

GA500

AC Microdrive for Industrial Applications

Data Sheet

Type: **CIPR-GA50Cxxxxxxxx**
200 V Class, Three-Phase Input: 0.1 to 22 kW
200 V Class, Single-Phase Input: 0.1 to 4.0 kW
400 V Class, Three-Phase Input: 0.37 to 30 kW



Copyright © 2021 YASKAWA Europe GmbH

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.

Contents

Introduction	4
About the GA500.....	4
Drive Selection	4
Features and Functions	5
Model Designation	5
General specification.....	6
List of Models	8
Power Ratings	11
Three-phase 200 V Units.....	11
Single-phase 200 V Units.....	11
Three-phase 400 V Units.....	11
Watt Loss	12
Standard Drives without EMC filter	12
Standard Drives with integrated EMC filter	13
Finless Drives.....	14
Integrated EMC Filters	15
Deratings	16
Carrier Frequency Derating	16
Ambient Temperature Derating.....	17
Altitude Derating.....	17
Electrical Connections	18
Dimensions	19
Accessories	21
Network Communications Option Cards	21
LED/LCD Keypads	22
Keypad Door Mounting Kits and Keypad Cover	23
Heatsink External Mounting Kit	24
UL Type 1 Kit	25
DIN Rail Attachment.....	27
Cable Shield Clamp Kit.....	28
Tools and Software	29
Tools	29
Connection Cables.....	29
Power Options	30
EMC Filters	30
AC Input Reactors.....	32
AC Output Reactors.....	33
Braking Resistors	34

Introduction

About the GA500

GA500 is a general-purpose drive for industrial use. Applications range from simple motor control of pumps or fans up to more demanding compressors, transport systems, positioning tasks etc.

Key attributes are ease of use, flexibility and sustainability. Loaded with valuable features and functions GA500 drives greatly simplifies system designs and maximize system and machine performance while reducing the effort for installation and setup to a minimum.



Drive Selection

GA500 drives must be selected according to power supply voltage, motor rated current, load profile of the application, and ambient condition of the area they are operated in.

GA500 drives offer two separate performance ratings: Heavy Duty and Normal Duty.

In Heavy Duty the GA500 can run applications with constant torque and heavy overload of up to 150% for 1 minute, such as hoist, conveyors, presses, certain types of compressors, etc.

Normal Duty is intended to drive applications with variable torque characteristics and low overload demand of not more than 110% for 1 minute, such as fans, blowers, pumps, etc.

Normal Duty allows the drive to operate a one size larger motor than in Heavy Duty rating.

GA500 drives are designed to be wall mounted upright and in clean environmental condition. In case of special mounting methods (heatsink external, horizontal, etc.), high ambient temperature (>50 °C), high altitude (above 1000 m), use of high carrier frequency, and so forth, an output current derating must be considered when selecting the drive.

Finless drives must be mounted on an external heatsink or cooler. The selection of a heatsink is described in TOEP C710617 0Sx, GA500 Finless-Type Drive Installation Manual.

Features and Functions

Model Designation

GA500 drives can be identified the by either the catalog code or the model code below as outlined below.

Catalog Code

<u>GA50</u>	<u>C</u>	<u>4</u>	<u>008</u>	<u>E</u>	<u>B</u>	<u>A</u>	<u>C</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
2	3	4	5	6	7	8	16					

Model Code

<u>CIPR -</u>	<u>GA50</u>	<u>C</u>	<u>4</u>	<u>008</u>	<u>E</u>	<u>B</u>	<u>A</u>	<u>A</u>	-	<u>B</u>	<u>A</u>	<u>A</u>	<u>A</u>	<u>S</u>	<u>A</u>
1	2	3	4	5	6	7	8	9		10	11	12	13	14	15

1. Inverter Drive
2. Product Series – GA500
3. Region Code – C: Europe
4. Voltage
 - B – 230 Vac single phase
 - 2 – 230 Vac three phase
 - 4 – 400 Vac three phase
5. Rated output current – see below
6. EMC filter:
 - A – external filter
 - E – integrated filter (400 V – C2, 20m; 3Ph-200 V C3 – 20 m, 1Ph-200 V: C1 - 10 m)
7. Enclosure:
 - B – IP20 standard heatsink with fan cooling
 - J – IP20 finless (cold plate)
8. Environmental spec:
 - A – standard
 - P – ruggedized (enforced vibration resistance + stronger PCB coating)
9. Design spec:
 - A – standard
10. Type of control terminals
 - B - standard
11. Reserved
12. Reserved
13. Reserved
14. Type of keypad
 - S – half size with LED and soft keys
15. Application
 - A – Standard
 - C – High frequency firmware
16. Special Specification (omitted for standard units)
 - None – standard unit
 - C0033 – High output frequency

General specification

Item	Description
Product Name	GA500
Power Range	1-phase 200~240 V: 0.1 to 4 kW (HD) / 2.2 kW (ND) 3-phase 200~240 V: 0.1 to 22 kW (ND) 3-phase 380~400 V: 0.1 to 30 kW (ND)
Rated Input Frequency	50 Hz
Allowable Voltage Fluctuation	-15 to +10%
Allowable Frequency Fluctuation	±5%
DC Supply	200 V class: 270 to 340 Vdc 400 V class: 513 to 679 Vdc
Overload Tolerance	HD: 150% of rated output current for 60 s ND: 110% of rated output current for 60 s (allowable every 9 mins after overload 1 min)
DC Reactor	External
Braking Transistor	Built in
Applicable Motor Types	Induction / PM / Synchronous Reluctance
Maximum Output Frequency	Induction Motor: 590 Hz PM Motor – Vector Control: 590 Hz PM Motor – Advanced Vector Control: 270 Hz IM/PM/SynRM – EZ Vector Control: 120 Hz
Output frequency resolution	0.001 Hz
Starting Torque	V/f control (IM): 150% @ 3 Hz Vector Control (IM): 150% @ 0.6 Hz Vector Control (PM): 100% @ 10% speed Advanced Vector Control (PM): 100% @ 0 rpm EZ Vector (IM/PM/SynRM): 100% @ 1% speed
Speed Control Range	V/f control (IM): 1:40 Vector Control (IM): 1:100 Vector Control (PM): 1:10 Advanced Vector Control (PM): 1:100 EZ Vector (IM/PM/SynRM): 1:10
Zero Speed Control	Possible with Advanced Vector Control for PM, sensor less, IPM motor
Torque Limit Control	Possible in Vector Control (IM/PM) and Advanced Vector Control (PM), sensorless, 4 quadrants individually adjustable
Acceleration/Deceleration Ramps	4 individual acceleration/deceleration ramps, 0 to 6000 s linear, 4 individually adjustable S-curves
Braking Torque	Approx. 20% without braking resistor, approx. 125% with braking resistor
V/f Pattern	Freely adjustable
Protection	<ul style="list-style-type: none"> • Motor electronic thermistor function • Motor PTC input • Instantaneous over current at 200% of rated current • Drive overload 150% (HD) / 110% (ND) for 1 min, once per 10 min • DC over voltage at 420 Vdc (230 V units) / 820 Vdc (400 V units) • Output ground fault • Motor stall prevention • Lifetime monitoring of the main components of the drive and notification of an expected end of life

Item	Description
Software Functions	<ul style="list-style-type: none"> • Power outage ride through control • PID control • Speed search (catch coasting motor) • Over-/undertorque detection • 17-step multi-speed operation • Resonance frequency avoidance • Motor data auto-tuning rotating/in stop condition • Dwell function • Cooling fan control by heatsink temperature • Reference limiter • DC brake • Overexcitation braking / High-slip braking • Energy saving • Parameter copy function • DC over voltage suppression
Ambient Conditions	<p>Place of Installation:</p> <ul style="list-style-type: none"> • Indoors, no direct sunlight • free from oil, mist, flammable gases, metal powder, oil, water, salt, harmful gases and liquids, solvents <p>Operation temperature:</p> <ul style="list-style-type: none"> • IP20: -10 to +50°C (up to 60°C with derating) • UL type 1: -10 to +40°C • Heatsink external / Finless: -10 to +35 °C (up to 50 °C with derating) • Side-by-Side mounting: -10 to +40°C (up to 50°C with derating) <p>Storage temperature: -20 to +70°C</p> <p>Humidity: 95% RH, no condensation</p> <p>Overvoltage category: III</p> <p>Pollution degree: 2 or less</p> <p>Altitude: up to 1000m, up to 4000m with 1% current derating per 100 m</p>
Vibration Resistance	10 to 20 Hz – 1 g (9.81 m/s ²); 20 to 55 Hz – 0.6 g (5.9 m/s ²)
Standards	<ul style="list-style-type: none"> • UL61800-5-1 • EN61800-2 • IEC/EN61800-5-1 • ISO/EN13849-1 Cat. III PL_e, IEC/EN61508 SIL3 (2 Safety inputs, 1 EDM output)
Enclosure	<ul style="list-style-type: none"> • IP20 • UL type 1
Communication	<ul style="list-style-type: none"> • Modbus/Memobus embedded via built in RS485 interface, 115.2 kbps • EtherNet IP, Modbus TCP, ProfiNet, EtherCat, PowerLink, Profibus, CANopen optional
Programming Interface	<ul style="list-style-type: none"> • Built in removable LED keypad with soft buttons • Built in USB mini port for connection a PC or Android Smart Device • Serial through keypad port (needs adapter)
Programming Tools	<ul style="list-style-type: none"> • DriveWizard 10 (Windows 10) • DriveWizard mobile (Android and iOS)
PLC logic / Application Programming	<ul style="list-style-type: none"> • Programmable in DriveWorksEZ, up to 100 connections (DWEZ Pro) or 25 connections (DWEZ Standard), 2 ms scan time

List of Models

Standard Models

- Catalog Code: GA50CxxxxABA / GA50CxxxxEBA

Input Voltage [Vac]	Power Heavy Duty [kW]	Model Code	
		With integrated EMC Filter	Without EMC Filter
1x230	0.1	CIPR-GA50CB001EBAA-BAAASA	CIPR-GA50CB001ABAA-BAAASA
1x230	0.25	CIPR-GA50CB002EBAA-BAAASA	CIPR-GA50CB002ABAA-BAAASA
1x230	0.55	CIPR-GA50CB004EBAA-BAAASA	CIPR-GA50CB004ABAA-BAAASA
1x230	1.1	CIPR-GA50CB006EBAA-BAAASA	CIPR-GA50CB006ABAA-BAAASA
1x230	1.5	CIPR-GA50CB010EBAA-BAAASA	CIPR-GA50CB010ABAA-BAAASA
1x230	2.2	CIPR-GA50CB012EBAA-BAAASA	CIPR-GA50CB012ABAA-BAAASA
1x230	4.0	-	CIPR-GA50CB018ABAA-BAAASA
3x230	0.1	CIPR-GA50C2001EBAA-BAAASA	CIPR-GA50C2001ABAA-BAAASA
3x230	0.25	CIPR-GA50C2002EBAA-BAAASA	CIPR-GA50C2002ABAA-BAAASA
3x230	0.55	CIPR-GA50C2004EBAA-BAAASA	CIPR-GA50C2004ABAA-BAAASA
3x230	1.1	CIPR-GA50C2006EBAA-BAAASA	CIPR-GA50C2006ABAA-BAAASA
3x230	1.1	CIPR-GA50C2008EBAA-BAAASA	CIPR-GA50C2008ABAA-BAAASA
3x230	1.5	CIPR-GA50C2010EBAA-BAAASA	CIPR-GA50C2010ABAA-BAAASA
3x230	2.2	CIPR-GA50C2012EBAA-BAAASA	CIPR-GA50C2012ABAA-BAAASA
3x230	3	CIPR-GA50C2018EBAA-BAAASA	CIPR-GA50C2018ABAA-BAAASA
3x230	4	CIPR-GA50C2021EBAA-BAAASA	CIPR-GA50C2021ABAA-BAAASA
3x230	5.5	CIPR-GA50C2030EBAA-BAAASA	CIPR-GA50C2030ABAA-BAAASA
3x230	7.5	CIPR-GA50C2042EBAA-BAAASA	CIPR-GA50C2042ABAA-BAAASA
3x230	11	CIPR-GA50C2056EBAA-BAAASA	CIPR-GA50C2056ABAA-BAAASA
3x230	15	CIPR-GA50C2070EBAA-BAAASA	CIPR-GA50C2070ABAA-BAAASA
3x230	18.5	CIPR-GA50C2082EBAA-BAAASA	CIPR-GA50C2082ABAA-BAAASA
3x400	0.4	CIPR-GA50C4001EBAA-BAAASA	CIPR-GA50C4001ABAA-BAAASA
3x400	0.55	CIPR-GA50C4002EBAA-BAAASA	CIPR-GA50C4002ABAA-BAAASA
3x400	1.1	CIPR-GA50C4004EBAA-BAAASA	CIPR-GA50C4004ABAA-BAAASA
3x400	1.5	CIPR-GA50C4005EBAA-BAAASA	CIPR-GA50C4005ABAA-BAAASA
3x400	2.2	CIPR-GA50C4007EBAA-BAAASA	CIPR-GA50C4007ABAA-BAAASA
3x400	3	CIPR-GA50C4009EBAA-BAAASA	CIPR-GA50C4009ABAA-BAAASA
3x400	4	CIPR-GA50C4012EBAA-BAAASA	CIPR-GA50C4012ABAA-BAAASA
3x400	5.5	CIPR-GA50C4018EBAA-BAAASA	CIPR-GA50C4018ABAA-BAAASA
3x400	7.5	CIPR-GA50C4023EBAA-BAAASA	CIPR-GA50C4023ABAA-BAAASA
3x400	11	CIPR-GA50C4031EBAA-BAAASA	CIPR-GA50C4031ABAA-BAAASA
3x400	15	CIPR-GA50C4038EBAA-BAAASA	CIPR-GA50C4038ABAA-BAAASA
3x400	18.5	CIPR-GA50C4044EBAA-BAAASA	CIPR-GA50C4044ABAA-BAAASA
3x400	22	CIPR-GA50C4060EBAA-BAAASA	CIPR-GA50C4060ABAA-BAAASA

Ruggedized Models

- without EMC filter only / Silicon application on PCBs in order to increase resistance against vibration / PCBs coated for higher resistance against humidity and dust
- Catalog Code: GA50CxxxxABP

Input Voltage [Vac]	Power Heavy Duty [kW]	Model Code
		With integrated EMC Filter
3x400	0.4	CIPR-GA50C4001ABPA-BAAASA
3x400	0.55	CIPR-GA50C4002ABPA-BAAASA
3x400	1.1	CIPR-GA50C4004ABPA-BAAASA
3x400	1.5	CIPR-GA50C4005ABPA-BAAASA
3x400	2.2	CIPR-GA50C4007ABPA-BAAASA
3x400	3	CIPR-GA50C4009ABPA-BAAASA
3x400	4	CIPR-GA50C4012ABPA-BAAASA
3x400	5.5	CIPR-GA50C4018ABPA-BAAASA
3x400	7.5	CIPR-GA50C4023ABPA-BAAASA
3x400	11	CIPR-GA50C4031ABPA-BAAASA
3x400	15	CIPR-GA50C4038ABPA-BAAASA
3x400	18.5	CIPR-GA50C4044ABPA-BAAASA
3x400	22	CIPR-GA50C4060ABPA-BAAASA

Finless Models

- without EMC filter only
- to be mounted on an external heatsink/cooler
- Catalog Code: GA50CxxxxAJA

Input Voltage [Vac]	Power Heavy Duty [kW]	Model Code
1x230	0.1	CIPR-GA50CB001AJAA-BAAASA
1x230	0.25	CIPR-GA50CB002AJAA-BAAASA
1x230	0.55	CIPR-GA50CB004AJAA-BAAASA
1x230	1.1	CIPR-GA50CB006AJAA-BAAASA
1x230	1.5	CIPR-GA50CB010AJAA-BAAASA
1x230	2.2	CIPR-GA50CB012AJAA-BAAASA
3x230	0.1	CIPR-GA50C2001AJAA-BAAASA
3x230	0.25	CIPR-GA50C2002AJAA-BAAASA
3x230	0.55	CIPR-GA50C2004AJAA-BAAASA
3x230	1.1	CIPR-GA50C2006AJAA-BAAASA
3x230	1.1	CIPR-GA50C2008AJAA-BAAASA
3x230	1.5	CIPR-GA50C2010AJAA-BAAASA
3x230	2.2	CIPR-GA50C2012AJAA-BAAASA
3x230	3	CIPR-GA50C2018AJAA-BAAASA
3x230	4	CIPR-GA50C2021AJAA-BAAASA
3x230	5.5	CIPR-GA50C2030AJAA-BAAASA
3x230	7.5	CIPR-GA50C2042AJAA-BAAASA
3x230	11	CIPR-GA50C2056AJAA-BAAASA
3x230	15	CIPR-GA50C2070AJAA-BAAASA
3x400	0.4	CIPR-GA50C4001AJAA-BAAASA
3x400	0.55	CIPR-GA50C4002AJAA-BAAASA
3x400	1.1	CIPR-GA50C4004AJAA-BAAASA
3x400	1.5	CIPR-GA50C4005AJAA-BAAASA
3x400	2.2	CIPR-GA50C4007AJAA-BAAASA
3x400	3	CIPR-GA50C4009AJAA-BAAASA
3x400	4	CIPR-GA50C4012AJAA-BAAASA
3x400	5.5	CIPR-GA50C4018AJAA-BAAASA
3x400	7.5	CIPR-GA50C4023AJAA-BAAASA
3x400	11	CIPR-GA50C4031AJAA-BAAASA
3x400	15	CIPR-GA50C4038AJAA-BAAASA

High Output Frequency Models

- Induction motor: up to 2000 Hz output frequency with V/f control
- PM motor: up to 1000 Hz output frequency with Vector Control
- Catalog Code: GA50CxxxxABAC0033 / GA50CxxxxEBAC0033
- Functions eliminated from standard drive: Open Loop Vector control for induction motors, Advanced Vector Control for PM, EZ-Vector control, Application Macros, Speed Search, Energy Saving, Overvoltage suppression, Overexcitation braking, High Slip Braking, Rotating Auto Tuning

Input Voltage [Vac]	Power Heavy Duty [kW]	Model Code	
		With integrated EMC Filter	Without EMC Filter
1x230	0.1	CIPR-GA50CB001EBAA-BAAASC	CIPR-GA50CB001ABAA-BAAASC
1x230	0.25	CIPR-GA50CB002EBAA-BAAASC	CIPR-GA50CB002ABAA-BAAASC
1x230	0.55	CIPR-GA50CB004EBAA-BAAASC	CIPR-GA50CB004ABAA-BAAASC
1x230	1.1	CIPR-GA50CB006EBAA-BAAASC	CIPR-GA50CB006ABAA-BAAASC
1x230	1.5	CIPR-GA50CB010EBAA-BAAASC	CIPR-GA50CB010ABAA-BAAASC
1x230	2.2	CIPR-GA50CB012EBAA-BAAASC	CIPR-GA50CB012ABAA-BAAASC
1x230	4.0	-	CIPR-GA50CB018ABAA-BAAASC
3x230	0.1	CIPR-GA50C2001EBAA-BAAASC	CIPR-GA50C2001ABAA-BAAASC
3x230	0.25	CIPR-GA50C2002EBAA-BAAASC	CIPR-GA50C2002ABAA-BAAASC
3x230	0.55	CIPR-GA50C2004EBAA-BAAASC	CIPR-GA50C2004ABAA-BAAASC
3x230	1.1	CIPR-GA50C2006EBAA-BAAASC	CIPR-GA50C2006ABAA-BAAASC
3x230	1.1	CIPR-GA50C2008EBAA-BAAASC	CIPR-GA50C2008ABAA-BAAASC
3x230	1.5	CIPR-GA50C2010EBAA-BAAASC	CIPR-GA50C2010ABAA-BAAASC
3x230	2.2	CIPR-GA50C2012EBAA-BAAASC	CIPR-GA50C2012ABAA-BAAASC
3x230	3	CIPR-GA50C2018EBAA-BAAASC	CIPR-GA50C2018ABAA-BAAASC
3x230	4	CIPR-GA50C2021EBAA-BAAASC	CIPR-GA50C2021ABAA-BAAASC
3x230	5.5	CIPR-GA50C2030EBAA-BAAASC	CIPR-GA50C2030ABAA-BAAASC
3x230	7.5	CIPR-GA50C2042EBAA-BAAASC	CIPR-GA50C2042ABAA-BAAASC
3x230	11	CIPR-GA50C2056EBAA-BAAASC	CIPR-GA50C2056ABAA-BAAASC
3x230	15	CIPR-GA50C2070EBAA-BAAASC	CIPR-GA50C2070ABAA-BAAASC
3x230	18.5	CIPR-GA50C2082EBAA-BAAASC	CIPR-GA50C2082ABAA-BAAASC
3x400	0.4	CIPR-GA50C4001EBAA-BAAASC	CIPR-GA50C4001ABAA-BAAASC
3x400	0.55	CIPR-GA50C4002EBAA-BAAASC	CIPR-GA50C4002ABAA-BAAASC
3x400	1.1	CIPR-GA50C4004EBAA-BAAASC	CIPR-GA50C4004ABAA-BAAASC
3x400	1.5	CIPR-GA50C4005EBAA-BAAASC	CIPR-GA50C4005ABAA-BAAASC
3x400	2.2	CIPR-GA50C4007EBAA-BAAASC	CIPR-GA50C4007ABAA-BAAASC
3x400	3	CIPR-GA50C4009EBAA-BAAASC	CIPR-GA50C4009ABAA-BAAASC
3x400	4	CIPR-GA50C4012EBAA-BAAASC	CIPR-GA50C4012ABAA-BAAASC
3x400	5.5	CIPR-GA50C4018EBAA-BAAASC	CIPR-GA50C4018ABAA-BAAASC
3x400	7.5	CIPR-GA50C4023EBAA-BAAASC	CIPR-GA50C4023ABAA-BAAASC
3x400	11	CIPR-GA50C4031EBAA-BAAASC	CIPR-GA50C4031ABAA-BAAASC
3x400	15	CIPR-GA50C4038EBAA-BAAASC	CIPR-GA50C4038ABAA-BAAASC
3x400	18.5	CIPR-GA50C4044EBAA-BAAASC	CIPR-GA50C4044ABAA-BAAASC
3x400	22	CIPR-GA50C4060EBAA-BAAASC	CIPR-GA50C4060ABAA-BAAASC

Power Ratings

Three-phase 200 V Units

CIPR-GA50A2xxx		001	002	004	006	008	010	012	018	021	030	042	056	070	082
Maximum Applicable	HD	0.1	0.25	0.55	1.1	1.1	1.5	2.2	3	4.0	5.5	7.5	11	15	18.5
Motor Capacity (kW)	ND	0.2	0.4	0.75	1.1	1.5	2.2	3	4.0	5.5	7.5	11	15	18.5	22
Input Current (A)	HD	0.7	1.5	2.9	5.8	7.0	7.5	11	15.6	18.9	24	37	52	68	96
	ND	1.1	1.9	3.9	7.3	8.8	10.8	13.9	18.5	24	37	52	68	80	114
Rated Output Current (A)	HD	0.8	1.6	3.0	5.0	6.9	8.0	11.0	14.0	17.6	25.0	33.0	47.0	60.0	75.0
	ND	1.2	1.9	3.5	6	8	9.6	12.2	17.5	21	30	42	56	70	82
Carrier Frequency	HD	10 kHz						8kHz							
	ND	2 kHz													
Maximum Output Voltage	Three-phase 200~240V (proportional to input voltage)														
EMC Filter	Built in (IEC61800-3 Category 3, 20 m shielded motor cable), version without filter available														
AC Power Supply	Voltage: Three-phase AC power supply: 200~240V -15/+10% Frequency: 50/60Hz +/- 5%														
DC Power Supply	270 to 340 Vdc														

Single-phase 200 V Units

CIPR-GA50ABxxx		001	002	004	006	010	012	018	
Maximum Applicable	HD	0.1	0.25	0.55	1.1	1.5	2.2	4.0	
Motor Capacity (kW)	ND	0.2	0.4	0.75	1.1	2.2	3.0	N/A	
Input Current (A)	HD	1.4	2.8	5.5	11	14.1	20.6	35.0	
	ND	2.0	3.6	7.3	13.8	20.2	24.0	N/A	
Rated Output Current (A)	HD	0.8	1.6	3	5	8	11	17.6	
	ND	1.2	1.9	3.5	6	9.6	12.2	N/A	
Carrier Frequency	HD	10 kHz					8kHz		
	ND	2 kHz							
Maximum Output Voltage	Three-phase 200~240V (proportional to input voltage)								
EMC Filter	Built in (IEC61800-3 Category 1, 10 m shielded motor cable), version without filter available						External		
AC Power Supply	Voltage: Single-phase AC power supply: 200~240V -15/+10% Frequency: 50/60Hz +/- 5%								
DC Power Supply	270 to 340 Vdc								

Three-phase 400 V Units

CIPR-GA50A4xxx		001	002	004	005	007	009	012	018	023	031	038	044	060
Maximum Applicable	HD	0.37	0.55	1.1	1.5	2.2	3.0	4.0	5.5	7.5	11.0	15.0	18.5	22.0
Motor Capacity (kW)	ND	0.37	0.75	1.5	2.2	3.0	4.0	5.5	7.5	11.0	15.0	18.5	22.0	30.0
Input Current (A)	HD	1.2	1.8	3.2	4.4	6.0	8.2	10.4	15	20	29	39	51	60
	ND	1.2	2.1	4.3	5.9	8.1	9.4	14	20	24	38	44	60	81
Rated Output Current (A)	HD	1.2	1.8	3.4	4.8	5.6	7.3	9.2	14.8	18.0	24.0	31.0	39.0	45.0
	ND	1.2	2.1	4.1	5.4	7.1	8.9	11.9	17.5	23.4	31.0	38.0	44.0	60
Carrier Frequency	HD							8kHz						
	ND							2kHz						
Maximum Output Voltage	3-phase, 380 to 480V, 50/60Hz													
EMC Filter	Built in (IEC61800-3 Category 2, 20 m shielded motor cable), version without filter available													
AC Power Supply	Voltage: Three-phase AC power supply: 380~480V -15/+10% Frequency: 50/60Hz +/- 5%													
DC Power Supply	513 to 679 Vdc													

Watt Loss

Standard Drives without EMC filter

Model CIPR-	Heavy Duty									Normal Duty				
	Irated	fc	Heat Loss			fc	Heat Loss			Irated	fc	Heat Loss		
			inside	backside	total		inside	backside	total			inside	backside	total
A	kHz	W	W	W	kHz	W	W	W	A	kHz	W	W	W	
GA50CB001Axxx	0.8	2	7	4	11	10	8	5	13	1.2	2	8	6	14
GA50CB002Axxx	1.6	2	10	7	17	10	10	9	19	1.9	2	14	11	25
GA50CB004Axxx	3	2	13	13	26	10	14	16	30	3.5	2	14	17	31
GA50CB006Axxx	5	2	17	23	40	10	18	28	46	6	2	17	26	43
GA50CB010Axxx	8	2	30	37	67	8	31	42	73	9.6	2	36	50	86
GA50CB012Axxx	11	2	40	48	88	8	41	55	96	12.2	2	48	60	108
GA50CB018Axxx	17.6	2	49	72	121	8	53	98	151					
GA50C2001Axxx	0.8	2	6	4	10	10	6	5	11	1.2	2	7	5	12
GA50C2002Axxx	1.6	2	7	7	14	10	7	8	15	1.9	2	9	9	18
GA50C2004Axxx	3	2	9	13	22	10	10	16	26	3.5	2	11	16	27
GA50C2006Axxx	5	2	13	22	35	10	14	27	41	6	2	14	25	39
GA50C2008Axxx	6.9	2	14	30	44	8	15	35	50	8	2	18	37	55
GA50C2010Axxx	8	2	17	37	54	8	18	43	61	9.6	2	25	51	76
GA50C2012Axxx	11	2	23	49	72	8	24	56	80	12.2	2	30	61	91
GA50C2018Axxx	14	2	26	61	87	8	30	82	112	17.5	2	35	82	117
GA50C2021Axxx	17.6	2	36	83	119	8	40	108	148	21	2	52	111	163
GA50C2030Axxx	25	2	45	163	208	8	49	187	236	30	2	63	240	303
GA50C2042Axxx	33	2	55	200	255	8	60	232	292	42	2	84	307	391
GA50C2056Axxx	47	2	77	269	346	8	85	318	403	56	2	109	367	476
GA50C2070Axxx	60	2	108	411	519	8	119	473	592	70	2	142	534	676
GA50C2082Axxx	75	2	132	439	571	8	148	525	673	82	2	160	531	691
GA50C4001Axxx	1.2	2	8	7	15	8	9	11	20	1.2	2	8	7	15
GA50C4002Axxx	1.8	2	10	10	20	8	11	16	27	2.1	2	13	12	25
GA50C4004Axxx	3.4	2	13	21	34	8	15	31	46	4.1	2	14	24	38
GA50C4005Axxx	4.8	2	15	29	44	8	18	42	60	5.4	2	16	32	48
GA50C4007Axxx	5.6	2	16	33	49	8	18	49	67	7.1	2	20	44	64
GA50C4009Axxx	7.3	2	21	45	66	8	25	65	90	8.9	2	28	58	86
GA50C4012Axxx	9.2	2	27	60	87	8	32	85	117	11.9	2	39	83	122
GA50C4018Axxx	14.8	2	48	126	174	8	55	166	221	17.5	2	52	155	207
GA50C4023Axxx	18	2	53	152	205	8	61	200	261	23.4	2	86	236	322
GA50C4031Axxx	24	2	68	191	259	8	79	255	334	31	2	101	284	385
GA50C4038Axxx	31	2	81	256	337	8	95	338	433	38	2	108	341	449
GA50C4044Axxx	39	2	109	338	447	8	127	442	569	44	2	137	417	554
GA50C4060Axxx	45	2	114	328	442	8	135	446	581	60	2	176	490	666

Standard Drives with integrated EMC filter

Model CIPR-	Heavy Duty									Normal Duty					
	Irated	fc	Heat Loss			fc	Heat Loss			Irated	fc	Heat Loss			
			inside	backside	total		inside	backside	total			inside	backside	total	
A	kHz	W	W	W	kHz	W	W	W	A	kHz	W	W	W		
GA50CB001Exxx	0.8	2	8	4	12	10	9	5	14	1.2	2	9	6	15	
GA50CB002Exxx	1.6	2	12	7	19	10	12	9	21	1.9	2	18	11	29	
GA50CB004Exxx	3	2	17	13	30	10	18	16	34	3.5	2	19	17	36	
GA50CB006Exxx	5	2	20	23	43	10	21	28	49	6	2	20	26	46	
GA50CB010Exxx	8	2	34	37	71	8	35	42	77	9.6	2	44	50	94	
GA50CB012Exxx	11	2	45	48	93	8	46	55	101	12.2	2	56	60	116	
GA50CB018Exxx	17.6	2	50	72	122	8	54	98	152						
GA50C2001Exxx	0.8	2	7	4	11	10	7	5	12	1.2	2	8	5	13	
GA50C2002Exxx	1.6	2	8	7	15	10	8	8	16	1.9	2	12	9	21	
GA50C2004Exxx	3	2	12	13	25	10	13	16	29	3.5	2	15	16	31	
GA50C2006Exxx	5	2	20	22	42	10	21	27	48	6	2	21	25	46	
GA50C2008Exxx	6.9	2	15	30	45	8	16	35	51	8	2	19	37	56	
GA50C2010Exxx	8	2	18	37	55	8	19	43	62	9.6	2	26	51	77	
GA50C2012Exxx	11	2	24	49	73	8	25	56	81	12.2	2	31	61	92	
GA50C2018Exxx	14	2	27	61	88	8	31	82	113	17.5	2	36	82	118	
GA50C2021Exxx	17.6	2	37	83	120	8	41	108	149	21	2	53	111	164	
GA50C2030Exxx	25	2	46	163	209	8	50	187	237	30	2	64	240	304	
GA50C2042Exxx	33	2	56	200	256	8	61	232	293	42	2	85	307	392	
GA50C2056Exxx	47	2	78	269	347	8	86	318	404	56	2	110	367	477	
GA50C2070Exxx	60	2	109	411	520	8	120	473	593	70	2	143	534	677	
GA50C2082Exxx	75	2	133	439	572	8	149	525	674	82	2	161	531	692	
GA50C4001Exxx	1.2	2	9	7	16	8	10	11	21	1.2	2	9	7	16	
GA50C4002Exxx	1.8	2	11	10	21	8	12	16	28	2.1	2	14	12	26	
GA50C4004Exxx	3.4	2	15	21	36	8	17	31	48	4.1	2	16	24	40	
GA50C4005Exxx	4.8	2	17	29	46	8	20	42	62	5.4	2	18	32	50	
GA50C4007Exxx	5.6	2	18	33	51	8	20	49	69	7.1	2	23	44	67	
GA50C4009Exxx	7.3	2	24	45	69	8	28	65	93	8.9	2	33	58	91	
GA50C4012Exxx	9.2	2	29	60	89	8	34	85	119	11.9	2	41	83	124	
GA50C4018Exxx	14.8	2	52	126	178	8	59	166	225	17.5	2	56	155	211	
GA50C4023Exxx	18	2	57	152	209	8	65	200	265	23.4	2	94	236	330	
GA50C4031Exxx	24	2	73	191	264	8	84	255	339	31	2	109	284	393	
GA50C4038Exxx	31	2	89	256	345	8	103	338	441	38	2	119	341	460	
GA50C4044Exxx	39	2	119	338	457	8	137	442	579	44	2	151	417	568	
GA50C4060Exxx	45	2	128	328	456	8	149	446	595	60	2	200	490	690	

Finless Drives

Model CIPR-	Heavy Duty									Normal Duty					
	Irated	fc	Heat Loss			fc	Heat Loss			Irated	fc	Heat Loss			
			inside	Back plate	total		inside	backside	total			inside	Back plate	total	
	A	kHz	W	W	W	kHz	W	W	W	A	kHz	W	W	W	
GA50CB001AJxx	0.8	2	7	4	11	10	8	5	13	1.2	2	8	6	14	
GA50CB002AJxx	1.6	2	10	7	17	10	10	9	19	1.9	2	14	11	25	
GA50CB004AJxx	3	2	13	13	26	10	14	16	30	3.5	2	14	17	31	
GA50CB006AJxx	5	2	17	23	40	10	18	28	46	6	2	17	26	43	
GA50CB010AJxx	8	2	30	37	67	8	31	42	73	9.6	2	36	50	86	
GA50CB012AJxx	11	2	40	48	88	8	41	55	96	12.2	2	48	60	108	
GA50C2001AJxx	0.8	2	6	4	10	10	6	5	11	1.2	2	7	5	12	
GA50C2002AJxx	1.6	2	7	7	14	10	7	8	15	1.9	2	9	9	18	
GA50C2004AJxx	3	2	9	13	22	10	10	16	26	3.5	2	11	16	27	
GA50C2006AJxx	5	2	13	22	35	10	14	27	41	6	2	14	25	39	
GA50C2008AJxx	6.9	2	14	30	44	8	15	35	50	8	2	18	37	55	
GA50C2010AJxx	8	2	17	37	54	8	18	43	61	9.6	2	25	51	76	
GA50C2012AJxx	11	2	23	49	72	8	24	56	80	12.2	2	30	61	91	
GA50C2018AJxx	14	2	26	61	87	8	30	82	112	17.5	2	35	82	117	
GA50C2021AJxx	17.6	2	36	83	119	8	40	108	148	21	2	52	111	163	
GA50C2030AJxx	25	2				8				30	2				
GA50C2042AJxx	33	2				8				42	2				
GA50C2056AJxx	47	2				8				56	2				
GA50C2070AJxx	60	2				8				70					
GA50C4001AJxx	1.2	2	8	7	15	8	9	11	20	1.2	2	8	7	15	
GA50C4002AJxx	1.8	2	10	10	20	8	11	16	27	2.1	2	13	12	25	
GA50C4004AJxx	3.4	2	13	21	34	8	15	31	46	4.1	2	14	24	38	
GA50C4005AJxx	4.8	2	15	29	44	8	18	42	60	5.4	2	16	32	48	
GA50C4007AJxx	5.6	2	16	33	49	8	18	49	67	7.1	2	20	44	64	
GA50C4009AJxx	7.3	2	21	45	66	8	25	65	90	8.9	2	28	58	86	
GA50C4012AJxx	9.2	2	27	60	87	8	32	85	117	11.9	2	39	83	122	
GA50C4018AJxx	14.8	2				8				17.5	2				
GA50C4023AJxx	18	2				8				23.4	2				
GA50C4031AJxx	24	2				8				31	2				
GA50C4038AExxx	31	2				8				38	2				

Integrated EMC Filters

GA500 Drives are offered with or without an embedded EMC filter. Internal EMC filters are designed to be used in TN grids. The filters shall be disabled when using the drive in an ungrounded system or a system that is not grounded symmetrically.

Performance and leakage current of integrated filters are listed below. If by application requirements a better EMC class or lower leakage current is required refer to EMC Filters on page 30 of this document.

Voltage Class	Model	IEC61800-3 Category	Cable Length ^{*1}	Leakage Current ^{*2}
Single-phase 230V	CIPR-GA50CB001Exxx to B018Exxx	C1	10 m	24.1
	CIPR-GA50C2001Exxx to 2006Exxx	C3	20 m	0.96
Three-phase 230 V	CIPR-GA50C2008Exxx to 2082Exxx	C3	20 m	1.8
	CIPR-GA50C4001Exxx to 4009Exxx	C2	20 m	6.8
	CIPR-GA50C4012Exxx	C2	20 m	3.1
Three-phase 400 V	CIPR-GA50C4018Exxx / 4023Exxx	C2	20 m	7.8
	CIPR-GA50C4031Exxx / 4038Exxx	C2	20 m	1.9
	CIPR-GA50C4044Exxx / 4060Exxx	C2	20 m	7.8

1. Shielded Motor Cable
2. Leakage currents shown here are calculated and for the EMC filter only. Values in real applications can vary depending on factors like phase voltage imbalance, grounding etc.

Deratings

Carrier Frequency Derating

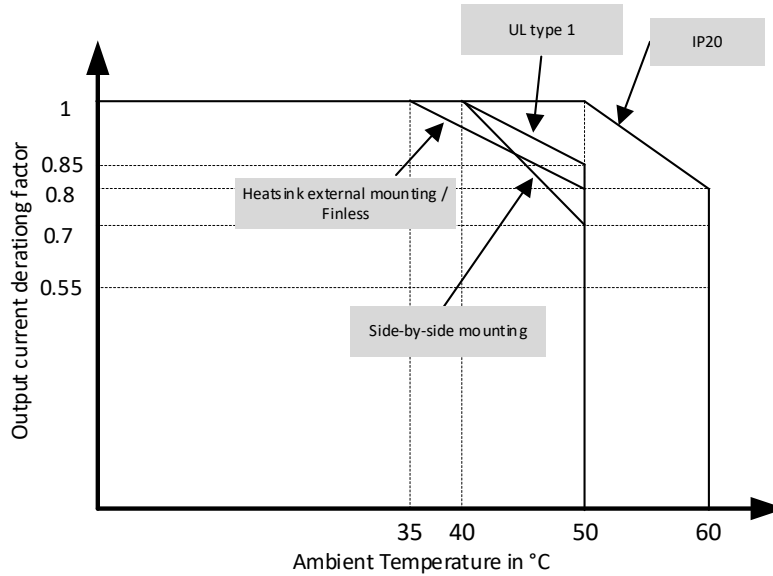
The rated current of GA500 drives might need to be reduced depending on the selected carrier frequency. Relations between HD/ND setting, carrier frequency and rated output current are shown below.

Model CIPR- GA50C...	Drive Rated Output Current in Ampere											
	Heavy Duty (C6-01=0)						Normal Duty (C6-01=1)					
	2 kHz	5 kHz	8 kHz	10 kHz	12.5 kHz	15 kHz	2 kHz	5 kHz	8 kHz	10 kHz	12.5 kHz	15 kHz
B001	0.8	0.8	0.8	0.8	0.7	0.6	1.2	1.1	1.0	0.9	0.8	0.6
B002	1.6	1.6	1.6	1.6	1.4	1.3	1.9	1.9	1.7	1.6	1.4	1.3
B004	3.0	3.0	3.0	3.0	2.7	2.4	3.5	3.5	3.2	3.0	2.7	2.4
B006	5.0	5.0	5.0	5.0	4.5	4.0	6.0	6.0	5.4	5.0	4.5	4.0
B010	8.0	8.0	8.0	7.5	7.0	6.4	9.6	9.1	8.3	7.7	7.1	6.4
B012	11.0	11.0	11.0	10.4	9.6	8.8	12.2	11.9	11.0	10.4	9.6	8.8
B018	17.6	17.6	17.6	16.6	15.3	14.1	21.0	19.8	18.1	17.0	15.5	14.1
2001	0.8	0.8	0.8	0.8	0.7	0.6	1.2	1.1	1.0	0.9	0.8	0.6
2002	1.6	1.6	1.6	1.6	1.4	1.3	1.9	1.9	1.7	1.6	1.4	1.3
2004	3.0	3.0	3.0	3.0	2.7	2.4	3.5	3.5	3.2	3.0	2.7	2.4
2006	5.0	5.0	5.0	5.0	4.5	4	6.0	6.0	5.4	5.0	4.5	4
2010	8.0	8.0	8.0	7.5	7.0	6.4	9.6	9.1	8.3	7.7	7.1	6.4
2012	11.0	11.0	11.0	10.4	9.6	8.8	12.2	11.9	11.0	10.4	9.6	8.8
2021	17.6	17.6	17.6	16.6	15.3	14.1	21.0	19.8	18.1	17.0	15.5	14.1
2030	25.0	25.0	25.0	23.6	21.8	20	30.0	28.3	25.8	24.2	22.1	20
2042	33.0	33.0	33.0	31.1	28.8	26	42.0	39.4	35.5	32.9	29.7	26
2056	47.0	47.0	47.0	44.3	41.0	38	56.0	52.9	48.3	45.3	41.4	38
2070	60.0	60.0	60.0	56.6	52.3	48	70.0	66.3	60.8	57.2	52.6	48
2082	75.0	75.0	75.0	70.7	65.4	60	82.0	81.4	75.0	70.7	65.4	60
4001	1.2	1.2	1.2	1.1	0.9	0.7	1.2	1.2	1.2	1.1	0.9	0.7
4002	1.8	1.8	1.8	1.6	1.3	1.1	2.1	2.1	1.8	1.6	1.3	1.1
4004	3.4	3.4	3.4	3.0	2.5	2.0	4.1	4.0	3.4	3.0	2.5	2.0
4005	4.8	4.8	4.8	4.3	3.6	2.9	5.4	5.4	4.8	4.2	3.6	2.9
4007	5.5	5.5	5.5	4.9	4.1	3.3	7.1	6.5	5.5	4.9	4.1	3.3
4009	7.3	7.3	7.3	6.5	5.4	4.4	8.9	8.6	7.3	6.5	5.4	4.4
4012	9.2	9.2	9.2	8.1	6.8	5.5	11.9	10.8	9.2	8.2	6.8	5.5
4018	14.8	14.8	14.8	13.1	11.0	8.9	17.8	17.3	14.7	13.1	11.0	8.8
4023	18.0	18.0	18.0	13.1	11.0	11	23.4	21.3	18.2	16.1	13.4	11
4031	24.0	24.0	24.0	21.3	17.8	14	31.0	28.2	24.1	21.3	17.9	14
4038	31.0	31.0	31.0	27.5	23.0	19	38.0	36.3	31.0	27.5	23.0	19
4044	39.0	39.0	39.0	34.5	29.0	23	44.0	44.0	39.0	34.5	29.0	23
4060	45.0	45.0	45.0	39.9	33.4	27	60.0	54.5	46.3	40.8	33.9	27

1. Applicable Motor Control Methods: V/f Control, Open Loop Vector, PM Open Loop Vector, EZ Vector Control
2. Refer to the GA500 Technical Manual for Carrier Frequency Derating information in control mode AOLV/PM.

Ambient Temperature Derating

Depending on the mounting condition, enclosure type and ambient temperature derating factors need to be applied on the rated output current of GA500 drives. The derating curves shown below are valid for all frames of GA500.

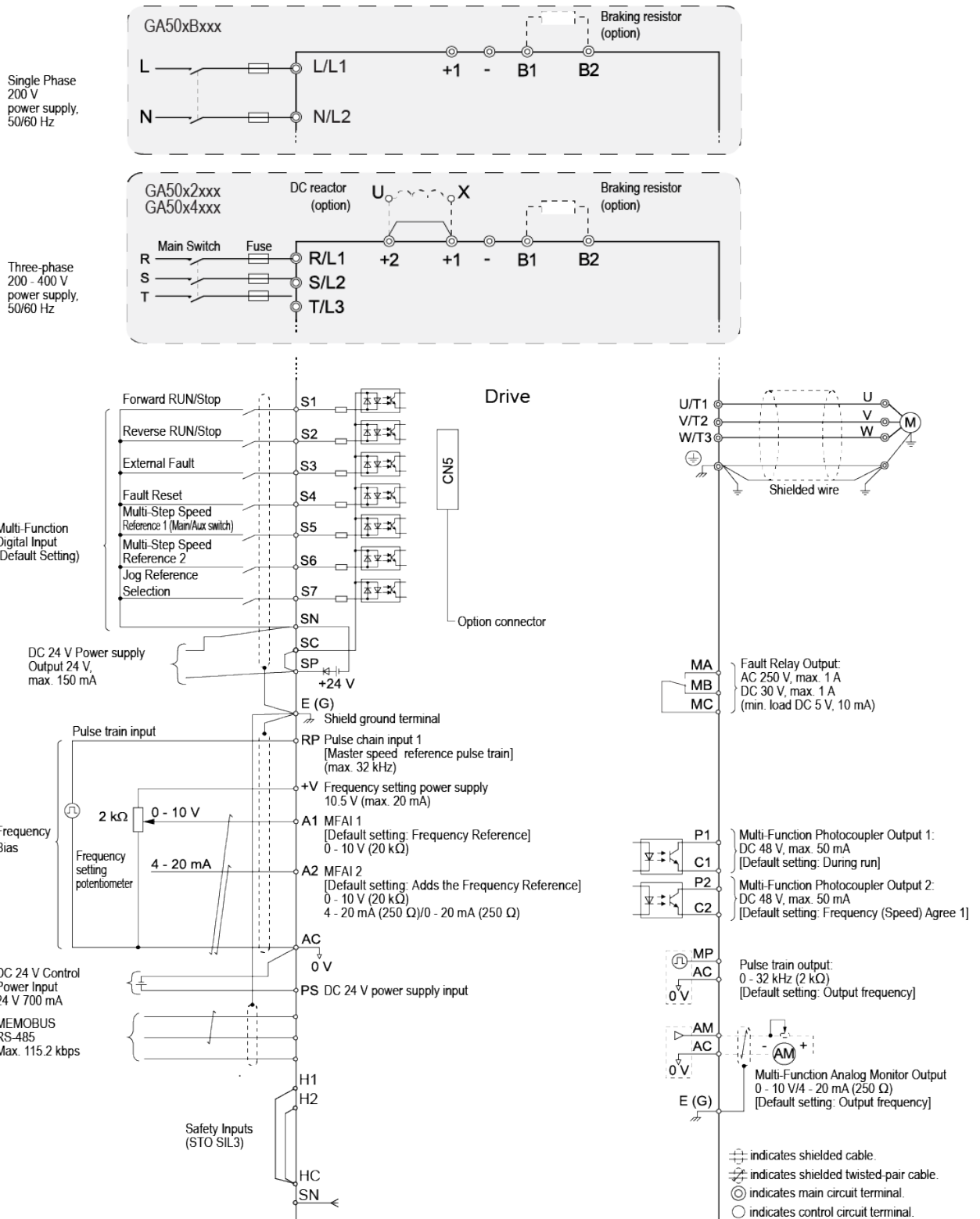


Altitude Derating

GA500 drives can be operated at altitudes up to 1000 m without derating. Between 1000 and 4000 m altitude above sea level a derating of 1 % per 100 m must be applied to the rated output current.

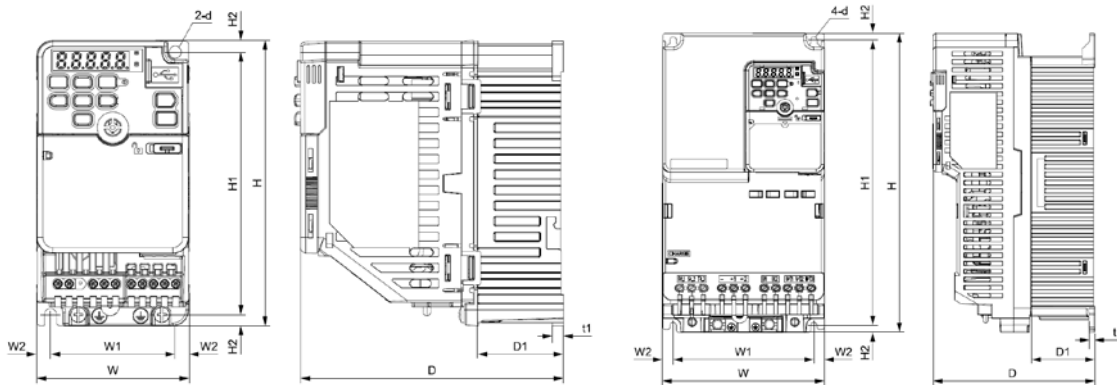
Additionally, a derating must be applied to the rated voltage if the drive is installed over 2000 m above sea level with the neutral point of the power supply ungrounded.

Electrical Connections



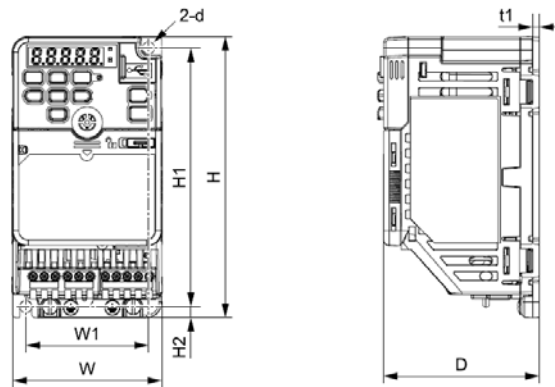
Dimensions

Standard Drives with and without integrated EMC filter, CIPR-GA50xxxxAxx and CIPR-GA50xxxxEAx



Voltage Class	Power (HD) [kW]	Model CIPR-	Dimensions [mm] / Weight [kg]											
			W	H	D (without EMC Fit)	D (with integr. EMC Fit)	D1	W1	W2	H1	H2	t1	d	Weight without/with EMC filter
1x230V	0.1	GA50CB001	68	128	76	116	6.5	56	6	118	5	3	For M5	0.5 / 0.7
1x230V	0.25	GA50CB002	68	128	76	116	6.5	56	6	118	5	3	For M5	0.5 / 0.7
1x230V	0.55	GA50CB004	68	128	118	158	38.5	56	6	118	5	5	For M5	0.8 / 1
1x230V	1.1	GA50CB006	108	128	137.5	182.5	56.5	96	6	118	5	5	For M5	1.5 / 1.8
1x230V	1.5	GA50CB010	108	128	154	199	56.5	96	6	118	5	5	For M5	1.5 / 1.8
1x230V	2.2	GA50CB012	140	128	163	203	65	128	6	118	5	5	For M5	2.1 / 2.7
1x230V	4	GA50CB018	170	128	180	-	65	158	6	118	5	5	For M5	2.9 / -
3x230V	0.1	GA50C2001	68	128	76	116	6.5	56	6	118	5	3	For M5	0.5 / 0.6
3x230V	0.25	GA50C2002	68	128	76	116	6.5	56	6	118	5	3	For M5	0.5 / 0.6
3x230V	0.55	GA50C2004	68	128	108	148	38.5	56	6	118	5	5	For M5	0.8 / 0.9
3x230V	1.1	GA50C2006	68	128	128	168	58.5	56	6	118	5	5	For M5	0.9 / 1.1
3x230V	1.1	GA50C2008	108	128	129	174	56.5	96	6	118	5	5	For M5	1.5 / 1.6
3x230V	1.5	GA50C2010	108	128	129	174	56.5	96	6	118	5	5	For M5	1.5 / 1.6
3x230V	2.2	GA50C2012	108	128	137.5	182.5	56.5	96	6	118	5	5	For M5	1.5 / 1.6
3x230V	3	GA50C2018	140	128	143	193	65	128	6	118	5	5	For M5	2 / 2.4
3x230V	4	GA50C2021	140	128	143	193	65	128	6	118	5	5	For M5	2 / 2.4
3x230V	5.5	GA50C2030	140	260	140	196	55	122	9	248	6	5	For M5	3.4 / 3.9
3x230V	7.5	GA50C2042	140	260	140	196	55	122	9	248	6	5	For M5	3.6 / 4.1
3x230V	11	GA50C2056	180	300	143	196	55	160	10	284	8	5	For M5	5.5 / 6
3x230V	15	GA50C2070	220	350	187	216	78	192	14	336	7	5	For M6	7.5 / 8.5
3x230V	18.5	GA50C2082	220	350	187	216	78	192	14	336	7	5	For M6	8 / 9
3x400V	0.4	GA50C4001	108	128	81	126	8.5	96	6	118	5	5	For M5	0.8 / 1.4
3x400V	0.4	GA50C4002	108	128	99	144	26.5	96	6	118	5	5	For M5	0.9 / 1.5
3x400V	0.55	GA50C4004	108	128	137.5	182.5	56.5	96	6	118	5	5	For M5	1.5 / 1.9
3x400V	1.5	GA50C4005	108	128	154	199	56.5	96	6	118	5	5	For M5	1.5 / 1.9
3x400V	2.2	GA50C4007	108	128	154	199	56.5	96	6	118	5	5	For M5	1.5 / 1.9
3x400V	3	GA50C4009	108	128	154	199	56.5	96	6	118	5	5	For M5	1.5 / 1.9
3x400V	4	GA50C4012	140	128	143	193	65	128	6	118	5	5	For M5	2 / 2.6
3x400V	5.5	GA50C4018	140	260	140	196	55	122	9	248	6	5	For M5	3 / 3.9
3x400V	7.5	GA50C4023	140	260	140	196	55	122	9	248	6	5	For M5	3.2 / 3.9
3x400V	11	GA50C4031	180	300	143	196	55	160	10	284	8	5	For M5	4.6 / 5.5
3x400V	15	GA50C4038	180	300	143	196	55	160	10	284	8	5	For M5	4.8 / 5.5
3x400V	18.5	GA50C4044	190	350	204	251	94	160	15	336	7	5	For M6	6.5 / 8
3x400V	22	GA50C4060	190	350	204	251	94	160	15	336	7	5	For M6	6.5 / 8.5

Finless Drives, CIPR-GA50xxxxAJxx



Voltage Class	Power (HD) [kW]	Model CIPR-	Dimensions [mm] / Weight [kg]							
			W	H	D	W1	H1	t1	d	Weight [kg]
1x230V	0.1	GA50CB001	68	128	71	56	118	3	For M5	0.6
1x230V	0.25	GA50CB002	68	128	71	56	118	3	For M5	0.6
1x230V	0.55	GA50CB004	68	128	81	56	118	3	For M5	0.6
1x230V	1.1	GA50CB006	108	128	81	96	118	4	For M5	0.9
1x230V	1.5	GA50CB010	108	128	92.5	96	118	4	For M5	1.0
1x230V	2.2	GA50CB012	140	128	98	128	118	4	For M5	1.2
3x230V	0.1	GA50C2001	68	128	71	56	118	3	For M5	0.6
3x230V	0.25	GA50C2002	68	128	71	56	118	3	For M5	0.6
3x230V	0.55	GA50C2004	68	128	71	56	118	3	For M5	0.6
3x230V	1.1	GA50C2006	68	128	71	56	118	3	For M5	0.6
3x230V	1.1	GA50C2008	108	128	72.5	96	118	4	For M5	0.8
3x230V	1.5	GA50C2010	108	128	72.5	96	118	4	For M5	0.8
3x230V	2.2	GA50C2012	108	128	81	96	118	4	For M5	0.9
3x230V	3	GA50C2018	140	128	78	128	118	4	For M5	1.2
3x230V	4	GA50C2021	140	128	78	128	118	4	For M5	1.2
3x230V	5.5	GA50C2030	140	260	145	122	248	5	For M5	3.1
3x230V	7.5	GA50C2042	140	260	145	122	248	5	For M5	3.2
3x230V	11	GA50C2056	301	181	147	160	284	5	For M5	4.7
3x230V	15	GA50C2070	350	220	152	192	336	5	For M6	6.5
3x400V	0.4	GA50C4001	108	128	75	96	118	4	For M5	0.8
3x400V	0.55	GA50C4002	108	128	75	96	118	4	For M5	0.8
3x400V	1.1	GA50C4004	108	128	83.5	96	118	4	For M5	0.9
3x400V	1.5	GA50C4005	108	128	100	96	118	4	For M5	1.0
3x400V	2.2	GA50C4007	108	128	100	96	118	4	For M5	1.0
3x400V	3	GA50C4009	108	128	100	96	118	4	For M5	1.0
3x400V	4	GA50C4012	140	128	78	128	118	4	For M5	1.2
3x400V	5.5	GA50C4018	140	260	145	122	248	5	For M5	2.6
3x400V	7.5	GA50C4023	140	260	145	122	248	5	For M5	2.8
3x400V	11	GA50C4031	301	181	147	160	284	5	For M5	4.1
3x400V	15	GA50C4038	301	181	147	160	284	5	For M5	4.3

Accessories

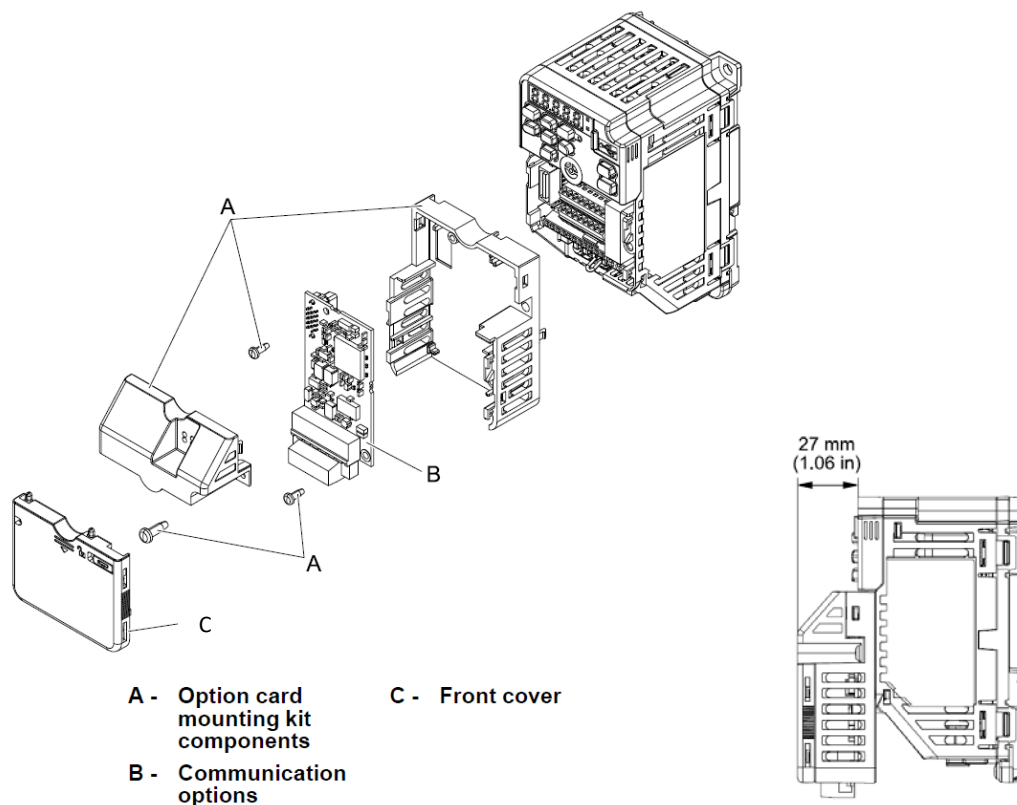
Network Communications Option Cards

The communication option cards listed below can be mounted on GA500 drive. The option enclosure, which is required to install any of the option cards on a GA500 drive, must be **ordered separately**.

Network Type	Option Card Model Codes
CANopen	SI-S3
Profibus	SI-P3
EtherCat	SI-ES3
EtherNet IP	SI-EN3 (single port) / SI-EN3/D (dual port)
Modbus TCP	SI-EM3 (single port) / SI-EM3/D (dual port)
ProfiNet	SI-EP3
PowerLink	SI-EL3
CC-Link	SI-C3
Option Card Enclosure	JOHB-GA50

Important: With an option card enclosure installed the depth of the drive increases for 27 mm.

Option enclosure (Model code: JOHB-GA50, parts A) and option card installation:



LED/LCD Keypads

LED Full Size Keypad (Model Code: JVOP-KPLEA04AAA)

This optional LED keypad provides a larger LED display (5 digits, 7 segments) and larger navigation buttons for more comfort during drive operation.

LCD Keypad (Model Code: JVOP-KPLCA04AEA)

This optional LCD keypad greatly improves the operability of the drive. The high-res screen can display graphics and multi-language full text. Additional functions are: Start-up Wizard, copy function (4 sets of parameters), backup, data logging, real-time clock.

LCD Bluetooth Keypad (Model Code: JVOP-KPLCC04ABA)

This optional LCD keypad offers in addition to the functionality of the LCD panel the possibility to establish a Bluetooth connection to the drive. This allows setup, operation, parameterization to be carried out conveniently and easily with a smartphone or tablet (Android or iOS) via the DriveWizard Mobile app.

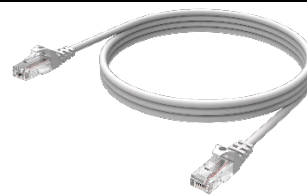
DriveWizard Mobile can be installed from Apple AppStore or Google Play.



Extension Cables

Extension cables for keypads are offered in two lengths.

Model Number	Description
WV001-YEG	Keypad Remote Mount Cable - 1 Meter
WV003-YEG	Keypad Remote Mount Cable - 3 Meter



Keypad Door Mounting Kits and Keypad Cover

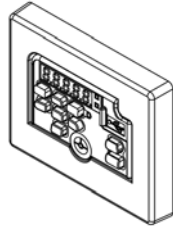
Door Mounting Kit for GA500 Internal Keypad

The removable keypad on GA500 can be mounted on a panel door using the mounting frame below. Cables WV001-YEG or WV003-YEG are recommended as extension cable.

Important: Blind cover and cable are not part of the kit and must be purchased separately!

Part	Door mounting kit for GA500 integrated keypad
Model Number	ZPBA-GA500

Appearance



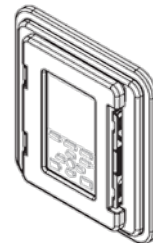
Door Mounting Kits for LCD Keypads (with or without Bluetooth)

The LCD keypads can be mounted to a panel front door using one of the mounting kits below. Cables WV001-YEG or WV003-YEG are recommended as extension cable.

Important: Keypad, blind cover and cable are not part of the kit and must be purchased separately!

Part	Keypad mounting bracket with tapped holes for use with screws	Keypad mounting bracket with untapped holes for use with panel studs	Keypad mounting kit for on door mounting, IP55/UL Type 12, With lid, keypad fixed
Model Number	900-192-933-001	900-192-933-002	900-239-230-001

Appearance



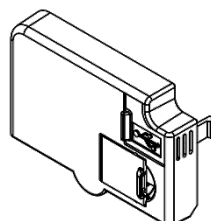
(Door mounting kit does not contain a keypad and cable!)

GA500 Blind Cover for Internal keypad

When mounting the keypad externally a blind cover should be applied to the drive as a protection for electronic boards.

Part	Blind cover for GA500
Model Number	JVOP-KPBCH04AAA

Appearance

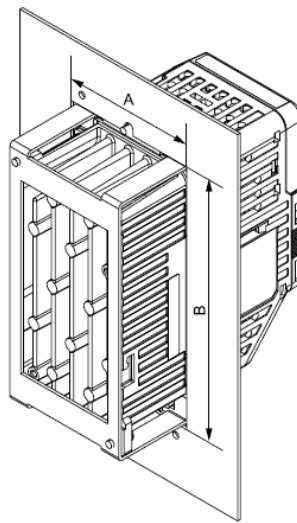


Heatsink External Mounting Kit

GA500 drives with IP20 or UL Open Type 1 can be mounted with the heatsink out the back of the panel or enclosure in order to have the main source of heat loss outside and so reduce panel volume or panel cooling. A rectangular cut out is required in the panel. Drives are fixed using an heatsink external mounting kit. Details on assembly and installation can be found in the Installation Manual for these kits (TOEPC72060009_).

- Important:**
- With this method of mounting the rated output current might require a derating. See section “Deratings” in this document.
 - The backside of the drive remains IP20. The externally mounted heatsink should not be exposed to dusty or wet environment that would normally require a higher degree of ingress protection.
 - Heatsink external mounting kits cannot be used with finless drives.

Appearance



Heatsink External Mounting Kit Model Numbers

Voltage Class	Power kW (HD)	GA500 Model CIPR-	Heatsink External Mounting Kit
1x230V	0.1	GA50CB001xxxx	ZPSA-GA50V1-1
1x230V	0.25	GA50CB002xxxx	ZPSA-GA50V1-1
1x230V	0.55	GA50CB004xxxx	ZPSA-GA50V1-2
1x230V	1.1	GA50CB006xxxx	ZPSA-GA50V2-2
1x230V	1.5	GA50CB010xxxx	ZPSA-GA50V2-3
1x230V	2.2	GA50CB012xxxx	ZPSA-GA50V3-1
1x230V	4	GA50CB018xxxx	ZPSA-GA50V4-1
3x400V	0.4	GA50C4001xxxx	ZPSA-GA50V2-1
3x400V	0.55	GA50C4002xxxx	ZPSA-GA50V2-2
3x400V	1.1	GA50C4004xxxx	ZPSA-GA50V2-2
3x400V	1.5	GA50C4005xxxx	ZPSA-GA50V2-3
3x400V	2.2	GA50C4007xxxx	ZPSA-GA50V2-3
3x400V	3	GA50C4009xxxx	ZPSA-GA50V2-3
3x400V	4	GA50C4012xxxx	ZPSA-GA50V3-1
3x400V	5.5	GA50C4018xxxx	ZPSA-GA50V5-1
3x400V	7.5	GA50C4023xxxx	ZPSA-GA50V5-1
3x400V	11	GA50C4031xxxx	ZPSA-GA50V6-1
3x400V	15	GA50C4038xxxx	ZPSA-GA50V6-1
3x400V	18.5	GA50C4044xxxx	ZPSA-GA50V8-1
3x400V	22	GA50C4060xxxx	ZPSA-GA50V8-1
3x230V	0.1	GA50C2001xxxx	ZPSA-GA50V1-1
3x230V	0.25	GA50C2002xxxx	ZPSA-GA50V1-1
3x230V	0.55	GA50C2004xxxx	ZPSA-GA50V1-2
3x230V	1.1	GA50C2006xxxx	ZPSA-GA50V1-3
3x230V	1.1	GA50C2008xxxx	ZPSA-GA50V2-3
3x230V	1.5	GA50C2010xxxx	ZPSA-GA50V2-3
3x230V	2.2	GA50C2012xxxx	ZPSA-GA50V2-3
3x230V	3	GA50C2018xxxx	ZPSA-GA50V3-1
3x230V	4	GA50C2021xxxx	ZPSA-GA50V3-1
3x230V	5.5	GA50C2030xxxx	ZPSA-GA50V5-1
3x230V	7.5	GA50C2042xxxx	ZPSA-GA50V5-1
3x230V	11	GA50C2056xxxx	ZPSA-GA50V6-1
3x230V	15	GA50C2070xxxx	ZPSA-GA50V7-1
3x230V	18.5	GA50C2082xxxx	ZPSA-GA50V7-1

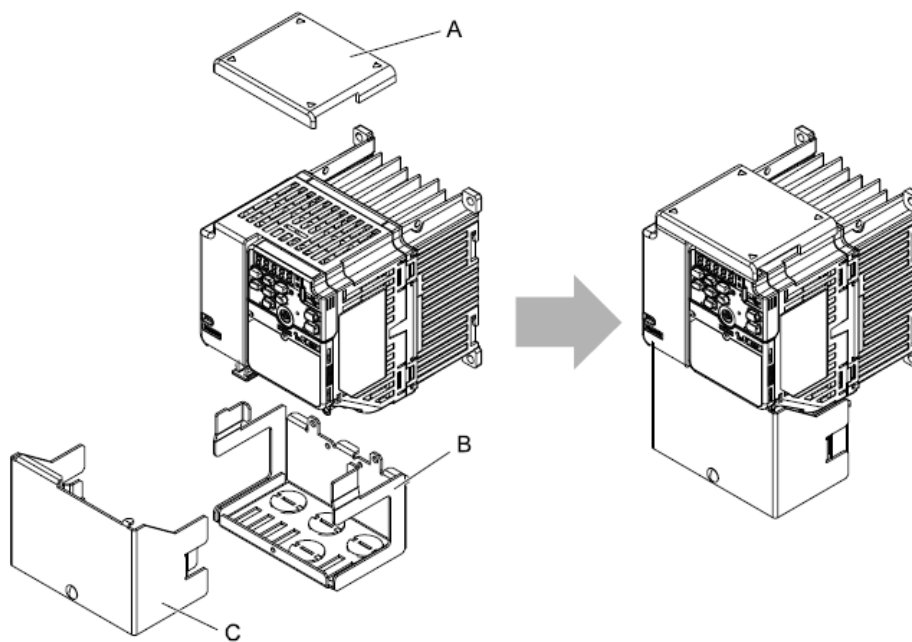
UL Type 1 Kit

UL Type 1 kits consist of a top cover, a cable connection box, and a face plate that can be mounted on standard GA500 drives with IP20 in order to make them UL Type 1 compliant.

Details on assembly and installation can be found the Installation Manual for these kits (TOEPC72060008_).

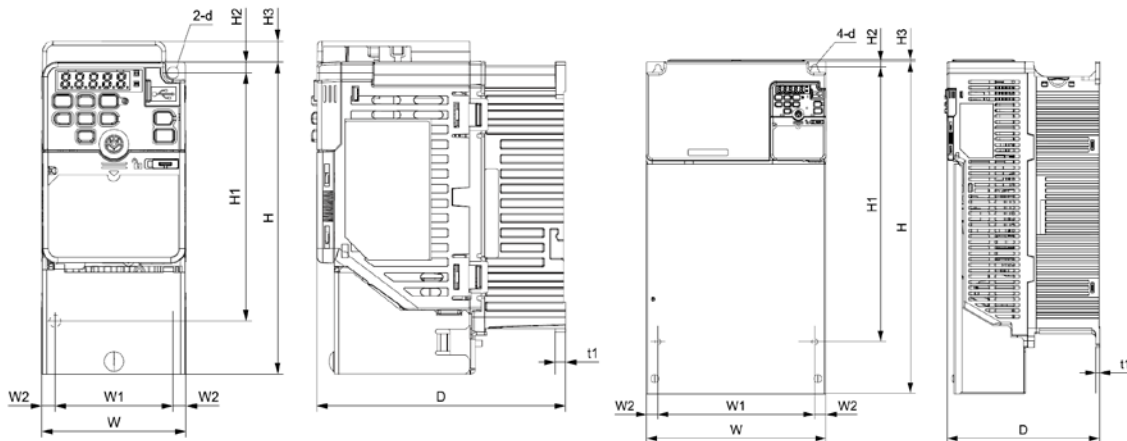
- Important:**
- UL Type 1 kits can only be mounted on GA500 drives WITHOUT embedded EMC filter.
 - With a UL Type 1 kit installed the output current might require a derating. See section “Deratings” in this document.
 - UL Type 1 Kits cannot be installed on GA500 finless drives.

Appearance



A – Top Cover, B – Base, C – Front cover

UL Type 1 Kit Model Numbers, Dimensions and Weight



Voltage Class	Power kW (HD)	GA500 Model CIPR-	UL Type 1 Kit	Dimensions / Weight (Drive with UL Type 1 Kit)										
				W	H	D	W1	W2	H1	H2	H3	t1	d	Weight [kg]
1x230V	0.1	GA50CB001ABxx	ZBAA-GA50V1-1	68	148	76	56	6	118	5	10	3	For M5	1
1x230V	0.25	GA50CB002ABxx	ZBAA-GA50V1-1	68	148	76	56	6	118	5	10	3	For M5	1
1x230V	0.55	GA50CB004ABxx	ZBAA-GA50V1-2	68	148	118	56	6	118	5	10	5	For M5	1
1x230V	1.1	GA50CB006ABxx	ZBAA-GA50V2-1	108	178	138	96	6	118	5	10	5	For M5	2
1x230V	1.5	GA50CB010ABxx	ZBAA-GA50V2-2	108	178	154	96	6	118	5	10	5	For M5	2
1x230V	2.2	GA50CB012ABxx	ZBAA-GA50V3-1	140	178	163	128	6	118	5	10	5	For M5	3
1x230V	4	GA50CB018ABxx	ZBAA-GA50V4-1	170	182	180	158	6	118	5	2	5	For M5	3
3x230V	0.1	GA50C2001ABxx	ZBAA-GA50V1-1	68	148	76	56	6	118	5	10	3	For M5	1
3x230V	0.25	GA50C2002ABxx	ZBAA-GA50V1-1	68	148	76	56	6	118	5	10	3	For M5	1
3x230V	0.55	GA50C2004ABxx	ZBAA-GA50V1-1	68	148	108	56	6	118	5	10	5	For M5	1
3x230V	1.1	GA50C2006ABxx	ZBAA-GA50V1-1	68	148	128	56	6	118	5	10	5	For M5	1
3x230V	1.1	GA50C2008ABxx	ZBAA-GA50V2-3	108	178	129	96	6	118	5	10	5	For M5	2
3x230V	1.5	GA50C2010ABxx	ZBAA-GA50V2-3	108	178	129	96	6	118	5	10	5	For M5	2
3x230V	2.2	GA50C2012ABxx	ZBAA-GA50V2-1	108	178	138	96	6	118	5	10	5	For M5	2
3x230V	3	GA50C2018ABxx	ZBAA-GA50V3-2	140	178	143	128	6	118	5	10	5	For M5	2
3x230V	4	GA50C2021ABxx	ZBAA-GA50V3-2	140	178	143	128	6	118	5	10	5	For M5	2
3x230V	5.5	GA50C2030ABxx	ZBAA-GA50V5-1	140	298	140	122	9	248	6	2	5	For M5	4
3x230V	7.5	GA50C2042ABxx	ZBAA-GA50V5-1	140	298	140	122	9	248	6	2	5	For M5	4
3x230V	11	GA50C2056ABxx	ZBAA-GA50V6-1	180	340	143	160	10	284	8	2	5	For M5	6
3x230V	15	GA50C2070ABxx	ZBAA-GA50V7-1	220	403	187	192	14	336	7	2	5	For M6	9
3x230V	18.5	GA50C2082ABxx	ZBAA-GA50V7-1	220	403	187	192	14	336	7	2	5	For M6	9
3x400V	0.4	GA50C4001ABxx	ZBAA-GA50V2-4	108	149	81	96	6	118	5	10	5	For M5	1
3x400V	0.55	GA50C4002ABxx	ZBAA-GA50V2-4	108	149	99	96	6	118	5	10	5	For M5	1
3x400V	1.1	GA50C4004ABxx	ZBAA-GA50V2-5	108	149	138	96	6	118	5	10	5	For M5	2
3x400V	1.5	GA50C4005ABxx	ZBAA-GA50V2-2	108	178	154	96	6	118	5	10	5	For M5	2
3x400V	2.2	GA50C4007ABxx	ZBAA-GA50V2-2	108	178	154	96	6	118	5	10	5	For M5	2
3x400V	3	GA50C4009ABxx	ZBAA-GA50V2-2	108	178	154	96	6	118	5	10	5	For M5	2
3x400V	4	GA50C4012ABxx	ZBAA-GA50V3-2	140	178	143	128	6	118	5	10	5	For M5	2
3x400V	5.5	GA50C4018ABxx	ZBAA-GA50V5-1	140	298	140	122	9	248	6	2	5	For M5	4
3x400V	7.5	GA50C4023ABxx	ZBAA-GA50V5-1	140	298	140	122	9	248	6	2	5	For M5	4
3x400V	11	GA50C4031ABxx	ZBAA-GA50V6-1	180	340	143	160	10	284	8	2	5	For M5	5
3x400V	15	GA50C4038ABxx	ZBAA-GA50V6-1	180	340	143	160	10	284	8	2	5	For M5	6
3x400V	18.5	GA50C4044ABxx	ZBAA-GA50V8-1	190	403	204	160	15	336	7	2	5	For M6	8
3x400V	22	GA50C4060ABxx	ZBAA-GA50V8-1	190	403	204	160	15	336	7	2	5	For M6	8

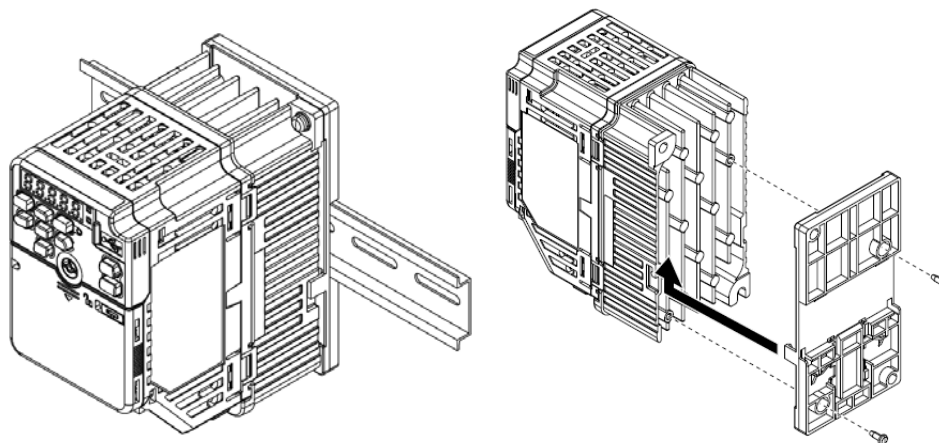
DIN Rail Attachment

GA500 drives up to 4 kW can be mounted on a DIN rail using a DIN rail attachment.

Details on assembly and installation can be found the Installation Manual for these attachments (TOEPC72060004).

Important: DIN Rail Attachments cannot be used with finless GA500 drives.

Appearance



DIN Rail Attachment Model Numbers

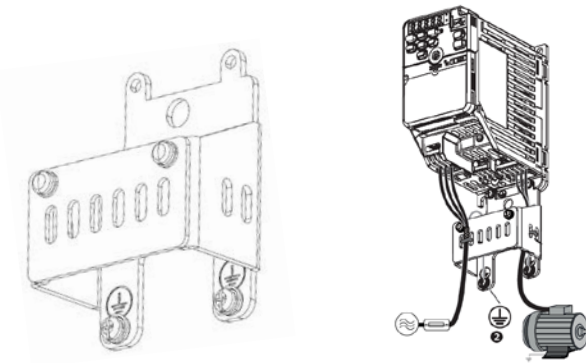
Voltage Class	Power kW (HD)	GA500 Model CIPR-	DIN Rail Attachment
1x230V	0.1	GA50CB001ABxx	ZPZ-GA50V1
1x230V	0.25	GA50CB002ABxx	ZPZ-GA50V1
1x230V	0.55	GA50CB004ABxx	ZPZ-GA50V1
1x230V	1.1	GA50CB006ABxx	ZPZ-GA50V2
1x230V	1.5	GA50CB010ABxx	ZPZ-GA50V2
1x230V	2.2	GA50CB012ABxx	ZPZ-GA50V3
1x230V	4	GA50CB018ABxx	EZZ08122D
3x230V	0.1	GA50C2001ABxx	ZPZ-GA50V1
3x230V	0.25	GA50C2002ABxx	ZPZ-GA50V1
3x230V	0.55	GA50C2004ABxx	ZPZ-GA50V1
3x230V	1.1	GA50C2006ABxx	ZPZ-GA50V1
3x230V	1.1	GA50C2008ABxx	ZPZ-GA50V2
3x230V	1.5	GA50C2010ABxx	ZPZ-GA50V2
3x230V	2.2	GA50C2012ABxx	ZPZ-GA50V2
3x230V	3	GA50C2018ABxx	ZPZ-GA50V3
3x230V	4	GA50C2021ABxx	ZPZ-GA50V3
3x400V	0.4	GA50C4001ABxx	ZPZ-GA50V2
3x400V	0.55	GA50C4002ABxx	ZPZ-GA50V2
3x400V	1.1	GA50C4004ABxx	ZPZ-GA50V2
3x400V	1.5	GA50C4005ABxx	ZPZ-GA50V2
3x400V	2.2	GA50C4007ABxx	ZPZ-GA50V2
3x400V	3	GA50C4009ABxx	ZPZ-GA50V2
3x400V	4	GA50C4012ABxx	ZPZ-GA50V3

Cable Shield Clamp Kit

In order to simplify cable shield connection and provide a strain relief at the same time a cable shield clamp kit can be mounted at the bottom of the drive. The kits can be used for both, GA500 with and without integrated EMC filter.

- Important:**
- Cable shield and UL Type 1 kits cannot be installed simultaneously.
 - Cables must be fixed with cable ties, which are not part of the shield kit.

Appearance





Cable Shield Kit Model Numbers

Voltage Class	Power kW (HD)	GA500 Model CIPR-	Shield Clamp Kit
1x230V	0.1	GA50CB001xBxx	ZHZ-GA50V1
1x230V	0.25	GA50CB002xBxx	ZHZ-GA50V1
1x230V	0.55	GA50CB004xBxx	ZHZ-GA50V1
1x230V	1.1	GA50CB006xBxx	ZHZ-GA50V2
1x230V	1.5	GA50CB010xBxx	ZHZ-GA50V2
1x230V	2.2	GA50CB012xBxx	ZHZ-GA50V3
1x230V	4	GA50CB018xBxx	ZHZ-GA50V4
3x230V	0.1	GA50C2001xBxx	ZHZ-GA50V1
3x230V	0.25	GA50C2002xBxx	ZHZ-GA50V1
3x230V	0.55	GA50C2004xBxx	ZHZ-GA50V1
3x230V	1.1	GA50C2006xBxx	ZHZ-GA50V1
3x230V	1.1	GA50C2008xBxx	ZHZ-GA50V2
3x230V	1.5	GA50C2010xBxx	ZHZ-GA50V2
3x230V	2.2	GA50C2012xBxx	ZHZ-GA50V2
3x230V	3	GA50C2018xBxx	ZHZ-GA50V3
3x230V	4	GA50C2021xBxx	ZHZ-GA50V3
3x230V	5.5	GA50C2030xBxx	ZHZ-GA50V5
3x230V	7.5	GA50C2042xBxx	ZHZ-GA50V5
3x230V	11	GA50C2056xBxx	ZHZ-GA50V6
3x230V	15	GA50C2070xBxx	ZHZ-GA50V7
3x230V	18.5	GA50C2082xBxx	ZHZ-GA50V7
3x400V	0.2	GA50C4001xBxx	ZHZ-GA50V2
3x400V	0.4	GA50C4002xBxx	ZHZ-GA50V2
3x400V	1.1	GA50C4004xBxx	ZHZ-GA50V2
3x400V	1.5	GA50C4005xBxx	ZHZ-GA50V2
3x400V	2.2	GA50C4007xBxx	ZHZ-GA50V2
3x400V	3	GA50C4009xBxx	ZHZ-GA50V2
3x400V	4	GA50C4012xBxx	ZHZ-GA50V3
3x400V	5.5	GA50C4018xBxx	ZHZ-GA50V5
3x400V	7.5	GA50C4023xBxx	ZHZ-GA50V5
3x400V	11	GA50C4031xBxx	ZHZ-GA50V6
3x400V	15	GA50C4038xBxx	ZHZ-GA50V6
3x400V	18.5	GA50C4044xBxx	ZHZ-GA50V8
3x400V	22	GA50C4060xBxx	ZHZ-GA50V8

Tools and Software

Tools

Tool	Description	System	Connection
DriveWizard 10	PC Tool for parameter management/backup/diagnostics	Windows 10	USB-mini
DriveWorksEZ 10	Customization tool with drag-and-drop icon-based programming	Windows 10	USB-mini
DriveWizard Mobile	Mobile app for parameter management/backup/diagnostics	Android 	<ul style="list-style-type: none"> • Bluetooth • USB-mini with USB on-the-go adapter
		iPhone 	<ul style="list-style-type: none"> • Bluetooth

Connection Cables

Model Number	Description
JZSP-CVS06-02-E	USB-mini connection cable for PC 2.5m

Power Options

EMC Filters

GA500 drives can be equipped with external EMC filter in case the filter performance of the internal filters is insufficient. Two types of filters are available, standard and low leakage filters.

External filters can be used with both, GA500 with and without integrated EMC filters.

Standard EMC Filters

Standard filters should be used when the focus is on achieving a better filter category according to IEC61800-3 or when a longer motor cable is used.

Voltage Class	Power kW (HD)	GA500 Model CIPR-	EMC Filter	EMC Class (Motor cable length ^{*1})	Leakage Current (mA) ^{*2}	Mounting	
						Foot	Side
1x230V	0.1	GA50CB001ABxx		C1 (20 m) / C2 (50 m)	5.3	X	X
1x230V	0.25	GA50CB002ABxx	FS23638-10-07	C1 (20 m) / C2 (50 m)	5.3	X	X
1x230V	0.55	GA50CB004ABxx		C1 (20 m) / C2 (50 m)	5.3	X	X
1x230V	1.1	GA50CB006ABxx	FS23638-20-07	C1 (20 m) / C2 (50 m)	5.3	X	X
1x230V	1.5	GA50CB010ABxx		C1 (20 m) / C2 (50 m)	5.3	X	X
1x230V	2.2	GA50CB012ABxx	FS23638-30-07	C1 (10 m) / C2 (50 m)	5.3	X	X
1x230V	4	GA50CB018ABxx	FS23638-40-07	C1 (20 m) / C2 (50 m)	5.3	X	X
3x230V	0.1	GA50C2001ABxx		C1 (20 m) / C2 (50 m)	1.8	X	X
3x230V	0.25	GA50C2002ABxx	FS23637-8-07	C1 (20 m) / C2 (50 m)	1.8	X	X
3x230V	0.55	GA50C2004ABxx		C1 (20 m) / C2 (50 m)	1.8	X	X
3x230V	1.1	GA50C2006ABxx	FS23637-14-07	C1 (20 m) / C2 (50 m)	1.8	X	X
3x230V	1.1	GA50C2008ABxx		C1 (20 m) / C2 (50 m)	1.93	X	X
3x230V	1.5	GA50C2010ABxx	FS23637-14-07	C1 (20 m) / C2 (50 m)	1.93	X	X
3x230V	2.2	GA50C2012ABxx		C1 (20 m) / C2 (50 m)	1.93	X	X
3x230V	3	GA50C2018ABxx	FS23637-24-07	C1 (20 m) / C2 (50 m)	2	X	X
3x230V	4	GA50C2021ABxx		C1 (20 m) / C2 (50 m)	2	X	X
3x230V	5.5	GA50C2030ABxx	FS23637-52-07	C1 (20 m) / C2 (50 m)	2.82	X	X
3x230V	7.5	GA50C2042ABxx		C1 (20 m) / C2 (50 m)	2.82	X	X
3x230V	11	GA50C2056ABxx	FS23637-68-07	C1 (20 m) / C2 (50 m)	3.41	X	X
3x230V	15	GA50C2070ABxx	FS23637-80-07	C1 (20 m) / C2 (50 m)	3.41	X	X
3x230V	18.5	GA50C2082ABxx	on demand				
3x400V	0.4	GA50C4001ABxx		C1 (20 m) / C2 (50 m)	3.3	X	X
3x400V	0.55	GA50C4002ABxx	FS23639-5-07	C1 (20 m) / C2 (50 m)	3.3	X	X
3x400V	1.1	GA50C4004ABxx		C1 (20 m) / C2 (50 m)	3.3	X	X
3x400V	1.5	GA50C4005ABxx	FS23639-10-07	C1 (20 m) / C2 (50 m)	3.2	X	X
3x400V	2.2	GA50C4007ABxx		C1 (20 m) / C2 (50 m)	3.2	X	X
3x400V	3	GA50C4009ABxx	FS23639-15-07	C1 (20 m) / C2 (50 m)	3.3	X	X
3x400V	4	GA50C4012ABxx		C2 (50 m)	3.3	X	X
3x400V	5.5	GA50C4018ABxx	FS23639-30-07	C1 (20 m) / C2 (50 m)	3.3	X	X
3x400V	7.5	GA50C4023ABxx		C1 (20 m) / C2 (50 m)	3.3	X	X
3x400V	11	GA50C4031ABxx	FS23639-50-07	C1 (20 m) / C2 (50 m)	3.3	X	X
3x400V	15	GA50C4038ABxx		C1 (20 m) / C2 (50 m)	3.3	X	X
3x400V	18.5	GA50C4044ABxx	FB-40060A	C1 (10 m) / C2 (50 m)	11.6	-	X
3x400V	22	GA50C4060ABxx		C1 (10 m) / C2 (50 m)	11.6	-	X

1. Shielded Motor Cable
2. Leakage currents shown here are calculated and for the EMC filter only. Values in real applications can vary depending on factors like phase voltage imbalance, grounding etc.

Low Leakage EMC Filters

Low leakage filters should be used when the focus is on achieving the lowest possible leakage current while maintaining a certain EMC filter category.

Voltage Class	Power kW (HD)	GA500 Model CIPR-	EMC Filter	EMC Class (motor cable length) ^{*1}	Leakage Current (mA) ^{*2}	Mounting	
						Foot	Side
1x230V	0.1	GA50CB001xBxx		C1 (5 m) / C2 (10 m)	2.59	-	X
1x230V	0.25	GA50CB002xBxx	FS42751-8-44	C1 (5 m) / C2 (10 m)	2.59	-	X
1x230V	0.55	GA50CB004xBxx		C1 (5 m) / C2 (10 m)	2.59	-	X
1x230V	1.1	GA50CB006xBxx	FS42751-16-44	C1 (5 m) / C2 (10 m)	2.59	-	X
1x230V	1.5	GA50CB010xBxx		C1 (5 m) / C2 (10 m)	2.59	-	X
1x230V	2.2	GA50CB012xBxx	FS42751-25-33	C1 (5 m) / C2 (10 m)	2.59	-	X
1x230V	4	GA50CB018xBxx	FS42751-45-33	C1 (5 m) / C2 (10 m)	2.59	-	X
3x230V	0.1	GA50C2001xBxx		on demand	2.5	-	X
3x230V	0.25	GA50C2002xBxx		on demand	2.5	-	X
3x230V	0.55	GA50C2004xBxx	FS42753-10-44	on demand	2.5	-	X
3x230V	1.1	GA50C2006xBxx		on demand	2.5	-	X
3x230V	1.1	GA50C2008xBxx		on demand	2.5	-	X
3x230V	1.5	GA50C2010xBxx		on demand	2.5	-	X
3x230V	2.2	GA50C2012xBxx	FS42753-16-44	on demand	2.5	-	X
3x230V	3	GA50C2018xBxx	FS42753-20-33	on demand	2.5	-	X
3x230V	4	GA50C2021xBxx	FS42753-25-33	on demand	2.5	-	X
3x230V	5.5	GA50C2030xBxx	FS42753-40-33	on demand	3.46	-	X
3x230V	7.5	GA50C2042xBxx	FS42753-63-53	on demand	2.61	-	X
3x230V	11	GA50C2056xBxx		on demand	2.69	-	X
3x230V	15	GA50C2070xBxx	FS42753-83-35	on demand	2.69	-	X
3x230V	18.5	GA50C2082xBxx	FS42753-115-35	on demand	2.69	-	X
3x400V	0.4	GA50C4001xBxx		C1 (10 m) / C2 (25 m)	2.5	-	X
3x400V	0.55	GA50C4002xBxx		C1 (10 m) / C2 (25 m)	2.5	-	X
3x400V	1.1	GA50C4004xBxx	FS42753-10-44	C1 (10 m) / C2 (25 m)	2.5	-	X
3x400V	1.5	GA50C4005xBxx		C1 (10 m) / C2 (25 m)	2.5	-	X
3x400V	2.2	GA50C4007xBxx		C1 (10 m) / C2 (25 m)	2.5	-	X
3x400V	3	GA50C4009xBxx		C1 (10 m) / C2 (25 m)	2.5	-	X
3x400V	4	GA50C4012xBxx	FS42753-16-44	C1 (10 m) / C2 (25 m)	2.5	-	X
3x400V	5.5	GA50C4018xBxx	FS42753-20-33	C1 (10 m) / C2 (25 m)	2.5	-	X
3x400V	7.5	GA50C4023xBxx	FS42753-25-33	C1 (10 m) / C2 (25 m)	2.5	-	X
3x400V	11	GA50C4031xBxx	FS42753-40-33	C1 (10 m) / C2 (25 m)	3.46	-	X
3x400V	15	GA50C4038xBxx	FS42753-50-53	C1 (10 m) / C2 (25 m)	2.61	-	X
3x400V	18.5	GA50C4044xBxx	FS42753-63-53	C1 (10 m) / C2 (25 m)	2.61	-	X
3x400V	22	GA50C4060xBxx	FS42753-83-35	C1 (10 m) / C2 (25 m)	2.69	-	X

1. Shielded Motor Cable
2. Leakage currents shown here are calculated and for the EMC filter only. Values in real applications can vary depending on factors like phase voltage imbalance, grounding etc.

AC Input Reactors

Input reactors can be applied in order to reduce harmonic distortion on the AC input line. Reactors are offered with 4% uk. IP20 covers are separately available.

GA500 Model CIPR-	IP00	IP20 cover
GA50CB001xxxx		
GA50CB002xxxx		
GA50CB004xxxx		
GA50CB006xxxx	n.a.	n.a.
GA50CB010xxxx		
GA50CB012xxxx		
GA50CB018xxxx		
GA50C2001xxxx		
GA50C2002xxxx	LR3 40-4/4	
GA50C2004xxxx		
GA50C2006xxxx	LR3 40-4/6	IP20-Box32
GA50C2008xxxx		
GA50C2010xxxx	LR3 40-4/10	
GA50C2012xxxx		
GA50C2018xxxx	LR3 40-4/25	IP20-Box33
GA50C2021xxxx		
GA50C2030xxxx	LR3 40-4/45	IP20-Box35
GA50C2042xxxx	LR3 40-4/63	IP20-Box36
GA50C2056xxxx	LR3 40-4/90	IP20-Box39
GA50C2070xxxx		
GA50C2082xxxx	LR3 40-4/115	IP20-Box41
GA50C4001xxxx	LR3 40-4/4	
GA50C4002xxxx		
GA50C4004xxxx	LR3 40-4/6	IP20-Box32
GA50C4005xxxx		
GA50C4007xxxx	LR3 40-4/10	
GA50C4009xxxx		
GA50C4012xxxx	LR3 40-4/16	
GA50C4018xxxx	LR3 40-4/25	IP20-Box33
GA50C4023xxxx		
GA50C4031xxxx	LR3 40-4/45	IP20-Box35
GA50C4038xxxx		
GA50C4044xxxx	LR3 40-4/63	IP20-Box36
GA50C4060xxxx	LR3 40-4/90	IP20-Box39

AC Output Reactors

Motor side reactors limit voltage peaks at the motor winding, especially with long motor cables, thus improving the motor service life. Output reactors must be selected with the maximum output frequency in mind.

Important: The reactors listed here cannot be used with GA500 with high output frequency.

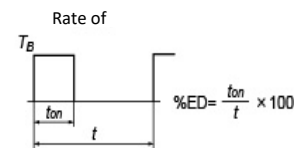
GA500 Model CIPR-	up to 120 Hz		up to 50Hz	
	IP00	IP20 cover	IP00	IP20 cover
GA50CB001xxxx	MDB 400/6,3	IP20-Box31	MR3 400/4	IP20-Box31
GA50CB002xxxx				
GA50CB004xxxx				
GA50CB006xxxx	MDB 400/13	IP20-Box32	MR3 400/10	IP20-Box32
GA50CB010xxxx				
GA50CB012xxxx				
GA50CB018xxxx	MDB 400/24	IP20-Box36	MR3 400/18	
GA50C2001xxxx	MDB 400/6,3	IP20-Box31	MR3 400/4	IP20-Box31
GA50C2002xxxx				
GA50C2004xxxx				
GA50C2006xxxx	MDB 400/13	IP20-Box32	MR3 400/10	IP20-Box32
GA50C2008xxxx				
GA50C2010xxxx				
GA50C2012xxxx	MDB 400/24	IP20-Box36	MR3 400/18	IP20-Box32
GA50C2018xxxx				
GA50C2021xxxx				
GA50C2030xxxx	MDB 400/46	IP20-Box37	MR3 400/24	IP20-Box33
GA50C2042xxxx			MR3 400/37	
GA50C2056xxxx			MR3 400/48	
GA50C2070xxxx	MDB 400/72		MR3 400/61	
GA50C2082xxxx	MDB 400/110	IP20-Box39	n.a.	
GA50C4001xxxx	MDB 400/6,3	IP20-Box31	MR3 400/4	IP20-Box31
GA50C4002xxxx				
GA50C4004xxxx				
GA50C4005xxxx	MDB 400/13	IP20-Box32	MR3 400/10	IP20-Box32
GA50C4007xxxx				
GA50C4009xxxx				
GA50C4012xxxx	MDB 400/24	IP20-Box36	MR3 400/18	IP20-Box32
GA50C4018xxxx				
GA50C4023xxxx				
GA50C4031xxxx	MDB 400/46	IP20-Box37	MR3 400/24	IP20-Box33
GA50C4038xxxx				
GA50C4044xxxx				
GA50C4060xxxx	MDB 400/72		MR3 400/37	
			MR3 400/48	
			MR3 400/61	IP20-Box35

Braking Resistors

GA500 drives have embedded braking transistors. Resistors selected from the table below can be directly connected to terminals B1 and B2. When connecting other resistors, the resistance must be higher than the minimum value listed below.

GA500 Model CIPR-	HD		ND		Minimum Resistor (Ohm)
	Resistor 40% ED	Resistor 10% ED	Resistor 40% ED	Resistor 10% ED	
GA50CB001xxxx	RH-0100W830	RH-0100W830	RH0100W330	RH0100W330	300
GA50CB002xxxx	RH-0100W330	RH-0100W330			300
GA50CB004xxxx	RH-0260W270	RH-0260W270	RH0260W270	RH0260W270	200
GA50CB006xxxx	RH-0260W135	RH-0260W135	RH0260W135	RH0260W135	120
GA50CB010xxxx					60
GA50CB012xxxx	RH-0390W070	RH-0390W070	RH0390W070	RH0390W070	60
GA50CB018xxxx	RH-0780W040	RH-0780W040-10	RH780W040	RH-0780W040-10	32
GA50C2001xxxx	RH-0100W830	RH-0100W830	RH-0100W330	RH-0100W330	300
GA50C2002xxxx	RH-0100W330	RH-0100W330			300
GA50C2004xxxx	RH-0260W270	RH-0260W270	RH-0260W270	RH-0260W270	200
GA50C2006xxxx	RH-0260W135	RH-0260W135	RH-0260W135	RH-0260W135	120
GA50C2008xxxx	RH-0260W120	RH-0260W120			60
GA50C2010xxxx					60
GA50C2012xxxx	RH-0390W070	RH-0390W070	RH-0390W070	RH-0390W070	60
GA50C2018xxxx					60
GA50C2018xxxx					32
GA50C2021xxxx	RH-0780W040	RH-0780W040-10	RH-0780W040	RH-0780W040-10	32
GA50C2030xxxx					9.6
GA50C2042xxxx					9.6
GA50C2056xxxx	RH9600W015	RH-9600W015-10	RH-9600W015	RH-9600W015-10	9.6
GA50C2070xxxx					9.6
GA50C2082xxxx					9.6
GA50C4001xxxx					750
GA50C4002xxxx	RH-0100W830	RH-0100W830	RH-0100W830	RH-0100W830	750
GA50C4004xxxx					510
GA50C4005xxxx					240
GA50C4007xxxx	RH-0260W270	RH-0260W270	RH-0260W270	RH-0260W270	200
GA50C4009xxxx					100
GA50C4012xxxx	RH-0520W120	RH-0520W120	RH-0520W120	RH-0520W120	100
GA50C4018xxxx	RH-0780W040	RH-0780W040-10	RH-0780W040	RH-0780W040-10	32
GA50C4023xxxx	RH-1560W040	RH-1560W040-10	RH-1560W040	RH-1560W040-10	32
GA50C4031xxxx					20
GA50C4038xxxx	RH-4800W022	RH-4800W022-10	RH-4800W022	RH-4800W022-10	20
GA50C4044xxxx					19.2
GA50C4060xxxx	RH-6000W022	RH-6000W022-10	RH-6000W022	RH-6000W022-10	19.2

- 10% ED: 120 s cycle time (t) and 12 s switch on time (ton)
- 40% ED: 120 s cycle time (t) and 48 s switch on time (ton)





GA500

BALANCING POWER WITH PERFECTION



[GA500 Industrial Microdrive](#)

YASKAWA Europe GmbH

Hauptstr. 185
65760 Eschborn
Germany

+49 6196 569-500
support@yaskawa.eu.com
www.yaskawa.eu.com

Document: GA500_DS_EN_v2.3
Published: 26.03.2021

Specifications are subject to change without notice for ongoing product modifications and improvements. © YASKAWA Europe GmbH. All rights reserved.

YASKAWA