

# A1000

240V Class: ½ to 175 HP  
480V Class: ½ to 1000 HP  
600V Class: ½ to 250 HP



 **YASKAWA™**

## **A single drive for all your needs, with outstanding performance and flexibility!**

The A1000 is a full-featured drive, providing outstanding quality, performance, flexibility, and environmental friendliness through 1000HP. From simple fans and pumps to complex machine control, A1000 can be the single drive platform for an entire facility. Network communications, expandable I/O, and feedback are among the many choices. For new installations or retrofits, the A1000 provides a single robust solution, regardless of your application.



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# Features and Benefits

## Exceptional Quality

Enjoy peace of mind by knowing that you are considering a product from Yaskawa, the factory automation controls company with the highest reputation for quality and reliability. Historically, Yaskawa drives have demonstrated extremely high reliability with an average MTBF (mean time between failure) of 28 years or more. The new 1000 series products take reliability to the next level with a calculated design life that is twice as long as previous generations.



**Highly Integrated Design** results in fewer parts and interconnections, reducing the number of failure points.

**Component Derating** extends the life of any single part by selecting higher specifications (e.g. voltage, current) than what a circuit requires for normal operation.

**Latest Generation IGBT Power Modules**, capable of four times more thermal cycles than previous designs.

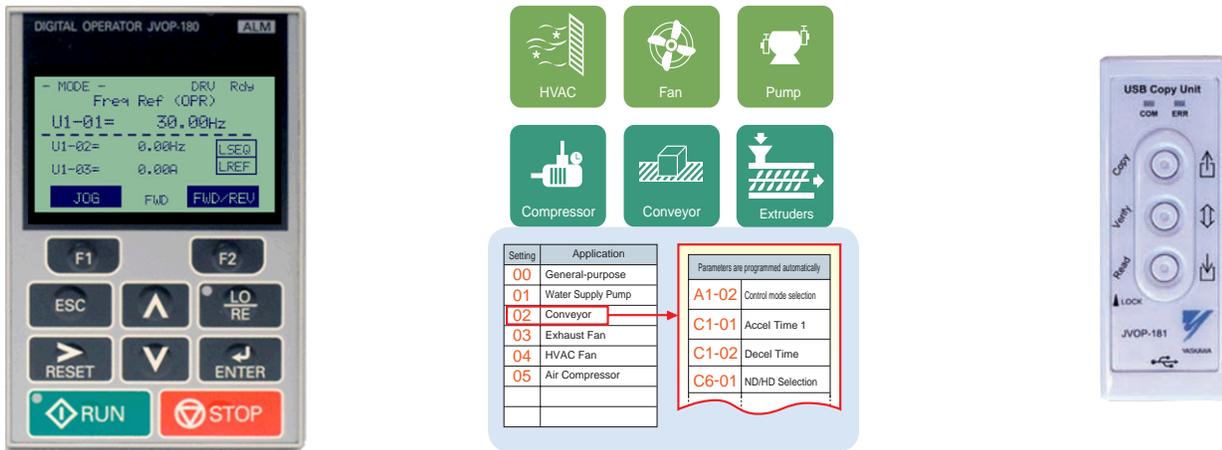
**Enhanced Short Circuit Detection and Self Diagnostics** provide additional protection against severe catastrophic conditions.

In addition, the A1000 is designed for use around the world, and carries agency certifications for all major geographical regions



## Easy to Apply and Maintain

Whether your applications are simple or complex, the A1000 is supported by user-friendly configuration tools. For local field access, the keypad interface features a multi-language LCD display, parameter storage, and application presets to make programming a simple task. It also has built-in memory for backup purposes. In addition, a USB Copy Unit can be loaded with a drive's program for convenient portable transfer of configuration between an office environment and the factory floor.



DriveWizard® computer software delivers configuration, monitoring, and trending functions enhanced by direct connectivity through the A1000's standard USB port.

- Online and Offline Editing
- Application Wizard
- Monitoring and Diagnostic Panels
- Trend Recorder and Playback
- Network Configurator
- Multidrive Support
- Drive Flash Support
- Project Converter
- Report and Export Generation
- Search Engine



# Features and Benefits

## Easy to Apply and Maintain

### Preventative Maintenance Monitors

Maximize production and intelligently schedule your maintenance by making use of the A1000's special monitors that provide alarm information when a drive requires attention. Use this information to trigger discrete outputs or send the status across a network for upper level decision making.

- Cooling Fan Remaining Life
- IGBT (Power Module) Remaining Life
- Bus Capacitor Remaining Life
- Precharge Relay
- Drive (Heatsink) Temperature



### Highly Reliable and Easily Replaceable Cooling Fans

- Improved location for convenient access
- No tools required
- 24Vdc powered (including large ratings) eliminates need to make proper connection at time of installation



### Removeable I/O Terminal Board with Drive Backup Memory

- All parameter changes automatically saved to both main control board and I/O board
- Leave I/O connected when replacing a drive
- Configuration is downloaded to replacement drive
- Reduces MTTR (Mean Time To Repair)



## Maximum Flexibility

Have it your way with the A1000's impressive flexibility. Take advantage of a significant quantity of control points as standard. For applications requiring more I/O, feedback, or network choices, the A1000 offers three expansion ports that support a wide variety of interface modules.



### Standard I/O and Communications

- Digital Inputs (8)
- Analog Inputs (3)
- Pulse Inputs (1)
- Digital Outputs (4)
- Analog Outputs (2)
- Pulse Outputs (1)
- RS485 Modbus RTU Communication



### Expansion Capability

#### I/O Modules

- Digital Inputs (16)
- Analog Inputs (3)
- Digital Outputs (8)
- Analog Outputs (2)



#### Feedback Modules

- Incremental Encoder
- Resolver
- Absolute Encoder (Stegmann, Heidenhain)



#### Communication Modules

- DeviceNet
- EtherNet/IP
- Modbus TCP/IP
- PROFIBUS-DP
- PROFINET
- MECHATROLINK-II

# Features and Benefits

## Maximum Flexibility

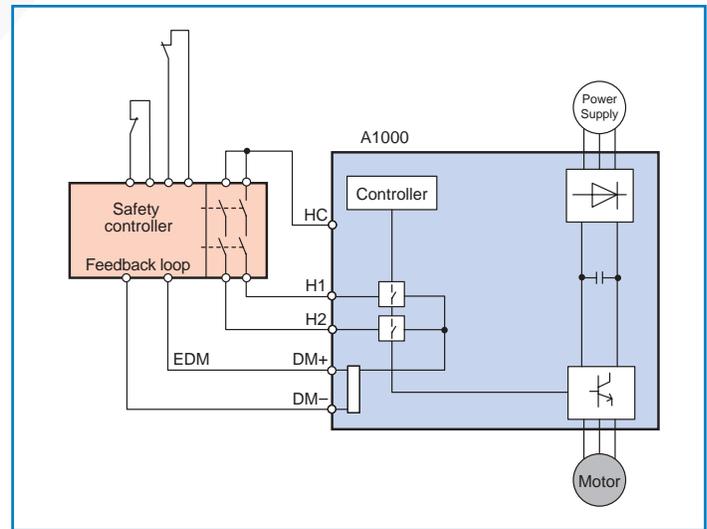
### Auxiliary Control Power Input

Keep your drives communicating over the network, even while main power is removed. The Auxiliary Control Power Input uses facility supplied 24Vdc to keep the drive's control and communication intact. Service your drive cabinets with the benefit of live control and communications without the need for main power and associated Arc Flash protection.



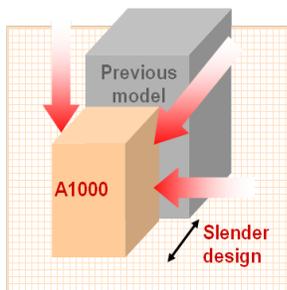
### Embedded Functional Safety

Minimize downtime for applications requiring occasional or frequent mechanical intervention. Safe Torque Off provides safe removal of torque without removal of power to the drive. The A1000 provides this functionality as standard in a safety category 3 architecture, and is certified by TUV to PLd and SIL CL2 according to ISO/EN 13849-1 and IEC/EN 62061 respectively, meeting the requirements of IEC/EN 61508.

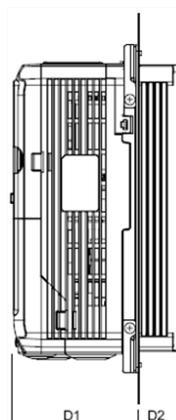


## Space Saving Features

The A1000 offers world class power density resulting in an average size reduction of 30% as compared to previous generations (see individual rating dimensions). In addition, even more cabinet space can be saved by taking advantage of External Heatsink Mounting or its Zero Side Clearance capability.



Physical Size Reduction



External Heatsink Solution  
(Side View)

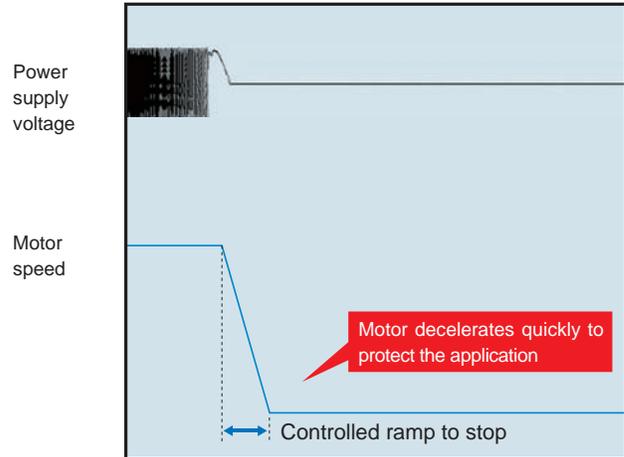


Zero Side Clearance  
(40°C max ambient)

## Maximum Flexibility

A variety of braking solutions optimized for your application.

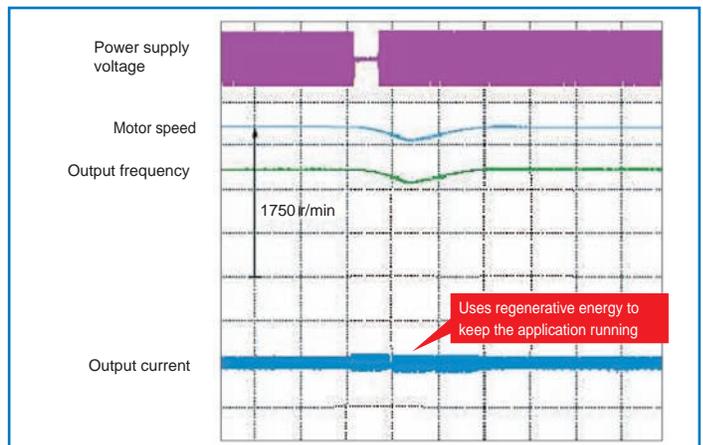
- For high demand braking conditions, the A1000 provides powerful Dynamic Braking with integrated brake transistors through 50HP normal duty (40HP heavy duty). For drives rated through 7.5HP normal duty (5HP heavy duty), drive mounted low duty cycle resistors are available
- For applications that can dissipate losses in the motor, Over-Excitation Braking and High Slip Braking are good performing, money saving alternatives to dynamic braking



- In the event of a power loss, Kinetic Energy Braking uses energy stored in the rotating load to keep the drive powered and bring the process to a controlled stop

Keep your applications running with features designed to avoid interruptions that are typical with demanding load conditions.

- Optimal Decel automatically extends the programmed deceleration time based on the load condition and drive capability
- Overvoltage Suppression limits the DC bus voltage by modulating output frequency to keep the drive out of the regenerative region
- Overload Fault Prevention responds to heavy load conditions by adjusting output frequency and voltage to keep the drive's current within operating limits
- Momentary Power Loss Ride-Thru puts the drive in standby mode during transient power losses and then automatically restarts, avoiding potentially costly power related shut down conditions

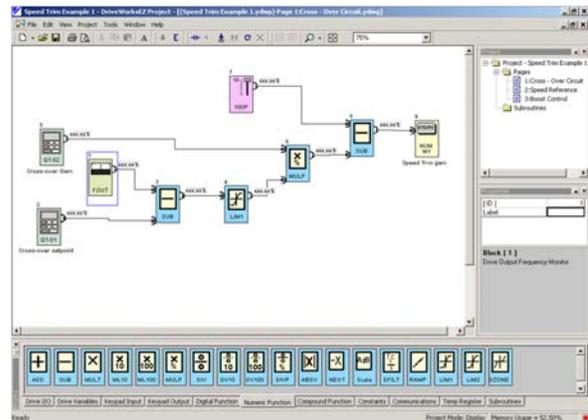


- Speed Search allows the drive to start into a rotating load by quickly matching its speed before delivering full power

# Features and Benefits

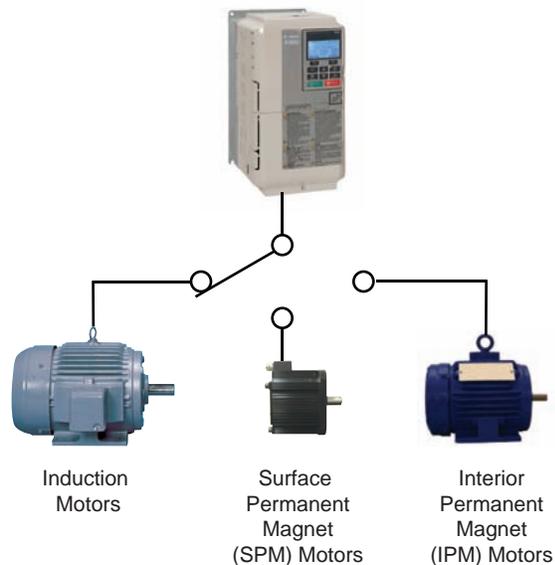
## Maximum Flexibility

- Embedded Application Functions provide system level control without the use of a stand-alone controller.
- PID (Proportional Integral Derivative) Control regulates your process variable (flow, pressure, etc.).
- Droop Control automatically adjusts motor slip to perform load sharing in a multi-drive system.
- Function Block Programming supported by DriveWorksEZ<sup>®</sup> offers internal logic functions to build the application of your choice.
  - Drag and Drop Graphical Environment
  - Interface with I/O, Drive Data, Network Data
  - Logic Functions
  - Math Functions
  - Timers
  - Counters
  - Subroutine Creation
  - Up to 289 Function Blocks
  - Up to 100 Connections
  - 1 millisecond execution



A single drive to control traditional and emerging motor technologies:

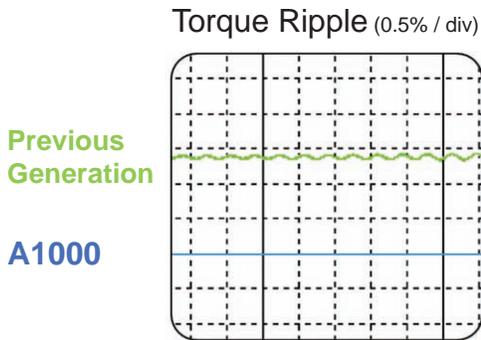
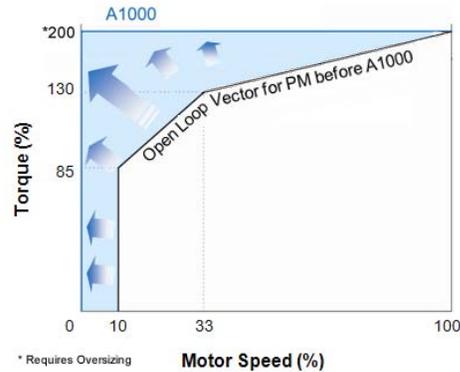
- **Induction Motors**
  - Low cost
  - Widely available
  - Efficient
- **Interior Permanent Magnet (IPM) Motors**
  - Very Compact
  - Highly Efficient
  - Sensorless High Precision Control
- **Surface Permanent Magnet (SPM) Motors**
  - Ultra Compact
  - Highly Efficient



## Outstanding Performance

The A1000 delivers incredible performance, producing up to 200% torque with or without feedback.

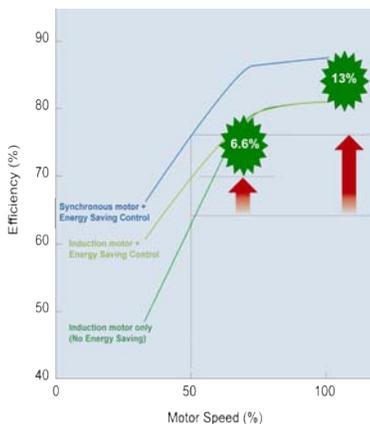
- Continuous Autotuning automatically compensates for changes in motor temperature
- Inertia Autotuning automatically sets gains for speed and torque loops
- Dead-Time Compensation drastically reduces torque ripple at low speeds
- High Frequency Injection (for IPM motors) enables high precision control without feedback, including positioning to within  $\pm 5$  degrees !



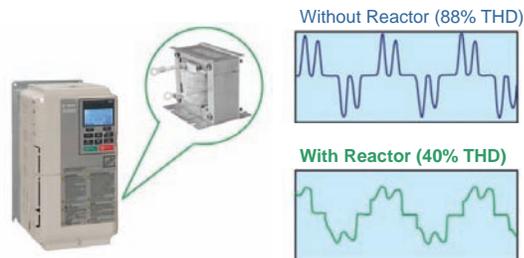
|                     |   |
|---------------------|---|
| Speed Control Range | 1500:1 Closed Loop Vector (Induction and PM Motors) |
|                     | 200:1 Open Loop Vector (Induction Motors)           |
|                     | 100:1 Open Loop Vector (IPM Motors)                 |
| Speed Accuracy      | 0.02% - Closed Loop Vector (Induction Motors)       |
|                     | 0.2% - Open Loop Vector (Induction Motors)          |
|                     | 0.00% - Closed Loop Vector (IPM & SPM Motors)       |
|                     | 0.00% - Open Loop Vector (IPM Motors)               |
| Speed Response      | 60 Hz - Closed Loop Vector                          |
|                     | 10 Hz - Open Loop Vector                            |
| Torque Response     | 300 Hz - Closed Loop Vector                         |

## Environmentally Friendly

Reduce your energy bill and contribute towards a cleaner environment with sustainable features designed into the A1000.



Applying variable speed often results in large energy savings. Combining this with more efficient motors magnifies the result.



The A1000 is offered with DC Link Reactors that reduce harmonic demand from the power system, keeping the power source cleaner and more efficient.



All materials used in the A1000 comply with the directive for Restriction of Hazardous Substances (RoHS)

# Specifications

## 240V Class

| Model                                       | CIMR-AU2A   |                          | 0004             | 0006             | 0008           | 0010             | 0012             | 0018              | 0021             | 0030              | 0040              | 0056 |
|---|---|--------------------------|------------------|------------------|----------------|------------------|------------------|-------------------|------------------|-------------------|-------------------|------|
| Max. Applicable Motor Capacity <sup>1</sup> | HP  | Normal Duty              | 0.75             | 1.5              | 2              | 3                | 3                | 5                 | 7.5              | 10                | 15                | 20   |
|   |   | Heavy Duty               | 0.75             | 1                | 2              | 2                | 3                | 3                 | 5                | 7.5               | 10                | 15   |
| Input                                       | Rated Input Current <sup>2</sup>  | A                        | 3.9              | 7.3              | 8.8            | 10.8             | 13.9             | 18.5              | 24               | 37                | 52                | 68   |
|   |   | Heavy Duty               | 2.9              | 5.8              | 7              | 7.5              | 11               | 15.6              | 18.9             | 28                | 37                | 52   |
| Output                                      | Rated Output Capacity <sup>4</sup>  | kVA                      | 1.3              | 2.3              | 3              | 3.7              | 4.6              | 6.7               | 8                | 11.4              | 15.2              | 21   |
|   |   | Normal Duty <sup>5</sup> | 1.3              | 2.3              | 3              | 3.7              | 4.6              | 6.7               | 8                | 11.4              | 15.2              | 21   |
|   | Heavy Duty  | 1.2 <sup>6</sup>         | 1.9 <sup>6</sup> | 2.6 <sup>6</sup> | 3 <sup>6</sup> | 4.2 <sup>6</sup> | 5.3 <sup>6</sup> | 6.7 <sup>6</sup>  | 9.5 <sup>5</sup> | 12.6 <sup>5</sup> | 17.9 <sup>5</sup> |      |
|   | Rated Output Current  | A                        | 3.5              | 6                | 8              | 9.6              | 12               | 17.5              | 21               | 30                | 40                | 56   |
|   |   | Normal Duty <sup>5</sup> | 3.5              | 6                | 8              | 9.6              | 12               | 17.5              | 21               | 30                | 40                | 56   |
|   | Heavy Duty  | 3.2 <sup>6</sup>         | 5 <sup>6</sup>   | 6.9 <sup>6</sup> | 8 <sup>6</sup> | 11 <sup>6</sup>  | 14 <sup>6</sup>  | 17.5 <sup>6</sup> | 25 <sup>5</sup>  | 33 <sup>5</sup>   | 47 <sup>5</sup>   |      |
| Overload Tolerance                          | Normal Duty Rating: 120% of rated output current for 60 sec.<br>Heavy Duty Rating: 150% of rated output current for 60 sec.<br>(Derating may be required for applications that start and stop frequently) |                          |                  |                  |                |                  |                  |                   |                  |                   |                   |      |
| Carrier Frequency (User Adjustable)         | 2 to 15 kHz   |                          |                  |                  |                |                  |                  |                   |                  |                   |                   |      |
| Max. Output Voltage                         | Three-phase 200 to 240 V (relative to input voltage)  |                          |                  |                  |                |                  |                  |                   |                  |                   |                   |      |
| Max. Output Frequency                       | 400 Hz  |                          |                  |                  |                |                  |                  |                   |                  |                   |                   |      |
| Rated Voltage/Rated Frequency               | Three-phase 200 to 240 Vac 50/60 Hz 270 to 340 Vdc <sup>3</sup>   |                          |                  |                  |                |                  |                  |                   |                  |                   |                   |      |
| Allowable Voltage Fluctuation               | -15% to +10%  |                          |                  |                  |                |                  |                  |                   |                  |                   |                   |      |
| Allowable Frequency Fluctuation             | ±5%   |                          |                  |                  |                |                  |                  |                   |                  |                   |                   |      |
| Braking Transistor                          | Included  |                          |                  |                  |                |                  |                  |                   |                  |                   |                   |      |
| Fan   | No fan  |                          |                  |                  |                |                  | With fan         |                   |                  |                   |                   |      |
| DC Link Choke                               | External Option   |                          |                  |                  |                |                  |                  |                   |                  |                   |                   |      |
| Power Supply                                | kVA   | Normal Duty              | 2.2              | 3.1              | 4.1            | 5.8              | 7.8              | 9.5               | 14               | 18                | 27                | 36   |
|   |   | Heavy Duty               | 1.3              | 2.2              | 3.1            | 4.1              | 5.8              | 7.8               | 9.5              | 14                | 18                | 27   |

| Model                                       | CIMR-AU2A   |                          | 0069            | 0081            | 0110             | 0138             | 0169             | 0211             | 0250             | 0312             | 0360             | 0415 |
|---|---|--------------------------|-----------------|-----------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------|
| Max. Applicable Motor Capacity <sup>1</sup> | HP  | Normal Duty              | 25              | 30              | 40               | 50               | 60               | 75               | 100              | 125              | 150              | 175  |
|   |   | Heavy Duty               | 20              | 25              | 30               | 40               | 50               | 60               | 75               | 100              | 125              | 150  |
| Input                                       | Rated Input Current <sup>2</sup>  | A                        | 80              | 96              | 111              | 136              | 164              | 200              | 271              | 324              | 394              | 471  |
|   |   | Heavy Duty               | 68              | 80              | 82               | 111              | 136              | 164              | 200              | 271              | 324              | 394  |
| Output                                      | Rated Output Capacity <sup>4</sup>  | kVA                      | 26              | 31              | 42               | 53               | 64               | 80               | 95               | 119              | 137              | 158  |
|   |   | Normal Duty <sup>5</sup> | 26              | 31              | 42               | 53               | 64               | 80               | 95               | 119              | 137              | 158  |
|   | Heavy Duty  | 23 <sup>6</sup>          | 29 <sup>6</sup> | 32 <sup>6</sup> | 44 <sup>6</sup>  | 55 <sup>6</sup>  | 69 <sup>7</sup>  | 82 <sup>7</sup>  | 108 <sup>7</sup> | 132 <sup>7</sup> | 158 <sup>5</sup> |      |
|   | Rated Output Current  | A                        | 69              | 81              | 110              | 138              | 169              | 211              | 250              | 312              | 360              | 415  |
|   |   | Normal Duty <sup>5</sup> | 69              | 81              | 110              | 138              | 169              | 211              | 250              | 312              | 360              | 415  |
|   | Heavy Duty  | 60 <sup>6</sup>          | 75 <sup>6</sup> | 85 <sup>5</sup> | 115 <sup>6</sup> | 145 <sup>6</sup> | 180 <sup>7</sup> | 215 <sup>7</sup> | 283 <sup>7</sup> | 346 <sup>7</sup> | 415 <sup>5</sup> |      |
| Overload Tolerance                          | Normal Duty Rating: 120% of rated output current for 60 sec.<br>Heavy Duty Rating: 150% of rated output current for 60 sec.<br>(Derating may be required for applications that start and stop frequently) |                          |                 |                 |                  |                  |                  |                  |                  |                  |                  |      |
| Carrier Frequency (User Adjustable)         | 2 to 15 kHz   |                          |                 |                 |                  |                  | 2 to 10 kHz      |                  |                  |                  |                  |      |
| Max. Output Voltage                         | Three-phase 200 to 240 V (relative to input voltage)  |                          |                 |                 |                  |                  |                  |                  |                  |                  |                  |      |
| Max. Output Frequency                       | 400 Hz (user-set)   |                          |                 |                 |                  |                  |                  |                  |                  |                  |                  |      |
| Rated Voltage/Rated Frequency               | Three-phase 200 to 240 Vac 50/60 Hz 270 to 340 Vdc <sup>3</sup>   |                          |                 |                 |                  |                  |                  |                  |                  |                  |                  |      |
| Allowable Voltage Fluctuation               | -15% to +10%  |                          |                 |                 |                  |                  |                  |                  |                  |                  |                  |      |
| Allowable Frequency Fluctuation             | ±5%   |                          |                 |                 |                  |                  |                  |                  |                  |                  |                  |      |
| Braking Transistor                          | Included  |                          |                 |                 |                  |                  | External Option  |                  |                  |                  |                  |      |
| Fan   | With fan  |                          |                 |                 |                  |                  |                  |                  |                  |                  |                  |      |
| DC Link Choke                               | External Option   |                          |                 |                 |                  |                  | Included         |                  |                  |                  |                  |      |
| Power Supply                                | kVA   | Normal Duty              | 44              | 52              | 51               | 62               | 75               | 91               | 124              | 148              | 180              | 215  |
|   |   | Heavy Duty               | 36              | 44              | 37               | 51               | 62               | 75               | 91               | 124              | 148              | 180  |

\*1. The motor capacity (HP) refers to a NEC rated 4-pole motor. The rated output current of the drive output amps should be equal to or greater than the motor current. Select the appropriate capacity drive if operating the motor continuously above motor nameplate current.

\*2. Assumes operation at the rated output current. Input current rating varies depending on the power supply transformer, input reactor, wiring connections, and power supply impedance.

\*3. DC is not available for UL/CE standards.

\*4. Rated motor capacity is calculated with a rated output voltage of 230V.

\*5. Carrier frequency is set to 2 kHz. Current derating is required in order to raise the carrier frequency.

\*6. Carrier frequency can be increased to 8 kHz while keeping this current derating. Higher carrier frequency settings require derating.

\*7. Carrier frequency can be increased to 5 kHz while keeping this current derating. Higher carrier frequency settings require derating.

## 480V Class

| Model                                       | CIMR-AU4A | 0002   | 0004             | 0005             | 0007             | 0009             | 0011             | 0018             | 0023              | 0031              | 0038              | 0044            | 0058            | 0072            |                 |
|---|-----------|--|------------------|------------------|------------------|------------------|------------------|------------------|-------------------|-------------------|-------------------|-----------------|-----------------|-----------------|-----------------|
| Max. Applicable Motor Capacity <sup>1</sup> | HP        | Normal Duty  | 1                | 2                | 3                | 3                | 5                | 7.5              | 10                | 15                | 20                | 25              | 30              | 40              | 50              |
|   |           | Heavy Duty   | 0.75             | 2                | 3                | 3                | 5                | 5                | 10                | 10                | 15                | 20              | 30              | 30              | 40              |
| Input Rated Input Current <sup>2</sup>      | A         | Normal Duty  | 2.1              | 4.3              | 5.9              | 8.1              | 9.4              | 14               | 20                | 24                | 38                | 51              | 60              | 58              | 71              |
|   |           | Heavy Duty   | 1.8              | 3.2              | 4.4              | 6                | 8.2              | 10.4             | 15                | 20                | 29                | 41              | 51              | 43              | 58              |
| Output Rated Output Capacity <sup>4</sup>   | kVA       | Normal Duty <sup>5</sup>   | 1.6              | 3.1              | 4.1              | 5.3              | 6.7              | 8.5              | 13.3              | 17.5              | 24                | 29              | 34              | 44              | 55              |
|   |           | Heavy Duty   | 1.4 <sup>6</sup> | 2.6 <sup>6</sup> | 3.7 <sup>6</sup> | 4.2 <sup>6</sup> | 5.5 <sup>6</sup> | 7 <sup>6</sup>   | 11.3 <sup>6</sup> | 13.7 <sup>6</sup> | 18.3 <sup>6</sup> | 24 <sup>6</sup> | 30 <sup>6</sup> | 34 <sup>6</sup> | 48 <sup>6</sup> |
| Output Rated Output Current                 | A         | Normal Duty <sup>5</sup>   | 2.1              | 4.1              | 5.4              | 6.9              | 8.8              | 11.1             | 17.5              | 23                | 31                | 38              | 44              | 58              | 72              |
|   |           | Heavy Duty   | 1.8 <sup>6</sup> | 3.4 <sup>6</sup> | 4.8 <sup>6</sup> | 5.5 <sup>6</sup> | 7.2 <sup>6</sup> | 9.2 <sup>6</sup> | 14.8 <sup>6</sup> | 18 <sup>6</sup>   | 24 <sup>6</sup>   | 31 <sup>6</sup> | 39 <sup>6</sup> | 45 <sup>6</sup> | 60 <sup>6</sup> |
| Output Overload Tolerance                   |           | Normal Duty Rating: 120% of rated output current for 60 sec.<br>Heavy Duty Rating: 150% of rated output current for 60 sec.<br>(Derating may be required for repetitive loads) |                  |                  |                  |                  |                  |                  |                   |                   |                   |                 |                 |                 |                 |
| Output Carrier Frequency (User Adjustable)  |           | 2 to 15 kHz  |                  |                  |                  |                  |                  |                  |                   |                   |                   |                 |                 |                 |                 |
| Output Max. Output Voltage                  |           | Three-phase 380 to 480 V (relative to input voltage)   |                  |                  |                  |                  |                  |                  |                   |                   |                   |                 |                 |                 |                 |
| Output Max. Output Frequency                |           | 400 Hz   |                  |                  |                  |                  |                  |                  |                   |                   |                   |                 |                 |                 |                 |
| Power Rated Voltage/Rated Frequency         |           | Three-phase 380 to 480 Vac 50/60 Hz 510 to 680 Vdc <sup>3</sup>  |                  |                  |                  |                  |                  |                  |                   |                   |                   |                 |                 |                 |                 |
| Power Allowable Voltage Fluctuation         |           | -15% to +10%   |                  |                  |                  |                  |                  |                  |                   |                   |                   |                 |                 |                 |                 |
| Power Allowable Frequency Fluctuation       |           | ±5%  |                  |                  |                  |                  |                  |                  |                   |                   |                   |                 |                 |                 |                 |
| Power Braking Transistor                    |           | Included   |                  |                  |                  |                  |                  |                  |                   |                   |                   |                 |                 |                 |                 |
| Power Fan                                   |           | No fan   |                  |                  |                  |                  | With fan         |                  |                   |                   |                   |                 |                 |                 |                 |
| Power DC Link Choke                         |           | External Option  |                  |                  |                  |                  |                  |                  |                   |                   |                   |                 |                 | Included        |                 |
| Power Power Supply                          | kVA       | Normal Duty  | 2.3              | 4.3              | 6.1              | 8.1              | 10               | 14.5             | 19.4              | 28.4              | 37.5              | 46.6            | 54.9            | 53              | 64.9            |
|   |           | Heavy Duty   | 1.4              | 2.3              | 4.3              | 6.1              | 8.1              | 10               | 14.6              | 19.2              | 28.4              | 37.5            | 46.6            | 39.3            | 53              |

| Model                                       | CIMR-AU4A | 0088   | 0103            | 0139            | 0165             | 0208             | 0250             | 0296             | 0362             | 0414             | 0515             | 0675             | 0930             | 1200             |                   |
|---|-----------|--|-----------------|-----------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|-------------------|
| Max. Applicable Motor Capacity <sup>1</sup> | HP        | Normal Duty  | 60              | 75              | 100              | 125              | 150              | 200              | 250              | 300              | 350              | 450              | 600              | 800              | 1000              |
|   |           | Heavy Duty   | 60              | 60              | 75               | 100              | 150              | 150              | 200              | 250              | 300              | 350              | 500              | 700              | 900               |
| Input Rated Input Current <sup>2</sup>      | A         | Normal Duty  | 86              | 105             | 142              | 170              | 207              | 248              | 300              | 346              | 410              | 465              | 657              | 922              | 1158              |
|   |           | Heavy Duty   | 71              | 86              | 105              | 142              | 170              | 207              | 248              | 300              | 346              | 410              | 584              | 830              | 1031              |
| Output Rated Output Capacity <sup>4</sup>   | kVA       | Normal Duty <sup>5</sup>   | 67              | 78              | 106              | 126              | 159              | 191              | 226              | 276              | 316              | 392              | 514              | 709              | 915               |
|   |           | Heavy Duty   | 57 <sup>6</sup> | 69 <sup>6</sup> | 85 <sup>6</sup>  | 114 <sup>7</sup> | 137 <sup>7</sup> | 165 <sup>7</sup> | 198 <sup>7</sup> | 232 <sup>7</sup> | 282 <sup>5</sup> | 343 <sup>5</sup> | 461 <sup>5</sup> | 617 <sup>5</sup> | 831 <sup>5</sup>  |
| Output Rated Output Current                 | A         | Normal Duty <sup>5</sup>   | 88              | 103             | 139              | 165              | 208              | 250              | 296              | 362              | 414              | 515              | 675              | 930              | 1200              |
|   |           | Heavy Duty   | 75 <sup>6</sup> | 91 <sup>6</sup> | 112 <sup>6</sup> | 150 <sup>7</sup> | 180 <sup>7</sup> | 216 <sup>7</sup> | 260 <sup>7</sup> | 304 <sup>7</sup> | 370 <sup>5</sup> | 450 <sup>5</sup> | 605 <sup>5</sup> | 810 <sup>5</sup> | 1090 <sup>5</sup> |
| Output Overload Tolerance                   |           | Normal Duty Rating: 120% of rated output current for 60 sec.<br>Heavy Duty Rating: 150% of rated output current for 60 sec.<br>(Derating may be required for repetitive loads) |                 |                 |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |                   |
| Output Carrier Frequency (User Adjustable)  |           | 2 to 15 kHz  |                 |                 | 2 to 10 kHz      |                  |                  |                  |                  |                  | 2 to 5 kHz       |                  |                  |                  |                   |
| Output Max. Output Voltage                  |           | Three-phase 380 to 480 V (relative to input voltage)   |                 |                 |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |                   |
| Output Max. Output Frequency                |           | 400 Hz (user-set)  |                 |                 |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |                   |
| Power Rated Voltage/Rated Frequency         |           | Three-phase 380 to 480 Vac 50/60 Hz 510 to 680 Vdc <sup>3</sup>  |                 |                 |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |                   |
| Power Allowable Voltage Fluctuation         |           | -15% to +10%   |                 |                 |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |                   |
| Power Allowable Frequency Fluctuation       |           | ±5%  |                 |                 |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |                   |
| Power Braking Transistor                    |           | External Option  |                 |                 |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |                   |
| Power Fan                                   |           | With fan   |                 |                 |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |                   |
| Power DC Link Choke                         |           | Included   |                 |                 |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |                   |
| Power Power Supply                          | kVA       | Normal Duty  | 78.6            | 96              | 130              | 156              | 189              | 227              | 274              | 316              | 375              | 425              | 601              | 843              | 601               |
|   |           | Heavy Duty   | 64.9            | 78.6            | 96               | 130              | 155              | 189              | 227              | 274              | 316              | 375              | 534              | 759              | 508               |

\*1. The motor capacity (HP) refers to a NEC rated 4-pole motor. The rated output current of the drive output amps should be equal to or greater than the motor current. Select the appropriate capacity drive if operating the motor continuously above motor nameplate current.

\*2. Assumes operation at the rated output current. Input current rating varies depending on the power supply transformer, input reactor, wiring connections, and power supply impedance.

\*3. DC is not available for UL/CE standards.

\*4. Rated motor capacity is calculated with a rated output voltage of 460V.

\*5. Carrier frequency is set to 2 kHz. Current derating is required in order to raise the carrier frequency.

\*6. Carrier frequency can be increased to 8 kHz while keeping this current derating. Higher carrier frequency settings require derating.

\*7. Carrier frequency can be increased to 5 kHz while keeping this current derating. Higher carrier frequency settings require derating.

# Specifications

## 600V Class

| Model                                       | CIMR-AU5A                          |   | 0003  | 0004             | 0006             | 0009             | 0011             | 0017             | 0022            | 0027            | 0032            |                 |
|---|------------------------------------|---|---|------------------|------------------|------------------|------------------|------------------|-----------------|-----------------|-----------------|-----------------|
| Max. Applicable Motor Capacity <sup>1</sup> | HP                                 | Normal Duty   | 2   | 3                | 5                | 7.5              | 10               | 15               | 20              | 25              | 30              |                 |
|   |                                    | Heavy Duty  | 1   | 2                | 3                | 5                | 7.5              | 10               | 15              | 20              | 25              |                 |
| Input                                       | Rated Input Current <sup>2</sup>   | A   | Normal Duty   | 3.6              | 5.1              | 8.3              | 12               | 16               | 23              | 31              | 38              | 45              |
|   |                                    |   | Heavy Duty  | 1.9              | 3.6              | 5.1              | 8.3              | 12               | 16              | 23              | 31              | 38              |
| Output                                      | Rated Output Capacity <sup>3</sup> | kVA   | Normal Duty <sup>4</sup>  | 2.7              | 3.9              | 6.1              | 9                | 11               | 17              | 22              | 27              | 32              |
|   |                                    |   | Heavy Duty  | 1.7 <sup>5</sup> | 3.5 <sup>5</sup> | 4.1 <sup>5</sup> | 6.3 <sup>5</sup> | 9.8 <sup>5</sup> | 12 <sup>5</sup> | 17 <sup>5</sup> | 22 <sup>5</sup> | 27 <sup>5</sup> |
|   | Rated Output Current               | A   | Normal Duty <sup>4</sup>  | 2.7              | 3.9              | 6.1              | 9                | 11               | 17              | 22              | 27              | 32              |
|   |                                    |   | Heavy Duty  | 1.7 <sup>5</sup> | 3.5 <sup>5</sup> | 4.1 <sup>5</sup> | 6.3 <sup>5</sup> | 9.8 <sup>5</sup> | 12 <sup>5</sup> | 17 <sup>5</sup> | 22 <sup>5</sup> | 27 <sup>5</sup> |
|   | Overload Tolerance                 |   | Normal Duty Rating: 120% of rated output current for 60 sec.<br>Heavy Duty Rating: 150% of rated output current for 60 sec.<br>(Derating may be required for applications that start and stop frequently) |                  |                  |                  |                  |                  |                 |                 |                 |                 |
|   | Carrier Frequency                  |   | 2 to 15 kHz   |                  |                  |                  |                  |                  |                 |                 |                 |                 |
| Max. Output Voltage                         |                                    | Three-phase: 500 to 600 V (proportional to input voltage) |   |                  |                  |                  |                  |                  |                 |                 |                 |                 |
| Max. Output Frequency                       |                                    | 400 Hz  |   |                  |                  |                  |                  |                  |                 |                 |                 |                 |
| Power                                       | Rated Voltage/Rated Frequency      |   | Three-phase 500 to 600 Vac 50/60 Hz   |                  |                  |                  |                  |                  |                 |                 |                 |                 |
|   | Allowable Voltage Fluctuation      |   | -10 (-15) to +10%   |                  |                  |                  |                  |                  |                 |                 |                 |                 |
|   | Allowable Frequency Fluctuation    |   | ±5%   |                  |                  |                  |                  |                  |                 |                 |                 |                 |
|   | Braking Transistor                 |   | Included  |                  |                  |                  |                  |                  |                 |                 |                 |                 |
|   | Fan                                |   | No fan  |                  |                  |                  |                  | With fan         |                 |                 |                 |                 |
|   | DC Link Choke                      |   | Included  |                  |                  |                  |                  |                  |                 |                 |                 |                 |
|   | Power Supply                       | kVA   | Normal Duty   | 4.1              | 5.8              | 9.5              | 14               | 18               | 26              | 35              | 43              | 51              |
| Heavy Duty                                  |                                    |   | 2.2   | 4.1              | 5.8              | 9.5              | 14               | 18               | 26              | 35              | 43              |                 |

| Model                                       | CIMR-AU5A                          |   | 0041  | 0052            | 0062            | 0077            | 0099            | 0125            | 0145 | 0192 | 0242 |     |
|---|------------------------------------|---|---|-----------------|-----------------|-----------------|-----------------|-----------------|------|------|------|-----|
| Max. Applicable Motor Capacity <sup>1</sup> | HP                                 | Normal Duty   | 40  | 50              | 60              | 75              | 100             | 125             | 150  | 200  | 250  |     |
|   |                                    | Heavy Duty  | 30  | 40              | 50              | 60              | 75              | 100             | 125  | 150  | 200  |     |
| Input                                       | Rated Input Current <sup>2</sup>   | A   | Normal Duty   | 41              | 52              | 62              | 77              | 99              | 125  | 145  | 192  | 242 |
|   |                                    |   | Heavy Duty  | 32              | 41              | 52              | 62              | 77              | 100  | 130  | 172  | 200 |
| Output                                      | Rated Output Capacity <sup>3</sup> | kVA   | Normal Duty <sup>4</sup>  | 41              | 52              | 62              | 77              | 99              |      |      |      |     |
|   |                                    |   | Heavy Duty  | 32 <sup>5</sup> | 41 <sup>5</sup> | 52 <sup>5</sup> | 62 <sup>5</sup> | 77 <sup>6</sup> |      |      |      |     |
|   | Rated Output Current               | A   | Normal Duty <sup>4</sup>  | 41              | 52              | 62              | 77              | 99              |      |      |      |     |
|   |                                    |   | Heavy Duty  | 32 <sup>5</sup> | 41 <sup>5</sup> | 52 <sup>5</sup> | 62 <sup>5</sup> | 77 <sup>6</sup> |      |      |      |     |
|   | Overload Tolerance                 |   | Normal Duty Rating: 120% of rated output current for 60 sec.<br>Heavy Duty Rating: 150% of rated output current for 60 sec.<br>(Derating may be required for applications that start and stop frequently) |                 |                 |                 |                 |                 |      |      |      |     |
|   | Carrier Frequency                  |   | 2 to 15 kHz   |                 |                 |                 |                 |                 |      |      |      |     |
| Max. Output Voltage                         |                                    | Three-phase: 500 to 600 V (proportional to input voltage) |   |                 |                 |                 |                 |                 |      |      |      |     |
| Max. Output Frequency                       |                                    | 400 Hz (user-set)   |   |                 |                 |                 |                 |                 |      |      |      |     |
| Power                                       | Rated Voltage/Rated Frequency      |   | Three-phase 500 to 600 Vac 50/60 Hz   |                 |                 |                 |                 |                 |      |      |      |     |
|   | Allowable Voltage Fluctuation      |   | -10 (-15) to +10%   |                 |                 |                 |                 |                 |      |      |      |     |
|   | Allowable Frequency Fluctuation    |   | ±5%   |                 |                 |                 |                 |                 |      |      |      |     |
|   | Braking Transistor                 |   | Data not available  |                 |                 |                 |                 |                 |      |      |      |     |
|   | Fan                                |   | Data not available  |                 |                 |                 |                 |                 |      |      |      |     |
|   | DC Link Choke                      |   | Data not available  |                 |                 |                 |                 |                 |      |      |      |     |
|   | Power Supply                       | kVA   | Normal Duty   | 50              | 62              | 75              | 91              | 123             |      |      |      |     |
| Heavy Duty                                  |                                    |   | 38  | 50              | 62              | 75              | 91              |                 |      |      |      |     |

\*1. The motor capacity (HP) refers to a NEC rated 4-pole motor. The rated output current of the drive output amps should be equal to or greater than the motor current. Select the appropriate capacity drive if operating the motor continuously above motor nameplate current.

\*2. Assumes operation at the rated output current. Input current rating varies depending on the power supply transformer, input reactor, wiring connections, and power supply impedance.

\*3. Rated motor capacity is calculated with a rated output voltage of 575V.

\*4. Carrier frequency is set to 2 kHz. Current derating is required to raise the carrier frequency.

\*5. Carrier frequency can be increased to 8 kHz while keeping this current derating. Higher carrier frequency settings require derating.

\*6. Carrier frequency can be increased to 5 kHz while keeping this current derating. Higher carrier frequency settings require derating.

## Common Specifications

| Item                         | Specifications  |   |
|------------------------------|---|---|
| Control Characteristics      | Control Methods   | •V/f Control (V/f) •V/f Control with PG (V/f w/PG) •Open Loop Vector Control (OLV) •Closed Loop Vector Control (CLV)<br>•Open Loop Vector Control for PM (OLV/PM) •Advanced Open Loop Vector Control for PM (AOLV/PM)<br>•Closed Loop Vector Control for PM (CLV/PM)<br><b>Note: PM motor control modes are not available on 600V class drives, CIMR-A□5A□□□□□□.</b>                          |
|                              | Frequency Control Range   | 0.01 to 400 Hz (up to 1000 Hz is available with optional software)  |
|                              | Frequency Accuracy (Temperature Fluctuation)  | Digital input: within ±0.01% of the max output frequency (-10 to +40 °C)<br>Analog input: within ±0.1% of the max output frequency (25 °C ±10 °C)   |
|                              | Frequency Setting Resolution  | Digital inputs: 0.01 Hz<br>Analog inputs: 1/2048 of the maximum output frequency setting (11 bit plus sign)   |
|                              | Output Frequency Resolution   | 0.001 Hz  |
|                              | Frequency Setting Methods   | -10 to +10 V, 0 to +10 V, 4 to 20 mA, Pulse Train Input   |
|                              | Starting Torque <1>   | V/f, V/f w/PG: 150% at 3 Hz OLV: 200% at 0.3 Hz<br>CLV, AOLV/PM, CLV/PM: 200% at 0 r/min OLV/PM: 100% at 5% speed   |
|                              | Speed Control Range <1>   | V/f, V/f w/PG: 1:40 OLV: 1:200 CLV, CLV/PM: 1:1500<br>OLV/PM: 1:20 AOLV/PM: 1:100   |
|                              | Speed Control Accuracy <1>  | OLV: ±0.2% (25 °C ±10 °C) CLV: ±0.01% (25 °C ±10 °C)  |
|                              | Speed Response <1>  | OLV, OLV/PM, AOLV/PM: 10 Hz CLV, CLV/PM: 50 Hz  |
|                              | Torque Limit  | Separate limits in four quadrants (available in OLV, CLV, AOLV/PM, CLV/PM)  |
|                              | Accel/Decel Time  | 0.0 to 6000.0 s (4 selectable combinations of independent acceleration and deceleration settings)   |
|                              | Braking Torque  | Approx. 20% (approx. 125% when using braking resistor) <2><br>• Short-time decel torque <3> : over 100% for 0.5/ 1.0 HP motors, over 50% for 2.0 HP motors, and over 20% for 3.0 HP and above motors <4> (overexcitation braking/High Slip Braking: approx. 40%).<br>• Continuous regenerative torque: approx. 20% <5> (approx. 125% with dynamic braking resistor option <6> : 10% ED, 10s). |
|                              | Braking Transistor  | Models 2A0004 to 2A0138, 4A0002 to 4A0072, and 5A0003 to 5A0032 have a built-in braking transistor.   |
| V/f Characteristics          | User-selected programs and V/f preset patterns possible   |   |
| Main Control Functions       | Torque Control, Droop Control, Speed/torque Control Switching, Feed Forward Control, Zero Servo Function, Momentary Power Loss Ride-Thru, Speed Search, Overtorque/Undertorque Detection, Torque Limit, 17 Step Speed (max), Accel/decelswitch, S-curve Accel/decelswitch, 3-wire Sequence, Auto-tuning (rotational, stationary tuning), Dwell, Cooling Fan on/off Switch, Slip Compensation, Torque Compensation, Frequency Jump, Upper/lower Limits for Frequency Reference, DC Injection Braking at Start and Stop, Overexcitation Braking, High Slip Braking, PID Control (with sleep function), Energy Saving Control, Modbus Comm. (RS-422/485 max, 115.2 kbps), Fault Restart, Application Presets, DriveWorksEZ (customized function), Removable Terminal Block with Parameter Backup Function, Online Tuning, KEB, Overexcitation Deceleration, Inertia (ASR) Tuning, Overvoltage Suppression, High Frequency Injection. |   |
| Protection Function          | Motor Protection  | Electronic thermal overload relay   |
|                              | Momentary Overcurrent Protection  | Drive stops when output current exceeds 200% of Heavy Duty Rating   |
|                              | Overload Protection   | Drive stops after 60 s at 150% of rated Heavy Duty output current <5>   |
|                              | Overvoltage Protection  | 240V class: Faults when DC bus voltage exceeds approx. 410 V; 480V class: Faults when DC bus voltage exceeds approx. 820 V;<br>600V class: Faults when DC bus voltage exceeds approx. 1040 V.   |
|                              | Undervoltage Protection   | 240V class: Faults when DC bus voltage falls below approx. 190 V; 480V class: Faults when DC bus voltage falls below approx. 380 V;<br>600V class: Faults when DC bus voltage falls below approx. 475 V.  |
|                              | Momentary Power Loss Ride-Thru  | Stops modulating after 15 ms or longer power loss <6>. Resumes operation if power loss is less than 2 s (standard) <7>  |
|                              | Heatsink Overheat Protection  | Thermistor  |
|                              | Braking Resistance Overheat Protection  | Overheat input signal for braking resistor (Optional ERF-type, 3% ED)   |
|                              | Stall Prevention  | Stall Prevention is available during acceleration, deceleration, and during run.  |
|                              | Ground Fault Protection   | Electronic circuit protection <8>   |
| Operating Environment        | Charge LED  | Remains lit until DC bus voltage falls below 50 V   |
|                              | Area of Use   | Indoors   |
|                              | Ambient Temperature   | -10 to +50°C (Chassis Installation)<br>-10 to +40°C (Chassis with zero side clearance, or Type 1)   |
|                              | Humidity  | 95% RH or less (no condensation)  |
|                              | Storage Temperature   | -20 to +60°C (short-term temperature during transportation)   |
|                              | Altitude  | Up to 1000 meters without derating, up to 3000 m with output current and voltage derating   |
| Standards and Certifications | Shock   | 10 to 20 Hz: 9.8 m/s <sup>2</sup> 20 to 55 Hz: 5.9 m/s <sup>2</sup> (2A0004 to 2A0211, 4A0002 to 4A0165, and 5A0003 to 5A0032)<br>2.0 m/s <sup>2</sup> (2A0250 to 2A0415 and 4A0208 to 4A0675)  |
|                              | Standards and Certifications  | UL 508C, CSA C22.2, IEC/EN 61508, EN 61800-5-1 <9>  |
| Protection Design            | IP00 enclosure, IP20/NEMA Type 1 enclosure <10>   |   |

- <1> The accuracy of these values depends on motor characteristics, ambient conditions, and drive settings. Specifications may vary with different motors and with changing motor temperature. Contact Yaskawa for consultation.
- <2> Disable Stall Prevention during deceleration (L3-04 = 0) when using a regenerative converter, a regenerative unit, a braking resistor or the Braking Resistor Unit. The default setting for the Stall Prevention function will interfere with the braking resistor.
- <3> Instantaneous average deceleration torque refers to the torque required to decelerate the motor (uncoupled from the load) from the rated motor speed down to zero in the shortest time.
- <4> Actual specifications may vary depending on motor characteristics.
- <5> Overload protection may be triggered when operating with 150% of the rated output current if the output frequency is less than 6 Hz.
- <6> May be shorter due to load conditions and motor speed.
- <7> A separate Momentary Power Loss Ride-Thru Unit is required for models 2A0004 to 2A0056, 4A0002 to 4A0031, and 5A0003 to 5A0032 if the application needs to continue running for up to 2 seconds during a momentary power loss.
- <8> Ground protection cannot be provided when the impedance of the ground fault path is too low, or when the drive is powered up while a ground fault is present at the output.
- <9> Terminals H1, H2, DM+, and DM- on 600 V class models are designed to the functionality, but are not certified to Insulation coordination: class1.
- <10> Removing the top protective cover or bottom conduit bracket from an IP20/NEMA Type 1 enclosure drive voids NEMA Type 1 protection while maintaining IP20 conformity. This is applicable to models 2A0004 to 2A0211, 4A0002 to 4A0165, and 5A0003 to 5A0032.

# Drive Selection

## Model Number Key

CIMR-AU 2 A 0001 F A A

AC Drive

A1000 Series

Design Revision

| No. | Voltage Class |
|-----|---------------|
| 2A  | 3-phase, 240V |
| 4A  | 3-phase, 480V |
| 5A  | 3-phase, 600V |

| No. | Environmental Specification |
|-----|-----------------------------|
| A   | Standard                    |
| M   | Humidity, dust resistant    |
| S   | Shock, vibration            |

Note: Contact Yaskawa for more information on environmental tolerance specifications.

| No. | Enclosure Type |
|-----|----------------|
| A   | IP00           |
| F   | NEMA Type1     |

| No.                         | Output Current Code (A) |
|-----------------------------|-------------------------|
| See chart on previous page. |                         |

Note: Current codes are equivalent to the Normal Duty current rating.

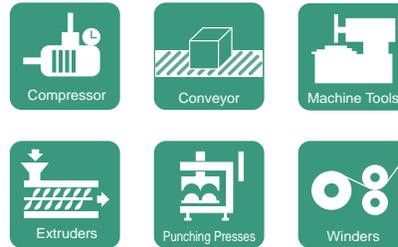
The A1000 drive can be sized to maximize its capability based on the application type. For applications with little or no overload requirements, size the drive as “Normal Duty.” For applications requiring more than 120% for 60 seconds, size the drive as “Heavy Duty.” See the chart on the next page to select a specific model.

| Duty Rating       | Normal Duty      | Heavy Duty       |
|-------------------|------------------|------------------|
| Overload capacity | 120% for 60 sec. | 150% for 60 sec. |

### Normal Duty Applications



### Heavy Duty Applications

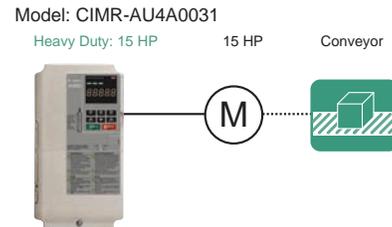
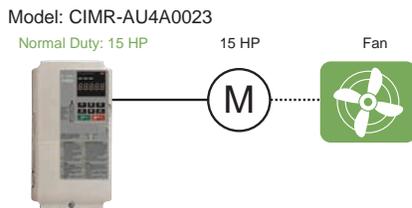


#### Selecting a Drive

For a fan application using a 15 HP motor, select CIMR-AU4A0023 and set it for Normal Duty (C6-01 = 1).

#### Selecting a Drive

For an extruder application using a 15 HP motor, select CIMR-AU4A0031 and set it for Heavy Duty (default).



# Drive Selection

| HP   | Three-Phase 240V |              |             |              | Three-Phase 480V |              |             |              | Three-Phase 600V |              |             |              |
|------|------------------|--------------|-------------|--------------|------------------|--------------|-------------|--------------|------------------|--------------|-------------|--------------|
|      | Normal Duty      |              | Heavy Duty  |              | Normal Duty      |              | Heavy Duty  |              | Normal Duty      |              | Heavy Duty  |              |
|      | Model CIMR-      | Rated Output | Model CIMR- | Rated Output | Model CIMR-      | Rated Output | Model CIMR- | Rated Output | Model CIMR-      | Rated Output | Model CIMR- | Rated Output |
| 0.75 | AU2A0004         | 3.5 A        | AU2A0004    | 3.2 A        | AU4A0002         | 2.1 A        | AU4A0002    | 1.8 A        |                  |              | AU5A0003    | 1.7 A        |
| 1    |                  |              | AU2A0006    | 5 A          |                  |              |             |              | AU5A0003         | 2.7 A        |             |              |
| 1.5  | AU2A0006         | 6 A          |             |              |                  |              | AU4A0004    | 3.4 A        |                  |              |             |              |
| 2    | AU2A0008         | 8 A          | AU2A0008    | 6.9 A        | AU4A0004         | 4.1 A        |             |              |                  |              | AU5A0004    | 3.5 A        |
|      |                  |              | AU2A0010    | 8 A          |                  |              |             |              |                  |              |             |              |
| 3    | AU2A0010         | 9.6 A        | AU2A0012    | 11 A         | AU4A0005         | 5.4 A        | AU4A0005    | 4.8 A        | AU5A0004         | 3.9 A        | AU5A0006    | 4.1 A        |
|      | AU2A0012         | 12 A         | AU2A0018    | 14 A         | AU4A0007         | 6.9 A        | AU4A0007    | 5.5 A        |                  |              |             |              |
| 5    | AU2A0018         | 17.5 A       | AU2A0021    | 17.5 A       | AU4A0009         | 8.8 A        | AU4A0009    | 7.2 A        | AU5A0006         | 6.1 A        | AU5A0009    | 6.3 A        |
|      |                  |              |             |              |                  |              | AU4A0011    | 9.2 A        |                  |              |             |              |
| 7.5  | AU2A0021         | 21 A         | AU2A0030    | 25 A         | AU4A0011         | 11.1 A       |             |              | AU5A0009         | 9 A          | AU5A0011    | 9.8 A        |
|      |                  |              |             |              |                  |              | AU4A0018    | 14.8 A       |                  |              |             |              |
| 10   | AU2A0030         | 30 A         | AU2A0040    | 33 A         | AU4A0018         | 17.5 A       | AU4A0023    | 18 A         | AU5A0011         | 11 A         | AU5A0017    | 12.5 A       |
| 15   | AU2A0040         | 40 A         | AU2A0056    | 47 A         | AU4A0023         | 23 A         | AU4A0031    | 24 A         | AU5A0017         | 17 A         | AU5A0022    | 17 A         |
| 20   | AU2A0056         | 56 A         | AU2A0069    | 60 A         | AU4A0031         | 31 A         | AU4A0038    | 31 A         | AU5A0022         | 22 A         | AU5A0027    | 22 A         |
| 25   | AU2A0069         | 69 A         | AU2A0081    | 75 A         | AU4A0038         | 38 A         | AU4A0044    | 39 A         | AU5A0027         | 27 A         | AU5A0032    | 27 A         |
| 30   | AU2A0081         | 81 A         | AU2A0110    | 85 A         | AU4A0044         | 44 A         | AU4A0058    | 45 A         | AU5A0032         | 32 A         | AU5A0041    | 32 A         |
| 40   | AU2A0110         | 110 A        | AU2A0138    | 115 A        | AU4A0058         | 58 A         | AU4A0072    | 60 A         | AU5A0041         | 41 A         | AU5A0052    | 41 A         |
| 50   | AU2A0138         | 138 A        | AU2A0169    | 145 A        | AU4A0072         | 72 A         | AU4A0088    | 75 A         | AU5A0052         | 52 A         | AU5A0062    | 52 A         |
| 60   | AU2A0169         | 169 A        | AU2A0211    | 180 A        | AU4A0088         | 88 A         | AU4A0103    | 91 A         | AU5A0062         | 62 A         | AU5A0077    | 62 A         |
| 75   | AU2A0211         | 211 A        | AU2A0250    | 215 A        | AU4A0103         | 103 A        | AU4A0139    | 112 A        | AU5A0077         | 77 A         | AU5A0099    | 77 A         |
| 100  | AU2A0250         | 250 A        | AU2A0312    | 283 A        | AU4A0139         | 139 A        | AU4A0165    | 150 A        | AU5A0099         | 99 A         | AU5A0125    | 100 A        |
| 125  | AU2A0312         | 312 A        | AU2A0360    | 346 A        | AU4A0165         | 165 A        | AU4A0208    | 180 A        | AU5A0125         | 125 A        | AU5A0145    | 130 A        |
| 150  | AU2A0360         | 360 A        | AU2A0415    | 415 A        | AU4A0208         | 208 A        | AU4A0250    | 216 A        | AU5A0145         | 145 A        |             |              |
| 175  | AU2A0415         | 415 A        |             |              |                  |              |             |              |                  |              | AU5A0192    | 172 A        |
| 200  |                  |              |             |              | AU4A0250         | 250 A        | AU4A0296    | 260 A        | AU5A0192         | 192 A        |             |              |
| 250  |                  |              |             |              | AU4A0296         | 296 A        | AU4A0362    | 304 A        | AU5A0242         | 242 A        |             |              |
| 300  |                  |              |             |              | AU4A0362         | 362 A        | AU4A0414    | 370 A        |                  |              |             |              |
| 350  |                  |              |             |              | AU4A0414         | 414 A        | AU4A0515    | 450 A        |                  |              |             |              |
| 400  |                  |              |             |              |                  |              |             |              |                  |              |             |              |
| 450  |                  |              |             |              | AU4A0515         | 515 A        | AU4A0675    | 605 A        |                  |              |             |              |
| 500  |                  |              |             |              |                  |              |             |              |                  |              |             |              |
| 550  |                  |              |             |              | AU4A0675         | 675 A        |             |              |                  |              |             |              |
| 600  |                  |              |             |              |                  |              | AU4A0930    | 810 A        |                  |              |             |              |
| 700  |                  |              |             |              |                  |              |             |              |                  |              |             |              |
| 750  |                  |              |             |              | AU4A0930         | 930 A        |             |              |                  |              |             |              |
| 800  |                  |              |             |              |                  |              | AU4A1200    | 1090 A       |                  |              |             |              |
| 900  |                  |              |             |              |                  |              |             |              |                  |              |             |              |
| 1000 |                  |              |             |              | AU4A1200         | 1200 A       |             |              |                  |              |             |              |

# Control Accessories Selection

## Control Accessories

### I/O and Communication Modules

| Type                       | Name                            | Model  | Function   |
|----------------------------|---------------------------------|--------|--|
| I/O Expansion Cards        | Analog input                    | AI-A3  | <ul style="list-style-type: none"> <li>Allows high precision, high resolution analog reference input</li> <li>Input channels: 3</li> <li>Voltage input: -10 to 10 Vdc (20 k<math>\Omega</math>), 13-bit signed</li> <li>Current input: 4 to 20 mA or 0 to 20 mA (250 <math>\Omega</math>), 12 bit</li> </ul> |
|                            | Analog monitor                  | AO-A3  | <ul style="list-style-type: none"> <li>Provides extra multi-function analog output terminals</li> <li>Output channels: 2</li> <li>Output voltage: -10 to 10 V, 11 bit (signed)</li> </ul>  |
|                            | Digital Input                   | DI-A3  | <ul style="list-style-type: none"> <li>Sets the frequency reference by digital inputs</li> <li>Input channels: 16 (including SET signal and SIGN signal)</li> <li>Input signal type: BCD 16-bit (4-digit), 12-bit (3-digit), 8 bit (2-digit)</li> <li>Input signal: 24 Vdc, 8 mA</li> </ul>                  |
|                            | Digital output                  | DO-A3  | <ul style="list-style-type: none"> <li>Provides extra insulated multi-function digital outputs</li> <li>Photocoupler relays: 6 (48 V, up to 50 mA)</li> <li>Contact relays: 2 (250 Vac/up to 1 A, 30 Vdc/up to 1 A)</li> </ul>   |
| Drive Mounted Option Cards | Line Driver Encoder interface   | PG-X3  | <ul style="list-style-type: none"> <li>For speed feedback input by connecting a motor encoder</li> <li>A QUAD B, and Z output matches RS-422 level, line driver, 300 kHz max</li> <li>Encoder power supply: 5 V or 12 V, max current 200 mA</li> </ul>   |
|                            | Complimentary Encoder interface | PG-B3  | <ul style="list-style-type: none"> <li>For speed feedback input by connecting a motor encoder</li> <li>A QUAD B, and Z output, HTL encoder connection, 50 kHz max</li> <li>Output: open collector 24 V max. 30 mA</li> <li>Encoder power supply: 12 V, max current 200 mA</li> </ul>                         |
|                            | Resolver Interface              | PG-RT3 | For speed feedback   |
| Communication Cards        | EtherNet/IP                     | SI-EN3 | Connects to an EtherNet/IP network   |
|                            | Modbus TCP/IP                   | SI-EM3 | Connects to a Modbus TCP/IP network  |
|                            | DeviceNet                       | SI-N3  | Connects to a DeviceNet network  |
|                            | PROFIBUS-DP                     | SI-P3  | Connects to a PROFIBUS-DP network  |
|                            | MECHATROLINK-II                 | SI-T3  | Connects to a MECHATROLINK-II network.   |
|                            | PROFINET                        | SI-EP3 | Connects to a PROFINET network   |

Note: When using configuration software installed in a drive on various field networks, a file is required to connect the software to the drive.

\* Consult factory for availability

### 24Vdc Auxiliary Control Power Input

The 24Vdc auxiliary control power input maintains drive control circuit power in the event of a main power outage. The control circuit keeps the network communications and I/O data operational in the event of a power outage. It supplies external power to the control circuit only.

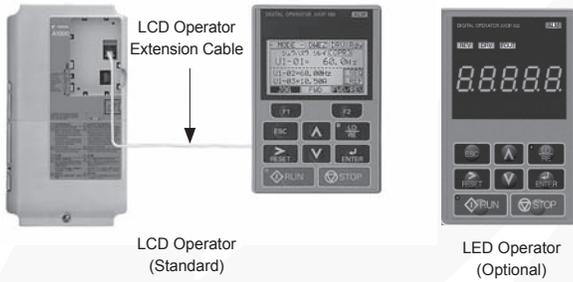
| Drive Model         | Part No. |
|---------------------|----------|
| 240V Class          | PS-A10L  |
| 480V and 600V Class | PS-A10H  |



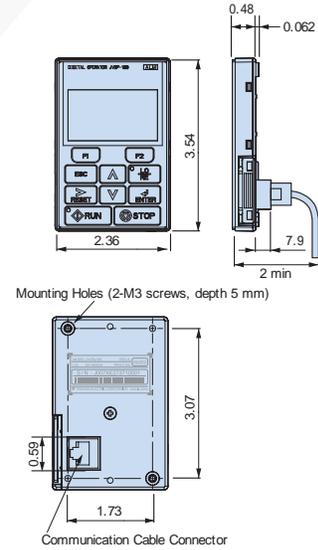
# Control Accessories Selection

## Operator Interfaces

The A1000 includes a multi-language LCD interface as standard. A separately sold LED version is also available.



## Dimensions (inches)



### Operator

| Type | Part Number         |
|------|---------------------|
| LCD  | JVOP-180 (Standard) |
| LED  | JVOP-182 (Optional) |

### Operator Extension Cables

| Part Number | Description           |
|-------------|-----------------------|
| UWR0051     | 3 ft Extension Cable  |
| UWR0052     | 10 ft Extension Cable |

For remote installation (e.g. cabinet door), use one of the following membrane kits.

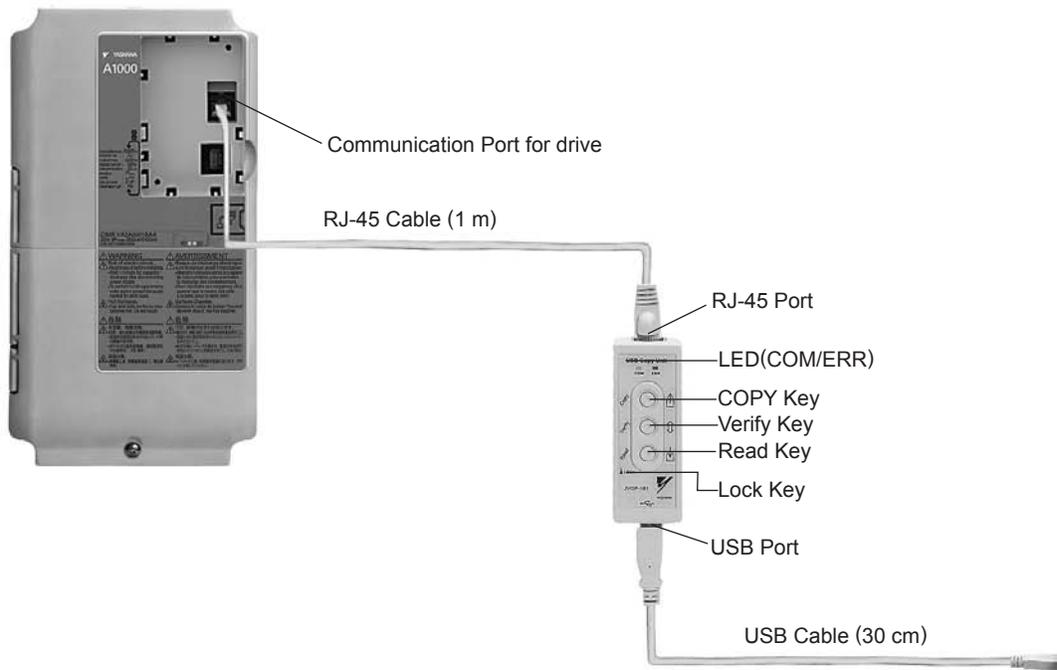
| Part Number                          | Item | Installation   |
|--------------------------------------|------|--|
| UUX000526<br>(Blank Membrane)        |      | <p>Side view of assembled kit</p> <p>Digital operator cable with minimum bend radius</p> <p>3.0' minimum</p> |
| UUX000527<br>(Yaskawa Logo Membrane) |      |  |

## USB Interface Cable (for direct connection between the A1000 and a computer)

Requires A1000 USB device driver file, installed as part of DriveWizard® Industrial (SW.DW.30), available at Yaskawa.com

| Part Number | Description                                  |
|-------------|--|
| UWR-0638    | USB Cable, 10 ft, male A-type to male B-type |

## USB Copy Unit (for downloading the same configuration to multiple drives)\*



| Part Number | Description                                  |
|-------------|--|
| JVOP-181    | USB Copy Unit with RJ-45 Cable and USB Cable |

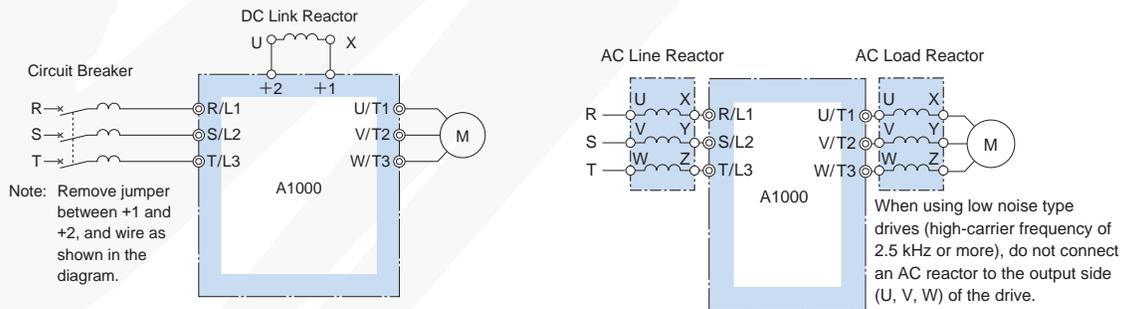
\* Parameters can only be downloaded to a drive when the voltage class, capacity, control mode, and software version match

# Power Accessories Selection

## Reactors

Reactors are used either within the DC link circuit of a drive or at the drive's AC input terminals (line reactor). In both cases, the reactor adds impedance which can extend the life of a drive (when used on large power sources with low impedance), and reduce drive induced harmonic currents. In addition, AC reactors can be used at the drive's output terminals (load reactor) to help address a variety of installation challenges such as peak motor voltages that can occur with long motor cables.

For A1000 drives rated up through 30HP (normal duty), either a DC link reactor or AC reactor (or both) may be added. Larger A1000 drives have a DC link reactor as standard.



## DC Link Reactors

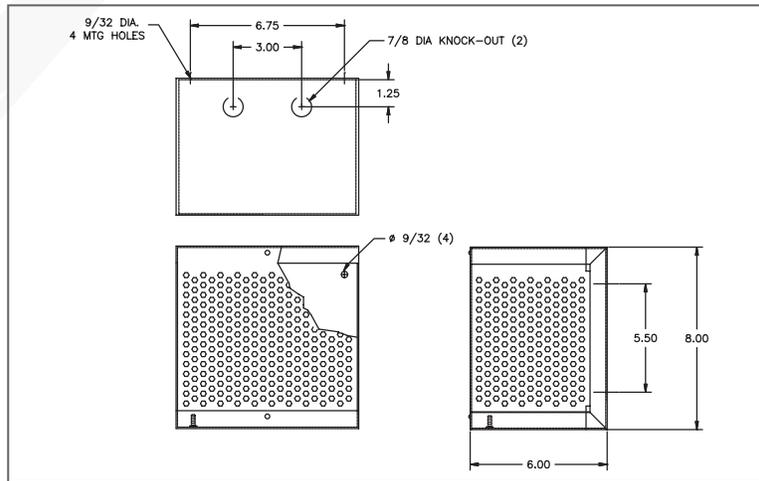
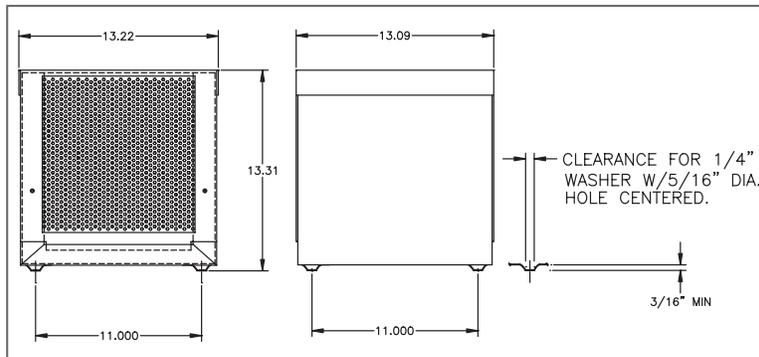


Fig. 1



## DC Link Reactors (continued)

240V Class

| HP        | Drive Model Number: CIMR-AU2A |                          |            |                          | 3% Enclosed Reactor  |                 |                     |                  |       |       |       |             |               |
|-----------|-------------------------------|--------------------------|------------|--------------------------|----------------------|-----------------|---------------------|------------------|-------|-------|-------|-------------|---------------|
|           | Normal Duty                   | Built-in DC Link Reactor | Heavy Duty | Built-in DC Link Reactor | Rated DC Current (A) | Inductance (μH) | Yaskawa Part Number | Dimensions (in.) |       |       |       | Weight (lb) | Watt Loss (W) |
|           |                               |                          |            |                          |                      |                 |                     | Figure           | L     | W     | H     |             |               |
| 0.5       | 0004                          | No                       | 0004       | No                       | 2                    | 10000           | URX000036**         | 1                | 2.81  | 1.73  | 2.50  | 1           | 3             |
| 0.75      | 0004                          | No                       | 0004       | No                       | 4                    | 5000            | 05P00608-3007**     | 1                | 2.81  | 1.50  | 2.50  | 1           | 4             |
| 1         | 0006                          | No                       | 0006       | No                       | 4                    | 5000            | 05P00608-3007**     | 1                | 2.81  | 1.50  | 2.50  | 1           | 4             |
| 1.5       | 0006                          | No                       | 0008       | No                       | 9                    | 3220            | URX000257           | 1                | 8.00  | 6.00  | 8.00  | 9           | 7             |
| 2         | 0008                          | No                       | 0008       | No                       | 9                    | 3220            | URX000257           | 1                | 8.00  | 6.00  | 8.00  | 9           | 7             |
| 3         | 0010                          | No                       | 0012       | No                       | 12                   | 2100            | URX000258           | 1                | 8.00  | 6.00  | 8.00  | 11          | 7             |
| 5         | 0018                          | No                       | 0021       | No                       | 18                   | 1375            | URX000259           | 1                | 8.00  | 6.00  | 8.00  | 11          | 9             |
| 7.5       | 0021                          | No                       | 0030       | No                       | 25                   | 1000            | URX000051**         | 2                | 3.81  | 2.82  | 4.50  | 4           | 12            |
| 10        | 0030                          | No                       | 0040       | No                       | 32                   | 850             | URX000261           | 1                | 8.00  | 6.00  | 8.00  | 12          | 11            |
| 15        | 0040                          | No                       | 0056       | No                       | 50                   | 625             | URX000262           | 1                | 8.00  | 6.00  | 8.00  | 15          | 18            |
| 20        | 0056                          | No                       | 0069       | No                       | 62                   | 320             | URX000264           | 2                | 13.22 | 13.09 | 13.00 | 26          | 17            |
| 25        | 0069                          | No                       | 0081       | No                       | 80                   | 310             | 0500620-0129**      | 2                | 4.63  | 6.00  | 4.00  | 9           | 20            |
| 30        | 0081                          | No                       | 0110       | Yes*                     | 92                   | 200             | URX000266           | 2                | 13.22 | 13.09 | 13.00 | 28          | 19            |
| 40 to 175 | Built-In                      |                          |            |                          |                      |                 |                     |                  |       |       |       |             |               |

| HP        | Drive Model Number: CIMR-AU2A |                          |            |                          | 5% Enclosed Reactor  |                 |                     |                  |       |       |       |             |               |
|-----------|-------------------------------|--------------------------|------------|--------------------------|----------------------|-----------------|---------------------|------------------|-------|-------|-------|-------------|---------------|
|           | Normal Duty                   | Built-in DC Link Reactor | Heavy Duty | Built-in DC Link Reactor | Rated DC Current (A) | Inductance (μH) | Yaskawa Part Number | Dimensions (in.) |       |       |       | Weight (lb) | Watt Loss (W) |
|           |                               |                          |            |                          |                      |                 |                     | Figure           | L     | W     | H     |             |               |
| 0.5       | 0004                          | No                       | 0004       | No                       | 2                    | 20000           | 0500652-0228**      | 1                | 3.00  | 1.50  | 2.50  | 1           | 4             |
| 0.75      | 0004                          | No                       | 0004       | No                       | 4                    | 12000           | URX000207           | 1                | 8.00  | 6.00  | 8.00  | 9           | 5             |
| 1         | 0006                          | No                       | 0006       | No                       | 4                    | 12000           | URX000207           | 1                | 8.00  | 6.00  | 8.00  | 9           | 5             |
| 1.5       | 0006                          | No                       | 0008       | No                       | 9                    | 7500            | URX000208           | 1                | 8.00  | 6.00  | 8.00  | 11          | 11            |
| 2         | 0008                          | No                       | 0008       | No                       | 9                    | 7500            | URX000208           | 1                | 8.00  | 6.00  | 8.00  | 11          | 11            |
| 3         | 0010                          | No                       | 0012       | No                       | 12                   | 4000            | URX000209           | 1                | 8.00  | 6.00  | 8.00  | 11          | 11            |
| 5         | 0018                          | No                       | 0021       | No                       | 18                   | 2750            | URX000210           | 1                | 8.00  | 6.00  | 8.00  | 14          | 16            |
| 7.5       | 0021                          | No                       | 0030       | No                       | 25                   | 1750            | URX000211           | 1                | 8.00  | 6.00  | 8.00  | 14          | 13            |
| 10        | 0030                          | No                       | 0040       | No                       | 32                   | 1620            | URX000223           | 2                | 13.22 | 13.09 | 13.00 | 28          | 14            |
| 15        | 0040                          | No                       | 0056       | No                       | 50                   | 970             | URX000060**         | 2                | 4.63  | 5.25  | 5.25  | 14          | 19            |
| 20        | 0056                          | No                       | 0069       | No                       | 62                   | 610             | URX000213           | 2                | 13.22 | 13.09 | 13.00 | 32          | 20            |
| 25        | 0069                          | No                       | 0081       | No                       | 80                   | 500             | URX000069**         | 2                | 4.63  | 7.00  | 4.00  | 14          | 22            |
| 30        | 0081                          | No                       | 0110*      | Yes*                     | 92                   | 600             | URX000265           | 2                | 13.22 | 13.09 | 13.00 | 41          | 34            |
| 40 to 175 | Built-In                      |                          |            |                          |                      |                 |                     |                  |       |       |       |             |               |

\* 'Large' A1000 models include a built-in 3% DC link reactor. If more than 3% equivalent total reactance is needed, use a 3% AC line reactor on these units.

\*\* Does not include NEMA 1 enclosure.

# Power Accessories Selection

## DC Link Reactors (continued)

480V Class

| HP         | Drive Model Number: CIMR-AU4A |                          |            |                          | 3% Enclosed Reactor  |                 |                     |                  |       |       |       |             |               |
|------------|-------------------------------|--------------------------|------------|--------------------------|----------------------|-----------------|---------------------|------------------|-------|-------|-------|-------------|---------------|
|            | Normal Duty                   | Built-in DC Link Reactor | Heavy Duty | Built-in DC Link Reactor | Rated DC Current (A) | Inductance (μH) | Yaskawa Part Number | Dimensions (in.) |       |       |       | Weight (lb) | Watt Loss (W) |
|            |                               |                          |            |                          |                      |                 |                     | Figure           | L     | W     | H     |             |               |
| 0.5        | 0002                          | No                       | 0002       | No                       | 2                    | 50000           | URX000215           | 1                | 8.00  | 6.00  | 8.00  | 9           | 5             |
| 0.75       | 0002                          | No                       | 0002       | No                       | 2                    | 20000           | 05P00652-0228**     | 1                | 3.00  | 1.50  | 2.50  | 1           | 4             |
| 1          | 0002                          | No                       | 0004       | No                       | 2                    | 20000           | 05P00652-0228**     | 1                | 3.00  | 1.50  | 2.50  | 1           | 4             |
| 1.5        | 0004                          | No                       | 0004       | No                       | 4                    | 15000           | URX000217           | 1                | 8.00  | 6.00  | 8.00  | 9           | 6             |
| 2          | 0004                          | No                       | 0004       | No                       | 4                    | 15000           | URX000217           | 1                | 8.00  | 6.00  | 8.00  | 9           | 6             |
| 3          | 0005                          | No                       | 0005       | No                       | 9                    | 7500            | URX000208           | 1                | 8.00  | 6.00  | 8.00  | 11          | 11            |
| 5          | 0009                          | No                       | 0011       | No                       | 9                    | 7500            | URX000208           | 1                | 8.00  | 6.00  | 8.00  | 11          | 11            |
| 7.5        | 0011                          | No                       | 0018       | No                       | 12                   | 4000            | URX000209           | 1                | 8.00  | 6.00  | 8.00  | 11          | 11            |
| 10         | 0018                          | No                       | 0018       | No                       | 18                   | 2750            | URX000210           | 1                | 8.00  | 6.00  | 8.00  | 14          | 16            |
| 15         | 0023                          | No                       | 0031       | No                       | 25                   | 1750            | URX000211           | 1                | 8.00  | 6.00  | 8.00  | 14          | 13            |
| 20         | 0031                          | No                       | 0038       | No                       | 32                   | 1620            | URX000223           | 2                | 13.22 | 13.09 | 13.00 | 28          | 14            |
| 25         | 0038                          | No                       | 0044       | No                       | 40                   | 1000            | URX000184           | 1                | 8.00  | 6.00  | 8.00  | 15          | 17            |
| 30         | 0044                          | No                       | 0058       | Yes*                     | 50                   | 970             | URX000060**         | 2                | 4.63  | 5.25  | 5.25  | 14          | 19            |
| 40 to 1000 | Built-In                      |                          |            |                          |                      |                 |                     |                  |       |       |       |             |               |

| HP         | Drive Model Number: CIMR-AU4A |                          |            |                          | 5% Enclosed Reactor  |                 |                     |                  |       |       |       |             |               |
|------------|-------------------------------|--------------------------|------------|--------------------------|----------------------|-----------------|---------------------|------------------|-------|-------|-------|-------------|---------------|
|            | Normal Duty                   | Built-in DC Link Reactor | Heavy Duty | Built-in DC Link Reactor | Rated DC Current (A) | Inductance (μH) | Yaskawa Part Number | Dimensions (in.) |       |       |       | Weight (lb) | Watt Loss (W) |
|            |                               |                          |            |                          |                      |                 |                     | Figure           | L     | W     | H     |             |               |
| 0.5        | 0002                          | No                       | 0002       | No                       | 2                    | 50000           | URX000215           | 1                | 8.00  | 6.00  | 8.00  | 9           | 5             |
| 0.75       | 0002                          | No                       | 0002       | No                       | 2                    | 50000           | URX000215           | 1                | 8.00  | 6.00  | 8.00  | 9           | 5             |
| 1          | 0002                          | No                       | 0004       | No                       | 2                    | 50000           | URX000215           | 1                | 8.00  | 6.00  | 8.00  | 9           | 5             |
| 1.5        | 0004                          | No                       | 0004       | No                       | 4                    | 25000           | URX000216           | 1                | 8.00  | 6.00  | 8.00  | 11          | 9             |
| 2          | 0004                          | No                       | 0004       | No                       | 4                    | 25000           | URX000216           | 1                | 8.00  | 6.00  | 8.00  | 11          | 9             |
| 3          | 0005                          | No                       | 0005       | No                       | 9                    | 11500           | URX000218           | 1                | 8.00  | 6.00  | 8.00  | 14          | 16            |
| 5          | 0009                          | No                       | 0011       | No                       | 9                    | 11500           | URX000218           | 1                | 8.00  | 6.00  | 8.00  | 14          | 16            |
| 7.5        | 0011                          | No                       | 0018       | No                       | 12                   | 6000            | URX000219           | 1                | 8.00  | 6.00  | 8.00  | 11          | 14            |
| 10         | 0018                          | No                       | 0018       | No                       | 18                   | 6000            | URX000260           | 2                | 13.22 | 13.09 | 13.00 | 31          | 20            |
| 15         | 0023                          | No                       | 0031       | No                       | 25                   | 4000            | URX000224           | 2                | 13.22 | 13.09 | 13.00 | 31          | 16            |
| 20         | 0031                          | No                       | 0038       | No                       | 32                   | 2680            | URX000221           | 2                | 13.22 | 13.09 | 13.00 | 32          | 21            |
| 25         | 0038                          | No                       | 0044       | No                       | 40                   | 2500            | URX000225           | 2                | 13.22 | 13.09 | 13.00 | 39          | 29            |
| 30         | 0044                          | No                       | 0058       | Yes*                     | 50                   | 2000            | URX000263           | 2                | 13.22 | 13.09 | 13.00 | 43          | 30            |
| 40 to 1000 | Built-In                      |                          |            |                          |                      |                 |                     |                  |       |       |       |             |               |

\* 'Large' A1000 models include a built-in 3% DC link reactor. If more than 3% equivalent total reactance is needed, use a 3% AC line reactor on these units.

\*\* Does not include NEMA 1 enclosure.

## DC Link Reactors (continued)

600V Class

| HP        | Drive Model Number: CIMR-AU5A |                          |            |                          | 3% Enclosed Reactor  |                 |                     |                  |       |       |       |             |               |
|-----------|-------------------------------|--------------------------|------------|--------------------------|----------------------|-----------------|---------------------|------------------|-------|-------|-------|-------------|---------------|
|           | Normal Duty                   | Built-in DC Link Reactor | Heavy Duty | Built-in DC Link Reactor | Rated DC Current (A) | Inductance (μH) | Yaskawa Part Number | Dimensions (in.) |       |       |       | Weight (lb) | Watt Loss (W) |
|           |                               |                          |            |                          |                      |                 |                     | Figure           | L     | W     | H     |             |               |
| 0.5       | 0003                          | No                       | 0003       | No                       | 1                    | 60000           | URX000039*          | 1                | 3.75  | 2.00  | 3.25  | 2           | 5             |
| 0.75      | 0003                          | No                       | 0003       | No                       | 2                    | 50000           | URX000215           | 1                | 8.00  | 6.00  | 8.00  | 9           | 5             |
| 1         | 0003                          | No                       | 0003       | No                       | 2                    | 20000           | 05P00652-0028**     | 1                | 3.00  | 1.50  | 2.50  | 1           | 4             |
| 1.5       | 0003                          | No                       | 0004       | No                       | 4                    | 15000           | URX000217           | 1                | 8.00  | 6.00  | 8.00  | 9           | 6             |
| 2         | 0003                          | No                       | 0004       | No                       | 4                    | 15000           | URX000217           | 1                | 8.00  | 6.00  | 8.00  | 9           | 6             |
| 3         | 0004                          | No                       | 0006       | No                       | 4                    | 12000           | URX000207           | 1                | 8.00  | 6.00  | 8.00  | 9           | 5             |
| 5         | 0006                          | No                       | 0009       | No                       | 9                    | 7500            | URX000208           | 1                | 8.00  | 6.00  | 8.00  | 11          | 11            |
| 7.5       | 0009                          | No                       | 0011       | No                       | 12                   | 4000            | URX000209           | 1                | 8.00  | 6.00  | 8.00  | 11          | 11            |
| 10        | 0011                          | No                       | 0017       | No                       | 12                   | 4000            | URX000209           | 1                | 8.00  | 6.00  | 8.00  | 11          | 11            |
| 15        | 0017                          | No                       | 0022       | No                       | 18                   | 2750            | URX000210           | 1                | 8.00  | 6.00  | 8.00  | 14          | 16            |
| 20        | 0022                          | No                       | 0027       | No                       | 25                   | 1750            | URX000211           | 1                | 8.00  | 6.00  | 8.00  | 14          | 13            |
| 25        | 0027                          | No                       | 0032       | No                       | 32                   | 1620            | URX000223           | 2                | 13.22 | 13.09 | 13.00 | 28          | 14            |
| 30        | 0032                          | No                       | 0041       | Yes*                     | 40                   | 1000            | URX000184           | 1                | 8.00  | 6.00  | 8.00  | 15          | 17            |
| 40 to 250 | Built-In                      |                          |            |                          |                      |                 |                     |                  |       |       |       |             |               |

| HP        | Drive Model Number: CIMR-AU5A |                          |            |                          | 5% Enclosed Reactor  |                 |                     |                  |       |       |       |             |               |
|-----------|-------------------------------|--------------------------|------------|--------------------------|----------------------|-----------------|---------------------|------------------|-------|-------|-------|-------------|---------------|
|           | Normal Duty                   | Built-in DC Link Reactor | Heavy Duty | Built-in DC Link Reactor | Rated DC Current (A) | Inductance (μH) | Yaskawa Part Number | Dimensions (in.) |       |       |       | Weight (lb) | Watt Loss (W) |
|           |                               |                          |            |                          |                      |                 |                     | Figure           | L     | W     | H     |             |               |
| 0.5       | 0003                          | No                       | 0003       | No                       | 1                    | 80000           | URX000035**         | 1                | 3.75  | 1.75  | 3.25  | 1           | 4             |
| 0.75      | 0003                          | No                       | 0003       | No                       | 2                    | 50000           | URX000215           | 1                | 8.00  | 6.00  | 8.00  | 9           | 5             |
| 1         | 0003                          | No                       | 0003       | No                       | 2                    | 50000           | URX000215           | 1                | 8.00  | 6.00  | 8.00  | 9           | 5             |
| 1.5       | 0003                          | No                       | 0004       | No                       | 4                    | 25000           | URX000216           | 1                | 8.00  | 6.00  | 8.00  | 11          | 9             |
| 2         | 0003                          | No                       | 0004       | No                       | 4                    | 25000           | URX000216           | 1                | 8.00  | 6.00  | 8.00  | 11          | 9             |
| 3         | 0004                          | No                       | 0006       | No                       | 4                    | 25000           | URX000216           | 1                | 8.00  | 6.00  | 8.00  | 11          | 9             |
| 5         | 0006                          | No                       | 0009       | No                       | 9                    | 11500           | URX000218           | 1                | 8.00  | 6.00  | 8.00  | 14          | 16            |
| 7.5       | 0009                          | No                       | 0011       | No                       | 12                   | 6000            | URX000219           | 1                | 8.00  | 6.00  | 8.00  | 11          | 14            |
| 10        | 0011                          | No                       | 0017       | No                       | 18                   | 3750            | URX000220           | 1                | 8.00  | 6.00  | 8.00  | 15          | 17            |
| 15        | 0017                          | No                       | 0022       | No                       | 25                   | 4000            | URX000224           | 2                | 13.22 | 13.09 | 13.00 | 31          | 16            |
| 20        | 0022                          | No                       | 0027       | No                       | 25                   | 4000            | URX000224           | 2                | 13.22 | 13.09 | 13.00 | 31          | 16            |
| 25        | 0027                          | No                       | 0032       | No                       | 32                   | 2680            | URX000221           | 2                | 13.22 | 13.09 | 13.00 | 32          | 21            |
| 30        | 0032                          | No                       | 0041       | Yes*                     | 50                   | 2000            | URX000263           | 2                | 13.22 | 13.09 | 13.00 | 43          | 30            |
| 40 to 250 | Built-In                      |                          |            |                          |                      |                 |                     |                  |       |       |       |             |               |

\*Large A1000 models include a built-in 3% DC link reactor. If more than 3% equivalent total reactance is needed, use a 3% AC line reactor on these units.

\*\* Does not include NEMA 1 enclosure.

# Power Accessories Selection

## AC Line / Load Reactors

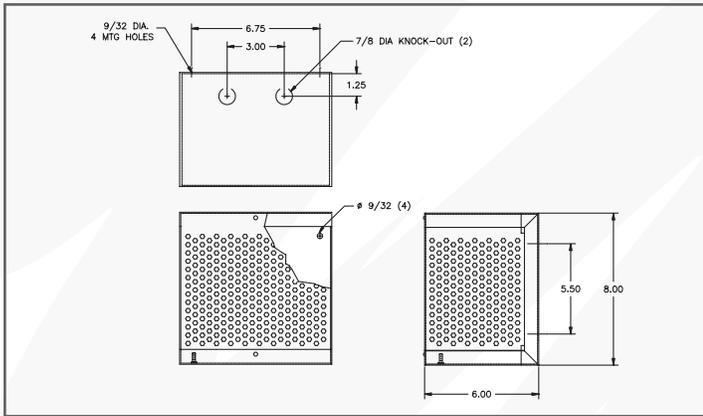


Fig. 1

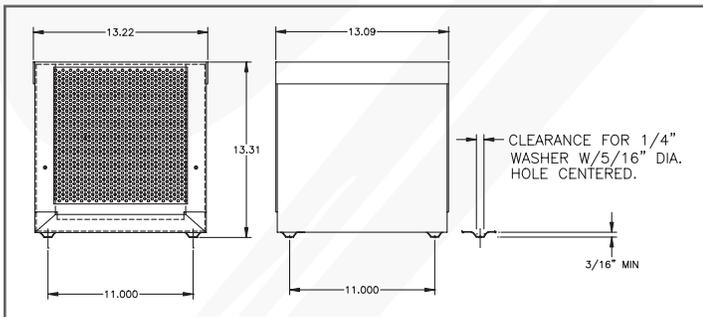


Fig. 2

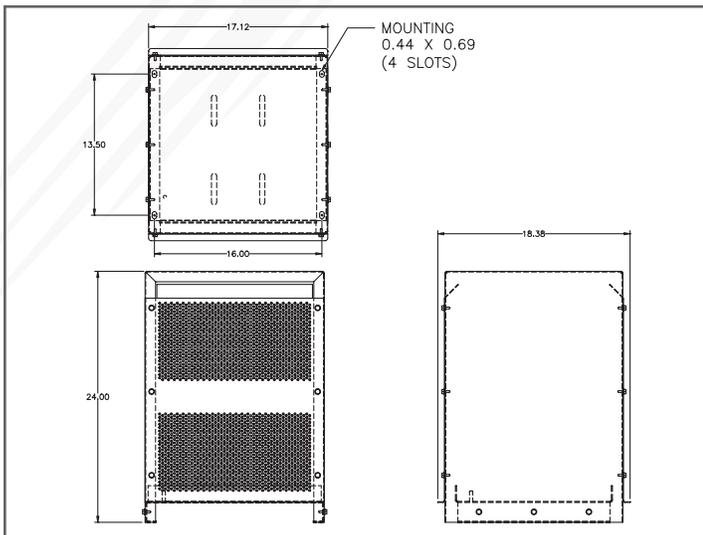


Fig. 3

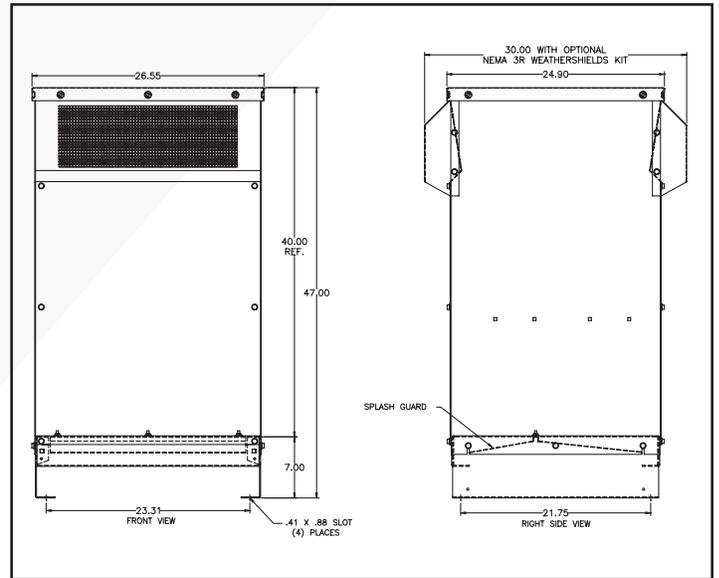


Fig. 4

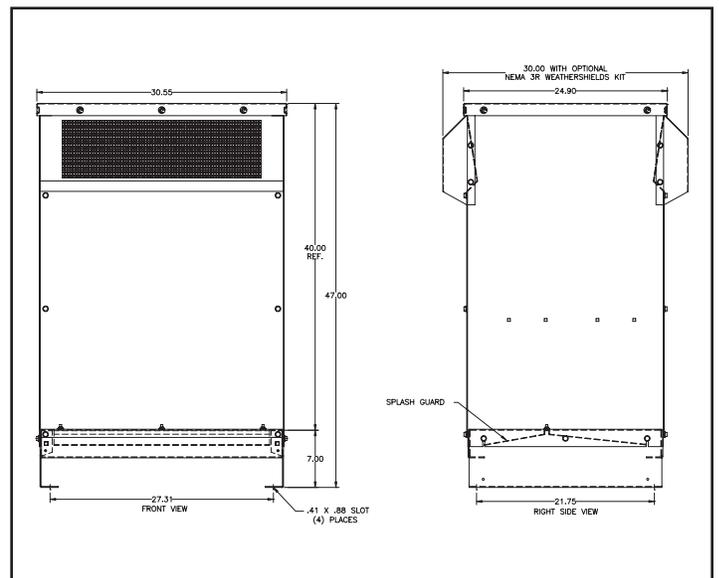


Fig. 5

# AC Line / Load Reactors (continued)

240V Class

| HP   | Drive Model Number: CIMR-AU2A |                          |            |                          | Nominal 3% Impedance*     |                 |                              |                  |       |       |             |               |      |
|------|-------------------------------|--------------------------|------------|--------------------------|---------------------------|-----------------|------------------------------|------------------|-------|-------|-------------|---------------|------|
|      | Normal Duty                   | Built-in DC Link Reactor | Heavy Duty | Built-in DC Link Reactor | Reactor Rated Current (A) | Inductance (μH) | Enclosed Yaskawa Part Number | Dimensions (in.) |       |       | Weight (lb) | Watt Loss (W) |      |
|      |                               |                          |            |                          |                           |                 |                              | Figure           | L     | W     |             |               | H    |
| 0.5  | 0004                          | No                       | 0004       | No                       | 2                         | 6000            | URX000243                    | 1                | 8.00  | 6.00  | 8.00        | 10            | 10.7 |
| 0.75 | 0004                          | No                       | 0004       | No                       | 4                         | 3000            | 05P00620-0020                |                  | 8.00  | 6.00  | 8.00        | 11            | 14.5 |
| 1    | 0006                          | No                       | 0006       | No                       | 4                         | 3000            | 05P00620-0020                |                  | 8.00  | 6.00  | 8.00        | 11            | 14.5 |
| 1.5  | 0006                          | No                       | 0008       | No                       | 8                         | 1500            | 05P00620-0027                |                  | 8.00  | 6.00  | 8.00        | 14            | 19.5 |
| 2    | 0008                          | No                       | 0008       | No                       | 8                         | 1500            | 05P00620-0027                |                  | 8.00  | 6.00  | 8.00        | 14            | 19.5 |
| 3    | 0010                          | No                       | 0012       | No                       | 12                        | 1250            | 05P00620-0032                |                  | 8.00  | 6.00  | 8.00        | 16            | 26   |
| 5    | 0018                          | No                       | 0021       | No                       | 18                        | 800             | 05P00620-0036                |                  | 8.00  | 6.00  | 8.00        | 16            | 36   |
| 7.5  | 0021                          | No                       | 0030       | No                       | 25                        | 500             | 05P00620-0041                | 2                | 13.22 | 13.09 | 13.00       | 29            | 48   |
| 10   | 0030                          | No                       | 0040       | No                       | 35                        | 400             | 05P00620-0046                |                  | 13.22 | 13.09 | 13.00       | 32            | 49   |
| 15   | 0040                          | No                       | 0056       | No                       | 45                        | 300             | 05P00620-0050                |                  | 13.22 | 13.09 | 13.00       | 41            | 54   |
| 20   | 0056                          | No                       | 0069       | No                       | 55                        | 250             | 05P00620-0054                |                  | 13.22 | 13.09 | 13.00       | 42            | 64   |
| 25   | 0069                          | No                       | 0081       | No                       | 80                        | 200             | 05P00620-0058                |                  | 13.22 | 13.09 | 13.00       | 43            | 82   |
| 30   | 0081                          | No                       | --         | --                       | 80                        | 200             | 05P00620-0058                |                  | 13.22 | 13.09 | 13.00       | 43            | 82   |
| 30   | --                            | --                       | 0110       | Yes                      | 80                        | 200             | 05P00620-0058                |                  | 13.22 | 13.09 | 13.00       | 43            | 82   |
| 40   | 0110                          | Yes                      | 0138       | Yes                      | 100                       | 150             | URX000204                    |                  | 13.22 | 13.09 | 13.00       | 47            | 94   |
| 50   | 0138                          | Yes                      | 0169       | Yes                      | 130                       | 100             | 05P00620-0066                |                  | 13.22 | 13.09 | 13.00       | 47            | 108  |
| 60   | 0169                          | Yes                      | 0211       | Yes                      | 160                       | 75              | URX000206                    |                  | 13.22 | 13.09 | 13.00       | 59            | 116  |
| 75   | 0211                          | Yes                      | 0250       | Yes                      | 250                       | 45              | URX000248                    | 13.22            | 13.09 | 13.00 | 65          | 154           |      |
| 100  | 0250                          | Yes                      | 0312       | Yes                      | 250                       | 45              | URX000248                    | 13.22            | 13.09 | 13.00 | 65          | 154           |      |
| 125  | 0312                          | Yes                      | 0360       | Yes                      | 320                       | 40              | URX000249                    | 3                | 18.38 | 16.88 | 24.00       | 107           | 224  |
| 150  | 0360                          | Yes                      | 0415       | Yes                      | 400                       | 30              | URX000250                    |                  | 18.38 | 16.88 | 24.00       | 111           | 231  |
| 175  | 0415                          | Yes                      | 0415       | Yes                      | 500                       | 25              | URX000251                    |                  | 18.38 | 16.88 | 24.00       | 111           | 231  |

\* Large A1000 chassis have a built-in DC link reactor equivalent to 3% line reactance. 240V ratings are shown with 3% added AC reactance for 6% total.

| HP   | Drive Model Number: CIMR-AU2A |                          |            |                          | Nominal 5% Impedance*     |                 |                              |                  |       |       |             |               |     |
|------|-------------------------------|--------------------------|------------|--------------------------|---------------------------|-----------------|------------------------------|------------------|-------|-------|-------------|---------------|-----|
|      | Normal Duty                   | Built-in DC Link Reactor | Heavy Duty | Built-in DC Link Reactor | Reactor Rated Current (A) | Inductance (μH) | Enclosed Yaskawa Part Number | Dimensions (in.) |       |       | Weight (lb) | Watt Loss (W) |     |
|      |                               |                          |            |                          |                           |                 |                              | Figure           | L     | W     |             |               | H   |
| 0.5  | 0004                          | No                       | 0004       | No                       | 2                         | 12000           | 05P00620-0015                | 1                | 8.00  | 6.00  | 8.00        | 11            | 7.5 |
| 0.75 | 0004                          | No                       | 0004       | No                       | 4                         | 6500            | 05P00620-0021                |                  | 8.00  | 6.00  | 8.00        | 11            | 20  |
| 1    | 0006                          | No                       | 0006       | No                       | 4                         | 6500            | 05P00620-0021                |                  | 8.00  | 6.00  | 8.00        | 11            | 20  |
| 1.5  | 0006                          | No                       | 0008       | No                       | 8                         | 3000            | 05P00620-0028                |                  | 8.00  | 6.00  | 8.00        | 15            | 29  |
| 2    | 0008                          | No                       | 0008       | No                       | 8                         | 3000            | 05P00620-0028                |                  | 8.00  | 6.00  | 8.00        | 15            | 29  |
| 3    | 0010                          | No                       | 0012       | No                       | 12                        | 2500            | 05P00620-0033                |                  | 8.00  | 6.00  | 8.00        | 17            | 31  |
| 5    | 0018                          | No                       | 0021       | No                       | 18                        | 1500            | 05P00620-0037                |                  | 8.00  | 6.00  | 8.00        | 15            | 43  |
| 7.5  | 0021                          | No                       | 0030       | No                       | 25                        | 1200            | 05P00620-0042                | 2                | 13.22 | 13.09 | 13.00       | 32            | 52  |
| 10   | 0030                          | No                       | 0040       | No                       | 35                        | 800             | 05P00620-0047                |                  | 13.22 | 13.09 | 13.00       | 34            | 54  |
| 15   | 0040                          | No                       | 0056       | No                       | 45                        | 700             | 05P00620-0051                |                  | 13.22 | 13.09 | 13.00       | 46            | 62  |
| 20   | 0056                          | No                       | 0069       | No                       | 55                        | 500             | 05P00620-0055                |                  | 13.22 | 13.09 | 13.00       | 45            | 67  |
| 25   | 0069                          | No                       | 0081       | No                       | 80                        | 400             | 05P00620-0059                |                  | 13.22 | 13.09 | 13.00       | 51            | 86  |
| 30   | 0081                          | No                       | --         | --                       | 80                        | 400             | 05P00620-0059                |                  | 13.22 | 13.09 | 13.00       | 51            | 86  |
| 30   | --                            | --                       | 0110       | Yes                      | 80                        | 200             | 05P00620-0058                |                  | 13.22 | 13.09 | 13.00       | 43            | 82  |
| 40   | 0110                          | Yes                      | 0138       | Yes                      | 100                       | 150             | URX000204                    |                  | 13.22 | 13.09 | 13.00       | 47            | 94  |
| 50   | 0138                          | Yes                      | 0169       | Yes                      | 130                       | 100             | 05P00620-0066                |                  | 13.22 | 13.09 | 13.00       | 47            | 108 |
| 60   | 0169                          | Yes                      | 0211       | Yes                      | 160                       | 75              | URX000206                    |                  | 13.22 | 13.09 | 13.00       | 59            | 116 |
| 75   | 0211                          | Yes                      | 0250       | Yes                      | 250                       | 45              | URX000248                    | 13.22            | 13.09 | 13.00 | 65          | 154           |     |
| 100  | 0250                          | Yes                      | 0312       | Yes                      | 250                       | 45              | URX000248                    | 13.22            | 13.09 | 13.00 | 65          | 154           |     |
| 125  | 0312                          | Yes                      | 0360       | Yes                      | 320                       | 40              | URX000249                    | 3                | 18.38 | 16.88 | 24.00       | 107           | 224 |
| 150  | 0360                          | Yes                      | 0415       | Yes                      | 400                       | 30              | URX000250                    |                  | 18.38 | 16.88 | 24.00       | 111           | 231 |
| 175  | 0415                          | Yes                      | 0415       | Yes                      | 500                       | 25              | URX000251                    |                  | 18.38 | 16.88 | 24.00       | 111           | 231 |

\* Large A1000 chassis have a built-in DC link reactor equivalent to 3% line reactance. 240V ratings are shown with 3% added AC reactance for 6% total.

# Power Accessories Selection

## AC Line / Load Reactors (continued)

480V Class

| HP   | Drive Model Number: CIMR-AU4A |                          |            |                          | Nominal 3% Impedance*     |                 |                              |                  |       |       |             |               |     |
|------|-------------------------------|--------------------------|------------|--------------------------|---------------------------|-----------------|------------------------------|------------------|-------|-------|-------------|---------------|-----|
|      | Normal Duty                   | Built-in DC Link Reactor | Heavy Duty | Built-in DC Link Reactor | Reactor Rated Current (A) | Inductance (μH) | Enclosed Yaskawa Part Number | Dimensions (in.) |       |       | Weight (lb) | Watt Loss (W) |     |
|      |                               |                          |            |                          |                           |                 |                              | Figure           | L     | W     |             |               | H   |
| 0.5  | 0002                          | No                       | 0002       | No                       | 1                         | 18000           | URX000242                    | 1                | 8.00  | 6.00  | 8.00        | 11            | 9.6 |
| 0.75 | 0002                          | No                       | 0002       | No                       | 2                         | 12000           | 05P00620-0015                |                  | 8.00  | 6.00  | 8.00        | 11            | 7.5 |
| 1    | 0002                          | No                       | 0004       | No                       | 2                         | 12000           | 05P00620-0015                |                  | 8.00  | 6.00  | 8.00        | 11            | 7.5 |
| 1.5  | 0004                          | No                       | 0004       | No                       | 4                         | 6500            | 05P00620-0021                |                  | 8.00  | 6.00  | 8.00        | 11            | 20  |
| 2    | 0004                          | No                       | 0004       | No                       | 4                         | 6500            | 05P00620-0021                |                  | 8.00  | 6.00  | 8.00        | 11            | 20  |
| 3    | 0005                          | No                       | 0005       | No                       | 8                         | 3000            | 05P00620-0028                |                  | 8.00  | 6.00  | 8.00        | 15            | 29  |
| 5    | 0009                          | No                       | 0011       | No                       | 8                         | 3000            | 05P00620-0028                |                  | 8.00  | 6.00  | 8.00        | 15            | 29  |
| 7.5  | 0011                          | No                       | 0018       | No                       | 12                        | 2500            | 05P00620-0033                |                  | 8.00  | 6.00  | 8.00        | 17            | 31  |
| 10   | 0018                          | No                       | 0018       | No                       | 18                        | 1500            | 05P00620-0037                |                  | 8.00  | 6.00  | 8.00        | 19            | 43  |
| 15   | 0023                          | No                       | 0031       | No                       | 25                        | 1200            | 05P00620-0042                |                  | 13.22 | 13.09 | 13.00       | 32            | 52  |
| 20   | 0031                          | No                       | 0038       | No                       | 35                        | 800             | 05P00620-0047                | 13.22            | 13.09 | 13.00 | 34          | 54            |     |
| 25   | 0038                          | No                       | 0044       | No                       | 35                        | 800             | 05P00620-0047                | 13.22            | 13.09 | 13.00 | 34          | 54            |     |
| 30   | 0044                          | No                       | --         | --                       | 45                        | 700             | 05P00620-0051                | 13.22            | 13.09 | 13.00 | 46          | 62            |     |
| 30   | --                            | --                       | 0058       | Yes                      | 45                        | 300             | 05P00620-0050                | 13.22            | 13.09 | 13.00 | 41          | 54            |     |
| 40   | 0058                          | Yes                      | 0072       | Yes                      | 55                        | 250             | 05P00620-0054                | 13.22            | 13.09 | 13.00 | 42          | 64            |     |
| 50   | 0072                          | Yes                      | 0088       | Yes                      | 80                        | 200             | 05P00620-0058                | 13.22            | 13.09 | 13.00 | 43          | 82            |     |
| 60   | 0088                          | Yes                      | 0088       | Yes                      | 80                        | 200             | 05P00620-0058                | 13.22            | 13.09 | 13.00 | 43          | 82            |     |
| 75   | 0103                          | Yes                      | 0103       | Yes                      | 100                       | 150             | URX000204                    | 13.22            | 13.09 | 13.00 | 47          | 94            |     |
| 100  | 0139                          | Yes                      | 0165       | Yes                      | 130                       | 100             | 05P00620-0066                | 13.22            | 13.09 | 13.00 | 47          | 108           |     |
| 125  | 0165                          | Yes                      | 0165       | Yes                      | 160                       | 75              | URX000206                    | 13.22            | 13.09 | 13.00 | 59          | 116           |     |
| 150  | 0208                          | Yes                      | 0208       | Yes                      | 200                       | 55              | 05P00620-0077                | 13.22            | 13.09 | 13.00 | 56          | 124           |     |
| 200  | 0250                          | Yes                      | 0250       | Yes                      | 250                       | 45              | URX000248                    | 13.22            | 13.09 | 13.00 | 65          | 154           |     |
| 250  | 0296                          | Yes                      | 0362       | Yes                      | 320                       | 40              | URX000249                    | 3                | 18.38 | 16.88 | 24.00       | 107           | 224 |
| 300  | 0362                          | Yes                      | 0414       | Yes                      | 400                       | 30              | URX000250                    |                  | 18.38 | 16.88 | 24.00       | 111           | 231 |
| 350  | 0414                          | Yes                      | 0515       | Yes                      | 500                       | 25              | URX000251                    |                  | 18.38 | 16.88 | 24.00       | 120           | 266 |
| 400  | 0515                          | Yes                      | 0675       | Yes                      | 500                       | 25              | URX000251                    |                  | 18.38 | 16.88 | 24.00       | 120           | 266 |
| 450  | 0675                          | Yes                      | 0675       | Yes                      | 600                       | 20              | URX000252                    | 4                | 26.55 | 24.90 | 47.00       | 264           | 307 |
| 500  | 0675                          | Yes                      | 0675       | Yes                      | 600                       | 20              | URX000252                    |                  | 26.55 | 24.90 | 47.00       | 264           | 307 |
| 600  | 0675                          | Yes                      | 0930       | Yes                      | 750                       | 15              | URX000253                    | 5                | 30.55 | 24.90 | 47.00       | 299           | 427 |
| 660  | 0930                          | Yes                      | 0930       | Yes                      | 750                       | 15              | URX000253                    |                  | 30.55 | 24.90 | 47.00       | 299           | 427 |
| 700  | 0930                          | Yes                      | 0930       | Yes                      | 900                       | 13              | URX000254                    |                  | 30.55 | 24.90 | 47.00       | 444           | 860 |
| 750  | 0930                          | Yes                      | 1200       | Yes                      | 900                       | 13              | URX000254                    |                  | 30.55 | 24.90 | 47.00       | 444           | 860 |
| 800  | 1200                          | Yes                      | 1200       | Yes                      | 1000                      | 11              | URX000244                    |                  | 30.55 | 24.90 | 47.00       | 479           | 940 |
| 900  | 1200                          | Yes                      | 1200       | Yes                      | 1200                      | 9               | URX000246                    |                  | 30.55 | 24.90 | 47.00       | 584           | 980 |
| 1000 | 1200                          | Yes                      | 1200       | Yes                      | 1200                      | 9               | URX000246                    |                  | 30.55 | 24.90 | 47.00       | 584           | 980 |

\* Large A1000 chassis have a built-in DC link reactor equivalent to 3% line reactance. 480V ratings are shown with 1.5% added AC reactance for 4.5% total.

## AC Line / Load Reactors (continued)

480V Class

| HP   | Drive Model Number: CIMR-AU4A |                          |            |                          | Nominal 5% Impedance*     |                 |                              |                  |       |       |             |               |      |     |
|------|-------------------------------|--------------------------|------------|--------------------------|---------------------------|-----------------|------------------------------|------------------|-------|-------|-------------|---------------|------|-----|
|      | Normal Duty                   | Built-in DC Link Reactor | Heavy Duty | Built-in DC Link Reactor | Reactor Rated Current (A) | Inductance (μH) | Enclosed Yaskawa Part Number | Dimensions (in.) |       |       | Weight (lb) | Watt Loss (W) |      |     |
|      |                               |                          |            |                          |                           |                 |                              | Figure           | L     | W     |             |               | H    |     |
| 0.5  | 0002                          | No                       | 0002       | No                       | 1                         | 36000           | URX000241                    | 1                | 8.00  | 6.00  | 8.00        | 11            | 11.9 |     |
| 0.75 | 0002                          | No                       | 0002       | No                       | 2                         | 20000           | 05P00620-0016                |                  | 8.00  | 6.00  | 8.00        | 11            | 11.3 |     |
| 1    | 0002                          | No                       | 0004       | No                       | 2                         | 20000           | 05P00620-0016                |                  | 8.00  | 6.00  | 8.00        | 11            | 11.3 |     |
| 1.5  | 0004                          | No                       | 0004       | No                       | 4                         | 12000           | 05P00620-0023                |                  | 8.00  | 6.00  | 8.00        | 13            | 21   |     |
| 2    | 0004                          | No                       | 0004       | No                       | 4                         | 12000           | 05P00620-0023                |                  | 8.00  | 6.00  | 8.00        | 13            | 21   |     |
| 3    | 0005                          | No                       | 0005       | No                       | 8                         | 7500            | URX000226                    |                  | 8.00  | 6.00  | 8.00        | 20            | 28   |     |
| 5    | 0009                          | No                       | 0011       | No                       | 8                         | 5000            | 05P00620-0029                |                  | 8.00  | 6.00  | 8.00        | 18            | 25.3 |     |
| 7.5  | 0011                          | No                       | 0018       | No                       | 12                        | 4200            | 05P00620-0034                |                  | 8.00  | 6.00  | 8.00        | 25            | 41   |     |
| 10   | 0018                          | No                       | 0018       | No                       | 18                        | 2500            | 05P00620-0038                |                  | 2     | 13.22 | 13.09       | 13.00         | 34   | 43  |
| 15   | 0023                          | No                       | 0031       | No                       | 25                        | 1800            | 05P00620-0043                | 13.22            |       | 13.09 | 13.00       | 38            | 61   |     |
| 20   | 0031                          | No                       | 0038       | No                       | 35                        | 1200            | 05P00620-0048                | 13.22            |       | 13.09 | 13.00       | 48            | 54   |     |
| 25   | 0038                          | No                       | 0044       | No                       | 35                        | 1200            | 05P00620-0048                | 13.22            |       | 13.09 | 13.00       | 48            | 54   |     |
| 30   | 0044                          | No                       | --         | --                       | 45                        | 1200            | 05P00620-0052                | 13.22            |       | 13.09 | 13.00       | 57            | 65   |     |
| 30   | --                            | --                       | 0058       | Yes                      | 45                        | 700             | 05P00620-0051                | 13.22            |       | 13.09 | 13.00       | 46            | 62   |     |
| 40   | 0058                          | Yes                      | 0072       | Yes                      | 55                        | 500             | 05P00620-0055                | 13.22            |       | 13.09 | 13.00       | 45            | 67   |     |
| 50   | 0072                          | Yes                      | 0088       | Yes                      | 80                        | 400             | 05P00620-0059                | 13.22            |       | 13.09 | 13.00       | 51            | 86   |     |
| 60   | 0088                          | Yes                      | 0088       | Yes                      | 80                        | 400             | 05P00620-0059                | 13.22            |       | 13.09 | 13.00       | 51            | 86   |     |
| 75   | 0103                          | Yes                      | 0103       | Yes                      | 100                       | 300             | 05P00620-0062                | 13.22            |       | 13.09 | 13.00       | 55            | 84   |     |
| 100  | 0139                          | Yes                      | 0165       | Yes                      | 130                       | 200             | 05P00620-0067                | 13.22            |       | 13.09 | 13.00       | 61            | 180  |     |
| 125  | 0165                          | Yes                      | 0165       | Yes                      | 160                       | 150             | 05P00620-0073                | 13.22            |       | 13.09 | 13.00       | 68            | 149  |     |
| 150  | 0208                          | Yes                      | 0208       | Yes                      | 200                       | 110             | 05P00620-0078                | 13.22            |       | 13.09 | 13.00       | 72            | 168  |     |
| 200  | 0250                          | Yes                      | 0250       | Yes                      | 250                       | 90              | 05P00620-0083                | 3                |       | 18.38 | 16.88       | 24.00         | 107  | 231 |
| 250  | 0296                          | Yes                      | 0362       | Yes                      | 320                       | 75              | 05P00620-0088                |                  |       | 18.38 | 16.88       | 24.00         | 129  | 264 |
| 300  | 0362                          | Yes                      | 0414       | Yes                      | 400                       | 60              | 05P00620-0092                |                  | 18.38 | 16.88 | 24.00       | 145           | 333  |     |
| 350  | 0414                          | Yes                      | 0515       | Yes                      | 500                       | 50              | 05P00620-0096                | 4                | 26.55 | 24.90 | 47.00       | 262           | 340  |     |
| 400  | 0515                          | Yes                      | 0675       | Yes                      | 500                       | 50              | 05P00620-0096                |                  | 26.55 | 24.90 | 47.00       | 262           | 340  |     |
| 450  | 0675                          | Yes                      | 0675       | Yes                      | 600                       | 40              | 05P00620-0100                |                  | 26.55 | 24.90 | 47.00       | 319           | 414  |     |
| 500  | 0675                          | Yes                      | 0675       | Yes                      | 600                       | 40              | 05P00620-0100                |                  | 26.55 | 24.90 | 47.00       | 319           | 414  |     |
| 600  | 0675                          | Yes                      | 0930       | Yes                      | 750                       | 29              | 05P00620-0104                | 5                | 30.55 | 24.90 | 47.00       | 349           | 630  |     |
| 660  | 0930                          | Yes                      | 0930       | Yes                      | 750                       | 29              | 05P00620-0104                |                  | 30.55 | 24.90 | 47.00       | 349           | 630  |     |
| 700  | 0930                          | Yes                      | 0930       | Yes                      | 900                       | 25              | URX000255                    |                  | 30.55 | 24.90 | 47.00       | 529           | 1020 |     |
| 750  | 0930                          | Yes                      | 1200       | Yes                      | 900                       | 25              | URX000255                    |                  | 30.55 | 24.90 | 47.00       | 529           | 1020 |     |
| 800  | 1200                          | Yes                      | 1200       | Yes                      | 1000                      | 22              | URX000245                    |                  | 30.55 | 24.90 | 47.00       | 567           | 1090 |     |
| 900  | 1200                          | Yes                      | 1200       | Yes                      | 1200                      | 19              | URX000247                    |                  | 30.55 | 24.90 | 47.00       | 599           | 1130 |     |
| 1000 | 1200                          | Yes                      | 1200       | Yes                      | 1200                      | 19              | URX000247                    |                  | 30.55 | 24.90 | 47.00       | 599           | 1130 |     |

\* Large A1000 chassis have a built-in DC link reactor equivalent to 3% line reactance. 480V ratings are shown with 3% added AC reactance for 6% total.

# Power Accessories Selection

## AC Line / Load Reactors (continued)

600V Class

| HP   | Drive Model Number: CIMR-AU5A |                          |            |                          | Nominal 3% Impedance* |                 |                              |                  |       |       |             |               |      |
|------|-------------------------------|--------------------------|------------|--------------------------|-----------------------|-----------------|------------------------------|------------------|-------|-------|-------------|---------------|------|
|      | Normal Duty                   | Built-in DC Link Reactor | Heavy Duty | Built-in DC Link Reactor | Rated AC Current (A)  | Inductance (μH) | Enclosed Yaskawa Part Number | Dimensions (in.) |       |       | Weight (lb) | Watt Loss (W) |      |
|      |                               |                          |            |                          |                       |                 |                              | Figure           | L     | W     |             |               | H    |
| 0.5  | 0003                          | No                       | 0003       | No                       | 1                     | 36000           | URX000241                    | 1                | 8.00  | 6.00  | 8.00        | 11            | 11.9 |
| 0.75 | 0003                          | No                       | 0003       | No                       | 2                     | 20000           | 05P00620-0016                |                  | 8.00  | 6.00  | 8.00        | 11            | 11.3 |
| 1    | 0003                          | No                       | 0003       | No                       | 2                     | 20000           | 05P00620-0016                |                  | 8.00  | 6.00  | 8.00        | 11            | 11.3 |
| 1.5  | 0003                          | No                       | 0004       | No                       | 2                     | 20000           | 05P00620-0016                |                  | 8.00  | 6.00  | 8.00        | 11            | 11.3 |
| 2    | 0003                          | No                       | 0004       | No                       | 4                     | 9000            | 05P00620-0022                |                  | 8.00  | 6.00  | 8.00        | 12            | 20   |
| 3    | 0004                          | No                       | 0006       | No                       | 4                     | 9000            | 05P00620-0022                |                  | 8.00  | 6.00  | 8.00        | 12            | 20   |
| 5    | 0006                          | No                       | 0009       | No                       | 8                     | 5000            | 05P00620-0029                |                  | 8.00  | 6.00  | 8.00        | 18            | 25.3 |
| 7.5  | 0009                          | No                       | 0011       | No                       | 12                    | 2500            | 05P00620-0033                |                  | 8.00  | 6.00  | 8.00        | 17            | 31   |
| 10   | 0011                          | No                       | 0017       | No                       | 12                    | 2500            | 05P00620-0033                |                  | 8.00  | 6.00  | 8.00        | 17            | 31   |
| 15   | 0017                          | No                       | 0022       | No                       | 18                    | 1500            | 05P00620-0037                |                  | 8.00  | 6.00  | 8.00        | 19            | 43   |
| 20   | 0022                          | No                       | 0027       | No                       | 25                    | 1200            | 05P00620-0042                | 2                | 13.22 | 13.09 | 13.00       | 32            | 52   |
| 25   | 0027                          | No                       | 0032       | No                       | 25                    | 1200            | 05P00620-0042                |                  | 13.22 | 13.09 | 13.00       | 32            | 52   |
| 30   | 0032                          | No                       | --         | --                       | 35                    | 800             | 05P00620-0047                |                  | 13.22 | 13.09 | 13.00       | 34            | 54   |
| 30   | --                            | --                       | 0041       | Yes                      | 35                    | 400             | 05P00620-0046                |                  | 13.22 | 13.09 | 13.00       | 32            | 49   |
| 40   | 0041                          | Yes                      | 0052       | Yes                      | 45                    | 300             | 05P00620-0050                |                  | 13.22 | 13.09 | 13.00       | 41            | 54   |
| 50   | 0052                          | Yes                      | 0062       | Yes                      | 55                    | 250             | 05P00620-0054                |                  | 13.22 | 13.09 | 13.00       | 42            | 64   |
| 60   | 0062                          | Yes                      | 0077       | Yes                      | 80                    | 200             | 05P00620-0058                |                  | 13.22 | 13.09 | 13.00       | 43            | 82   |
| 75   | 0077                          | Yes                      | 0099       | Yes                      | 80                    | 200             | 05P00620-0058                |                  | 13.22 | 13.09 | 13.00       | 43            | 82   |
| 100  | 0099                          | Yes                      | 0125       | Yes                      | 100                   | 150             | URX000204                    |                  | 13.22 | 13.09 | 13.00       | 47            | 94   |
| 125  | 0125                          | Yes                      | 0145       | Yes                      | 130                   | 100             | 05P00620-0066                |                  | 13.22 | 13.09 | 13.00       | 47            | 108  |
| 150  | 0145                          | Yes                      | 0192       | Yes                      | 160                   | 75              | URX000206                    | 13.22            | 13.09 | 13.00 | 59          | 116           |      |
| 200  | 0192                          | Yes                      | 0242       | Yes                      | 200                   | 55              | 05P00620-0077                | 13.22            | 13.09 | 13.00 | 56          | 124           |      |
| 250  | 0242                          | Yes                      | --         | --                       | 250                   | 45              | 05P00620-0077                | 13.22            | 13.09 | 13.00 | 65          | 154           |      |

\* Large A1000 chassis have a built-in DC link reactor equivalent to 3% line reactance. 600V ratings are shown with 1.5% added AC reactance for 4.5% total.

## AC Line / Load Reactors (continued)

600V Class

| HP   | Drive Model Number: CIMR-AU5A |                          |            |                          | Nominal 5% Impedance* |                 |                              |                  |       |       |             |               |     |
|------|-------------------------------|--------------------------|------------|--------------------------|-----------------------|-----------------|------------------------------|------------------|-------|-------|-------------|---------------|-----|
|      | Normal Duty                   | Built-in DC Link Reactor | Heavy Duty | Built-in DC Link Reactor | Rated AC Current (A)  | Inductance (μH) | Enclosed Yaskawa Part Number | Dimensions (in.) |       |       | Weight (lb) | Watt Loss (W) |     |
|      |                               |                          |            |                          |                       |                 |                              | Figure           | L     | W     |             |               | H   |
| 0.5  | 0003                          | No                       | 0003       | No                       | 1                     | 18000           | URX000242                    | 1                | 8.00  | 6.00  | 8.00        | 11            | 9.6 |
| 0.75 | 0003                          | No                       | 0003       | No                       | 2                     | 32000           | URX000227                    |                  | 8.00  | 6.00  | 8.00        | 11            | 16  |
| 1    | 0003                          | No                       | 0003       | No                       | 2                     | 32000           | URX000227                    |                  | 8.00  | 6.00  | 8.00        | 11            | 16  |
| 1.5  | 0003                          | No                       | 0004       | No                       | 2                     | 32000           | URX000227                    |                  | 8.00  | 6.00  | 8.00        | 11            | 16  |
| 2    | 0003                          | No                       | 0004       | No                       | 4                     | 12000           | 05P00620-0023                |                  | 8.00  | 6.00  | 8.00        | 13            | 21  |
| 3    | 0004                          | No                       | 0006       | No                       | 4                     | 12000           | 05P00620-0023                |                  | 8.00  | 6.00  | 8.00        | 13            | 21  |
| 5    | 0006                          | No                       | 0009       | No                       | 8                     | 7500            | URX000226                    |                  | 8.00  | 6.00  | 8.00        | 20            | 28  |
| 7.5  | 0009                          | No                       | 0011       | No                       | 12                    | 4200            | 05P00620-0034                |                  | 8.00  | 6.00  | 8.00        | 25            | 41  |
| 10   | 0011                          | No                       | 0017       | No                       | 12                    | 4200            | 05P00620-0034                |                  | 8.00  | 6.00  | 8.00        | 25            | 41  |
| 15   | 0017                          | No                       | 0022       | No                       | 18                    | 2500            | 05P00620-0038                |                  | 2     | 13.22 | 13.09       | 13.00         | 34  |
| 20   | 0022                          | No                       | 0027       | No                       | 25                    | 1800            | 05P00620-0043                | 13.22            |       | 13.09 | 13.00       | 38            | 61  |
| 25   | 0027                          | No                       | 0032       | No                       | 25                    | 1800            | 05P00620-0043                | 13.22            |       | 13.09 | 13.00       | 38            | 61  |
| 30   | 0032                          | No                       | --         | --                       | 35                    | 1200            | 05P00620-0048                | 13.22            |       | 13.09 | 13.00       | 48            | 54  |
| 30   | --                            | --                       | 0041       | Yes                      | 35                    | 800             | 05P00620-0047                | 13.22            |       | 13.09 | 13.00       | 34            | 54  |
| 40   | 0041                          | Yes                      | 0052       | Yes                      | 45                    | 700             | 05P00620-0051                | 13.22            |       | 13.09 | 13.00       | 46            | 62  |
| 50   | 0052                          | Yes                      | 0062       | Yes                      | 55                    | 500             | 05P00620-0055                | 13.22            |       | 13.09 | 13.00       | 45            | 67  |
| 60   | 0062                          | Yes                      | 0077       | Yes                      | 80                    | 400             | 05P00620-0059                | 13.22            |       | 13.09 | 13.00       | 51            | 86  |
| 75   | 0077                          | Yes                      | 0099       | Yes                      | 80                    | 400             | 05P00620-0059                | 13.22            |       | 13.09 | 13.00       | 51            | 86  |
| 100  | 0099                          | Yes                      | 0125       | Yes                      | 100                   | 300             | 05P00620-0062                | 13.22            |       | 13.09 | 13.00       | 55            | 84  |
| 125  | 0125                          | Yes                      | 0145       | Yes                      | 130                   | 200             | 05P00620-0067                | 13.22            | 13.09 | 13.00 | 61          | 180           |     |
| 150  | 0145                          | Yes                      | 0192       | Yes                      | 160                   | 150             | 05P00620-0073                | 13.22            | 13.09 | 13.00 | 68          | 149           |     |
| 200  | 0192                          | Yes                      | 0242       | Yes                      | 200                   | 110             | 05P00620-0078                | 13.22            | 13.09 | 13.00 | 72          | 168           |     |
| 250  | 0242                          | Yes                      | --         | --                       | 250                   | 90              | 05P00620-0083                | 3                | 18.38 | 16.88 | 24.00       | 107           | 231 |

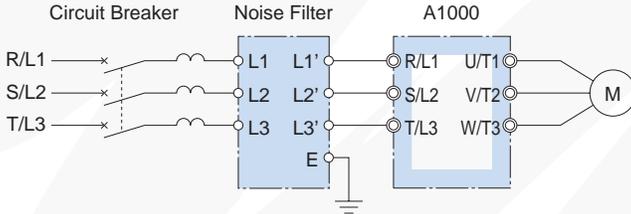
\* Large A1000 chassis have a built-in DC link reactor equivalent to 3% line reactance. 600V ratings are shown with 3% added AC reactance for 6% total.

# Power Accessories Selection

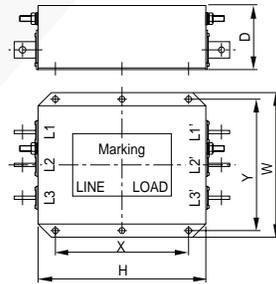
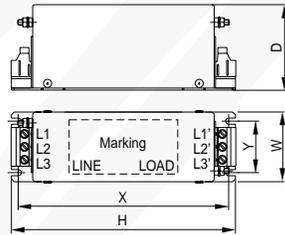
## EMC Filters

EMC filters are used to reduce high frequency noise on the input (line side) conductors to comply with CE (European) directives. In addition, certification of the Functional Safety (Safe Torque Off) feature requires a CE compliant installation.

### Connection Diagram



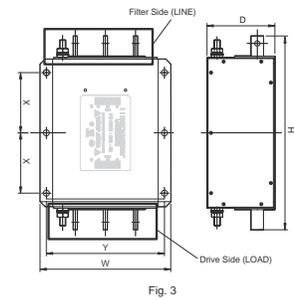
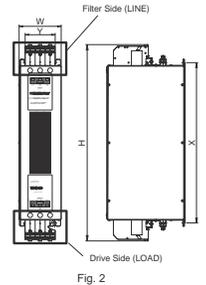
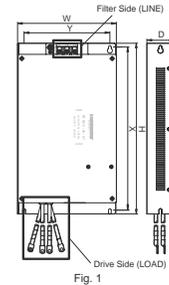
### Manufactured by EPCOS (UL Listed)



### EPCOS Dimensions

| Yaskawa Part Number | Dimensions (in.) |       |       |       |       | Weight (lb) | Fig. |
|---------------------|------------------|-------|-------|-------|-------|-------------|------|
|                     | W                | D     | H     | X     | Y     |             |      |
| UFI000177           | 2.02             | 2.48  | 6.50  | 1.50  | 6.10  | 1.3         | 1    |
| UFI000178           | 1.83             | 2.76  | 9.09  | 1.50  | 8.70  | 2           | 1    |
| UFI000179           | 1.83             | 3.27  | 9.09  | 1.50  | 8.70  | 2.4         | 1    |
| UFI000180           | 2.28             | 3.54  | 10.43 | 1.38  | 10.04 | 3.9         | 1    |
| UFI000181           | 2.28             | 3.54  | 10.43 | 1.38  | 10.04 | 3.9         | 1    |
| UFI000182           | 2.28             | 5.57  | 10.43 | 1.38  | 10.04 | 6           | 1    |
| UFI000183           | 3.15             | 5.31  | 11.42 | 2.36  | 10.04 | 9.3         | 1    |
| UFI000184           | 3.54             | 5.91  | 11.42 | 2.56  | 10.04 | 10.8        | 1    |
| UFI000185           | 3.54             | 5.91  | 10.63 | 2.56  | 10.04 | 11.7        | 1    |
| UFI000186           | 7.48             | 4.53  | 11.81 | 6.50  | 9.45  | 33.1        | 2    |
| UFI000187           | 10.24            | 4.57  | 11.81 | 9.25  | 9.45  | 46.3        | 2    |
| UFI000188           | 10.24            | 4.57  | 11.81 | 9.25  | 9.45  | 46.3        | 2    |
| UFI000189           | 10.24            | 4.57  | 13.78 | 9.25  | 11.42 | 48.5        | 2    |
| UFI000190           | 11.81            | 6.54  | 13.78 | 10.83 | 11.42 | 61.7        | 2    |
| UFI000191           | 11.81            | 9.84  | 15.75 | 10.83 | 13.39 | 75          | 2    |
| UFI000192           | 15.16            | 12.60 | 25.59 | 13.98 | 22.05 | 232         | 2    |

### Manufactured by Schaffner (CE Compliant)



### Schaffner Dimensions

| Yaskawa Part Number | Dimensions (in.) |     |      |      |      | Weight (lb) | Fig. |
|---------------------|------------------|-----|------|------|------|-------------|------|
|                     | W                | D   | H    | X    | Y    |             |      |
| FS5972-10-07        | 5.6              | 1.8 | 13   | 4.5  | 12.3 | 2.6         | 1    |
| FS5972-18-07        | 5.6              | 1.8 | 13   | 4.5  | 12.3 | 2.9         | 1    |
| FS5972-35-07        | 8.1              | 2   | 14   | 6.9  | 13.2 | 4.6         | 1    |
| FS5972-60-07        | 9.3              | 2.6 | 16.1 | 8.1  | 15.4 | 8.8         | 1    |
| FS5972-100-35       | 3.5              | 5.9 | 13   | 2.6  | 10   | 7.5         | 2    |
| FS5972-170-40       | 4.7              | 6.7 | 17.8 | 4    | 14.4 | 13.2        | 2    |
| FS5972-250-37       | 5.1              | 9.5 | 24   | 3.5  | 19.6 | 25.8        | 2    |
| FS5972-410-99       | 10.2             | 4.5 | 15.2 | 9.3  | 4.7  | 23.1        | 3    |
| UFI000032           | 10.2             | 5.3 | 15.2 | 9.3  | 4.7  | 24.3        | 3    |
| UFI000033           | 11.8             | 6.3 | 28.2 | 10.8 | 8.3  | 31.5        | 3    |

## EMC Filters (continued)

### 240V Class

| HP   | Drive Model Number CIMR-AU2A |            | Noise Filter by EPCOS |      |                   | Noise Filter by Schaffner EMC |      |                   |
|------|------------------------------|------------|-----------------------|------|-------------------|-------------------------------|------|-------------------|
|      | Normal Duty                  | Heavy Duty | Yaskawa Part Number   | Qty. | Rated Current (A) | Yaskawa Part Number           | Qty. | Rated Current (A) |
| 0.5  | 0004                         | 0004       | UFI000177             | 1    | 8                 | FS5972-10-07                  | 1    | 10                |
| 0.75 | 0004                         | 0004       | UFI000177             | 1    | 8                 | FS5972-10-07                  | 1    | 10                |
| 1    | 0006                         | 0006       | UFI000177             | 1    | 8                 | FS5972-10-07                  | 1    | 10                |
| 1.5  | 0006                         | 0008       | UFI000178             | 1    | 16                | FS5972-10-07                  | 1    | 10                |
| 2    | 0008                         | 0008       | UFI000178             | 1    | 16                | FS5972-10-07                  | 1    | 10                |
| 3    | 0010                         | 0012       | UFI000179             | 1    | 25                | FS5972-18-07                  | 1    | 18                |
| 5    | 0018                         | 0021       | UFI000180             | 1    | 36                | FS5972-35-07                  | 1    | 35                |
| 7.5  | 0021                         | 0030       | UFI000180             | 1    | 36                | FS5972-35-07                  | 1    | 35                |
| 10   | 0030                         | 0040       | UFI000182             | 1    | 66                | FS5972-60-07                  | 1    | 60                |
| 15   | 0040                         | 0056       | UFI000182             | 1    | 66                | FS5972-60-07                  | 1    | 60                |
| 20   | 0056                         | 0069       | UFI000183             | 1    | 90                | FS5972-100-35                 | 1    | 100               |
| 25   | 0069                         | 0081       | UFI000184             | 1    | 120               | FS5972-100-35                 | 1    | 100               |
| 30   | 0081                         | 0110       | UFI000185             | 1    | 150               | FS5972-170-40                 | 1    | 170               |
| 40   | 0110                         | 0138       | UFI000186             | 1    | 250               | FS5972-170-40                 | 1    | 170               |
| 50   | 0138                         | 0169       | UFI000186             | 1    | 250               | FS5972-250-37                 | 1    | 250               |
| 60   | 0169                         | 0211       | UFI000186             | 1    | 250               | FS5972-250-37                 | 1    | 250               |
| 75   | 0211                         | 0250       | UFI000187             | 1    | 320               | FS5972-410-99                 | 1    | 410               |
| 100  | 0250                         | 0312       | UFI000188             | 1    | 400               | FS5972-410-99                 | 1    | 410               |
| 125  | 0312                         | 0360       | UFI000189             | 1    | 600               | UFI000032                     | 1    | 600               |
| 150  | 0360                         | 0415       | UFI000189             | 1    | 600               | UFI000032                     | 1    | 600               |
| 175  | 0415                         | -          | UFI000189             | 1    | 600               | UFI000032                     | 1    | 600               |

Note: Schaffner filters must be used when IEC/EN61508 (functional safety) conformance is required with the Safe-Torque-Off function.

### 480V Class

| HP   | Drive Model Number CIMR-AU4A |            | Noise Filter by EPCOS |      |                   | Noise Filter by Schaffner EMC |      |                   |
|------|------------------------------|------------|-----------------------|------|-------------------|-------------------------------|------|-------------------|
|      | Normal Duty                  | Heavy Duty | Yaskawa Part Number   | Qty. | Rated Current (A) | Yaskawa Part Number           | Qty. | Rated Current (A) |
| 0.75 | 0002                         | 0002       | UFI000177             | 1    | 8                 | FS5972-10-07                  | 1    | 10                |
| 2    | 0004                         | 0004       | UFI000178             | 1    | 16                | FS5972-10-07                  | 1    | 10                |
| 3    | 0005/0007                    | 0005/0007  | UFI000178             | 1    | 16                | FS5972-10-07                  | 1    | 10                |
| 5    | 0009                         | 0009/0011  | UFI000179             | 1    | 25                | FS5972-18-07                  | 1    | 18                |
| 7.5  | 0011                         | 0018       | UFI000180             | 1    | 36                | FS5972-35-07                  | 1    | 35                |
| 10   | 0018                         | 0023       | UFI000180             | 1    | 36                | FS5972-35-07                  | 1    | 35                |
| 15   | 0023                         | 0031       | UFI000180             | 1    | 36                | FS5972-35-07                  | 1    | 35                |
| 20   | 0031                         | 0038       | UFI000181             | 1    | 50                | FS5972-60-07                  | 1    | 60                |
| 25   | 0038                         | 0044       | UFI000182             | 1    | 66                | FS5972-60-07                  | 1    | 60                |
| 30   | 0044                         | 0058       | UFI000182             | 1    | 66                | FS5972-60-07                  | 1    | 60                |
| 40   | 0058                         | 0072       | UFI000183             | 1    | 90                | FS5972-100-35                 | 1    | 100               |
| 50   | 0072                         | 0088       | UFI000184             | 1    | 120               | FS5972-100-35                 | 1    | 100               |
| 60   | 0088                         | 0103       | UFI000185             | 1    | 150               | FS5972-170-40                 | 1    | 170               |
| 75   | 0103                         | 0139       | UFI000186             | 1    | 250               | FS5972-170-40                 | 1    | 170               |
| 100  | 0139                         | 0165       | UFI000186             | 1    | 250               | FS5972-170-40                 | 1    | 170               |
| 125  | 0165                         | 0208       | UFI000186             | 1    | 250               | FS5972-250-37                 | 1    | 250               |
| 150  | 0208                         | 0250       | UFI000188             | 1    | 400               | FS5972-410-99                 | 1    | 410               |
| 200  | 0250                         | 0296       | UFI000188             | 1    | 400               | FS5972-410-99                 | 1    | 410               |
| 250  | 0296                         | 0362       | UFI000188             | 1    | 400               | FS5972-410-99                 | 1    | 410               |
| 300  | 0362                         | 0414       | UFI000189             | 1    | 600               | UFI000032                     | 1    | 600               |
| 350  | 0414                         | 0515       | UFI000189             | 1    | 600               | UFI000032                     | 1    | 600               |
| 450  | 0515                         | 0675       | UFI000190             | 1    | 1000              | UFI000033                     | 1    | 800               |
| 550  | 0675                         | 0930       | UFI000191             | 1    | 1600              | UFI000032                     | 2    | 600               |
| 800  | 0930                         | 1200       | UFI000192             | 1    | 2500              | UFI000033                     | 2    | 800               |
| 1000 | 1200                         | -          | UFI000192             | 1    | 2500              | UFI000033                     | 2    | 800               |

Note: Schaffner filters must be used when IEC/EN61508 (functional safety) conformance is required with the Safe-Torque-Off function.

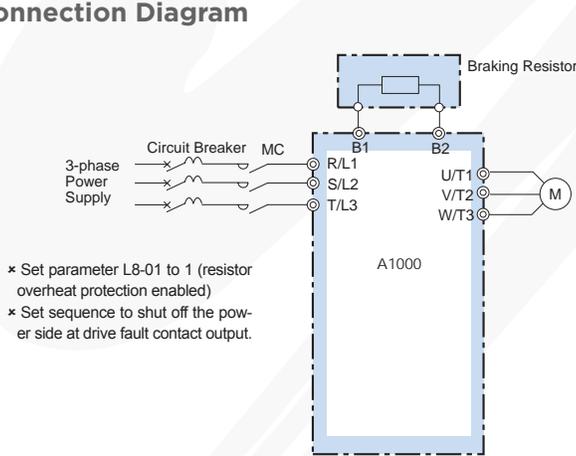
# Power Accessories Selection

## Dynamic Braking Options

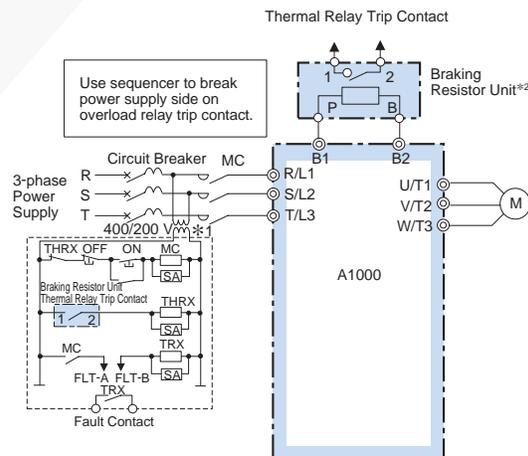
Dynamic braking provides a method to dissipate energy from regenerative events such as high inertia, fast decelerations or overhauling applications (e.g. downhill conveyors or eccentric loads). A dynamic braking system consists of a brake transistor and a brake resistor. A1000 drives through 50HP (normal duty) have built-in brake chopper transistors. A separately mounted Braking Unit (separate brake transistor) is available for larger drives.

A drive mounted 3% duty cycle resistor is available for 240V and 480V A1000 drives through 7.5HP normal duty (and 5HP heavy duty). For larger drives, higher duty cycles, and 600V applications, separately mounted resistor assemblies are available.

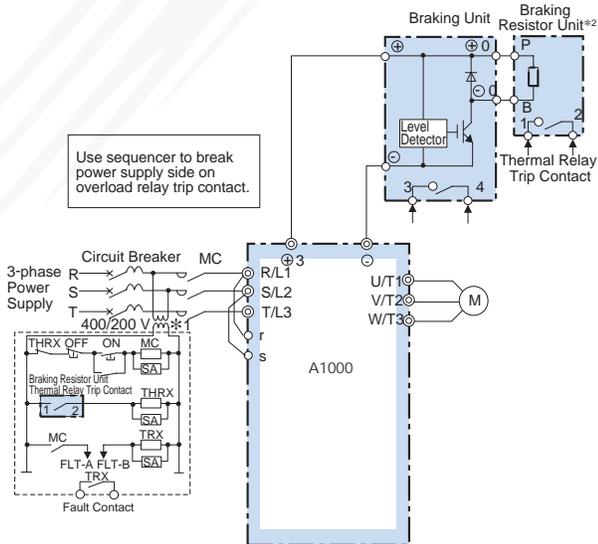
### Connection Diagram



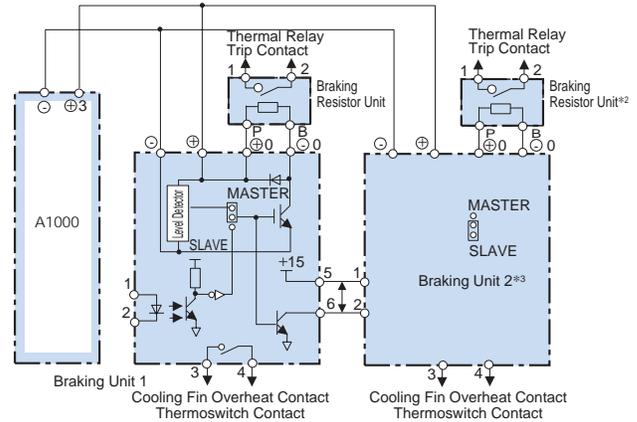
Connection Diagram A



Connection Diagram B



Connection Diagram C



Connection Diagram D

\*1: 240V class drives do not require control circuit transformer.

\*2: Disable stall prevention during deceleration by setting L3-04 = 0 when using a Braking Resistor Unit. The motor may not stop within the deceleration time if this setting is not changed.

\*3: When using more than one parallel-connected braking unit, connect and select connectors: Braking units have a MASTER/SLAVE selection connector. Select MASTER side only for braking unit1 and select SLAVE sides for other braking units.

Note: When connecting a separately-installed type braking unit (model CDBR) to drives with built-in braking transistor (240V/480V 50HP or less), connect the B1 terminal of the drive to the positive terminal of the braking resistor unit and connect the negative terminal of the drive to the negative terminal of the braking resistor unit. The B2 terminal is not used in this case.

# Dynamic Braking Options (continued)

## Braking Unit

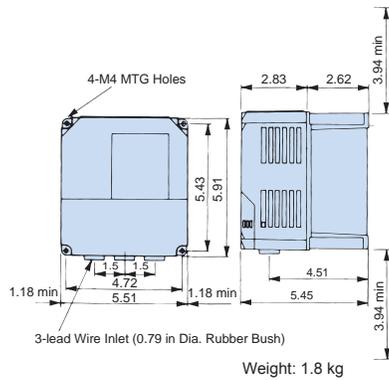


Braking Unit [CDBR series]

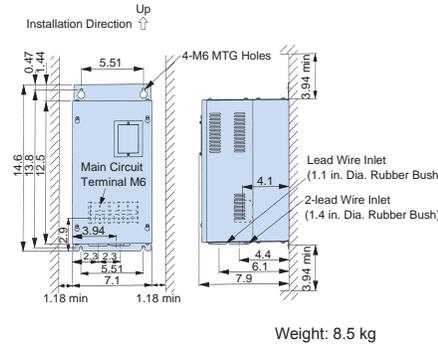
| CDBR-..... | Heat Loss (W) |
|------------|---------------|
| 2015B      | 32            |
| 2022B      | 38            |
| 2110B      | 64            |
| 4030B      | 54            |
| 4045B      | 59            |
| 4220B      | 71            |

## Dimensions

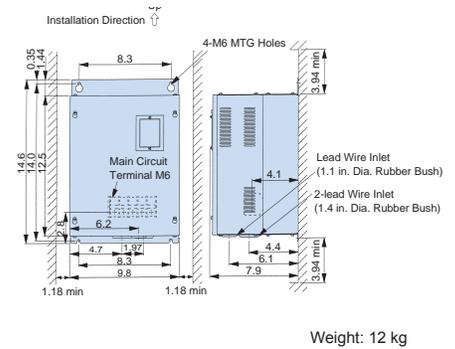
CDBR-2015B, -2022B, -4030B, -4045B



CDBR-2110B



CDBR-4220B



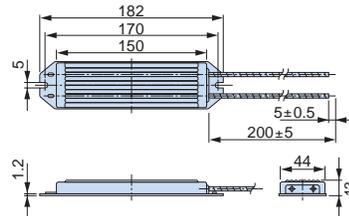
## Braking Resistor



3% Braking Resistor (R75XX)

An attachment (option) is required for installation of the braking resistor.

## Dimensions (in.)



Weight: 0.2 kg (All R75XX Series models)

## Attachment for Braking Resistor

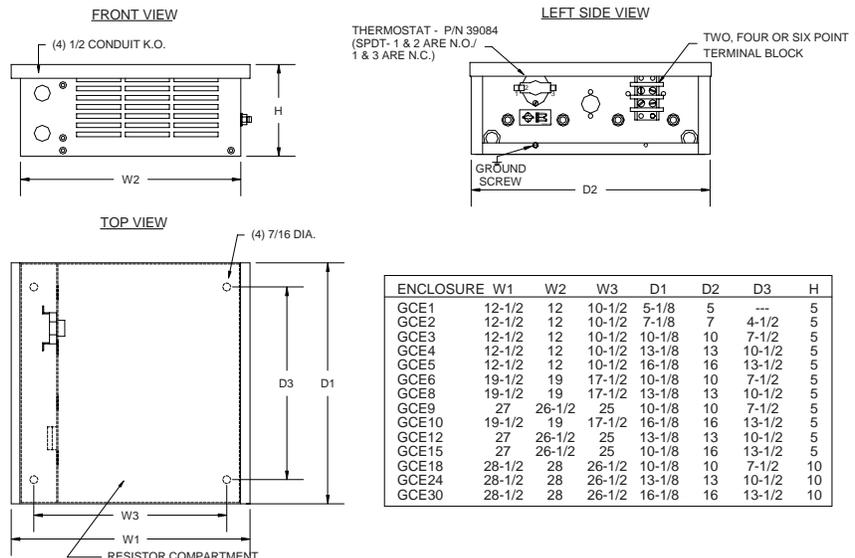


## Braking Resistor Unit (Stand-alone)



Stand-alone

## Dimensions (in.)





# Dynamic Braking Options (continued)

480V Class

| Max. Motor (HP) | ND/HD | A1000 Model CIMR-AU4A | Braking Unit  |        | Braking Resistor (Duty Factor: 3% ED, 10 s max) |                |      |       |                    |                       | Braking Resistor Unit (Duty Factor: 10% ED, 10 s max) |           |           |                    |            | Min.* Connection Resistance (Ω) |     |     |  |  |  |  |  |
|-----------------|-------|-----------------------|---------------|--------|---|----------------|------|-------|--------------------|-----------------------|---|-----------|-----------|--------------------|------------|---------------------------------|-----|-----|--|--|--|--|--|
|                 |       |                       |               |        | No Fuse   |                |      |       |                    |                       |   |           |           |                    |            |                                 |     |     |  |  |  |  |  |
|                 |       |                       |               |        | Yaskawa Part Number                             | Resistance (Ω) | Qty. | Diag. | Braking Torque (%) | Yaskawa Part Number   | Resistor Specs (Ω)                                    | Qty.      | Diag.     | Braking Torque (%) |            |                                 |     |     |  |  |  |  |  |
| 0.75            | HD    | 0002                  | Built-in      |        | R7508   | 750            | 1    | A     | 230                | URS000252             | 500   | 1         | B         | 150                | 96         |                                 |     |     |  |  |  |  |  |
|                 | ND    | 0002                  |               |        |   |                |      |       |                    | 130                   | URS000240   | 750       | 1         | B                  | 100        | 96                              |     |     |  |  |  |  |  |
| 2               | HD    | 0004                  |               |        |   | R7508          | 750  | 1     | A                  | 130                   | URS000253   | 250       | 1         | B                  | 150        | 96                              |     |     |  |  |  |  |  |
|                 | ND    | 0004                  |               |        |   | R7508          | 750  |       |                    |                       |   |           | URS000241 | 375                | 1          | B                               | 100 | 96  |  |  |  |  |  |
| 3               | HD    | 0005                  |               |        |   | R7507          | 400  | 1     | A                  | 125                   | URS000254   | 170       | 1         | B                  | 150        | 64                              |     |     |  |  |  |  |  |
|                 | ND    | 0005                  |               |        |   |                |      |       |                    |                       | 115   | URS000242 | 250       | 1                  | B          | 100                             | 64  |     |  |  |  |  |  |
|                 | HD    | 0007                  |               |        |   | R7506          | 300  |       |                    |                       |   |           | URS000254 | 170                | 1          | B                               |     | 150 |  |  |  |  |  |
|                 | ND    | 0007                  |               |        |   | R7505          | 200  |       |                    |                       |   | 100       | URS000243 | 150                | 1          | B                               | 100 | 64  |  |  |  |  |  |
| 5               | HD    | 0009                  |               |        |   |                |      | 1     | A                  | 100                   | URS000255   | 100       | 1         | B                  | 150        | 32                              |     |     |  |  |  |  |  |
|                 | ND    | 0009                  |               |        |   | R7505          | 200  |       |                    |                       |   | 83        | URS000243 | 150                | 1          | B                               | 100 | 32  |  |  |  |  |  |
|                 | HD    | 0011                  |               |        |   |                |      |       |                    |                       |   |           | URS000255 | 100                | 1          | B                               | 150 |     |  |  |  |  |  |
| 7.5             | ND    | 0011                  |               |        |   | R7505          | 200  | 2     | A                  | 135                   | URS000244   | 100       | 1         | B                  | 100        | 32                              |     |     |  |  |  |  |  |
|                 | HD    | 0018                  |               |        |   | -              | -    | -     | -                  | -                     | URS000256   | 67        | 1         | B                  | 150        |                                 |     |     |  |  |  |  |  |
| 10              | ND    | 0018                  |               |        |   | -              | -    | -     | -                  | -                     | URS000245   | 75        | 1         | B                  | 100        | 32                              |     |     |  |  |  |  |  |
|                 | HD    | 0023                  |               |        |   | -              | -    | -     | -                  | -                     | URS000257   | 50        | 1         | B                  | 150        |                                 |     |     |  |  |  |  |  |
| 15              | ND    | 0023                  |               |        |   | -              | -    | -     | -                  | -                     | URS000246   | 50        | 1         | B                  | 100        | 32                              |     |     |  |  |  |  |  |
|                 | HD    | 0031                  |               |        |   | -              | -    | -     | -                  | -                     | URS000258   | 34        | 1         | B                  | 150        | 20                              |     |     |  |  |  |  |  |
| 20              | ND    | 0031                  |               |        |   | -              | -    | -     | -                  | -                     | URS000247   | 38        | 1         | B                  | 100        | 20                              |     |     |  |  |  |  |  |
|                 | HD    | 0038                  |               |        |   | -              | -    | -     | -                  | -                     | URS000259   | 25        | 1         | B                  | 150        |                                 |     |     |  |  |  |  |  |
| 25              | ND    | 0038                  |               |        |   | -              | -    | -     | -                  | -                     | URS000248   | 30        | 1         | B                  | 100        | 20                              |     |     |  |  |  |  |  |
|                 | HD    | 0044                  |               |        |   | -              | -    | -     | -                  | -                     | URS000259   | 25        | 1         | B                  | 150        | 19.2                            |     |     |  |  |  |  |  |
| 30              | ND    | 0044                  |               |        |   | -              | -    | -     | -                  | -                     | URS000249   | 25        | 1         | B                  | 100        | 19.2                            |     |     |  |  |  |  |  |
|                 | HD    | 0058                  |               |        |   | -              | -    | -     | -                  | -                     | URS000260   | 17        | 1         | B                  | 150        |                                 |     |     |  |  |  |  |  |
| 40              | ND    | 0058                  |               |        |   | -              | -    | -     | -                  | -                     | URS000250   | 19        | 1         | B                  | 100        | 19.2                            |     |     |  |  |  |  |  |
|                 | HD    | 0072                  |               |        |   | -              | -    | -     | -                  | -                     | URS000261   | 12.6      | 1         | B                  | 150        |                                 |     |     |  |  |  |  |  |
| 50              | ND    | 0072                  |               |        |   | -              | -    | -     | -                  | -                     | URS000251   | 15        | 1         | B                  | 100        | 19.2                            |     |     |  |  |  |  |  |
|                 | HD    | 0088                  |               | 4045B  | 2   | -              | -    | -     | -                  | -                     | URS000151   | 18        | 1         | D                  | 150        | 12.8                            |     |     |  |  |  |  |  |
| 60              | ND    | 0088                  |               | 4045B  | 1   | -              | -    | -     | -                  | -                     | URS000144   | 13.6      | 1         | D                  | 150        | 12.8                            |     |     |  |  |  |  |  |
|                 | HD    | 0103                  |               | 4045B  | 2   | -              | -    | -     | -                  | -                     | URS000151   | 18        |           |                    |            |                                 |     |     |  |  |  |  |  |
| 75              | ND    | 0103                  |               | 4045B  | 2   | -              | -    | -     | -                  | -                     | URS000143   | 13.6      | 1         | D                  | 150        | 12.8                            |     |     |  |  |  |  |  |
|                 | HD    | 0139                  |               |        | -   | -              | -    | -     | -                  |                       |   |           |           |                    |            |                                 |     |     |  |  |  |  |  |
| 100             | ND    | 0139                  | 4220B         | 1      | -   | -              | -    | -     | -                  | URS000119             | 4.2   | 1         | D         | 150                | 3.2        |                                 |     |     |  |  |  |  |  |
|                 | HD    | 0165                  |               |        | -   | -              | -    | -     | -                  |                       |   |           |           |                    |            |                                 |     |     |  |  |  |  |  |
| 125             | ND    | 0165                  | 4220B         | 1      | -   | -              | -    | -     | -                  | URS000119             | 4.2   | 1         | D         | 150                | 3.2        |                                 |     |     |  |  |  |  |  |
|                 | HD    | 0208                  |               |        | -   | -              | -    | -     | -                  |                       |   |           |           |                    |            |                                 |     |     |  |  |  |  |  |
| 150             | ND    | 0208                  | 4220B         | 1      | -   | -              | -    | -     | -                  | URS000165             | 3.2   | 1         | D         | 150                | 3.2        |                                 |     |     |  |  |  |  |  |
|                 | HD    | 0250                  |               |        | -   | -              | -    | -     | -                  |                       |   |           |           |                    |            |                                 |     |     |  |  |  |  |  |
| 200             | ND    | 0250                  | 4220B & 4045B | 1 Each | -   | -              | -    | -     | -                  | URS000165 & URS000142 | 3.2 & 13.6  | 1 each    | D         | 150                | 3.2 & 12.8 |                                 |     |     |  |  |  |  |  |
|                 | HD    | 0296                  |               |        | -   | -              | -    | -     | -                  |                       |   |           |           |                    |            |                                 |     |     |  |  |  |  |  |
| 250             | ND    | 0296                  | 4220B & 4045B | 1 & 2  | -   | -              | -    | -     | -                  | URS000165 & URS000143 | 3.2 & 13.6  | 1 each    | D         | 150                | 3.2 & 12.8 |                                 |     |     |  |  |  |  |  |
|                 | HD    | 0362                  |               |        | -   | -              | -    | -     | -                  |                       |   |           |           |                    |            |                                 |     |     |  |  |  |  |  |
| 300             | ND    | 0362                  | 4220B         | 2      | -   | -              | -    | -     | -                  | URS000166             | 3.2   | 1         | D         | 150                | 3.2        |                                 |     |     |  |  |  |  |  |
|                 | HD    | 0414                  |               |        | -   | -              | -    | -     | -                  |                       |   |           |           |                    |            |                                 |     |     |  |  |  |  |  |
| 350             | ND    | 0414                  | 4220B         | 2      | -   | -              | -    | -     | -                  | URS000166             | 3.2   | 1         | D         | 150                | 3.2        |                                 |     |     |  |  |  |  |  |
|                 | HD    | 0515                  |               |        | -   | -              | -    | -     | -                  |                       |   |           |           |                    |            |                                 |     |     |  |  |  |  |  |
| 400             | ND    | 0515                  | 4220B         | 3      | -   | -              | -    | -     | -                  | URS000167             | 3.2   | 1         | D         | 150                | 3.2        |                                 |     |     |  |  |  |  |  |
|                 | HD    | 0675                  |               |        | -   | -              | -    | -     | -                  |                       |   |           |           |                    |            |                                 |     |     |  |  |  |  |  |
| 450             | ND    | 0515                  | 4220B         | 3      | -   | -              | -    | -     | -                  | URS000167             | 3.2   | 1         | D         | 150                | 3.2        |                                 |     |     |  |  |  |  |  |
|                 | HD    | 0675                  |               |        | -   | -              | -    | -     | -                  |                       |   |           |           |                    |            |                                 |     |     |  |  |  |  |  |
| 500             | ND    | 0675                  | 4220B         | 3      | -   | -              | -    | -     | -                  | URS000167             | 3.2   | 1         | D         | 150                | 3.2        |                                 |     |     |  |  |  |  |  |
|                 | HD    | 0675                  |               |        | -   | -              | -    | -     | -                  |                       |   |           |           |                    |            |                                 |     |     |  |  |  |  |  |
| 550             | ND    | 0675                  | 4220B         | 4      | -   | -              | -    | -     | -                  | URS000166             | 3.2   | 2         | D         | 150                | 3.2        |                                 |     |     |  |  |  |  |  |
|                 | HD    | 0930                  |               |        | -   | -              | -    | -     | -                  |                       |   |           |           |                    |            |                                 |     |     |  |  |  |  |  |
| 600             | ND    | 0930                  | 4220B         | 4      | -   | -              | -    | -     | -                  | URS000166             | 3.2   | 2         | D         | 150                | 3.2        |                                 |     |     |  |  |  |  |  |
|                 | HD    | 0930                  |               |        | -   | -              | -    | -     | -                  |                       |   |           |           |                    |            |                                 |     |     |  |  |  |  |  |
| 700             | ND    | 0930                  | 4220B         | 4      | -   | -              | -    | -     | -                  | URS000166             | 3.2   | 2         | D         | 150                | 3.2        |                                 |     |     |  |  |  |  |  |
|                 | HD    | 1200                  |               |        | -   | -              | -    | -     | -                  |                       |   |           |           |                    |            |                                 |     |     |  |  |  |  |  |
| 750             | ND    | 0930                  | 4220B         | 5      | -   | -              | -    | -     | -                  | URS000166 & URS000167 | 3.2 each  | 1 each    | D         | 150                | 3.2        |                                 |     |     |  |  |  |  |  |
|                 | HD    | 1200                  |               |        | -   | -              | -    | -     | -                  |                       |   |           |           |                    |            |                                 |     |     |  |  |  |  |  |
| 800             | ND    | 1200                  | 4220B         | 6      | -   | -              | -    | -     | -                  | URS000167             | 3.2   | 2         | D         | 150                | 3.2        |                                 |     |     |  |  |  |  |  |
|                 | HD    | 1200                  |               |        | -   | -              | -    | -     | -                  |                       |   |           |           |                    |            |                                 |     |     |  |  |  |  |  |
| 900             | ND    | 1200                  |               |        |   |                | -    | -     | -                  |                       |   |           |           |                    |            | -                               | -   |     |  |  |  |  |  |
|                 | HD    | 1200                  |               |        |   |                | -    | -     | -                  |                       |   |           |           |                    |            | -                               | -   |     |  |  |  |  |  |
| 1000            | ND    | 1200                  |               |        |   |                | -    | -     | -                  |                       |   |           |           |                    |            | -                               | -   |     |  |  |  |  |  |

\* The value shown for the minimum connection resistance is that for a single braking unit. Select a resistance value higher than the connectable resistance value and enough to generate the required braking torque.

Note: 1. The rated output current of the drive output amps should be equal to or greater than the motor rated current.  
 2. An attachment (option) is required for installation of the braking resistor (Part Number R75XX). Contact Yaskawa for details.

# Power Accessories Selection

## Dynamic Braking Options (continued)

600V Class

| Max. Motor (HP) | ND/HD | A1000 Model CIMR-AU5A | Braking Unit |      | Braking Resistor (Duty Factor: 3% ED, 10 s max) |                |      |       |                    | Braking Resistor Unit (Duty Factor: 10% ED, 10 s max) |                    |           |       |                    | Min.* Connection Resistance (Ω) |      |
|-----------------|-------|-----------------------|--------------|------|---|----------------|------|-------|--------------------|---|--------------------|-----------|-------|--------------------|---------------------------------|------|
|                 |       |                       |              |      | No Fuse   |                |      |       |                    |   |                    |           |       |                    |                                 |      |
|                 |       |                       |              |      | Yaskawa Part Number                             | Resistance (Ω) | Qty. | Diag. | Braking Torque (%) | Yaskawa Part Number                                   | Resistor Specs (Ω) | Qty.      | Diag. | Braking Torque (%) |                                 |      |
| 1               | HD    | 0003                  | Built-in     | Qty. | -   | -              | -    | -     | -                  | URS000229   | 400                | 1         | B     | 150                | 150                             |      |
|                 | ND    | 0003                  |              |      | -   | -              | -    | -     | -                  | -   | URS000219          | 575       | 1     | B                  | 100                             | 150  |
| 2               | HD    | 0004                  |              |      | -   | -              | -    | -     | -                  | -   | URS000229          | 400       | 1     | B                  | 150                             | 150  |
|                 | ND    | 0003                  |              |      | -   | -              | -    | -     | -                  | -   | URS000219          | 575       | 1     | B                  | 100                             | 150  |
| 3               | HD    | 0006                  |              |      | -   | -              | -    | -     | -                  | -   | URS000230          | 260       | 1     | B                  | 150                             | 150  |
|                 | ND    | 0004                  |              |      | -   | -              | -    | -     | -                  | -   | URS000220          | 400       | 1     | B                  | 100                             | 150  |
| 5               | ND    | 0006                  |              |      | -   | -              | -    | -     | -                  | -   | URS000221          | 235       | 1     | B                  | 100                             | 150  |
|                 | HD    | 0009                  |              |      | -   | -              | -    | -     | -                  | -   | URS000231          | 160       | 1     | B                  | 150                             | 130  |
| 7.5             | ND    | 0009                  |              |      | -   | -              | -    | -     | -                  | -   | URS000222          | 150       | 1     | B                  | 100                             | 130  |
|                 | HD    | 0011                  |              |      | -   | -              | -    | -     | -                  | -   | URS000232          | 100       | 1     | B                  | 150                             | 90   |
| 10              | ND    | 0011                  |              |      | -   | -              | -    | -     | -                  | -   | URS000223          | 120       | 1     | B                  | 100                             | 90   |
|                 | HD    | 0017                  |              |      | -   | -              | -    | -     | -                  | -   | URS000233          | 80        | 1     | B                  | 150                             | 65   |
| 15              | ND    | 0017                  |              |      | -   | -              | -    | -     | -                  | -   | URS000224          | 78        | 1     | B                  | 100                             | 65   |
|                 | HD    | 0022                  |              |      | -   | -              | -    | -     | -                  | -   | URS000234          | 52        | 1     | B                  | 150                             | 44   |
| 20              | ND    | 0022                  |              |      | -   | -              | -    | -     | -                  | -   | URS000225          | 59        | 1     | B                  | 100                             | 44   |
|                 | HD    | 0027                  |              |      | -   | -              | -    | -     | -                  | -   | URS000235          | 39        | 1     | B                  | 150                             | 32   |
| 25              | ND    | 0027                  |              |      | -   | -              | -    | -     | -                  | -   | URS000226          | 47        | 1     | B                  | 100                             | 32   |
|                 | HD    | 0032                  |              |      | -   | -              | -    | -     | -                  | -   | URS000239          | 32        | 1     | B                  | 150                             | 29   |
| 30              | ND    | 0032                  |              |      | -   | -              | -    | -     | -                  | -   | URS000227          | 39        | 1     | B                  | 100                             | 29   |
|                 | HD    | 0041                  |              |      | -   | -              | -    | -     | -                  | -   | URS000236          | 26        | 1     | B                  | 150                             | 15   |
| 40              | ND    | 0041                  |              |      | -   | -              | -    | -     | -                  | -   | URS000157          | 21.25**   | 1     | B                  | 100                             | 15   |
|                 | HD    | 0052                  |              |      | -   | -              | -    | -     | -                  | 150   |                    |           |       |                    | 15                              |      |
| 50              | ND    | 0052                  |              |      | -   | -              | -    | -     | -                  | -   | URS000226          | 47        | 1     | B                  | 100                             | 15   |
|                 | HD    | 0062                  |              |      | 5037B   | 2              | -    | -     | -                  | -   | -                  | URS000155 | 27.2  | 1                  | D                               | 150  |
| 60              | ND    | 0062                  |              |      | -   | -              | -    | -     | -                  | -   | URS000155          | 27.2      | 1     | D                  | 150                             | 23.8 |
|                 | HD    | 0077                  |              |      | 5037B   | 2              | -    | -     | -                  | -   |                    |           |       |                    |                                 |      |
| 75              | ND    | 0077                  |              |      | -   | -              | -    | -     | -                  | -   | URS000138          | 10.5      | 1     | C                  | 150                             | 9.5  |
|                 | HD    | 0099                  |              |      | 5110B   | 1              | -    | -     | -                  | -   |                    |           |       |                    |                                 |      |
| 100             | ND    | 0099                  | -            | -    | -   | -              | -    | -     | URS000118          | 4.2   | 1                  | C         | 150   | 3.8                |                                 |      |
|                 | HD    | 0125                  | 5300B        | 1    | -   | -              | -    | -     |                    |   |                    |           |       |                    |                                 |      |
| 125             | ND    | 0125                  | -            | -    | -   | -              | -    | -     | URS000163          | 3.2   | 1                  | C         | 150   | 3.8                |                                 |      |
|                 | HD    | 0145                  | 5300B        | 1    | -   | -              | -    | -     |                    |   |                    |           |       |                    |                                 |      |
| 150             | ND    | 0145                  | -            | -    | -   | -              | -    | -     | URS000125          | 5.2   | 1                  | C         | 150   | 3.8                |                                 |      |
|                 | HD    | 0192                  | 5300B        | 1    | -   | -              | -    | -     |                    |   |                    |           |       |                    |                                 |      |
| 200             | ND    | 0192                  | -            | -    | -   | -              | -    | -     | URS000122          | 4.2   | 1                  | C         | 150   | 3.8                |                                 |      |
|                 | HD    | 0242                  | 5300B        | 1    | -   | -              | -    | -     |                    |   |                    |           |       |                    |                                 |      |
| 250             | ND    | 0242                  | -            | -    | -   | -              | -    | -     | URS000163          | 3.2   | 2                  | D         | 150   | 3.8                |                                 |      |
|                 | HD    | 0242                  | 5300B        | 2    | -   | -              | -    | -     |                    |   |                    |           |       |                    |                                 |      |

\* The value shown for the minimum connection resistance is that for a single braking unit. Select a resistance value higher than the connectable resistance value and enough to generate the required braking torque.

Note: 1. The rated output current of the drive output amps should be equal to or greater than the motor rated current.  
2. An attachment (option) is required for installation of the braking resistor (Part Number R75XX). Contact Yaskawa for details.

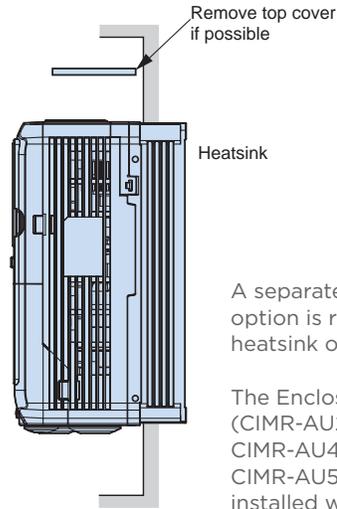
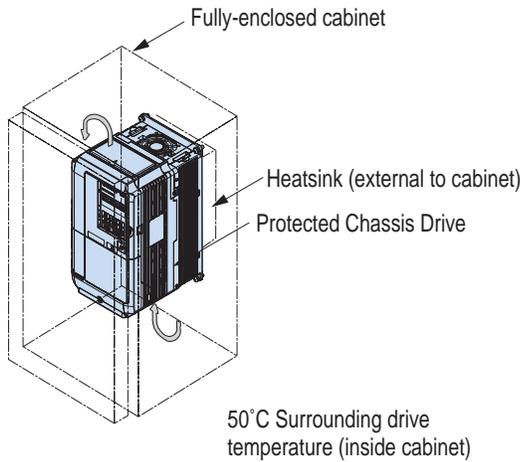
\*\* Make the connection on URS000157 to parallel the resistors to change resistance from 42.5 ohms to 21.25 ohms

# Mechanical Installation Planning

## Cabinet Mounting Choices

The protected chassis type drive can be installed either completely inside of a cabinet, or with its heatsink external, thus reducing the amount of heat inside the cabinet and allowing for a more compact enclosure. Be sure to leave enough clearance during installation for ventilation and proper cooling as well as access to wiring for maintenance.

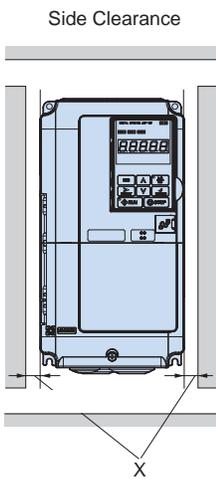
### External Heatsink Mounting



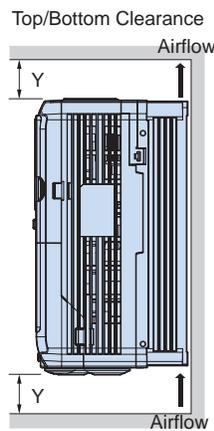
A separate mounting bracket option is required to install the heatsink outside the enclosure.

The Enclosure Panel type models (CIMR-AU2A0004 to 0081, CIMR-AU4A0002 to 0044, and CIMR-AU5A003 to 0032) can be installed with the top and bottom covers removed.

### Ventilation Space



| Surrounding Drive Temperature | 40°C    | 50°C     |
|-------------------------------|---------|----------|
| Side Clearance (X)            | 0.0 in. | 1.18 in. |



| Drive Frame Size         | 1 - 11   | 12 and larger |
|--------------------------|----------|---------------|
| Top/Bottom Clearance (Y) | 4.72 in. | 11.81 in.     |

For installing the drive with capacity of AU2A0110 / AU4A0058 / AU5A0041 or greater, be sure to leave enough clearance during installation for suspension eye bolts on both sides of the unit and main circuit wiring for maintenance.

# Mechanical Installation Planning

## Drive Dimensions

Enclosures of standard products vary depending on the model. Refer to the tables and diagrams below.

### Enclosure Panel [NEMA Type 1] Diagram

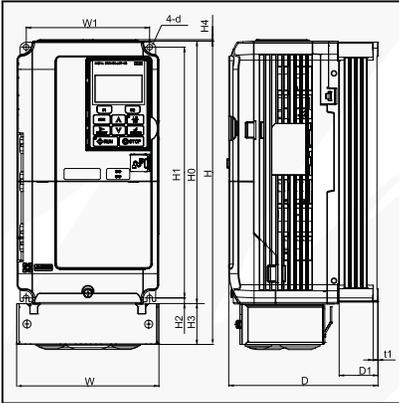


Figure 1

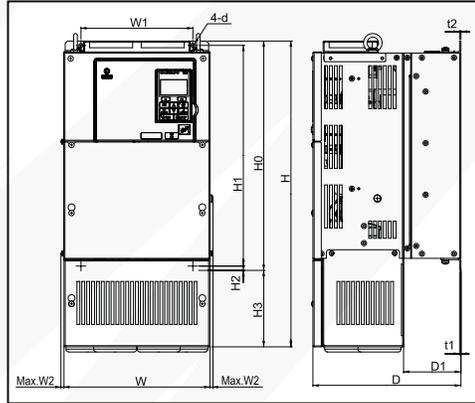


Figure 2

Note: Drives with NEMA Type 1 Enclosures can be converted to protected chassis by removing the top and bottom covers. The H3 dimension would be eliminated and the overall height of the drive would become H0.

### Open-Chassis [IP00] Diagram

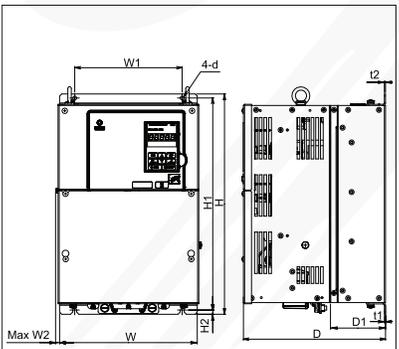


Figure 3

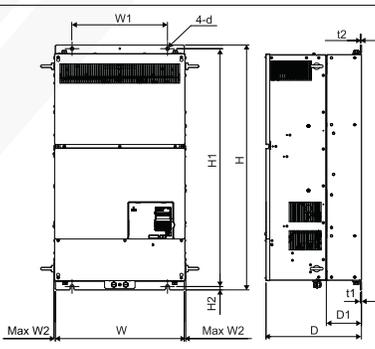


Figure 4

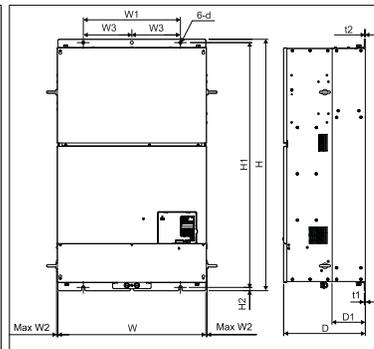


Figure 5

## 240V Class

| Diagram           | Model<br>CIMR-AU2A□□□□ | Max. Applicable Motor Capacity (HP) |            | Fig.  | Dimensions (in.) |       |       |       |       |       |       |      |      |      |      |      |      | Weight<br>(lb) |       |
|-------------------|------------------------|-------------------------------------|------------|-------|------------------|-------|-------|-------|-------|-------|-------|------|------|------|------|------|------|----------------|-------|
|                   |                        | Normal Duty                         | Heavy Duty |       | W                | H     | D     | W1    | W2    | H0    | H1    | H2   | H3   | H4   | D1   | t1   | t2   |                | d     |
| NEMA Type 1       | 0004                   | 0.75                                | 0.75       | 1     | 5.51             | 11.81 | 5.79  | 4.80  | -     | 10.24 | 9.76  | 0.24 | 1.57 | 0.06 | 1.50 | 0.20 | -    | M5             | 7.3   |
|                   | 0006                   | 1.5                                 | 1          |       | 5.51             | 11.81 | 5.79  | 4.80  | -     | 10.24 | 9.76  | 0.24 | 1.57 | 0.06 | 1.50 | 0.20 | -    |                | 7.3   |
|                   | 0008                   | 2                                   | 2          |       | 5.51             | 11.81 | 5.79  | 4.80  | -     | 10.24 | 9.76  | 0.24 | 1.57 | 0.06 | 1.50 | 0.20 | -    |                | 7.5   |
|                   | 0010                   | 3                                   | 2          |       | 5.51             | 11.81 | 5.79  | 4.80  | -     | 10.24 | 9.76  | 0.24 | 1.57 | 0.06 | 1.50 | 0.20 | -    |                | 7.5   |
|                   | 0012                   | 3                                   | 3          |       | 5.51             | 11.81 | 5.79  | 4.80  | -     | 10.24 | 9.76  | 0.24 | 1.57 | 0.06 | 1.50 | 0.20 | -    |                | 7.5   |
|                   | 0018                   | 5                                   | 3          |       | 5.51             | 11.81 | 6.46  | 4.80  | -     | 10.24 | 9.76  | 0.24 | 1.57 | 0.06 | 2.17 | 0.20 | -    |                | 8.2   |
|                   | 0021                   | 7.5                                 | 5          |       | 5.51             | 11.81 | 6.46  | 4.80  | -     | 10.24 | 9.76  | 0.24 | 1.57 | 0.06 | 2.17 | 0.20 | -    |                | 8.2   |
|                   | 0030                   | 10                                  | 7.5        |       | 5.51             | 11.81 | 6.57  | 4.80  | -     | 10.24 | 9.76  | 0.24 | 1.57 | 0.06 | 2.17 | 0.20 | -    |                | 9.3   |
|                   | 0040                   | 15                                  | 10         |       | 5.51             | 11.81 | 6.57  | 4.80  | -     | 10.24 | 9.76  | 0.24 | 1.57 | 0.06 | 2.17 | 0.20 | -    |                | 9.3   |
|                   | 0056                   | 20                                  | 15         |       | 7.09             | 13.39 | 7.36  | 6.30  | -     | 11.81 | 11.18 | 0.31 | 1.57 | 0.06 | 2.95 | 0.20 | -    |                | 13.0  |
|                   | 0069                   | 25                                  | 20         |       | 8.66             | 15.75 | 7.76  | 7.56  | -     | 13.78 | 13.19 | 0.31 | 1.97 | 0.06 | 3.07 | 0.20 | -    |                | 20.1  |
|                   | 0081                   | 30                                  | 25         |       | 8.66             | 15.75 | 7.76  | 7.56  | -     | 13.78 | 13.19 | 0.31 | 1.97 | 0.06 | 3.07 | 0.20 | -    |                | 22.0  |
|                   | 0110                   | 40                                  | 30         |       | 10.00            | 21.02 | 10.16 | 7.68  | 0.31  | 15.75 | 15.16 | 0.30 | 5.28 | -    | 3.94 | 0.09 | 0.09 |                | 50.7  |
|                   | 0138                   | 50                                  | 40         |       | 10.98            | 24.17 | 10.16 | 8.66  | 0.31  | 17.72 | 17.13 | 0.30 | 6.46 | -    | 3.94 | 0.09 | 0.09 |                | 61.7  |
|                   | 0169                   | 60                                  | 50         |       | 12.95            | 28.74 | 11.14 | 10.24 | 0.31  | 21.65 | 21.06 | 0.30 | 7.09 | -    | 4.33 | 0.09 | 0.09 |                | 90.4  |
| 0211              | 75                     | 60                                  | 12.95      | 28.74 | 11.14            | 10.24 | 0.31  | 21.65 | 21.06 | 0.30  | 7.09  | -    | 4.33 | 0.09 | 0.09 | 92.6 |      |                |       |
| Protected Chassis | 0250                   | 100                                 | 75         | 3     | 17.72            | 27.76 | 12.99 | 12.80 | 0.39  | N/A   | 26.77 | 0.49 | N/A  | N/A  | 5.12 | 0.13 | 0.13 | M10            | 167.6 |
|                   | 0312                   | 125                                 | 100        |       | 17.72            | 27.76 | 12.99 | 12.80 | 0.39  | N/A   | 26.77 | 0.49 | N/A  | N/A  | 5.12 | 0.13 | 0.13 | M10            | 176.4 |
|                   | 0360                   | 150                                 | 125        |       | 19.69            | 31.50 | 13.78 | 14.57 | 0.39  | N/A   | 30.43 | 0.51 | N/A  | N/A  | 5.12 | 0.18 | 0.18 | M12            | 216.1 |
|                   | 0415                   | 175                                 | 150        |       | 19.69            | 31.50 | 13.78 | 14.57 | 0.39  | N/A   | 30.43 | 0.51 | N/A  | N/A  | 5.12 | 0.18 | 0.18 | M12            | 218.3 |

## 480V Class

| Diagram           | Model<br>CIMR-AU4A □□□□ | Max. Applicable Motor Capacity (HP) |            | Fig.  | Dimensions (in.) |       |       |       |       |       |       |       |       |      |      |      |       |      | Weight<br>(lb) |       |        |
|-------------------|-------------------------|-------------------------------------|------------|-------|------------------|-------|-------|-------|-------|-------|-------|-------|-------|------|------|------|-------|------|----------------|-------|--------|
|                   |                         | Normal Duty                         | Heavy Duty |       | W                | H     | D     | W1    | W2    | W3    | H0    | H1    | H2    | H3   | H4   | D1   | t1    | t2   |                | d     |        |
| NEMA Type 1       | 0002                    | 1                                   | 0.75       | 1     | 5.51             | 11.81 | 5.79  | 4.80  | -     | -     | 10.24 | 9.76  | 0.24  | 1.57 | 0.06 | 1.50 | 0.20  | -    | M5             | 7.5   |        |
|                   | 0004                    | 2                                   | 2          |       | 5.51             | 11.81 | 5.79  | 4.80  | -     | -     | 10.24 | 9.76  | 0.24  | 1.57 | 0.06 | 1.50 | 0.20  | -    |                | 7.5   |        |
|                   | 0005                    | 3                                   | 3          |       | 5.51             | 11.81 | 5.79  | 4.80  | -     | -     | 10.24 | 9.76  | 0.24  | 1.57 | 0.06 | 1.50 | 0.20  | -    |                | 7.5   |        |
|                   | 0007                    | 3                                   | 3          |       | 5.51             | 11.81 | 6.46  | 4.80  | -     | -     | 10.24 | 9.76  | 0.24  | 1.57 | 0.06 | 2.17 | 0.20  | -    |                | 7.9   |        |
|                   | 0009                    | 5                                   | 5          |       | 5.51             | 11.81 | 6.46  | 4.80  | -     | -     | 10.24 | 9.76  | 0.24  | 1.57 | 0.06 | 2.17 | 0.20  | -    |                | 8.2   |        |
|                   | 0011                    | 7.5                                 | 5          |       | 5.51             | 11.81 | 6.46  | 4.80  | -     | -     | 10.24 | 9.76  | 0.24  | 1.57 | 0.06 | 2.17 | 0.20  | -    |                | 8.2   |        |
|                   | 0018                    | 10                                  | 7.5/10     |       | 5.51             | 11.81 | 6.57  | 4.80  | -     | -     | 10.24 | 9.76  | 0.24  | 1.57 | 0.06 | 2.17 | 0.20  | -    |                | 9.0   |        |
|                   | 0023                    | 15                                  | 10         |       | 5.51             | 11.81 | 6.57  | 4.80  | -     | -     | 10.24 | 9.76  | 0.24  | 1.57 | 0.06 | 2.17 | 0.20  | -    |                | 9.0   |        |
|                   | 0031                    | 20                                  | 15         |       | 7.09             | 13.39 | 6.57  | 6.30  | -     | -     | 11.81 | 11.18 | 0.31  | 1.57 | 0.06 | 2.17 | 0.20  | -    |                | 12.6  |        |
|                   | 0038                    | 25                                  | 20         |       | 7.09             | 13.39 | 7.36  | 6.30  | -     | -     | 11.81 | 11.18 | 0.31  | 1.57 | 0.06 | 2.95 | 0.20  | -    |                | 13.2  |        |
|                   | 0044                    | 30                                  | 25/30      |       | 8.66             | 15.75 | 7.76  | 7.56  | -     | -     | 13.78 | 13.19 | 0.31  | 1.97 | 0.06 | 3.07 | 0.20  | -    |                | 19.2  |        |
|                   | 0058                    | 40                                  | 30         |       | 10.00            | 21.02 | 10.16 | 7.68  | 0.31  | -     | 15.75 | 15.16 | 0.30  | 2.56 | -    | 3.94 | 0.09  | 0.09 |                | 50.7  |        |
|                   | 0072                    | 50                                  | 40         |       | 10.98            | 24.17 | 10.16 | 8.66  | 0.31  | -     | 17.72 | 17.13 | 0.30  | 2.56 | -    | 3.94 | 0.09  | 0.09 |                | 59.5  |        |
|                   | 0088                    | 60                                  | 50/60      |       | 12.95            | 28.74 | 10.16 | 10.24 | 0.31  | -     | 20.08 | 19.49 | 0.30  | 4.72 | -    | 4.13 | 0.09  | 0.13 |                | 86.0  |        |
|                   | 0103                    | 75                                  | 60         |       | 12.95            | 28.74 | 10.16 | 10.24 | 0.31  | -     | 20.08 | 19.49 | 0.30  | 4.72 | -    | 4.13 | 0.09  | 0.13 |                | 86.0  |        |
|                   | 0139                    | 100                                 | 75         |       | 12.95            | 28.74 | 11.14 | 10.24 | 0.31  | -     | 21.65 | 21.06 | 0.30  | 7.09 | -    | 4.33 | 0.09  | 0.09 |                | 99.2  |        |
| 0165              | 125                     | 100                                 | 12.95      | 28.74 | 11.14            | 10.24 | 0.31  | -     | 21.65 | 21.06 | 0.30  | 7.09  | -     | 4.33 | 0.09 | 0.09 | 101.4 |      |                |       |        |
| Protected Chassis | 0208                    | 150                                 | 125/150    | 3     | 17.72            | 27.76 | 12.99 | 12.80 | 0.39  | -     | -     | 26.77 | 0.49  | -    | -    | 5.12 | 0.13  | 0.13 | M10            | 174.2 |        |
|                   | 0250                    | 200                                 | 150        |       | 19.69            | 31.50 | 13.78 | 14.57 | 0.39  | -     | -     | 30.43 | 0.51  | -    | -    | 5.12 | 0.18  | 0.18 | M12            | 211.6 |        |
|                   | 0296                    | 250                                 | 200        |       | 19.69            | 31.50 | 13.78 | 14.57 | 0.39  | -     | -     | 30.43 | 0.51  | -    | -    | 5.12 | 0.18  | 0.18 | M12            | 224.9 |        |
|                   | 0362                    | 300                                 | 250        |       | 19.69            | 31.50 | 13.78 | 14.57 | 0.39  | -     | -     | 30.43 | 0.51  | -    | -    | 5.12 | 0.18  | 0.18 | M12            | 235.9 |        |
|                   | 0414                    | 350                                 | 300        |       | 19.69            | 37.40 | 14.57 | 14.57 | 0.31  | -     | -     | 36.34 | 0.51  | -    | -    | 5.31 | 0.18  | 0.18 | M12            | 275.6 |        |
|                   | 0515                    | 450                                 | 350        |       | 5                | 26.38 | 44.88 | 14.57 | 17.32 | 0.24  | 8.66  | -     | 43.70 | 0.59 | -    | -    | 5.91  | 0.18 | 0.18           | M12   | 476.2  |
|                   | 0675                    | 600                                 | 400-500    |       |                  | 26.38 | 44.88 | 14.57 | 17.32 | 0.24  | 8.66  | -     | 43.70 | 0.59 | -    | -    | 5.91  | 0.18 | 0.18           | M12   | 487.2  |
|                   | 0930                    | 800                                 | 700        |       | 5                | 49.21 | 54.33 | 14.57 | 43.70 | -     | -     | -     | 52.95 | 0.59 | -    | -    | 5.91  | 0.18 | 0.18           | M12   | 1201.5 |
|                   | 1200                    | 1000                                | 900        |       |                  | 49.21 | 54.33 | 14.57 | 43.70 | -     | -     | -     | 52.95 | 0.59 | -    | -    | 5.91  | 0.18 | 0.18           | M12   | 1223.6 |

## 600V Class

| Diagram     | Model<br>CIMR-AU5A □□□□ | Max. Applicable Motor Capacity (HP) |            | Fig.  | Dimensions (in.) |       |       |       |       |       |       |       |       |      |       |      |      |      | Weight<br>(lb) |      |     |       |
|-------------|-------------------------|-------------------------------------|------------|-------|------------------|-------|-------|-------|-------|-------|-------|-------|-------|------|-------|------|------|------|----------------|------|-----|-------|
|             |                         | Normal Duty                         | Heavy Duty |       | W                | H     | D     | W1    | W2    | H0    | H1    | H2    | H3    | H4   | D1    | t1   | t2   | d    |                |      |     |       |
| NEMA Type 1 | 0003                    | 2                                   | 1          | 1     | 5.51             | 11.81 | 5.79  | 4.80  | -     | -     | 10.24 | 9.76  | 0.24  | 1.57 | 0.06  | 1.50 | 0.20 | -    | M5             | 7.5  |     |       |
|             | 0004                    | 3                                   | 2          |       | 5.51             | 11.81 | 5.79  | 4.80  | -     | -     | 10.24 | 9.76  | 0.24  | 1.57 | 0.06  | 1.50 | 0.20 | -    |                | 7.5  |     |       |
|             | 0006                    | 5                                   | 3          |       | 5.51             | 11.81 | 6.46  | 4.80  | -     | -     | 10.24 | 9.76  | 0.24  | 1.57 | 0.06  | 2.17 | 0.20 | -    |                | 8.2  |     |       |
|             | 0009                    | 7.5                                 | 5          |       | 5.51             | 11.81 | 6.46  | 4.80  | -     | -     | 10.24 | 9.76  | 0.24  | 1.57 | 0.06  | 2.17 | 0.20 | -    |                | 8.2  |     |       |
|             | 0011                    | 10                                  | 7.5        |       | 5.51             | 11.81 | 6.57  | 4.80  | -     | -     | 10.24 | 9.76  | 0.24  | 1.57 | 0.06  | 2.17 | 0.20 | -    |                | 9.0  |     |       |
|             | 0017                    | 15                                  | 10         |       | 7.09             | 13.39 | 7.36  | 6.30  | -     | -     | 11.81 | 11.18 | 0.31  | 1.57 | 0.06  | 2.95 | 0.20 | -    |                | 13.2 |     |       |
|             | 0022                    | 20                                  | 15         |       | 7.09             | 13.39 | 7.36  | 6.30  | -     | -     | 11.81 | 11.18 | 0.31  | 1.57 | 0.06  | 2.95 | 0.20 | -    |                | 13.2 |     |       |
|             | 0027                    | 25                                  | 20         |       | 8.66             | 15.75 | 7.76  | 7.56  | -     | -     | 13.78 | 13.19 | 0.31  | 1.97 | 0.06  | 3.07 | 0.20 | -    |                | 19.2 |     |       |
|             | 0032                    | 30                                  | 25         |       | 8.66             | 15.75 | 7.76  | 7.56  | -     | -     | 13.78 | 13.19 | 0.31  | 1.97 | 0.06  | 3.07 | 0.20 | -    |                | 19.2 |     |       |
|             | 0041                    | 40                                  | 30         |       | 10.98            | 20.28 | 10.16 | 8.66  | 0.31  | 17.72 | 17.13 | 0.30  | 2.56  | -    | 3.94  | 0.09 | 0.09 | 59.5 |                |      |     |       |
|             | 0052                    | 50                                  | 40         |       | 10.98            | 20.28 | 10.16 | 8.66  | 0.31  | 17.72 | 17.13 | 0.30  | 2.56  | -    | 3.94  | 0.09 | 0.09 | 59.5 |                |      |     |       |
|             | 0062                    | 60                                  | 50         |       | 12.95            | 28.74 | 11.14 | 10.24 | 0.31  | 21.65 | 21.06 | 0.30  | 7.09  | -    | 4.33  | 0.09 | 0.09 | 99.2 |                |      |     |       |
|             | 0077                    | 75                                  | 60         |       | 12.95            | 28.74 | 11.14 | 10.24 | 0.31  | 21.65 | 21.06 | 0.30  | 7.09  | -    | 4.33  | 0.09 | 0.09 | 99.2 |                |      |     |       |
|             | 0099                    | 100                                 | 75         |       | 12.95            | 28.74 | 11.14 | 10.24 | 0.31  | 21.65 | 21.06 | 0.30  | 7.09  | -    | 4.33  | 0.09 | 0.09 | 99.2 |                |      |     |       |
|             | Protected Chassis       | 0125                                | 125        |       | 100              | 2     | 17.95 | 37.80 | 12.99 | 12.80 | 0.31  | 27.76 | 26.77 | 0.49 | 10.04 | -    | 5.12 | 0.13 |                | 0.13 | M10 | 191.8 |
|             |                         | 0145                                | 150        |       | 125              |       | 17.95 | 37.80 | 12.99 | 12.80 | 0.31  | 27.76 | 26.77 | 0.49 | 10.04 | -    | 5.12 | 0.13 |                | 0.13 | M10 | 191.8 |
| 0192        |                         | 200                                 | 150        | 19.84 | 45.98            |       | 13.78 | 14.57 | 0.31  | 31.50 | 30.43 | 0.51  | 14.49 | -    | 5.12  | 0.18 | 0.18 | M12  | 233.7          |      |     |       |
| 0242        |                         | 250                                 | 200        | 19.84 | 45.98            |       | 13.78 | 14.57 | 0.31  | 31.50 | 30.43 | 0.51  | 14.49 | -    | 5.12  | 0.18 | 0.18 | M12  | 257.9          |      |     |       |

Some protected chassis models can be converted to NEMA Type 1 by adding top and bottom covers. An add-on kit is required to do so. The tables below display the resulting dimensions of these models.

### 240V Class - Converted to NEMA Type 1

| Diagram     | Model<br>CIMR-AU2A □□□□ | Max. Applicable Motor Capacity (HP) |            | Fig. | Dimensions (in.) |       |       |       |      |       |       |      |       |    |      |      |      |     | Weight<br>(lb) |
|-------------|-------------------------|-------------------------------------|------------|------|------------------|-------|-------|-------|------|-------|-------|------|-------|----|------|------|------|-----|----------------|
|             |                         | Normal Duty                         | Heavy Duty |      | W                | H     | D     | W1    | W2   | H0    | H1    | H2   | H3    | H4 | D1   | t1   | t2   | d   |                |
| NEMA Type 1 | 0250                    | 100                                 | 75         | 1    | 17.95            | 37.80 | 12.99 | 12.80 | 0.31 | 27.76 | 26.77 | 0.49 | 10.04 | -  | 5.12 | 0.13 | 0.13 | M10 | 183.0          |
|             | 0312                    | 125                                 | 100        |      | 17.95            | 37.80 | 12.99 | 12.80 | 0.31 | 27.76 | 26.77 | 0.49 | 10.04 | -  | 5.12 | 0.13 | 0.13 |     | 194.0          |
|             | 0360                    | 150                                 | 125        |      | 19.84            | 45.98 | 13.78 | 14.57 | 0.31 | 31.50 | 30.43 | 0.51 | 14.49 | -  | 5.12 | 0.18 | 0.18 |     | M12            |

### 480V Class - Converted to NEMA Type 1

| Diagram     | Model<br>CIMR-AU4A □□□□ | Max. Applicable Motor Capacity (HP) |            | Fig. | Dimensions (in.) |       |       |       |      |       |       |      |       |    |      |      |      |     | Weight<br>(lb) |       |
|-------------|-------------------------|-------------------------------------|------------|------|------------------|-------|-------|-------|------|-------|-------|------|-------|----|------|------|------|-----|----------------|-------|
|             |                         | Normal Duty                         | Heavy Duty |      | W                | H     | D     | W1    | W2   | H0    | H1    | H2   | H3    | H4 | D1   | t1   | t2   | d   |                |       |
| NEMA Type 1 | 0208                    | 150                                 | 125        | 1    | 17.95            | 37.80 | 12.99 | 12.80 | 0.31 | 27.76 | 26.77 | 0.49 | 10.04 | -  | 5.12 | 0.13 | 0.13 | M10 | 191.8          |       |
|             | 0250                    | 200                                 | 150        |      | 19.84            | 45.98 | 13.78 | 14.57 | 0.31 | 31.50 | 30.43 | 0.51 | 14.49 | -  | 5.12 | 0.18 | 0.18 |     | 233.7          |       |
|             | 0296                    | 250                                 | 200        |      | 19.84            | 45.98 | 13.78 | 14.57 | 0.31 | 31.50 | 30.43 | 0.51 | 14.49 | -  | 5.12 | 0.18 | 0.18 |     | M12            | 246.9 |
|             | 0362                    | 300                                 | 250        |      | 19.84            | 45.98 | 13.78 | 14.57 | 0.31 | 31.50 | 30.43 | 0.51 | 14.49 | -  | 5.12 | 0.18 | 0.18 |     | M12            | 257.9 |



## NEMA Type 1 Conduit Bracket Dimensions (continued)

### 240V Class

| Model<br>CIMR-AU2A | Figure | Dimensions (in.) |     |     |     |     |     |     |     |     |     |     |     |     |
|--------------------|--------|------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
|                    |        | W                | D   | W1  | W2  | W3  | W4  | D1  | D2  | D3  | D4  | d5  | d6  | d7  |
| 0004               | 1      | 1.7              | 1.5 | 1.5 | –   | –   | –   | 1.6 | 2.8 | 3.1 | –   | 0.9 | 1.4 | –   |
| 0006               |        | 1.7              | 1.5 | 1.5 | –   | –   | –   | 1.6 | 2.8 | 3.1 | –   | 0.9 | 1.4 | –   |
| 0008               |        | 1.7              | 1.5 | 1.5 | –   | –   | –   | 1.6 | 2.8 | 3.1 | –   | –   | –   | –   |
| 0010               |        | 1.7              | 1.5 | 1.5 | –   | –   | –   | 1.6 | 2.8 | 3.1 | –   | 0.9 | 1.4 | –   |
| 0012               |        | 1.7              | 2.2 | 1.5 | –   | –   | –   | 1.6 | 2.8 | 3.1 | –   | 0.9 | 1.4 | –   |
| 0018               | 2      | 1.7              | 2.2 | 1.5 | –   | –   | –   | 1.6 | 2.8 | 3.1 | –   | 1.4 | 0.9 | 1.7 |
| 0021               |        | 1.7              | 2.2 | 1.5 | –   | –   | –   | 1.6 | 2.8 | 3.1 | –   | 1.4 | 0.9 | 1.7 |
| 0030               |        | 1.7              | 2.2 | 1.5 | –   | –   | –   | 1.6 | 2.8 | 3.1 | –   | 1.4 | 0.9 | 1.7 |
| 0040               |        | 1                | 3   | 2.2 | –   | –   | –   | 1.9 | 3.3 | 2.1 | –   | 1.4 | 0.9 | 1.7 |
| 0056               |        | 1                | 3   | 2.2 | –   | –   | –   | 1.9 | 3.3 | 2.1 | –   | 1.4 | 0.9 | 1.7 |
| 0069               |        | 1.1              | 3.1 | 2.5 | –   | –   | –   | 2   | 3.4 | 2.2 | –   | 1.4 | 0.9 | 1.7 |
| 0081               |        | 1.1              | 3.1 | 2.5 | –   | –   | –   | 2   | 3.4 | 2.2 | –   | 1.4 | 0.9 | 1.7 |
| 0110               | 4      | 3.4              | 3.9 | 1.5 | 0.9 | –   | –   | 3.9 | 1.7 | 1.0 | –   | 2.4 | 1.1 | –   |
| 0138               | 5      | 3.9              | 3.9 | 3.5 | 1.6 | –   | –   | 3.9 | 1.7 | 1.0 | –   | 2.0 | 2.4 | 1.1 |
| 0169               | 7      | 4.4              | 4.3 | 2.2 | 0.6 | 1.2 | 2.6 | 4.7 | 4.3 | 2.1 | 1.6 | 2.0 | 1.4 | 2.4 |
| 0211               |        | 4.4              | 4.3 | 2.2 | 0.6 | 1.2 | 2.6 | 4.7 | 4.3 | 2.1 | 1.6 | 2.0 | 1.4 | 2.4 |

### 480V Class

| Model<br>CIMR-AU4A | Figure | Dimensions (in.) |     |     |     |     |     |     |     |     |     |     |     |     |
|--------------------|--------|------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
|                    |        | W                | D   | W1  | W2  | W3  | W4  | D1  | D2  | D3  | D4  | d5  | d6  | d7  |
| 0002               | 1      | 1.7              | 1.5 | 1.5 | –   | –   | –   | 1.6 | 2.8 | 3.1 | –   | 0.9 | 1.4 | –   |
| 0004               |        | 1.7              | 1.5 | 1.5 | –   | –   | –   | 1.6 | 2.8 | 3.1 | –   | 0.9 | 1.4 | –   |
| 0005               |        | 1.7              | 1.5 | 1.5 | –   | –   | –   | 1.6 | 2.8 | 3.1 | –   | 0.9 | 1.4 | –   |
| 0007               |        | 1.7              | 2.2 | 1.5 | –   | –   | –   | 1.6 | 2.8 | 3.1 | –   | 0.9 | 1.4 | –   |
| 0009               |        | 1.7              | 2.2 | 1.5 | –   | –   | –   | 1.6 | 2.8 | 3.1 | –   | 0.9 | 1.4 | –   |
| 0011               |        | 1.7              | 2.2 | 1.5 | –   | –   | –   | 1.6 | 2.8 | 3.1 | –   | 0.9 | 1.4 | –   |
| 0018               |        | 1.7              | 2.2 | 1.5 | –   | –   | –   | 1.6 | 2.8 | 3.1 | –   | 0.9 | 1.4 | –   |
| 0023               | 2      | 1                | 3   | 2.2 | –   | –   | –   | 1.9 | 3.3 | 2.1 | –   | 1.4 | 0.9 | 1.7 |
| 0031               |        | 1                | 3   | 2.2 | –   | –   | –   | 1.9 | 3.3 | 2.1 | –   | 1.4 | 0.9 | 1.7 |
| 0038               |        | 1.1              | 3.1 | 2.5 | –   | –   | –   | 2   | 3.4 | 2.2 | –   | 1.4 | 0.9 | 1.7 |
| 0044               | 3      | 1.1              | 3.1 | 2.5 | –   | –   | –   | 2   | 3.4 | 2.2 | –   | 1.4 | 0.9 | 1.7 |
| 0058               |        | 3.4              | 3.9 | 1.5 | 0.9 | –   | –   | 3.9 | 1.7 | 1.0 | –   | 2.4 | 1.1 | 2.0 |
| 0072               |        | 3.5              | 3.9 | 1.6 | 0.9 | –   | –   | 3.9 | 1.7 | 1.0 | –   | 2.4 | 1.1 | 2.0 |
| 0088               | 6      | 3.3              | 4.1 | 0.9 | –   | –   | –   | 3.9 | 2.6 | 1.0 | –   | 2.0 | 2.4 | 1.1 |
| 0103               |        | 3.3              | 4.1 | 0.9 | –   | –   | –   | 3.9 | 2.6 | 1.0 | –   | 2.0 | 2.4 | 1.1 |
| 0139               | 7      | 4.4              | 4.3 | 2.2 | 0.6 | 1.2 | 2.6 | 4.7 | 4.3 | 2.1 | 1.6 | 2.0 | 1.4 | 2.4 |
| 0165               |        | 4.4              | 4.3 | 2.2 | 0.6 | 1.2 | 2.6 | 4.7 | 4.3 | 2.1 | 1.6 | 2.0 | 1.4 | 2.4 |

### 600V Class

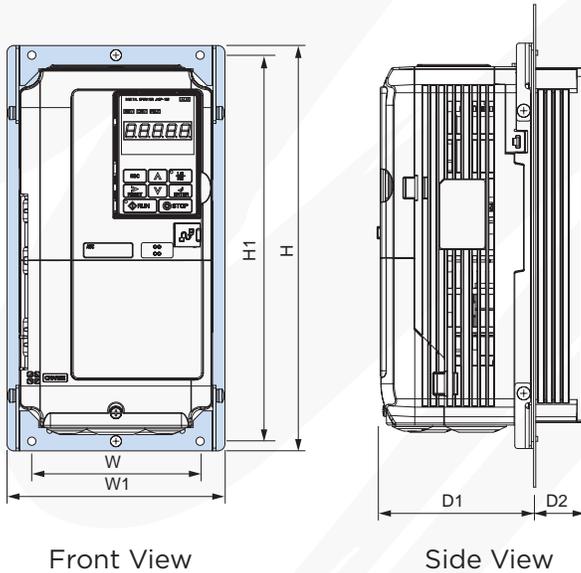
| Model<br>CIMR-AU5A | Figure | Dimensions (in.) |     |     |     |     |     |     |     |     |     |     |     |     |
|--------------------|--------|------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
|                    |        | W                | D   | W1  | W2  | W3  | W4  | D1  | D2  | D3  | D4  | d5  | d6  | d7  |
| 0003               | 1      | 1.7              | 1.5 | 1.5 | –   | –   | –   | 1.6 | 2.8 | 3.1 | –   | 0.9 | 1.4 | –   |
| 0004               |        | 1.7              | 1.5 | 1.5 | –   | –   | –   | 1.6 | 2.8 | 3.1 | –   | 0.9 | 1.4 | –   |
| 0006               |        | 1.7              | 2.2 | 1.5 | –   | –   | –   | 1.6 | 2.8 | 3.1 | –   | 0.9 | 1.4 | –   |
| 0009               |        | 1.7              | 2.2 | 1.5 | –   | –   | –   | 1.6 | 2.8 | 3.1 | –   | 0.9 | 1.4 | –   |
| 0011               |        | 1.7              | 2.2 | 1.5 | –   | –   | –   | 1.6 | 2.8 | 3.1 | –   | 0.9 | 1.4 | –   |
| 0017               | 2      | 1                | 3   | 2.2 | –   | –   | –   | 1.9 | 3.3 | 2.1 | –   | 1.4 | 0.9 | 1.7 |
| 0022               |        | 1                | 3   | 2.2 | –   | –   | –   | 1.9 | 3.3 | 2.1 | –   | 1.4 | 0.9 | 1.7 |
| 0027               |        | 1.1              | 3.1 | 2.5 | –   | –   | –   | 2   | 3.4 | 2.2 | –   | 1.4 | 0.9 | 1.7 |
| 0032               |        | 1.1              | 3.1 | 2.5 | –   | –   | –   | 2   | 3.4 | 2.2 | –   | 1.4 | 0.9 | 1.7 |
| 0041               | 3      | 3.5              | 3.9 | 1.6 | 0.9 | –   | –   | 3.9 | 1.7 | 1.0 | –   | 2.4 | 1.1 | 2.0 |
| 0052               |        | 3.5              | 3.9 | 1.6 | 0.9 | –   | –   | 3.9 | 1.7 | 1.0 | –   | 2.4 | 1.1 | 2.0 |
| 0062               | 7      | 4.4              | 4.3 | 2.2 | 0.6 | 1.2 | 2.6 | 4.7 | 4.3 | 2.1 | 1.6 | 2.0 | 1.4 | 2.4 |
| 0077               |        | 4.4              | 4.3 | 2.2 | 0.6 | 1.2 | 2.6 | 4.7 | 4.3 | 2.1 | 1.6 | 2.0 | 1.4 | 2.4 |
| 0099               |        | 4.4              | 4.3 | 2.2 | 0.6 | 1.2 | 2.6 | 4.7 | 4.3 | 2.1 | 1.6 | 2.0 | 1.4 | 2.4 |

# Mechanical Installation Planning

## External Heatsink

Additional attachments are required for installation of the following models: CIMR-AA2A0004 to 0081, CIMRAA4A0002 to 0044. The final product will be wider and taller than the drive.

Note: Contact Yaskawa for information on attachments for earlier models.



### 240V Class

| Model<br>CIMR-AU2A | Dimension (in.) |       |             |       |      |      | Yaskawa Part Number |
|--------------------|-----------------|-------|-------------|-------|------|------|---------------------|
|                    | W               | H     | W1          | H1    | D1   | D2   |                     |
| 0004               | 6.22            | 11.6  | 4.8         | 11    | 4.29 | 1.43 | 100-047-226         |
| 0006               |                 |       |             |       |      |      |                     |
| 0008               |                 |       |             |       |      |      |                     |
| 0010               |                 |       |             |       |      |      |                     |
| 0012               |                 |       |             |       |      |      |                     |
| 0018               | 4.29            | 2.1   | 100-047-227 |       |      |      |                     |
| 0021               |                 |       |             |       |      |      |                     |
| 0030               |                 |       |             |       |      |      |                     |
| 0040               | 4.41            | 2.1   | 100-047-228 |       |      |      |                     |
| 0056               |                 |       |             |       |      |      |                     |
| 0069               | 9.37            | 14.96 | 7.56        | 14.25 | 4.69 | 3    | 100-047-229         |
| 0081               |                 |       |             |       |      |      |                     |

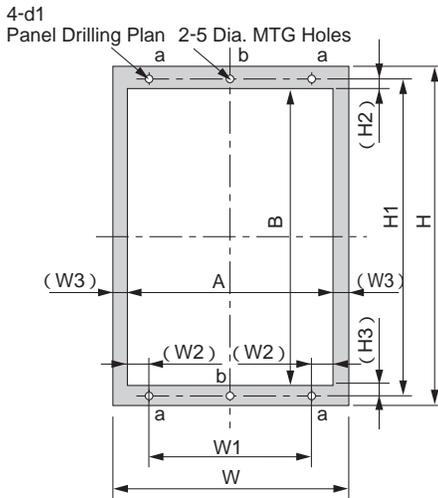
### 480V Class

| Model<br>CIMR-AU4A | Dimension (in.) |       |             |       |      |      | Yaskawa Part Number |
|--------------------|-----------------|-------|-------------|-------|------|------|---------------------|
|                    | W               | H     | W1          | H1    | D1   | D2   |                     |
| 0002               | 6.22            | 11.6  | 4.8         | 11    | 4.29 | 1.43 | 100-047-226         |
| 0004               |                 |       |             |       |      |      |                     |
| 0005               |                 |       |             |       |      |      |                     |
| 0007               |                 |       |             |       |      |      |                     |
| 0009               |                 |       |             |       |      |      |                     |
| 0011               | 4.29            | 2.1   | 100-047-227 |       |      |      |                     |
| 0018               |                 |       |             |       |      |      |                     |
| 0023               |                 |       |             |       |      |      |                     |
| 0031               | 4.41            | 2.1   | 100-047-228 |       |      |      |                     |
| 0038               |                 |       |             |       |      |      |                     |
| 0044               | 9.37            | 14.96 | 7.56        | 14.25 | 4.69 | 3    | 100-047-229         |
|                    |                 |       |             |       |      |      |                     |

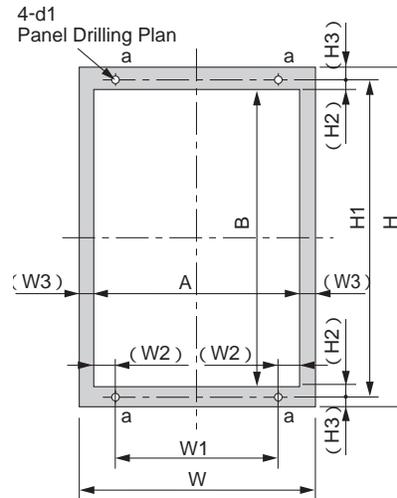
600V Class

| Model<br>CIMR-AU5A | Dimension (in.) |       |      |       |      |      | Yaskawa Part Number |
|--------------------|-----------------|-------|------|-------|------|------|---------------------|
|                    | W               | H     | W1   | H1    | D1   | D2   |                     |
| 0003               | 6.22            | 11.6  | 4.8  | 11    | 4.29 | 1.43 | 100-047-226         |
| 0004               |                 |       |      |       |      |      |                     |
| 0006               |                 |       |      |       |      |      |                     |
| 0009               |                 |       |      |       |      |      |                     |
| 0011               | 7.8             | 12.95 | 6.30 | 12.4  | 4.29 | 2.1  | 100-047-227         |
| 0017               |                 |       |      |       |      |      |                     |
| 0022               |                 |       |      |       |      |      |                     |
| 0027               | 9.37            | 14.96 | 7.56 | 14.25 | 4.41 | 2.1  | 100-047-228         |
| 0032               |                 |       |      |       | 4.69 | 3    |                     |

Panel Drilling Plan with External Heatsink



Panel Drilling Plan 1



Panel Drilling Plan 2

240V Class

| Model<br>CIMR-AU2A | Panel Drilling Plan | Dimensions (in.) |       |      |      |      |       |      |      |      |       |    |
|--------------------|---------------------|------------------|-------|------|------|------|-------|------|------|------|-------|----|
|                    |                     | W                | H     | W1   | W2   | W3   | H1    | H2   | H3   | A    | B     | d1 |
| 0004               | 1                   | 6.22             | 11.6  | 4.8  | 0.35 | 0.35 | 11    | 0.33 | 0.33 | 5.5  | 10.35 | M5 |
| 0006               | 1                   | 6.22             | 11.6  | 4.8  | 0.35 | 0.35 | 11    | 0.33 | 0.33 | 5.5  | 10.35 | M5 |
| 0008               | 1                   | 6.22             | 11.6  | 4.8  | 0.35 | 0.35 | 11    | 0.33 | 0.33 | 5.5  | 10.35 | M5 |
| 0010               | 1                   | 6.22             | 11.6  | 4.8  | 0.35 | 0.35 | 11    | 0.33 | 0.33 | 5.5  | 10.35 | M5 |
| 0012               | 1                   | 6.22             | 11.6  | 4.8  | 0.35 | 0.35 | 11    | 0.33 | 0.33 | 5.5  | 10.35 | M5 |
| 0018               | 1                   | 6.22             | 11.6  | 4.8  | 0.35 | 0.35 | 11    | 0.33 | 0.33 | 5.5  | 10.35 | M5 |
| 0021               | 1                   | 6.22             | 11.6  | 4.8  | 0.35 | 0.35 | 11    | 0.33 | 0.33 | 5.5  | 10.35 | M5 |
| 0030               | 1                   | 6.22             | 11.6  | 4.8  | 0.35 | 0.35 | 11    | 0.33 | 0.33 | 5.5  | 10.35 | M5 |
| 0040               | 1                   | 6.22             | 11.6  | 4.8  | 0.35 | 0.35 | 11    | 0.33 | 0.33 | 5.5  | 10.35 | M5 |
| 0056               | 1                   | 7.8              | 12.95 | 6.30 | 0.39 | 0.35 | 12.4  | 0.69 | 0.41 | 7.1  | 11.3  | M5 |
| 0069               | 1                   | 9.37             | 14.96 | 7.56 | 0.55 | 0.35 | 14.25 | 0.51 | 0.31 | 8.7  | 13.4  | M6 |
| 0081               | 1                   | 9.37             | 14.96 | 7.56 | 0.55 | 0.35 | 14.25 | 0.51 | 0.31 | 8.7  | 13.4  | M6 |
| 0110               | 2                   | 9.84             | 15.75 | 7.68 | 0.77 | 0.31 | 15.16 | 0.31 | 0.30 | 9.2  | 14.5  | M6 |
| 0138               | 2                   | 10.8             | 17.7  | 8.66 | 0.77 | 0.31 | 17.1  | 0.31 | 0.30 | 10.2 | 16.5  | M6 |
| 0169               | 2                   | 12.8             | 21.65 | 10.2 | 0.96 | 0.31 | 21.06 | 0.31 | 0.30 | 12.2 | 20.4  | M6 |
| 0211               | 2                   | 12.8             | 21.65 | 10.2 | 0.96 | 0.31 | 21.06 | 0.31 | 0.30 | 12.2 | 20.4  | M6 |

# Mechanical Installation Planning

## Panel Drilling Plan (continued)

480V Class

| Model<br>CIMR-AU4A( ) | Panel Drilling<br>Plan | Dimensions (in.) |       |      |      |      |       |      |      |      |       |    |
|-----------------------|------------------------|------------------|-------|------|------|------|-------|------|------|------|-------|----|
|                       |                        | W                | H     | W1   | W2   | W3   | H1    | H2   | H3   | A    | B     | d1 |
| 0002                  | 1                      | 6.22             | 11.6  | 4.8  | 0.35 | 0.35 | 11    | 0.33 | 0.33 | 5.5  | 10.35 | M5 |
| 0004                  | 1                      | 6.22             | 11.6  | 4.8  | 0.35 | 0.35 | 11    | 0.33 | 0.33 | 5.5  | 10.35 | M5 |
| 0005                  | 1                      | 6.22             | 11.6  | 4.8  | 0.35 | 0.35 | 11    | 0.33 | 0.33 | 5.5  | 10.35 | M5 |
| 0007                  | 1                      | 6.22             | 11.6  | 4.8  | 0.35 | 0.35 | 11    | 0.33 | 0.33 | 5.5  | 10.35 | M5 |
| 0009                  | 1                      | 6.22             | 11.6  | 4.8  | 0.35 | 0.35 | 11    | 0.33 | 0.33 | 5.5  | 10.35 | M5 |
| 0011                  | 1                      | 6.22             | 11.6  | 4.8  | 0.35 | 0.35 | 11    | 0.33 | 0.33 | 5.5  | 10.35 | M5 |
| 0018                  | 1                      | 6.22             | 11.6  | 4.8  | 0.35 | 0.35 | 11    | 0.33 | 0.33 | 5.5  | 10.35 | M5 |
| 0023                  | 1                      | 6.22             | 11.6  | 4.8  | 0.35 | 0.35 | 11    | 0.33 | 0.33 | 5.5  | 10.35 | M5 |
| 0031                  | 1                      | 7.8              | 12.95 | 6.30 | 0.39 | 0.35 | 12.4  | 0.69 | 0.41 | 7.1  | 11.3  | M5 |
| 0038                  | 1                      | 7.8              | 12.95 | 6.30 | 0.39 | 0.35 | 12.4  | 0.69 | 0.41 | 7.1  | 11.3  | M5 |
| 0044                  | 1                      | 9.37             | 14.96 | 7.56 | 0.55 | 0.35 | 14.25 | 0.51 | 0.31 | 8.7  | 13.4  | M6 |
| 0058                  | 2                      | 9.84             | 15.75 | 7.68 | 0.77 | 0.31 | 15.16 | 0.31 | 0.30 | 9.2  | 14.5  | M6 |
| 0072                  | 2                      | 10.8             | 17.7  | 8.66 | 0.77 | 0.31 | 17.1  | 0.31 | 0.30 | 10.2 | 16.5  | M6 |
| 0088                  | 2                      | 12.8             | 20.08 | 10.2 | 0.96 | 0.31 | 19.5  | 0.31 | 0.30 | 12.2 | 18.9  | M6 |
| 0103                  | 2                      | 12.8             | 20.08 | 10.2 | 0.96 | 0.31 | 19.5  | 0.31 | 0.30 | 12.2 | 18.9  | M6 |
| 0139                  | 2                      | 12.8             | 21.65 | 10.2 | 0.96 | 0.31 | 21.06 | 0.31 | 0.30 | 12.2 | 20.4  | M6 |
| 0165                  | 2                      | 12.8             | 21.65 | 10.2 | 0.96 | 0.31 | 21.06 | 0.31 | 0.30 | 12.2 | 20.4  | M6 |

600V Class

| Model<br>CIMR-AU5A( ) | Panel Drilling<br>Plan | Dimensions (in.) |       |      |      |      |       |      |      |      |       |    |
|-----------------------|------------------------|------------------|-------|------|------|------|-------|------|------|------|-------|----|
|                       |                        | W                | H     | W1   | W2   | W3   | H1    | H2   | H3   | A    | B     | d1 |
| 0003                  | 1                      | 6.22             | 11.6  | 4.8  | 0.35 | 0.35 | 11    | 0.33 | 0.33 | 5.5  | 10.35 | M5 |
| 0004                  | 1                      | 6.22             | 11.6  | 4.8  | 0.35 | 0.35 | 11    | 0.33 | 0.33 | 5.5  | 10.35 | M5 |
| 0006                  | 1                      | 6.22             | 11.6  | 4.8  | 0.35 | 0.35 | 11    | 0.33 | 0.33 | 5.5  | 10.35 | M5 |
| 0009                  | 1                      | 6.22             | 11.6  | 4.8  | 0.35 | 0.35 | 11    | 0.33 | 0.33 | 5.5  | 10.35 | M5 |
| 0009                  | 1                      | 6.22             | 11.6  | 4.8  | 0.35 | 0.35 | 11    | 0.33 | 0.33 | 5.5  | 10.35 | M5 |
| 0011                  | 1                      | 6.22             | 11.6  | 4.8  | 0.35 | 0.35 | 11    | 0.33 | 0.33 | 5.5  | 10.35 | M5 |
| 0017                  | 1                      | 7.8              | 12.95 | 6.30 | 0.39 | 0.35 | 12.4  | 0.69 | 0.41 | 7.1  | 11.3  | M5 |
| 0022                  | 1                      | 7.8              | 12.95 | 6.30 | 0.39 | 0.35 | 12.4  | 0.69 | 0.41 | 7.1  | 11.3  | M5 |
| 0027                  | 1                      | 9.37             | 14.96 | 7.56 | 0.55 | 0.35 | 14.25 | 0.51 | 0.31 | 8.7  | 13.4  | M6 |
| 0032                  | 1                      | 9.37             | 14.96 | 7.56 | 0.55 | 0.35 | 14.25 | 0.51 | 0.31 | 8.7  | 13.4  | M6 |
| 0041                  | 2                      | 10.8             | 17.7  | 8.66 | 0.77 | 0.31 | 17.1  | 0.31 | 0.30 | 10.2 | 16.5  | M6 |
| 0052                  | 2                      | 10.8             | 17.7  | 8.66 | 0.77 | 0.31 | 17.1  | 0.31 | 0.30 | 10.2 | 16.5  | M6 |
| 0062                  | 2                      | 12.8             | 21.65 | 10.2 | 0.96 | 0.31 | 21.06 | 0.31 | 0.30 | 12.2 | 20.4  | M6 |
| 0077                  | 2                      | 12.8             | 21.65 | 10.2 | 0.96 | 0.31 | 21.06 | 0.31 | 0.30 | 12.2 | 20.4  | M6 |
| 0099                  | 2                      | 12.8             | 21.65 | 10.2 | 0.96 | 0.31 | 21.06 | 0.31 | 0.30 | 12.2 | 20.4  | M6 |

## Drive Watts Loss Data

240V Class

| Model<br>CIMR-AU2A | Normal Duty                     |                      |                           |                | Heavy Duty         |                      |                           |                |
|--------------------|---------------------------------|----------------------|---------------------------|----------------|--------------------|----------------------|---------------------------|----------------|
|                    | Rated Amps<br>(A) <sup>*3</sup> | Heatsink Loss<br>(W) | Interior Unit<br>Loss (W) | Total Loss (W) | Rated Amps<br>(A)  | Heatsink Loss<br>(W) | Interior Unit<br>Loss (W) | Total Loss (W) |
| 0004               | 3.5                             | 18.4                 | 47                        | 66             | 3.2 <sup>*1</sup>  | 14.8                 | 44                        | 59             |
| 0006               | 6.0                             | 31                   | 51                        | 82             | 5.0 <sup>*1</sup>  | 24                   | 48                        | 72             |
| 0008               | 8.0                             | 43                   | 52                        | 95             | 6.9 <sup>*1</sup>  | 35                   | 49                        | 84             |
| 0010               | 9.6                             | 57                   | 58                        | 115            | 8.0 <sup>*1</sup>  | 43                   | 52                        | 95             |
| 0012               | 12.0                            | 77                   | 64                        | 141            | 11.0 <sup>*1</sup> | 64                   | 58                        | 122            |
| 0018               | 17.5                            | 101                  | 67                        | 168            | 14.0 <sup>*1</sup> | 77                   | 60                        | 137            |
| 0021               | 21                              | 138                  | 83                        | 222            | 17.5 <sup>*1</sup> | 101                  | 67                        | 168            |
| 0030               | 30                              | 262                  | 117                       | 379            | 25 <sup>*1</sup>   | 194                  | 92                        | 287            |
| 0040               | 40                              | 293                  | 145                       | 437            | 33 <sup>*1</sup>   | 214                  | 105                       | 319            |
| 0056               | 56                              | 371                  | 175                       | 546            | 47 <sup>*1</sup>   | 280                  | 130                       | 410            |
| 0069               | 69                              | 491                  | 205                       | 696            | 60 <sup>*1</sup>   | 395                  | 163                       | 558            |
| 0081               | 81                              | 527                  | 257                       | 785            | 75 <sup>*1</sup>   | 460                  | 221                       | 681            |
| 0110               | 110                             | 719                  | 286                       | 1005           | 85 <sup>*1</sup>   | 510                  | 211                       | 721            |
| 0138               | 138                             | 842                  | 312                       | 1154           | 115 <sup>*1</sup>  | 662                  | 250                       | 912            |
| 0169               | 169                             | 1014                 | 380                       | 1394           | 145 <sup>*1</sup>  | 816                  | 306                       | 1122           |
| 0211               | 211                             | 1218                 | 473                       | 1691           | 180 <sup>*2</sup>  | 976                  | 378                       | 1354           |
| 0250               | 250                             | 1764                 | 594                       | 2358           | 215 <sup>*2</sup>  | 1514                 | 466                       | 1980           |
| 0312               | 312                             | 2020                 | 665                       | 2686           | 283 <sup>*2</sup>  | 1936                 | 588                       | 2524           |
| 0360               | 360                             | 2698                 | 894                       | 3591           | 346 <sup>*2</sup>  | 2564                 | 783                       | 3347           |
| 0415               | 415                             | 2672                 | 954                       | 3626           | 415 <sup>*3</sup>  | 2672                 | 954                       | 3626           |

\*1: Value assumes the carrier frequency is set to 8 kHz.

\*2: Value assumes the carrier frequency is set to 5 kHz.

\*3: Value assumes the carrier frequency is set to 2 kHz.

# Mechanical Installation Planning

## Drive Watts Loss Data (continued)

480V Class

| Model<br>CIMR-AU4A | Normal Duty                     |                      |                           |                | Heavy Duty         |                      |                           |                |
|--------------------|---------------------------------|----------------------|---------------------------|----------------|--------------------|----------------------|---------------------------|----------------|
|                    | Rated Amps<br>(A) <sup>*3</sup> | Heatsink Loss<br>(W) | Interior Unit<br>Loss (W) | Total Loss (W) | Rated Amps<br>(A)  | Heatsink Loss<br>(W) | Interior Unit<br>Loss (W) | Total Loss (W) |
| 0002               | 2.1                             | 20                   | 48                        | 68             | 1.8 <sup>*1</sup>  | 15.9                 | 45                        | 61             |
| 0004               | 4.1                             | 32                   | 49                        | 81             | 3.4 <sup>*1</sup>  | 25                   | 46                        | 70             |
| 0005               | 5.4                             | 45                   | 53                        | 97             | 4.8 <sup>*1</sup>  | 37                   | 49                        | 87             |
| 0007               | 6.9                             | 62                   | 59                        | 121            | 5.5 <sup>*1</sup>  | 48                   | 53                        | 101            |
| 0009               | 8.8                             | 66                   | 60                        | 126            | 7.2 <sup>*1</sup>  | 53                   | 55                        | 108            |
| 0011               | 11.1                            | 89                   | 73                        | 162            | 9.2 <sup>*1</sup>  | 69                   | 61                        | 130            |
| 0018               | 17.5                            | 177                  | 108                       | 285            | 14.8 <sup>*1</sup> | 135                  | 86                        | 221            |
| 0023               | 23                              | 216                  | 138                       | 354            | 18.0 <sup>*1</sup> | 150                  | 97                        | 247            |
| 0031               | 31                              | 295                  | 161                       | 455            | 24 <sup>*1</sup>   | 208                  | 115                       | 323            |
| 0038               | 38                              | 340                  | 182                       | 521            | 31 <sup>*1</sup>   | 263                  | 141                       | 403            |
| 0044               | 44                              | 390                  | 209                       | 599            | 39 <sup>*1</sup>   | 330                  | 179                       | 509            |
| 0058               | 58                              | 471                  | 215                       | 686            | 45 <sup>*1</sup>   | 349                  | 170                       | 518            |
| 0072               | 72                              | 605                  | 265                       | 870            | 60 <sup>*1</sup>   | 484                  | 217                       | 701            |
| 0088               | 88                              | 684                  | 308                       | 993            | 75 <sup>*1</sup>   | 563                  | 254                       | 817            |
| 0103               | 103                             | 848                  | 357                       | 1205           | 91 <sup>*1</sup>   | 723                  | 299                       | 1022           |
| 0139               | 139                             | 1215                 | 534                       | 1749           | 112 <sup>*1</sup>  | 908                  | 416                       | 1325           |
| 0165               | 165                             | 1557                 | 668                       | 2224           | 150 <sup>*2</sup>  | 1340                 | 580                       | 1920           |
| 0208               | 208                             | 1800                 | 607                       | 2408           | 180 <sup>*2</sup>  | 1771                 | 541                       | 2313           |
| 0250               | 250                             | 2379                 | 803                       | 3182           | 216 <sup>*2</sup>  | 2360                 | 715                       | 3075           |
| 0296               | 296                             | 2448                 | 905                       | 3353           | 260 <sup>*2</sup>  | 2391                 | 787                       | 3178           |
| 0362               | 362                             | 3168                 | 1130                      | 4298           | 304 <sup>*2</sup>  | 3075                 | 985                       | 4060           |
| 0414               | 414                             | 3443                 | 1295                      | 4738           | 370 <sup>*2</sup>  | 3578                 | 1164                      | 4742           |
| 0515               | 515                             | 4850                 | 1668                      | 6518           | 450 <sup>*3</sup>  | 3972                 | 1386                      | 5358           |
| 0675               | 675                             | 4861                 | 2037                      | 6898           | 605 <sup>*3</sup>  | 4191                 | 1685                      | 5875           |
| 0930               | 930                             | 8476                 | 2952                      | 11428          | 810 <sup>*3</sup>  | 6912                 | 2455                      | 9367           |
| 1200               | 1200                            | 8572                 | 3612                      | 12184          | 1090 <sup>*3</sup> | 7626                 | 3155                      | 10781          |

\*1: Value assumes the carrier frequency is set to 8 kHz.

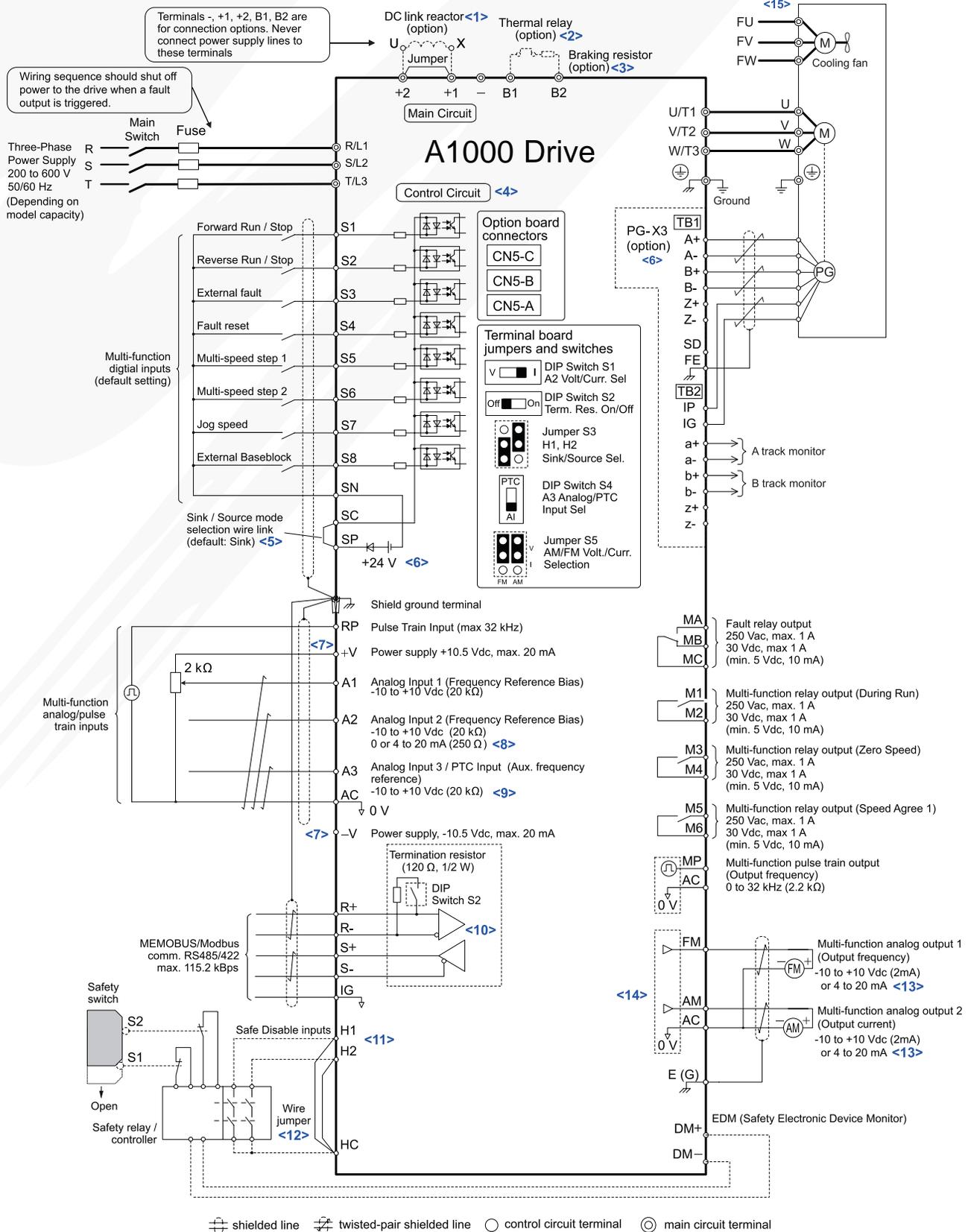
\*2: Value assumes the carrier frequency is set to 5 kHz.

\*3: Value assumes the carrier frequency is set to 2 kHz.



# Electrical Installation Planning

## Connection Diagram



- <1>: Remove the jumper when installing a DC link reactor. Models CIMR-AU2A0110 to 2A0415 and 4A0058 to 4A0675 come with a built-in DC link reactor.
- <2>: Set up a thermal relay sequence to disconnect drive main power in the event of an overheat condition on the dynamic braking option.
- <3>: Set L8-55 = 0 to disable the protection function of the built-in braking transistor of the drive when using an optional regenerative converter or dynamic braking option. Leaving L8-55 enabled may cause a braking resistor fault (rF). Additionally, disable Stall Prevention (L3-04 = 0) when using an optional regenerative converter, regenerative or braking units, or dynamic braking option. Leaving L3-04 enabled may prevent the drive from stopping within the specified deceleration time.
- <4>: Supplying power to the control circuit separately from the main circuit requires 24Vdc power supply (option).
- <5>: This figure illustrates an example of a sequence input to S1 through S8 using a non-powered relay or an NPN transistor. Install the jumper between terminals SC-SP for Sink mode, between SC-SN for Source mode, or leave the jumper out for external power supply. Never short terminals SP and SN, as it will damage the drive.
- <6>: This voltage source supplies a maximum current of 150 mA when not using a digital input card DI-A3.
- <7>: The maximum output current capacity for the V+ and V- terminals on the control circuit is 20 mA. Never short terminals V+, V-, and AC, as it can cause erroneous operation or damage the drive.
- <8>: Set DIP switch S1 to select between a voltage or current input signal to terminal A2. The default setting is for current input.
- <9>: Set DIP switch S4 to select between analog or PTC input for terminal A3.
- <10>: Set DIP switch S2 to the ON position to enable the termination resistor in the last drive in a Modbus network.
- <11>: Use jumper S3 to select between Sink mode, Source mode, and external power supply for the Safe Disable inputs. **NOTE:** Terminals H1, H2, DM+, and DM- on 600V class models are designed to the functionality, but are not certified to EN61800-5-1, EN954-1/ISO13849 Cat. 3, IEC/EN61508 SIL2, Insulation coordination: class 1.
- <12>: Disconnect the wire jumper between H1 - HC and H2 - HC when utilizing the Safe Disable input. **NOTE:** Terminals H1, H2, DM+, and DM- on 600V class models are designed to the functionality, but are not certified to EN61800-5-1, EN954-1/ISO13849 Cat. 3, IEC/EN61508 SIL2, Insulation coordination: class 1.
- <13>: Monitor outputs work with devices such as analog frequency meters, ammeters, voltmeters, and wattmeters. They are not intended for use as a feedback-type signal.
- <14>: Use jumper S5 to select between voltage or current output signals at terminals AM and FM. Set parameters H4-07 and H4-08 accordingly.
- <15>: Self-cooling motors do not require the same wiring necessary for motors with cooling fans.

**WARNING!** Sudden Movement Hazard. Do not close the wiring for the control circuit unless the multifunction input terminal parameters are properly set. Improper sequencing of run/stop circuitry could result in death or serious injury from moving equipment.

**WARNING!** Sudden Movement Hazard. Ensure start/stop and safety circuits are wired properly and in the correct state before energizing the drive. Failure to comply could result in death or serious injury from moving equipment. When programmed for 3-Wire control, a momentary closure on terminal S1 may cause the drive to start.

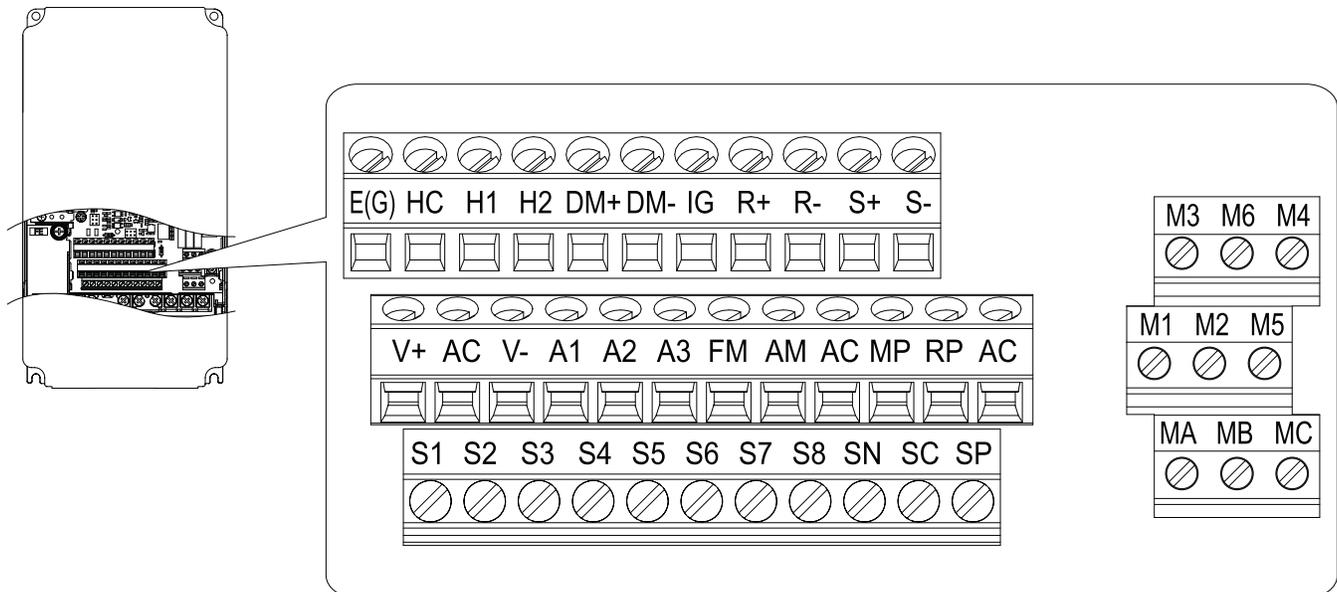
**WARNING!** Sudden Movement Hazard. When using a 3-Wire sequence, set the drive to 3-Wire sequence prior to wiring the control terminals and set parameter b1-17 = 0 so the drive will not accept a Run command at power up (default). If the drive is wired for a 3-Wire sequence but set up for a 2-Wire sequence (default), and parameter b1-17 is set to 1 so the drive accepts a Run command at power up, the motor will rotate in reverse direction at drive power up and may cause injury.

**WARNING!** Sudden Movement Hazard. Confirm the drive I/O signals and external sequence before executing the application preset function. Executing the application preset function or setting A1-06 ≠ 0 will change the drive I/O terminal functions and may cause unexpected equipment operation. Failure to comply may cause death or serious injury.

**NOTICE:** When using the automatic fault restart function with wiring designed to shut off the power supply upon drive fault, make sure the drive does not trigger a fault output during fault restart (L5-02 = 0, default). Failure to comply will prevent the automatic fault restart function from working properly.

## Control Circuit and Terminal Layout

Control circuit terminals should be arranged as shown below



# Electrical Installation Planning

## Power Terminal Functions

### 240V Class

| Voltage                           | 240V  |                                 |                                 | Function  |
|-----------------------------------|---|---------------------------------|---------------------------------|---|
| Model CIMR-AU[ ]                  | 2A0004 to 2A0081  | 2A0110, 2A0138                  | 2A0169 to 2A0415                |   |
| Max. Applicable Motor Capacity HP | 0.75 to 30  | 40, 50                          | 60 to 175                       |   |
| R/L1                              | Main circuit input power supply   |                                 |                                 | Connects line power to the drive  |
| S/L2                              |   |                                 |                                 |   |
| T/L3                              |   |                                 |                                 |   |
| U/T1                              | Drive output  |                                 |                                 | Connects to the motor   |
| V/T2                              |   |                                 |                                 |   |
| W/T3                              |   |                                 |                                 |   |
| B1                                | Braking resistor unit   |                                 | Not available                   | Available for connecting a braking resistor or a braking resistor unit option   |
| B2                                |   |                                 |                                 |   |
| +2                                | • DC reactor connection (+1, +2)<br>(remove the shorting bar between +1 and +2) | Not available                   |                                 | For connection<br>• of the drive to a DC power supply (terminals +1 and – are not EU/CE or UL approved)<br>• of dynamic braking options<br>• of a DC link reactor |
| +1                                |   | • DC power supply input (+1, –) | • DC power supply input (+1, –) |   |
| –                                 |   |                                 |                                 |   |
| +3                                | Not available   |                                 |                                 |   |
| ⊕                                 | Ground terminal (100 Ω or less)   |                                 |                                 | Grounding terminal  |

### 480V Class

| Voltage                           | 480V  |                                 |                                 | Function  |
|-----------------------------------|---|---------------------------------|---------------------------------|---|
| Model CIMR-AU[ ]                  | 4A0002 to 4A0044  | 4A0058, 4A0072                  | 4A0088 to 4A1200                |   |
| Max. Applicable Motor Capacity HP | 0.75 to 30  | 40,50                           | 60 to 1000                      |   |
| R/L1                              | Main circuit input power supply   |                                 |                                 | Connects line power to the drive  |
| S/L2                              |   |                                 |                                 |   |
| T/L3                              |   |                                 |                                 |   |
| U/T1                              | Drive output  |                                 |                                 | Connects to the motor   |
| V/T2                              |   |                                 |                                 |   |
| W/T3                              |   |                                 |                                 |   |
| B1                                | Braking resistor unit   |                                 | Not available                   | Available for connecting a braking resistor or a braking resistor unit option   |
| B2                                |   |                                 |                                 |   |
| +2                                | • DC reactor connection (+1, +2)<br>(remove the shorting bar between +1 and +2) | Not available                   |                                 | For connection<br>• of the drive to a DC power supply (terminals +1 and – are not EU/CE or UL approved)<br>• of dynamic braking options<br>• of a DC link reactor |
| +1                                |   | • DC power supply input (+1, –) | • DC power supply input (+1, –) |   |
| –                                 |   |                                 |                                 |   |
| +3                                | Not available   |                                 |                                 |   |
| ⊕                                 | Ground terminal (100 Ω or less)   |                                 |                                 | Grounding terminal  |

### 600V Class

| Voltage                           | 600V  |                                 |                                 | Function  |
|-----------------------------------|---|---------------------------------|---------------------------------|---|
| Model CIMR-AU[ ]                  | 5A0003 to 5A0032  | 5A0041 to 5A0099                | 5A0125 to 5A0242                |   |
| Max. Applicable Motor Capacity HP | 1 to 30   | 40 to 100                       | 125 to 250                      |   |
| R/L1                              | Main circuit input power supply   |                                 |                                 | Connects line power to the drive  |
| S/L2                              |   |                                 |                                 |   |
| T/L3                              |   |                                 |                                 |   |
| U/T1                              | Drive output  |                                 |                                 | Connects to the motor   |
| V/T2                              |   |                                 |                                 |   |
| W/T3                              |   |                                 |                                 |   |
| B1                                | Braking resistor unit   |                                 | Not available                   | Available for connecting a braking resistor or a braking resistor unit option   |
| B2                                |   |                                 |                                 |   |
| +2                                | • DC reactor connection (+1, +2)<br>(remove the shorting bar between +1 and +2) | Not available                   |                                 | For connection<br>• of the drive to a DC power supply (terminals +1 and – are not EU/CE or UL approved)<br>• of dynamic braking options<br>• of a DC link reactor |
| +1                                |   | • DC power supply input (+1, –) | • DC power supply input (+1, –) |   |
| –                                 |   |                                 |                                 |   |
| +3                                | Not available   |                                 |                                 |   |
| ⊕                                 | Ground terminal (100 Ω or less)   |                                 |                                 | Grounding terminal  |

# Control Terminal Functions

## Input Terminals

| Classification                           | Terminal                                   | Terminal Name (Function)  | Default Setting   | Function (Signal Level)   |
|--|--|---|---|---|
| Multi-function Digital Inputs            | S1   | Multi-function input selection 1  | Closed: Forward run (Open: Stop)  | <ul style="list-style-type: none"> <li>• Photocoupler</li> <li>• 24 Vdc, 8 mA</li> <li>• Set the S3 jumper to select between sinking, sourcing mode, and the power supply.</li> </ul>   |
|  | S2   | Multi-function input selection 2  | Closed: Reverse run (Open: Stop)  |   |
|  | S3   | Multi-function input selection 3  | External fault, N.O.  |   |
|  | S4   | Multi-function input selection 4  | Fault reset   |   |
|  | S5   | Multi-function input selection 5  | Multi-step speed reference 1  |   |
|  | S6   | Multi-function input selection 6  | Multi-step speed reference 2  |   |
|  | S7   | Multi-function input selection 7  | Jog reference   |   |
|  | S8   | Multi-function input selection 8  | Closed: External baseblock  |   |
|  | SC   | Multi-function input common   | Multi-function input common   |   |
|  | SP   | Digital input power supply +24 Vdc  | 24 Vdc power supply for digital inputs, 150 mA max (only when not using digital input option DI-A3) |   |
| SN                                       | Digital input power supply 0 V             | NOTICE: Do not jumper or short terminals SP and SN. Failure to comply will damage the drive |   |   |
| Safe Disable Inputs                      | H1   | Safe Disable input 1 <sup>2</sup>   | Frequency reference   | <ul style="list-style-type: none"> <li>• 24 Vdc, 8 mA</li> <li>• One or both open: Output disabled</li> <li>• Both closed: Normal operation</li> <li>• Internal impedance: 3.3 kΩ</li> <li>• Off time of at least 1 ms</li> <li>• Disconnect the wire jumpers shorting terminals H1, H2, and HC to use the Safe Disable inputs. Set the S5 jumper to select between sinking, sourcing mode, and the power supply</li> </ul> |
|  | H2   | Safe Disable input 2 <sup>2</sup>   |   |   |
|  | HC   | Safe Disable input common   |   |   |
| Multi-function Analog/Pulse Train Inputs | RP   | Multi-function pulse train input  | Frequency reference   | <ul style="list-style-type: none"> <li>• Input frequency range: 0 to 32 kHz</li> <li>• Signal Duty Cycle: 30 to 70%</li> <li>• High level: 3.5 to 13.2 Vdc, low level: 0.0 to 0.8 Vdc</li> <li>• Input impedance: 3 kΩ</li> </ul>   |
|  | +V   | Power supply for analog inputs  | +10.5 Vdc (max allowable current 20 mA)   |   |
|  | -V   | Power supply for analog inputs  | -10.5 Vdc (max allowable current 20 mA)   |   |
|  | A1   | Multi-function analog input 1   | Frequency reference   | -10 to 10 Vdc, 0 to 10 Vdc (input impedance: 20 kΩ)   |
|  | A2   | Multi-function analog input 2   | Frequency reference   | <ul style="list-style-type: none"> <li>• -10 to 10 Vdc, 0 to 10 Vdc (input impedance: 20 kΩ)</li> <li>• 4 to 20 mA, 0 to 20 mA (input impedance: 250 Ω)</li> <li>• Voltage or current input must be selected by DIP switch S1 and H3-09.</li> </ul>   |
|  | A3   | Multi-function analog input 3   | Auxiliary frequency reference/PTC Input   | <ul style="list-style-type: none"> <li>• -10 to 10 Vdc, 0 to 10 Vdc (input impedance: 20 kΩ)</li> <li>• Use DIP switch S4 on the terminal board to select between analog and PTC input.</li> </ul>  |
|  | AC   | Frequency reference common  | 0 V   |   |
| E(G)                                     | Ground for shielded lines and option cards | -   |   |   |

## Output Terminals

| Classification                             | Terminal | Terminal Name (Function)      | Default Setting   | Function (Signal Level)   |
|--|----------|-------------------------------|---|---|
| Fault Relay Outputs                        | MA       | N.O                           | During run  | 30 Vdc, 10 mA to 1 A; 250 Vac, 10 mA to 1 A<br>Minimum load: 5 Vdc, 10 mA |
|  | MB       | NC                            |   |   |
|  | MC       | Fault output common           |   |   |
| Multi-Function Digital Output <sup>1</sup> | M1       | Multi-function digital output | During run  | 30 Vdc, 10 mA to 1 A; 250 Vac, 10 mA to 1 A<br>Minimum load: 5 Vdc, 10 mA |
|  | M2       | Multi-function digital output | Zero speed  |   |
|  | M3       | Multi-function digital output | Zero speed  |   |
|  | M4       | Multi-function digital output | Zero speed  |   |
| Monitor Output                             | M5       | Multi-function digital output | Speed Agree 1   | 32 kHz (max)  |
|  | M6       | Multi-function digital output | Speed Agree 1   |   |
|  | MP       | Pulse train output            | Output frequency  |   |
|  | FM       | Analog monitor output 1       | Output frequency  |   |
| Safety Monitor Output <sup>2</sup>         | AM       | Analog monitor output 2       | Output current  | -10 to +10 Vdc, or 0 to +10 Vdc   |
|  | AC       | Monitor common                | 0 V   |   |
|  | DM+      | Safety monitor output         | Outputs status of Safe Disable function. Closed when both Safe Disable channels are closed. Up to +48 Vdc 50 mA |   |
|  | DM-      | Safety monitor output common  |   |   |

## Communication Terminals

| Classification                    | Terminal | Signal Function      | Description  | Function (Signal Level)                                       |
|-----------------------------------|----------|----------------------|--|---|
| Modbus Communication <sup>3</sup> | R+       | Communication input  | Modbus communication: use an RS-485 or RS-422 cable to connect the A1000 | RS-485/422 Modbus communication protocol<br>115.2 kbps (max.) |
|                                   | R-       |                      |  |   |
|                                   | S+       | Communication output |  |   |
|                                   | S-       |                      |  |   |
|                                   | IG       | Shield ground        |  |   |

\*1: Refrain from assigning functions to digital relay outputs that involve frequent switching, as doing so may shorten relay performance life. Switching life is estimated at 200,000 times (assumes 1 A, resistive load).

\*2: Terminals H1, H2, DM+, and DM- on 600V class models are designed to the functionality, but are not certified to EN61800-5-1, EN954-1/ISO13849 Cat. 3, IEC/EN61508 SIL2, Insulation coordination: class 1.

\*3: Enable the termination resistor in the last drive in a Modbus network by setting DIP switch S2 to the ON position.

# Yaskawa Industrial Drives Family

## Selection Matrix

| Product   | Dedicated Enclosure Types                          | Power Range  | Performance<br>(IM = Induction Motor)<br>(PM = Permanent Magnet Motor) |                          |                            |
|---|--|--|--|--------------------------|----------------------------|
|   |  |  | Volts per Hertz  | Open Loop Vector         | Closed Loop Vector         |
| <b>A1000</b><br>General Purpose<br>High Performance<br>Vector | Type 1<br>or<br>Protected<br>Chassis               | 1/2  175HP @ 240V 3-Phase<br>3/4  1000HP @ 480V 3-Phase<br>1  250HP @ 600 VAC        | 40:1 (IM)  | 200:1 (IM)<br>100:1 (PM) | 1500:1 (IM)<br>1500:1 (PM) |
| <b>G7</b><br>Three Level<br>Problem Solver                    | Type 1<br>or<br>Protected<br>Chassis               | 1/2  175HP @ 240V 3-Phase<br>3/4  500HP @ 480V 3-Phase  | 40:1 (IM)  | 200:1 (IM)               | 1000:1 (IM)                |
| <b>P7</b><br>Fans & Pumps                                     | Type 1<br>or<br>Protected<br>Chassis               | 5  175HP @ 230/240V 3-Phase<br>5  600HP @ 480V 3-Phase  | 40:1 (IM)  |                          |                            |
| <b>V1000</b><br>Compact<br>Vector                             | Type 1<br>Type 4X/12<br>or<br>Protected<br>Chassis | 1/8  5HP @ 240V 1-Phase<br>1/8  25HP @ 240V 3-Phase<br>1/2  25HP @ 480V 3-Phase | 40:1 (IM)  | 100:1 (IM)<br>10:1 (PM)  |                            |
| <b>J1000</b><br>Ultra Compact                                 | Protected<br>Chassis                               | 1/8  3HP @ 240V 1-Phase<br>1/8  5HP @ 240V 3-Phase<br>1/2  7.5HP @ 480V 3-Phase | 40:1 (IM)  |                          |                            |

| Maximum Frequency | Inputs and Outputs            |               |                |                |                 |                    | Communications      |             |           |               |            |             |                 | Auxiliary Control Power Input | Safe-Torque-Off |             |                         |
|-------------------|-------------------------------|---------------|----------------|----------------|-----------------|--------------------|---------------------|-------------|-----------|---------------|------------|-------------|-----------------|-------------------------------|-----------------|-------------|-------------------------|
|                   | Standard (Alternate Firmware) | Analog Inputs | Analog Outputs | Digital Inputs | Digital Outputs | Pulse Train Inputs | Pulse Train Outputs | EtherNet/IP | DeviceNet | Modbus TCP/IP | Modbus RTU | Modbus Plus | MECHATROLINK-II |                               |                 | PROFIBUS-DP | PROFINET                |
| 400 Hz (1000 Hz)  | 3                             | 2             | 8              | 4              | 1               | 1                  | Option              | Option      | Option    | Standard      |            |             | Option          | Option                        | Option          | Option      | Cat 3<br>PLd<br>SIL CL2 |
| 400 Hz            | 3                             | 2             | 12             | 6              | 1               | 1                  | Option              | Option      | Option    | Standard      | Option     |             |                 | Option                        |                 |             |                         |
| 120 Hz            | 2                             | 2             | 7              | 3              |                 |                    | Option              | Option      | Option    | Standard      | Option     |             |                 | Option                        |                 |             |                         |
| 400 Hz (1167 Hz)  | 2                             | 1             | 7              | 3              | 1               | 1                  | Option              | Option      | Option    | Standard      |            |             | Option          | Option                        |                 | Option      | Cat 3                   |
| 400 Hz            | 1                             | 1             | 5              | 1              |                 |                    |                     |             |           |               | Option     |             |                 |                               |                 |             |                         |

 Standard

 Option



# Global Service Network



| Region        | Service Area            | Service Location   | Service Agency  | Telephone/Fax  |
|---------------|-------------------------|--|---|--|
| North America | U.S.A                   | Chicago (HQ)<br>Los Angeles<br>New Jersey<br>Boston<br>San Francisco<br>Ohio<br>North Carolina | ① YASKAWA AMERICA, INC.   | Headquarters<br>☎ +1-847-887-7303<br>FAX +1-847-887-7070 |
|               | Mexico                  | Mexico City  | ② PILLAR MEXICANA. S.A. DE C.V.   | ☎ +52-5593-28-69<br>FAX +52-5651-55-73                   |
| South America | South America           | São Paulo  | ③ YASKAWA ELÉCTRICO DO BRASIL LTD.A.  | ☎ +55-11-3585-1100<br>FAX +55-11-5581-8795               |
|               | Colombia                | Bogota   | ④ VARIADORES LTD.A.   | ☎ +57-91-635-7460<br>FAX +57-91-611-3872                 |
| Europe        | Europe and South Africa | Frankfurt  | ⑤ YASKAWA ELECTRIC EUROPE GmbH  | ☎ +49-6196-569-300<br>FAX +49-6196-569-398               |
|               |                         |  | ⑥ YASKAWA ENGINEERING EUROPE GmbH   | ☎ +49-6196-569-520<br>FAX +49-6196-888-598               |
| Asia          | Japan                   | Tokyo, offices nationwide  | ⑦ YASKAWA ELECTRIC CORPORATION (Manufacturing, sales)                       | ☎ +81-3-5402-4502<br>FAX +81-3-5402-4580                 |
|               | South Korea             | Seoul  | ⑧ YASKAWA ELECTRIC ENGINEERING CORPORATION (After-sales service)            | ☎ +81-4-2931-1810<br>FAX +81-4-2931-1811                 |
|               |                         |  | ⑨ YASKAWA ELECTRIC KOREA CORPORATION  | ☎ +82-2-784-7844<br>FAX +82-2-784-8495                   |
|               |                         |  | ⑩ YASKAWA ENGINEERING KOREA Co.   | ☎ +82-2-3775-0337<br>FAX +82-2-3775-0338                 |
|               | China                   | Beijing, Guangzhou, Shanghai   | ⑪ Rockwell Samsung Automation Co., Ltd.                                     | ☎ +82-331-200-2981<br>FAX +82-331-200-2970               |
|               |                         |  | ⑫ YASKAWA ELECTRIC (SHANGHAI) Co., Ltd.                                     | ☎ +86-21-5385-2200<br>FAX +86-21-5385-3299               |
|               | Taiwan                  | Taipei   | ⑬ YASKAWA ELECTRIC TAIWAN Co.   | ☎ +886-2-2502-5003<br>FAX +886-2-2505-1280               |
|               | Singapore               | Singapore  | ⑭ YASKAWA ELECTRIC (SINGAPORE) Pte. Ltd.                                    | ☎ +65-6282-3003<br>FAX +65-6289-3003                     |
|               |                         |  | ⑮ YASKAWA ENGINEERING ASIA-PACIFIC Pte. Ltd.                                | ☎ +65-6282-1601<br>FAX +65-6282-3668                     |
|               | Thailand                | Bangkok  | ⑯ YASKAWA ELECTRIC (THAILAND) Co., Ltd.                                     | ☎ +66-2-693-2200<br>FAX +66-2-693-2204                   |
| India         | Mumbai                  | ⑰ LARSON & TOUBRO LIMITED  | Headquarters<br>☎ +91-22-67226200<br>+91-22-27782230<br>FAX +91-22-27783032 |  |
| Oceania       | Australia               | Sydney (HQ)<br>Melbourne   | ⑱ ROBOTIC AUTOMATION Pty. Ltd.  | Headquarters<br>☎ +61-2-9748-3788<br>FAX +61-2-9748-3817 |





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