



YASKAWA

YASKAWA AC Drive Compact V/f Control Drive J1000

200 V CLASS, THREE-PHASE INPUT: 0.1 to 5.5 kW
200 V CLASS, SINGLE-PHASE INPUT: 0.1 to 2.2 kW
400 V CLASS, THREE-PHASE INPUT: 0.2 to 5.5 kW



Reliable and Smart



Certified for
ISO9001 and
ISO14001



JQA-0422



JQA-EM0498

Reliable

Small but Reliable



Smart

Easy to Operate
and So Compact



YASKAWA AC Drive

J1000

Compact V/f Control Drive



Reliability the world has come to expect from Yaskawa as a global leader is now packed into an even smaller, more powerful unit.

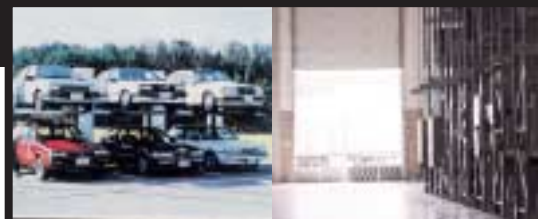
So easy to use: just switch it on and you're ready to go.

J1000 is fully capable of efficient performance and energy saving, handling variable speed needs in compact applications.

A drive that exemplifies true world quality with a difference you can really feel.

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Features

1.

Fully Equipped with User and Environmentally-Friendly Functions

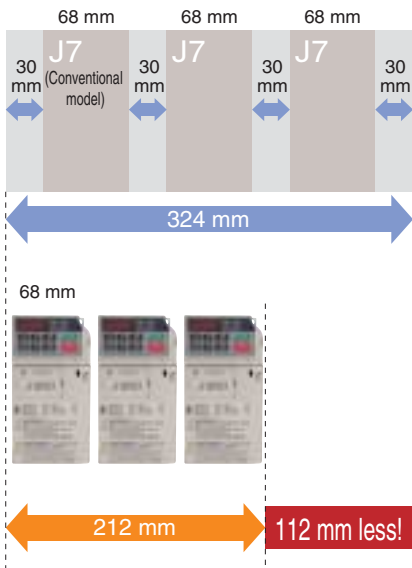
Compact Design

Every drive has dual rating, Normal Duty (ND) and Heavy Duty (HD). Parameter settings let the user select the rating that best suits the application needs. Selecting ND allows the drive to operate a more powerful motor an entire frame size larger than with HD. Side-by-Side installation and J1000's impressively compact design make it possible to fit the entire setup into even the narrowest enclosures.

Note: Current derating must be considered. Select a motor that has a current rating within the rated current of the drive.

How Side-by-Side Installation Works

Example: 200 V 0.75 kW

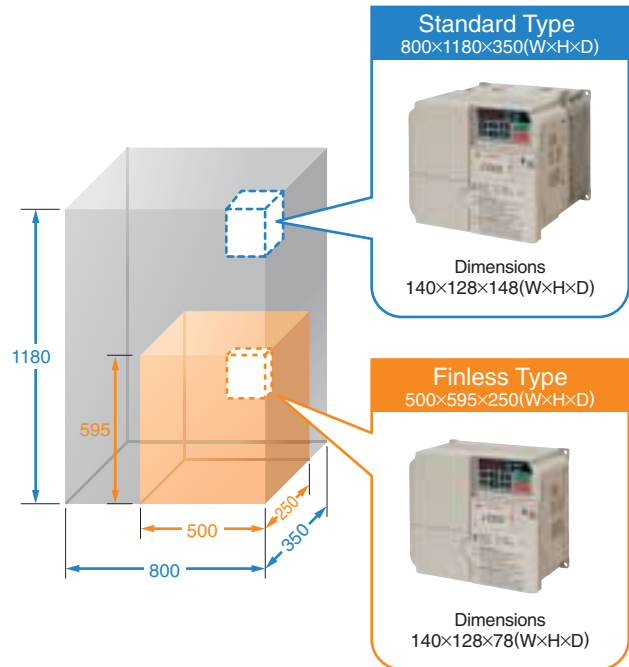


Note: Only 2 mm needed between J1000 drives. If the last drive in a series is installed next to a wall, a 30 mm gap is required.

Use J1000's slender Finless Type for an even more compact installation. Options also include an easy-to-connect NEMA 1 Type 1 kit to provide the protection the drive needs.

Compact Setup in Enclosure Panel (mm)

Example: 200 V Class, Three-Phase Input 3.7 kW (HD)



Note: As the Finless Type lacks its own heatsink, steps still need to be taken to ensure proper heat dissipation. The example above shows a drive installed to a fully-enclosed panel with an external cooling unit added to handle cooling requirements. Refer to the manual for details.

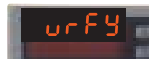
Easy Operation

The Setup Mode gives the user quick access to the basic parameters needed to get the application running right away. This feature ensures quick and easy setup once the drive is installed. The Verify Menu lists all setting that have been changed from their original default values.

Verify Menu

Parameters changed from their default values

Name	No.	Default	Set Value
Frequency Reference Selection	b1-01	1	0
Acceleration Time 1	C1-01	10.00 s	15.00 s
Deceleration Time 1	C1-02	10.00 s	15.00 s
⋮	⋮	⋮	⋮



Environmentally Friendly

J1000 is fully compliant with EU's RoHS.



J1000 uses Yaskawa's Swing PWM function to suppress electromagnetic and audible motor noise, creating a more peaceful environment.

Acoustic Noise Levels from Swing PWM vs. Conventional PWM

23.3% less

Note: Calculated by analyzing noise generation and comparing peak values.

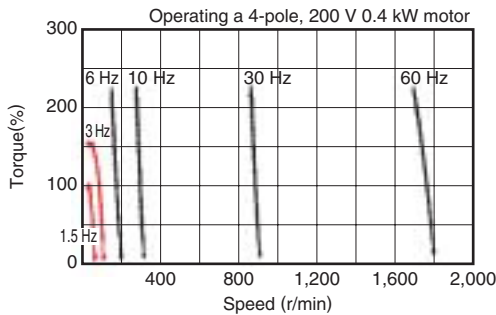
Features
2.

Ensuring Stable Operation

Starts Heavy Loads Effortlessly

Fully automatic torque compensation across the entire speed range, whether accelerating, decelerating, or operating at constant speed. Capable of 100% rated torque as low as 1.5 Hz, and 150% at 3 Hz when set for Heavy Duty performance.

● **Powerful Torque**



● **Yaskawa's Full Range, Fully Automatic Torque Compensation**

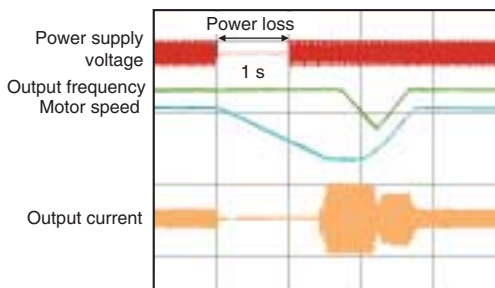
The drive output voltage needed in a single application varies with changing load conditions. Yaskawa's torque compensation function automatically adjusts voltage levels to maintain the required V/f pattern during acceleration and when operating at a constant speed.

Smooth, Continuous Operation

Stall Prevention keeps the motor running smoothly. Speed Search and Momentary Power Loss Ride-Thru functions can restart a coasting motor without a motor encoder, making continuous operation possible should a transient fault occur.

● **Momentary Power Loss Ride-Thru**

Easily restart the motor without a motor encoder.
 Perfect for fan, blowers, and other rotating, fluid-type applications.

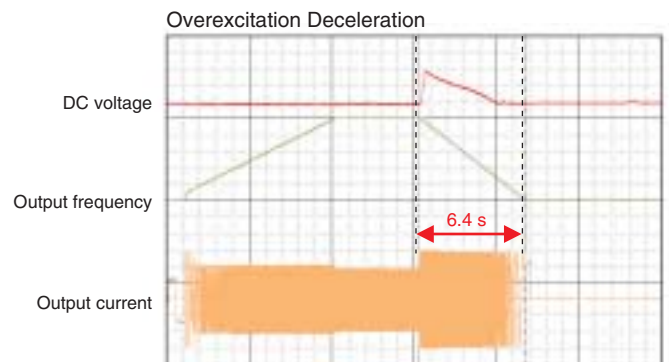
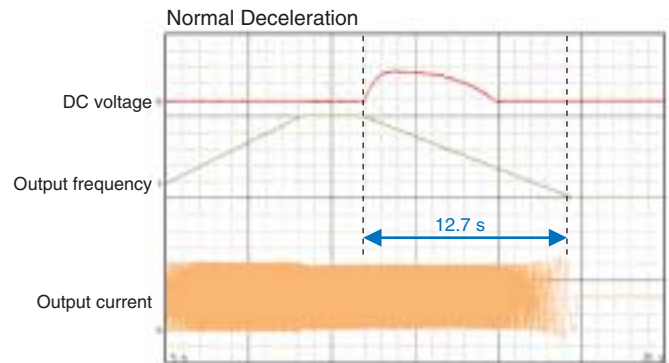


Enhanced Braking

The overexcitation braking functions enables rapid braking up to 50% faster without using a braking resistor. All models come equipped with a braking transistor for even faster stopping capabilities should the user decide to install a braking resistor.

● **Overexcitation Braking**

* Overexcitation braking for a 400 V class 3.7 kW drive without a braking resistor. Results may vary with motor and load conditions.



50% faster!

Loaded with Protective Features

All models come equipped with an inrush current suppression circuit, protecting the drive from unstable power conditions. Overload detection and motor thermal protection prevent damage to connected machinery, while fault restart ensures continuous production.

Features

3.

True Reliability and Top Quality Assurance

Hassle-Free Maintenance

Yaskawa drives have a built-in maintenance timer that keeps track of component performance, including capacitors, soft-charge circuitry, IGBTs, and the cooling fan. This ensures maximum performance life of the drive.

The cooling fan is also designed for quick replacement: both detachable and easily accessible from the top of the drive.

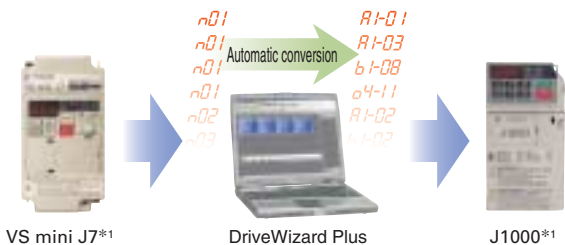
● Attaching/Detaching the Cooling Fan



Engineering tool DriveWizard Plus automatically converts parameter settings from the earlier VS mini J7 to match parameters in J1000.

Not only useful for model upgrades and transitions, but also a time-saving feature in case a drive needs to be replaced.

● Model Transition



*1: Requires an optional interface unit.

Note: To obtain a copy of Drive Wizard Plus, contact your Yaskawa representative.

Durability in a Wide Range of Environments

A wide range of protective features are available for harsher environments, including designs that are resistant to moisture, dust, oil, and shock.

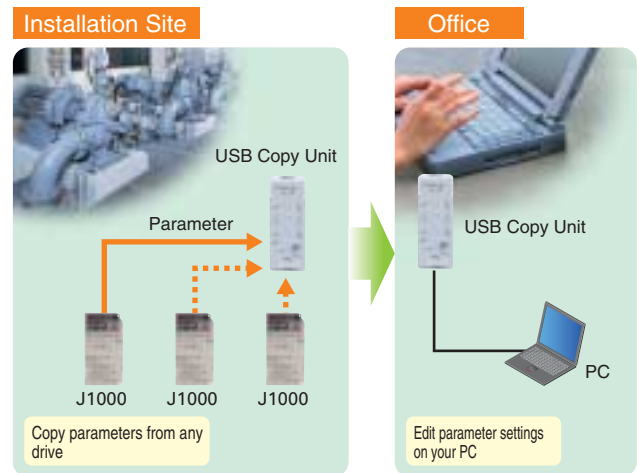
Convenient Parameter Management

Yaskawa's USB Copy Unit is available for applications with multiple drives requiring the same parameter settings. Use the Copy Unit to load parameters from the drive at the factory and edit them later on a PC*2. Incredibly useful for backing up parameter settings and easier than a carrying around a laptop.

*2: Requires an optional interface and freeware Copy Unit Manager.

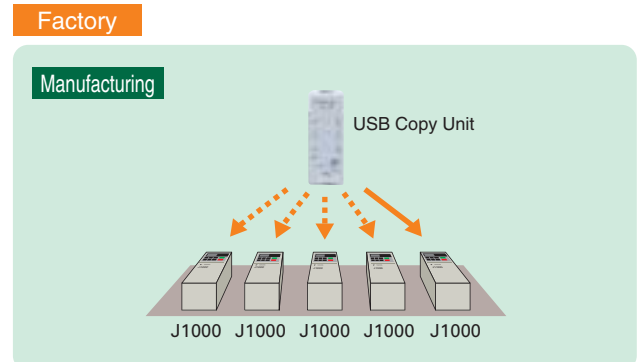
To obtain a Copy Unit Manager, contact your YASKAWA representative.

● Centralized Management



Note: USB Copy Unit designed to store parameters for a single drive.

● Get Larger Applications Ready in No Time



Note: Data can only be transferred between drives that are the same model running the same software version.

Minimizing Power Supply Harmonics

AC and DC reactor are both available to minimize the amount of harmonic distortion in the system.

Features
4.

Wide Range of Options Available

Potentiometer Option Unit (option)

A speed potentiometer lets the user adjust the frequency simply by turning a dial. This optional potentiometer offers an easy way to control motor speed on the fly, without needing to access parameter settings.

● Potentiometer Option Unit



LED Operator*1 (option)

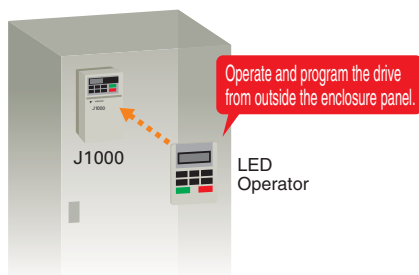
The LED operator allows the user to control the drive from up to 3 meters away, saving the hassle of directly accessing the drive when mounted inside an enclosure panel.

*1: Requires an optional interface unit.

● Using the LED Operator

- View, edit, and set parameters
- Run/Stop
- Read, Copy and Verify parameter settings
- Monitor operation status

● Connecting the LED Operator



DriveWizard Plus

DriveWizard Plus makes it possible to operate the drive and perform maintenance using a PC. It has never been easier to edit parameters, access all monitors, create customized operation sequences, and observe drive performance with the oscilloscope function.

Note: To obtain a copy of Drive Wizard Plus, contact your Yaskawa representative.



● Parameter Editing

View and edit drive parameters.



● Oscilloscope Function

Displays operation status and drive performance in real time.



RS-422/485 Interface for MEMOBUS communication (option)

Supports the MEMOBUS/Modbus protocol.
Requires an optional interface.

Built-in EMC*2 Filter (option)

Available with a noise filter to meet European standards.
*2: Electromagnetic Compatibility

Compliant with Global Product Standards

Compliance with global product regulations including CE, UL, and cUL makes J1000 fit for use worldwide.



Application Benefits

J1000 gets the most out of the application.



Fluid Applications

Advantages

- 1 The Setup Mode saves valuable installation time by providing just the essential parameters needed to get the application running immediately.
- 2 Normal Duty keeps the cost of the application down by allowing the use of a larger motor.
- 3 Speed Search prevents loss from down time by keeping the application running smoothly through a power loss.
- 4 Prohibit reverse rotation with a single parameter setting to prevent improper operation and possible machine damage.
- 5 Swing PWM minimizes noise and leakage current, quieting undesirable motor noise.
- 6 Self-diagnostic features check the drive when a fault occurs. Automatic fault restart keeps the application running without needing to stop the motor, avoiding production loss from down time.
- 7 Verify Menu lists any parameters that have been changed from their original default settings for easy maintenance and inspection.
- 8 Monitors display total operation time of various components. Extremely helpful in drive maintenance, offering performance life information for the cooling fan, main circuit capacitors, and other components that may eventually need replacement. A true time saver that allows the user to know exactly when replacements are needed so that the application never shuts down to due to component wear or failure.

Functions

NEW SET UP Mode	NEW ND/HD Selection	NEW Overexcitation Braking
Speed Search	Multi-Step Speed	Reverse Prevention
NEW Swing PWM	Overtorque Detection	Momentary Power Loss Ride-Thru
Stall Prevention	Fault Restart	NEW Verify Menu
NEW Accumulated Operation Time	NEW Maintenance Monitor	

NEW New Functions New software functions for J1000

Applications



Fan



Pump



Conveyor, Transport, and Civil Applications

Advantages

- 1 The Setup Mode saves valuable installation time by providing just the essential parameters needed to get the application running immediately.
- 2 Heavy Duty provides high overload capability for reliable operation without production loss from down time.
- 3 Overexcitation provides increased braking torque without the need for a braking resistor, keeping the installation compact and the cost low. If even more braking torque is needed, an additional braking resistor can be connected to the built-in braking transistor.
- 4 Swing PWM minimizes noise and leakage current, quieting disturbing motor noise.
- 5 Torque compensation features operate across the entire speed range to automatically provide just the right amount of torque whenever needed. Perfect for starting the toughest loads in the harshest conditions.
- 6 Self-diagnosis features check the drive when a fault occurs. Automatic fault restart keeps the application running without needing to stop the motor, avoiding production loss from down time.
- 7 Verify Menu lists any parameters that have been changed from their original default settings for easy maintenance and inspection.
- 8 Monitors display total operation time of various components. Extremely helpful in drive maintenance, offering performance life information for the cooling fan, main circuit capacitors, and other components that may eventually need replacement. A true time saver that allows the user to know exactly when replacements are needed so that the application never shuts down to due to component wear or failure.

Functions

NEW SET UP Mode	NEW ND/HD Selection	NEW Overexcitation Braking
S-Curve Time	Multi-Step Speed	NEW Swing PWM
Torque Boost	Stall Prevention	Fault Restart
NEW Verify Menu	NEW Accumulated Operation Time	NEW Maintenance Monitor

NEW New Functions New software functions for J1000

Applications

Conveyor	Auto Shutter	Automatic Doors
Food & Beverage	Agricultural	Health & Leisure

Software Functions

Loaded with software functions just right for your application.



New software available to upgrade from J7 to J1000, automatically matching function and sequence settings.

Note: Major functions listed below.

Setup

NEW

SET UP Mode

Easy access to the minimum-required parameters during setup.
Save valuable time during setup by calling up just the parameters needed.

Password

Protect parameter settings.

Once setup is complete, protect parameter settings with a password from unauthorized personnel.

NEW

ND/HD Selection

Dual ratings to fit a wide range of application needs.

Select between Normal Duty and Heavy Duty for optimized torque performance.

Functions at Start and Stop

NEW

Overexcitation Braking

Perfect for applications with high load inertia that rarely need to be stopped.

Stop quickly—50% faster without the use of a braking resistor.

* Stopping times may vary based on motor characteristics.

DC Injection Braking at Start

Halt a coasting motor and start it back up again.

When the direction of a coasting motor is unknown, the drive automatically performs DC Injection to bring the motor to a halt and then start it back up again.

Speed Search

Start a coasting motor.

Automatically brings a coasting motor back to the target frequency without the need for extra speed sensors.

Accel/Decel Time Switch

Switch easily between accel/decel times.

Set different acceleration and deceleration times based on load status and change between those times during operation.

S-Curve Time

Prevent sudden shock when starting and stopping the application.

Drive lets the user fine-tune the S-curve characteristics, allowing for smooth acceleration and deceleration.

Stopping Method Selection

Determine the best way to stop the application.

Program the drive to stop the motor in the way most appropriate for the application.

Reference Functions

Run Command Selection

Select a Run command input method.

Tell the drive where the Run command is to be given from: the operator, external terminals, or serial communications.

Speed Reference Selection

Select a speed reference input method.

Tell the drive where the speed reference is given from: the operator, external terminals, or serial communications. Determine the type of input for the speed reference, whether a voltage input or current input signal should be used.

Multi-Function Input

Select from a wide range of input terminal functions.

A multitude of 5 input functions available to best suit your application needs.

Multi-Function Output

Select the output functions optimal for your application.

An array of output functions are available to match your application needs.

Frequency Reference Upper/Lower Limits

Limit motor speed.

Set speed limits and eliminate the need for extra peripheral devices and extraneous hardware.

Multi-Step Speed

Easily program a speed sequence with multiple steps.

Set up to 9 separate speeds to create a speed sequence for the application. The drive can easily be connected to a PLC and allow for a simple positioning with limit switches.

Frequency Jump

Skip over troublesome resonant frequencies.

Drive can be programmed to avoid machine resonance problems by avoiding constant speed operation at certain speed.

Frequency Reference Hold

Improved operability.

Momentarily hold the operating frequency during acceleration or deceleration as the load is lowered or raised.

Up/Down

Improved operability.

Raise or lower the frequency reference using a remote switch.

NEW

LOCAL/REMOTE

Switch between remote operating locations.

Easily switch between controlling the drive directly with the keypad or from a control panel at some remote location.

Functions for Top Performance

V/f Pattern Characteristics

Set a V/f pattern suited for the motor characteristics.

Select the V/f pattern freely to gain optimal motor torque with any load condition.

NEW

Phase Order Change

Easily change the direction of motor rotation.

Change the direction of motor rotation more easily with parameter settings rather than reversing output phase cables to the motor. A time saver when wiring has accidentally been reversed.

Reverse Prevention

Prohibit reverse rotation.

This function keeps the application from rotating in reverse and prevents machine damage, even if a reverse command is accidentally entered.

NEW

Swing PWM

Suppress noise and reduce motor sound.

Creates a more pleasant work environment while suppressing noise and leakage current.

Torque Compensation

Enable automatic adjustment regardless of load fluctuations.

The YASKAWA original full-range fully-automatic torque boost function applies an optimum voltage to the motor regardless of load fluctuations, thus ensuring stable torque output.

Slip Compensation

Suppress speed fluctuation.

Keeps motor speed constant despite changes to the load.

Electronic Thermal Overload

Detect motor overload.

Monitors changes in current to protect the motor. Select the best motor overload protection for the motor type.

Frequency Detection

Use frequency detection for brake control.

The drive can output a signal when the output frequency exceeds a specified level.

Overtorque Detection

Keep the application running while protecting connected machinery.

Overtorque detection senses motor torque and notifies the user immediately when a filter clogs or the machine is blocked by mechanical problems.

Protective Functions

Momentary Power Loss Ride-Thru

Keep running even during a momentary loss in power.

J1000 automatically restarts the motor and keeps the application going in the event of a power loss.

Stall Prevention

Better reliability: Keep the application running while protecting the load.

Keeps the machine running by preventing motor stall caused by motor overload or rapid speed changes.

Fault Restart

Keep running when a fault occurs.

J1000 has full self-diagnostic features to keep the application running in the event of a fault. Up to 10 restarts possible.

Maintenance

Verify Menu

Quickly reference all changes to parameter settings.

Review any setting changes in the drive. Particularly helpful during maintenance when performing a test run.

Accumulated Operation Time

Monitor drive operation time.

Keep track of operation time to ensure the drive and application are in top condition.

Maintenance Monitor

Monitor cooling fan and capacitor service life.

Easily check total operation time of various components. Extremely useful for maintenance records and preventative maintenance.

Fan ON/OFF Control

Extend cooling fan operating life.

Maximize cooling fan life by shutting the fan off when the drive is not in operation.

