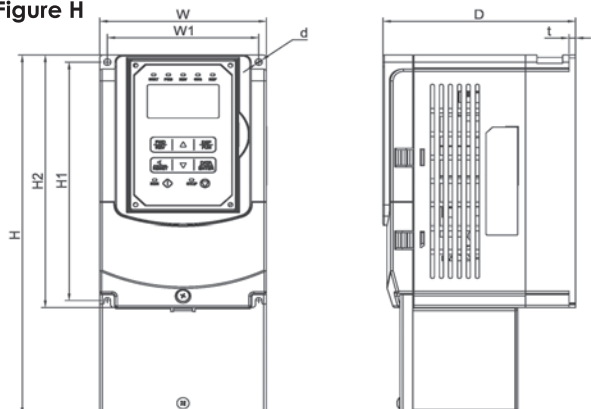
| Figure | Enclosure | Frame | Catalog No. | Dimensions (mm) | | | | | | | | Net Weight (kg) |
|---------------|-----------|---------|----------------|-----------------|------|-----|-----|-----|-----|-----|-----|-----------------|
| | | | | W | H | D | W1 | W2 | H1 | t | d | |
| F | IP00 | Frame 8 | A510-2125-SH3 | 690 | 1000 | 410 | 530 | 265 | 960 | 1.6 | M12 | 184 |
| | | | A510-2150-SH3 | | | | | | | | | |
| | | | A510-4215-SH3H | | | | | | | | | |
| | | | A510-4270-SH3 | | | | | | | | | |
| | | | A510-4300-SH3 | | | | | | | | | |
| | | | A510-4375-SH3 | | | | | | | | | |
| A510-4425-SH3 | | | | | | | | | | | | |
| G | IP20 | Frame 8 | A510-2125-SH3 | 692 | 1313 | 410 | 530 | 265 | 960 | 1.6 | M12 | 194 |
| | | | A510-2150-SH3 | | | | | | | | | |
| | | | A510-4215-SH3H | | | | | | | | | |
| | | | A510-4270-SH3 | | | | | | | | | |
| | | | A510-4300-SH3 | | | | | | | | | |
| | | | A510-4375-SH3 | | | | | | | | | |
| A510-4425-SH3 | | | | | | | | | | | | |

* The enclosure type of IP00 model is standard for frame 6 to frame 8. It is required to purchase the installation accessories if user selects the enclosure type of IP20 model.

| | |
|---------|------------|
| Frame 6 | JN5-NK-A06 |
| Frame 7 | JN5-NK-A07 |
| Frame 8 | JN5-NK-A08 |

Dimensions

Figure H



| Figure | Enclosure | Frame | Catalog No. | Dimensions (mm) | | | | | | | | Net Weight (kg) |
|--------|-----------|---------|----------------|-----------------|-----|-----|-----|-----|-----|---|----|-----------------|
| | | | | W | H | D | W1 | H1 | H2 | t | d | |
| H | IP20 | Frame 1 | A510-4001-SH3F | 130 | 306 | 150 | 118 | 203 | 215 | 5 | M5 | 3.5 |
| | | | A510-4002-SH3F | | | | | | | | | |
| | | | A510-4003-SH3F | | | | | | | | | |
| | | Frame 2 | A510-4005-SH3F | 140 | 400 | 177 | 122 | 267 | 279 | 7 | M6 | 5.5 |
| | | | A510-4008-SH3F | | | | | | | | | |

Figure I

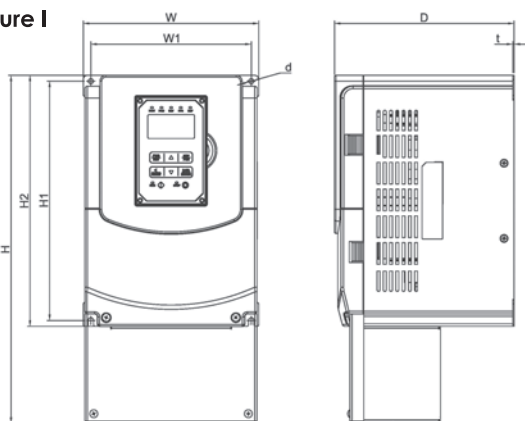
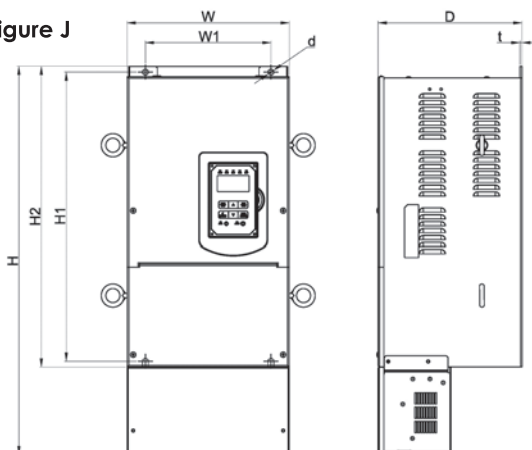


Figure J



| Figure | Enclosure | Frame | Catalog No. | Dimensions (mm) | | | | | | | | Net Weight (kg) |
|----------------|-----------|----------------|----------------|-----------------|-------|-----|-----|-----|-----|-----|------|-----------------|
| | | | | W | H | D | W1 | H1 | H2 | t | d | |
| I | IP20 | Frame 3 | A510-4010-SH3F | 210 | 416.5 | 215 | 192 | 286 | 300 | 1.6 | M6 | 8.0 |
| | | | A510-4015-SH3F | | | | | | | | | |
| | | Frame 4 | A510-4020-SH3F | 265 | 500 | 225 | 245 | 340 | 360 | 1.6 | M8 | 12.5 |
| | | | A510-4025-SH3F | | | | | | | | | |
| | | | A510-4030-SH3F | | | | | | | | | |
| J | Frame 5 | A510-4040-SH3F | 286.5 | 679 | 252 | 220 | 505 | 525 | 3.3 | M8 | 32.5 | |
| A510-4050-SH3F | | | | | | | | | | | | |
| A510-4060-SH3F | | | | | | | | | | | | |

Accessories

| Accessories | Description | Catalog No. | Note |
|-------------------------------------|--|--------------|-------------|
| Cables | IP20 Digital operator extention cable | JN5-CB-01M | 1 meter |
| | | JN5-CB-02M | 2 meter |
| | | JN5-CB-03M | 3 meter |
| | | JN5-CB-05M | 5 meter |
| | RJ45 to USB connecting cable | JN5-CM-USB | 1.8 meter |
| Communication Moduels (Gateways) | Profibus DP module | JN5-CM-PDP | |
| | TCP-IP module | JN5-CM-TCPIP | |
| | DeviceNet module | JN5-CM-DNET | |
| | CANopen module | JN5-CM-CAN | |
| NEMA1 Kits | Mechanical device consisting of anti-dust cover on the upper part and wiring box on the bottom to meet NEMA1 | JN5-NK-A06 | For Frame 6 |
| | | JN5-NK-A07 | For Frame 7 |
| | | JN5-NK-A08 | For Frame 8 |
| Digital Operators | IP20 LED Type | JN5-OP-A04 | |
| | IP20 LCD Type | JN5-OP-A02 | |
| | IP20 Blank type | JN5-OP-A03 | |
| Protective Cover | Positioned on both sides of the inverter to prevent unknown objects from invading | JN5-CR-A01 | For Frame 1 |
| | | JN5-CR-A02 | For Frame 2 |
| | | JN5-CR-A04 | For Frame 4 |
| Others | Copy Module for 510 series | JN5-CU | |

Encoder Feedback Card

| Catalog No. | Encoder/Resolver Input Type | Output Type | Drive Installation | |
|---------------|---|----------------|--------------------|-----------|
| | | | SIZE 1 | >= SIZE 2 |
| JN5-PG-O | Open collector feedback card | Open Collector | Yes | Yes |
| JN5-PG- L | Line driver speed feedback card | Line Driver | Yes | Yes |
| JN5-PG- L -24 | Line driver speed feedback card | Open Collector | Yes | Yes |
| JN5-PG-PM | Synchronous motor line driver speed feedback card | Line Driver | No | Yes |
| JN5-PG-PMR | Speed feedback card with TAMAGAWA Resolver | Line Driver | No | Yes |
| JN5-PG-PMS | Speed feedback card with Heidenhain ERN 1387 Encoder Sin-Cos Incremental Encoder | Line Driver | No | Yes |
| JN5-PG-PMS-24 | Speed feedback card with Heidenhain ERN 1387 Encoder Sin-Cos Incremental Encoder | Open Collector | No | Yes |
| JN5-PG-PMC | Speed feedback card with Heidenhain ECN 1313 Encoder 8192 (13bits) Absolute Encoder | Line Driver | No | Yes |
| JN5-PG-PMC-24 | Speed feedback card with Heidenhain ECN 1313 Encoder 8192 (13bits) Absolute Encoder | Open Collector | No | Yes |



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