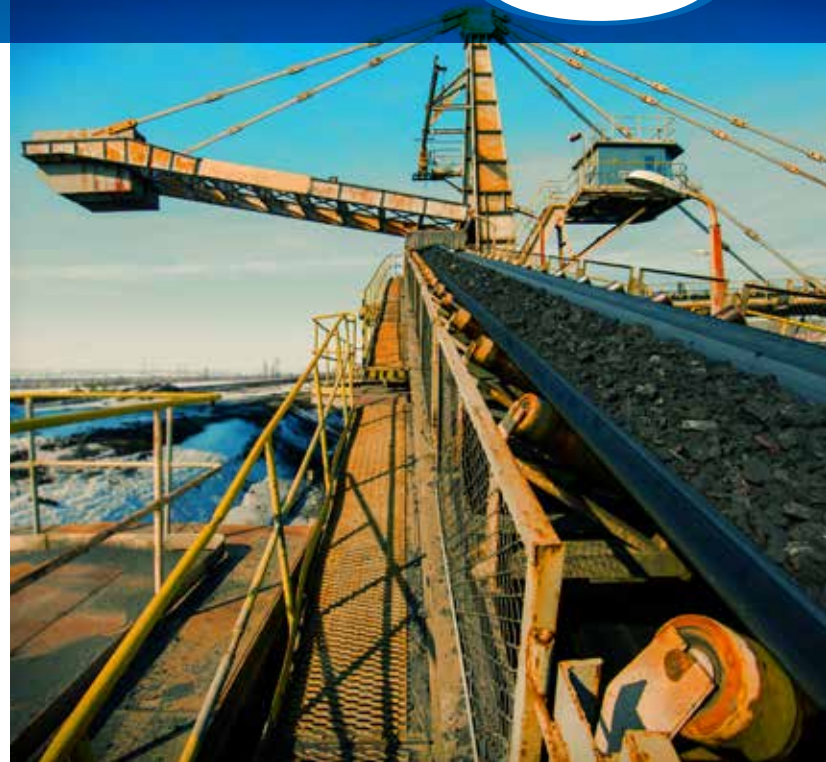


# YASKAWA

# GA800

AC DRIVE FOR INDUSTRIAL APPLICATIONS

IT'S PERSONAL



# EASY, POWERFUL & RELIABLE

At Yaskawa, we know your time is valuable. That's why we've designed this variable speed drive to exceed your expectations.



Offering world class Yaskawa quality, along with intuitive interaction and high flexibility, the GA800 delivers powerful torque and precise control. Look no further than GA800 for all your variable speed needs.

## WORLD CLASS DESIGN

Designed to control traditional and emerging motor technologies through 1000 HP, the GA800 handles applications ranging from simple fans and pumps to high performance test dynamometers requiring precise regulation.

In addition to its robust and powerful design, the GA800 provides highly flexible network communications, embedded functional safety, and easy-to-use tools featuring mobile device connectivity.

## OUR COMMITMENT TO YOU.



200 - 240 VAC: 1 - 150 HP  
380 - 480 VAC: 1 - 1000 HP  
600 VAC: 125 - 500 HP



Bluetooth® and the Bluetooth logo are registered trademarks of Bluetooth SIG, Inc. USA.

### MAKING IT EASY FOR YOU

- Forget the learning curve. Let GA800 guide you through its Setup Wizard to get you up and running in a snap!
- Enjoy the GA800's intuitive keypad with a vivid display and a host of friendly features.
- Experience ultimate ease-of-use and flexibility with DriveWizard PC and Mobile tools featuring Bluetooth® connectivity and cloud services.

### MAKING IT FLEXIBLE FOR YOU

- Easily and impressively control all major 3-phase motors.
- Connect and control the GA800 from your favorite network.
- Customize GA800 from its rich set of control features.

### MAKING IT SUSTAINABLE FOR YOU

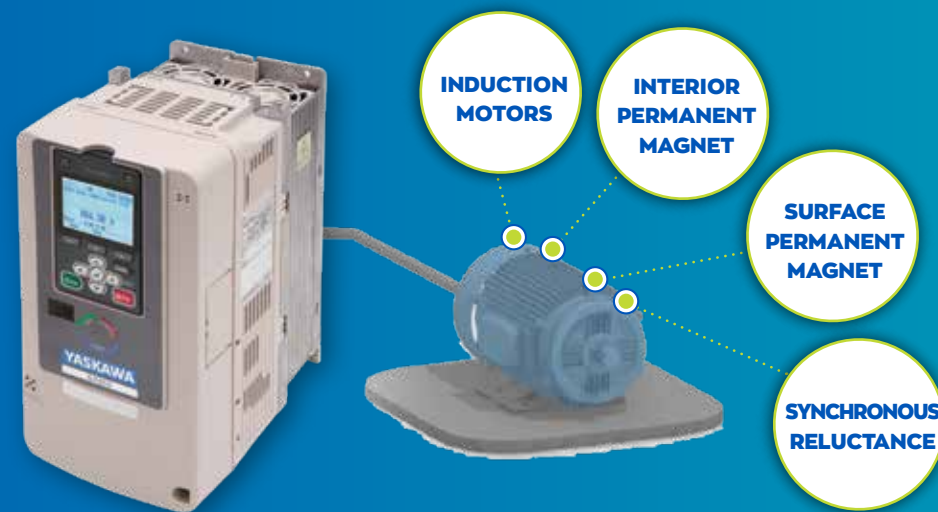
- Embedded Functional Safety reduces your down-time.
- Enjoy long life with conformal coated circuit boards and solutions for harsh environments.
- Electrical design that's friendly to your power system and surrounding equipment.
- Produced with materials responsible to our planet.

**SIMPLICITY**

# ONE FOR ALL

The GA800 is the one drive you need for all types of motors. It precisely controls induction, permanent magnet and synchronous reluctance motors. Say goodbye to the days of complex motor setup!

## Motor Control Benefits/Features:

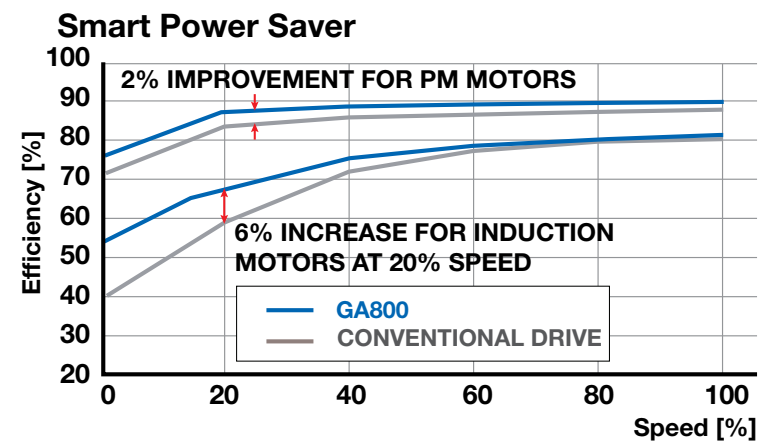


### FLEXIBLE MOTOR CONTROL

- Controls traditional and emerging motor technologies
- Easy and accurate autotuning provides optimized performance for each connected motor
- Optimized control avoids tripping even with aggressive settings
- Impressive open loop vector control
- Precise and high response closed loop vector control 590Hz maximum frequency
- 110% normal duty overload
- 150% heavy duty overload
- Integrated brake transistor up to 125 HP (ND) / 100 HP (HD)

## SAVE EVEN MORE ENERGY

Smart Power Saver mode reduces energy consumption at reduced speeds and loads for maximum efficiency and minimum operating costs



# ANY WAY YOU WANT IT

Optimize your space, your way, by taking advantage of the GA800's installation flexibility.

## INSTALL STANDARD (IP20) DRIVES IN CABINETS, SIDE-BY-SIDE



Small ratings capable of zero side clearance. See product instructions for details.

## UTILIZE NEMA 1 KIT FOR CABINET-LESS INSTALLATIONS



## INSTALL WITH HEATSINK EXPOSED FOR OPTIMIZED HEAT MANAGEMENT



Use standard drives with external heatsink for NEMA 1 environments



Use flange drives with external heatsink for NEMA 12 (dusty) environments

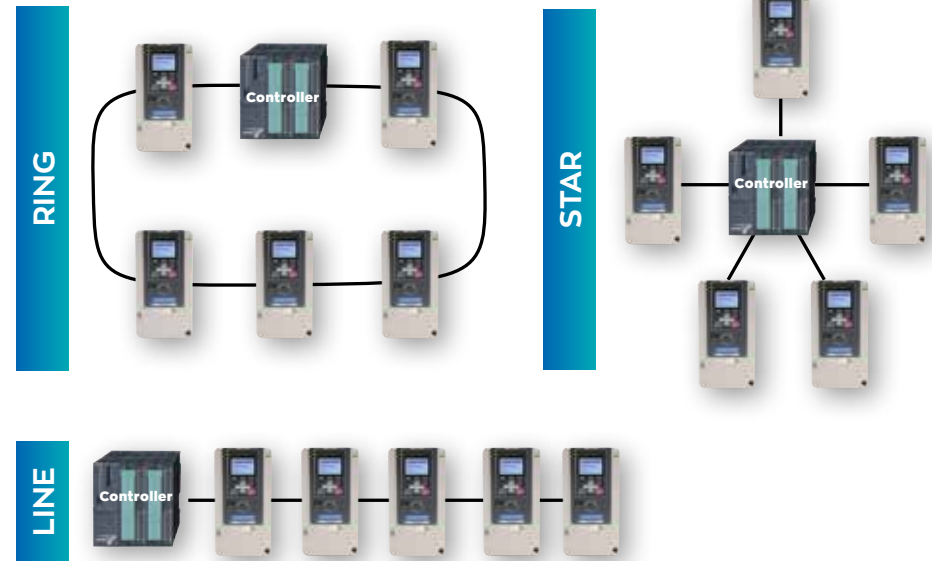


**EFFORTLESS INTERFACE**

# GET CONNECTED

Whether you prefer discrete/analog control or high speed communication, GA800 covers all your needs for control interface and provides robust connections on all major networks.

**CONFIGURATIONS**



**CONNECT WITH EASE**

- Connect with standard network modules for conventional and robust star configurations
- Connect with dual port network modules and daisy-chain your connections for ring or line configurations. A great choice for decentralized drives
- Maintain control power with main power removed by supplying 24 VDC to the GA800's auxiliary input
- Connect up to 5 drives from a single network node by adding slave drives over the GA800's embedded RS-485



**EMBEDDED FUNCTIONAL SAFETY**

# ZONE DEFENSE

When your application requires human interaction with mechanical dangers, the GA800 can help.

A standard feature of the GA800 is Safe Torque Off, which prevents torque production to the motor even while main input power remains applied. This minimizes your downtime when people enter your mechanical safety zone. Normal operation is resumed faster.



**REMOVABLE STANDARD CONTROL TERMINAL BOARD FOR EASY WIRING CONNECTIONS**

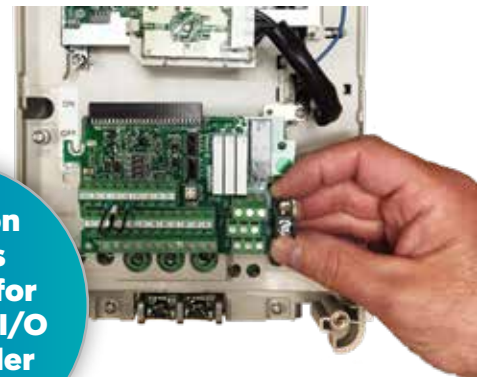
**Standard Inputs:**

- RS-485 Modbus RTU
- 8 digital, 3 analog, 1 pulse
- Safe Torque Off
- 24 VDC auxiliary power

**Standard Outputs:**

- 4 digital, 2 analog, 1 pulse
- 24 VDC supply for external sensors

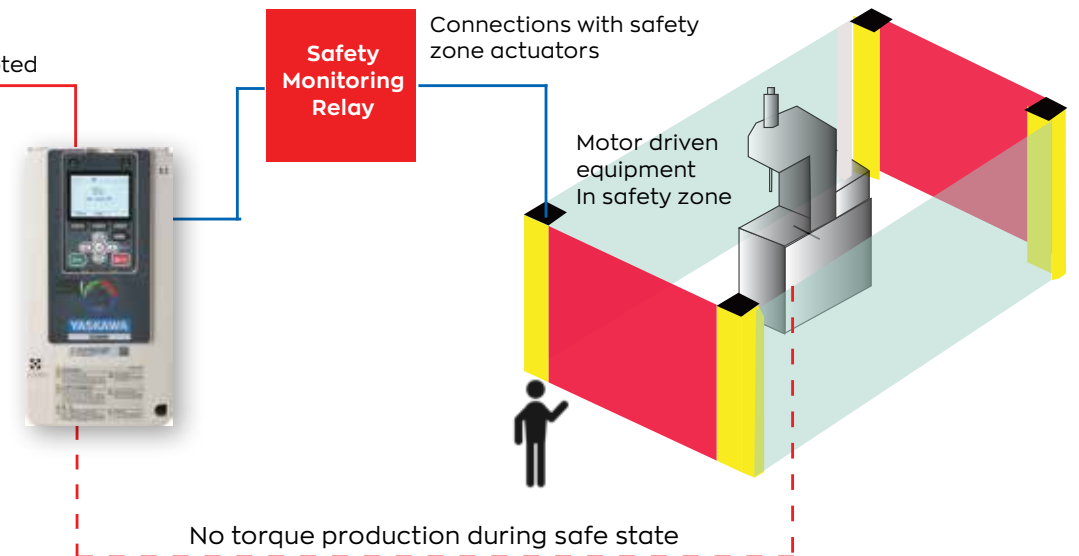
**Expansion modules available for additional I/O and encoder feedback**



**SAFE TORQUE OFF**

- Certified by TUV
- SIL3 according to IEC 62061
- PLe according to ISO 13849-1
- Programmable EDM monitor output for status

Main power not interrupted





**RUGGED AND LONG LASTING**

# FOR THE LONG HAUL

These are the cornerstones of Yaskawa, where we apply the latest proven technology and processes, to provide products you can trust.



**PRODUCT TESTING RANGE**

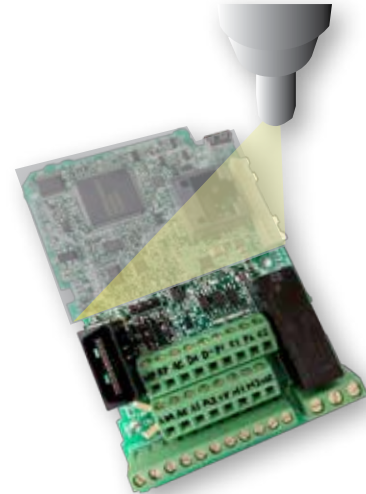
All Yaskawa products undergo rigorous testing during the design phase to ensure long life and problem-free operation.

- Maximum Temperature
- Maximum Load
- Maximum Voltage and Hi-Pot
- Electromagnetic Compatibility

**PRODUCT CERTIFICATION**

Designed to the most stringent electrothermal safety standards and certified with all major worldwide agencies

- UL and CSA
- TUV
- CE
- EAC
- RCM
- KCC
- SEMI-F47
- IEEE1668



**COATED BOARD PROTECTION RANGE**

In addition to an extremely robust design, we understand your environment may be less than perfect for electronics. That's why we've stacked the deck in your favor with conformal coating on all circuit boards to provide some "extra protection", meeting IEC 60721-3-3, 3C2, 3S3 levels.

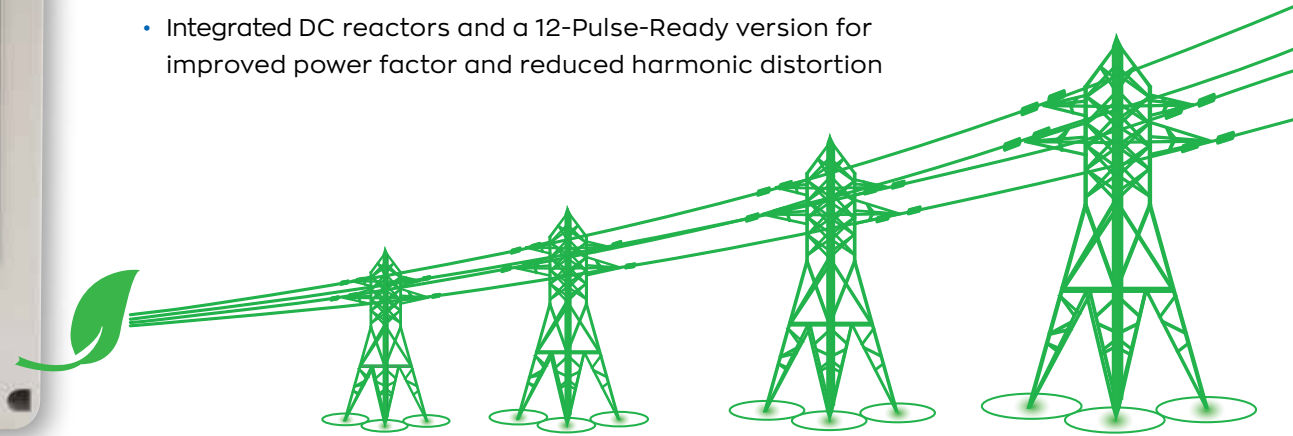


# PLANET FITNESS

Whether your concern is efficiency, power quality, or non-hazardous materials, Yaskawa products help you contribute to a healthy and sustainable environment.

**YOUR POWER-FRIENDLY PARTNER**

- Ability to control highly efficient permanent magnet motors
- Integrated DC reactors and a 12-Pulse-Ready version for improved power factor and reduced harmonic distortion



**ZERO TOLERANCE**

Rest assured that Yaskawa complies with strict environmental standards relative to use of hazardous substances.

Products are certified to the RoHS 2 Directive (2011/65/EU), which permits very small levels of lead, mercury, cadmium and others substances.

# CONVENIENT AND EFFORTLESS

It's so easy! Use the GA800's resident keypad, your mobile device, or your personal computer. Whatever you choose, enjoy easy navigation and guided wizards for configuration, monitoring, and troubleshooting.

## DRIVEWIZARD MOBILE

- Optional Bluetooth®-enabled keypad provides wireless connection to your smart-phone or tablet where you can experience colorful attractive dialog with the GA800.
- Alternatively, connect via USB, and interface with the GA800 even without main power!



# LET US KEEP THAT SOMEWHERE SAFE FOR YOU!

Backup your drive settings by taking advantage of free cloud service from Yaskawa. Access the Yaskawa Drive Cloud from anywhere in the world via DriveWizard Mobile or from the web.

## YASKAWA DRIVE CLOUD

- Scan the GA800's QR code to locate existing cloud data or initiate new cloud data with drive identification pre-populated.
- Register, store and retrieve your personal drive configuration files unique to each serial number.
- Free storage of drive information including photos and other common file types.





## STANDARD INTERFACE

# PUSH MY BUTTONS!

The GA800 standard interface provides you with a crisp, large display that is intuitive and loaded with capability.

### Copy Function

Multiple parameter sets can be stored and easily transferred to additional drives

### High-Resolution Display

Large multi-language screen with contrast and backlight control

### Automatic Back-up Function

Periodically copies parameters to keypad memory for safe keeping

### Advanced Keypad Navigation

Fast scrolling, function keys, and shortcuts reduce your setup time



### Micro SD Storage

Expandable memory (up to 32GB) for data logging storage

### Real-Time Clock

For stamping your events with dates and times.  
Battery powered

### Optional LCD Keypad With Bluetooth®

Wireless communication with your mobile device

## SETUP WIZARD

Reduce configuration time using the setup wizard without any drive parameter knowledge.



# POWERFUL MADE EASY

Unleash all that GA800 has to offer with Yaskawa's intuitive and flexible PC-based interface tools. Enjoy DriveWizard® Desktop for configuring, advanced monitoring, trending, and file storage. Create custom functions with DriveWorksEZ®.

## DRIVEWIZARD® DESKTOP

- Connect via USB and interface with the GA800 even without main power!
- Create configurations offline, then later connect and download them to GA800.
- Monitor a dashboard of dynamic variables and discrete information.
- Chart your process with up to 6 channels of recorded data.
- Create reports for exporting and emailing.



## DRIVEWORKSEZ

- Drag-n-drop graphical interface
- Select from 280+ function blocks
- Logic/math functions
- Timers/counters
- Up to 200 connections, 400 blocks
- Constant scan cycle

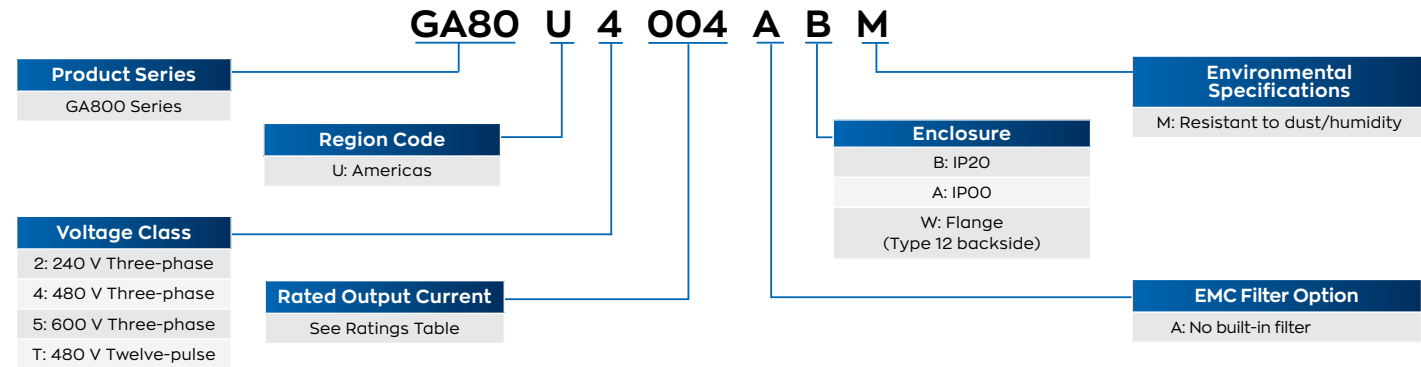


DriveWizard and DriveWorksEZ are registered trademarks of Yaskawa.



# SPECIFICATIONS

## Catalog Code Designation



## RATINGS

| Power Output (HP) |                 | 240 V Models              |             |      | 480 V Models |                           |             | 600 V Models |       |                           |             |     |       |
|-------------------|-----------------|---------------------------|-------------|------|--------------|---------------------------|-------------|--------------|-------|---------------------------|-------------|-----|-------|
| Normal Duty (ND)  | Heavy Duty (HD) | Catalog Code GA80U □□□□□□ | Output Amps |      | Frame        | Catalog Code GA80U □□□□□□ | Output Amps |              | Frame | Catalog Code GA80U □□□□□□ | Output Amps |     | Frame |
|                   |                 |                           | ND          | HD   |              |                           | ND          | HD           |       |                           | ND          | HD  |       |
| 1.0               | 0.75            | 2004ABM                   | 4.2         | 3.5  | 1            | 4002ABM                   | 2.1         | 1.8          | 1     |                           |             |     |       |
| 1.5               | 1               | 2006ABM                   | 6           | 5    | 1            |                           |             |              |       |                           |             |     |       |
| 2                 | 1.5             | 2008ABM                   | 8           | 6.9  | 1            | 4004ABM                   | 4.1         | 3.4          | 1     |                           |             |     |       |
| 3                 | 2               | 2010ABM                   | 9.6         | 8    | 1            | 4005ABM                   | 5.4         | 4.8          | 1     |                           |             |     |       |
| 4                 | 3               | 2012ABM                   | 12.2        | 11   | 1            | 4007ABM                   | 7.1         | 5.5          | 1.5   |                           |             |     |       |
| 5                 | 4               | 2018ABM                   | 17.5        | 14   | 1.5          | 4009ABM                   | 8.9         | 7.2          | 1.5   |                           |             |     |       |
| 7.5               | 5               | 2021ABM                   | 21          | 17.5 | 1.5          | 4012ABM                   | 11.9        | 9.2          | 1.5   |                           |             |     |       |
| 10                | 7.5             | 2030ABM                   | 30          | 25   | 1.5          | 4018ABM                   | 17.5        | 14.8         | 1.5   |                           |             |     |       |
| 15                | 10              | 2042ABM                   | 42          | 33   | 1.5          | 4023ABM                   | 23.4        | 18           | 1.5   |                           |             |     |       |
| 20                | 15              | 2056ABM                   | 56          | 47   | 2            | 4031ABM                   | 31          | 24           | 2     |                           |             |     |       |
| 25                | 20              | 2070ABM                   | 70          | 60   | 3            | 4038ABM                   | 38          | 31           | 2     |                           |             |     |       |
| 30                | 25              | 2082ABM                   | 82          | 75   | 3            | 4044ABM                   | 44          | 39           | 3     |                           |             |     |       |
| 40                | 30              | 2110ABM                   | 110         | 88   | 4            | 4060ABM                   | 59.6        | 45           | 3.5   |                           |             |     |       |
| 50                | 40              | 2138ABM                   | 138         | 115  | 6            | 4075ABM                   | 74.9        | 60           | 4     |                           |             |     |       |
| 60                | 50              | 2169ABM                   | 169         | 145  | 7            | 4089ABM                   | 89.2        | 75           | 6     |                           |             |     |       |
| 75                | 60              | 2211ABM                   | 211         | 180  | 7            | 4103ABM <sup>1</sup>      | 103         | 91           | 6     |                           |             |     |       |
| 100               | 75              | 2257ABM                   | 257         | 215  | 9            | 4140ABM <sup>1</sup>      | 140         | 112          | 7     |                           |             |     |       |
| 125               | 100             | 2313ABM                   | 313         | 283  | 9            | 4168ABM <sup>1</sup>      | 168         | 150          | 7     | 5125ABM                   | 125         | 99  | 9     |
| 150               | 125             | 2360ABM                   | 360         | 346  | 10           | 4208ABM <sup>1</sup>      | 208         | 180          | 9     | 5144ABM                   | 144         | 125 | 9     |
| 150               | 150             | 2415ABM                   | 415         | 415  | 10           |                           |             |              |       |                           |             |     |       |
| 200               | 150             |                           |             |      |              | 4250ABM <sup>1</sup>      | 250         | 216          | 9     | 5192ABM                   | 192         | 172 | 10    |
| 250               | 200             |                           |             |      |              | 4302ABM <sup>1</sup>      | 302         | 260          | 9     | 5242ABM                   | 242         | 192 | 10    |
| 300               | 250             |                           |             |      |              | 4371ABM <sup>1</sup>      | 371         | 304          | 10    | 5289ABM                   | 289         | 242 | 10    |
| 350               | 300             |                           |             |      |              | 4414ABM <sup>1</sup>      | 414         | 371          | 10    |                           |             |     |       |
| 400               | 350             |                           |             |      |              | 4477ABM <sup>1</sup>      | 477         | 414          | 11    | 5382ABM                   | 382         | 336 | 11    |
| 450               | 400             |                           |             |      |              | 4568ABM <sup>1</sup>      | 568         | 477          | 11    | 5412ABM                   | 412         | 382 | 11    |
| 500               | 450             |                           |             |      |              | 4605ABM <sup>1</sup>      | 675         | 605          | 11    | 5472ABM                   | 472         | 412 | 11    |
| 600               | 500             |                           |             |      |              | 4720ABM <sup>1</sup>      | 720         | 605          | 11    |                           |             |     |       |
| 700               | 600             |                           |             |      |              | 4810AAM <sup>2</sup>      | 810         | 720          | 12    |                           |             |     |       |
| 800               | 700             |                           |             |      |              | 4930AAM <sup>2</sup>      | 930         | 810          | 12    |                           |             |     |       |
| 900               | 800             |                           |             |      |              | 4H11AAM <sup>2</sup>      | 1090        | 930          | 12    |                           |             |     |       |
| 1000              | 900             |                           |             |      |              | 4H12AAM <sup>2</sup>      | 1200        | 1090         | 12    |                           |             |     |       |

\*1: 480V Twelve-Pulse versions are available as models T103AAM through T720AAM with the same current and power ratings as 4103ABM through 4720ABM.

\*2: Models 4810AAM to 4H12AAM are user-configurable for either 6-Pulse (3-Phase) or 12-Pulse (6-Phase) input.

## DIMENSIONS

| Frame Size | Height       | Width       | Depth       |
|------------|--------------|-------------|-------------|
| 1          | 10.2 (260)   | 5.51 (140)  | 6.93 (176)  |
| 1.5        | 10.2 (260)   | 5.51 (140)  | 8.31 (211)  |
| 2          | 11.8 (300)   | 7.09 (180)  | 7.95 (202)  |
| 3          | 13.8 (350)   | 8.66 (220)  | 8.94 (227)  |
| 3.5        | 13.8 (350)   | 8.66 (220)  | 9.69 (246)  |
| 4          | 15.7 (400)   | 9.45 (240)  | 11.0 (280)  |
| 6          | 17.7 (450)   | 10.0 (255)  | 11.0 (280)  |
| 7          | 21.4 (543)   | 10.4 (264)  | 13.2 (335)  |
| 9          | 27.6 (700)   | 12.3 (312)  | 16.5 (420)  |
| 10         | 31.5 (800)   | 17.3 (440)  | 18.6 (472)  |
| 11         | 44.72 (1136) | 20.1 (510)  | 18.9 (480)  |
| 12         | 53.84 (1368) | 29.92 (760) | 17.32 (440) |

Dimensions shown in inches (mm).

Information on this page represents Protected Chassis enclosures. For other enclosure types and enclosure adapters, please visit [yaskawa.com](http://yaskawa.com).

## SPECIFICATIONS

| Item                                 | Specification  |
|--------------------------------------|--|
| <b>Overload Capacity</b>             | 150% for 60 sec. (HD), 110% for 60 sec. (ND)   |
| <b>Output Frequency</b>              | 0 to 590 Hz  |
| <b>Control Methods</b>               | Open and Closed Loop Current Vector, Open and Closed Loop V/f  |
| <b>Motor Types</b>                   | Induction, Surface Permanent Magnet, Interior Permanent Magnet, Synchronous Reluctance   |
| <b>Input Voltage &amp; Frequency</b> | <b>240V Class:</b> 200V -15% to 240V +10%, 50/60 Hz +/-5%, <b>480V Class:</b> 380V -15% to 480V +10%, 50/60 Hz +/-5%, <b>600V Class:</b> 480V -10% to 600V +10%, 50/60 Hz +/-5%, <b>All Voltage Classes:</b> Overvoltage Category III  |
| <b>Protective Design Types</b>       | IP20 (NEMA 1 kit available)<br>Flange (Type 12 backside)   |
| <b>Contamination Resistance</b>      | Pollution degree 2 or less.<br>Additionally, meets IEC 60721-3-3, Class 3C2 (chemical gases), Class 3S3 (solid particles)  |
| <b>Ambient Operating Temperature</b> | -10 to +50°C (IP20 and flange types)<br>-10 to +40°C (with NEMA 1 kit)<br>Up to +60°C (with derate)  |
| <b>Storage Temperature</b>           | -40 to +70°C (short-term temperature during transportation)  |
| <b>Humidity</b>                      | 95% RH or less (non-condensing)  |
| <b>Altitude</b>                      | Up to 1000 m without derating, up to 4000 m with derating  |
| <b>Vibration</b>                     | 10 Hz to 20 Hz: 1 G (9.8 m/s <sup>2</sup> , 32.15 ft/s <sup>2</sup> )<br>20 Hz to 55 Hz: 2004 to 2211, 4002 to 4168: 0.6 G (5.9 m/s <sup>2</sup> , 19.36 ft/s <sup>2</sup> )<br>2257 to 2415, 4208 to 4H12, 5125 to 5472: 0.2 G (2.0 m/s <sup>2</sup> , 6.56 ft/s <sup>2</sup> )   |
| <b>Global Certifications</b>         | UL, CSA, CE, RCM, RoHS, SEMI-F47, IEC61668   |
| <b>Functional Safety</b>             | Safe Torque Off, SIL3 according to IEC 62061, PLe according to ISO 13849-1 (600 V models pending, consult factory)   |
| <b>Standard I/O</b>                  | (8) multi-function digital inputs (24Vdc)<br>(3) multi-function analog inputs (0 +/- 10 VDC, 4-20 mA)<br>(1) multi-function pulse inputs<br>(2) Safe Torque Off inputs<br>(1) fault relay output (form C)<br>(3) multi-function relay outputs (form A)<br>(2) multi-function analog output (0 +/- 10 VDC, 4-20mA)<br>(1) multi-function pulse output |
| <b>I/O Expansion</b>                 | (3) Analog Inputs -10 to +10V, 13 bit plus sign, 4 to 20mA<br>(16) Digital Inputs<br>(2) Analog Outputs (-10 to +10V, 11 bit magnitude)<br>(8) Digital Outputs (6 transistor, 2 relay)   |
| <b>Feedback (optional)</b>           | Incremental<br>Absolute (Stegmann, Heidenhain, Resolver)   |
| <b>Network Communication</b>         | Standard: Modbus RTU, RS-485, 115 kbps<br>Optional: EtherNet/IP, DeviceNet, Modbus TCP/IP, PROFINET, PROFIBUS-DP   |
| <b>Speed Control Range</b>           | 1500:1 Closed Loop Vector (IM and PM Motors)<br>200:1 Open Loop Vector (IM Motors)<br>100:1 Open Loop Vector (PM Motors)   |
| <b>Speed Control Accuracy</b>        | ≤ 0.02%: Closed Loop Vector; ≤ 0.2%: Open Loop Vector  |
| <b>Speed Response</b>                | ≥ 50 Hz: Closed Loop Vector (Induction Motors)<br>≥ 250 Hz: Closed Loop Vector (PM Motors)<br>≥ 20 Hz: Open Loop Vector (Induction Motors)<br>≥ 40 Hz: Open Loop Vector (PM Motors)  |
| <b>Function Block Diagrams</b>       | Up to 200 connections, 500 μs program scan time  |



YASKAWA.COM



Yaskawa is the leading global manufacturer of low and medium voltage variable frequency drives, servo systems, machine controllers and industrial robots. Our standard products, as well as tailor-made solutions, are well known and have a high reputation for outstanding quality and reliability.

# YASKAWA

**Yaskawa America, Inc.** | Drives & Motion Division

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