

# YASKAWA

# GA500

Industrial AC Microdrive

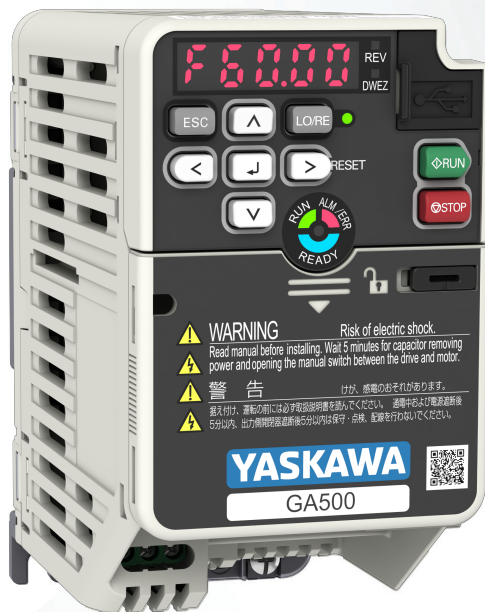
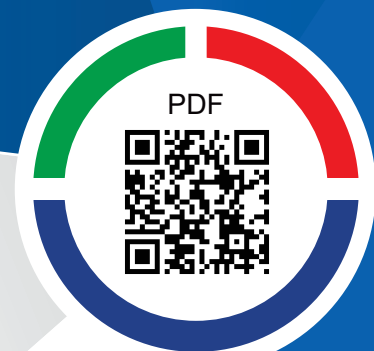
## Price Book

Catalog Code: GA50Uxxxxxxx

240 V: Single - Phase, 1/6 to 5 HP

240 V: Three - Phase, 1/6 to 30 HP

480 V: Three - Phase, 1/2 to 40 HP



**Copyright © 2020 YASKAWA AMERICA, INC.**

All rights reserved. No part of this publication may be reproduced, stored in a retrieval system, or transmitted, in any form or by any means, mechanical, electronic, photocopying, recording, or otherwise, without the prior written permission of Yaskawa. No patent liability is assumed with respect to the use of the information contained herein. Moreover, because Yaskawa is constantly striving to improve its high-quality products, the information contained in this manual is subject to change without notice. Every precaution has been taken in the preparation of this manual. Yaskawa assumes no responsibility for errors or omissions. Neither is any liability assumed for damages resulting from the use of the information contained in this publication.

## Table of Contents

Preface . . . . .	2
Additional Resources . . . . .	2
GA500 AC Microdrives . . . . .	3
Drive Selection . . . . .	3
Dimensions & Weights . . . . .	6
IP20/Protected Chassis Dimensions . . . . .	6
Drive Specifications . . . . .	9
Network Communication Options . . . . .	10
Keypad and Accessories . . . . .	11
Enclosure Adapters and Kits . . . . .	13
IP20/UL Type 1 Adapters . . . . .	13
External Heatsink Adapters . . . . .	15
DIN Rail Mounting Adapters . . . . .	17
Power Options . . . . .	19
DC Bus Reactors . . . . .	20
AC Input Reactors . . . . .	25
AC Output Reactors . . . . .	28
AC Open Reactor Dimensions & Weights . . . . .	31
Enclosed AC Reactor Dimensions . . . . .	33
Dynamic Braking Options . . . . .	36
10% Dynamic Braking Options . . . . .	36
3% Dynamic Braking Options . . . . .	39
R1000 Regenerative Systems . . . . .	41
R1000 External Heatsink Kits . . . . .	43
R1000 Components Breakdown . . . . .	44
Single-Phase Converter . . . . .	46
Terms and Conditions . . . . .	48

## Preface

This price book may describe trademarked equipment, which is the property of other companies. These trademarks are the property of the registered owner companies and may include the following:

DeviceNet™, trademark of ODVA

PROFIBUS®, trademark of PROFIBUS International.

Modbus®, trademark of Schneider Automation, Inc.

PROFINET®, trademark of PROFIBUS International.

EtherCAT, trademark of Beckhoff Automation GmbH, Germany

Ethernet/IP, trademark of ODVA

MECHATROLINK - I, II, III, trademarks of MECHATROLINK Members Association

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).

This book is not intended as a reference for technical details or specifications that are often needed to make a product selection. Technical data can be found in the Selection Guide (SL.GA500.01) and downloaded from the Yaskawa website.

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

## Additional Resources

The Yaskawa.com web site has the most current information for all Yaskawa products. When researching product specifications or features the Yaskawa web site is the best resource to use. Some useful links for the GA500 drive product are listed here and throughout this document:

Resource Links	
<a href="#">GA500 Selection Guide</a>	<a href="#">GA500 Flyer</a>
<a href="#">GA500 Brochure</a>	<a href="#">GA500 Product Transition Guide</a>



# GA500 AC Microdrives



## Drive Selection

The GA500 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 setup are over. With the new EZ Vector mode, the GA500 can run all of these motor types without comprehensive tuning.

- Time and Cost Savings
- Easy Installation and System Integration
- Easy to Use - Easy to Maintain
- More Reliable - Easier Machine Design

Standard (IP20/Protected Chassis) drives are intended for clean environments and can be mounted 3 different ways as follows:

- 1) In a separate enclosure with heatsink internal. Extra mounting brackets are not required.
- 2) In a separate enclosure with heatsink external. Refer to Enclosure Adapters and Kits for drives requiring extra mounting brackets.
- 3) Mounted without an enclosure. UL Type 1 Adapters must be used when mounting the drive without an enclosure.

The GA500 offers two separate performance ratings; Heavy Duty and Normal Duty. Heavy Duty is capable of creating more powerful torque, while Normal Duty allows the drive to operate a larger motor.

## Catalog Code Designation

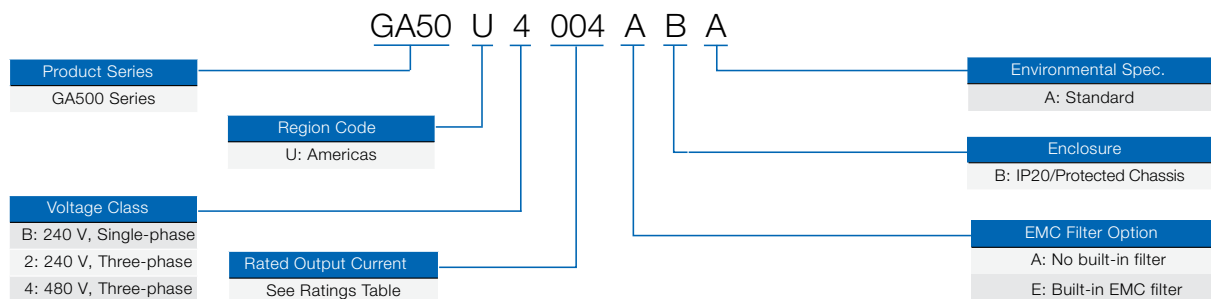


Table 1: 240 V, Single-Phase Input, IP20/Protected Chassis Drives, 1/6 to 5 HP

Normal Duty Output <sup>1</sup>		Heavy Duty Output <sup>1</sup>		Standard IP20 Drives <sup>2</sup>		Built-In EMC IP20 Drives <sup>3</sup>	
HP	Amps	HP	Amps	Catalog Code GA50U . .	List Price	Catalog Code GA50U . .	List Price
1/6	1.2	1/6	0.8	B001ABA	\$330	B001EBA	\$424
1/4	1.9	1/4	1.6	B002ABA	\$365	B002EBA	\$459
3/4	3.3	1/2	3	B004ABA	\$422	B004EBA	\$513
1.5	6	1	5	B006ABA	\$519	B006EBA	\$644
3	9.6	2	8	B010ABA	\$572	B010EBA	\$697
3	12	3	11	B012ABA	\$733	B012EBA	\$873
N/A	N/A	5	17.5	B018ABA	\$892	-	-

- Output capacities stated are for conditions of single-phase input or DC input.
- Standard (IP20/Protected Chassis) Drives are intended for clean environments, and can be mounted 3 different ways as follows:
  - In a separate enclosure with heatsink internal (no extra mounting brackets required)
  - In a separate enclosure with heatsink external. See External Heatsink Adapters for sizes requiring extra mounting brackets
  - Without a separate enclosure, all sizes require UL Type 1 Adapters (see UL Type 1 Adapters)
- Built-in EMC (IP20) Drives are subject to a 16 week lead time if no forecast is provided.

Table 2: 240 V, Three-Phase Input, IP20/Protected Chassis Drives, 1/6 to 30 HP

Normal Duty Output <sup>1</sup>		Heavy Duty Output <sup>1</sup>		Standard IP20 Drives <sup>2</sup>		Built-in EMC IP20 Drives <sup>3</sup>	
HP	Amps	HP	Amps	Catalog Code GA50U . .	List Price	Catalog Code GA50U . .	List Price
1/6	1.2	1/6	0.8	2001ABA	\$299	2001EBA	\$479
1/4	1.9	1/4	1.6	2002ABA	\$317	2002EBA	\$497
3/4	3.5	1/2	3	2004ABA	\$385	2004EBA	\$563
1.5	6	1	5	2006ABA	\$428	2006EBA	\$604
3	9.6	2	8	2010ABA	\$523	2010EBA	\$729
4	12.2	3	11	2012ABA	\$613	2012EBA	\$818
7.5	21	5	17.6	2021ABA	\$748	2021EBA	\$997
10	30	7.5	25	2030ABA	\$948	2030EBA	\$1,206
15	42	10	33	2042ABA	\$1,188	2042EBA	\$1,458
20	56	15	47	2056ABA	\$1,587	2056EBA	\$1,871
25	70	20	60	2070ABA	\$2,028	2070EBA	\$2,378
30	82	25	75	2082ABA	\$4,400	2082EBA	\$5,000

- Output capacities stated are for conditions of 3 phase input or DC input. See Single-Phase Drive Selection for single phase capability.
- Standard (IP20/Protected Chassis) Drives are intended for clean environments, and can be mounted 3 different ways as follows:
  - In a separate enclosure with heatsink internal (no extra mounting brackets required)
  - In a separate enclosure with heatsink external. See External Heatsink Adapters for sizes requiring extra mounting brackets
  - Without a separate enclosure, all sizes require UL Type 1 Adapters (see UL Type 1 Adapters)
- Built-in EMC (IP20) Drives are subject to a 16 week lead time if no forecast is provided.

Table 3: 480 V, Three-Phase Input, IP20/Protected Chassis Drive, 1/2 to 40 HP

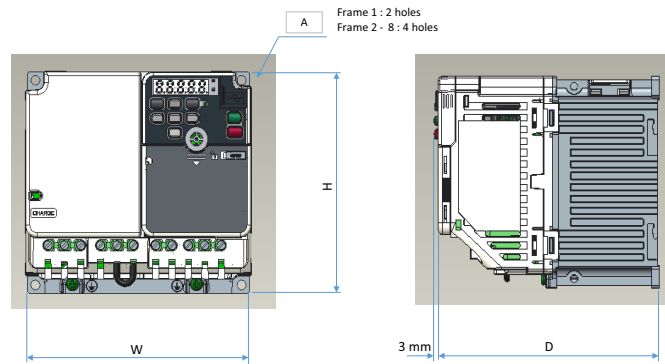
Normal Duty Output <sup>1</sup>		Heavy Duty Output <sup>1</sup>		Standard IP20 Drives <sup>2</sup>		Built-in EMC IP20 Drives <sup>3</sup>	
HP	Amps	HP	Amps	Catalog Code GA50U . .	List Price	Catalog Code GA50U . .	List Price
1/2	1.2	1/2	1.2	4001ABA	\$466	4001EBA	\$614
1	2.1	3/4	1.8	4002ABA	\$502	4002EBA	\$649
2	4.1	2	3.4	4004ABA	\$582	4004EBA	\$728
3	5.4	3	4.8	4005ABA	\$688	4005EBA	\$854
4	7.1	3	5.6	4007ABA	\$748	4007EBA	\$914
5	8.9	4	7.3	4009ABA	\$807	4009EBA	\$971
7.5	11.9	5	9.2	4012ABA	\$898	4012EBA	\$1,087
10	17.5	10	14.8	4018ABA	\$1,130	4018EBA	\$1,360
15	23.4	10	18	4023ABA	\$1,388	4023EBA	\$1,609
20	31	15	24	4031ABA	\$1,674	4031EBA	\$1,977
25	38	20	31	4038ABA	\$2,043	4038EBA	\$2,347
30	44	25	39	4044ABA	\$3,956	4044EBA	\$4,485
40	60	30	45	4060ABA	\$5,510	4060EBA	\$6,060

- Output capacities stated are for conditions of 3 phase input or DC input. See Single-Phase Input Drive Selection for single phase capability.
- Standard (IP20/Protected Chassis) Drives are intended for clean environments, and can be mounted 3 different ways as follows:
  - In a separate enclosure with heatsink internal (no extra mounting brackets required)
  - In a separate enclosure with heatsink external. See External Heatsink Adapters for sizes requiring extra mounting brackets
  - Without a separate enclosure, all sizes require UL Type 1 Adapters (see UL Type 1 Adapters)
- Built-in EMC (IP20) Drives are subject to a 16 week lead time if no forecast is provided.

## Dimensions & Weights

### IP20/Protected Chassis Dimensions

Figure 1: Drive Dimensions



IP20/Protected Chassis Drive Without EMC Filter

Table 4: Dimensions without EMC Filter

Dimensions in (mm)			
Frame	Height	Width	Depth
1.1	5.03 (128)	2.67 (68)	2.99 (76)
1.2	5.03 (128)	2.67 (68)	4.25 (108)
1.3	5.03 (128)	2.67 (68)	4.64 (118)
1.4	5.03 (128)	2.64 (68)	5.03 (128)
2.1	5.03 (128)	4.25 (108)	3.19 (81)
2.2	5.03 (128)	4.25 (108)	3.90 (99)
2.3	5.03 (128)	4.25 (108)	5.08 (129)
2.4	5.03 (128)	4.25 (108)	5.43 (138)
3.1	5.03 (128)	5.51 (140)	5.62 (143)
3.2	5.03 (128)	5.51 (140)	6.41 (163)
4	5.03 (128)	6.69 (170)	7.08 (180)
5	10.23 (260)	5.51 (140)	5.51 (140)
6	11.81 (300)	7.08 (180)	5.62 (143)
7	13.77 (350)	8.66 (220)	7.36 (187)
8	13.77 (350)	7.48 (190)	8.03 (204)

Table 5: Dimensions with EMC Filter

Dimensions in (mm)			
Frame	Height	Width	Depth
1.1	5.03 (128)	2.67 (68)	4.57 (116)
1.2	5.03 (128)	2.67 (68)	5.82 (148)
1.3	5.03 (128)	2.67 (68)	6.22 (158)
1.4	5.03 (128)	2.67 (68)	6.61 (168)
2.1	5.03 (128)	4.25 (108)	4.96 (126)
2.2	5.03 (128)	4.25 (108)	5.66 (144)
2.3	5.03 (128)	4.25 (108)	6.85 (174)
2.4	5.03 (128)	4.25 (108)	7.20 (183)
3.1	5.03 (128)	5.51 (140)	7.60 (193)
3.2	5.03 (128)	5.51 (140)	7.99 (203)
5	10.23 (260)	5.51 (140)	7.72 (196)
6	11.81 (300)	7.08 (180)	7.72 (196)
7	13.77 (350)	8.66 (220)	8.50 (216)
8	13.77 (350)	7.48 (190)	9.88 (251)



Table 6: 240 V, Single-Phase Drives

Normal Duty (ND)	Heavy Duty (HD)	Catalog Code GA50U...	Output Amps		Weight lb (kg)	Frame
			ND	HD		
1/6	1/6	B001ABA	1.2	0.8	1.32 (0.6)	1.1
1/4	1/4	B002ABA	1.9	1.6		1.1
3/4	1/2	B004ABA	3.5	3	1.98 (0.9)	1.3
1.5	1	B006ABA	6	5	3.31 (1.5)	2.4
3	2	B010ABA	9.6	8		2.5
3	3	B012ABA	12.2	11	4.85 (2.2)	3.2
N/A	5	B018ABA	N/A	17.6	6.4 (2.9)	4

Table 7: 240 V, Three-Phase Drives

Normal Duty (ND)	Heavy Duty (HD)	Catalog Code GA50U...	Output Amps		Weight (kg)	Frame
			ND	HD		
1/6	1/6	2001	1.2	0.8	1.55 (0.7)	1.1
1/4	1/4	2002	1.9	1.6		1.1
3/4	1/2	2004	3.5	3.0	1.77 (0.8)	1.2
1.5	1	2006	6	5.0	2.21 (1)	1.4
3	2	2010	9.6	8.0	4.19 (1.9)	2.3
4	3	2012	12.2	11.0		2.4
7.5	5	2021	21	17.6	4.86 (2.2)	3.1
10	7.5	2030	30	25.0	7.5 (3.4)	5
15	10	2042	42	33.0		5
20	15	2056	56	47.0	11.03 (5)	6
25	20	2070	70	60.0	16.54 (7.5)	7
30	25	2082	82	75.0	18.74 (8.5)	7

Table 8: 480 V, Three-Phase Drives

Normal Duty (ND)	Heavy Duty (HD)	Catalog Code GA50U...	Output Amps		Weight lb (kg)	Frame
			ND	HD		
1/2	1/2	4001	1.2	1.2	1.99 (0.9)	2.1
1	3/4	4002	2.1	1.8	2.21 (1)	2.2
2	2	4004	4.1	3.4	3.31 (1.5)	2.4
3	3	4005	5.4	4.8	3.53 (1.6)	2.5
4	3	4007	7.1	5.6		2.5
5	4	4009	8.9	7.3		2.5
7.5	5	4012	11.9	9.2	4.63 (2.1)	3.1
10	10	4018	17.5	14.8	7.28 (3.3)	5
15	10	4023	23.4	18		5
20	15	4031	31	24	10.37 (4.7)	6
25	20	4038	38	31		6
30	25	4044	44	39	15.44 (7)	8
40	30	4060	60	45		8

# Drive Specifications

Power Ratings	
Item	Specification
Overload Capacity	110%/1 min. (Normal Duty) or 150%/1 min. (Heavy Duty)
Rated Voltage	200 to 240 VAC, -15 to +10%
	380 to 480 VAC, -15 to +10%
Capacity Range	240 V, Single-Phase: 1/6 to 5 HP (0.1 to 3.7 kW)
	240 V, Three-Phase: 1/6 to 30 HP (0.1 to 22kW)
	480 V, Three-Phase: 1/2 to 40 HP (0.2 to 30kW)
Input Frequency	50/60 Hz +/-5%
Output Voltage Accuracy	+/-5%
Output Frequency	0 to 590 Hz (*special software for up to 1000 Hz)
Control Method	V/f, Open Loop (IM/PM), Advanced Open Loop (IM/PM), EZ Open Loop Vector
Motor Control	Induction Motor (IM), Permanent Magnet Motor, Synchronous Reluctance Motor (SynRM)
Operating Environment	
Item	Specification
Ambient Temperature	-10 to +50 °C (IP20/Protected Chassis), -10 to +40 °C (IP20/UL Type 1), up to +60 °C with derating
Storage Temperature	-40 to +70 °C (short-term temperature during transportation)
Humidity	95% RH or less (non-condensing)
Altitude	Up to 1000 meters without derating, up to 4000 m with derating
Shock	10 to 20 Hz: 9.8 m/s <sup>2</sup>
	20 to 55 Hz: 5.9 m/s <sup>2</sup>
Protection Design	IP20/Protected Chassis Standard, IP20/UL Type 1 kit optional
Mounting	Side-by-side, DIN rail, external heatsink
Conformal Coating (PCB's)	IEC 60721-3-3, Class 3C2 (chemical gases), Class 3S2 (solid particles)
Standards	CE, UL, cUL, KC, RCM, EAC, RoHS
Functional Safety	IEC/EN61508 SIL3 (STO), PLe

## Network Communication Options

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

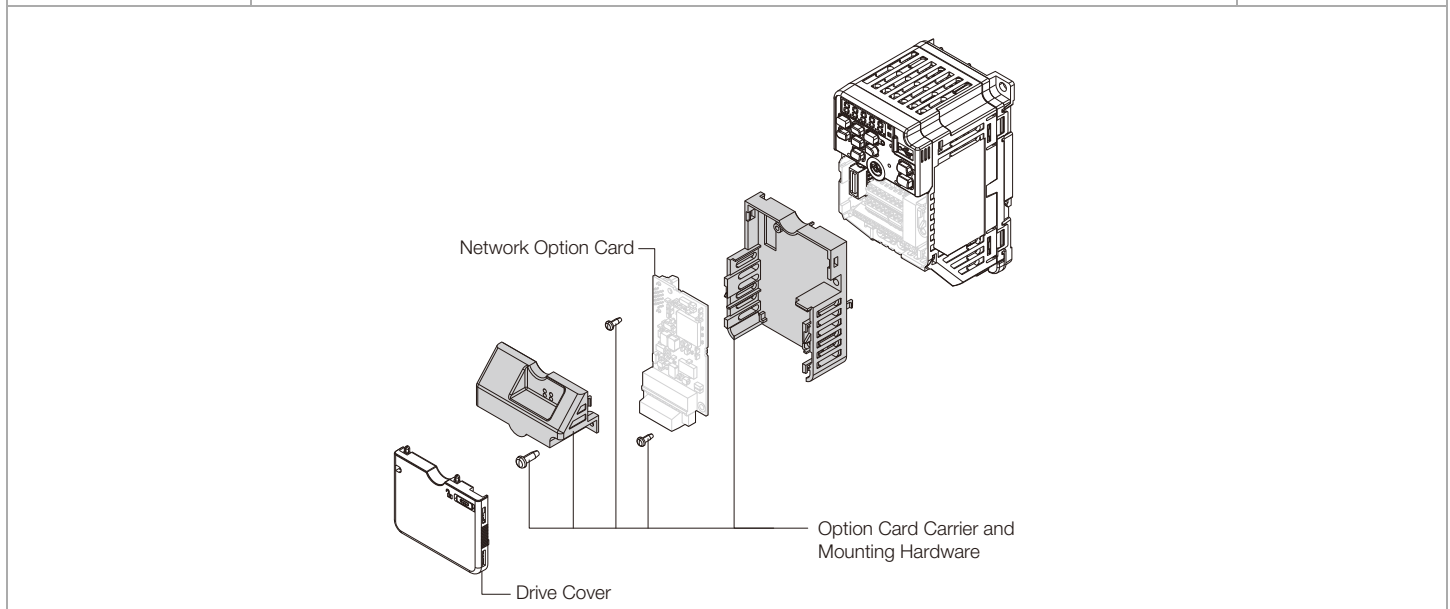
Table 9: Option Cards

Option <sup>1</sup>	Description	List Price
SI-S3	CANopen	\$295
SI-C3	CC-Link	\$425
SI-N3	DeviceNet	\$275
SI-EN3	EtherNet/IP	\$360
SI-EN3D	EtherNet/IP dual port	\$440
SI-ES3	EtherCAT	\$695
SI-T3	MECHATROLINK II	\$440
SI-ET3	MECHATROLINK III	\$595
SI-EM3	Modbus/TCP	\$360
SI-EM3D	Modbus/TCP dual port	\$440
SI-EP3	PROFINET	\$440
SI-P3	PROFIBUS-DP	\$495

1. Use of an option card requires the Option Card Carrier.

Table 10: Option Card Carrier Kit

Option	Purpose	List Price
JOHB-GA50	For use when installing a communication option card on the GA500.	\$35



# Keypad and Accessories

Additional Information	
Keypads, Cables, and Mounting Kits	

Table 11: Keypads

Catalog Code	Description	List Price
JVOP-KPLCA04MEB	LCD Keypad (standard, non-Bluetooth)	\$200
JVOP-KPLCC04MBB	LCD Keypad with Bluetooth	\$335



LCD Keypad with Bluetooth

Table 12: Remote Mount Adapters

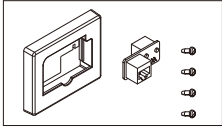

Catalog Code	Description	List Price
ZPBA-GA500	UL Type 1 LED keypad mounting kit for standard GA500 keypad 	\$153
JVOP-KPBCH04AAA	Blank LED keypad when external mounting GA500 keypad (optional) 	\$42
900-192-933-001	UL Type 1 Keypad Panel Mount Kit A (brackets have tapped holes for use with screws) (For use with optional LCD keypad)	\$30
900-192-933-002	UL Type 1 Keypad Panel Mount Kit B (brackets have untapped holes for use with panel studs) (For use with optional LCD keypad)	\$30
900-239-230-001	Outdoor UL Type 12/3/3R Keypad Panel Mount (For use with optional LCD keypad)	\$150

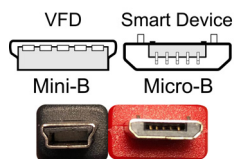


Table 13: Cables

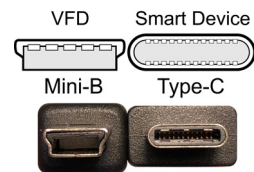
Catalog Code	Description	List Price
UWR0051	Keypad Remote Mount Cable - 1 Meter	\$4
UWR0052	Keypad Remote Mount Cable - 3 Meter	\$8
UWR01258	USB Cable for PC to Drive Communication - 3 Meter	\$15

Table 14: Android Mobile Device Interface Cables (for connecting Android device to USB port on drive)

Catalog Code	Description	List Price
UWR01516-B	USB Mini-B to USB Micro-B. On-The-Go (OTG) compatible, 2-meter length	\$40
UWR01516-C	USB Mini-B to USB Type-C. On-The-Go (OTG) compatible, 2-meter length	\$30



UWR01516-B - USB Mini-B to USB Micro-B



UWR01516-C - USB Mini-B to USB Type-C

# Enclosure Adapters and Kits

These adapters are for mounting the standard IP20 drives directly to a wall, DIN Rail, or machine in a clean environment, or inside a UL Type 1 enclosure with external heatsink. The UL Type 1 Adapters convert a Protected Chassis Drive without EMC (IP20) to an enclosed wall-mounted drive (UL Type 1).

## Additional Information

Enclosure Adapters and Kits

## IP20/UL Type 1 Adapters



This adapter turns the GA500 IP20/Protected Chassis into a GA500 UL Type 1 drive.

Table 15: 240 V, Single-Phase, IP20/UL Type 1 Adapter Kit

Catalog Code GA50U . . .	UL Type 1 Adapters	
	Catalog Code	List Price
B001ABA	ZBAA-GA50V1-1	\$77
B002ABA	ZBAA-GA50V1-1	\$77
B004ABA	ZBAA-GA50V1-2	\$77
B006ABA	ZBAA-GA50V2-1	\$88
B010ABA	ZBAA-GA50V2-2	\$96
B012ABA	ZBAA-GA50V3-1	\$102
B018ABA	ZBAA-GA50V4-1	\$120

Table 16: 240 V, Three-Phase, IP20/UL Type 1 Adapter Kit

Catalog Code GA50U . .	UL Type 1 Adapters	
	Catalog Code	List Price
2001ABA	ZBAA-GA50V1-1	\$77
2002ABA	ZBAA-GA50V1-1	\$77
2004ABA	ZBAA-GA50V1-1	\$77
2006ABA	ZBAA-GA50V1-1	\$77
2010ABA	ZBAA-GA50V2-3	\$84
2012ABA	ZBAA-GA50V2-1	\$88
2021ABA	ZBAA-GA50V3-2	\$96
2030ABA	ZBAA-GA50V5-1	\$108
2042ABA	ZBAA-GA50V5-1	\$108
2056ABA	ZBAA-GA50V6-1	\$111
2070ABA	ZBAA-GA50V7-1	\$144
2082ABA	ZBAA-GA50V7-1	\$144

Table 17: 480 V, Three-Phase, IP20/UL Type 1 Adapter Kit

Catalog Code GA50U . .	UL Type 1 Adapters	
	Catalog Code	List Price
4001ABA	ZBAA-GA50V2-4	\$81
4002ABA	ZBAA-GA50V2-4	\$81
4004ABA	ZBAA-GA50V2-5	\$85
4005ABA	ZBAA-GA50V2-2	\$96
4007ABA	ZBAA-GA50V2-2	\$96
4009ABA	ZBAA-GA50V2-2	\$96
4012ABA	ZBAA-GA50V3-2	\$96
4018ABA	ZBAA-GA50V5-1	\$108
4023ABA	ZBAA-GA50V5-1	\$108
4031ABA	ZBAA-GA50V6-1	\$111
4038ABA	ZBAA-GA50V6-1	\$111
4044ABA	ZBAA-GA50V8-1	\$126
4060ABA	ZBAA-GA50V8-1	\$126



## External Heatsink Adapters

These adapters are for mounting standard IP20/Protected Chassis drives with the heatsink external to an enclosure.

Figure 2: External Heatsink Adapters

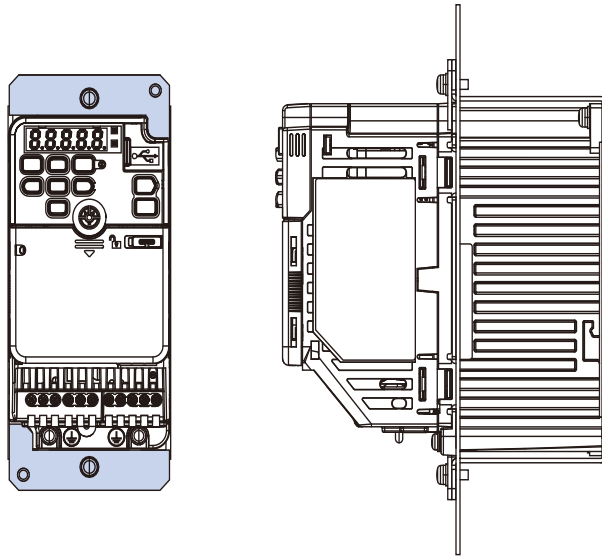


Table 18: 240 V, Single-Phase, Drive Mounting Adapters

Catalog Code GA50U . .	External Heatsink Adapters	
	Catalog Code	List Price
B001*BA	ZPSA-GA50V1-1	\$37
B002*BA	ZPSA-GA50V1-1	\$37
B004*BA	ZPSA-GA50V1-2	\$37
B006*BA	ZPSA-GA50V2-2	\$42
B010*BA	ZPSA-GA50V2-3	\$84
B012*BA	ZPSA-GA50V3-1	\$84
B018*BA	ZPSA-GA50V4-1	\$125

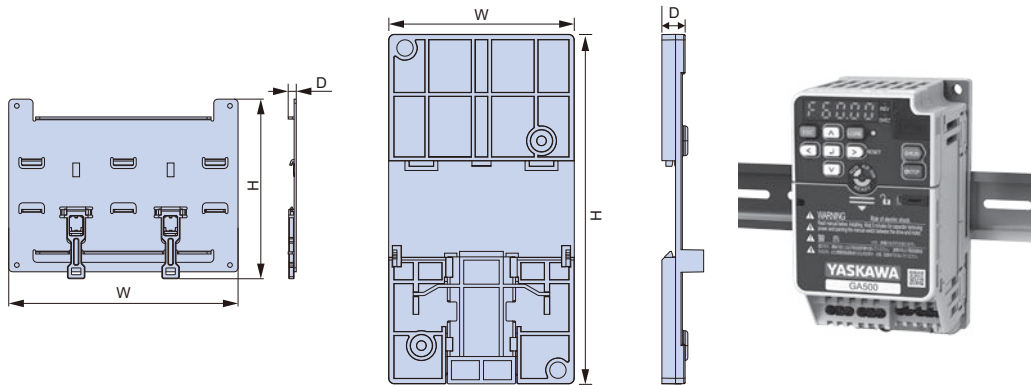
Table 19: 240 V, Three-Phase, Drive Mounting Adapters

Catalog Code GA50U . .	External Heatsink Adapter	List Price
	Catalog Code	
2001*BA	ZPSA-GA50V1-1	\$37
2002*BA	ZPSA-GA50V1-1	\$37
2004*BA	ZPSA-GA50V1-2	\$37
2006*BA	ZPSA-GA50V1-3	\$41
2010*BA	ZPSA-GA50V2-3	\$84
2012*BA	ZPSA-GA50V2-3	\$84
2021*BA	ZPSA-GA50V3-1	\$84
2030*BA	ZPSA-GA50V5-1	\$85
2042*BA	ZPSA-GA50V5-1	\$85
2056*BA	ZPSA-GA50V6-1	\$92
2070*BA	ZPSA-GA50V7-1	\$92
2082*BA	ZPSA-GA50V7-1	\$92

Table 20: 480 V, Three-Phase, Drive Mounting Adapters

Catalog Code GA50U . .	External Heatsink Adapter	List Price
	Catalog Code	
4001*BA	ZPSA-GA50V2-1	\$50
4002*BA	ZPSA-GA50V2-2	\$42
4004*BA	ZPSA-GA50V2-2	\$42
4005*BA	ZPSA-GA50V2-3	\$84
4007*BA	ZPSA-GA50V2-3	\$84
4009*BA	ZPSA-GA50V2-3	\$84
4012*BA	ZPSA-GA50V3-1	\$84
4018*BA	ZPSA-GA50V5-1	\$85
4023*BA	ZPSA-GA50V5-1	\$85
4031*BA	ZPSA-GA50V6-1	\$92
4038*BA	ZPSA-GA50V6-1	\$92
4044*BA	ZPSA-GA50V8-1	\$93
4060*BA	ZPSA-GA50V8-1	\$93

## DIN Rail Mounting Adapters



By utilizing the DIN rail attachment, equipped drives can be attached and detached with one touch. DIN adapters can be mounted on models with dimensions less than 170 mm wide and less than 128 mm in height.

Table 21: Single-Phase IP20/Protected Chassis without EMC Filter DIN Rail Mounting Adapters

Catalog Code GA50U . .	DIN Rail Kit	
	Catalog Code	List Price
B001ABA	ZPZ-GA50V1	\$20
B002ABA		
B004ABA		
B006ABA	ZPZ-GA50V2	
B010ABA		
B012ABA	ZPZ-GA50V3	
B018ABA	EZZ08122D	

Table 22: 240 V, Three-Phase IP 20/Protected Chassis without EMC Filter, DIN Rail Mounting Adapters

Catalog Code GA50U . .	DIN Rail Kit	
	Catalog Code	List Price
2001ABA	ZPZ-GA50V1	\$20
2002ABA		
2004ABA		
2006ABA		
2010ABA	ZPZ-GA50V2	\$20
2012ABA	ZPZ-GA50V3	
2021ABA		
2030ABA	These models are not DIN Rail mountable.	
2042ABA		
2056ABA		
2070ABA		
2082ABA		

Table 23: 480 V, Three-Phase IP20/Protected Chassis without EMC Filter, DIN Rail Mounting Adapters

Catalog Code GA50U . .	DIN Rail Kit	
	Catalog Code	List Price
4001ABA	ZPZ-GA50V2	\$20
4002ABA		
4004ABA		
4005ABA		
4007ABA		
4009ABA		
4012ABA	ZPZ-GA50V3	These models are not DIN Rail mountable.
4018ABA		
4023ABA		
4031ABA		
4038ABA		
4044ABA		
4060ABA		

# Power Options

Power options are add on devices that can be used to help increase power factor, improve harmonics, and dissipate regenerative energy.

Name	Purpose
DC Bus Reactor	<ul style="list-style-type: none"> <li>• Improves the drive input power factor.</li> <li>• Prevents damage to the drive when the power supply capacity is large. Use this option when the power supply capacity is more than 600 kVA.</li> <li>• Decreases harmonic current</li> <li>• Improves the power supply total power factor.</li> </ul>
AC Reactor	<ul style="list-style-type: none"> <li>• Improves the drive input power factor.</li> <li>• Prevents damage to the drive when the power supply capacity is large. Use this option when the power supply capacity is more than 600 kVA.</li> <li>• Decreases harmonic current</li> <li>• Improves the power supply total power factor.</li> </ul>
3% Braking Resistor	Dissipates the regenerative energy of the motor and decrease the deceleration time (Duty cycle of 3% ED). An installation attachment is required.
10% Braking Resistor Unit	Dissipates the regenerative energy of the motor and decrease the deceleration time (Duty cycle of 10% ED). The unit contains a thermal overload relay.
Braking Unit	Use with a braking resistor unit to decrease motor deceleration times.
R1000	The R1000 regenerative module is used to divert energy generated by the motor back onto the line for use by other loads. The energy is directed back onto the line by taking DC voltage from the drive running the motor and converting it into a three-phase AC voltage waveform.
Single-Phase Converter	The Single Phase Converter is used in single-phase to three-phase conversion applications to eliminate drive derating. The Single Phase Converter significantly reduces stresses on the power grid with near unity power factor and less than 10% iTHD.

#### Additional Information

[GA500 Power Options](#)

## DC Bus Reactors



Use a DC Bus Reactor on the DC bus terminals of a drive to reduce the effect of line-side transients and input current total harmonic distortion (THD). Large HP drives include a 3% bus impedance as standard. The DC bus reactor is available loose in a separate UL Type 1 enclosure.

Table 24: 240 V, Single-Phase DC Bus Reactors

HP	Catalog Code GA50J . .		3% DC Bus Reactor				5% DC Bus Reactor			
	Normal Duty	Heavy Duty	Open Type		Enclosed UL Type 1		Open Type		Enclosed UL Type 1	
			Part Number	List Price	Part Number	List Price	Part Number	List Price	Part Number	List Price
1/6	B001...	B001...	URX000042	\$89	URX000216	\$437	URX000042	\$89	URX000216	\$437
1/4	B002...	B002...	URX000041	\$111	URX000207	\$418	05P00620-0109	\$62	URX000217	\$416
1/2	B004...	B004...	05P00620-0111	\$96	URX000208	\$422	URX000044	\$120	URX000218	\$450
3/4	B004...	B006...	05P00620-0111	\$96	URX000208	\$422	URX000044	\$120	URX000218	\$450
1	B006...	B006...	05P00620-0110	\$107	URX000257	\$420	05P00620-0111	\$96	URX000208	\$422
1.5	B006...	B010...	05P00620-0110	\$107	URX000257	\$420	05P00620-0111	\$96	URX000208	\$422
2	B010...	B010...	URX000048	\$165	URX000210	\$495	05P00652-0216	\$126	URX000220	\$535
3	B010...	B012...	URX000048	\$165	URX000210	\$495	05P00652-0216	\$126	URX000220	\$535
4	N/A	B018...	URX000052	\$129	URX000211	\$559	URX000054	\$240	URX000224	\$738
5	N/A	B018...	URX000055	\$176	URX000223	\$580	URX000056	\$235	URX000221	\$670

Table 25: 240 V, Three-Phase DC Bus Reactors

HP	Catalog Code GA50U . .		3% DC Bus Reactor				5% DC Bus Reactor			
	Normal Duty	Heavy Duty	Open Type		Enclosed UL Type 1		Open Type		Enclosed UL Type 1	
			Part Number	List Price	Part Number	List Price	Part Number	List Price	Part Number	List Price
1/6	2001...	2001...	URX000042	\$89	URX000216	\$437	URX000039	\$175	URX000215	\$435
1/4	2002...	2002...	URX000041	\$111	URX000207	\$418	URX000042	\$89	URX000216	\$437
1/2	2004...	2004...	URX000041	\$111	URX000207	\$418	URX000041	\$111	URX000207	\$418
3/4	2004...	2006...	URX000041	\$111	URX000207	\$418	URX000041	\$111	URX000207	\$418
1	2006...	2006...	05P00620-0111	\$96	URX000208	\$422	05P00620-0111	\$96	URX000208	\$422
1.5	2006...	2010...	05P00620-0111	\$96	URX000208	\$422	05P00620-0111	\$96	URX000208	\$422
2	2010...	2010...	05P00620-0110	\$107	URX000257	\$420	05P00620-0111	\$96	URX000208	\$422
3	2010...	2012...	05P00620-0110	\$107	URX000257	\$420	05P00620-0110	\$107	URX000257	\$420
4	2012...	2021...	URX000371	\$197	URX000258	\$505	05P00652-0213	\$94	URX000209	\$451
5	2021...	2021...	05P00620-0115	\$153	URX000259	\$480	05P00652-0216	\$126	URX000220	\$535
7.5	2021...	2030...	URX000053	\$222	URX000212	\$580	URX000052	\$129	URX000211	\$559
10	2030...	2042...	URX000055	\$176	URX000223	\$580	URX000055	\$176	URX000223	\$580
15	2042...	2056...	URX000059	\$148	URX000262	\$615	URX000057	\$250	URX000184	\$547
20	2056...	2070...	URX000064	\$321	URX000213	\$785	URX000064	\$321	URX000213	\$785
25	2070...	2082...	URX000068	\$309	URX000214	\$790	URX000073	\$427	URX000265	\$909
30	2082...	N/A	URX000072	\$300	URX000266	\$780	URX000073	\$427	URX000265	\$909

Table 26: 480 V, Three-Phase DC Bus Reactors

HP	Catalog Code GA50U . .		3% DC Bus Reactor				5% DC Bus Reactor			
	Normal Duty	Heavy Duty	Open Type		Enclosed UL Type 1		Open Type		Enclosed UL Type 1	
			Part Number	List Price	Part Number	List Price	Part Number	List Price	Part Number	List Price
1/2	4001...	4001...	URX000039	\$175	URX000215	\$435	URX000039	\$175	URX000215	\$435
3/4	4002...	4002...	URX000042	\$89	URX000216	\$437	URX000039	\$175	URX000215	\$435
1	4002...	4002...	URX000042	\$89	URX000216	\$437	URX000039	\$175	URX000215	\$435
1.5	4004...	4004...	05P00620-0109	\$62	URX000217	\$416	URX000042	\$89	URX000216	\$437
2	4004...	4004...	05P00620-0109	\$62	URX000217	\$416	URX000042	\$89	URX000216	\$437
3	4005...	4005...	URX000044	\$120	URX000218	\$450	URX000042	\$89	URX000216	\$437
3	4005...	4007...	05P00620-0111	\$96	URX000208	\$422	URX000044	\$120	URX000218	\$450
4	4007...	4009...	05P00620-0111	\$96	URX000208	\$422	URX000044	\$120	URX000218	\$450
5	4009...	4012...	05P00620-0111	\$96	URX000208	\$422	URX000044	\$120	URX000218	\$450
7.5	4012...	4018...	URX000046	\$161	URX000219	\$477	URX000046	\$161	URX000219	\$477
10	4018...	4018...	05P00652-0216	\$126	URX000220	\$535	URX000049	\$196	URX000260	\$605
10	4018...	4023...	URX000052	\$129	URX000211	\$559	URX000054	\$240	URX000224	\$738
15	4023...	4031...	URX000052	\$129	URX000211	\$559	URX000054	\$240	URX000224	\$738
20	4031...	4038...	URX000056	\$235	URX000221	\$670	URX000056	\$235	URX000221	\$670
25	4038...	4044...	URX000058	\$355	URX000225	\$793	URX000058	\$355	URX000225	\$793
30	4044...	4060...	URX000057	\$250	URX000184	\$547	URX000058	\$355	URX000225	\$793
40	4060...	N/A	URX000073	\$427	URX000265	\$909	URX000071	\$648	N/A	-



## Open Type DC Bus Reactor Dimensions

Figure 3:

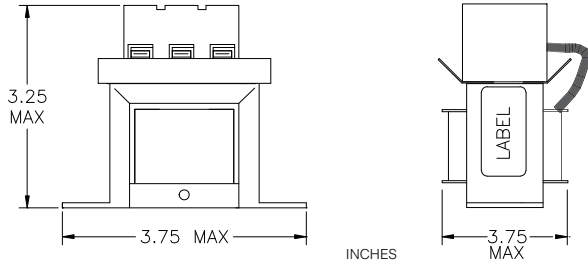


Figure 4:

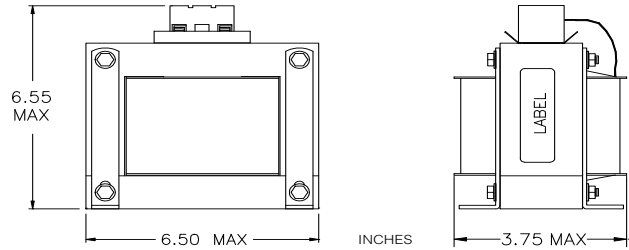


Figure 5:

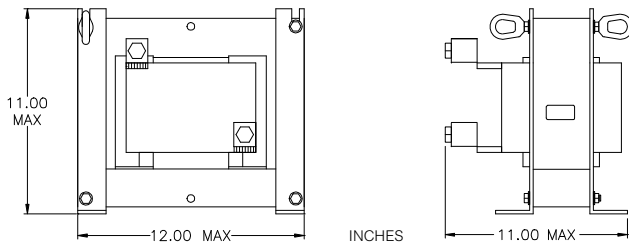
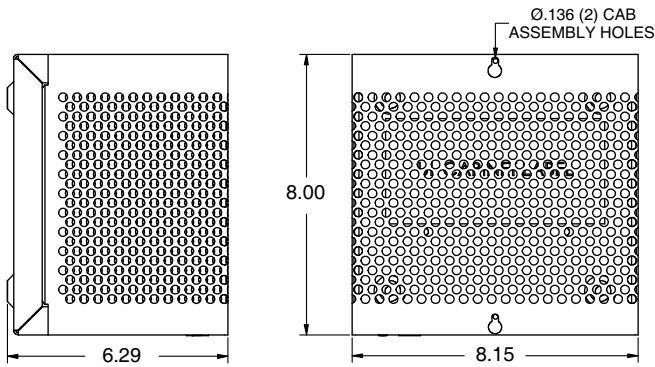


Table 27: Open Type DC Reactor Dimensions

DC Bus Reactor	Figure	DC Bus Reactor	Figure
05P00620-0109	3	URX000053	4
05P00620-0110	3	URX000054	4
05P00620-0111	4	URX000055	4
05P00620-0115	4	URX000056	4
05P00652-0213	4	URX000057	4
05P00652-0216	4	URX000058	4
URX000039	3	URX000059	4
URX000041	3	URX000064	4
URX000042	4	URX000068	5
URX000044	4	URX000071	5
URX000046	4	URX000072	5
URX000048	4	URX000073	5
URX000049	4	URX000371	4
URX000052	4		

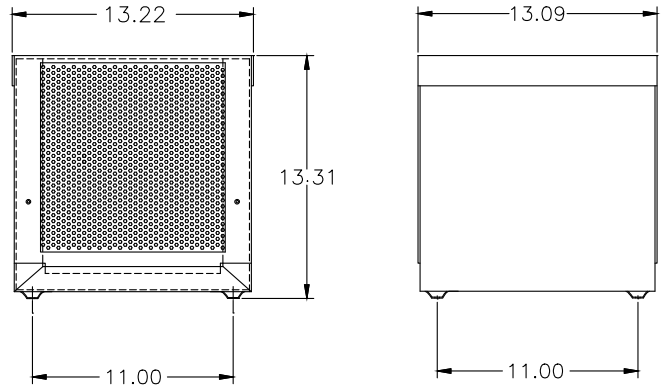
## Enclosed DC Reactor Dimensions

Figure 6: CAB-8



UNITS: INCHES

Figure 7: CAB-13V



UNITS: INCHES

Table 28: Enclosed UL Type 1 DC Reactor Dimensions

DC Bus Reactor	Figure	DC Bus Reactor	Figure
URX000184	6	URX000219	6
URX000207	6	URX000220	6
URX000208	6	URX000221	6
URX000209	6	URX000223	7
URX000210	6	URX000224	7
URX000211	6	URX000225	7
URX000212	6	URX000257	6
URX000213	7	URX000258	6
URX000214	7	URX000259	6
URX000215	6	URX000260	7
URX000216	6	URX000262	6
URX000217	6	URX000265	7
URX000218	6	URX000266	7

## AC Input Reactors



3% and 5% impedance reactors may be used on either the input or output to reduce the effects of line or load side transients on the drive. The reactors listed are available loose or in a separate UL Type 1 enclosure.

Table 29: 240 V, Single-Phase, AC Input Reactors

HP	Catalog Code GA50U . .		3% input Reactor				5% input Reactor			
	Normal Duty	Heavy Duty	Open Type		Enclosed UL Type 1		Open Type		Enclosed UL Type 1	
			Part Number	List Price	Part Number	List Price	Part Number	List Price	Part Number	List Price
1/6	B001...	B001...	URX000291	\$92	URX000651	\$255	URX000292	\$97	URX000502	\$265
1/4	B002...	B002...	URX000299	\$104	URX000410	\$286	URX000300	\$106	URX000503	\$291
1/2	B004...	B004...	URX000303	\$110	URX000411	\$298	URX000304	\$124	URX000504	\$305
3/4	B004...	B006...	URX000303	\$110	URX000411	\$298	URX000304	\$124	URX000504	\$305
1	B006...	B006...	URX000307	\$133	URX000413	\$314	URX000308	\$137	URX000414	\$316
1.5	B006...	B010...	URX000307	\$133	URX000413	\$314	URX000308	\$137	URX000414	\$316
2	B010...	B010...	URX000315	\$172	URX000418	\$436	URX000316	\$171	URX000419	\$440
3	B010...	B012...	URX000315	\$172	URX000418	\$436	URX000316	\$171	URX000419	\$440
4	N/A	B018...	URX000319	\$179	URX000420	\$476	URX000320	\$198	URX000421	\$492
5	N/A	B018...	URX000319	\$179	URX000420	\$476	URX000320	\$198	URX000421	\$492

Table 30: 240 V, Three-Phase, AC Input Reactors

HP	Catalog Code GA50U . .		3% input Reactor				5% input Reactor			
	Normal Duty	Heavy Duty	Open Type		Enclosed UL Type 1		Open Type		Enclosed UL Type 1	
			Part Number	List Price	Part Number	List Price	Part Number	List Price	Part Number	List Price
1/6	2001...	2001...	URX000283	\$83	URX000652	\$240	URX000284	\$84	URX000585	\$212
1/4	2002...	2002...	URX000291	\$92	URX000651	\$255	URX000292	\$97	URX000502	\$265
1/2	2004...	2004...	URX000295	\$105	URX000409	\$272	URX000296	\$108	URX000584	\$238
3/4	2004...	2006...	URX000295	\$105	URX000409	\$272	URX000296	\$108	URX000584	\$238
1	2006...	2006...	URX000299	\$104	URX000410	\$286	URX000300	\$106	URX000503	\$291
1.5	2006...	2010...	URX000299	\$104	URX000410	\$286	URX000300	\$106	URX000503	\$291
2	2010...	2010...	URX000303	\$110	URX000411	\$298	URX000304	\$124	URX000504	\$305
3	2010...	2012...	URX000307	\$133	URX000413	\$314	URX000308	\$137	URX000414	\$316
4	2012...	2021...	URX000307	\$133	URX000413	\$314	URX000308	\$137	URX000414	\$316
5	2021...	2021...	URX000307	\$133	URX000413	\$314	URX000308	\$137	URX000414	\$316
7.5	2021...	2030...	URX000315	\$172	URX000418	\$436	URX000316	\$171	URX000419	\$440
10	2030...	2042...	URX000319	\$179	URX000420	\$476	URX000320	\$198	URX000421	\$492
15	2042...	2056...	URX000323	\$204	URX000422	\$499	URX000324	\$202	URX000423	\$520
20	2056...	2070...	URX000329	\$285	URX000501	\$675	URX000330	\$306	URX000553	\$602
25	2070...	2082...	URX000332	\$320	URX000426	\$687	URX000333	\$395	URX000554	\$668
30	2082...	N/A	URX000335	\$315	URX000427	\$713	URX000336	\$405	URX000555	\$708

Table 31: 480 V, Three-Phase, AC Input Reactor

HP	Catalog Code GA50U . .		3% input Reactor				5% input Reactor			
	Normal Duty	Heavy Duty	Open Type		Enclosed UL Type 1		Open Type		Enclosed UL Type 1	
			Part Number	List Price	Part Number	List Price	Part Number	List Price	Part Number	List Price
1/2	4001...	4001...	URX000280	\$82	URX000653	\$237	URX000281	\$83	URX000654	\$240
3/4	4002...	4002...	URX000288	\$91	URX000551	\$219	URX000289	\$93	URX000571	\$221
1	4002...	4004...	URX000288	\$91	URX000551	\$219	URX000289	\$93	URX000571	\$221
1.5	4004...	4004...	URX000288	\$91	URX000551	\$219	URX000289	\$93	URX000571	\$221
2	4004...	4004...	URX000296	\$108	URX000584	\$238	URX000297	\$111	URX000573	\$255
3	4005...	4005...	URX000300	\$106	URX000503	\$291	URX000301	\$109	URX000552	\$267
3	4005...	4007...	URX000304	\$124	URX000504	\$305	URX000305	\$159	URX000574	\$277
4	4007...	4009...	URX000304	\$124	URX000504	\$305	URX000305	\$159	URX000574	\$277
5	4009...	4012...	URX000304	\$124	URX000504	\$305	URX000305	\$159	URX000574	\$277
7.5	4012...	4018...	URX000308	\$137	URX000414	\$316	URX000309	\$173	URX000505	\$359
10	4018...	4018...	URX000312	\$175	URX000416	\$350	URX000313	\$166	URX000417	\$396
10	4023...	4023...	URX000316	\$171	URX000419	\$440	URX000317	\$169	URX000568	\$421
15	4023...	4031...	URX000316	\$171	URX000419	\$440	URX000317	\$169	URX000568	\$421
20	4031...	4038...	URX000320	\$198	URX000421	\$492	URX000321	\$186	URX000575	\$455
25	4038...	4044...	URX000320	\$198	URX000421	\$492	URX000321	\$186	URX000575	\$455
30	4044...	4060...	URX000324	\$202	URX000423	\$520	URX000325	\$310	URX000576	\$511
40	4060...	N/A	URX000327	\$293	URX000425	\$575	URX000328	\$393	URX000577	\$551

## AC Output Reactors



Output impedance reactors may be used to reduce the effects of load side transients on the drive. The reactors listed are available loose or in a separate UL Type 1 enclosure.

Table 32: 240 V, Single-Phase, AC Output Reactors

HP	Catalog Code GA50U . .		3% Output Reactor			
	Normal Duty	Heavy Duty	Open Type		Enclosed UL Type 1	
			Catalog Code	List Price	Catalog Code	List Price
1/6	B001...	B001...	URX000080	\$155	URX000243	\$340
1/4	B002...	B002...	URX000080	\$155	URX000243	\$340
1/2	B004...	B004...	05P00620-0017	\$119	05P00620-0020	\$271
3/4	B004...	B006...	05P00620-0017	\$119	05P00620-0020	\$271
1	B006...	B006...	05P00620-0024	\$125	05P00620-0027	\$299
1.5	B006...	B010...	05P00620-0024	\$125	05P00620-0027	\$299
2	B010...	B010...	05P00620-0134	\$145	05P00620-0032	\$317
3	B010...	B012...	05P00620-0134	\$145	05P00620-0032	\$317
4	N/A	B018...	05P00620-0134	\$145	05P00620-0032	\$317
5	N/A	B018...	05P00620-0136	\$182	05P00620-0036	\$345

Table 33: 240 V, Three-Phase, AC Output Reactors

HP	Catalog Code GA50U . .		3% Output Reactor			
	Normal Duty	Heavy Duty	Open Type		Enclosed UL Type 1	
			Catalog Code	List Price	Catalog Code	List Price
1/6	2001...	2001...	URX000080	\$155	URX000243	\$340
1/4	2002...	2002...	URX000080	\$155	URX000243	\$340
1/2	2004...	2004...	05P00620-0017	\$119	05P00620-0020	\$271
3/4	2004...	2006...	05P00620-0017	\$119	05P00620-0020	\$271
1	2006...	2006...	05P00620-0024	\$125	05P00620-0027	\$299
1.5	2006...	2010...	05P00620-0024	\$125	05P00620-0027	\$299
2	2010...	2010...	05P00620-0024	\$125	05P00620-0027	\$299
3	2010...	2012...	05P00620-0134	\$145	05P00620-0032	\$317
4	2012...	2021...	05P00620-0134	\$145	05P00620-0032	\$317
5	2021...	2021...	05P00620-0136	\$182	05P00620-0036	\$345
7.5	2021...	2030...	URX000083	\$199	05P00620-0041	\$439
10	2030...	2042...	05P00620-0044	\$262	05P00620-0046	\$502
15	2042...	2056...	05P00620-0140	\$325	05P00620-0050	\$565
20	2056...	2070...	05P00620-0141	\$423	05P00620-0054	\$665
25	2070...	2082...	05P00620-0143	\$442	05P00620-0058	\$685
30	2082...	N/A	URX000085	\$540	URX000204	\$770

Table 34: 480 V, Three-Phase, AC Output Reactors

HP	Catalog Code GA50U . .		3% Output Reactor			
	Normal Duty	Heavy Duty	Open Type		Enclosed UL Type 1	
			Catalog Code	List Price	Catalog Code	List Price
1/2	4001...	4001...	URX000078	\$152	URX000242	\$290
3/4	4002...	4002...	05P00620-0131	\$123	05P00620-0015	\$296
1	4002...	4004...	05P00620-0131	\$123	05P00620-0015	\$296
1.5	4004...	4004...	05P00620-0132	\$132	05P00620-0021	\$307
2	4004...	4004...	05P00620-0132	\$132	05P00620-0021	\$307
3	4005...	4005...	05P00620-0025	\$187	05P00620-0029	\$335
3	4005...	4007...	05P00620-0133	\$160	05P00620-0028	\$333
4	4007...	4009...	05P00620-0133	\$160	05P00620-0028	\$333
5	4009...	4012...	05P00620-0133	\$160	05P00620-0028	\$333
7.5	4012...	4018...	05P00620-0135	\$204	05P00620-0033	\$310
10	4018...	4018...	05P00620-0137	\$260	05P00620-0037	\$438
10	4023...	4023...	05P00620-0138	\$242	05P00620-0042	\$482
15	4023...	4031...	05P00620-0138	\$242	05P00620-0042	\$482
20	4031...	4038...	05P00620-0139	\$304	05P00620-0047	\$545
25	4038...	4044...	05P00620-0139	\$304	05P00620-0047	\$545
30	4044...	4060...	05P00620-0049	\$415	05P00620-0051	\$662
40	4060...	N/A	05P00620-0142	\$497	05P00620-0055	\$735



## AC Open Reactor Dimensions & Weights

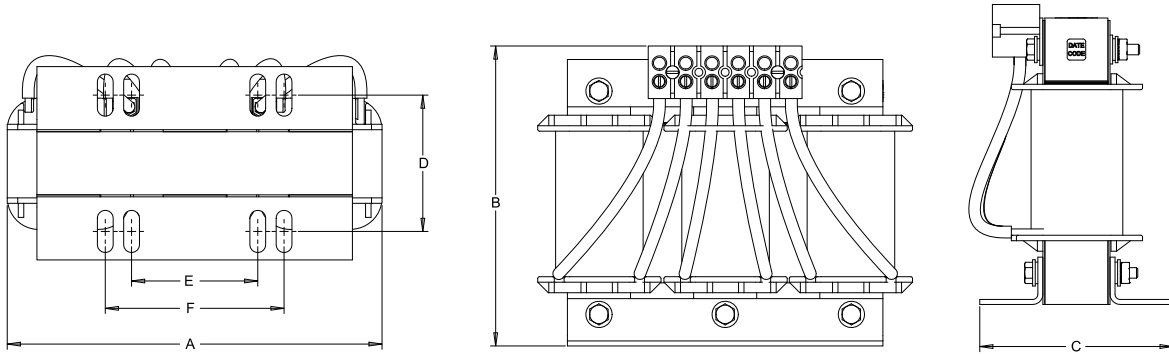


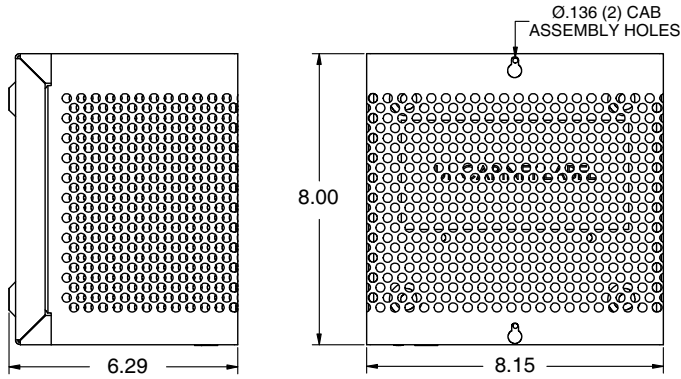
Table 35: AC Open Reactor Dimensions

Open Type Reactor Catalog Code	Watt Loss	Dimensions (mm/in)						Weight
		A	B	C	D	E	F	kg/lb
05P00620-0017	14.5	106.7/4.2	101.6/4	66/2.6	50/2	37/1.4	65/2.6	1.8/4
05P00620-0024	19.5	149.9/5.9	116.8/4.6	73.7/2.9	53/2.1	51/2	76.2/3	3.2/7
05P00620-0025	25.3	149.9/5.9	119.4/4.7	83.8/3.3	67/2.6	51/2	76.2/3	43596
05P00620-0044	49	180.3/7.1	144.8/5.7	94/3.7	66/2.6	76/3	76.2/3	6.4/14
05P00620-0049	62	226.1/8.9	182.9/7.2	116.8/4.6	80/3.2	76/3	108/4.3	11.8/26
05P00620-0131	7.5	106.7/4.2	101.6/4	66/2.6	50/2	37/1.4	65/2.6	1.8/4
05P00620-0132	20	106.7/4.2	101.6/4	66/2.6	50/2	37/1.4	65/2.6	1.8/4
05P00620-0133	29	149.9/5.9	116.8/4.6	73.7/2.9	53/2.1	51/2	76.2/3	3.6/8
05P00620-0134	26	149.9/5.9	127/5	81.3/3.2	53/2.1	51/2	76.2/3	4.1/9
05P00620-0135	31	149.9/5.9	127/5	81.3/3.2	53/2.1	51/2	76.2/3	4.5/10
05P00620-0136	36	149.9/5.9	129.5/5.1	81.3/3.2	54/2.1	51/2	76.2/3	4.1/9
05P00620-0137	43	149.9/5.9	129.5/5.1	88.9/3.5	63/2.5	51/2	76.2/3	5.4/12
05P00620-0138	52	180.3/7.1	147.3/5.8	86.7/3.4	60/2.4	76/3	76.2/3	6.4/14
05P00620-0139	54	180.3/7.1	147.3/5.8	94/3.7	70/2.8	76/3	76.2/3	7.3/16
05P00620-0140	54	226.1/8.9	180.3/7.1	116.8/4.6	80/3.2	76/3	108/4.3	22 (10)
05P00620-0141	64	228.6/9	175.3/6.9	134.6/5.3	80/3.2	76/3	108/4.3	10.9/24
05P00620-0142	67	228.6/9	175.3/6.9	134.6/5.3	80/3.2	76/3	108/4.3	11.8/26
05P00620-0143	82	226.1/8.9	175.3/6.9	144.8/5.7	88/3.5	92/3.63	108/4.3	11.3/25
URX000078	8	111.8/4.4	104.1/4.1	71.1/2.8	50/2	37/1.4	65/2.6	1.4/3
URX000080	10.7	106.7/4.2	101.6/4	66/2.6	44/1.7	37/1.4	65/2.6	1.4/3
URX000083	48	180.3/7.1	144.8/5.7	86.7/3.4	60/2.4	76/3	76.2/3	43596
URX000085	94	226.1/8.9	177.8/7	152.4/6	88/3.5	92/3.62	108/4.3	13.2/29
URX000280	6.6	114.3/4.5	94/3.7	38.1/1.5	N/A	N/A	101.6/4	0.9/2
URX000281	8.8	114.3/4.5	94/3.7	38.1/1.5	N/A	N/A	101.6/4	0.9/2
URX000283	4.8	114.3/4.5	94/3.7	38.1/1.5	N/A	N/A	101.6/4	0.9/2
URX000284	7.8	114.3/4.5	94/3.7	38.1/1.5	N/A	N/A	101.6/4	0.9/2
URX000288	10.9	114.3/4.5	94/3.7	38.1/1.5	N/A	N/A	101.6/4	0.9/2
URX000289	15	114.3/4.5	94/3.7	38.1/1.5	N/A	N/A	101.6/4	0.9/2

Open Type Reactor Catalog Code	Watt Loss	Dimensions (mm/in)						Weight
		A	B	C	D	E	F	kg/lb
URX000291	9	114.3/4.5	94/3.7	38.1/1.5	N/A	N/A	101.6/4	0.9/2
URX000292	14.3	114.3/4.5	94/3.7	38.1/1.5	N/A	N/A	101.6/4	0.9/2
URX000295	12.3	114.3/4.5	94/3.7	38.1/1.5	N/A	N/A	101.6/4	0.9/2
URX000296	19.6	114.3/4.5	94/3.7	38.1/1.5	N/A	N/A	101.6/4	0.9/2
URX000297	26.5	106.7/4.2	101.6/4	66/2.6	48.3/1.9	35.6/1.4	66/2.6	1.4/3
URX000299	13.8	114.3/4.5	94/3.7	38.1/1.5	N/A	N/A	101.6/4	0.9/2
URX000300	23	114.3/4.5	94/3.7	38.1/1.5	N/A	N/A	101.6/4	0.9/2
URX000301	37.5	106.7/4.2	101.6/4	66/2.6	48.3/1.9	35.6/1.4	66/2.6	1.4/3
URX000303	19.2	114.3/4.5	94/3.7	38.1/1.5	N/A	N/A	101.6/4	0.9/2
URX000304	37.2	106.7/4.2	101.6/4	66/2.6	48.3/1.9	35.6/1.4	66/2.6	1.4/3
URX000305	47.8	106.7/4.2	101.6/4	76.2/3	58.4/2.3	35.6/1.4	66/2.6	1.8/4
URX000307	26.8	106.7/4.2	104.1/4.1	66/2.6	48.3/1.9	35.6/1.4	66/2.6	1.4/3
URX000308	40.9	106.7/4.2	104.1/4.1	66/2.6	48.3/1.9	35.6/1.4	66/2.6	1.8/4
URX000309	54.4	106.7/4.2	104.1/4.1	83.8/3.3	63.5/2.5	35.6/1.4	66/2.6	2.3/5
URX000311	32.7	106.7/4.2	104.1/4.1	66/2.6	48.3/1.9	35.6/1.4	66/2.6	1.4/3
URX000312	48.2	106.7/4.2	104.1/4.1	76.2/3	58.4/2.3	35.6/1.4	66/2.6	1.8/4
URX000313	60.6	149.9/5.9	119.4/4.7	73.7/2.9	53.3/2.1	50.8/2	76.2/3	3.2/7
URX000315	38.3	106.7/4.2	132.1/5.2	76.2/3	58.4/2.3	35.6/1.4	66/2.6	1.8/4
URX000316	57.4	149.9/5.9	152.4/6	73.7/2.9	53.3/2.1	50.8/2	76.2/3	3.2/7
URX000317	73.5	149.9/5.9	152.4/6	83.8/3.3	63.5/2.5	50.8/2	76.2/3	4.5/10
URX000319	48.2	106.7/4.2	55.9/2.2	83.8/3.3	63.5/2.5	35.6/1.4	66/2.6	2.3/5
URX000320	66.8	149.9/5.9	152.4/6	83.8/3.3	63.5/2.5	50.8/2	76.2/3	4.5/10
URX000321	93.8	149.9/5.9	152.4/6	83.8/3.3	63.5/2.5	50.8/2	76.2/3	4.5/10
URX000323	69	149.9/5.9	152.4/6	88.9/3.5	71.1/2.8	50.8/2	76.2/3	4.5/10
URX000324	103	180.3/7.1	147.3/5.8	94/3.7	68.6/2.7	N/A	76.2/3	5.9/13
URX000325	122	180.3/7.1	147.3/5.8	106.7/4.2	81.3/3.2	N/A	76.2/3	8.2/18
URX000327	100	180.3/7.1	144.8/5.7	106.7/4.2	81.3/3.2	N/A	76.2/3	7.7/17
URX000328	179	226.1/8.9	210.8/8.3	116.8/4.6	81.3/3.2	76.2/3	109.2/4.3	10.9/24
URX000329	68	180.3/7.1	139.7/5.5	124.5/4.9	81.3/3.2	N/A	76.2/3	8.2/18
URX000330	110	180.3/7.1	142.2/5.6	142.2/5.6	81.3/3.2	N/A	76.2/3	9.1/20
URX000332	87	180.3/7.1	142.2/5.6	127/5	81.3/3.2	N/A	76.2/3	8.2/18
URX000333	105	180.3/7.1	144.8/5.7	152.4/6	81.3/3.2	N/A	76.2/3	18 (8.2)
URX000335	119	180.3/7.1	142.2/5.6	149.9/5.9	81.3/3.2	N/A	76.2/3	8.6/19
URX000336	155	226.1/8.9	180.3/7.1	147.3/5.8	81.3/3.2	76.2/3	109.2/4.3	11.8/26

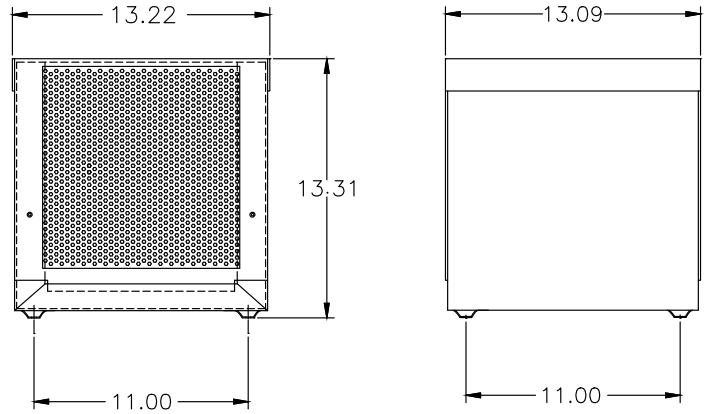
## Enclosed AC Reactor Dimensions

Figure 8: CAB-8



UNITS: INCHES

Figure 9: CAB-13V



UNITS: INCHES

Table 36: Enclosed, Input/Output AC Reactor Specifications

Enclosed UL Type 1 Reactor Catalog Code	Cabinet Reference (Figure)	Weight kg/lb	
05P00620-0015	9	12.7 / 28	
05P00620-0020		12.9 / 28.4	
05P00620-0021		16.3 / 36	
05P00620-0027		19.1 / 42	
05P00620-0028		17.2 / 38	
05P00620-0029		18.1 / 40	
05P00620-0032		20 / 44	
05P00620-0033		24.9 / 55	
05P00620-0036		8	3.9 / 8.5
05P00620-0037			3.9 / 8.6
05P00620-0041	3.9 / 8.5		
05P00620-0042	3.9 / 8.6		
05P00620-0046	3.9 / 8.6		
05P00620-0047	3.9 / 8.5		
05P00620-0050	3.9 / 8.6		
05P00620-0051	4.4 / 9.7		
05P00620-0054	4.4 / 9.8		
05P00620-0055	5 / 11.1		
05P00620-0058	3.9 / 8.5		
URX000204	3.9 / 8.5		
URX000242	4.6 / 10		
URX000243	5 / 10		
URX000409	3.9 / 8.6		
URX000410	3.9 / 8.7		
URX000411	4 / 8.8		
URX000413	4.4 / 9.7		
URX000414	5.1 / 11.2		
URX000415	4.4 / 9.8		
URX000416	5.1 / 11.3		
URX000417	6.4 / 14.1		
URX000418	9	10.1 / 22.2	
URX000419		11.4 / 25.2	
URX000420		10.5 / 23.1	
URX000421		12.5 / 27.5	
URX000422		12.7 / 28	
URX000423		14.1 / 31	
URX000425		15.9 / 35	
URX000426		16.3 / 36	
URX000427		16.8 / 37	
URX000501		16.3 / 36	

Enclosed UL Type 1 Reactor Catalog Code	Cabinet Reference (Figure)	Weight kg/lb
URX000502	8	3.9 / 8.6
URX000503		4 / 8.8
URX000504		4.4 / 9.8
URX000505		5.6 / 12.3
URX000551		3.9 / 8.6
URX000552		4.4 / 9.8
URX000553	9	17.2 / 38
URX000554		18.1 / 40
URX000555		20 / 44
URX000568		12.7 / 28
URX000571	8	3.9 / 8.6
URX000573		4.4 / 9.7
URX000574		5 / 11.1
URX000575	9	12.9 / 28.4
URX000576		16.3 / 36
URX000577		19.1 / 42
URX000584	8	3.9 / 8.6
URX000585		3.9 / 8.6
URX000651		3.9 / 8.5
URX000652		3.9 / 8.5
URX000653		3.9 / 8.5
URX000654		3.9 / 8.5
		3.9 / 8.5

## Dynamic Braking Options



Additional Information	
<a href="#">Braking Resistor Specifications</a>	<a href="#">Braking Resistor Drawings</a>
<a href="#">Braking Connection Diagrams</a>	

## 10% Dynamic Braking Options

Dynamic Braking Resistor, 10% Duty Cycle - are rated for 10% duty cycle over a 100 second interval. The resistors will achieve a minimum 150% peak braking torque for heavy duty horsepower ratings and a minimum of 100% peak braking power for normal duty horsepower ratings. These resistors are designed for separate panel mounting.

Table 37: 240 V, Single-Phase, 10% Dynamic Braking Options

Normal Duty HP	Heavy Duty HP	Catalog Code GA50U . .	10% Dynamic Braking Option (max 10 second on-time)		
			Resistor		
			Catalog Code	Quantity	List Price (each)
1/6	1/6	B001...	USR000032	1	\$344
1/4	1/4	B002...	USR000033	1	\$287
3/4	1/2	B004...	USR000022	1	\$222
1.5	1	B006...	USR000035	1	\$287
3	2	B010...	USR000024	1	\$222
3	3	B012...	USR000024	1	\$222
N/A	5	B018...	USR000025	1	\$369

Table 38: 240 V, Three-Phase, 10% Dynamic Braking Options

Normal Duty HP	Heavy Duty HP	Catalog Code GA50U . .	10% Dynamic Braking Option (max 10 second on-time)		
			Resistor		
			Catalog Code	Quantity	List Price (each)
1/6	1/6	2001...	USR000032	1	\$344
1/4	1/4	2002...	USR000033	1	\$287
3/4	1/2	2004...	USR000022	1	\$222
1.5	1	2006...	USR000035	1	\$287
3	2	2010...	USR000024	1	\$222
4	3	2012...	USR000024	1	\$222
7.5	5	2021...	USR000025	1	\$369
10	7.5	2030...	URS000148	1	\$452
15	10	2042...	URS000140	1	\$554
20	15	2056...	URS000136	1	\$824
25	20	2070...	URS000136	1	\$824
30	25	2082...	URS000136	1	\$824

Table 39: 480 V, Three-Phase, 10% Dynamic Braking Options

Normal Duty HP	Heavy Duty HP	Catalog Code GA50U . .	10% Dynamic Braking Option (max 10 second on-time)		
			Resistor		
			Catalog Code	Quantity	List Price (each)
1/2	1/2	4001...	USR000032	1	\$344
1	3/4	4002...	USR000032	1	\$344
2	2	4004...	USR000032	1	\$344
3	3	4005...	USR000034	1	\$287
4	3	4007...	USR000034	1	\$287
5	4	4009...	USR000035	1	\$287
7.5	5	4012...	USR000036	1	\$402
10	10	4018...	USR000038	1	\$538
15	10	4023...	USR000038	1	\$538
20	15	4031...	USR000039	1	\$657
25	20	4038...	URS000154	1	\$824
30	25	4044...	URS000154	1	\$824
40	30	4060...	USR000066	1	\$985

Dimension Drawings

DD.GCE.01

Figure 10: GCE Type Enclosure  
**FRONT VIEW**

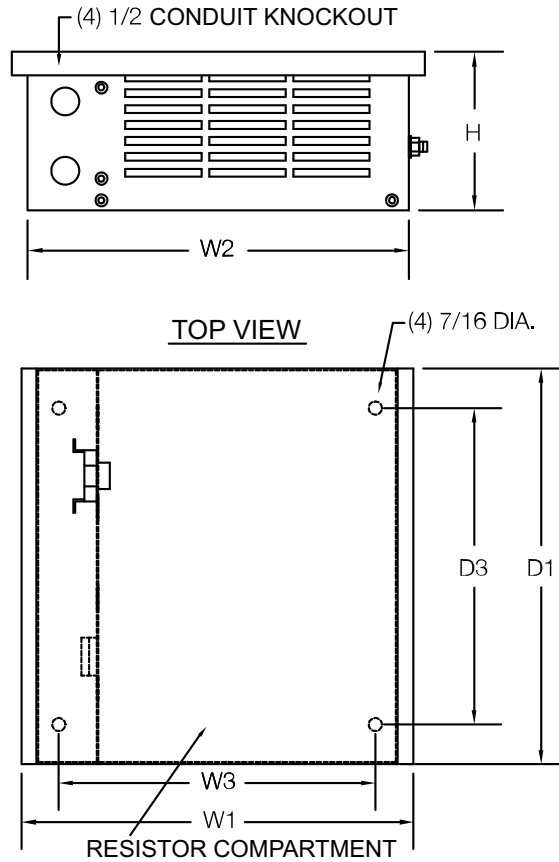


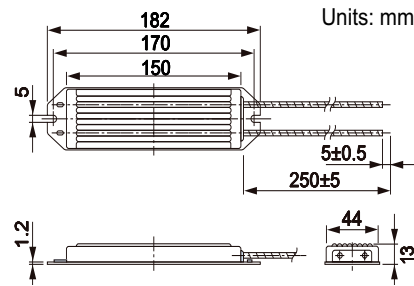
Table 40: GCE Type Enclosure Dimensions (Figure. 15)

Model	Dimensions (in)						
	W1	W2	W3	D1	D2	D3	H
GCE1	12.5	12	10.5	5.13	5	-	5
GCE2	12.5	12	10.5	7.13	7	4.5	5
GCE3	12.5	12	10.5	10.13	10	7.5	5
GCE4	12.5	12	10.5	13.13	13	10.5	5
GCE5	12.5	12	10.5	16.13	16	13.5	5
GCE6	19.5	19	17.5	10.13	10	7.5	5
GCE8	19.5	19	17.5	13.13	13	10.5	5
GCE9	27	26.5	25	10.125	10	7.5	5



## 3% Dynamic Braking Options

3% Duty cycle resistors are rated for a 3% duty cycle at 100 second intervals.



**ERF-150WJ series**  
 Weight: 0.2 kg  
 (All ERF-150WJ series models)

Table 41: 240 V, Single-Phase, 3% Dynamic Braking Options

Normal Duty HP	Heavy Duty HP	Catalog Code GA50U . .	Resistor <sup>1</sup>		
			Catalog Code	Quantity	List Price (each)
1/6	1/6	B001...	R7508	1	\$122
1/4	1/4	B002...	R7507	1	\$119
3/4	1/2	B004...	R7506	1	\$122
1.5	1	B006...	R7505	1	\$122
3	2	B010...	R7504	1	\$149
3	3	B012...	R7510	1	\$122
N/A	5	B018...	R7510	2	\$122

1. These resistors offer approximately 100% peak braking power.

Table 42: 240 V, Three-Phase, 3% Dynamic Braking Options

Normal Duty HP	Heavy Duty HP	Catalog Code GA50U . .	Resistor <sup>1</sup>		
			Catalog Code	Quantity	List Price (each)
1/6	1/6	2001...	R7508	1	\$122
1/4	1/4	2002...	R7507	1	\$119
3/4	1/2	2004...	R7506	1	\$122
1.5	1	2006...	R7505	1	\$122
2	1.5	2010...	R7504	1	\$149
3	2	2010...	R7504	1	\$149
4	3	2012...	R7510	1	\$122
5	4	2021...	R7510	2	\$122
7.5	5	2021...	R7510	2	\$122

1. These resistors offer approximately 100% peak braking power.

Table 43: 480 V, Three-Phase, 3% Dynamic Braking Options

Normal Duty HP	Heavy Duty HP	Catalog Code GA50U . .	Resistor <sup>1</sup>		
			Catalog Code	Quantity	List Price (each)
1/2	1/2	4001	R7508	1	\$122
1	3/4	4002	R7508	1	\$122
2	2	4004	R7507	1	\$119
3	3	4005	R7505	1	\$122
4	3	4007	R7505	1	\$122
5	4	4009	R7505	1	\$122
7.5	5	4012	R7504	1	\$149

1. These resistors offer approximately 100% peak braking power.

## R1000 Regenerative Systems



- Compatible with all conventional drives having full power access to DC bus
- Rated for 100% power, 25% duty cycle (60 seconds maximum on time), or 80% continuous
- 0.9 Power Factor at full load
- Overload capability of 150% for 30 seconds
- Overcurrent and Overheat Protection

Additional Information		
<a href="#">R1000 Online Resources</a>	<a href="#">Flyer</a>	<a href="#">Manual</a>

### Each R1000 regenerative unit requires the following:

- **R1000:** The R1000 regenerative module is used to divert energy generated by the motor back onto the line for use by other loads. The energy is directed back onto the line by taking DC voltage from the drive running the motor and converting it into a three phase AC voltage waveform.
- **Power Coordination Reactor:** The power coordination reactor provides impedance to limit peak current. The power coordination reactor represents minimum impedance required to limit current to levels acceptable to the R1000.
- **Fuses and Fuse Holder:** Recommended fusing and their corresponding holder(s) is provided for device protection and UL certification.
- **Current Suppression Reactor:** The current suppression reactor provides impedance to protect the connected drive's input section from peak current that may result from the R1000 IGBT switching section. The current suppression reactor provides isolation from the dv/dt of the R1000 switching section.

### Typical Applications

Stopping
Elevators and Lifts
Centrifuges
Saws
Large Fans
Machine Tool Spindles

Cyclic Loading
Presses
Dryers
Vibratory Equipment

Continuous Regeneration
Winders
Downhill Conveyors
Dynamometers

Note: The R1000 is not suitable to use with single-phase products.

Table 44: 240 V, Three-Phase, R1000 Regenerative Systems

Motor Power HP	Catalog Code GA50U . .		R1000 Catalog Code CIMR-RU... <sup>12</sup>	Current Suppression Reactor Catalog Code	Power Coordination Reactor Catalog Code	Fuses (Quantity: 3) Catalog Code	Fuse Holder		Total List Price
	Normal Duty	Heavy Duty					Catalog Code	Quantity	
5	--	2021	2A03P5FAA	05P00620-0134	05P00620-0136	FU-002031	FU-002055	1	\$1,744
7.5	2021	2030	2A0005FAA	URX000083	05P00620-0138	FU-002031	FU-002055	1	\$1,958
10	2030	2042	2A0007FAA	URX000083	05P00620-0044	FU-002032	FU-002055	1	\$2,150
15	2042	2056	2A0010FAA	05P00620-0044	05P00620-0140	UFU000153	FU-002082	3	\$2,644
20	2056	2070	2A0014FAA	05P00620-0141	05P00620-0141	UFU000479	FU-002082	3	\$3,154
25	2070	2082	2A0017FAA	05P00620-0143	05P00620-0143	UFU000154	FU-002083	3	\$4,186
30	2082	--	2A0020FAA	URX000085	05P00620-0143	UFU000155	FU-002083	3	\$4,645

1. IP20/UL Type 1 enclosure is standard for CIMR-RU2A03P5FAA through CIMR-RU2A0020FAA
2. IP00/Open Chassis are standard for CIMR-RU2A0053AAA through CIMR-RU2A0105AAA

Table 45: 480 V, Three-Phase, R1000 Regenerative Systems

Motor Power HP	Catalog Code GA50U . .		R1000 Catalog Code CIMR-RU... <sup>12</sup>	Current Suppression Reactor Catalog Code	Power Coordination Reactor Catalog Code	Fuses (Quantity: 3) Catalog Code	Fuse Holder		Total List Price
	Normal Duty	Heavy Duty					Catalog Code	Quantity	
5	4009	4012	4A03P5FAA	05P00620-0025	05P00620-0133	FU-002030	FU-002055	1	\$1,927
7.5	4012	4018	4A0005FAA	05P00620-0133	05P00620-0135	FU-002030	FU-002055	1	\$2,258
10	4018	4023	4A0007FAA	05P00620-0135	05P00620-0137	FU-002030	FU-002055	1	\$2,501
15	4023	4031	4A0010FAA	05P00620-0137	05P00620-0138	FU-002032	FU-002055	1	\$2,678
20	4031	4038	4A0014FAA	URX000083	05P00620-0139	FU-002032	FU-002055	1	\$2,965
25	4038	4044	4A0017FAA	05P00620-0044	05P00620-0139	FU-000783	FU-002082	3	\$3,914
30	4044	4060	4A0020FAA	05P00620-0049	05P00620-0049	FU-000783	FU-002082	3	\$4,587
40	4060	--	4A0028FAA	05P00620-0142	05P00620-0142	UFU000480	FU-002082	3	\$5,156

1. IP20/UL Type 1 enclosure is standard for CIMR-RU4A03P5FAA through CIMR-RU4A0028FAA
2. IP00/Open Chassis are standard for CIMR-RU2A0053AAA through CIMR-RU2A0105AAA

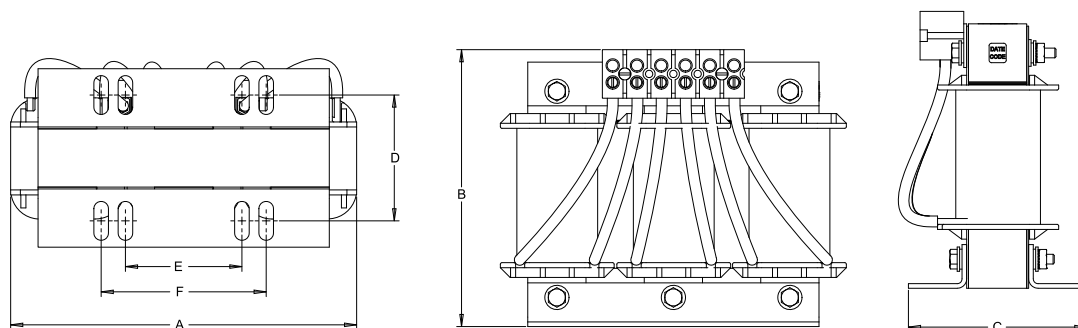


Table 46: R1000 Reactor Dimensions (Open Type)

Reactor Catalog Code	Current Rating (A)	Inductance (mH)	Watt Loss	Dimensions					Weight kg/lb
				A	B	C	D	E	
				mm/in	mm/in	mm/in	mm/in	mm/in	
05P00620-0025	8	5	25.3	152/6.0	122/4.8	86/3.4	67/2.62	51/2.00	5.0/11
05P00620-0044	35	0.4	49	183/7.2	147/5.8	102/4.0	66/2.60	76/3.00	6.4/14
05P00620-0049	45	0.7	62	229/9.0	188/7.4	119/4.7	80/3.16	76/3.00	13/28
05P00620-0133	8	3	29	152/6.0	122/4.8	76/3.0	53/2.10	51/2.00	3.6/8
05P00620-0134	12	1.25	26	152/6.0	127/5.0	84/3.3	53/2.10	51/2.00	4.1/9
05P00620-0135	12	2.5	31	152/6.0	127/5.0	84/3.3	53/2.10	51/2.00	4.5/10
05P00620-0136	18	0.8	36	152/6.0	135/5.3	81/3.2	54/2.10	51/2.00	4.1/9
05P00620-0137	18	1.5	43	152/6.0	135/5.3	89/3.5	63/2.48	51/2.00	5.5/12
05P00620-0138	25	1.2	52	183/7.2	147/5.8	89/3.5	60/2.35	76/3.00	6.4/14
05P00620-0139	35	0.8	54	183/7.2	147/5.8	102/4.0	70/2.75	76/3.00	7.3/16
05P00620-0140	45	0.3	54	229/9.0	188/7.4	119/4.7	80/3.16	76/3.00	10/23
05P00620-0141	55	0.25	64	229/9.0	185/7.3	135/5.3	80/3.16	76/3.00	11/24
05P00620-0142	55	0.5	67	229/9.0	178/7.0	135/5.3	80/3.16	76/3.00	12/27
05P00620-0143	80	0.2	82	229/9	183/7.2	160/6.3	88/3.47	92/3.63	20/43
URX000083	25	0.5	48	183/7.2	147/5.8	89/3.5	60/2.35	76/3.00	5.0/11
URX000085	100	0.15	94	229/9	185/7.3	165/6.5	88/3.46	92/3.62	21/47

## R1000 External Heatsink Kits

Allows drives to be mounted with the drive's heatsink external (UL Type 1) to the enclosure. Larger standard drives include brackets.

Table 47: R1000 External Heatsink Kits for UL Type 1

240 Volt CIMR-RU . .	480 Volt CIMR-RU . .	Catalog Code	List Price
2A03P5FAA	4A03P5FAA	EZZ020800B	\$175
2A0005FAA	4A0005FAA		
2A0007FAA	4A0007FAA		
2A0010FAA	4A0010FAA	EZZ020800C	
2A0014FAA	4A0014FAA		
2A0017FAA	4A0017FAA	EZZ020800D	
2A0020FAA	4A0020FAA		
-	4A0028FAA		

## R1000 Components Breakdown

The following tables provide prices for the individual components listed in the R1000 Regenerative System tables above.

Table 48: 240 V, R1000 Components

R1000 Model Number*1*2	Individual List Price
CIMR-RU2A03P5FAA	\$1,322
CIMR-RU2A0005FAA	\$1,422
CIMR-RU2A0007FAA	\$1,644
CIMR-RU2A0010FAA	\$1,862
CIMR-RU2A0014FAA	\$2,113
CIMR-RU2A0017FAA	\$3,062
CIMR-RU2A0020FAA	\$3,423

Reactor Model Number	Individual List Price
05P00620-0013	\$805
05P00620-0044	\$262
05P00620-0064	\$583
05P00620-0070	\$985
05P00620-0134	\$145
05P00620-0136	\$182
05P00620-0138	\$242
05P00620-0140	\$325
05P00620-0141	\$423
05P00620-0143	\$442
05P00620-0146	\$2,050
URX000083	\$199
URX000085	\$540
URX000086	\$1,285
URX000175	\$827
URX000178	\$1,740
URX000181	\$1,645

Fuse Model Number	Individual List Price	Quantity
FU-002031	\$25	3
FU-002032	\$25	3
UFU000153	\$45	3
UFU000154	\$45	3
UFU000155	\$45	3
UFU000156	\$45	3
UFU000375	\$360	3
UFU000376	\$440	3
UFU000479	\$45	3
UFU000494	\$45	3

Fuse Holder	Individual List Price	Quantity
FU-002055	\$20	1
FU-002082	\$20	3
FU-002083	\$35	3
UFU000122	\$150	3
UFU000378	\$150	3

Table 49: 480 V, R1000 Components

R1000 Model Number*1*2	Individual List Price
CIMR-RU4A03P5FAA	\$1,485
CIMR-RU4A0005FAA	\$1,799
CIMR-RU4A0007FAA	\$1,942
CIMR-RU4A0010FAA	\$2,081
CIMR-RU4A0014FAA	\$2,367
CIMR-RU4A0017FAA	\$3,153
CIMR-RU4A0020FAA	\$3,562
CIMR-RU4A0028FAA	\$3,967

Reactor Model Number	Individual List Price
05P00620-0025	\$187
05P00620-0044	\$262
05P00620-0049	\$415
05P00620-0064	\$583
05P00620-0070	\$985
05P00620-0075	\$1,400
05P00620-0094	\$2,485
05P00620-0133	\$160
05P00620-0135	\$204
05P00620-0137	\$260
05P00620-0138	\$242
05P00620-0139	\$304
05P00620-0142	\$497
05P00620-0143	\$442
05P00620-0144	\$707
05P00620-0145	\$715
05P00620-0146	\$2,050
URX000083	\$199
URX000085	\$540
URX000088	\$1,595
URX000175	\$827
URX000176	\$1,370
URX000181	\$1,645
URX000182	\$2,275

Fuse Model Number	Individual List Price	Quantity
FU-000783	\$45	3
FU-000806	\$45	3
FU-000807	\$45	3
FU-000809	\$45	3
FU-002030	\$25	3
FU-002032	\$25	3
UFU000374	\$215	3
UFU000375	\$360	3
UFU000376	\$440	3
UFU000377	\$650	3
UFU000480	\$45	3

Fuse Holder	Individual List Price	Quantity
FU-002055	\$20	1
FU-002082	\$20	3
FU-002083	\$35	3
UFU000122	\$150	3
UFU000378	\$150	3

## Single-Phase Converter



Yaskawa's industry leading Single Phase Converter (SPC) cleanly converts single-phase AC power to DC power for Yaskawa variable frequency drives. The SPC combines Yaskawa reliability and drive technology with motor control solutions for businesses in remote areas. The SPC eliminates the need to oversize variable frequency drives for single-phase applications while reducing distortion to less than 10% iTHD. With lower input harmonics and near unity power factor, the SPC also eliminates the need to significantly oversize transformers in single-phase applications, reducing overall installation costs. The Single Phase Converter addresses these common issues with AC motors powered from single-phase input:

- Limited single-phase motor options.
- Inefficient use of power due to choppy current harmonics.
- Increased maintenance of rotating parts and tuned circuits.

Item	Specification
Power Range	230 VAC: 20 - 60 HP
	460 VAC: 30 - 125 HP
Input Voltage Tolerance	230-240 VAC, Single-Phase
	460-480 VAC, Single-Phase
	Tolerance -5/+10 % <sup>1</sup>
Power Factor	0.99
Ambient Operating Temperature	-10 to 50 °C (14 to 122 °F) Open Chassis
Global Certifications	UL, RoHS
User Interface	4 LED indicators: Power, Ready, Run, Fault

1. -10 % Minimum input voltage for 60 seconds at rated power.

Additional Information	
<a href="#">Single Phase Converter Specifications</a>	<a href="#">Manual</a>
	<a href="#">Drawings</a>



Table 50: 240 V, Single-Phase Converters - 20 to 125 HP

System Kit Number	System Capacity			Component Name	Component Catalog Code	Component List Price	Kit List Price
	Maximum Total Motor Load HP (kW)	Maximum Continuous					
		Input Current (Amps)	Output DC Current (Amps)				
SPBC-240-20HP	20 (15)	79	57	Single Phase Converter	SPBC-2015AAA	\$3,275	\$3,995
				DC Link Choke	URX000530	\$720	
SPBC-240-30HP	30 (22)	116	84	Single Phase Converter	SPBC-2022AAA	\$3,660	\$4,450
				DC Link Choke	URX000531	\$790	
SPBC-240-40HP	40 (30)	154	112	Single Phase Converter	SPBC-2030AAA	\$4,445	\$5,295
				DC Link Choke	URX000532	\$850	
SPBC-240-50HP	50 (37)	191	139	Single Phase Converter	SPBC-2037AAA	\$6,350	\$7,250
				DC Link Choke	URX000520	\$900	
SPBC-240-60HP	60 (45)	228	166	Single Phase Converter	SPBC-2045AAA	\$7,500	\$8,450
				DC Link Choke	URX000521	\$950	

Table 51: 480 V, Single-Phase Converters - 30 to 125 HP

System Kit Number	System Capacity			Component Name	Component Catalog Code	Component List Price	Kit List Price
	Maximum Total Motor Load HP (kW)	Maximum Continuous					
		Input Current (Amps)	Output DC Current (Amps)				
SPBC-480-30HP	30 (22)	58	42	Single Phase Converter	SPBC-4022AAA	\$4,135	\$4,995
				DC Link Choke	URX000534	\$860	
SPBC-480-40HP	40 (30)	77	56	Single Phase Converter	SPBC-4030AAA	\$4,380	\$5,300
				DC Link Choke	URX000535	\$920	
SPBC-480-50HP	50 (37)	96	69	Single Phase Converter	SPBC-4037AAA	\$4,805	\$5,750
				DC Link Choke	URX000536	\$945	
SPBC-480-60HP	60 (45)	114	83	Single Phase Converter	SPBC-4045AAA	\$5,250	\$6,250
				DC Link Choke	URX000537	\$1,000	
SPBC-480-75HP	75 (56)	142	103	Single Phase Converter	SPBC-4056AAA	\$6,325	\$7,400
				DC Link Choke	URX000527	\$1,075	
SPBC-480-125HP	125 (93)	234	170	Single Phase Converter	SPBC-4093AAA	\$8,250	\$9,600
				DC Link Choke	URX000529	\$1,350	

## Terms and Conditions

### YASKAWA AMERICA, INC. ("YAI"), DRIVES & MOTION TERMS AND CONDITIONS

#### 1. GENERAL:

(a) All sales of products or services by Yaskawa America, Inc., Drives & Motion Division (hereinafter "D&M"), is governed exclusively by these Terms and Conditions of Sale ("Terms"), which supersede all inconsistent or additional terms on Buyer's purchase order or any other document. These Terms constitute the final, complete and exclusive agreement between the parties as to the subject matter hereof. These Terms may be amended only in writing signed by an authorized representative of D&M.

(b) Orders must be submitted in the form of a written purchase order or letter from Buyer, setting forth all information necessary for D&M to fill the Order, if accepted. All proposals, quotations or similar communications from D&M are considered invitations to submit an Order. A binding sales contract will result only when D&M accepts Buyer's Order, at D&M's office in Waukegan, Illinois or such other place as designated by D&M.

#### 2. PRICES:

(a) D&M's quoted prices are firm for thirty (30) days from the date of D&M's written proposal. Thereafter, the applicable prices are those in effect at the time Buyer's Order is placed with D&M. D&M will notify Buyer of any price changes for incorporation into a revised Order prior to acceptance by D&M. Pricing based on volume discounts is subject to adjustment by D&M if actual shipping volumes do not meet minimum volume requirements of agreement. Clerical errors in any element of a proposal, purchase order, invoice or contract are subject to correction by D&M.

#### 3. TERMS OF PAYMENT:

(a) All payments are due within thirty (30) days from date of D&M's invoice. Payment shall be made at the agreed time, to the place specified, and in the currency indicated on D&M's invoice. D&M reserves the right to require payment in advance, or satisfactory security, for any shipment or sale. D&M reserves the right to seek any other remedy available at law or equity and Buyer shall be liable for all expenses, including attorneys' fees, relating to the collection of past due amounts. Buyer's default constitutes a waiver of Buyer's right to demand D&M's performance under the contract.

(b) When an amount becomes past due according to its payment terms, Buyer shall pay interest on the balance due, at the greater of 1.50% per month (18% per annum) or the maximum permitted by law, until paid in full.

(c) If delivery and/or payment in installments is accepted by D&M, Buyer's failure to pay any installment when due shall give D&M the right to suspend work or delivery until such payment is made. In the event that any such default by Buyer continues for more than fifteen (15) days, D&M may then cancel the contract by written notice to Buyer.

(d) All duties, tariffs, fees, costs and other charges connected with shipment, insurance, exportation and importation of the products are the responsibility of Buyer, and, if paid by D&M, such expenses may be recovered by D&M from Buyer, and Buyer shall indemnify D&M against claims for the same. Buyer is responsible for all taxes applicable or related to this transaction, including all sales, use and excise taxes.

#### 4. SECURITY INTEREST:

To secure any indebtedness due and owing from Buyer from time to time, Buyer hereby grants to D&M, and D&M hereby reserves, a continuing purchase money security interest in all Yaskawa-brand and other products heretofore or hereafter sold and delivered to Buyer by D&M, and all related parts, components and accessories therefor, and all proceeds arising from the sale or other disposition of the foregoing, including, but not limited to, cash, accounts, contract rights, accounts receivable, instruments and chattel paper. Buyer shall at no time grant any security interest that conflicts with that granted to D&M herein. Buyer shall cooperate with D&M, and hereby appoints D&M as its attorney-in-fact, to execute and file, on Buyer's behalf, any documents necessary to evidence and perfect D&M's security interest. D&M reserves all rights and remedies available to it under the Uniform Commercial Code and other applicable law in the event of Buyer's default.

#### 5. SHIPMENT, FORCE MAJEURE, AND ERROR:

(a) Shipment/delivery dates are approximations only. D&M shall not be liable to pay any penalty or damages, including consequential damages, for any delay in shipment.

(b) All shipments are F.O.B. D&M's (or its suppliers') manufacturing plant or warehouse. D&M will, at Buyer's expense, arrange for the transportation of the products from the manufacturing plant or warehouse designated by D&M. All products shall be packaged for domestic shipment in accordance with D&M's standard specifications. If special packaging is required, it must be clearly requested on Buyer's Order. The price for any special packaging shall be billed to Buyer. Buyer is responsible to timely procure all necessary export and import licenses and all permits required for the consummation of the transaction and to obtain insurance coverage on all shipments of products supplied by D&M. Risk of loss and/or damage to the products shall pass to Buyer upon delivery thereof to Buyer or its representative, or to a carrier for shipment to Buyer or its designated customer, as the case may be, at the FOB point.

(c) D&M shall not be liable for any damages, including consequential damages, caused by delays or non-performance resulting from or related to force majeure or other causes beyond D&M's reasonable control, including, but not limited to, war, blockade, civil disturbances, strikes and lockouts, labor shortages, fire and other casualties, acts of nature, accidents and governmental acts (including regulations concerning export and import licensing and currency exchange). In case of non-delivery, D&M's obligation shall be limited to the refund of any advance payment received from Buyer.

(d) All claims for loss of or damage to products, whether concealed or obvious, must be made, in writing, to the carrier and to D&M by Buyer as soon as possible after receipt of shipment, and in no case beyond 30 days of shipment, or such claims shall be deemed waived. D&M will render reasonable assistance in providing information necessary for Buyer to process such damage claims with the carrier or any insurance company.

(e) Buyer agrees to accept delivery within fifteen (15) days following the anticipated date of delivery. If Buyer refuses to take delivery within the fifteen (15) day period, D&M reserves the right to charge Buyer for storage charges plus interest.

#### 6. RETURNS/CANCELLATION CHARGES:

Buyer shall not return products to D&M without the written consent of, and upon terms agreed to, by D&M. If Buyer refuses to accept delivery, or improperly revokes acceptance of

product, Buyer shall be responsible for D&M's cancellation charges and expenses. Before any returns, a Return Merchandise Authorization ("R.M.A.") number must be obtained from D&M. Products returned without an R.M.A. number clearly marked on the outside of the shipping carton will be refused. Except for approved warranty returns, D&M will only accept for return and credit new, unused, undamaged, current stock items, in the original packaging. Buyer shall be responsible for all freight charges, import/export charges, duties, tariffs, taxes, insurance and risk of loss/damage regarding return shipment to D&M.

#### 7. DRAWINGS/MEASUREMENTS:

All ratings, drawings, tables, graphs and the like submitted by D&M or set forth in written materials or on the company's website are approximations only. Weights, measurements, capacities and all other particulars of products or services offered by D&M are approximations only. D&M is not responsible for such approximations, including, in particular, based on data supplied by Buyer.

#### 8. LIMITE D WARRANTY:

(a). At the time of shipment, new and unused product shall be free from defects in materials and workmanship. D&M warrants that for a period of one (1) year from the date the product is first used by Buyer, or 18 months from the date of shipment, whichever occurs first, if any product or part is found by D&M to be defective, D&M will, at its sole discretion and as Buyer's exclusive remedy, either repair, replace or return the purchase price paid to D&M; provided that the subject product is used under normal conditions for which it was designed and installed, operated and maintained in accordance with D&M's instructions and in accordance with generally accepted industrial practices. Products repaired or replaced during the warranty period shall be covered by the foregoing warranty for the remainder of the original warranty period or ninety (90) days from date of the repair or shipment of the replacement, whichever is longer. D&M warrants, for a period of ninety (90) days, that services shall be performed in a workman like manner. Buyer's sole remedy for a breach of this service warranty is limited to further service or a refund or credit of amounts paid by Buyer, at Seller's option. (b) D&M's warranty obligation shall be conditioned upon receipt by D&M of written notice of any alleged defects within sixty (60) days after discovery. D&M will not be responsible for unauthorized repairs to any products, even if defective. D&M shall not be responsible for any products which have been altered, abused, misused, or improperly installed or repaired, or for any loss, damage, defect, claim or nonperformance resulting from or attributable to Buyer's specifications. D&M does not guarantee production rates or the quality of goods made using D&M's products or services, nor shall any longer warranty periods apply, except as agreed in writing signed by an authorized D&M representative. (c) Where Buyer orders non-stock products or parts manufactured by a third-party, D&M will, to the extent permitted, pass through to Buyer any warranty of the manufacturer. As to such items, Buyer's sole remedy for breach of warranty shall be the remedy offered by and available from the manufacturer, if any. (d) D&M'S WARRANTY HEREIN IS IN LIEU OF AND EXCLUDES ALL OTHER WARRANTIES OF D&M AND ANY PARENT OR AFFILIATED COMPANIES OF D&M. D&M DISCLAIMS ALL OTHER WARRANTIES, WHETHER EXPRESS, IMPLIED OR STATUTORY, INCLUDING, BUT NOT LIMITED TO, ANY IMPLIED WARRANTIES OF MERCHANTABILITY AND/OR FITNESS FOR A PARTICULAR PURPOSE OR USE. (e) UNDER NO CIRCUMSTANCES SHALL D&M, OR ANY PARENT OR AFFILIATED COMPANY OF D&M, BE LIABLE TO BUYER OR ANY ENTITY FOR ANY SPECIAL, INDIRECT OR CONSEQUENTIAL DAMAGES, WHETHER ARISING FROM BREACH OF CONTRACT, TORT, NEGLIGENCE, MISREPRESENTATION, STRICT LIABILITY OR OTHERWISE, INCLUDING FOR LOST PROFITS, IMPAIRMENT OF GOODS, WORK STOPPAGE OR OTHERWISE, IN ANY WAY ARISING OUT OF OR RELATED TO PRODUCTS OR SERVICES SUPPLIED BY D&M OR ANY TRANSACTION TO WHICH THESE STANDARD TERMS APPLY. THE MAXIMUM LIABILITY OF D&M, INCLUDING, BUT NOT LIMITED TO, WITH RESPECT TO THE DESIGN, MANUFACTURE, SALE, DELIVERY, RESALE, INSPECTION, ASSEMBLY, INSTALLATION, TESTING, REPAIR, REPLACEMENT, MAINTENANCE OR USE OF ANY PRODUCT OR THE PERFORMANCE OF ANY SERVICE, SHALL NOT EXCEED THE PURCHASE PRICE PAID TO D&M.

#### 9. INFRINGEMENT:

The liability of D&M, any parent or affiliated company for patent infringement is limited to D&M's defense of proceeding brought against Buyer based on a claim that products, when employed in the manner intended by D&M, constitutes an infringement of any U.S. patent. If Buyer's use of the products in the manner intended by D&M is finally enjoined in such action, D&M shall, at its option, procure for Buyer the right to continue using the products, replace the same with non-infringing products, modify the products so that they become non-infringing equivalent products, or refund the purchase price (less allowance for use, damage or obsolescence). D&M makes no warranty against patent infringement resulting from portions of the products made to Buyer's specifications or the use of products in combination with any other goods or in the practice of any process, and if a claim is brought against D&M or any parent or affiliate of D&M, Buyer shall defend, indemnify and hold D&M (and its parent/affiliates) harmless from and against any and all claims, losses or damages arising therefrom.

#### 10. GOVERNING LAW, FORUM AND JURY WAIVER:

These Terms and the relationship of the parties are governed by the internal laws of the State of Illinois, U.S.A., without regard to its choice of law rules. For all claims or disputes arising out of or relating to the sale of products or services by D&M and/or the relationship of the parties, Buyer shall file any and all lawsuits or claims exclusively in the state or federal courts located in Cook County, Illinois. Buyer hereby submits to the personal jurisdiction of said courts and waives any claim of improper or inconvenient venue. To the fullest extent permitted by law, Buyer hereby agrees to waive the right to trial by jury for all claims or disputes arising out of or relating to the sale of products or services by D&M and/or the relationship of Buyer and D&M. The parties agree that U.N. Convention of Contracts for the international Sale of Goods shall not apply to their relationship or the sale of products by D&M.

#### 11. EXPORT CONTROL:

Buyer acknowledges that the products and related software and technology may be subject to export controls of the U.S. Government, including the Export Administration Regulations of the U.S. Department of Commerce. Buyer shall comply with all applicable laws, regulations, treaties and agreements regarding the use, import, export or re-export of the products and shall be solely responsible for obtaining all required licenses or approvals. The products are not intended for use in any nuclear, chemical or weapons production or environmental damage or for export, re-export, or distribution to any restricted or embargoed country or to a person or entity whose privilege to participate in exports has been denied or restricted by the U.S. Government. Buyer shall indemnify, hold harmless and defend D&M, its parent and affiliated companies from any violation of this section by Buyer or its employees, consultants, agents and customers.

#### 12. MISCELLANEOUS:

- (a) Failure on the part of D&M to enforce any of its rights derived from these Terms shall never be construed as a waiver of any of D&M's rights.
- (b) The invalidity of one or more of the clauses herein shall not affect the validity of the other clauses, which for this purpose are considered severable.
- (c) Any use by Buyer of any AYAI trademark must be approved by YAI in writing.
- (d) Buyer may not delegate its performance or assign its rights under these Terms except upon the express written consent of D&M. In any case, these Terms shall be binding upon the successors and legal representatives of Buyer.

# GA500

## Price Book

**YASKAWA AMERICA, INC.**

2121 Norman Drive S.  
Waukegan, IL 60085 USA  
1-800-YASKAWA (927-5292)  
WWW.YASKAWA.COM

**DRIVE CENTER  
(INVERTER PLANT)**

13-1 Nishimiyaichi 2 Chome,  
Yukuhashi, Fukuoka  
824-8511 Japan  
Tel: +81-930-23-1401  
WWW.YASKAWA.CO.JP

**YASKAWA EUROPE GmbH**

Hauptstr. 185  
65760 Eschborn, Germany  
Fon: +49 (0)6196 569-500  
WWW.YASKAWA.EU.COM

**YASKAWA ELÉTRICO  
DO BRASIL LTDA.**

Av. Piraporinha, 777  
Vila Nogueira Diadema  
São Paulo, Brasil 09950-000  
Pabx: +55 11 3585-1100  
WWW.YASKAWA.COM.BR

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. Specifications are subject to change without notice for ongoing product modifications and improvements.  
© 2010-2020 YASKAWA America, Inc.

YASKAWA AMERICA, INC.



PB.GA500.01

PB.GA500.01  
Revision: B-1  
May 2020  
Published in USA

# YASKAWA