# YASKAWA

## YASKAWA AC Drive
# L1000A

### for Elevator Applications

200 V Class 1.5 to 110 kW
400 V Class 1.5 to 110 kW

# DMC
## Drives Motors Controls

### The Lift Drive

L1000A
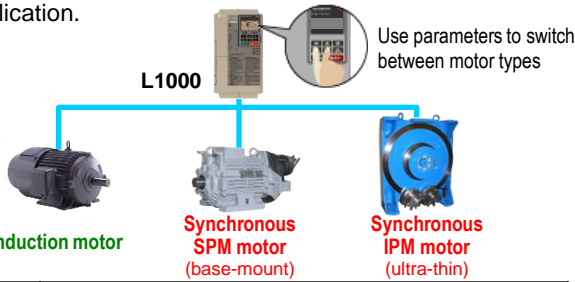
# L  1. Matching Every Need

## Runs Induction and Synchronous Motors

■Cutting-edge drive technology allows L1000 to run a newly installed gearless synchronous motor, or a refurbished geared induction motor. This minimizes equipment required for your application.

**L1000**

Use parameters to switch between motor types

**Induction motor**

**Synchronous SPM motor** (base-mount)

**Synchronous IPM motor** (ultra-thin)

| Capacity Range | 200 V Class 1.5 to 110kW 400 V Class 1.5 to 110kW | |
|---|---|---|
| Control Mode | PM motors | ・Closed Loop Vector Control for PM motors (SPM/IPM drive) |
| | Induction motors | ・V/f Control ・Open Loop Vector Control ・Closed Loop Vector Control |

## Designed Compact for Tight Machine Rooms

■Easily fit into compact machine rooms by combining the world's smallest drive in its class with the light, efficient design of a PM motor.
■L1000's slender design can be installed into a slender control panel. Depth of 200 mm for models up to 18.5 kW, 300 mm for 22 kW to 75kW
■Take advantage of Side-by-Side installation* when storage space is limited.  ∗ For models up to 18.5 kW.

**42% smaller**

Previous model

**L1000**

**Slender design**
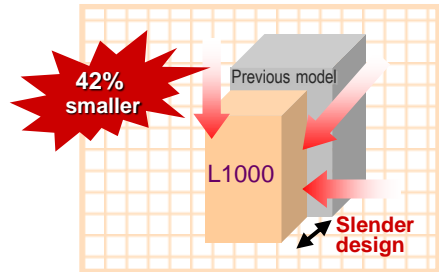
● Drive Dimension Comparison
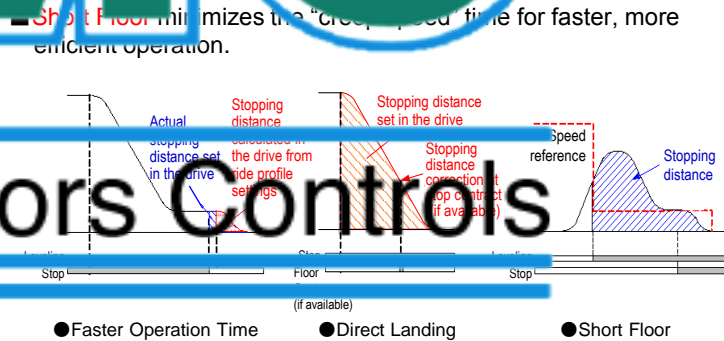Example shows a 400 V Class 15 kW drive

## Compatible with Advanced Position Encoders

■High-performance current vector control generates powerful starting torque and allows precision control at low speeds.
■Interfaces to nearly every kind of PM synchronous motors and every type of absolute encoder. High resolution and pole position detection provides a fast and safe ride.

| Control Mode | Starting Torque | Speed Control Range | Motor Encoders and Option Cards |
|---|---|---|---|
| V/f Control | 150% at 3 Hz* | 1 : 40 | N/A |
| Open Loop Vector Control | 200% at 0.3 Hz* | 1 : 200 | N/A |
| Closed Loop Vector Control | 200% at 0 r/min* | 1 : 1500 | Incremental Encoders: - PG-X3 (Line Driver) - PG-B3 (Complementary) |
| Closed Loop Vector Control for PM | 200% at 0 r/min* | 1 : 1500 | Incremental Encoders: - PG-X3 (Line Driver) - PG-B3 (Complementary) Absolute Encoders: - PG-F3 (EnDat,HIPERFACE) - PG-E3 (HEIDENHAIN ERN1387) |

∗ Drive and motor must be matched appropriately.

## Reduce Operation Time and More Powerful Braking

■Improved operation efficiency.
■L1000 calculates the stopping distance to minimize operation time.
■"Direct Landing" function is also available.
These features improve operation efficiency as well as greater stopping precision.
■Short Floor minimizes the "creep speed" time for faster, more efficient operation.

●Faster Operation Time    ●Direct Landing    ●Short Floor

## Loaded with Auto-Tuning Features

■L1000 is loaded with a variety of Auto-Tuning methods to ensure top performance.
■Rotational Auto-Tuning and Stationary Auto-Tuning are available for induction motors as well as synchronous motors.
Motor tuning features optimize drive settings without needing to disconnect the rope or car.
■Tuning features for connected machinery.

●Types of Auto-Tuning

| Motor Tuning | |
|---|---|
| Rotational Auto-Tuning | Applications requiring high starting torque, high speed, and high accuracy. Tuning is performed on the motor alone, uncoupled from the load. |
| Stationary Auto-Tuning | Applications where the motor must remain connected to the load during the auto-tuning process. |
| Motor Resistance Auto-Tuning | For re-tuning when the cable length between the motor/drive has changed or when motor/drive capacities are different. |
| Encoder Offset Auto-Tuning | Fine tunes the home pulse position when using an encoder with a synchronous motor. Possible with both Rotational and Stationary Auto-Tuning. |

| Load Tuning | |
|---|---|
| Inertia Tuning | Optimizes deceleration time, Feed Forward, and functions (available soon) |

■Brand new Auto-Tuning methods allow L1000 to continuously analyze changes in motor characteristics during run for highly precise speed control (when using Open Loop Vector Control)
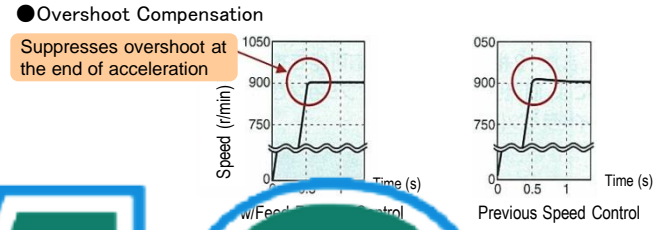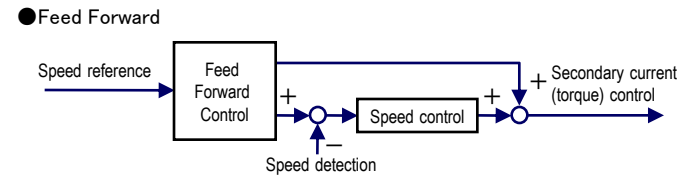
# 2. Smooth, Comfortable Ride

## Smooth Operation

■ L1000 has ½ the torque ripple compared to our earlier models, for an even smoother ride.
■ Designed specifically for elevator applications, L1000 provides precise motor torque performance capability for smoother acceleration and deceleration.

【Previous model】 （2%/div）

【L1000】

Time (0.2 s/div)
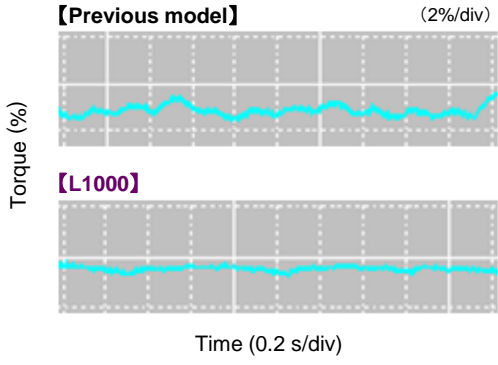
Torque (%)

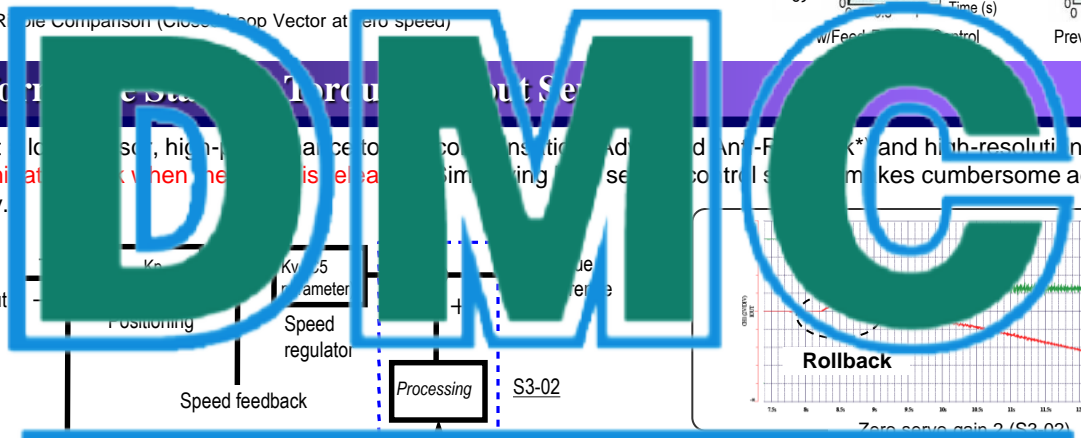● Torque Ripple Comparison (Closed Loop Vector at zero speed)

## Overshoot and Anti-Vibration Control

■ Feed Forward achieves ideal speed response, eliminating vibration and overshoot, and makes it easy to tweak the speed control loop (ASR). (Available soon)
■ Adjust jerk settings at the start and end of acceleration and deceleration to create a perfectly smooth ride.

● Feed Forward

Speed reference → Feed Forward Control → + Speed control → + Secondary current (torque) control
Speed detection

● Overshoot Compensation

Suppresses overshoot at the end of acceleration

Speed (r/min)

w/Feed Forward Control | Previous Speed Control

## High Performance Static Torque without Sensor

■ Even without a load sensor, high-performance torque compensation, Advanced Anti-Rollback* and high-resolution absolute encoder eliminate shock when the brake is released. Simplifying the sensorless control system makes cumbersome adjustments unnecessary.
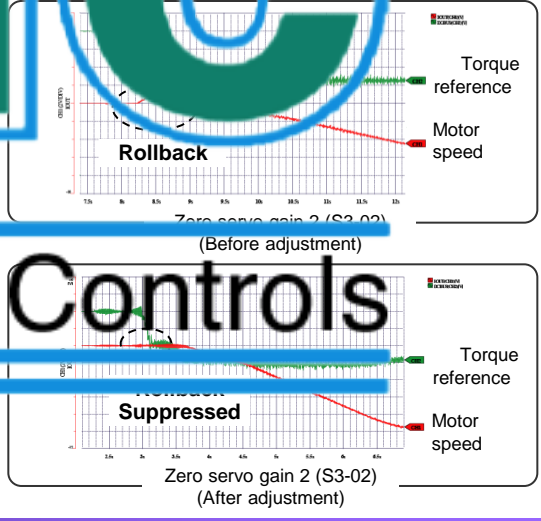
"Position hold" command input

Kp — Positioning
Kv S3 Parameter — Speed regulator
Processing S3-02
Speed feedback
Position feedback

● Advanced Anti-Rollback **NEW**

* Advanced Anti-Rollback: Torque compensation function that eliminates shock at start up by preventing the car from moving when the brake is released.

■ Anti-Rollback with sensors is easy to adjust, preventing shock start and stop.

**Rollback**
Zero servo gain 2 (S3-02)
(Before adjustment)
Torque reference
Motor speed

**Rollback Suppressed**
Zero servo gain 2 (S3-02)
(After adjustment)
Torque reference
Motor speed

## Variety of Braking Functions

■ All models up to 30 kW are equipped with a braking transistor for even more powerful braking options by just adding a braking resistor.

0.4 — 18.5 — 30 kW
Previous Models: Built-in braking transistor up to 18.5 kW
L1000: Built-in braking transistor up to 30 kW
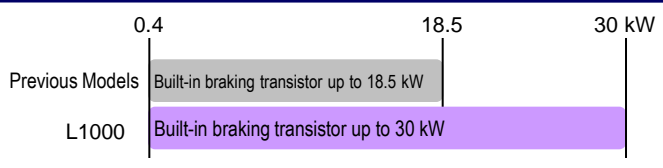
# L1000A LINE UP

| Motor Capacity | kW | 1.5 | 2.2 | 3.7 | 5.5 | 7.5 | 11 | 15 | 18.5 | 22 | 30 | 37 | 45 | 55 | 75 | 90 | 110 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 200 V Class | Model CIMR-LT2A☐☐☐ | 0008 | 0011 | 0018 | 0025 | 0033 | 0047 | 0060 | 0075 | 0085 | 0115 | 0145 | 0180 | 0215 | 0283 | 0346 | 0415 |
| 400 V Class | Model CIMR-LT4A☐☐☐ | 0005 | 0006 | 0009 | 0015 | 0018 | 0024 | 0031 | 0039 | 0045 | 0060 | 0075 | 0091 | 0112 | 0150 | 0180 | 0216 |

## Rescue Operation

Rescue Operation switches to backup battery or UPS in case of a power outage

■Both single-phase and 3-phase 220 V UPS and 48-96 Vdc battery (24 V control power supply) can keep the elevator running in case of an emergency. Possible with all 200 V and 40 V class models (400 V class requires a 400 V class UPS)

■L1000 automatically adjusts speed if a voltage drop occurs to prevent loss in motor speed.

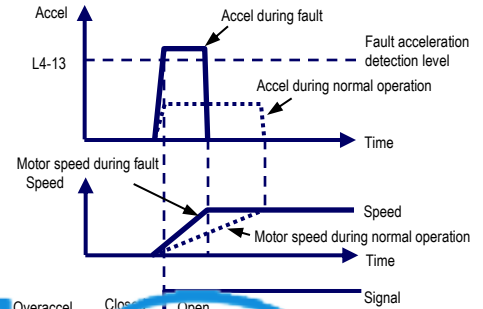■Light Load Direction Search function triggered by UPS and battery voltage is provided.

UPS — 220 V, single phase — L1000

48-96VDC — L1000

24VDC — 24 V power supply unit
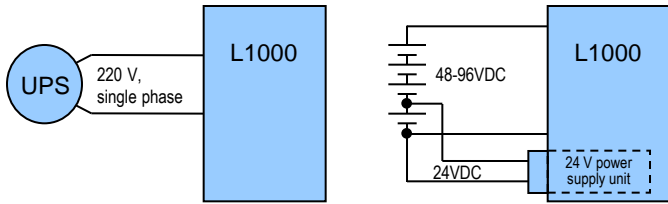
●UPS Wiring and Operation          ●Backup Battery Wiring and Operation

＊ The illustrations above ... switches and control ... operation varies by the control mode otherwise required. ... with the components ... encoder.

## Safe Disable Function

Protect the elevator application with immediate fault detection.

■L1000 protects the entire elevator application by detecting overacceleration, speed reversal, wiring errors, and improper parameter settings.

Hardware sensors respond immediately if the motor encoder signal is lost, ensuring an even higher level of safety.

●Overacceleration Fault Detection

Accel — Accel during fault — Fault acceleration detection level
L4-13 — Accel during normal operation
Time

Motor speed during fault
Speed — Speed — Motor speed during normal operation
Time

Overaccel (fault signal) — Closed — Open — Signal

## Safe Disable Function

Safety regulations

■Fully compliant with ...95...-1 Cat... 11 34...-... 3, IEC/EN61058... Sl... e eliminat... he need for ... a rel... Helps to easily s... elevators ...-1...

... wer )

●Safe Disable wiring example (source mode)

Emergency stop

Main power

HC — 24 V — Control circuit
H1
H2 — Gate block — Power module
H2 — Gate block
Switch ... (set to SOURCE)

No longer needed!

- Space-saving
- Highly reliable
- Cost-efficient

Motor

AC drive

### Monitor status of input power supply

■Customized hardware immediately detects phase loss from the input power supply.

Detection remains active regardless of whether the drive is running or stopped.

An output signal can also be setup if a phase loss occurs.

## Preventative Warnings

Performance ... Monitors

■...1...00...0 s ...ed with performance ife monitors ...nat notify ...er of part ... nd maintenance ...eriods to p...re they occur.

●Alarm Signals Output ... Control Device

**Alarm !!**

| Operator Display | Corresponding Component |
|---|---|
| LT-1 | Cooling fan |
| LT-2 | Capacitors |
| LT-3 | Inrush prevention relay |
| LT-4 | IGBTs |

## Long-Life Performance

Ten Years of Durable Performance

■Cooling fan, capacitors, relays, and IGBTs have been carefully selected and designed for a life expectancy up to ten years＊.

＊ Assumes the drive is running continuously for 24 hours a day, 60 s/cycle, at 80% load, and an ambient temperature of 40ºC.

# 4. Environmental

## High Efficiency: Energy Saving

■ Superior efficiency and control with an IPM motor and Yaskawa's Energy Saving function
Achieve even greater efficiency with a IPM motor and L1000's optimized control functions.

■ Re-use regenerative power by adding a regenerative unit (VARISPEED-656RC5)
Combining L1000 with VARISPEED-656RC5 to send regenerative power back to the power supply.

■ L1000 is incredibly efficient– approximately 97%.
Save even more energy by using the cooling fan ON/OFF control function when the cooling fan is not needed.

Optimum efficiency
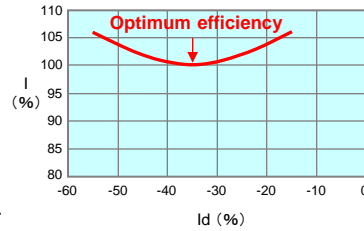
● Maximizing Control Efficiency with an IPM Motor (minimizing output current (I) during operation)
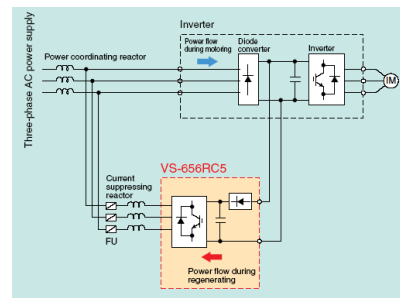
● Regenerative Power Supply with RC5 (re-using regenerative energy)

## High Performance: Low Harmonic Distortion

■ Built-in DC reactor suppresses harmonic distortion to keep the input power factor above 90%.
＊Models 18.5 kW and below offer a built-in DC reactor
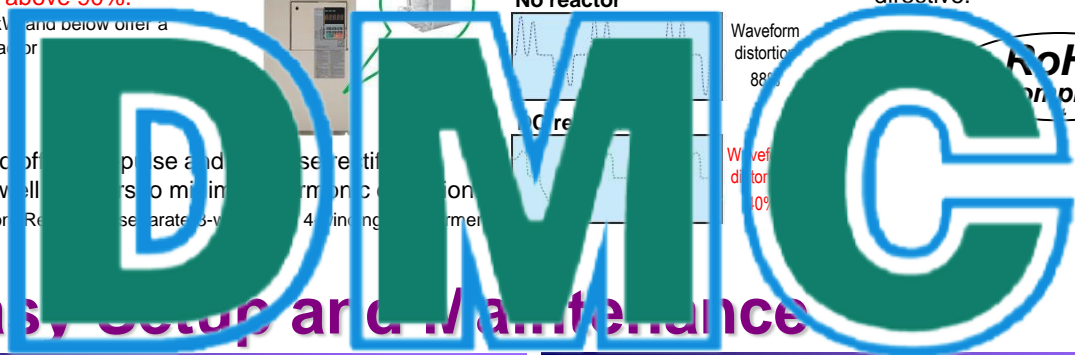
**Standard**

● Input Current Waveform
**No reactor**

■ Yaskawa also offers pulse and phase rectifier options*, as well as others to minimize harmonic distortion.
＊Available soon. Requires separate 3-winding or 4-winding transformer.

## RoHS

■ All standard products are fully compliant with the EU's RoHS directive.

*RoHS Complian*

# 5. Easy Setup and Maintenance

## Terminal Block with Parameter Backup

The Drive Industry's First Terminal Board with a Parameter Backup Function
■ The terminal block's ability to save parameter setting data makes it a breeze to get the application back online in the event of a failure requiring drive replacement.

● L1000A Terminal Block

| Name | Number | Setting |
|---|---|---|
| Control Mode Selection | A1-02 | 0 |
| Frequency Reference Selection 1 | b1-01 | 1 |
| Run Command Selection 1 | b1-02 | 1 |

## Easy Setup

Quick setup and easy maintenance
■ Set speed, acceleration, and jerk parameters in elevator units.
■ All models come standard with an LED unit equipped with a Copy function that lets the user quickly upload and download parameter settings.
■ LCD operator keypad option available
■ USB Copy Unit is available to copy parameter settings and program multiple drives instantly.
■ The Setup Mode gives the user access to just those parameters needed to get the drive up and running right away.
■ The Verify Function lets the user check parameters that may have been changed from their default values.

● LED Operator (standard)  ● LCD Operator (optional)  ● USB Copy Unit (optional)

● Verify Function
List of parameters that have been changed from their default settings.

| Parameter Name | No. | Default | Set value |
|---|---|---|---|
| Speed reference selection | b1-01 | 1 | 0 |
| Acceleration time | C1-01 | 3.00s | 3.50s |
| Deceleration time | C1-02 | 3.00s | 3.50s |
| ⋮ | ⋮ | ⋮ | ⋮ |

## DriveWizard Plus

Engineering Tool DriveWizard Plus
■ Manage the unique settings for all your drives with a personal computer (PC).
■ An indispensable tool for drive setup and maintenance. Edit parameters, access all monitors, create customized operation sequences, and observe drive performance with the oscilloscope function.
■ The Drive Replacement feature in DriveWizard Plus saves valuable time during equipment replacement and application upgrades by automatically programming parameters for full compatibility.
■ Equipped with a USB port for easy connection to a personal computer.

● Connecting L1000 and a PC with USB

Note: Users can also use the WV103 cable included with earlier Yaskawa models. Simply remove the operator keypad to access the comm. port.

## ■ 200 V Class

| Item | | | Specifications | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Model  CIMR-LT2A | | | 0008 | 0011 | 0018 | 0025 | 0033 | 0047 | 0060 | 0075 | 0085 | 0115 | 0145 | 0180 | 0215 | 0283 | 0346 | 0415 |
| Max. Applicable Motor Capacity[1] | kW | | 1.5 | 2.2 | 3.7 | 5.5 | 7.5 | 11 | 15 | 18.5 | 22 | 30 | 37 | 45 | 55 | 75 | 90 | 110 |
| Input | Rated Input Current[2] | A | 7.5 | 11 | 18.9 | 28 | 37 | 52 | 68 | 80 | 82 | 111 | 136 | 164 | 200 | 271 | 324 | 394 |
| Output | Rated Output Capacity[3] | kVA | 3[4] | 4.2[4] | 6.7[4] | 9.5[4] | 12.6[4] | 17.9[4] | 23[4] | 29[4] | 32[4] | 44[4] | 55[5] | 69[5] | 82[5] | 108[5] | 132[5] | 158[5] |
| | Rated Output Current | A | 8[4] | 11[4] | 17.5[4] | 25[4] | 33[4] | 47[4] | 60[4] | 75[4] | 85[4] | 115[4] | 145[5] | 180[5] | 215[5] | 283[5] | 346[5] | 415[5] |
| | Overload Tolerance | | 150% of rated output current for 60 s[6] | | | | | | | | | | | | | | | |
| | Carrier Frequency | | User adjustable from 2 to 15 kHz | | | | | | | | | | User adjustable from 2 to 10 kHz | | | | | |
| | Max. Output Voltage | | Three-phase 200 to 240 V (proportional to input voltage) | | | | | | | | | | | | | | | |
| | Max. Output Frequency | | 200 Hz  (user adjustable) | | | | | | | | | | | | | | | |
| Power | Rated Voltage/Rated Frequency | | Three-phase 200 to 240 Vac 50/60 Hz        270 to 340 Vdc | | | | | | | | | | | | | | | |
| | Allowable Voltage Fluctuation | | -15 to 10% | | | | | | | | | | | | | | | |
| | Allowable Frequency Fluctuation | | ±5% | | | | | | | | | | | | | | | |
| | Power Supply | kVA | 4.1 | 5.8 | 9.5 | 14 | 18 | 27 | 36 | 44 | 37 | 51 | 62 | 75 | 91 | 124 | 148 | 180 |
| Harmonics Suppression | DC Reactor | | | | | | | | | | | | | | | | | |
| Braking Function | Braking Transistor | | | | | | | | | | | | | | | | | |

* 1: The motor capacity (kW) refers to a Yaskawa 4-pole induction motor (200 V, 60 Hz). The rated output current of the drive output amps should be equal to or  greater than the motor rated current.
* 2: Value displayed is for when operating at the rated output current. This value may fluctuate based on the power supply side impedance, as well as the input current, power supply transformer, input side reactor, and wiring conditions.
* 3: Rated output capacity is calculated with a rated output voltage of 220 V.
* 4: Carrier frequency is set to 8 kHz. Current derating is required in order to raise the carrier frequency.
* 5: Carrier frequency is set to 5 kHz. Current derating is required in order to raise the carrier frequency.
* 6: Peak current should be kept under 150%. Be sure to check current levels during a test run, and make adjustments accordingly. Repeatedly exceeding 150% of the rated current causes thermal wear on the drive's IGBTs, and will shorten their expected performance life. The drive is rated to start and stop three million times, assuming the carrier frequency is left at its default setting with a peak current of 150%.

## ■ 400 V Class

| Item | | | Specifications | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Model  CIMR-LT4A | | | 0005 | 0006 | 0009 | 0015 | 0018 | 0024 | 0031 | 0039 | 0045 | 0060 | 0075 | 0091 | 0112 | 0150 | 0180 | 0216 |
| Max. Applicable Motor Capacity | kW | | 1.5 | 2.2 | 3.7 | 5.5 | 7.5 | 11 | 15 | 18.5 | 22 | 30 | 37 | 45 | 55 | 75 | 90 | 110 |
| Input | Rated Input Current[2] | A | 4.4 | 6 | 10.4 | 15 | 20 | 29 | 39 | 44 | 43 | 58 | 71 | 86 | 105 | 142 | 170 | 207 |
| Output | Rated Output Capacity[3] | kVA | 3.7[4] | 4.2[4] | 7[4] | 11.3[4] | 13.7[4] | 18.3[4] | 24[4] | 30[4] | 34[4] | 46[4] | 57[4] | 69[4] | 85[5] | 114[5] | 137[5] | 165[5] |
| | Rated Output Current | A | 4.8[4] | 5.5[4] | 9.2[4] | 14.8[4] | 18[4] | 24[4] | 31[4] | 39[4] | 45[4] | 60[4] | 75[4] | 91[4] | 112[5] | 150[5] | 180[5] | 216[5] |
| | Overload Tolerance | | 150% of rated output current for 60 s[6] | | | | | | | | | | | | | | | |
| | Carrier Frequency | | User adjustable from 2 to 15 kHz | | | | | | | | | | User adjustable from 2 to 10 kHz | | | | | |
| | Max. Output Voltage | | Three-phase 380 to 480 V (proportional to input voltage) | | | | | | | | | | | | | | | |
| | Max. Output Frequency | | 200 Hz  (user adjustable) | | | | | | | | | | | | | | | |
| Power | Rated Voltage/Rated Frequency | | Three-phase 380 to 480 Vac 50/60 Hz        510 to 680 Vdc | | | | | | | | | | | | | | | |
| | Allowable Voltage Fluctuation | | -15 to 10% | | | | | | | | | | | | | | | |
| | Allowable Frequency Fluctuation | | ±5% | | | | | | | | | | | | | | | |
| | Power Supply | kVA | 4.3 | 6.1 | 10.0 | 14.6 | 19.2 | 28.4 | 37.5 | 46.6 | 39.3 | 53.0 | 64.9 | 78.6 | 96.0 | 129.9 | 155 | 189 |
| Harmonics Suppression | DC Reactor | | Option | | | | | | | | | Built-in | | | | | | |
| Braking Function | Braking Transistor | | Built-in | | | | | | | | | Option | | | | | | |

* 1: The motor capacity (kW) refers to a Yaskawa 4-pole induction motor (400 V, 60 Hz). The rated output current of the drive output amps should be equal to or greater than the motor rated current.
* 2: Value displayed is for when operating at the rated output current. This value may fluctuate based on the power supply side impedance, as well as the input current, power supply transformer, input side reactor, and wiring conditions.
* 3: Rated output capacity is calculated with a rated output voltage of 440 V.
* 4: Carrier frequency is set to 8 kHz. Current derating is required in order to raise the carrier frequency.
* 5: Carrier frequency is set to 5 kHz. Current derating is required in order to raise the carrier frequency.
* 6: Peak current should be kept under 150%. Be sure to check current levels during a test run, and make adjustments accordingly. Repeatedly exceeding 150% of the rated current causes thermal wear on the drive's IGBTs, and will shorten their expected performance life. The drive is rated to start and stop three million times, assuming the carrier frequency is left at its default setting with a peak current of 150%.

# ■ Common Specifications

Note: Specifications regarding Open Loop Vector Control capabilities require Rotational Auto-Tuning.
L1000 must be used in acceptable environmental conditions to ensure the expected performance life of all drive components.

| Item | | Specification |
|---|---|---|
| Control Characteristics | Control Method | Use drive parameters to select from the following control modes:<br>V/f Control, Open Loop Vector Control, Closed Loop Vector Control, Closed Loop Vector Control for PM |
| | Frequency Control Range | 0.01 to 200 Hz |
| | Frequency Accuracy (Temperature Fluctuation) | Digital reference: within ±0.01% of the max. output frequency (-10 to +40°C)<br>Analog reference: within ±0.1% of the max. output frequency (25°C±10°C) |
| | Frequency Setting Resolution | Digital reference: 0.01 Hz<br>Analog reference: 0.03 Hz / 60 Hz (11 bit) |
| | Output Frequency Resolution | 0.001 Hz |
| | Frequency Setting Resolution | -10 to 10 V, 0 to 10 V |
| | Starting Torque | 150% / 3 Hz (V/f Control)          200% / 0 r/min (Closed Loop Vector Control)<br>200% / 0.3 Hz (Open Loop Vector Control)     200% / 0 r/min (Closed Loop Vector Control for PM) |
| | Speed Control Range | 1:40 (V/f Control)               1:1500 (Closed Loop Vector Control)<br>1:200 (Open Loop Vector Control)       1:1500 (Closed Loop Vector Control for PM) |
| | Speed Control Accuracy | ±0.2% in Open Loop Vector Control (25°C±10°C)[1], ±0.02% in Closed Loop Vector Control (25°C±10°C) |
| | Speed Response | 10 Hz in Open Loop Vector Control (25°C±10°C), 50 Hz in Closed Loop Vector Control (25°C±10°C)<br>(excludes temperature fluctuation when performing Rotational Auto-Tuning) |
| | Torque Limit | Available in control modes with separate settings in four quadrants |
| | Torque Accuracy | ±5% |
| | Accel/Decel Time | 0.00 to 6000 s (selectable combinations of separate acceleration and deceleration settings) |
| | Braking Torque | Approx. 125% when using a braking resistor |
| | V/f Characteristics | User-defined programs and preset positions possible |
| | Main Control Functions | Torque compensation, Activation of sensorless Auto-Tuning (for speed and encoder loss), Braking sequence, Anti-Rollback Software, Short Floor capabilities, Slow Rescue Operation using backup power supply, Light Load Direction Search, Removable Terminal Block with Parameter Backup, Direct Landing... |
| Protection Functions | Motor Protection | Thermistor |
| | Momentary Overcurrent Protection | Drive stops when output current exceeds 200% of rated output current |
| | Overload Protection | Drive stops after 60 s at 150% of rated output current [2] |
| | Overvoltage Protection | 200 V class: Stops when DC bus exceeds approx. 410 V<br>400 V class: Stops when DC bus exceeds approx. 820 V |
| | Undervoltage Protection | 200 V class: Stops when DC bus exceeds approx. 190 V<br>400 V class: Stops when DC bus exceeds approx. 380 V |
| | Heatsink Overheat Protection | Thermistor |
| | Stall Prevention | Stall prevention during acceleration |
| | Ground Fault Protection | Protection by electronic circuit[3] |
| | Charge LED | Charge LED remains lit until DC bus has fallen below approx. 50 V |
| Environment | Area of Use | Indoors |
| | Ambient Temperature | -10 to 40°C (open-chassis), -10 to 50°C (NEMA 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 |
| | Shock | 10 Hz to 20 Hz, 9.8 m/s² max.   20 Hz to 55 Hz, 5.9 m/s² max. |
| Standards Compliant | | UL508C, EN61800-3, EN61800-5-1,<br>EN954-1 Cat. 3, ISO13849-1 (Cat. 3, PLd), IEC/EN61508 SIL2 |
| Protective Design | | IP00 open-chassis, NEMA Type 1 enclosure[4] |
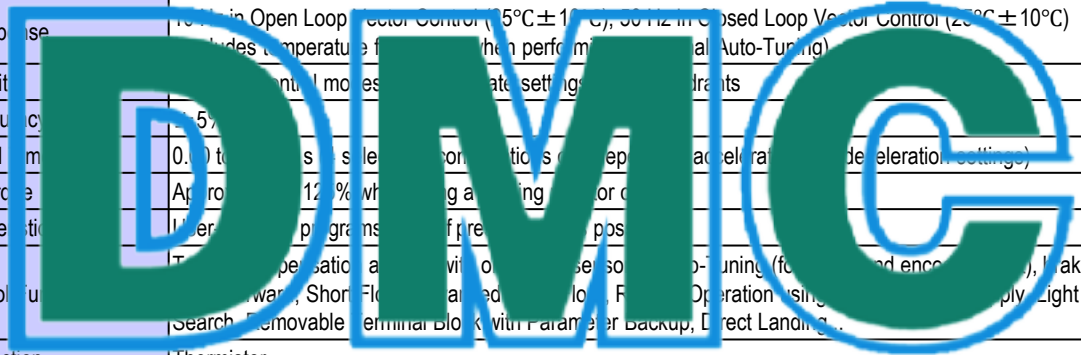
∗ 1: Speed control accuracy may vary slightly depending on installation conditions or motor used. Contact Yaskawa for details.
∗ 2: Overload protection may be triggered when operating for 60 s with 150% of the rated output current if the output frequency is less than 6 Hz.
∗ 3: Protection may not be provided under the following conditions as the motor windings are grounded internally during run:
　·Low resistance to ground from the motor cable or terminal block.
　·Drive already has a short-circuit when the power is turned on.
∗ 4: Removing the cover from a NEMA Type 1 model drive (models CIMR-LT2A0008 to 2A0075, CIMR-LT4A0005 to 4A0039) converts the enclosure rating to IP20.
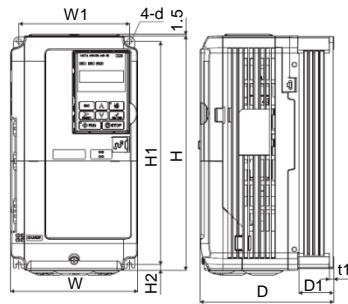
# Dimensions

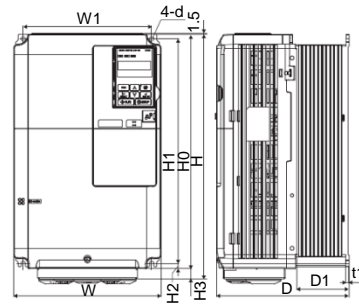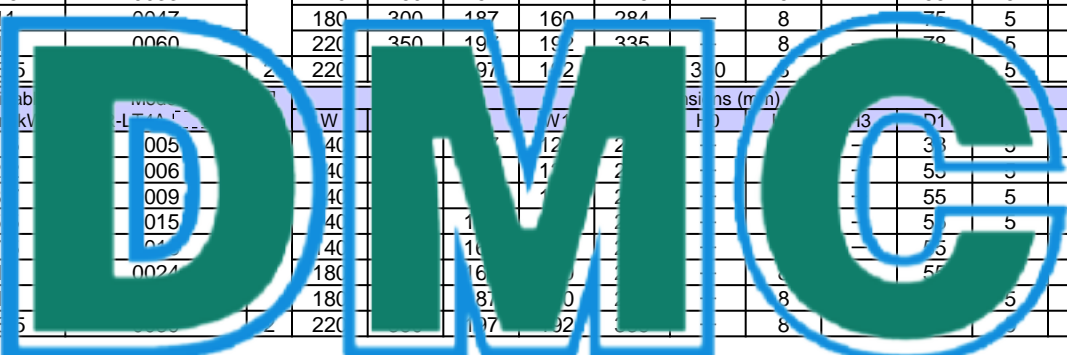## ■ Enclosure Panel (NEMA Type 1)



Figure 1



Figure 2

| Applicable Motor (kW) | Model CIMR-LT2A | Figure | Dimensions (mm) | | | | | | | | | | | Weight (kg) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | W | H | D | W1 | H1 | H0 | H2 | H3 | D1 | t1 | d | |
| **200 V Class** | 1.5 / 0008 | | 140 | 260 | 147 | 122 | 248 | — | 6 | — | 38 | 5 | M5 | 3.2 |
| | 2.2 / 0011 | | 140 | 260 | 147 | 122 | 248 | — | 6 | — | 38 | 5 | M5 | 3.2 |
| | 3.7 / 0018 | 1 | 140 | 260 | 164 | 122 | 248 | — | 6 | — | 55 | 5 | M5 | 3.5 |
| | 5.5 / 0025 | | 140 | 260 | 167 | 122 | 248 | — | 6 | — | 55 | 5 | M5 | 4.0 |
| | 7.5 / 0033 | | 140 | 260 | 167 | 122 | 248 | — | 6 | — | 55 | 5 | M5 | 4.0 |
| | 11 / 0047 | | 180 | 300 | 187 | 160 | 284 | — | 8 | | 75 | 5 | M5 | 5.6 |
| | 15 / 0060 | | 220 | 350 | 19? | 19? | 335 | | 8 | | 7? | 5 | M6 | 8.7 |
| | 18.5 / | 2 | 220 | ?9? | 1?2 | | 3?0 | | | | | 5 | M6 | 9.7 |

| Applicable Motor (kW) | Model CIMR-LT4A | Figure | Dimensions (mm) | | | | | | | | | | | Weight (kg) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | W | H | D | W1 | H1 | H0 | H2 | H3 | D1 | t1 | d | |
| **400 V Class** | 1.? / 0005 | | ?40 | 2?0 | 1?? | 12? | 2?? | — | | | 3? | 5 | M5 | 3.2 |
| | 2.? / 0006 | | ?40 | 2?0 | 1?? | 12? | 2?? | — | | | 55 | 5 | M5 | 3.4 |
| | 3.? / 0009 | | ?40 | 2?0 | 1?? | 12? | 2?? | — | | | 55 | 5 | M5 | 3.5 |
| | 5.? / 0015 | | ?40 | 2?0 | 1?? | 12? | 2?? | — | | | 5? | 5 | M5 | 3.9 |
| | 7.? / 00?1 | | ?40 | 2?0 | 1?? | 12? | 2?? | — | | | ?? | 5 | M5 | 3.9 |
| | 1? / 0024 | | 180 | | 16? | | | | | | 5? | 5 | M5 | 5.4 |
| | 1? / | | 180 | | ?87 | ?0 | | | 8 | | ?5 | 5 | M5 | 5.7 |
| | 18.5 / | 2 | 220 | 3?0 | 1?7 | 1?2 | 3?5 | | 8 | | | 5 | M6 | 8.3 |

## ■ Open-Chassis (IP00)



Figure 1

| Applicable Motor (kW) | Model CIMR-LT2A | Figure | Dimensions (mm) | | | | | | | | | | Weight (kg) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | W | H | D | W1 | H1 | H2 | D1 | t1 | t2 | d | |
| **200 V Class** | 22 / 0085 | | 250 | 400 | 258 | 195 | 385 | 7.5 | 100 | 2.3 | 2.3 | M6 | 21 |
| | 30 / 0115 | | 275 | 450 | 258 | 220 | 435 | 7.5 | 100 | 2.3 | 2.3 | M6 | 25 |
| | 37 / 0145 | | 325 | 550 | 283 | 260 | 535 | 7.5 | 110 | 2.3 | 2.3 | M6 | 37 |
| | 45 / 0180 | 1 | 325 | 550 | 283 | 260 | 535 | 7.5 | 110 | 2.3 | 2.3 | M6 | 38 |
| | 55 / 0215 | | 450 | 705 | 330 | 325 | 680 | 12.5 | 130 | 3.2 | 3.2 | M10 | 76 |
| | 75 / 0283 | | 450 | 705 | 330 | 325 | 680 | 12.5 | 130 | 3.2 | 3.2 | M10 | 80 |
| | 90 / 0346 | | 500 | 800 | 350 | 370 | 773 | 13 | 130 | 4.5 | 4.5 | M12 | 98 |
| | 110 / 0415 | | 500 | 800 | 350 | 370 | 773 | 13 | 130 | 4.5 | 4.5 | M12 | 99 |

| Applicable Motor (kW) | Model CIMR-LT4A | Figure | Dimensions (mm) | | | | | | | | | | Weight (kg) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | W | H | D | W1 | H1 | H2 | D1 | t1 | t2 | d | |
| **400 V Class** | 22 / 0045 | | 250 | 400 | 258 | 195 | 385 | 7.5 | 100 | 2.3 | 2.3 | M6 | 21 |
| | 30 / 0060 | | 275 | 450 | 258 | 220 | 435 | 7.5 | 100 | 2.3 | 2.3 | M6 | 25 |
| | 37 / 0075 | | 325 | 510 | 258 | 260 | 495 | 7.5 | 105 | 2.3 | 3.2 | M6 | 36 |
| | 45 / 0091 | 1 | 325 | 510 | 258 | 260 | 495 | 7.5 | 105 | 2.3 | 3.2 | M6 | 36 |
| | 55 / 0112 | | 325 | 550 | 283 | 260 | 535 | 7.5 | 110 | 2.3 | 2.3 | M6 | 41 |
| | 75 / 0150 | | 325 | 550 | 283 | 260 | 535 | 7.5 | 110 | 2.3 | 2.3 | M6 | 42 |
| | 90 / 0180 | | 450 | 705 | 330 | 325 | 680 | 12.5 | 130 | 3.2 | 3.2 | M10 | 79 |
| | 110 / 0216 | | 500 | 800 | 350 | 370 | 773 | 13 | 130 | 4.5 | 4.5 | M12 | 96 |

# Watt Loss and Drive Derating

## ■ Watt Loss Data

| Applicable Motor (kW) | Model CIMR-LT2A□□□□ | Carrier Frequency 8 kHz | | | |
|---|---|---|---|---|---|
| | | Rated Amps (A) | Heatsink Loss (W) | Interior Unit Loss (W) | Total Loss (W) |
| 1.5 | 0008 | 8 | 43 | 52 | 95 |
| 2.2 | 0011 | 11 | 64 | 58 | 122 |
| 3.7 | 0018 | 17.5 | 101 | 67 | 168 |
| 5.5 | 0025 | 25 | 194 | 92 | 287 |
| 7.5 | 0033 | 33 | 214 | 105 | 319 |
| 11 | 0047 | 47 | 280 | 130 | 410 |
| 15 | 0060 | 60 | 395 | 163 | 558 |
| 18.5 | 0075 | 75 | 460 | 221 | 681 |
| 22 | 0085 | 85 | 510 | 211 | 721 |
| 30 | 0115 | 115 | 662 | 250 | 912 |
| 37 | 0145 | 145 * | 816 * | 306 * | 1122 * |
| 45 | 0180 | 180 * | 976 * | 378 * | 1354 * |
| 55 | 0215 | 215 * | 1514 * | 466 * | 1980 * |
| 75 | 0283 | 283 * | 1936 * | 588 * | 2524 * |
| 90 | 0346 | 346 * | 2564 * | 783 * | 3347 * |
| 110 | 0415 | 415 * | 2672 * | 954 * | 3626 * |

| Applicable Motor (kW) | Model CIMR-LT4A□□□□ | Carrier Frequency 8 kHz | | | |
|---|---|---|---|---|---|
| | | Rated Amps (A) | Heatsink Loss (W) | Interior Unit Loss (W) | Total Loss (W) |
| 1.5 | 0005 | 4.8 | 37 | 49 | 87 |
| 2.2 | 0006 | 5.5 | 48 | 53 | 101 |
| | 0009 | | | | 130 |
| | 0015 | | | | 221 |
| | | | | | 247 |
| | | | | | 313 |
| 400 V Class | | 281 | | 41 | 408 |
| | | 389 | | 7 | 509 |
| | | 5 | | 7 | 518 |
| | | 0 | | 11 | 707 |
| | | 5 | | 54 | 847 |
| | | 1 | | | 1022 |
| | 0112 | 12 | | | 1325 * |
| | 015 | 50 | | | 1920 * |
| 90 | 0180 | 180 * | 1771 * | 541 * | 2313 * |
| 110 | 0216 | 216 * | 2360 * | 715 * | 3075 * |

＊1: These values assume the carrier frequency is set to 5 kHz.

## ■ Derating

The drive can be operated at above the rated temperature, altitude, and default carrier frequency by derating the drive capacity. A drive with a rated output current of 10 A can be derated to having an output current of 8 A, thus allowing the drive to operate continuously at a higher temperature.

### Derating as the carrier frequency

As the carrier frequency of the drive is increased above the default setting, the drive's rated output current must be derated according to Figure 1 to Figure 4.
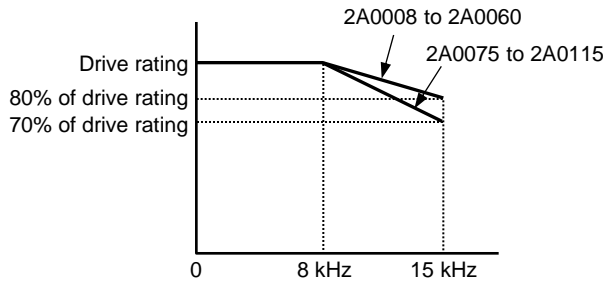


Figure 1. CIMR-LT2A0018 to 2A0115
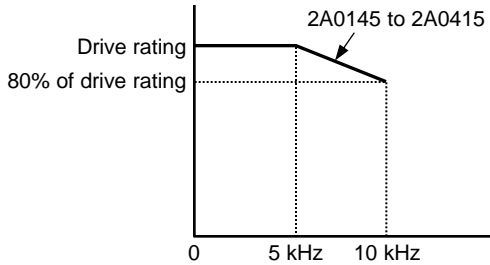


Figure 2. CIMR-LT2A0145 to 2A0415
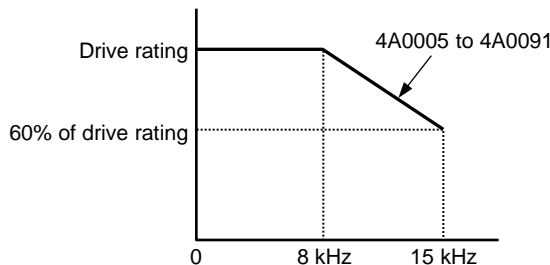


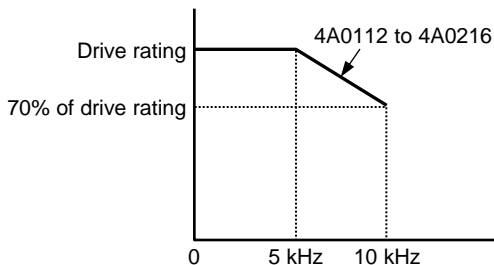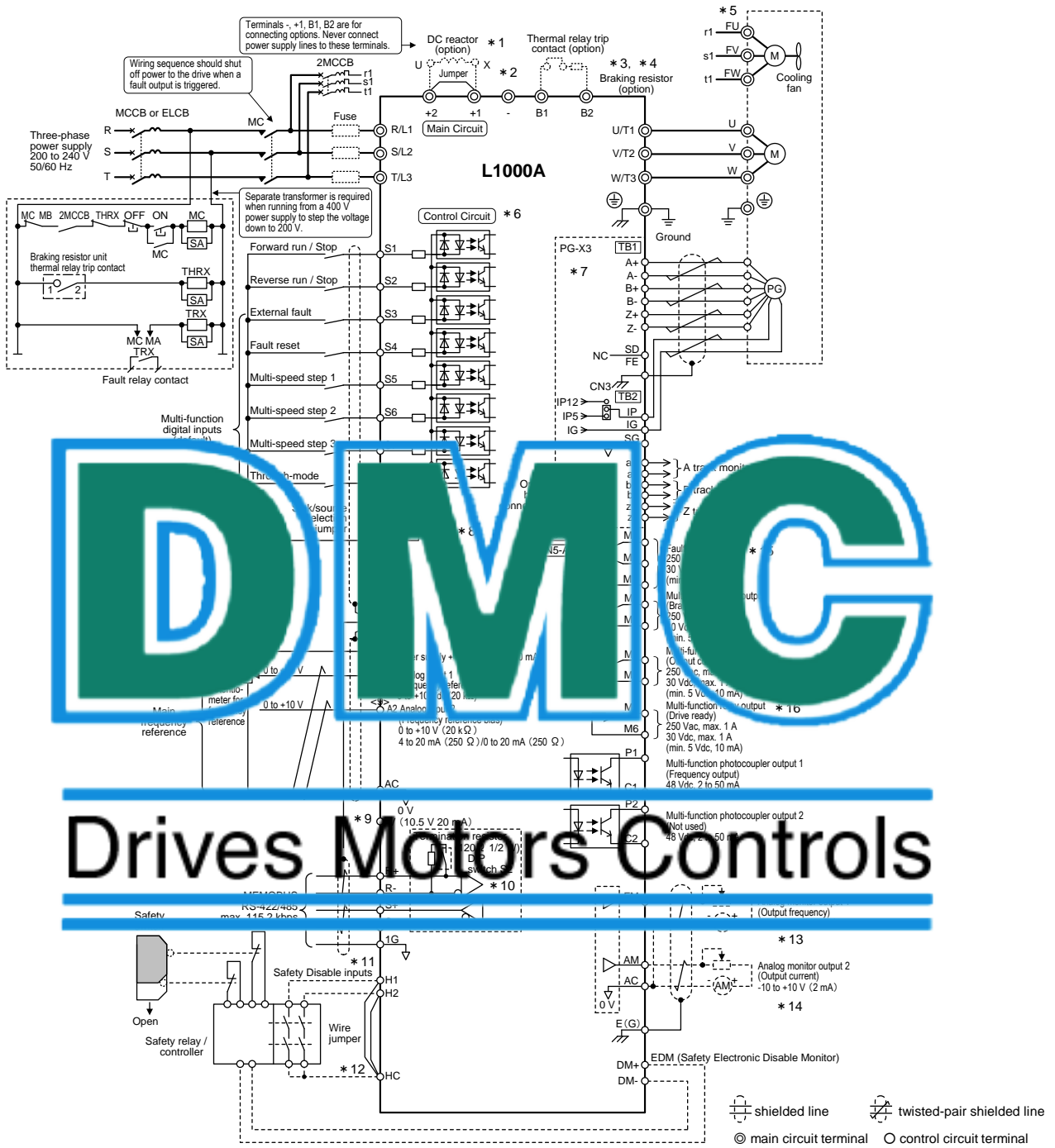Figure 3. CIMR-LT4A0009 to 4A0091



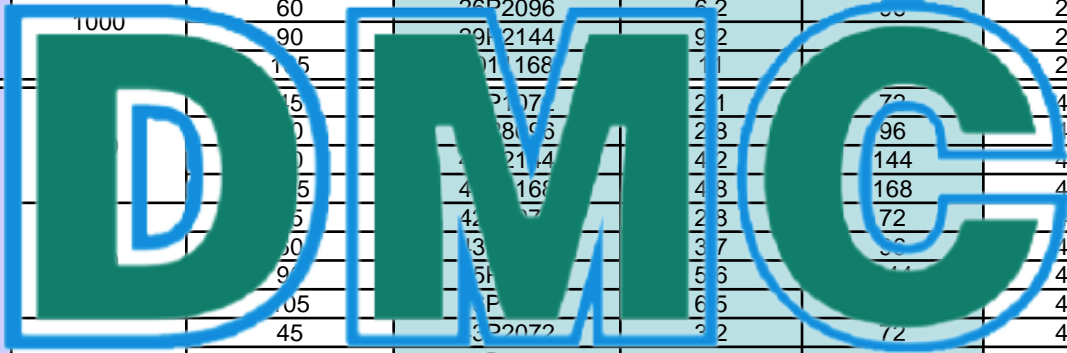Figure 4. CIMR-LT4A0112 to 4A0216

# Standard Connection Diagram

## ■ CIMR-LT2A0033: 200 V Class 7.5 kW



* 1: Remove the jumper between terminals +1 and +2 when installing a DC reactor option.
* 2: Models CIMR-LT2A0085 to 2A0415 and 4A0045 to 4A0216 come with a built-in DC reactor.
* 3: Disable protection for built-in braking transistor (L8-55 = 1) when using a regenerative converter, regenerative unit, or braking unit (and therefore not using the built-in braking transistor).
* 4: Drives using a braking resistor unit should wire a thermal relay so that the power supply is also shut off if overheat occurs.
* 5: Self-cooling motors do not require wiring that would be necessary with motors using a cooling fan.
* 6: A separate 24 V power supply is required to have the control circuit still operating while the power to the main circuit is shut off.
* 7: For control modes that do not use a motor speed feedback signal, PG option card wiring is not necessary.
* 8: Place jumpers to set the drive for sink or source (internal or external power supply). The default setting is for sink (internal power supply).
* 9: 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 this can cause erroneous operation or damage the drive.
* 10: Enable the termination resistor in the last drive in a MEMOBUS/Modbus network by setting DIP switch S2 to the ON position.
* 11: The sink/source setting for the Safe Disable input is the same as with the sequence input. Jumper S3 has the drive set for an external power supply. When not using the Safe Disable input feature, remove the jumper shorting the input and connect an external power supply.
* 12: Disconnect the wire jumper between HC - H1 and HC - H2 when utilizing the Safe Disable input.
* 13: Monitor outputs work with devices such as analog frequency meters, ammeters, voltmeters, and wattmeters. Do not use these outputs in a feedback loop.
* 14: Note that if the drive is set to trigger a fault output whenever the fault restart function is activated (L5-02 = 1), then a sequence to interrupt power when a fault occurs will result in shutting off the power to the drive as the drive attempts to restart itself. The default setting for L5-02 is 0 (fault output active during restart attempt).
* 15: MA, MB, and MC must be used as fault outputs. They must be set up so that any interruption in the safety chain shuts off drive output.
* 16: Even though no fault is present conditions where the drive can not start can occur, e.g., when the digital operator is left in the Programming Mode. Use the "Drive Ready" output (default set to terminals M5-M6) to interlock operation in such situations.
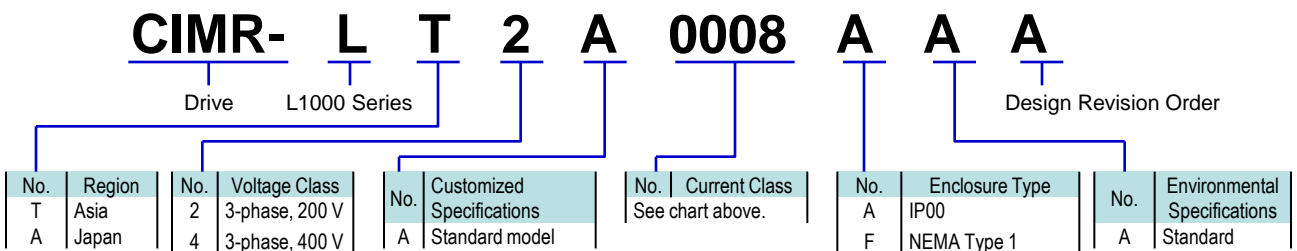
10

## L1000 and Yaskawa PM Motors  *Flat-type and base-mount motors*

| Weight (Kg) | Elevator Speed (m/min) | Motor | | | L1000 |
| --- | --- | --- | --- | --- | --- |
| | | Model SSE4- | Motor Output (kW) | Motor Speed (r/min) | CIMR-LT |
| **200 V Class** | | | | | |
| 450 | 45 | 22P1072 | 2.1 | 72 | 2A0025 |
| | 60 | 22P8096 | 2.8 | 96 | 2A0025 |
| | 90 | 24P2144 | 4.2 | 144 | 2A0033 |
| 600 | 45 | 22P8072 | 2.8 | 72 | 2A0033 |
| | 60 | 23P7096 | 3.7 | 96 | 2A0033 |
| | 90 | 25P6144 | 5.6 | 144 | 2A0047 |
| | 105 | 26P5168 | 6.5 | 168 | 2A0047 |
| 750 | 45 | 23P5072 | 3.5 | 72 | 2A0033 |
| | 60 | 24P6096 | 4.6 | 96 | 2A0033 |
| | 90 | 26P9144 | 6.9 | 144 | 2A0060 |
| | 105 | 28P1168 | 8.1 | 168 | 2A0060 |
| 900 | 45 | 24P2072 | 4.2 | 72 | 2A0047 |
| | 60 | 25P6096 | 5.6 | 96 | 2A0047 |
| | 90 | 28P3144 | 8.3 | 144 | 2A0060 |
| | 105 | 29P7168 | 9.7 | 168 | 2A0060 |
| 1000 | 45 | 24P6072 | 4.6 | 72 | 2A0047 |
| | 60 | 26P2096 | 6.2 | 96 | 2A0047 |
| | 90 | 29P2144 | 9.2 | 144 | 2A0075 |
| | 105 | 4011168 | 11 | 168 | 2A0075 |
| **400 V Class** | | | | | |
| 450 | 45 | 42P1072 | 2.1 | 72 | 4A0015 |
| | 60 | 42P8096 | 2.8 | 96 | 4A0015 |
| | 90 | 44P2144 | 4.2 | 144 | 4A0018 |
| | 105 | 44P8168 | 4.8 | 168 | 4A0018 |
| 600 | 45 | 42P8072 | 2.8 | 72 | 4A0018 |
| | 60 | 43P7096 | 3.7 | 96 | 4A0024 |
| | 90 | 45P6144 | 5.6 | 144 | 4A0024 |
| | 105 | 46P5168 | 6.5 | 168 | 4A0024 |
| 690 | 45 | 43P2072 | 3.2 | 72 | 4A0018 |
| | 60 | 44P3096 | 4.3 | 96 | 4A0018 |
| | 90 | 46P9144 | 6.9 | 144 | 4A0031 |
| | 105 | 48P1168 | 8.1 | 168 | 4A0031 |
| 750 | 45 | 43P2072 | 3.5 | 72 | 4A0018 |
| | 60 | 44P3096 | 4.6 | 96 | 4A0018 |
| | 90 | 46P9144 | 6.9 | 144 | 4A0031 |
| | 105 | 48P1168 | 8.1 | 168 | 4A0031 |
| 900 | 45 | 44P2072 | 4.2 | 72 | 4A0018 |
| | 60 | 45P6096 | 5.6 | 96 | 4A0018 |
| | 90 | 48P3144 | 8.3 | 144 | 4A0031 |
| | 105 | 49P7168 | 9.7 | 168 | 4A0031 |
| 1000 | 45 | 44P6072 | 4.6 | 72 | 4A0024 |
| | 60 | 46P2096 | 6.2 | 96 | 4A0024 |
| | 90 | 49P2144 | 9.2 | 144 | 4A0031 |
| | 105 | 4011168 | 11 | 168 | 4A0031 |
| | 120 | 4013192 | 13 | 192 | 4A0039 |

## Model Number Key

CIMR- **L** **T** **2** **A** **0008** **A** **A** **A**

Drive    L1000 Series      Design Revision Order

| No. | Region |
| --- | --- |
| T | Asia |
| A | Japan |

| No. | Voltage Class |
| --- | --- |
| 2 | 3-phase, 200 V |
| 4 | 3-phase, 400 V |

| No. | Customized Specifications |
| --- | --- |
| A | Standard model |

| No. | Current Class |
| --- | --- |
| | See chart above. |

| No. | Enclosure Type |
| --- | --- |
| A | IP00 |
| F | NEMA Type 1 |

| No. | Environmental Specifications |
| --- | --- |
| A | Standard |

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| Device | | Model | Purpose |
|---|---|---|---|
| **Interface Options** | | | |
| Operator Extension Cable | | WV001/WV003 | Cable for connecting the LED operator (1 m or 3 m cables available) RJ-45 8 pin UTP CAT5e cable (T568B) |
| USB Copy Unit | | JVOP-181 | Copy parameter settings in a single step, then transfer those settings to another drive. Cable included. Contact a Yaskawa representative to obtain a USB driver. |
| **Operator Mounting Bracket** | | | |
| Installation Support Set A | | EZZ020642A | Mounts the digital operator to the outside of an enclosure panel. For use with holes through the panel. |
| Installation Support Set B | | EZZ020642B | Mounts the digital operator to the outside of an enclosure panel. For use with mounted threaded studs. |
| **Other Options** | | | |
| 24 V Power Supply | | PS-A10LB PS-A10HB | Back power supply for the control circuit and option boards for when the main circuit loses power. Allows the user to refer to parameter settings and view drive monitors during a power loss. |
| **Option Cards** | | | |
| PG Speed Controller Card | Complimentary Type PG | PG-B3 | For complimentary and open collector types: 3 track (A, B, Z pulse) Single track compatible (A pulse) Maximum input frequency: 50 kHz Pulse monitor output: open collector Voltage output for PG: 12 V, max. 200 mA |
| | Line Driver | PG-X3 | For line driver: 3 track (A, B, Z pulse) Single track compatible (A pulse) Maximum input frequency: 300 kHz Pulse monitor: Matches RS-422 Voltage output for PG: 5 V max. 200 mA |
| | Encoder | PG-F3 | For HEIDENHAIN EnDat2.1/01, EnDat2.2/01, EnDat2.2/22 : Maximum input frequency: 20 kHz Pulse monitor: Matches RS-422 Voltage output for encoder: 5 V, 330 mA max or 8 V, 150 mA max. Encoder cable: 20 m max. * Pulse monitor cable: 30 m max. *Use a 17-pin encoder capable manufactured by HEIDENHAIN. |
| | Encoder Type (ERN1387) | PG-E3 | For HEIDENHAIN ERN1387: Maximum input frequency: 20 kHz Pulse monitor: Matches RS-422 Voltage output for encoder: 5 V, 200 mA max. Encoder cable: 10 m max. * Pulse monitor cable: 30 m max. *Use a 17-pin encoder capable manufactured by HEIDENHAIN. |
| I/O Option Cards | Analog Monitor | AO-A3 | Outputs analog signal for monitoring drive output state (output frequency, output current, etc.). Terminals: 2 analog outputs Output resolution: 11 bit signed (1/2048) Output voltage: −10 to +10 Vdc |
| | Digital Input | DI-A3 | Allows for a digital speed reference input. Terminals: 18 input terminals (including those for set and sign) Input signal: User-set binary 8/12/16 bit, BCD 2/3/4 Input power: 24 Vdc, 8 mA |
| | Digital Output | DO-A3 | Outputs isolated type digital signal for monitoring drive run state (alarm signal, zero speed detection, etc.) Terminals: 6 photocoupler outputs (48 V, 50 mA or less) 2 relay contact outputs (250 Vac, 1 A or less 30 Vdc, 1 A or less) |
| Communications | CANopen | SI-S3 | Connects the drive to a CANopen network. |
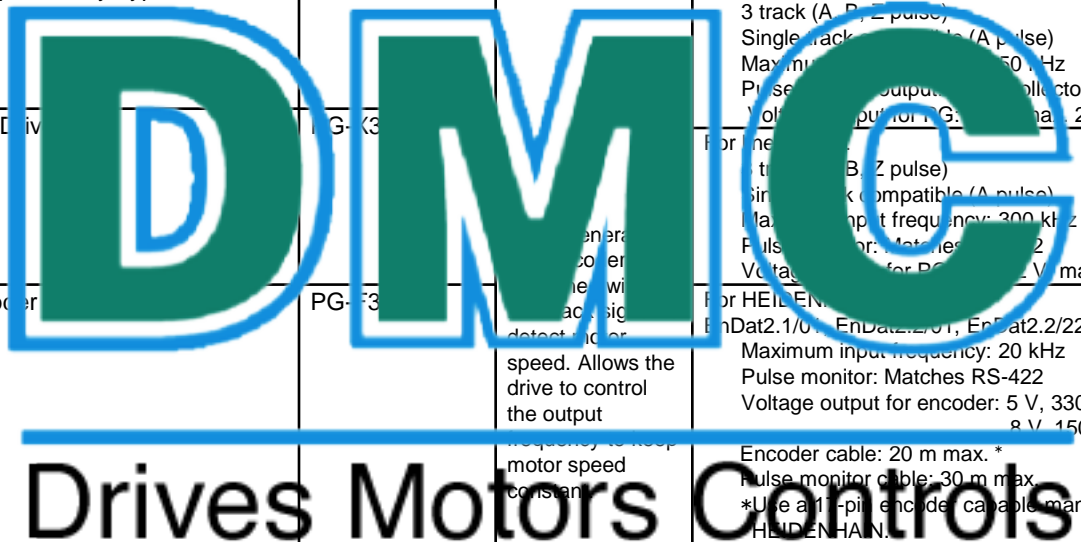
# Peripherals Devices

## ■ Braking Unit

Stand-alone

Braking Unit
【CDBR series】

| Voltage | | 200 V Class | | | 400 V Class | | |
|---|---|---|---|---|---|---|---|
| Model : CDBR- | | 2022D | 2037D | 2110B | 4030D | 4045D | 4220B |
| Max. Applicable Motor (kW) | | 22 | 37 | 110 | 30 | 45 | 220 |
| Max. Discharge Current  A/10%ED（10 s max.) | | 60 | 80 | 250 | 40 | 60 | 250 |
| Rated Discharge Current  A/continues | | 20 | 24 | 80 | 15 | 18 | 80 |
| Min. Connectable Resistance (Ω) | | 6.4 | 5.0 | 1.6 | 19.2 | 12.8 | 3.2 |
| Drive Watts Loss（Heat loss）(W) | | 27 | 38 | 64 | 24 | 36 | 71 |

Dimensions (mm)

Model: CDBR-2022D, -2037D, -4030D, 4045D          Model: CDBR-2110B          Model: CDBR-4220B



Weight: 12 kg
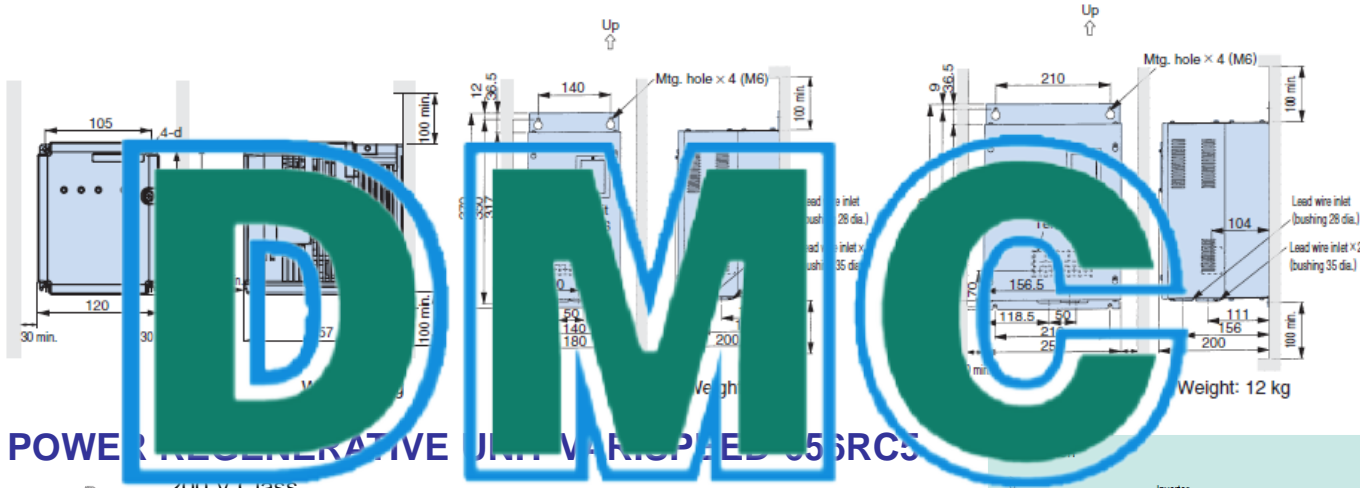
## ■ POWER REGENERATIVE UNIT VARISPEED 656RC5

200 V Class

| Rated Capacity (kW) | 3.7 | 5.5 | 7.5 | 11 | 15 | 18.5 | 22 | 30 | 37 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Model CIMR-R5A | 23P7 | 25P5 | 27P5 | 2011 | 2015 | 2018 | 2022 | 2030 | 2037 | | |

400 V Class

| Rated Capacity (kW) | 3.7 | 5.5 | 7.5 | 11 | 15 | 18.5 | 22 | 30 | 37 | 45 | 55 | 75 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Model CIMR-R5A | 43P7 | 45P5 | 47P5 | 4011 | 4015 | 4018 | 4022 | 4030 | 4037 | 4045 | 4055 | 4075 |
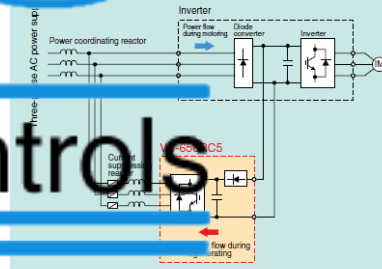
Refer to the catalog (No.KAE-S656-3) for details.

## ■ 24 V Power Supply

The 24 V Power Supply Option 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.

The installed option adds 50 mm
to the total depth of the drive.

50mm

Connection Diagram



Weight: 0.2kg
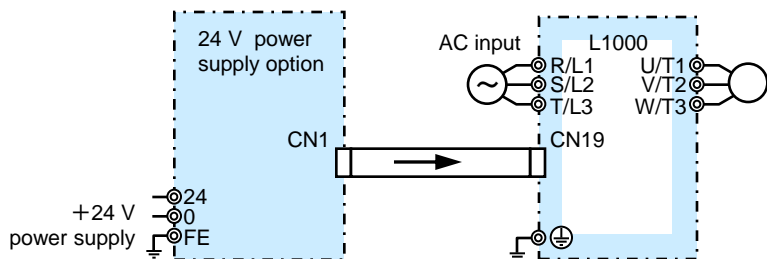
| Model | Code No. |
|---|---|
| 200 V Class: PS-A10LB | PS-A10LB |
| 400 V Class: PS-A10HB | PS-A10HB |

Note: Even if a back-up power supply is used for the control circuit, the main
circuit must still have power in order to charge parameter settings.

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## ■ DC Reactor (UZDA-B for DC circuit)

Base device selection on motor capacity.
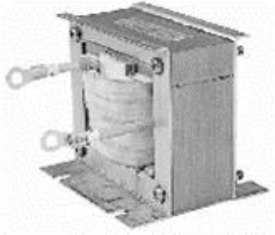
Lead Wire Type
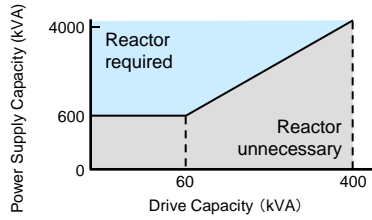
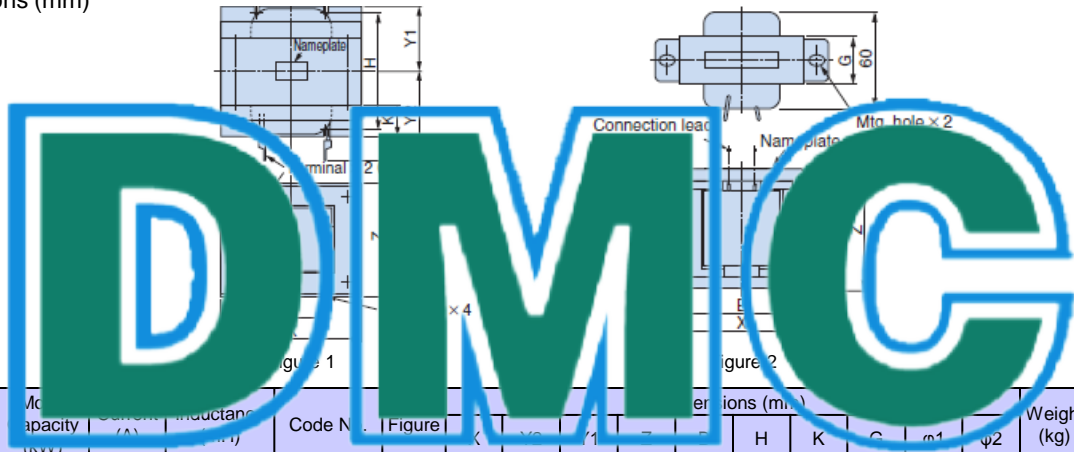Note: Reactor recommended for power supplies larger than 600 kVA.

Connection Diagram

Note: Remove jumper between +1 and +2, and wire as shown in the diagram.

Dimensions (mm)

Figure 1    Figure 2

| Motor Capacity (kW) | Current (A) | Inductance (mH) | Code No. | Figure | Dimensions (mm) | | | | | | | | | | Weight (kg) | Watt Loss (W) | Wire* Gauge (mm²) |
| | | | | | X | Y2 | Y1 | Z | B | H | K | G | φ1 | φ2 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1.5 | | | | | | | | | | | | | | | | | |
| 2.2 | 18 | 3 | X010049 | | 86 | 80 | 36 | 76 | 60 | 55 | 18 | — | M4 | M5 | 2 | 18 | 5.5 |
| 3.7 | | | | | | | | | | | | | | | | | |
| 5.5 | 36 | 1 | X01005 | | 105 | 90 | 46 | 93 | 6 | 80 | 26 | — | M6 | M6 | 3.2 | 22 | 8 |
| 7.5 | | | | | | | | | | | | | | | | | |
| 11 | 72 | 0.5 | X01005 | | 105 | 105 | 6 | 9 | 64 | 100 | 26 | — | M6 | M8 | 4.9 | 29 | 30 |
| 15 | | | | | | | | | | | | | | | | | |
| | 90 | | X0101 | | | 125 | 62.5 | | 80 | 90 | 25 | — | M6 | M8 | 8 | 45 | 30 |
| 22~110 | | | | | | | | | Built-in | | | | | | | | |

200 V Class

| Motor Capacity (kW) | Current (A) | Inductance (mH) | Code No. | Figure | Dimensions (mm) | | | | | | | | | | Weight (kg) | Watt Loss (W) | Wire* Gauge (mm²) |
| | | | | | X | Y2 | Y1 | Z | B | H | K | G | φ1 | φ2 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1.5 | 5.7 | 11 | X010053 | 2 | 90 | — | — | 60 | 80 | — | — | 32 | M4 | — | 1 | 11 | 2 |
| 2.2 | | | | | | | | | | | | | | | | | |
| 3.7 | 12 | 6.3 | X010054 | 1 | 86 | 80 | 36 | 76 | 60 | 55 | 18 | — | M4 | M5 | 2 | 16 | 2 |
| 5.5 | 23 | 3.6 | X010055 | | 105 | 90 | 46 | 93 | 64 | 80 | 26 | — | M6 | M5 | 3.2 | 27 | 5.5 |
| 7.5 | | | | | | | | | | | | | | | | | |
| 11 | 33 | 1.9 | X010056 | | 105 | 95 | 51 | 93 | 64 | 90 | 26 | — | M6 | M6 | 4 | 26 | 8 |
| 15 | | | | | | | | | | | | | | | | | |
| 18.5 | 47 | 1.3 | X010177 | | 115 | 125 | 57.5 | 100 | 72 | 90 | 25 | — | M6 | M6 | 6 | 42 | 14 |
| 22~110 | | | | | | | | | Built-in | | | | | | | | |

400 V Class

＊Cable: Indoor PVC(75℃), ambient temperature 45℃, 3 lines max.

Terminal Type

Dimensions (mm)
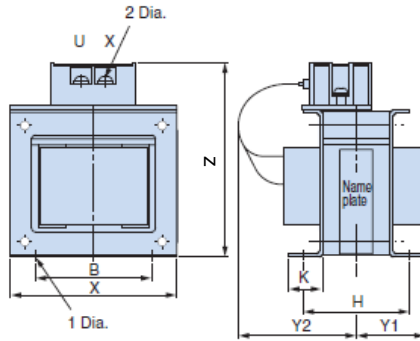
Figure 1
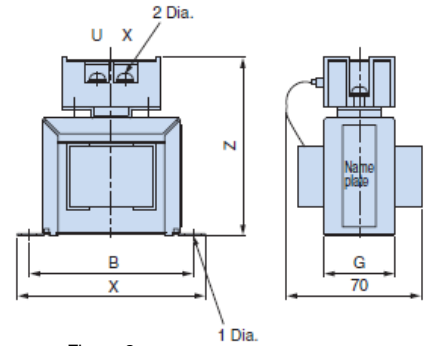
Figure 2

| | Capacity (kW) | Current (A) | Inductance (mH) | Code No. | Figure | Dimensions (mm) | | | | | | | | | | | Weight (kg) | Watt Loss (W) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | X | Y2 | Y1 | Z | B | H | K | G | φ1 | φ2 | | |
| 200 V Class | 1.5 | | | | | | | | | | | | | | | | |
| | 2.2 | 18 | 3. | 300-027 | 31 | | 84 | 36 | | 60 | | 18 | — | M4 | M4 | 2 | 18 |
| | 3.7 | | | | | | | | | | | | | | | | |
| | 5.5 | 36 | 1. | 300-027 | 32 | | | 46 | | 64 | | 26 | — | M6 | M4 | 3.2 | 22 |
| | 7.5 | | | | | | | | | | | | | | | | |
| | 11 | 72 | | 300-027 | 33 | | 1 | 56 | | 64 | | | | | M6 | 4.9 | 29 |
| | 15 | | | | | | | | | | | | | | | | |
| | 18.5 | | | 300-027 | 39 | | 3 | | 2. | 86 | | | | | M6 | 6.5 | 44 |

| | Capacity (kW) | Current (A) | Inductance (mH) | Code No. | Figure | Dimensions (mm) | | | | | | | | | | | Weight (kg) | Watt Loss (W) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | X | Y2 | Y1 | Z | B | H | K | G | φ1 | φ2 | | |
| 400 V Class | 1.5 | 5.7 | 11 | 300-027-135 | 2 | 90 | — | — | 88 | 80 | — | — | 32 | M4 | M4 | 1 | 11 |
| | 2.2 | | | | | | | | | | | | | | | | |
| | 3.7 | 12 | 6.3 | 300-027-136 | | 86 | 84 | 36 | 101 | 60 | 55 | 18 | — | M4 | M4 | 2 | 16 |
| | 5.5 | 23 | | 300-027-137 | | 105 | 104 | 46 | 118 | 64 | 80 | 26 | — | M6 | M4 | 3.2 | 27 |
| | 7.5 | | | | 1 | | | | | | | | | | | | |
| | 11 | | | | | | | | | | | | | | | 4 | 26 |
| | 15 | | | | | | | | | | | | | | | | |
| | 18.5 | 47 | 1.3 | 300-027-140 | | 115 | 142.5 | 57.5 | 136 | 72 | 90 | 25 | — | M6 | M5 | 5 | 42 |
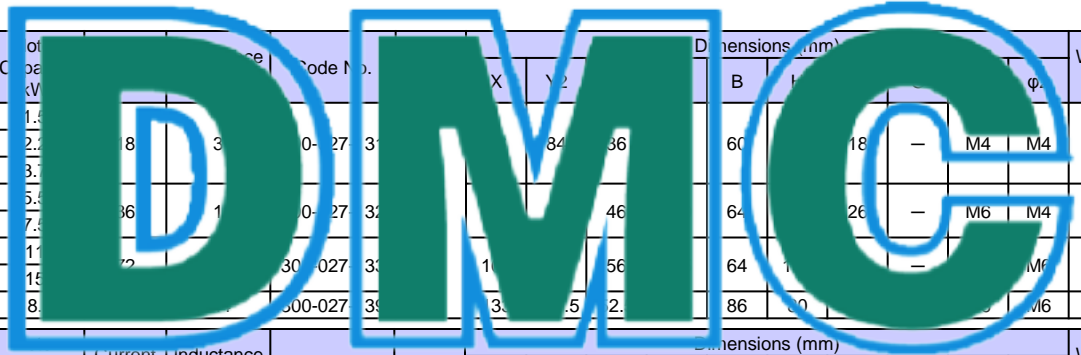
## ■ Fuse and Fuse Holder

Install a fuse to the drive input terminals to prevent damage in case a fault occurs.
Refer to the instruction manual for information on UL-approved components.
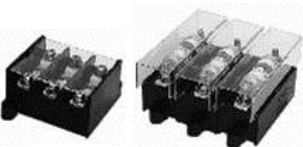


【Fuji Electric FA Components & System Co., Ltd】

| | Model CIMR-LT2A□ | Fuse | | Fuse Holder | | | Model CIMR-LT4A□ | Fuse | | Fuse Holder | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Model | Qty. | Model | Qty. | | | Model | Qty. | Model | Qty. |
| 200 V Class | 0008 | CR2LS-50 | 3 | CM-1A | 1 | 400 V Class | 0005 | CR6L-50 | 3 | CMS-4 | 1 |
| | 0011 | | | | | | 0006 | | | | |
| | 0018 | CR2LS-100 | | | | | 0009 | | | | |
| | 0025 | CR2L-125 | | CM-2A | 1 | | 0015 | CR6L-75 | | CMS-5 | 1 |
| | 0033 | CR2L-150 | | | | | 0018 | | | | |
| | 0047 | CR2L-175 | | | | | 0024 | CR6L-100 | | | |
| | 0060 | CR2L-225 | | ∗ | | | 0031 | CR6L-150 | | | |
| | 0075 | CR2L-260 | | | | | 0039 | | | | |
| | 0085 | CR2L-300 | | | | | 0045 | CR6L-200 | | ∗ | |
| | 0115 | CR2L-350 | | | | | 0060 | CR6L-250 | | | |
| | 0145 | CR2L-400 | | | | | 0075 | | | | |
| | 0180 | CR2L-450 | | | | | 0091 | CR6L-300 | | | |
| | 0215 | CR2L-600 | | | | | 0112 | CR6L-350 | | | |
| | 0283 | | | | | | 0150 | CR6L-400 | | | |
| | 0346 | | | | | | 0180 | CS5F-600 | | | |
| | 0415 | CS5F-800 | | | | | 0216 | | | | |

∗ Manufacture does not recommended a specific fuse holder for this fuse.
  Contact the manufacture for information on fuse dimensions.

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# L1000A

YASKAWA ELECTRIC CORPORATION