

# YASKAWA

## Make Your Day Easy

Using HV600 Variable Frequency Drive  
For HVAC, Refrigeration & Water Applications



### Capable, Reliable & Sustainable

The HV600 was specifically designed as a variable frequency drive for HVAC, Refrigeration and Water applications. Its high-contrast display and LED Status Ring give clear indication of drive parameters and operation status. These features and mobile device programming combine to make the complicated simple.



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COMMITMENT  
TO YOU

# Designed for HVAC Refrigeration & Water Applications

The HV600 can be mounted side-by-side with bottom entry wiring to maximize cabinet space.

## Choice of Protection Ratings

The HV600 comes standard from the factory with a choice of IP20, IP55 with ambient temperature ratings up to 50°C. Ratings up to 60°C can be achieved with current derating.

## Side-by-Side

Most HV600 models can be mounted side-by-side with bottom entry wiring to maximize cabinet space.

## Panel Mounting

When mounted in a separate enclosure, heat management can be accomplished by removing detachable top and bottom covers on the drive or by “back side” mounting the standard drive with the heatsink external to the enclosure.

## Sustainable and Flexible

All the features expected for efficient building operation come standard with the HV600. Customer-supplied 24 VDC input control power ensures network communications are maintained even during loss of main input power.

## Digital and Analog I/O

A full complement of analog and digital inputs are built in for connection to sensors and safeties.



## PID Control

The HV600 also includes as standard PID functions to maintain control of set points for temperature, flow, or pressure without the need for external control devices.

## Flexible Motor Control

- Induction and permanent magnet motors
- Synchronous reluctance (SynRM) motors
- 400 Hz output frequency

## Plenum Rated

All HV600 IP20 and IP55 models are plenum rated for building automation applications.



## Keypad Benefits and Features:

### Reduce Setup Time

- Clear display of parameter and monitor functions
- Copy function integrated into the keypad
- Familiar parameter set
- Fast navigation

### Drive Parameter Management

- Copy keypad
- Storage of up to four drive parameter sets
- Time and date stamped data and fault logging with up to 32 GB MicroSD
- Data trending for energy consumption analysis
- Automatic parameter set backup

### Easy To Use

- 8-line, 32-character display LCD keypad
- Display contrast control
- Real-time clock with time and date stamp
- Tactile feel buttons
- Optional remote mounting of keypad using standard RJ45 extension cable

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# Extensive Programming Options

The HV600 can be programmed with its resident keypad, a mobile device or personal computer. Whatever you choose, enjoy easy navigation and guided wizards for configuration, monitoring, and troubleshooting.



## Mobile Device Connectivity

Mobile device connectivity is achieved by using the built-in USB port for connection to an Android smart device.

## DriveWizard® Mobile

The DriveWizard Mobile app turns your Android smartphone or tablet into an interface for your HV600 drive. All information for parameter setup and troubleshooting are in your pocket – anytime, anywhere. Save HV600 settings to your smart device or to the free and secure Yaskawa Drive Cloud™ service.

## Drive Wizard Mobile also provides:

- Intuitive parameter editing with help and search function
- Custom parameter and monitor lists
- Compare setting differences between the drive and backup files
- Simplify support activities and email drive setting files
- Parameter backup/verify with or without main power applied to the drive
- Backup and restore drive settings to the free and secure Yaskawa Drive Cloud service
- Export to DriveWizard

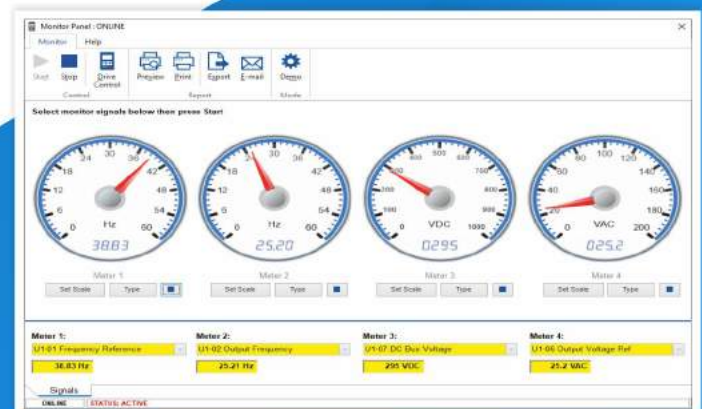
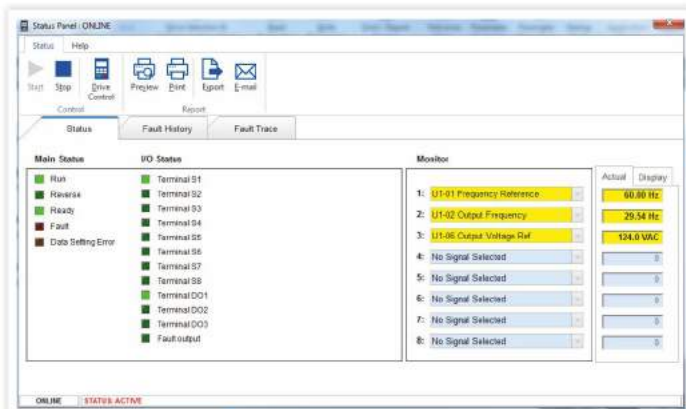
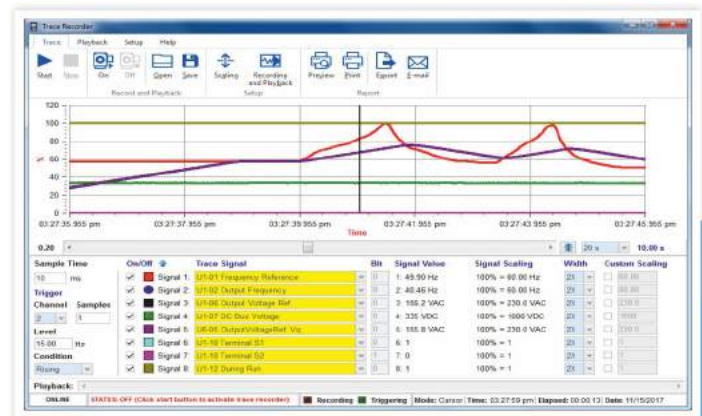
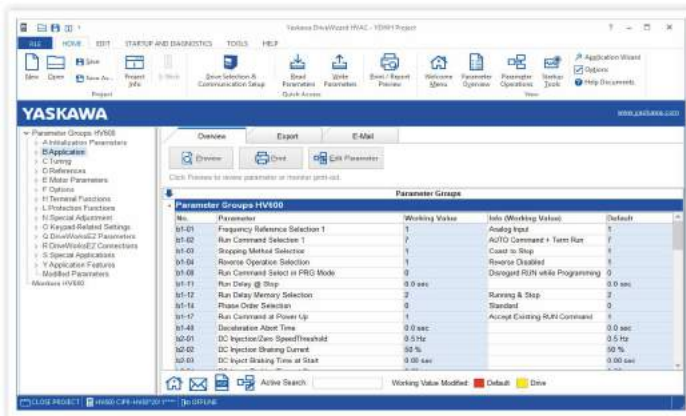
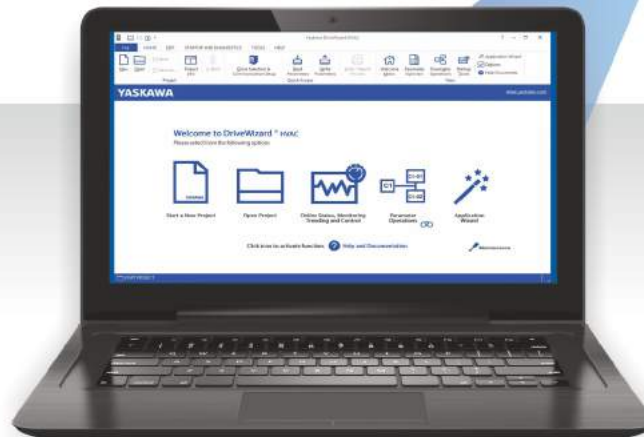
## Convenient Programming without Main Power

Use the built-in USB On-The-Go connector to program the drive without the need for three-phase power. Simplify commissioning and make drive settings before installation. There is no need to remove the drive from the packaging!

## DriveWizard

- Connect via USB and interface with the HV600 even without main power
- Create configurations offline, then later connect and download them to HV600
- Monitor a dashboard of dynamic variables and discrete information
- Chart your process with up to six channels of recorded data
- Create reports for exporting and emailing

**CONNECT VIA  
USB WITHOUT  
MAIN POWER!**



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## Top to Bottom Performance

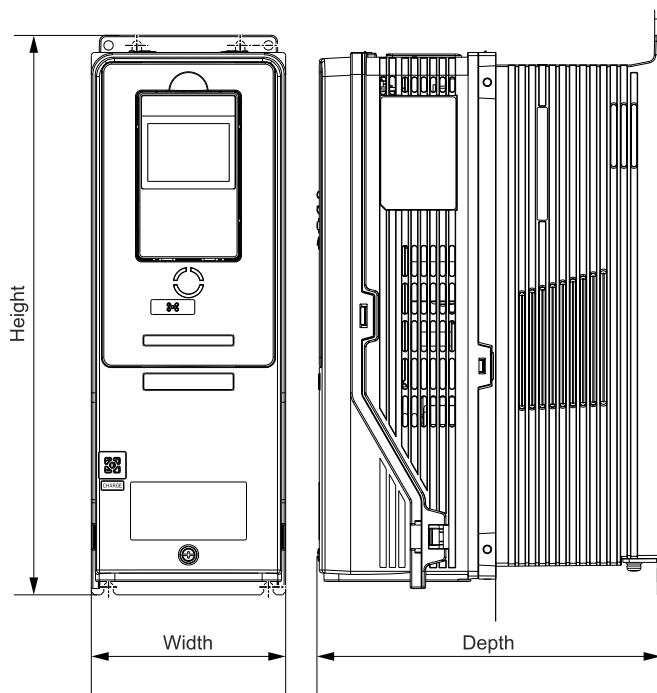
Share with us your requirements and expectations. Let us see what we can do for you. Whether using AC or PM motors, Yaskawa drives offer the quality performance that OEMs need for a large range of applications.

- ▶ Condenser Fans
- ▶ The Largest AHUs
- ▶ Pumps
- ▶ Compressors
- ▶ Cooling Towers
- ▶ Chiller Packages

Yaskawa has you covered.



## Dimension - Graphical Interpretation



Available as IP20 or IP55 with  
Built-in Building Automation protocols!

Specifically designed for HVAC, Refrigeration  
and Water applications

## Dimensions

400 V Class				IP20				IP55			
Model	Current (A)	Power (kW*1)	Power (hp*2)	Height (mm)	Width (mm)	Depth (mm)	Weight (Kg)	Height (mm)	Width (mm)	Depth (mm)	Weight (Kg)
4005	4.8	1.5	3.0	357	124	218	7	357	124	228	7
4006	5.4	2.2	4	357	124	218	7.5	357	124	228	7.5
4008	7.6	3	5	357	124	218	7.5	357	124	228	7.5
4011	11	4	7.5	357	124	218	7	357	124	228	7
4014	14	5.5	10	357	124	218	7	357	124	228	7
4021	21	7.5	15	447	124	233	9	447	124	243	9
4027	27	11	20	447	124	233	10	447	124	243	10
4034	34	15	25	447	124	233	11	447	124	243	11
4040	40	18.5	30	538	200	237	16	538	200	247	16
4052	52	22	40	538	200	237	18	538	200	247	18
4065	65	30	50	538	200	237	20	538	200	247	20
4077	77	37	60	590	255	263	28	590	255	273	28
4096	96	45	75	590	255	263	30	590	255	273	30
4124	124	55	100	590	255	263	33	590	255	273	33
4156	156	75	125	830	312	400	78	-	-	-	-
4180	180	90	150	731	312	420	79	-	-	-	-
4240	240	110	200	731	312	420	82	-	-	-	-
4302	302	160	250	831	440	472	125	-	-	-	-

\*1: The motor capacity (kW) refers to a IEC 60947-4-1, 400 V motor.

\*2: The maximum applicable motor output complies with 460 V motor ratings as specified in NEC Table 430.250.

## Environment Consider

Yaskawa maintains a corporate commitment to sustainability goals with an emphasis on the following environmental guidelines.

## RoHS

RESTRICTION OF  
HAZARDOUS SUBSTANCES



LEADERSHIP IN  
ENERGY AND  
ENVIRONMENTAL  
DESIGN



EXCEPTIONAL  
DESIGN  
ENSURES  
MTBF OF  
28 YEARS



ENERGY EFFICIENCY  
WITH REDUCTION OF  
CARBON FOOTPRINT

*Merging Green and  
Technology*

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## Item

## Specifications

Input Voltage	Three-phase 200 to 240 VAC, 380 to 480 VAC, +10%/-15%, 50/60 Hz +/-5%
Ambient Operating Temperature	-10°C to +50°C & up to 60°C with derating
Switching / Carrier Frequency	2 kHz to 12.5 kHz (Default: 5 kHz)
Ambient Storage Temperature	-20°C to +70°C
Overload Capacity	110% for 60 seconds, 140% for 2 seconds, 175% instantaneous
Output Frequency	0 to 400Hz
Environmental	1,000 meters altitude, up to 4,000 meters with derating Class 3C2 and 3S2 operation for IP20, Class 3C2 and 3S3 for IP55 98% humidity, non-condensing IP20 and IP55 plenum rated
EMC and Harmonics	EMC filter built in; Complies with IEC 61800-3 restricted distribution for first environment Built-in 5% split choke on both positive and negative DC bus leg
Control Methods	V/F Open Loop Vector EZ Open Loop Vector Control
Motor Types	Induction Permanent Magnet Synchronous Reluctance
Protective Design Types	IP20 IP55
Interface	LCD keypad with Hand-Off-Auto and Status Ring, Bluetooth keypad optional
Global Certifications	UL, cUL, CE, RoHS 2.0, WEEE, TUV SUD, SEMI F47
Functional Safety	Safe Torque Off, SIL3 according to IEC 62061, PLe according to ISO 1384
Standard I/O	(7) programmable multi-function digital inputs (24 VDC) (2) programmable multi-function analog inputs (0 to +10 VDC, 0-20 mA, 4-20 mA) (2) Functional Safety inputs (1) fault relay output (Form C) (3) programmable multi-function relay outputs (Form A) (2) programmable multi-function analog output (0 to +10 VDC, 0-20 mA, 4-20 mA)
24 VDC power	External supply input to maintain communications without main power 150 mA output for customer use
Network Communications	Built in: BACnet MSTP, Siemens APOGEE FLN P, Johnson Controls Metasys N2, and Modbus RTU Optional: LonWorks, PROFINET IO RT, EtherNet/IP and Modbus TCP/IP
Software Support Tools	DriveWizard DriveWizard Mobile DriveWorks EZ
Humidity	95% RH or less Do not let condensation form on the drive.
Frequency Control Range	EZOLV: 0.01 Hz to 120 Hz V/f and OLV: 0.01 Hz to 400 Hz
Main Control Functions	Restart After Momentary Power Loss, Speed Search, Overtorque / Undertorque Detection, Torque Limit, 8 Step Speed (max.), Accel/Decel Switch, S-curve Acceleration/Deceleration, 3-wire Sequence, Auto-Tuning (Rotational and Stationary), Cooling Fan ON/OFF Switch, Slip Compensation, Torque Compensation, Jump Frequency, 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, Auto Restart, Application Presets, DriveWorksEZ (customized functions), KEB, Overexcitation Deceleration, Overvoltage Suppression

## For Today and Tomorrow

- Built-in EMC Filter for First Environment reduced RF emissions
- Built in DC Link Choke to reduce harmonics
- Conformal coating resists contamination
- RoHS2-compliant for environmental friendliness



## Versatile Building Automation

- Side-by-side mounting
- IP20, IP55 protection
- -10 to +60°C ambient operation
- Plenum rated
- Induction, permanent magnet, and synchronous reluctance motors



## Network Flexibility

- BACnet<sup>®</sup>MS/TP
- Metasys<sup>®</sup>N2
- APOGEE<sup>®</sup>FLN P1
- Modbus<sup>®</sup>RTU
- Others optional



SUSTAINABLE

FLEXIBLE

Globally Certified  
Building-Specific Design  
RoHS2-Compliant

Space-Efficient  
Extended Ratings  
Flexible Connectivity

Quick and Easy Setup  
Easy Installation

EASY



## Simple Operation

- Simple set up for efficient commissioning
- DriveWizard Mobile for drive management with mobile devices
- Safe programming without main three-phase power
- Real-time clock for scheduled functions
- Hand-Off-Auto keypad with LCD display and tactile buttons
- EZ Vector Control Method allows tuning less operation

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