YASKAWA

GA700 AC DRIVE

HIGH PERFORMANCE TYPE

200 V CLASS, 0.4 TO 110 KW

400 V CLASS, 0.4 TO 630 KW

Best Value for Your Applications



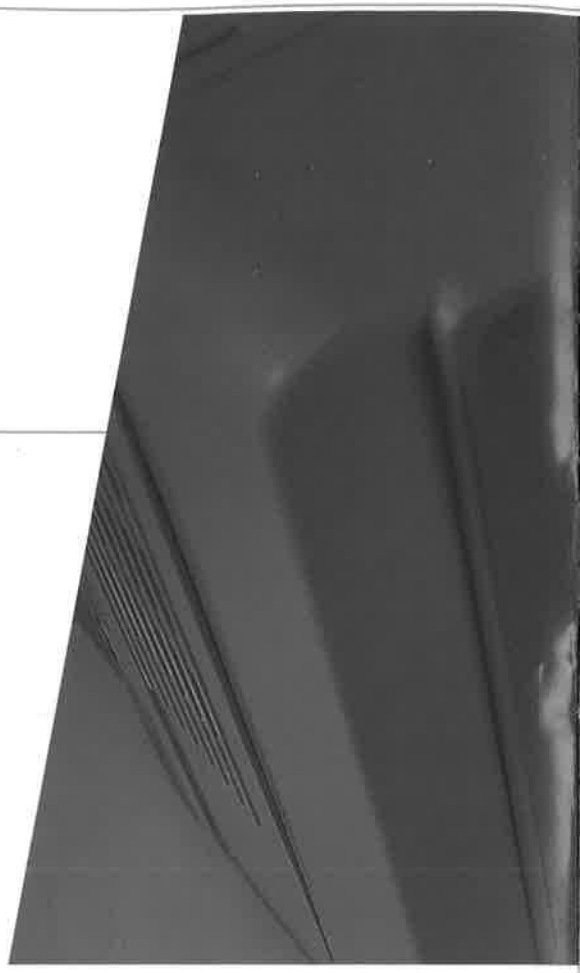


Certified for ISO9001 and ISO14001

JQA-QMA14913

JQA-EM0202

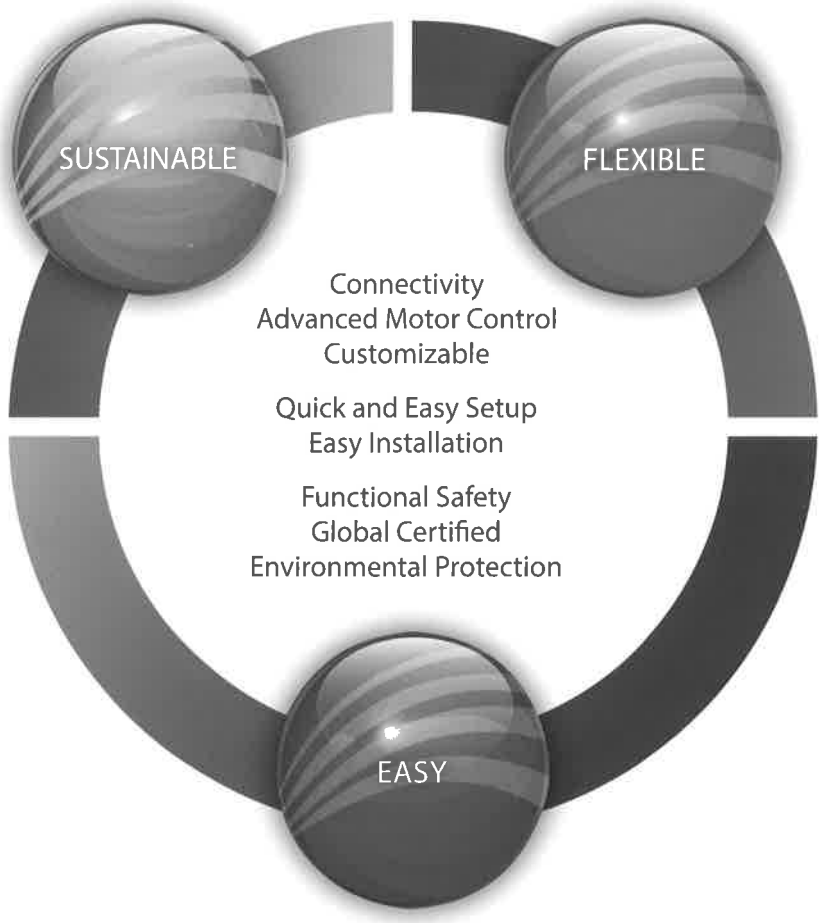
LIMITLESS POSSIBILITIES



Incredibly Reliable, Easy to Use, and Powerful!

At Yaskawa, we know your time is valuable. That's why we've designed this variable speed drive to meet all your needs. Offering world class Yaskawa quality, along with intuitive interaction and high flexibility, our new GA700 is meant to easily handle nearly any application.

Discover the limitless possibilities of GA700!



Designed to control traditional and emerging motor technologies through 630 kW, the GA700 handles applications ranging from simple fans and pumps to high performance test dynamometers requiring precise regulation. Whether you require hard-wired discrete, analog, or advanced network control, the GA700 provides extraordinary capability.

Equally impressive to its robust, powerful, and flexible design are the GA700's high resolution display, configuration wizards, and mobile device capability. Combine all this with modern safety features and a variety of environmental solutions, and you will need to look no further than GA700 for all your variable speed needs.



OUR COMMITMENT TO YOU

Loaded with convenient features, GA700 offers the best value proposition for industrial applications.



200 V CLASS: 0.4 - 110 kW
400 V CLASS: 0.4 - 630 kW

EFFORTLESS NETWORK INTEGRATION

- Supports all major networks with a new cost effective network integration feature
- Maintain network communications even during loss of main input power

ONE FOR ALL

- Precise and tuning-less motor control with one drive controlling any induction, permanent magnet or synchronous reluctance motor

QUICK & EASY SET-UP

- Reduce set-up time with an intuitive keypad, navigation and start-up wizards

POWERFUL CONFIGURATION TOOLS

- DriveWizard® and DriveWorksEZ® are PC tools for drive management and logic programming

SAFE, CONVENIENT SET-UP AND MONITORING

- Safe programming without main power connected
- Cloud-connected DriveWizard Mobile app for drive management on smartphones and tablets.

INTEGRATED FUNCTIONAL SAFETY

- Increased safety and reliability with STO SIL3 functional safety

MEETS GLOBAL STANDARDS

- Local/global standards
- RoHS compliant

ENVIRONMENTAL PROTECTION WITH FLEXIBLE PACKAGE DESIGN

- Designed with flexibility to simplify installation and cabinet design

Effortless network integration

GA700 drives support all the major industrial communications and connection topologies (ring, star, line, etc.) to adapt to various factory automation networks. Reduce wiring when connecting to an upper level controller or PLC through available built-in protocols and/or dedicated communication options.

Network integration benefits/features:

SUPPORTS ALL MAJOR NETWORKS

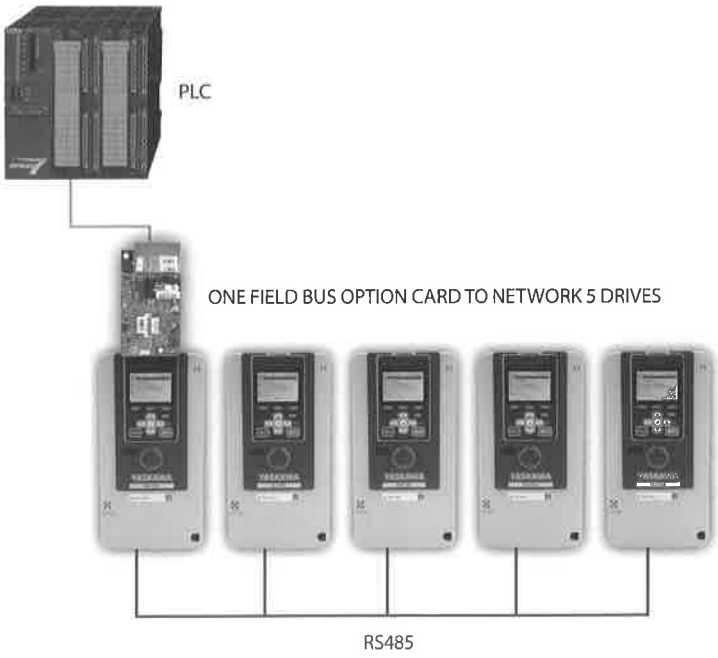
- Network compliance tested
- Network up to 5 drives with a single communication card

COST SAVINGS WITH BUILT-IN PROTOCOLS

- RS-485 MEMOBUS/Modbus protocol
- 115.2 kbps communication speeds

MAINTAIN COMMUNICATION DURING MAIN POWERLOSS

- Embedded +24VDC input control power standard
- Programming and monitoring without main power





COST EFFECTIVE INTEGRATION
Up to five GA700 drives can be accessed through only one fieldbus option card, thus providing a cost effective solution with reduced wiring effort.

EMBEDDED +24VDC INPUT ACCESS
Network communication can be maintained during loss of main input power utilizing the +24VDC input. An external +24VDC source can be connected directly to the GA700 without an additional +24VDC power supply option.

DeviceNet EtherNet/IP EtherCAT ETHERNET POWERLINK CC-Link

CANopen Modbus MECHATROLINK PROFINET PROFIBUS

One for all

The GA700 precisely controls induction, permanent magnet, and synchronous reluctance motors providing versatility to run a variety of applications with just one drive. The times of complex motor set-up are over. With the new EZ vector mode, the GA700 can run all of these motor types without comprehensive tuning.

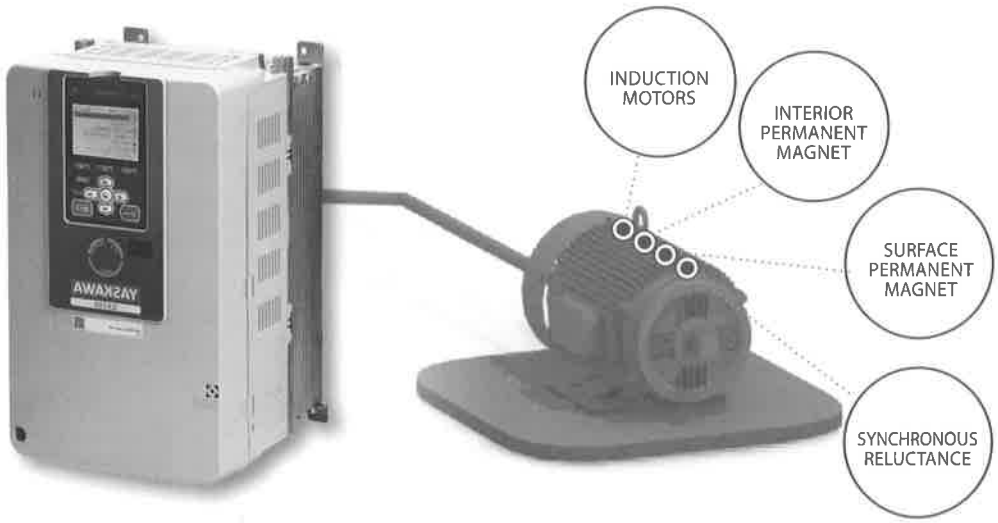
Motor control benefits/features:

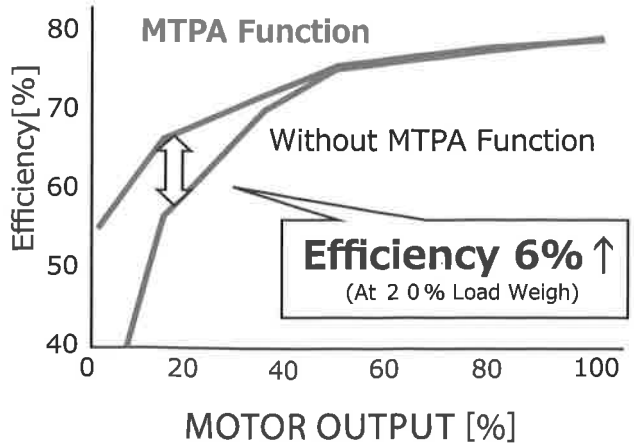
FLEXIBLE MOTOR CONTROL

- Tuning-less with EZ vector
- Open/closed loop speed or torque control
- Induction/permanent magnet motors
- Synchronous reluctance (SynRM) motors
- 590 Hz output frequency
- Zero speed control

ENERGY SAVINGS

- High precision torque per amp capability
- Automatic energy efficiency optimizer with Smart Power Saver function





SMART POWER SAVER

Energy savings can be further increased and automatically optimized with the Smart Power Saver function. The Smart Power Saver can minimize energy consumption through varying load and speed ranges achieving power optimization for energy cost reduction.

The GA700 provides a user programming experience with an intuitively-designed keypad and tactile user interface. Self-guiding navigation menus and start-up wizards make the programming set-up faster and easier than ever. The keypad programming is complimented by easy-to-understand iconic symbols. Mobile device drive programming, monitoring and troubleshooting are possible with DriveWizard Mobile app.

MOBILE DEVICE CONNECTIVITY
Mobile device connectivity is achieved through using the built-in USB port or wireless communication with the Bluetooth® LCD keypad option.



1. Bluetooth keypad optional
2. Supports Android

COPY FUNCTION
Multiple sets of parameters can be stored and easily transferred (copied) to additional drives

HI-RESOLUTION DISPLAY
Contrast control offers clear and readable full-text descriptions

AUTOMATIC BACKUP FUNCTION
Saves the current parameter settings after a period of user inactivity. After an incident, settings can be retrieved from the keypad in a couple of seconds.

ADVANCED KEYPAD NAVIGATION
Faster scrolling and function keys offer faster navigation and short-cuts reducing programming time





MICRO SD STORAGE
Micro SD for data logging storage

REAL-TIME CLOCK
Real-time clock for time stamp of fault information (battery compartment in back)

OPTIONAL LCD KEYPAD WITH BLUETOOTH®
Wireless communication capability between the mobile device and drive

Keypad benefits/ features:

REDUCE SET-UP TIME

- Start-up wizard
- Favorite parameter/monitor function
- Copy function integrated into the keypad
- Parameter set is backward compatible with previous generation drive products
- Fast navigation
- Help function

DRIVE PARAMETER MANAGEMENT

- Storage of up to 4 drive parameter sets
- Data logging with real-time stamped data and fault logging (up to 32 GB micro SD)
- Data trending e.g. for energy consumption analysis
- Multiple parameter storage
- Automatic parameter back-up

EASY TO USE

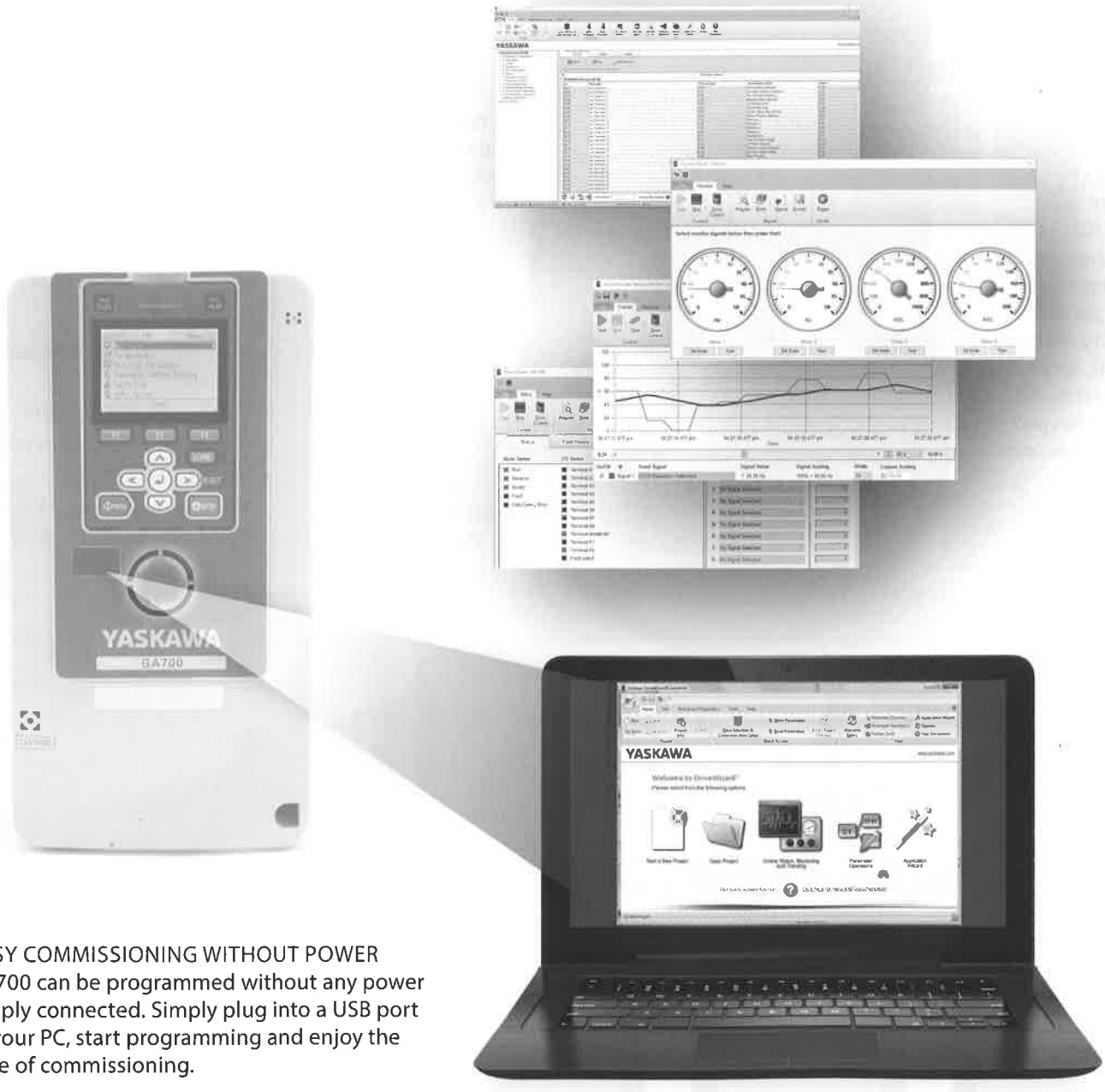
- LCD keypad with Bluetooth® option
- Display contrast control
- Real-time clock with time stamp
- Tactile feel buttons
- Remote mounting of keypad using standard RJ45 extension cable

START-UP WIZARD
Reduce basic set-up time to minutes using the start-up wizard without any drive parameter knowledge



Powerful configuration tools

DriveWizard® is an offline/online parameter and drive configuration tool. The easy and intuitive tool is used for set-up, maintenance and troubleshooting offering parameter editing, storing and file comparison as well as online trending using the highly functional oscilloscope feature.

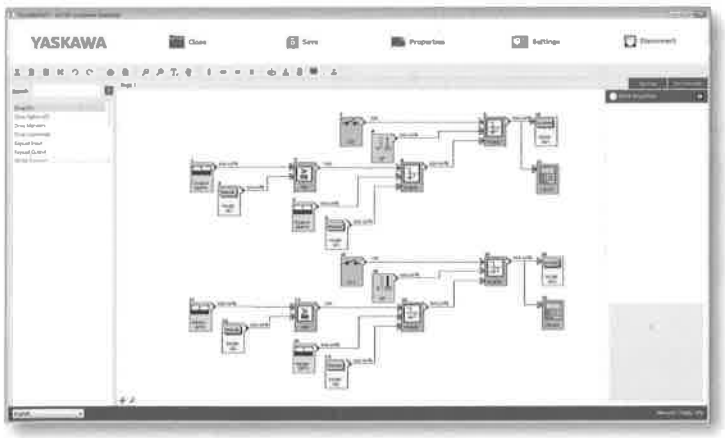


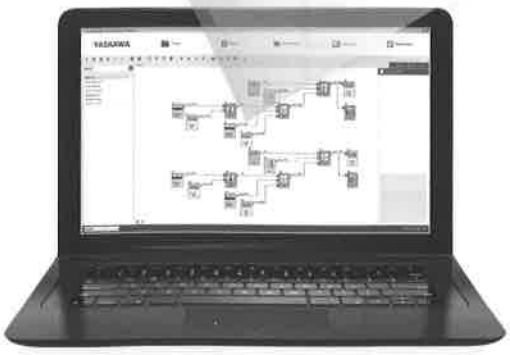
EASY COMMISSIONING WITHOUT POWER
GA700 can be programmed without any power supply connected. Simply plug into a USB port of your PC, start programming and enjoy the ease of commissioning.

Customizable

The GA700 further enhances the programming experience with DriveWorksEZ®. DriveWorksEZ® offers an icon-based, drag-n-drop graphical environment to add programmable functions that can tailor the drive to meet various machine and application requirements without the cost of external controllers, such as PLCs or additional controller hardware options.

DriveWorksEZ





CUSTOMIZED PROGRAMMING
DriveWorksEZ® is a drag-n-drop graphical interface using pre-tested function blocks. Create your own custom control with the aide of an online debugger program. Example application programs created by DriveWorksEZ® include Winder, Laundry, etc.

Application Toolbox benefits/features:

DRIVE MANAGEMENT WITH DRIVEWIZARD®

- Parameter management
- Online manual
- Report generation and export data
- 6 channel scope function
- Real-time monitoring
- Access through USB, EtherNet/IP, Modbus TCP/IP, or PROFINET
- Automatic parameter conversion from previous series drives

CUSTOMIZABLE WITH DRIVEWORKSEZ®

- Icon-based graphics
- Drag-n-drop graphical interface
- I/O, drive and network interface
- Select from 280+ function blocks
- Logic/math functions
- Timers/counters
- Subroutine creation
- Up to 200 connections



DriveWizard® and DriveWorksEZ® are registered trademarks of Yaskawa

Safe, convenient set-up and monitoring

The GA700 offers programming access and control utilizing your PC or mobile device. PC and mobile drive programming, parameter access, and monitoring can provide a safe and convenient method for drive set-up. DriveWizard Mobile app brings the GA700 to your smartphone and tablet. Connected with the YASKAWA Drive Cloud, it combines quick and intuitive drive programming with complimentary drive data storage, providing anytime data access.

DRIVEWIZARD MOBILE APP

DriveWizard Mobile app turns your smartphone or tablet into a controller for GA700 drive. With DriveWizard Mobile app, all information for parameter setup and troubleshooting are in your pocket – anytime, anywhere.

Scanning the drive QR code can provide easy access to drive information and status with the DriveWizard Mobile application software.



YASKAWA DRIVE CLOUD SERVICE
With the YASKAWA Drive Cloud, we provide free drive registration access to latest product information and online storage for parameter backup data. Drive Cloud is the easy and safe way to keep a record of your drive data.



Convenient setup and monitoring:

DRIVEWIZARD® MOBILE APP

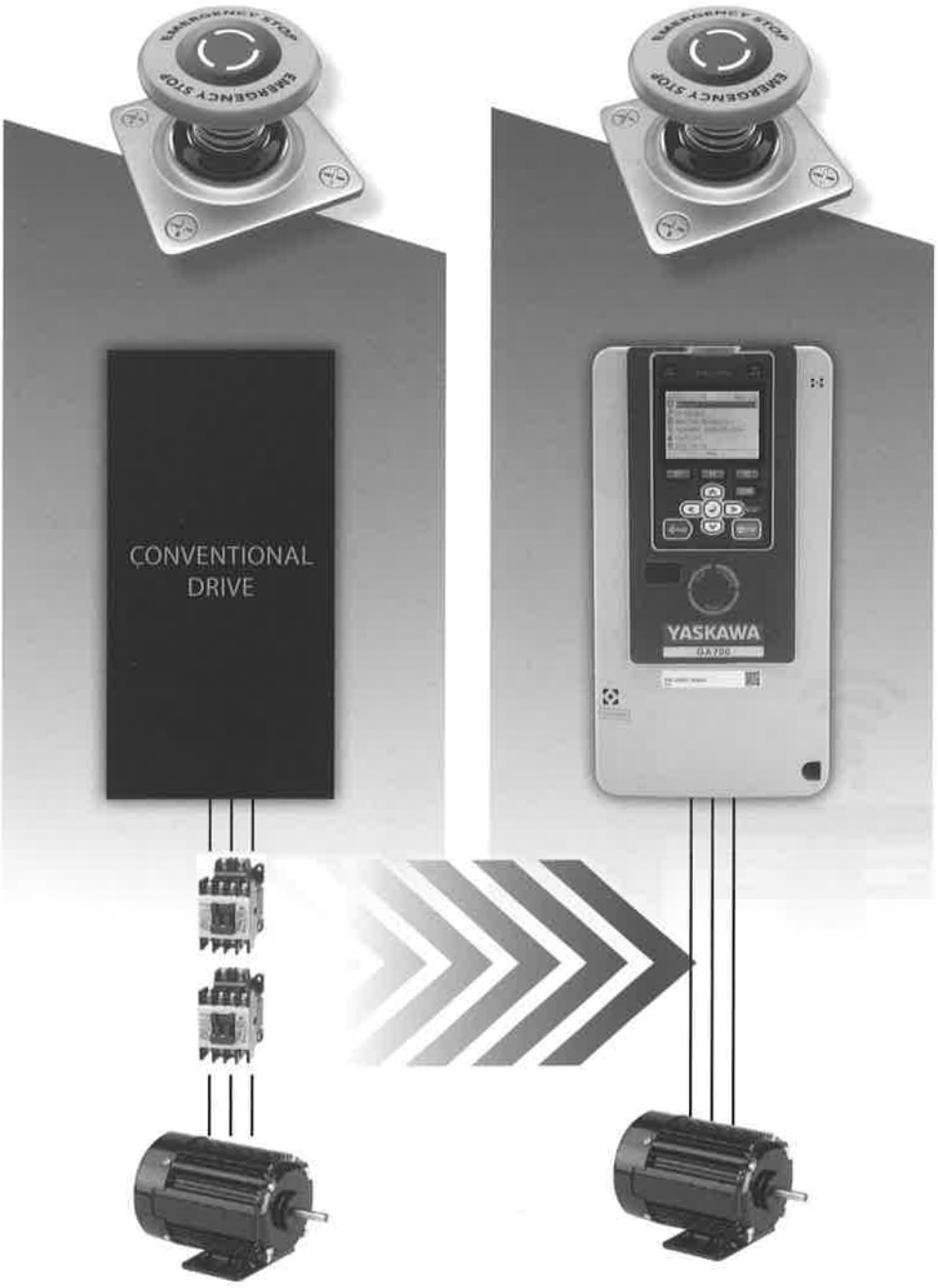
- Quick and easy drive management apps for smart devices
- Easy USB OTG cable or Bluetooth® connection
- Drive registration via cloud by scanning QR code
- Paperless and easy access to latest online description of parameters and faults
- Single-click parameter and active troubleshooting tips
- Archive and retrieve parameter settings with comments on your smart device
- Worry-free data recovery: Parameter back-up/retrieval anytime via cloud service for registered drives

YASKAWA DRIVE CLOUD SERVICE

- Online manual
- Access to latest product updates
- Troubleshooting tips
- Registration of drives for retrieving product information, such as firmware history and updates
- Complimentary storage for parameter backup and organized record-keeping comments
- Convenient drive data storage accessible anywhere

Integrated functional safety

Built-in safety functions provide the right tools for risk reduction without the need for external devices such as motor relays. The GA700 is designed for SIL3 STO functional safety with 2-terminal-pin STO (Safe Torque Off) as standard.



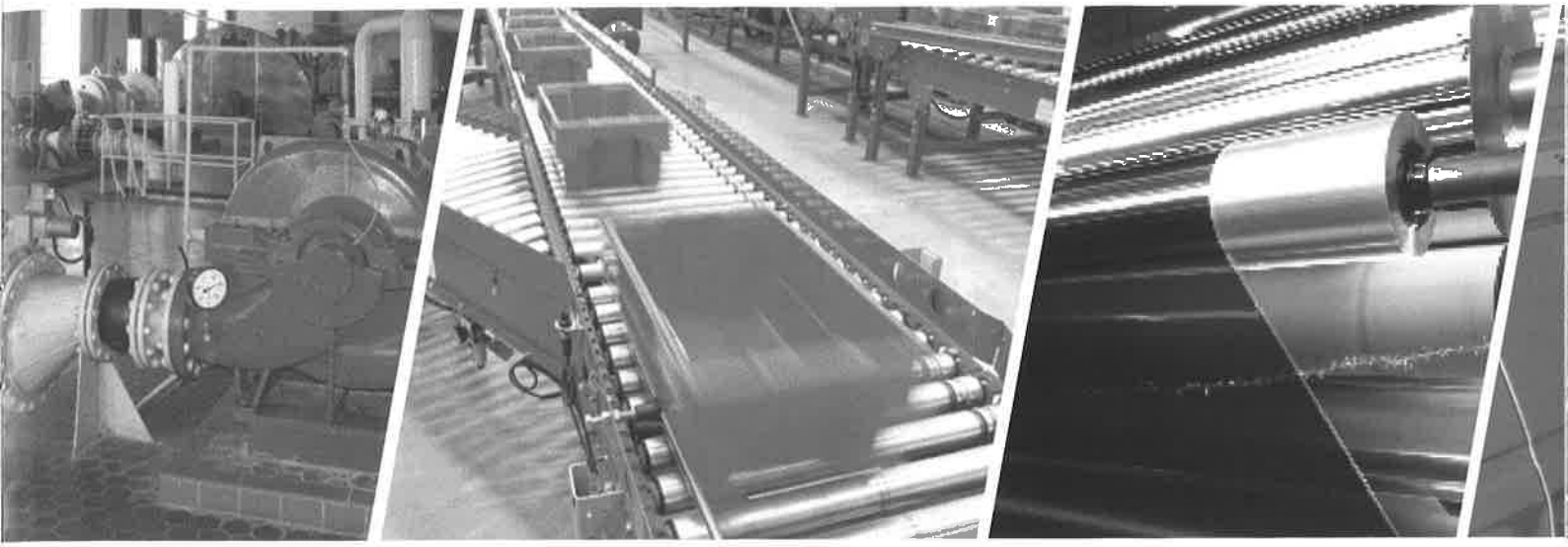
Functional Safety benefits/features:

RISK REDUCTION MADE EASY

- STO with SIL3/PLe according to IEC 61800-5-2/IEC 61508/ISO 13849
- EDM monitor
- Lower number of parts reduces installation effort while increasing reliability

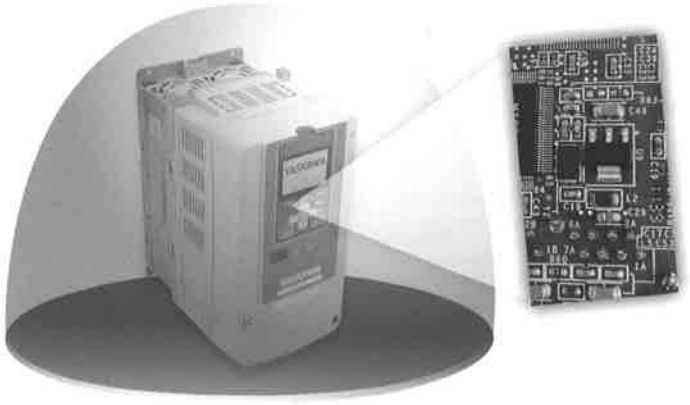


EMBEDDED FUNCTIONAL SAFETY
The built-in STO replaces mechanical emergency relays reducing parts. The electronic sequencing improves reliability and cost compared to mechanical components.



Environmental protection with flexible package design

Flexible product design that is adaptable for various environmental conditions. The enclosure is designed with flexibility for simple cabinet installation to outdoor exposure.





* Figure depicts 45 kW unit

COATED BOARD PROTECTION
Coated PCBs as standard protect the electronics from dust or humidity and ensure reliable operation even in a harsh environment (IEC 60723-3-3, 3C2, 3S2).

MINIMUM FOOTPRINT
The small foot print of the GA700 provides best usage of available panel space. Optimized heat management results in an up to 50% smaller foot



Enhanced Product benefits/features:

INSTALLATION EASE – PANEL/ENCLOSURE

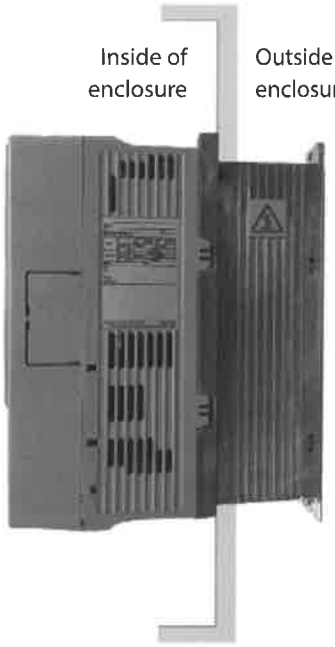
- IP20 standard
- NEMA 1 kit optional
- Type 12/IP55 protected heatsink
- IEC 60721-3-3, class 3C2/3S2 conformal coated boards
- Side-by-side mounting
- Built-in braking transistor (up to 75 kW)

REDUCE HARMONICS/ EMISSIONS

- Built-in C3/C2 filters as factory option
- Built-in DC reactor (above 18.5 kW)



SIDE-BY-SIDE MOUNTING
The GA700 can be mounted side-by-side with bottom entry wiring to reduce cabinet size.



Mounting for External Heatsink



HORIZONTAL MOUNTING
The GA700 can be horizontally mounted up to 75 kW.

EASY EXTERNAL BACK HEATSINK MOUNTING
The GA700 with a integrated flange design offers easy installation when mounting the heatsink outside the cabinet to reduce cabinet size and cooling equipment. In addition, the factory optional Type 12/IP55 heatsink design can provide greater protection from dust particles while reducing cooling requirements resulting in smaller cabinets.

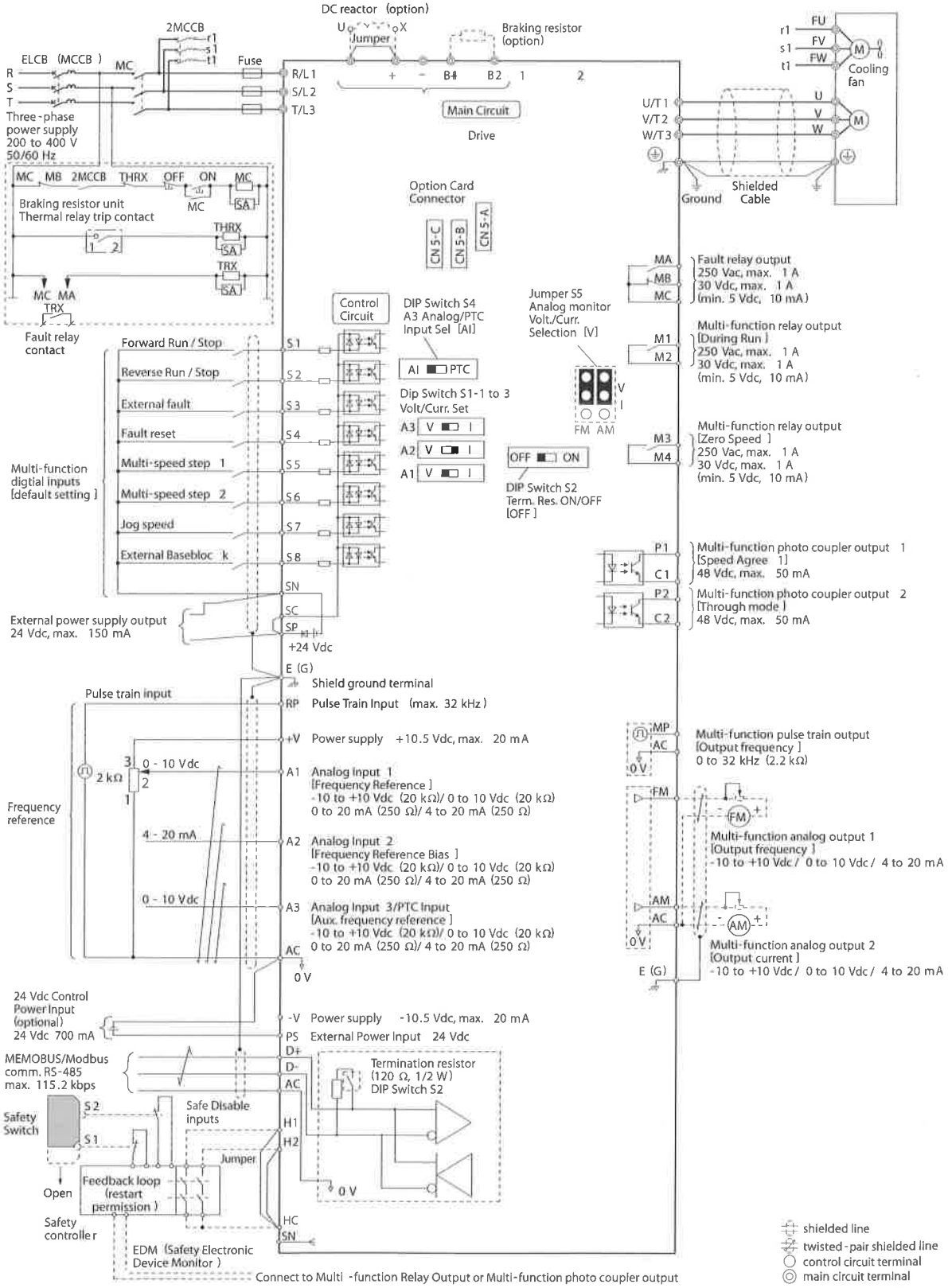
SPECIFICATION OVERVIEW

OPERATING ENVIRONMENT		
Ambient Temperature	-10 to +50 °C (IP20), -10 to +40 °C (NEMA Type 1), up to +60 °C with derating	
Storage Temperature	-20 to +70 °C (short-term temperature during transportation)	
Humidity	95% RH or less (non-condensing)	
Altitude	Up to 1000 m without derating, up to 3000 m with derating.	
Vibration/Shock	10 to 20 Hz: 9.8 m/s^2 20 to 55 Hz: 5.9 m/s^2 (2004 to 2211; 4002 to 4168) 2 m/s^2 (2257 to 2415; 4208 to 4568), according to EN60068-2-6	
Protection Design	IP20 STANDARD, NEMA 1 kit optional, IP55/Type 12 external heatsink (factory option)	
Mounting	Side-by-side up to 18.5/22 kW, horizontal up to 55/75 kW	
Conformal Coating (PCB's)	IEC 60721-3-3, Class 3CS (chemical gases), Class 3S2 (solid particles)	
Standards	CE, UL, cUL, RCM, TUV, EAC, RoHS	
Functional Safety	Safe Torque Off (STO) according to IEC 61800-5-2, tested according to IEC/EN61508 (SIL3) and ISO/EN13849-1 (PI e, Cat. 3)	
POWER RATINGS		
Overload Capacity	150%/1 min. (Heavy Duty) or 110%/1 min. (Normal Duty)	
Rated Voltage	200 to 240VAC, -15 to +10%	
	380 to 480VAC, -15 to +10%	
Capacity Range	200 V Class: 0.4 to 110 kW	
	400 V Class: 0.4 to 630 kW	
Input Frequency	50/60 Hz +/-5%	
Output Frequency	0 to 590 Hz	
Motor Control	Induction Motor (IM), Permanent Magnet Motor (IPM/SPM), Synchronous Reluctance Motor (SynRM)	
OPTIONS		MODEL CODE
Communications	CANopen	SI-S3
	CC-Link	SI-C3
	DeviceNet	SI-N3
	EtherCAT	SI-ES3
	Ethernet/IP	SI-EN3
	Ethernet/IP dual port	SI-EN3/D
	MECHATROLINK-II	SI-T3
	MECHATROLINK-III	SI-ET3
	Modbus/TCP	SI-EM3
	Modbus/TCP dual port	SI-EM3/D
	POWERLINK	SI-EL3
	PROFIBUS-DP	SI-P3
	PROFINET	SI-EP3
Motor Feedback	Incremental Encoder (Line Driver)	PG-X3
	Complimentary Encoder (Open Collector)	PG-B3
	Resolver Interface for TS2640N321E64	PG-RT3
Input/Output	Analog Input: 3-channel, Voltage -/+10 V, 13-bit signed, Current (0) 4 to 20 mA, 12-bit	AI-A3
	Analog Output: 2-channel, Voltage -/+ 10 V, 11-bit signed	AO-A3
	Digital Input: 16 Digital Inputs, +24 V @ 8 mA each, sink or source, multi-function or frequency reference (16 bit binary or BCD)	DI-A3
	Digital Output: 8-channel, 6 photocoupler (48 V, 50 mA or less), 2 relay contacts (250 VAC/30 VDC, 1 A max.)	DO-A3
Other Options	Bluetooth Keypad	
	Attachment for External Heatsink	
	External EMC Filter	

STANDARD CONNECTION DIAGRAM

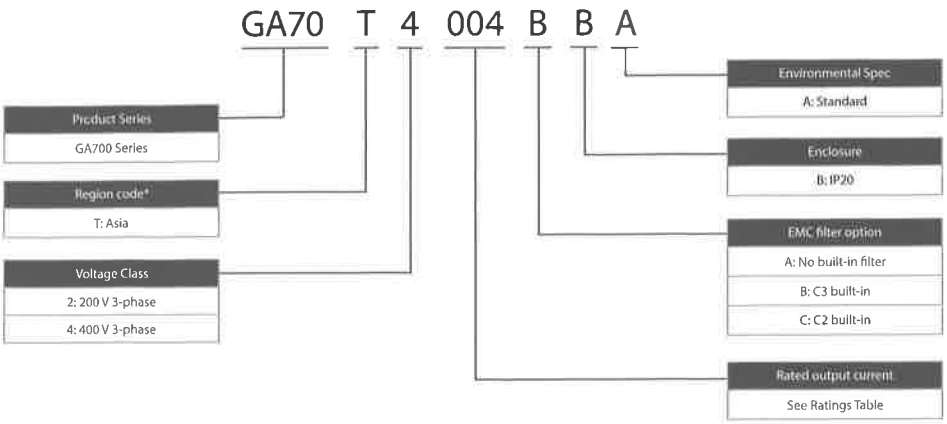
Standard Connection Diagram

Multi-Function Photocoupler Output Type (Standard)



RATINGS & SPECIFICATIONS

Catalog Number Designation



200 - 240 VAC

Catalog Code GA70C	Max Applicable Motor Power	Rated Output Current	Dimensions [mm]			Weight [kg]
	HD / ND [kW]	HD / ND [A]	H	W	D	
2004	0.4 / 0.75	3.2 / 3.5	260	140	176	3.5
2006	0.75 / 1.1	5 / 6				
2008	1.1 / 1.5	6.9 / 8				
2010	1.5 / 2.2	8 / 9.6				
2012	2.2 / 3	11 / 12.2				
2018	3 / 3.7	14 / 17.5			211	3.9
2021	3.7 / 5.5	17.5 / 21				
2030	5.5 / 7.5	25 / 30				4.2
2042	7.5 / 11	33 / 42				
2056	11 / 15	47 / 56	300	180	202	6.0
2070	15 / 18.5	60 / 70	350	220	227	8.5
2082	18.5 / 22	75 / 82				9.0
2110	22 / 30	88 / 110	400	240	280	20
2138	30 / 37	115 / 138	450	255		35
2169	37 / 45	145 / 169	543	264	335	40
2211	45 / 55	180 / 211				
2257	55 / 75	215 / 257	700	312	420	80
2313	75 / 90	283 / 313				
2360	90 / 110	346 / 360	801	440	473	104
2415	110 / -	415 / -				119



RATINGS & SPECIFICATIONS

380 - 480 VAC

Catalog Code GA70C	≤ 380 to 460 VAC		> 460 VAC		Dimensions [mm]			Weight [kg]
	Max Applicable Motor	Rated Output Current	Max Applicable Motor	Rated Output Current	H	W	D	
	HD / ND [kW]	HD / ND [A]	HD / ND [kW]	HD / ND [A]				
4002	0.4 / 0.75	1.8 / 2.1	0.55 / 0.75	1.6 / 2.1	260	140	176	3.5
4004	0.75 / 1.5	3.4 / 4.1	0.75 / 1.5	2.1 / 3				
4005	1.5 / 2.2	4.8 / 5.4	1.5 / 2.2	3.4 / 4.8				
4007	2.2 / 3.0	5,5 / 7.1	2.2 / 3.0	4.8 / 6.9			211	3.9
4009	3.0 / 4.0	7.2 / 8.9	3.0 / 4.0	6.9 / 7.6				
4012	3.7 / 5.5	9.2 / 11.9	3.7 / 5.5	7.6 / 11				
4018	5.5 / 7.5	14.8 / 17.5	5.5 / 7.5	11 / 14				4.2
4023	7.5 / 11	18 / 23.4	7.5 / 11	14 / 21				
4031	11 / 15	24 / 31	11 / 15	21 / 27	300	180	202	6.0
4038	15 / 18.5	31 / 38	15 / 18.5	27 / 34				
4044	18.5 / 22	39 / 44	18.5 / 22	34 / 40	350	220	227	7.5
4060	22 / 30	45 / 59.6	22 / 30	40 / 52			246	13
4075	30 / 37	60 / 74.9	30 / 37	52 / 65	400	240	280	16
4089	37 / 45	75 / 89.2	37 / 45	65 / 77	450	255		35
4103	45 / 55	91 / 103	45 / 55	77 / 96				
4140	55 / 75	112 / 140	55 / 75	96 / 124	543	264	335	40
4168	75 / 90	150 / 168	75 / 90	124 / 156				
4208	90 / 110	180 / 208	90 / 110	156 / 180	700	312	420	80
4250	110 / 132	216 / 250	110 / 150	180 / 240				
4296	132 / 160	260 / 296	150 / 185	240 / 302				
4371	160 / 200	304 / 371	185 / 220	302 / 361	800	440	472	120
4389	200 / 220	371 / 389	220 / 260	361 / 414				
4453	220 / 250	414 / 453	260 / 300	414 / 477	1136	510	480	175
4568	250 / 315	453 / 568	300 / 335	477 / 515				
4675	315 / 355	605 / 675	370 / 450	590 / 720				
4930	450 / 500	810 / 930	For more information, please check with our sales representatives or email marketing@yaskawa.com.sg					
412H	560 / 630	1090 / 1200						

Meets global standards

Globally certified to meet a wide range of application standards and compliance levels. Global standard such as UL, CE to application specific certifications.

Standards benefits/ features:

LOCAL/GLOBAL STANDARDS

- UL/cUL
- CE
- TUV
- EAC
- RCM
- KC

COMPLIANCE

- RoHS



Service Network

Region	Service Area	Service Location	Service Agency	Telephone / Fax
Asia	Japan	Tokyo, offices nationwide	YASKAWA ELECTRIC CORPORATION (Manufacturing, sales)	☎ +81-3-5402-4502 FAX +81-3-5402-4580
			YASKAWA ELECTRIC ENGINEERING CORPORATION (After-sales service)	☎ +81-4-2931-1810 FAX +81-4-2931-1811
	Singapore	Singapore	YASKAWA ELECTRIC (SINGAPORE) PTE. LTD.	☎ +65-6282-3003 FAX +65-6289-3003
	Thailand	Bangkok	YASKAWA ELECTRIC (THAILAND) CO., LTD.	☎ +66-2-017-0099 FAX +66-2-017-0090
	Indonesia	Jakarta	PT. YASKAWA ELECTRIC INDONESIA	☎ +62-21-2982-6470 FAX +62-21-2982-6471
	Vietnam	Ho Chi Minh	YASKAWA ELECTRIC VIETNAM CO., LTD.	☎ +84-8-3822-8680 FAX +84-8-3822-8780
		Hanoi		☎ +84-4-3634-3953 FAX +84-4-3654-3954

GA700

Yaskawa Singapore Group

YASKAWA ELECTRIC (SINGAPORE) PTE LTD
151 Lorong Chuan, #04-02A Lift Lobby A,
New Tech Park, Singapore 556741
Tel: +65-6282-3003 (general) +65-6282-1601 (after-sales)
Fax: +65-6289-3003 (general) +65-6382-3668 (after-sales)
Email: marketing@yaskawa.com.sg
Website: www.yaskawa.com.sg

YASKAWA ELECTRIC (THAILAND) CO., LTD.
59 1st - 5th Floor, Flourish Building,
Soi Rachadapisek 18, Rachadapisek Road,
Huaykwang, Bangkok 10310
Tel: +66-2017-0099
Fax: +66-2017-0090
Email: yaskawa@yaskawa.co.th
Website: www.yaskawa.co.th

PT. YASKAWA ELECTRIC INDONESIA
Secure Building - Gedung B Lantai Dasar & Lantai 1
Jl. Raya Protokol Halim Perdanakusuma,
Jakarta 13610, Indonesia
Tel: +62-21-2982-6470
Fax: +62-21-2982-6471
Website: www.yaskawa.co.id

YASKAWA ELECTRIC VIETNAM CO., LTD
Ho Chi Minh Office
Suite 1904A, 19th Floor, Centec Tower,
72-74 Nguyen Thi Minh Khai, Ward 6,
District 3, Ho Chi Minh City
Tel: +84-8-3822-8680
Fax: +84-8-3822-8780

Hanoi Office
2nd Floor, Somerset Hoa Binh Hanoi,
No. 106, Hoang Quoc Viet,
Cau Giay, Hanoi
Tel: +84-4-3634-3953
Fax: +84-4-3654-3954

YASKAWA

Yaskawa Electric (Singapore) Pte Ltd

In the event that the end user of this product is to be the military and said product is to be employed in any weapons systems or the manufacture thereof, the export will fall under the relevant regulations as stipulated in the Foreign Exchange and Foreign Trade Regulations. Therefore, be sure to follow all procedures and submit all relevant documentation according to any and all rules, regulations and laws that may apply. Specications are subject to change without notice for ongoing product modications and improvements.

Document No.: YSP_INV_GA700_EN_v1
Published in November 2016

YASKAWA

YASKAWA AC Drive
Fan, Pump & HVAC
E1000

400 V CLASS, 0.75 to 630 kW



Safety & reliability

Super energy-saving

Easy for operation & compliance with environment

HVAC

Fan

Pump

Compressor

SINGAPORE GREEN BUILDING PRODUCT SGBC

TÜV SÜD PSB
LIC NO.: 00053G

Excellent

The Green Inverter

Yaskawa Electric (Singapore) Pte Ltd
151 Lorong Chuan, #04-02A New Tech Park Singapore 556741
Tel: +65 6282 3003 Fax: +65 6289 3003
Email: info.ysp@yaskawa.com.sg
Website: http://www.yaskawa.com.sg

Certified for ISO9001 and ISO14001

JQA-0422 JQA-EM0498

400 V Class

		Specifications												
Model: CIMR-E□4A		0002	0004	0005	0007	0009	0011	0018	0023	0031	0038	0044	0058	0072	0088
Maximum applicable motor capacity (kW) *1		0.75	1.5	2.2	3	3.7	5.5	7.5	11	15	18.5	22	30	37	45
Input	Rated input current (A) *2	2.1	4.3	5.9	8.1	9.4	14	20	24	38	44	52	58	71	86
Output	Rated output capacity (kVA) *3	1.6	3.1	4.1	5.3	6.7	8.5	13.3	17.5	24	29	34	44	55	67
	Rated output current (A) *4	2.1	4.1	5.4	6.9	8.8	11.1	17.5	23	31	38	44	58	72	88
	Overload tolerance	120% of rated output current for 60 seconds													
	Carrier frequency	2~15kHz (It can be changed via parameters.)													
	Maximum output voltage (V)	3-phase 380~480V (corresponding input voltage)													
	Maximum output frequency (Hz)	200Hz (It can be changed via parameters.)													
Power supply	Rated voltage, rated frequency	AC: 3-phase 380~480V 50/60Hz DC: 510~680V													
	Allowable voltage fluctuation	-15~10%													
	Allowable frequency fluctuation	±5%													
	Power-supply device capacity (kVA)	2.3	4.3	6.1	8.1	10.0	14.5	19.4	28.4	37.5	46.6	54.9	53.0	64.9	78.6

Item		Specifications											
Model: CIMR-E□4A		0103	0139	0165	0208	0250	0296	0362	0414	0515	0675	0930	1200
Maximum applicable motor capacity (kW) *1		55	75	90	110	132	160	185	220	250	355	500	630
Input	Rated input current (A) *2	105	142	170	207	248	300	346	410	465	657	922	1158
Output	Rated output capacity (kVA) *3	78	106	126	159	191	226	276	316	392	514	709	915
	Rated output current (A) *4	103	139	165	208	250	296	362	414	515	675	930	1200
	Overload tolerance	120% of rated output current for 60 seconds											
	Carrier frequency	2~10kHz (It can be changed via parameters.)							2~5kHz (It can be changed via parameters.)				
	Maximum output voltage (V)	3-phase 380~480V (Relative to input voltage)											
	Maximum output frequency (Hz)	200Hz (It can be changed via parameters.)											
Power supply	Rated voltage, rated frequency	AC: 3-phase 380~480V 50/60Hz DC: 510~680V											
	Allowable voltage fluctuation	-15~10%											
	Allowable frequency fluctuation	±5%											
	Power-supply device capacity (kVA)	96.0	129.9	155.5	189	227	274	316	375	416	601	843	1059

*1 The maximumly applicable motor capacity is the capacity of the 4-pole, 50Hz, 400V standard motor manufactured by the Company.The more rigorous selection method is to make the rated output current of the inverter greater than the rated current of the motor when selecting the model.

*2 Refer to the rated output current value.This value is not only affected by the power transformer, the reactor at the input side and the wiring conditions, but also fluctuates with the impedance at the power supply side.

*3 Rated output capacity is calculated with a rated output voltage of 440V.

*4 Increasing the carrier frequency requires a reduction in current.

*5 The cumulatively calculated overload starting current is the objective current value when the inverter starts to cumulatively calculate the overload fault (OL2) of the inverter.The inverter will continue to operate when it exceeds the rated output current value and lower than such current value.
However, it is noted that, when the ambient temperature is too high or the ventilation is poor, the heat sink overheat alarm (OH1) or heat sink overheat fault may occur.
At this time when the inverter capacity needs to be improved or the inverter gives an overheat alarm, it will continue to operate using the progressive frequency decrease.

Model Designation

CIMR- E T 4 A 0018 F A A

AC Drive | E1000 Series | Design Revision order

No.	Region code
T	Asia

No.	Voltage class
4	3-phase 400Vac

No.	Customized specifications
A	E1000 standard

No.	Output Current A
	Please refer to the above

No.	Enclosure Type
A	IP00 (above 30kW)
F	NEMA Type1 (below 22kW)

No.	Environmental Specifications
A	Standard
M	Humidity, dust-resistant

Contact Yaskawa for more information on environmental specifications.

LITERATURE NO. YSP-KAJP-C710616-E1D-4
Published in March 2016

YASKAWA



ENVIRONMENTALLY FRIENDLY WAYS TO

SAVE ENERGY



Low Harmonics Regenerative Matrix Converter

SINGAPORE GREEN BUILDING PRODUCT SGBC TÜV SÜD PSB Leader

LIC NO.: 00053G

2015 Grand Prize for Excellence in Energy Efficiency and Conservation (Product Category & Business Model Category)

Sponsor: The Energy Conservation Center, Japan

U1000

All-in-One Motor Drive

Evolved matrix converter features functions of AC Drives, power regeneration power factor improvement and low harmonics solutions



The Green Drive for Pump and Fan Applications

SINGAPORE GREEN BUILDING PRODUCT SGBC TÜV SÜD PSB Excellent

LIC NO.: 00053G

E1000

The Green Inverter

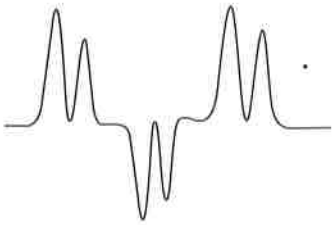
Proven to be energy efficient, meeting customers' needs for environmental protection and quality, material performance and other specific green features

USE ENERGY EFFECTIVELY!

Save energy by using energy efficient drives
Yaskawa answers your company's needs and market requirements

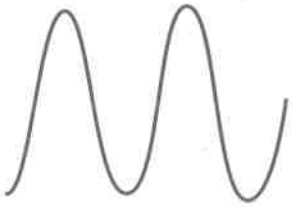
Low Harmonics
The Pursuit of Power Quality





Power Supply
Current Waveform

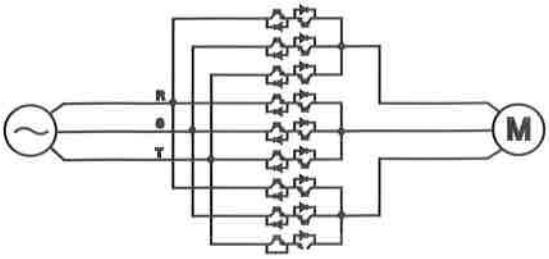




Power Supply
Current Waveform

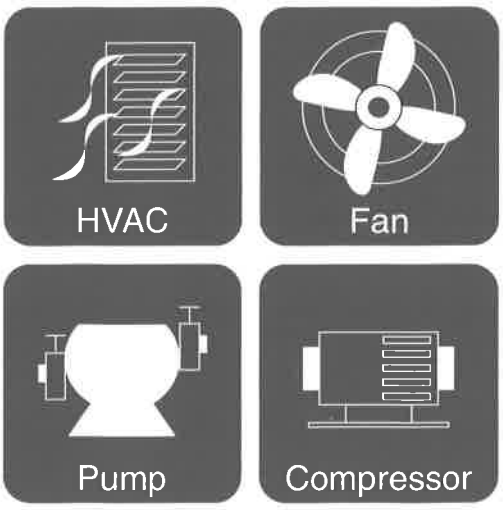
[What is a Matrix Converter?]

A matrix converter is AC/AC converter which consists of 9 bi-directional switches that are arranged in a matrix. It converts a three-phase AC power supply directly into the required voltage and frequency.



Simple and Compact Drive for Fan, Pump and HVAC







Yaskawa Electric (S) Pte Ltd
151 Lorong Chuan, #04-02A,
New Tech Park Lobby A,
Singapore 556741
Tel:+65 6282 3003 Fax: +65 6289 3003
Email: marketing@yaskawa.com.sg
Website: http://www.yaskawa.com.sg

LITERATURE NO. YSP-G-U1000-E1000-1
Published in November 2016

Low Harmonics Regenerative Matrix Converter

U1000

ENVIRONMENTALLY FRIENDLY WAYS TO SAVE ENERGY

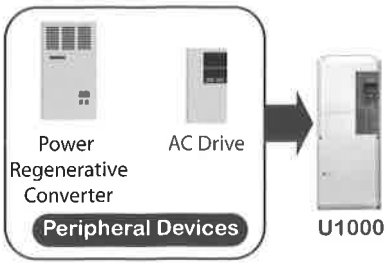
SINGAPORE GREEN BUILDING PRODUCT SGBC
TÜV SÜD PSB
LIC NO.: 00053G

Leader



1 Compact

ALL-IN-ONE

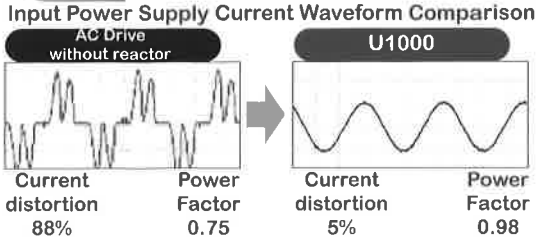


- Footprint reduced by ≈ 65%
- Wiring reduced by ≈ 70% (20 to 6)
- Weight reduced by ≈ 81%

* Example for 400V 30kW

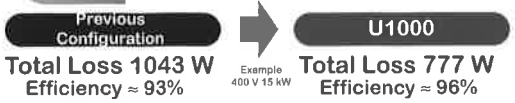
2 High Power Factor and Power Supply Harmonic Suppression

Input Power Supply Current Waveform Comparison



- Current Distortion < 5%
- Power Factor >≈ 0.98
- Conforms to IEEE 519

3 Greater Efficiency



- 29% less power loss
- 3% increased efficiency

Application Examples

Lift applications with heavy repetitive loads and regenerative power



High Power Factor and Power Supply Harmonic Suppression



RoHS Compliant

Yaskawa Electric (S) Pte Ltd
151 Lorong Chuan, #04-02A,
New Tech Park Lobby A,
Singapore 556741
Tel:+65 6282 3003 Fax: +65 6289 3003
Email: marketing@yaskawa.com.sg
Website: http://www.yaskawa.com.sg

YASKAWA

Certified for ISO9001 and ISO14001

JQA- 0422 JQA-EM0498

2015 Grand Prize for Excellence in Energy Efficiency and Conservation

(Product Category & Business Model Category)

Sponsor: The Energy Conservation Center, Japan

■ U 1000 Standard Specifications

200 V Class

ND = Normal Duty , HD = Heavy Duty

Model CIMR -UT 2A□□□□			0028	0042	0054	0068	0081	0104	0130	0154	0192	0248
Rated Input/Output	Rated Output Current *1 A	ND	28	42	54	68	81	104	130	154	192	248
		HD	22	28	42	54	68	81	104	130	154	192
	Rated Input Capacity kVA	ND	12	17	22	28	33	43	54	64	80	103
		HD	9	12	17	22	28	33	43	54	64	80
	Rated Input Current A	ND	25	38	49	62	73	95	118	140	175	226
		HD	20	25	38	49	62	73	95	118	140	175
	Max. Output Voltage		Depends on input voltage									
	Max. Output Frequency		400 Hz									
Power Supply Characteristics	Rated Voltage/Rated Frequency		Three-phase AC power supply : 200 to 240 Vac 50/60 Hz									
	Allowable Voltage Fluctuation		−15% to +10%									
	Allowable Frequency Fluctuation		±3% (Frequency fluctuation rate: 1 Hz/ 100 ms or less)									
	Allowable Power Voltage Imbalance between Phases		less than 2%									
Control Characteristics	Control Method		Sine-wave PWM (V/f control, V/f Control with PG, Open Loop Vector Control, Closed Loop Vector Control, Open Loop Vector Control for PM, Advanced Open Loop Vector Control for PM, Closed Loop Vector Control for PM (switched by parameter setting))									
	Harmonic Current Distortion Rate *2		5% or less (IEEE 519)									
	Input Power Factor		0.98 or more (for rated load)									
	Overload Tolerance		HD Rating : 150% of rated output current for 60s, ND Rating: 120% of rated output current for 60s (Derating may be required for repetitive loads)									
Status Output			1 C-relay output at failures, 1 a contact output (multi-function) during operation, 2 multi-function PHC outputs selectable at alarms, 2 multi-function analog outputs selectable for analog outputs, Pulse train output: 1 (multi-function)									

400 V Class

Model CIMR -UT 4A□□□□			0011	0014	0021	0027	0034	0040	0052	0065	0077	0096	0124	0156	0180	0216	0240	0302	0361	0414	0477	0590	0720	0900	0930
Rated Input/Output	Rated Output Current *1 A	ND	11	14	21	27	34	40	52	65	77	96	124	156	180	216	240	302	361	414	477	590	720	900	930
		HD	9.6	11	14	21	27	34	40	52	65	77	96	124	156	180	216	240	302	361	414	477	590	720	900
	Rated Input Capacity kVA	ND	9	12	17	22	28	33	43	54	64	80	103	130	150	180	200	251	300	344	396	490	598	748	773
		HD	8	9	12	17	22	28	33	43	54	64	80	103	130	150	180	200	251	300	344	396	490	598	748
	Rated Input Current A	ND	10	13	19	25	31	36	47	59	70	87	113	142	164	197	218	275	329	377	434	537	655	819	846
		HD	8.7	10	13	19	25	31	36	47	59	70	87	113	142	164	197	218	275	329	377	434	537	655	819
	Max. Output Voltage		Depends on input voltage																						
	Max. Output Frequency		400 Hz																						
Power Supply Characteristics	Rated Voltage/Rated Frequency		Three-phase AC power supply : 380 to 480 Vac 50/60 Hz																						
	Allowable Voltage Fluctuation		−15% to +10%																						
	Allowable Frequency Fluctuation		±3% (Frequency fluctuation rate: 1 Hz/ 100 ms or less)																						
	Allowable Power Voltage Imbalance between Phases		less than 2%																						
Control Characteristics	Control Method		Sine-wave PWM (V/f control, V/f Control with PG, Open Loop Vector Control, Closed Loop Vector Control, Open Loop Vector Control for PM, Advanced Open Loop Vector Control for PM, Closed Loop Vector Control for PM (switched by parameter setting))																						
	Harmonic Current Distortion Rate *2		5% or less (IEEE 519)																						
	Input Power Factor		0.98 or more (for rated load)																						
	Overload Tolerance		HD Rating : 150% of rated output current for 60s, ND Rating : 120% of rated output current for 60s (Derating may be required for repetitive loads)																						
Status Output			1 C-relay output at failures, 1 a contact output (multi-function) during operation, 2 multi-function PHC outputs selectable at alarms, 2 multi-function analog outputs selectable for analog outputs, Pulse train output: 1 (multi-function)																						

*1 : The rated output current of the drive should be equal to or greater than the motor rated current.
*2 : When the harmonic current distortion rate is 5% or less, the maximum output voltage is calculated by input power voltage × 0.87.

■ U 1000 Dimensions mm

Voltage Class		200 V Class										400 V Class																						
Model CIMR - UT ■A□□□□		0028	0042	0054	0068	0081	0104	0130	0154	0192	0248	0011	0014	0021	0027	0034	0040	0052	0065	0077	0096	0124	0156	0180	0216	0240	0302	0361	0414	0477	0590	0720	0900	0930
Open-Chassis (IP00)	Width (W)	250	264	264	264	264	264	264	415	415	490	250	250	250	250	250	264	264	264	264	264	264	415	415	490	490	695	695	695	1070	1070	1210	1210	1070
	Height (H)	480	650	650	650	650	816	816	990	990	1132	480	480	480	480	480	650	650	650	650	816	816	990	990	1132	1132	1132	1132	1132	1595	1595	1835	1835	1835
	Depth (D)	360	420	420	420	420	450	450	403	403	450	360	360	360	360	360	420	420	420	420	450	450	403	403	450	450	450	450	450	445	445	445	445	445

Model EUJ7118□□		00	10	20
U1000 Standard Configuration Devices (Harmonic Filter Module)	Width (W)	700	700	700
	Height (H)	1350	1350	1350
	Depth (D)	432	432	432

* : This number indicates the voltage class (2: 200 V class, 4: 400 V class).
Note: Optional NEMA Type 1 kit is required for Enclosed Wall-Mounted (NEMA Type 1) models.

Model Number Key

CIMR - U T 4 A 0011 A A - A

U1000 Series

Design Revision Order

No.	Region Code
T	Asia

No.	Voltage Class
2	3-phase, 200-240 Vac
4	3-phase, 380-480 Vac

No.	Customized Specifications
A	Standard model
E	EMC Noise Filter Built-in
P	24 V Power Supply Unit Built-in
W	EMC Noise Filter and 24 V Power Supply Unit Built-in

No.	Output Current A
Note : Indicates the rated output current of the Normal Duty rating rounded off to the nearest whole number.	

No.	Enclosure Type
A	IP00
F	NEMA Type1

No.	Environmental Specifications
A	Standard
K	Gas
M	Humidity, dust
N	Oil
S	Shock, vibration

Note: Contact Yaskawa for more on environmental specifications.

LITERATURE NO. YSP-KAEP-C710636-02A-1 Published in November 2016

YASKAWA



ENVIRONMENTALLY FRIENDLY WAYS TO

SAVE ENERGY



Low Harmonics Regenerative Matrix Converter

SINGAPORE GREEN BUILDING PRODUCT SGBC TÜV SÜD PSB Leader

LIC NO.: 00053G

2015 **Grand Prize for Excellence in Energy Efficiency and Conservation**

(Product Category & Business Model Category)

Sponsor: The Energy Conservation Center, Japan

U1000

All-in-One Motor Drive

Evolved matrix converter features functions of AC Drives, power regeneration power factor improvement and low harmonics solutions



The Green Drive for Pump and Fan Applications

SINGAPORE GREEN BUILDING PRODUCT SGBC TÜV SÜD PSB Excellent

LIC NO.: 00053G

E1000

The Green Inverter

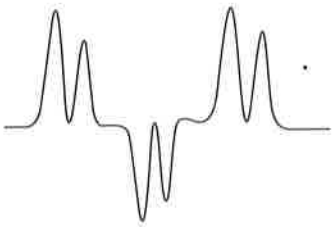
Proven to be energy efficient, meeting customers' needs for environmental protection and quality, material performance and other specific green features

USE ENERGY EFFECTIVELY!

Save energy by using energy efficient drives
Yaskawa answers your company's needs and market requirements

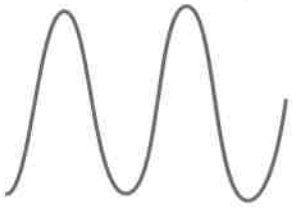
Low Harmonics
The Pursuit of Power Quality





Power Supply
Current Waveform

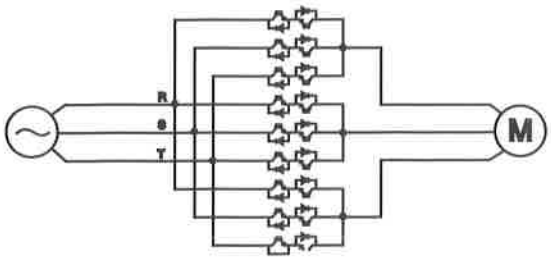




Power Supply
Current Waveform

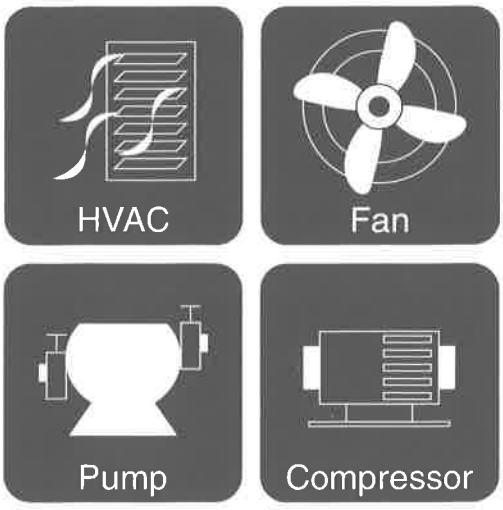
[What is a Matrix Converter?]

A matrix converter is AC/AC converter which consists of 9 bi-directional switches that are arranged in a matrix. It converts a three-phase AC power supply directly into the required voltage and frequency.



Simple and Compact Drive for Fan, Pump and HVAC







Yaskawa Electric (S) Pte Ltd
151 Lorong Chuan, #04-02A,
New Tech Park Lobby A,
Singapore 556741
Tel:+65 6282 3003 Fax: +65 6289 3003
Email: marketing@yaskawa.com.sg
Website: http://www.yaskawa.com.sg

LITERATURE NO. YSP-G-U1000-E1000-1
Published in November 2016