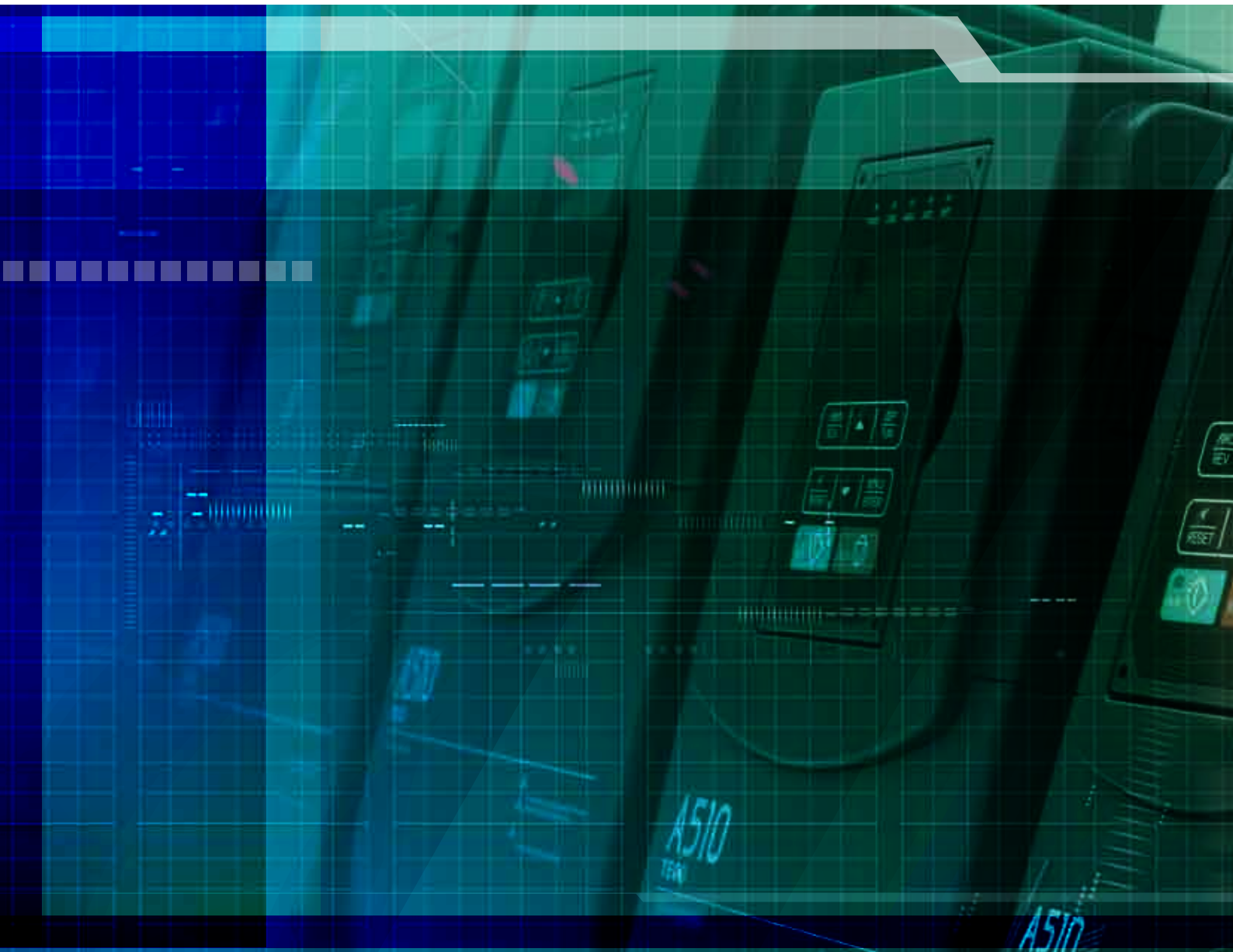




# A510

Advanced Current Vector Control Drive





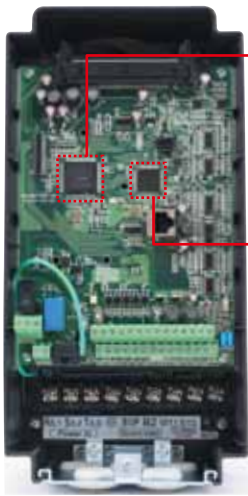
# The Complete Motor Control Solution



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## 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!**

## HIGH EFFICIENCY PM MOTOR DRIVING

- Simple parameter settings for easy switching between induction and permanent magnet motors.
- High performance current vector control for induction and permanent magnet motors.



**Induction Motor (IM)**

- Cost Effective
- Mechanical Robust



**Surface Permanent Magnet Motor (SPM)**

- Highly Efficient
- Compact Size
- Low Cogging Torque



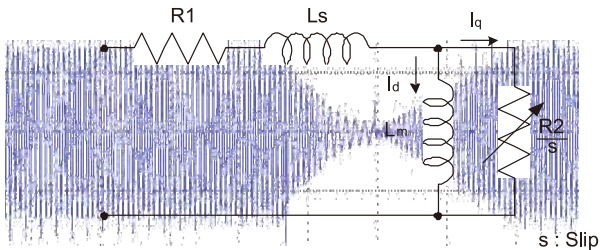
**Interior Permanent Magnet Motor (IPM)**

- Highly Efficient
- Compact Size
- With Reluctance Torque

## ADVANCED MOTOR AUTO-TUNE FUNCTION

### Multiple Auto-tune Modes

|                                      |  |
|--------------------------------------|--|
| <b>Rotational auto-tune mode</b>     | Rotary-type auto-tune for higher performance for precise control.  |
| <b>Static auto-tune mode</b>         | The motor shaft will be locked in static auto-tune mode.           |
| <b>Stator resistance measurement</b> | Auto measure the resistor within cable and compensate accordingly. |



Motor Equivalent Circuit

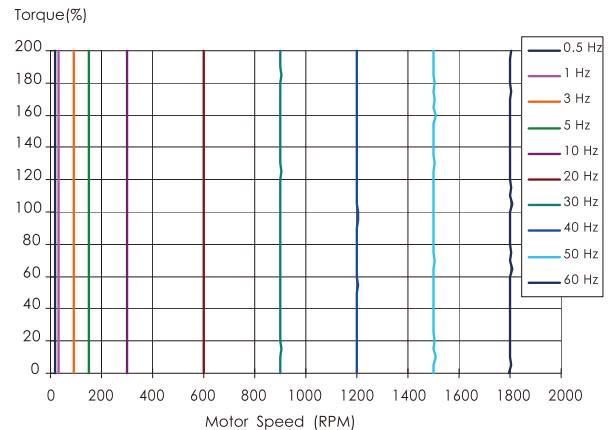
**5<sup>th</sup>  
Kernel**

A510 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. Provides stable control experience 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**



## DOWN SIZE DESIGN

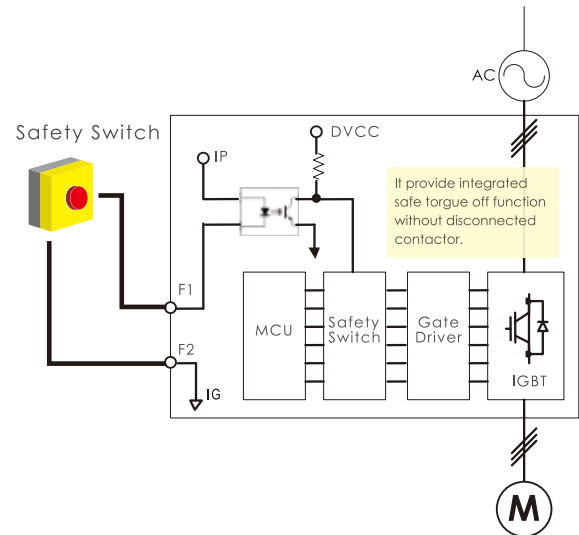
- New design with effective heat dissipation reduced size requiring less panel space.



\*based on A510 400V 7.5HP comparison

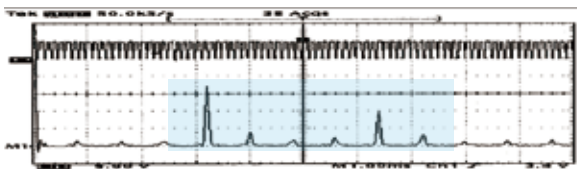
## HARDWARE SWITCH OFF FUNCTION

- Built-in high reliable hardware circuit for PWM cutoff.



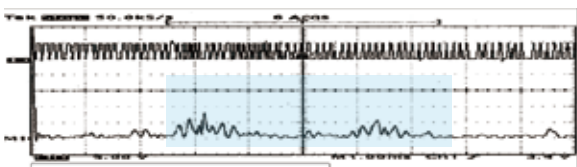
## ULTRA LOW MOTOR NOISE

### Traditional PWM modulation method



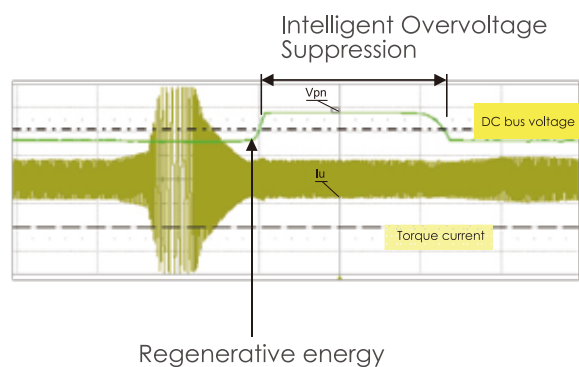
Unique Soft PWM modulation technology lowers the audible motor noise for quieter industrial environment

### Soft PWM modulation method



## 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 units but also removes the 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-H 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-H3 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) |                      |
|                                    |      | A510 Model       | Rated Output Current | A510 Model      | Rated Output Current | A510 Model       | Rated Output Current | A510 Model      | Rated Output Current |
| 1                                  | 0.75 |                  |                      | A510-2001-H     | 5A                   |                  |                      | A510-4001-H3(F) | 3.4A                 |
| 1.5                                | 1.1  | A510-2001-H      | 6A                   |                 |                      |                  |                      |                 |                      |
| 2                                  | 1.5  |                  |                      | A510-2002-H     | 8A                   | A510-4001-H3(F)  | 4.1A                 | A510-4002-H3(F) | 4.2A                 |
| 3                                  | 2.2  | A510-2002-H      | 9.6A                 | A510-2003-H     | 11A                  | A510-4002-H3(F)  | 5.4A                 | A510-4003-H3(F) | 5.5A                 |
| 5                                  | 3.7  | A510-2003-H      | 12A                  | A510-2005-H3    | 17.5A                | A510-4003-H3(F)  | 6.9A                 | A510-4005-H3(F) | 9.2A                 |
| 7.5                                | 5.5  | A510-2005-H3     | 22A                  | A510-2008-H3    | 25A                  | A510-4005-H3(F)  | 12.1A                | A510-4008-H3(F) | 14.8A                |
| 10                                 | 7.5  | A510-2008-H3     | 30A                  | A510-2010-H3    | 33A                  | A510-4008-H3(F)  | 17.5A                | A510-4010-H3(F) | 18A                  |
| 15                                 | 11   | A510-2010-H3     | 42A                  | A510-2015-H3    | 47A                  | A510-4010-H3(F)  | 23A                  | A510-4015-H3(F) | 24A                  |
| 20                                 | 15   | A510-2015-H3     | 56A                  | A510-2020-H3    | 60A                  | A510-4015-H3(F)  | 31A                  | A510-4020-H3(F) | 31A                  |
| 25                                 | 18.5 | A510-2020-H3     | 69A                  | A510-2025-H3    | 73A                  | A510-4020-H3(F)  | 38A                  | A510-4025-H3(F) | 39A                  |
| 30                                 | 22   | A510-2025-H3     | 80A                  | A510-2030-H3    | 85A                  | A510-4025-H3(F)  | 44A                  | A510-4030-H3(F) | 45A                  |
| 40                                 | 30   | A510-2030-H3     | 110A                 | A510-2040-H3    | 115A                 | A510-4030-H3(F)  | 58A                  | A510-4040-H3(F) | 60A                  |
| 50                                 | 37   | A510-2040-H3     | 138A                 | A510-2050-H3    | 145A                 | A510-4040-H3(F)  | 73A                  | A510-4050-H3(F) | 75A                  |
| 60                                 | 45   | A510-2050-H3     | 169A                 | A510-2060-H3    | 180A                 | A510-4050-H3(F)  | 88A                  | A510-4060-H3(F) | 91A                  |
| 75                                 | 55   | A510-2060-H3     | 200A                 | A510-2075-H3    | 215A                 | A510-4060-H3(F)  | 103A                 | A510-4075-H3    | 118A                 |
| 100                                | 75   | A510-2075-H3     | 250A                 | A510-2100-H3    | 283A                 | A510-4075-H3     | 145A                 | A510-4100-H3    | 150A                 |
| 125                                | 94   | A510-2100-H3     | 312A                 | A510-2125-H3    | 346A                 | A510-4100-H3     | 168A                 | A510-4125-H3    | 180A                 |
| 150                                | 112  | A510-2125-H3     | 400A                 | A510-2150-H3    | 415A                 | A510-4125-H3     | 208A                 | A510-4150-H3    | 216A                 |
| 175                                | 130  | A510-2150-H3     | 450A                 |                 |                      | A510-4150-H3     | 250A                 | A510-4175-H3    | 260A                 |
| 215                                | 160  |                  |                      |                 |                      | A510-4175-H3     | 296A                 | A510-4215-H3    | 295A                 |
| 250                                | 185  |                  |                      |                 |                      | A510-4215-H3     | 328A                 | A510-4250-H3    | 370A                 |
| 270                                | 200  |                  |                      |                 |                      | A510-4250-H3     | 435A                 |                 |                      |
| 300                                | 220  |                  |                      |                 |                      |                  |                      | A510-4300-H3    | 450A                 |
| 335                                | 250  |                  |                      |                 |                      | A510-4300-H3     | 515A                 |                 |                      |
| 375                                | 280  |                  |                      |                 |                      |                  |                      | A510-4375-H3    | 523A                 |
| 425                                | 315  |                  |                      |                 |                      | A510-4375-H3     | 585A                 | A510-4425-H3    | 585A                 |

### Model Identification

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

Notes: "-A" added behind the model name is the dedicated model.





# 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 <sup>2</sup>    | HD <sup>3</sup>                 | 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 <sup>*1</sup> 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 <sup>4</sup>                 | Rated Output Capacity (KVA)                    | 2.3                                       | 3.7     | 4.6     | 8.0                                | 11.4      | 15.2                    | 21.3    | 26.3      | 30.1      | 41.9    | 52.6    | 64.4    | 76.2    | 95.3     | 118.9    | 137.2     | 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 <sup>*1</sup> HP (KW) | 1.5 (1.1)                                 | 3 (2.2) | 4 (3)   | 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 0.1~400.0           |   |         |         |                                    |           |                         |         |           |           |         |         |         |         |          |          |           |           |  |
| 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       | 250       | 300       | 375       | 425       |  |
|-------------------------------|---------------------------------|--|------------------------------------|---------|---------|-----------|-----------|-------------------------|---------|-----------|-----------|---------|---------|---------|---------|----------|----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|--|
| Output Rating <sup>2</sup>    | HD <sup>3</sup>                 | 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       | 282       | 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       | 370       | 450       | 523       | 585       |  |
|                               |                                 | Maximum Applicable Motor <sup>*1</sup> HP (KW) | 1 (0.75)                           | 2 (1.5) | 3 (2.2) | 5 (4)     | 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) | 300 (220) | 375 (280) | 425 (315) |  |
|                               | ND <sup>4</sup>                 | Rated Output Capacity (KVA)                    | 3.1                                | 4.1     | 5.3     | 8.5       | 13.3      | 17.5                    | 23.6    | 29.0      | 33.5      | 44.2    | 54.9    | 67.1    | 78.5    | 111      | 126      | 159       | 191       | 226       | 250       | 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       | 435       | 515       | 585       | 585       |  |
|                               |                                 | Maximum Applicable Motor <sup>*1</sup> HP (KW) | 2 (1.5)                            | 3 (2.2) | 4 (3)   | 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) | 335 (250) | 425 (315) | 425 (315) |  |
| Maximum Output Voltage (V)    |                                 | Three-Phase, 380V to 480V                      |                                    |         |         |           |           |                         |         |           |           |         |         |         |         |          |          |           |           |           |           |           |           |           |           |  |
| Maximum Output Frequency (Hz) |                                 | Based on parameter setting 0.1~400.0           |                                    |         |         |           |           |                         |         |           |           |         |         |         |         |          |          |           |           |           |           |           |           |           |           |  |
| 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 A510 takes HD (heavy duty mode) as the base. To switch A510 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       | HD mode carrier      |
|-------------------------------|------------|-----------------------|----------------------|
| 200V class                    | 400V class | freq range            | freq default setting |
| 1~20HP                        | 1~30HP     | 2~16kHz               | 8kHz                 |
| 25HP                          | -          | 2~12kHz               | 6kHz                 |
| 30~40HP                       | 40~50HP    | 2~12kHz <sup>*5</sup> | 5kHz                 |
| 50~100HP                      | 60~175HP   | 2~10kHz <sup>*5</sup> | 5kHz                 |
| -                             | 215HP      | 2~8kHz                | 3kHz                 |
| 125~150HP                     | -          | 2~5kHz                | 5kHz                 |
| -                             | 250~375HP  | 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, SV, PMSV, PMSLV <sup>*1</sup> (SVPWM Modulation)  |  |
|  | Output Frequency                    | 0.1Hz~400.0Hz   |  |
|  | 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              | $\pm 0.1\%$ (Sensor Vector Control Mode, SV) <sup>*3</sup> $\cdot \pm 0.5\%$ (Sensorless Vector Control Mode, SLV) <sup>*3</sup>  |  |
|  | Frequency Setting Resolution        | Digital References: 0.01Hz, Analog References: 0.06Hz 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)<br>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%   |  |
|  | Protection Functions                | 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 <sup>*4</sup> , Two Analog Output, Safety input contact |
| Other Functions  |                                     | Records of Power ON and Operation Time, Four 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 |  |
| 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.<br>Heavy Duty Mode (HD.) : 150% rated current for 60sec, 200% rated current for 2 sec. (Factory default), Carrier frequency is from 2kHz to 8kHz.<br>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<br>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 )   |  |
| Option Card  | Altitude and Vibration              | Altitude of 1000 meters or lower ; 1.0G, in compliance with IEC 60068-2-6   |  |
|  | 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. PM sensorless(PMSLV) control mode is under development.

\*2. The maximum output frequency of each control modes is different, please read user manual for more details.

\*3. Speed control accuracy will be influenced when the motor and installation condition are different.

\*4. The A510 dedicated model is not built-in this function.

# DIMENSIONS

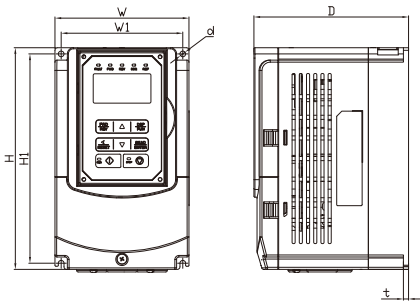


Figure A

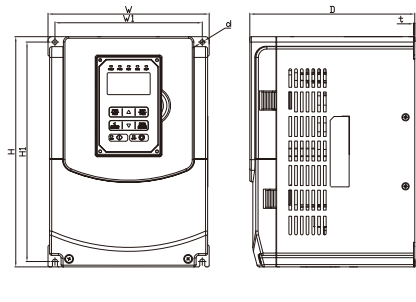


Figure B

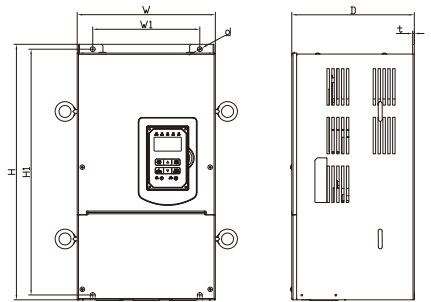


Figure C

| Figure | Enclosure | Frame   | Models       | Dimensions (mm) |     |     |     |     |     |    | Weight (kg) |
|--------|-----------|---------|--------------|-----------------|-----|-----|-----|-----|-----|----|-------------|
|        |           |         |              | W               | H   | D   | W1  | H1  | t   | d  |             |
| A      | IP20      | Frame 1 | A510-2001-H  | 130             | 215 | 150 | 118 | 203 | 5   | M5 | 2.2         |
|        |           |         | A510-2002-H  |                 |     |     |     |     |     |    |             |
|        |           |         | A510-4001-H3 |                 |     |     |     |     |     |    |             |
|        |           |         | A510-4002-H3 |                 |     |     |     |     |     |    |             |
| B      | IP20      | Frame 2 | A510-2003-H  | 140             | 279 | 177 | 122 | 267 | 7   | M6 | 3.8         |
|        |           |         | A510-2005-H3 |                 |     |     |     |     |     |    |             |
|        |           |         | A510-4005-H3 |                 |     |     |     |     |     |    |             |
|        |           | Frame 3 | A510-4008-H3 | 210             | 300 | 215 | 192 | 286 | 1.6 | M6 | 6.2         |
|        |           |         | A510-2008-H3 |                 |     |     |     |     |     |    |             |
|        |           |         | A510-2010-H3 |                 |     |     |     |     |     |    |             |
|        |           | Frame 4 | A510-4010-H3 | 265             | 360 | 225 | 245 | 340 | 1.6 | M8 | 10          |
|        |           |         | A510-4015-H3 |                 |     |     |     |     |     |    |             |
|        |           |         | A510-2015-H3 |                 |     |     |     |     |     |    |             |
|        |           |         | A510-2020-H3 |                 |     |     |     |     |     |    |             |
| C      | IP20      | Frame 5 | A510-2025-H3 | 284             | 525 | 252 | 220 | 505 | 1.6 | M8 | 30          |
|        |           |         | A510-4020-H3 |                 |     |     |     |     |     |    |             |
|        |           |         | A510-4025-H3 |                 |     |     |     |     |     |    |             |
|        |           |         | A510-4030-H3 |                 |     |     |     |     |     |    |             |
|        |           |         | A510-2030-H3 |                 |     |     |     |     |     |    |             |

Figure D

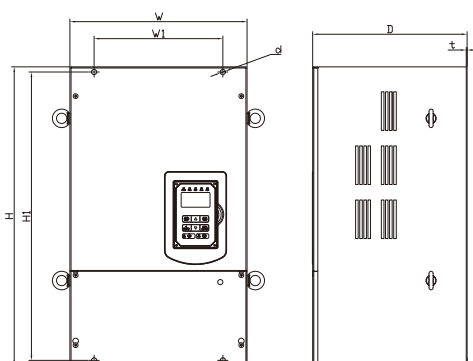
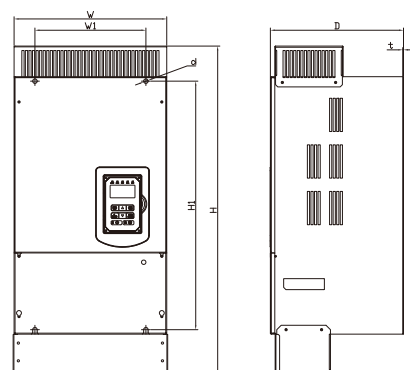


Figure E



| Figure       | Enclosure | Frame   | Models       | Dimensions (mm) |      |       |     |     |     |     | Weight (kg) |
|--------------|-----------|---------|--------------|-----------------|------|-------|-----|-----|-----|-----|-------------|
|              |           |         |              | W               | H    | D     | W1  | H1  | t   | d   |             |
| D            | IP00      | Frame 6 | A510-2050-H3 | 344             | 580  | 300   | 250 | 560 | 1.6 | M10 | 40.5        |
|              |           |         | A510-2060-H3 |                 |      |       |     |     |     |     |             |
|              |           |         | A510-4075-H3 |                 |      |       |     |     |     |     |             |
|              |           |         | A510-4100-H3 |                 |      |       |     |     |     |     |             |
| E            | IP20      | Frame 6 | A510-2050-H3 | 348.5           | 740  | 300   | 250 | 560 | 1.6 | M10 | 44          |
|              |           |         | A510-2060-H3 |                 |      |       |     |     |     |     |             |
|              |           |         | A510-4075-H3 |                 |      |       |     |     |     |     |             |
|              |           |         | A510-4100-H3 |                 |      |       |     |     |     |     |             |
| D            | IP00      | Frame 7 | A510-2075-H3 | 459             | 790  | 324.5 | 320 | 760 | 1.6 | M10 | 74          |
|              |           |         | A510-2100-H3 |                 |      |       |     |     |     |     |             |
|              |           |         | A510-4125-H3 |                 |      |       |     |     |     |     |             |
|              |           |         | A510-4150-H3 |                 |      |       |     |     |     |     |             |
|              |           |         | A510-4175-H3 |                 |      |       |     |     |     |     |             |
| A510-4215-H3 |           |         |              |                 |      |       |     |     |     |     |             |
| E            | IP20      | Frame 7 | A510-2075-H3 | 463.5           | 1105 | 324.5 | 320 | 760 | 1.6 | M10 | 81          |
|              |           |         | A510-2100-H3 |                 |      |       |     |     |     |     |             |
|              |           |         | A510-4125-H3 |                 |      |       |     |     |     |     |             |
|              |           |         | A510-4150-H3 |                 |      |       |     |     |     |     |             |
|              |           |         | A510-4175-H3 |                 |      |       |     |     |     |     |             |
| A510-4215-H3 |           |         |              |                 |      |       |     |     |     |     |             |

Figure F

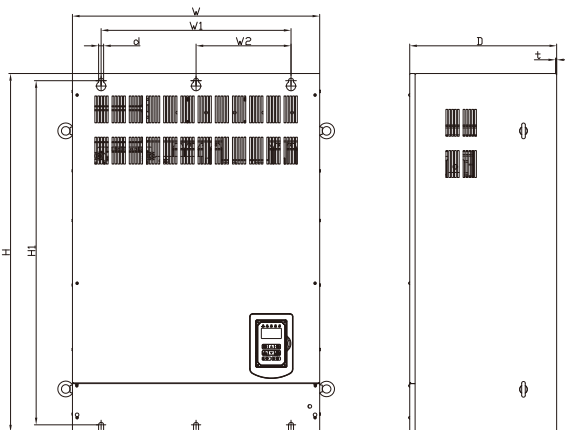
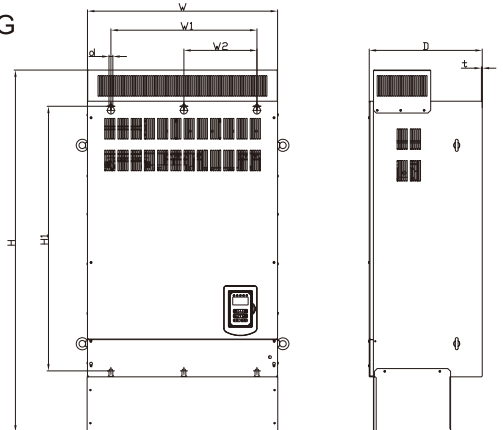


Figure G




| Figure       | Enclosure | Frame   | Models       | Dimensions (mm) |      |     |     |     |     |     | Weight (kg) |     |
|--------------|-----------|---------|--------------|-----------------|------|-----|-----|-----|-----|-----|-------------|-----|
|              |           |         |              | W               | H    | D   | W1  | W2  | H1  | t   |             | d   |
| F            | IP00      | Frame 8 | A510-2125-H3 | 690             | 1000 | 410 | 530 | 265 | 960 | 1.6 | M12         | 184 |
|              |           |         | A510-2150-H3 |                 |      |     |     |     |     |     |             |     |
|              |           |         | A510-4250-H3 |                 |      |     |     |     |     |     |             |     |
|              |           |         | A510-4270-H3 |                 |      |     |     |     |     |     |             |     |
|              |           |         | A510-4300-H3 |                 |      |     |     |     |     |     |             |     |
|              |           |         | A510-4375-H3 |                 |      |     |     |     |     |     |             |     |
| A510-4425-H3 |           |         |              |                 |      |     |     |     |     |     |             |     |
| G            | IP20      | Frame 8 | A510-2125-H3 | 690             | 1313 | 410 | 530 | 265 | 960 | 1.6 | M12         | 194 |
|              |           |         | A510-2150-H3 |                 |      |     |     |     |     |     |             |     |
|              |           |         | A510-4250-H3 |                 |      |     |     |     |     |     |             |     |
|              |           |         | A510-4270-H3 |                 |      |     |     |     |     |     |             |     |
|              |           |         | A510-4300-H3 |                 |      |     |     |     |     |     |             |     |
| A510-4375-H3 |           |         |              |                 |      |     |     |     |     |     |             |     |
| A510-4425-H3 |           |         |              |                 |      |     |     |     |     |     |             |     |


\* 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 |

## ACCESSORIES


### Encoder Feedback Option Card

| JN5-PG-O  | Terminals  | Description  |
|---|------------|--|
|  <ul style="list-style-type: none"> <li>■ For IM motor</li> <li>■ Support Open Collector type and Complementary type pulse signal</li> </ul> | Vcc        | Power Supply for PG: 12V/5V±5%, 200mA                |
|   | IG24       | Power Source and Input Signal Common                 |
|   | A, B, Z    | PG Signal Input Terminal (Open Collector Type)       |
|   | AO, BO, ZO | Pulse monitor output: Open Collector Type, 24V, 30mA |
|   | E          | Grounding Terminal                                   |


| JN5-PG-L  | Terminals                    | Description   |
|---|------------------------------|---|
|  <ul style="list-style-type: none"> <li>■ For IM motor</li> <li>■ Support Line Driver type pulse signal</li> </ul> | Vcc                          | Power Supply for PG: 12V/5V±5%, 200mA                           |
|   | GND                          | Power Source and Input Signal Common                            |
|   | A, / A, B, / B, Z, / Z       | PG Signal Input Terminal (Line Driver Type), RS-422 Level Input |
|   | AO, / AO, BO, / BO, ZO, / ZO | Pulse monitor output: Line Driver Type, RS-422 Level Input      |
|   | E                            | Grounding Terminal  |

| JN5-PG-PM   | Terminals                                      | Description   |
|---|--|---|
|  <ul style="list-style-type: none"> <li>■ For PM motor</li> <li>■ Support Line Driver type pulse signal</li> </ul> | Vcc  | Power Supply for PG: 5V±5%, 200mA                               |
|   | GND  | Power Source and Input Signal Common                            |
|   | A, / A, B, / B, Z, / Z, U, / U, V, / V, W, / W | PG Signal Input Terminal (Line Driver Type), RS-422 Level Input |
|   | AO, / AO, BO, / BO, ZO, / ZO                   | Pulse monitor output: Line Driver Type, RS-422 Level Input      |
|   | E  | Grounding Terminal  |

### Copy Unit

| JN5-CU  | Features   |
|---|--|
|  | <ul style="list-style-type: none"> <li>▲ Duplicating parameters setting in one AC drive to another AC drive.</li> <li>▲ As a remote digital operator.</li> <li>▲ Standard RJ45 network cable.</li> </ul> |

### Cables

| RJ45 to USB connecting cable  |            | Features  |
|---|------------|---|
| JN5-CM-USB  | 1.8 meters | <ul style="list-style-type: none"> <li>▲ Using with the TECO exclusive PC-software.</li> <li>▲ Make adjusting and copying parameters of AC drive through PC available.</li> </ul> |
| JN5-CM-USB-3  | 3 meters   |   |
|  |            |   |



Distributor

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Specifications covered in this brochure may be subject to change without notice.

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