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## Preface

This catalog may describe trademarked equipment, which is the property of other companies. These trademarks are the property of the registered owner companies.

Unless otherwise noted, throughout this document, the term “Type” (when related to enclosure solutions) refers not only to NEMA Type, but also represents UL Listing for the specific Type(s).

Other Documents and Manuals are available to support special use or installation of this product. These documents may be provided with the product or upon request. Contact Yaskawa America, Inc. or visit [www.yaskawa.com](http://www.yaskawa.com).

The intended users for this document are Yaskawa sales personnel, distributors, and partners.

# U1000 iQpump Drives

The U1000 iQpump Drive is a compact, total all-in-one solution for ultra low harmonic pump control, and is the ultimate choice for power quality and energy savings.

Additionally, the U1000 iQpump Drive delivers high flexibility and motor control performance to meet a wide variety of application requirements.

Table 1: U1000 iQpump Drive Model Selection 200 to 240 V

Rated Input Voltage	Rated Output Amps <sup>1 2</sup>	Nominal HP <sup>3</sup>	Standard Enclosure
			Model Number
			CIMR-UW2A..
200 to 240 V Three-Phase	28	10	0028AUA
	42	15	0042AUA
	54	20	0054AUA
	68	25	0068AUA
	81	30	0081AUA
	104	40	0104AUA
	130	50	0130AUA
	154	60	0154AUA
	192	75	0192AUA
	248	100	0248AUA

1. The rated output current of the drive should be equal to or greater than the motor rated current.

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

3. Horsepower rating is based on standard NEMA B, 4-pole motor design as represented in NEC table 430.150 Full-Load Current, Three-Phase Alternating Current Motors at 240 volts.

Table 2: U1000 iQpump Drive Model Selection 380 to 480 V

Rated Input Voltage	Rated Output Amps <sup>1 2</sup>	Nominal HP <sup>3</sup>	Standard Enclosure
			Model Number
			CIMR-UW4A..
380 to 480 V Three-Phase	11	7.5	0011AUA
	14	10	0014AUA
	21	15	0021AUA
	27	20	0027AUA
	34	25	0034AUA
	40	30	0040AUA
	52	40	0052AUA
	65	50	0065AUA
	77	60	0077AUA
	96	75	0096AUA
	124	100	0124AUA
	156	125	0156AUA
	180	150	0180AUA
	216	175	0216AUA
	240	200	0240AUA
	302	250	0302AUA
	361	300	0361AUA
414	350	0414AUA	
477	400	0477AUB	
590	500	0590AUB	

1. The rated output current of the drive should be equal to or greater than the motor rated current.
2. Current derating is required to raise the carrier frequency. Carrier frequency is set to 4 kHz.
3. Horsepower rating is based on standard NEMA B, 4-pole motor design as represented in NEC table 430.150 Full-Load Current, Three-Phase Alternating Current Motors at 240 volts.

Rated Input Voltage	Rated Output Amps <sup>1 2</sup>	Nominal HP <sup>3</sup>	System Kit Number	Component Name	Component Part Number
380 to 480 V Three-Phase	720	450 (600)	U1000IQP-460V-720A	Matrix Drive Power Module	CIMR-UW4A0720AUB
				PWM Filter Module	EUJ711800.M <sup>4</sup>
	930	600 (800)	U1000IQP-460V-930A	Matrix Drive Power Module	CIMR-UW4A0930AUB
				PWM Filter Module	EUJ711820.M <sup>4</sup>

1. The rated output current of the drive should be equal to or greater than the motor rated current.
2. Current derating is required to raise the carrier frequency. Carrier frequency is set to 4 kHz.
3. Horsepower rating is based on standard NEMA B, 4-pole motor design as represented in NEC table 430.150 Full-Load Current, Three-Phase Alternating Current Motors at 240 volts.
4. The EUJxxxxx.M Harmonic Filter Modules for models 4x0720 and 4x0930 are REQUIRED system components.

# U1000 iQpump Drive Options

## End Cap Kits, NEMA 1

This option consists of a top and bottom cover to convert a protected IP00/Open Type drive to a IP20/NEMA 1, UL Type 1 enclosed unit. This option DOES NOT provide additional space for mounting auxiliary components (i.e., circuit breaker, input fuses, etc.).

Rated Input Voltage	Drive Model Number CIMR-UW2A..	Part Number
200 to 240 V Three-Phase	0028AUA	EZZ022745A
	0042AUA	EZZ022745B
	0054AUA	
	0068AUA	
	0081AUA	
	0104AUA	EZZ022745C
	0130AUA	EZZ022745D
	0154AUA	
	0192AUA	
	0248AUA	EZZ022745E

Rated Input Voltage	Drive Model Number CIMR-UW4A..	Part Number
380 to 480 V Three-Phase	0011AUA	EZZ022745A
	0014AUA	
	0021AUA	
	0027AUA	
	0034AUA	
	0040AUA	EZZ022745B
	0052AUA	
	0065AUA	
	0077AUA	
	0096AUA	EZZ022745C
	0124AUA	EZZ022745D
	0156AUA	
	0180AUA	
	0216AUA	EZZ022745E
	0240AUA	
	0302AUA	EZZ022745F
	0361AUA	
	0414AUA	
	0477AUB	EZZ022745G
0590AUB		

## External Heatsink Kits, NEMA 1

This option allows drives to be mounted with the drive's heatsink external (NEMA 1 backside) to the enclosure. Option kit for customer mounting. Larger standard drives include brackets.

Rated Input Voltage	Drive Model Number CIMR-UW2A..	Part Number
200 to 240 V Three-Phase	0028AUA	UUX001072
	0042AUA	UUX001073
	0054AUA	
	0068AUA	
	0081AUA	
	0104AUA	UUX001074
	0130AUA	UUX001075
	0154AUA	
	0192AUA	
	0248AUA	Brackets included with drive

Rated Input Voltage	Drive Model Number CIMR-UW4A..	Part Number
380 to 480 V Three-Phase	0011AUA	UUX001072
	0014AUA	
	0021AUA	
	0027AUA	
	0034AUA	
	0040AUA	
	0052AUA	UUX001073
	0065AUA	
	0077AUA	
	0096AUA	
	0124AUA	UUX001074
	0156AUA	UUX001075
	0180AUA	
	0216AUA	
	0240AUA	Brackets included with drive
	0302AUA	
0361AUA		



## Control and Communication Options

These cards, cables, and devices add control functionality to the standard drive. Items are shipped loose, unmounted.

Model No.	Option Name	Description
AO-A3	Analog Output	This option provides 2 signals for remote metering of any two of the drive's "U1" parameters. These are in addition to the two standard analog outputs. Signal levels (individually selectable): 0 to $\pm 10$ Vdc (20 k $\Omega$ , 11 Bit + Sign) Output voltage resolution is 1/2048. Mounts at option connector CN5-A, CN5-B, or CN5-C.
DO-A3	Digital Output (8 Channel)	This option provides 8 additional digital outputs for use in monitoring the status outputs of the drive. Signal levels: 2 channels, Form A, 250 Vac, 30 Vdc, 1A 6 channels, PHC, 48 Vdc, 50 mA, Shared Common Mounts at option connector CN5-A, CN5-B, or CN5-C.

## Support Tools

Model No.	Option Name	Description
JVOP-181	USB Copy Unit (Y-Stick)	Allows the drive to connect to the USB port on a PC. It can read, copy and verify drive parameter settings from one drive to another like drive. The unit plugs into the RJ-45 port on the front of the digital operator. Refer to our website at <a href="http://www.yaskawa.com">www.yaskawa.com</a> to download the software.
SW.CU.01	CopyUnitManager Software for USB Copy Unit (Y-Stick)	Allows the user to transfer and save parameter files from the Copy Unit (JVOP-181), sold separately, to a PC and vice versa. Refer to our website at <a href="http://www.yaskawa.com">www.yaskawa.com</a> to download the software.

## Network Communications

Model No.	Option Name	Description
SI-EM3	Modbus TCP/IP	Simple and effective solution to connect to a Modbus TCP/IP network.
SI-EM3D	Modbus TCP/IP Dual Port	
SI-EN3	EtherNet/IP	ODVA-compliant option cards to connect to an Ethernet/IP network.
SI-EN3D	EtherNet/IP Dual Port	
SI-EP3	PROFINET	PI-compliant option card to connect to a PROFINET network.
SI-N3	DevieNet with ADR	ODVA-compliant option card with Automatic Device Replacement (ADR) to connect to a DeviceNet network.
SI-P3	PROFIBUS-DP	PI-compliant option card to connect to a PROFIBUS-DP network.

## Digital Operator and Software

Model No.	Option Name	Description
UOP000016 (JVOP-183)	Digital Operator (LCD)	This option is the standard digital operator found on the drive and NEMA 1 and NEMA 12 packages. This option is only needed if the original digital operator is lost or damaged. Features include:  LCD digital operator display, 5 lines x 16 characters, backlit 7 languages Copy function Mounts to RJ-45 keypad port.
UOP000023 (JVOP-183R)	Digital Operator (LCD)	This operator is the standard digital operator on all NEMA 3R enclosure doors. This option is only needed if the original keypad is lost or damaged. Features include:  LCD digital operator display, 5 lines x 16 characters, backlit 7 languages Copy function
UCV00849-0102	Keypad Cover	This kit allows for the mounting of a hinged lockable cover, which protects the door-mounted digital keypad. This kit can be used on all NEMA 3R type enclosures. Shipped loose for customer installation.
UWR0051	Digital Operator Cable, Remote (1 meter)	These cables are used to connect the Remote Digital Operator (JVOP-18x). They are available in one (1) or three (3) meter lengths.
UWR0052	Digital Operator Cable, Remote (3 meters)	
UUX000526 (Blank Membrane)	Digital Operator Kits NEMA Type 3R/4X	This option is used to extend an LCD or LED Digital Remote Operator to the wall of a separately specified, oversized UL Type 3R, 4, 4X, or 12 enclosure (IPX6 environment). Item includes a faceplate bezel with digital operator brackets and membrane to cover the operator cutout in the enclosure door, a 3-foot cable, a 10-foot cable, and a 1:1 template for cutting the necessary cutouts in the enclosure. Keypad can be removed after kit installation. Designed for use with <b>1000-series Digital Remote Operators (sold separately)</b> . Connects to RJ-45 port and mounts to enclosure wall.
UUX000527 (Yaskawa Logo Membrane)		
UUX000922	Keypad Adapter Kit	This kit can be used when a keypad is replacing a keypad used with P7-based iQpump drives. This kit will allow enclosure door mounted keypad to be upgraded from P7 style to the new style digital keypad.
SW.DW.60	DriveWizard® iQpump Software	This software package allows upload and download of parameters via PC for data storage and for programming multiple drives. The software also includes graphing and monitoring tools. It is a Windows-based program designed to make startup, commissioning, and troubleshooting the drive as simple as possible. Refer to our website at <a href="http://www.yaskawa.com">www.yaskawa.com</a> to download the software, and for more information, including minimum system requirements and cable information to interface a PC to the drive.
UWR00468-2	PC Interface Cable	This 6-foot cable interconnects the drive keypad port to the 9-pin communication port on a PC. This cable is used in conjunction with DriveWizard® iQpump Software.
UWR-0638	USB Interface Cable	This 10-foot male USB-A to male USB-B cable provides a USB-to-USB connection from PC to the drive.

# U1000 iQpump Configured NEMA 3R (Q1E3)

7.5 to 350 HP

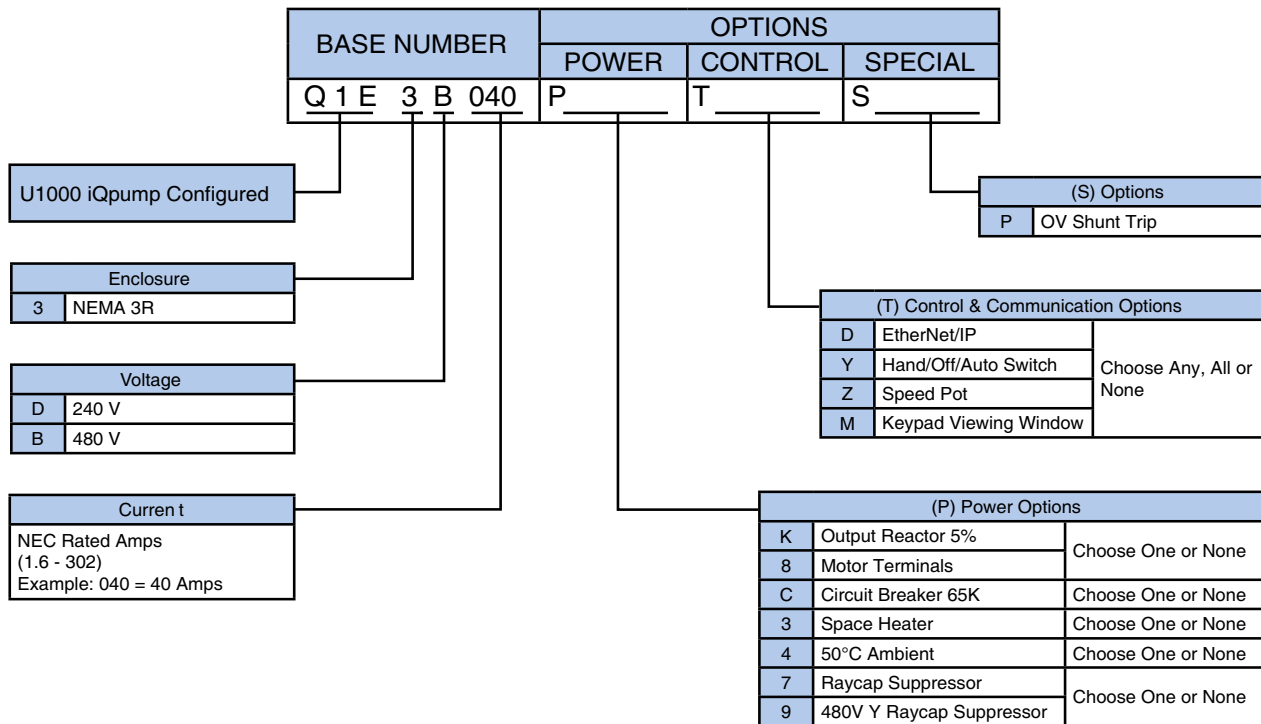


The configured package provides a U1000 iQpump drive containing pump application-specific software macros, a real time clock, and Hand/Off/Auto LCD keypad with an input disconnect switch and space for several power options inside a NEMA 3R enclosure. The drive incorporates matrix technology to directly convert input AC voltage to output AC voltage.

## Model Number Configuration (Q1E3)

**Step 1.** Complete the Base Number for the voltage and current rating.

**Step 2.** Add the Option Code letter for each required option. If an option is not wanted, no character is inserted in that position.





# Options (Q1E3)

## Power Options

Output Reactor	(K)	No form of output impedance is normally required. A 5% load reactor, option (K), is available if additional output impedance is desired (usually for long lead-lengths or noise reduction).
Motor Terminals	(8)	Allows for lug-free installation of motor wires to minimize installation time.
Circuit Breaker 65 kAIC	(C)	Lockable input Circuit Breaker (65 kAIC panel rating).
Space Heater	(3)	Helps to decrease condensation.
50 °C Ambient	(4)	Allows the enclosure to be operated in an ambient temperature of 50 °C (122 °F). The standard basic design is rated for 40 °C ambient (104 °F).
Raycap Surge Suppressor	(7)	Provides a high degree of protection from transient surges coming through the power line cables. Lightning strikes are the most common form of surges.
480 V Y Raycap Suppressor	(9)	Provides a high degree of protection from transient surges coming through the power line cables. Lightning strikes are the most common form of surges. This option is designed specifically for 480 V Y transformer secondary power to the U1000 iQpump drive package. Note: 75 HP and smaller drives will be limited to 42 kAIC SCCR when this option is included.

## Control Options

EtherNet/IP SI-EN3	(D)	Allows the drive to communicate on an EtherNet (Modbus TCP) network.
HAND/OFF/AUTO	(Y)	In a standard configuration, the drive keypad is brought out to the front of the configured panel for speed control. This option provides a door-mounted HAND/OFF/AUTO switch.
Speed Pot	(Z)	In a standard configuration, the drive keypad is brought out to the front of the configured panel for speed control. This option provides a door-mounted speed potentiometer for manual speed control.
Keypad Viewing Window	(M)	The drive keypad is mounted on the outside of the NEMA 3R enclosure door. This option provides a viewing window that is hinged and lockable.

## Special Options

ov Shunt Trip	(P)	Detects high supply voltage conditions and automatically trips the main circuit breaker. The high AIC circuit breaker options (PC) must be included in the model number when including the ov Shunt Trip option.
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## NEMA 3R Configured Enclosure Options

Freestanding Leg Kit NEMA 3R	UUX001158	<b>12 in. Leg Kit:</b> This option allows the NEMA 3R wall-mount enclosures to be mounted on legs so that the control can be freestanding and off the ground. Either kit can be used on any of the wall-mount enclosures. Floor-mount enclosures come standard with freestanding legs.
	UUX001159	<b>30 in. Leg Kit:</b> This option allows the NEMA 3R wall-mount enclosures to be mounted on legs so that the control can be freestanding and off the ground. Either kit can be used on any of the wall-mount enclosures. Floor-mount enclosures come standard with freestanding legs.



# Models and Power Options (Q1E3)

Table 3: 240 V Models and Power Options

Rated Input Voltage	Rated Output Current (Amps)	Nominal HP <sup>1</sup>	NEMA 3R Configured
			Q1E3..
240 V Three-Phase	28	10	A028
	42	15	A042
	54	20	A054
	68	25	A068
	81	30	A081
	104	40	A104
	130	50	A130
	154	60	A154
	192	75	A192
248	100	A248	

1. Horsepower rating is based on standard NEMA B, 4-pole motor design as represented in NEC table 430.150 Full-Load Current, Three-Phase Alternating Current Motors at 240 volts.

Table 4: 480 V Models and Power Options

Rated Input Voltage	Rated Output Current (Amps)	Nominal HP <sup>1</sup>	NEMA 3R Configured
			Q1E3..
480 V Three-Phase	11	7.5	B011
	14	10	B014
	21	15	B021
	27	20	B027
	34	25	B034
	40	30	B040
	52	40	B052
	65	50	B065
	77	60	B077
	96	75	B096
	124	100	B124
	156	125	B156
	180	150	B180
	240	200	B240
	302	250	B302
	361	300	B361
	414	350	B414
477	400	B477	
590	500	B590	

1. Horsepower rating is based on standard NEMA B, 4-pole motor design as represented in NEC table 430.150 Full-Load Current, Three-Phase Alternating Current Motors at 240 volts.



## Dimensions and Data

Refer to the U1000 iQpump Drive product page on [www.yaskawa.com](http://www.yaskawa.com) for dimension, weight, and schematic diagrams.

For configured package dimensions and weights, refer to these documents:

PD.iQpump.10 for 240 V models

PD.iQpump.11 for 480 V models

# Technical Training

## Additional Information

[Training Home Page](#)

In today's world of global competition, it is impossible for a company to survive without "state-of-the-art" technically trained associates and customers. Yaskawa Technical Training Services (TTS) is comprised of engineers who are specialists in their field.

Yaskawa America has three training facilities in the United States. The primary training facility is in Yaskawa America's North American Headquarters in Waukegan, Illinois (45 miles north of Chicago, 50 miles south of Milwaukee). This facility has six training rooms; two lecture halls, two training rooms and two training labs.

Besides the possibility of attending training classes in Waukegan and Los Angeles, Yaskawa America can also bring training to the customer. On-site classes are available in two varieties. The first is to duplicate the official training classes at the customer's location. Full functioning demo units, data projector, computer and documentation can be shipped to recreate the official class on-site. The second variety is road show training. Road show training is a one-day training class that is specifically tailored to the students' needs and questions. Only basic demos are used and the topics covered in class are generated by the students in attendance.

The Yaskawa Virtual Training Room is another training option. All you need is an Internet connection and a telephone. This is a live, interactive training class, which gives you the ability to talk to the instructor as well as other students. The Internet connection allows us to show slides and demonstrate software packages. The telephone is for the audio portion of the training class. Web classes can be found on the Yaskawa formal training schedule and can also be done on-demand, per the time and preference of the customer.

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To enroll, contact Technical Training Services.

Phone: 1-800-YASKAWA (1-800-927-5292), then dial 2 for "Drives" and 4 for "Training"

E-mail: [training@yaskawa.com](mailto:training@yaskawa.com)

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Check out the latest class schedule and cut sheets at [www.yaskawa.com](http://www.yaskawa.com)

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Yaskawa is the leading global manufacturer of low and medium voltage variable frequency drives, servo systems, machine controllers and industrial robots. Our standard products, as well as tailor-made solutions, are well known and have a high reputation for outstanding quality and reliability.



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