ARTISAN®
TECHNOLOGY GROUP

Your **definitive** source for quality pre-owned equipment.

Artisan Technology Group
(217) 352-9330 | sales@artisantg.com | artisantg.com

Full-service, independent repair center
with experienced engineers and technicians on staff.

We buy your excess, underutilized, and idle equipment
along with credit for buybacks and trade-ins.

Custom engineering
so your equipment works exactly as you specify.

- Critical and expedited services
- In stock / Ready-to-ship
- Leasing / Rentals / Demos
- ITAR-certified secure asset solutions

Expert team | Trust guarantee | 100% satisfaction

All trademarks, brand names, and brands appearing herein are the property of their respective owners.

Find the *OMRON 3G3MV-A2004* at our website: *Click HERE*

OMRON



INSTALLATION GUIDELINE

3G3MV / 3G3JV

FINLESS TYPE

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

OMRON Product References

All OMRON products are capitalized in this manual.

Visual Aids

The following headings appear in the left column of the manual to help you locate different types of information.

Note Indicates information of particular interest for effecient and convenient operation of the product.

The finless type is the recognized component by Underwriters Laboratories Inc.
This manual describes “Conditions of acceptability”.

© **OMRON, 2001**

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, of orherwise, without the prior written permission of OMRON.

No patent liability is assumed with respect to the use of the information contained herein. Moreover, because OMRON 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. Nevertheless, OMRON 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.

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

PREFACE

OMRON'S 3G3MV/3G3JV are easy and simple frequency inverter. This manual describes installation conditions and dimensions of 3G3MV/3G3JV. Read this instruction manual thoroughly before operation.

The finless type inverter is the recognized component by Underwriters Laboratories Inc. This manual describes "Conditions of acceptability." Read this installation guideline and the instruction manual of the inverter thoroughly before installation and operation. Following shows the manual No. of user manuals: 3G3MV: I527-E2, 3G3JV: I528-E2

OMRON Europe B.V.

General precautions

- This manual may be modified when necessary because of the improvement of the product, modification, or changes in specifications.
  Such modifications are denoted by a revised manual No.
- To order a copy of this manual, if your copy has been damaged or or lost, contact your OMRON representative.
- OMRON is not responsible for any modification of the product made by the user, since that will void your guarantee.

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

Notice:

OMRON products are manufactured for use according to proper procedures by a qualified operator and only for the purposes described in this manual.

The following conventions are used to indicate and classify precautions in this manual. Always heed the information provided with them. Failure to heed precautions can result in injury to people or damage to property.

⚠ **DANGER** Indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.

⚠ **WARNING** Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.

⚠ **Caution** Indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury, or property damage.

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

General Precautions

Observe the following precautions when using the SYSDRIVE Inverters and peripheral devices.

This manual may include illustrations of the product with protective covers removed in order to describe the components of the product in detail. Make sure that these protective covers are on the product before use.

Consult your OMRON representative when using the product after a long period of storage.

⚠ **WARNING** Do not touch the inside of the Inverter. Doing so may result in electrical shock.

⚠ **WARNING** Operation, maintenance, or inspection must be performed after turning OFF the power supply, confirming that the CHARGE indicator (or status indicators) are OFF, and after waiting for the time specified on the front cover. Not doing so may result in electrical shock.

⚠ **WARNING** Do not damage, pull on, apply stress to, place heavy objects on, or pinch the cables. Doing so may result in electrical shock.

⚠ **WARNING** Do not touch the rotating parts of the motor under operation. Doing so may result in injury.

⚠ **WARNING** Do not modify the product. Doing so may result in injury or damage to the product.

⚠ **Caution** Do not store, install, or operate the product in the following places. Doing so may result in electrical shock, fire or damage to the product.

- Locations subject to direct sunlight.
- Locations subject to temperatures or humidity outside the range specified in the specifications.
- Locations subject to condensation as the result of severe changes in temperature.
- Locations subject to corrosive or flammable gases.
- Locations subject to exposure to combustibles.
- Locations subject to dust (especially iron dust) or salts.
- Locations subject to exposure to water, oil, or chemicals.
- Locations subject to shock or vibration.

⚠ **Caution** Do not touch the Inverter radiator, regenerative resistor, or Servomotor while the power is being supplied or soon after the power is turned OFF. Doing so may result in a skin burn due to the hot surface.

⚠ **Caution** Do not conduct a dielectric strength test on any part of the Inverter. Doing so may result in damage to the product or malfunction.

⚠ **Caution** Take appropriate and sufficient countermeasures when installing systems in the following locations. Not doing so may result in equipment damage.

- Locations subject to static electricity or other forms of noise.
- Locations subject to strong electromagnetic fields and magnetic fields.
- Locations subject to possible exposure to radioactivity.
- Locations close to power supplies.

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

Transportation Precautions

⚠ **Caution** Do not hold by front cover or panel , instead, hold by the radiation fin (heat sink) while transporting the product. Doing so may result in injury.

⚠ **Caution** Do not pull on the cables. Doing so may result in damage to the product or malfunction.

⚠ **Caution** Use the eye-bolts only for transporting the Inverter. Using them for transporting the machinery may result in injury or malfunction.

Installation Precautions

⚠ **WARNING** Provide an appropriate stopping device on the machine side to secure safety. (A holding brake is not a stopping device for securing safety.) Not doing so may result in injury.

⚠ **WARNING** Provide an external emergency stopping device that allows an instantaneous stop of operation and power interruption. Not doing so may result in injury.

⚠ **Caution** Be sure to install the product in the correct direction and provide specified clearances between the Inverter and control panel or with other devices. Not doing so may result in fire or malfunction.

⚠ **Caution** Do not allow foreign objects to enter inside the product. Doing so may result in fire or malfunction.

⚠ **Caution** Do not apply any strong impact. Doing so may result in damage to the product or malfunction.

Wiring Precautions

⚠ **WARNING** Wiring must be performed only after confirming that the power supply has been turned OFF. Not doing so may result in electrical shock.

⚠ **WARNING** Wiring must be performed by authorized personnel. Not doing so may result in electrical shock or fire.

⚠ **WARNING** Be sure to confirm operation only after wiring the emergency stop circuit. Not doing so may result in injury.

⚠ **WARNING** Always connect the ground terminals to a ground of 100 Ω or less for the 200-VAC class, or 10 Ω or less for the 400-VAC class. Not connecting to a proper ground may result in electrical shock.

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

⚠ **Caution** Install external breakers and take other safety measures against short-circuiting in external wiring. Not doing so may result in fire.

⚠ **Caution** Confirm that the rated input voltage of the Inverter is the same as the AC power supply voltage. An incorrect power supply may result in fire, injury, or malfunction.

⚠ **Caution** Connect the Braking Resistor and Braking Resistor Unit as specified in the manual. Not doing so may result in fire.

⚠ **Caution** Be sure to wire correctly and securely. Not doing so may result in injury or damage to the product.

⚠ **Caution** Be sure to firmly tighten the screws on the terminal block. Not doing so may result in fire, injury, or damage to the product.

⚠ **Caution** Do not connect an AC power to the U, V, or W output. Doing so may result in damage to the product or malfunction.

Operation and Adjustment Precautions

⚠ **WARNING** Turn ON the input power supply only after mounting the front cover, terminal covers, bottom cover, Operator, and optional items. Not doing so may result in electrical shock.

⚠ **WARNING** Do not remove the front cover, terminal covers, bottom cover, Operator, or optional items while the power is being supplied. Not doing so may result in electrical shock.

⚠ **WARNING** Do not operate the Operator or switches with wet hands. Doing so may result in electrical shock.

⚠ **WARNING** Do not touch the inside of the Inverter. Doing so may result in electrical shock.

⚠ **WARNING** Do not come close to the machine when using the error retry function because the machine may abruptly start when stopped by an alarm. Doing so may result in injury.

⚠ **WARNING** Do not come close to the machine immediately after resetting momentary power interruption to avoid an unexpected restart (if operation is set to be continued in the processing selection function after momentary power interruption is reset). Doing so may result in injury.

⚠ **WARNING** Provide a separate emergency stop switch because the STOP Key on the Operator is valid only when function settings are performed. Not doing so may result in injury.

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

⚠**WARNING** Be sure confirm that the RUN signal is turned OFF before turning ON the power supply, resetting the alarm, or switching the LOCAL/REMOTE selector. Doing so while the RUN signal is turned ON may result in injury.

⚠**Caution** Be sure to confirm permissible ranges of motors and machines before operation because the Inverter speed can be easily changed from low to high. Not doing so may result in damage to the product.

⚠**Caution** Provide a separate holding brake when necessary. Not doing so may result in injury.

⚠**Caution** Do not perform a signal check during operation. Doing so may result in injury or damage to the product.

⚠**Caution** Do not carelessly change settings. Doing so may result in injury or damage to the product.

Maintenance and Inspection Precautions

⚠**WARNING** Do not touch the Inverter terminals while the power is being supplied.

⚠**WARNING** Maintenance or inspection must be performed only after turning OFF the power supply, confirming that the CHARGE indicator (or status indicators) is turned OFF, and after waiting for the time specified on the front cover. Not doing so may result in electrical shock.

⚠**WARNING** Maintenance, inspection, or parts replacement must be performed by authorized personnel. Not doing so may result in electrical shock or injury.

⚠**WARNING** Do not attempt to take the Unit apart or repair. Doing either of these may result in electrical shock or injury.

⚠**Caution** Carefully handle the Inverter because it uses semiconductor elements. Careless handling may result in malfunction.

⚠**Caution** Do not change wiring, disconnect connector, the Operator, or optional items, or Replace fans while power is being supplied. Doing so may result in injury, damage to the product, or malfunction.

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

Warnings for UL/cUL Marking

- **Do not connect or disconnect wiring, or perform signal checks while the power supply is turned ON.**
- **The Inverter internal capacitor is still charged even after the power supply is turned OFF. To prevent electrical shock, disconnect all power before servicing the Inverter. Then wait at least one minute after the power supply is disconnected and all indicators are OFF.**
- **Do not perform a withstand voltage test on any part of the Inverter. This electronic equipment uses semiconductors and is vulnerable to high voltage.**
- **Do not remove the Digital Operator or the blank cover unless the power supply is turned OFF. Never touch the printed control board (PCB) while the power supply is turned ON.**
- **The Inverter is not suitable for use on a circuit capable of delivering more than 5.000 RMS symmetrical amperes, 250 volts maximum (200-V-class Units) or 18.000 RMS symmetrical amperes, 480 V maximum (400-V-class Units).**

CAUTION
Use 75°C copper wires or equivalent. **Low voltage wires shall be wired with Class I Wiring.**

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

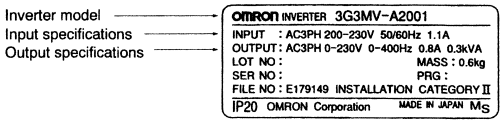
Checking Before Unpacking

■ Checking the Product

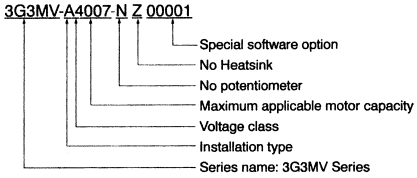
On delivery, always check that the delivered product is the SYSDRIVE 3G3MV or 3G3JV Inverter that you ordered.

Should you find any problems with the product, immediately contact your nearest local sales representative.

• Checking the Nameplate



• Checking the Model



Installation Type

A	Panel mounting models (IP10 min.) or Wall mounting closed models.

Voltage Class

2	Three-phase 200-VAC input (200-V class)
B	Single-phase 200-VAC input (200-V class)
4	Three-phase 400-VAC input (400-V class)

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

Maximum Applicable Motor Capacity

001	0.1 (0.1) kW
002	0.2 (0.25/0.37) kW
004	0.4 (0.55) kW
007	0.75 (1.1) kW
015	1.5 (1.5) kW
022	2.2 (2.2) kW
030	3.0 (3.0) kW
040	4.0 (4.0) kW
055	5.5 (5.5) kW (only 3G3MV)
075	7.5 (7.5) kW (only 3G3MV)

Note The figures in parentheses indicate capacities for motors used outside Japan.

Front cover options

N	No potentiometer

Heatsink option

Z	Finless type

• Checking for Damage
Check the overall appearance and check for damage or scratches resulting from transportation.

■ Application Precautions

You must allow sufficient leeway in ratings and performance and provide proper fail-safe and other safety measures when using the Inverter in any of the following applications. Be sure also to consult with your OMRON representative before actually attempting any of these applications.

1. Applications under conditions or invironments not specified in user manuals.
2. Applications for nuclear control systems, railroad systems, aviations systems, vehicles, combustions systems, mesical equipment, amusement machines, and safety equipment.
3. Applications for other systems, machines, and equipment that may have a serious influence on lives and property if used improperly.

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

CONDITIONS OF ACCEPTABILITY

(1) In the end use application the enclosure internal temperature shall not exceed 50 Degrees C (122°F).
Refer to the next page for details of mounting dimensions.

(2) The maximum heatsink temperature shall not exceed 90 Degrees C (194°F). The temperature shall be 80 Degrees C (176°F) or less for inverters of 5.5/7.5 kW. The inverter generates the heat loss. Refer to Table 1.

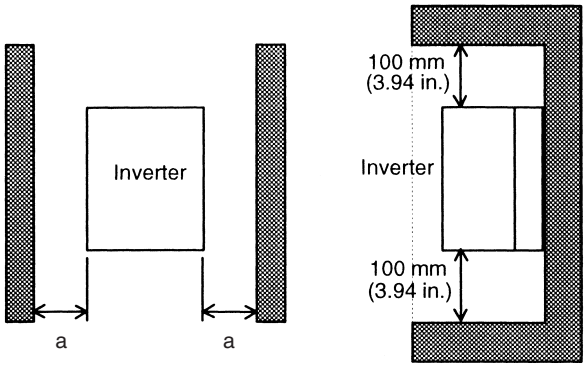
(3) The mating surface shall have the following properties:
Surface flatness shall not exceed 0.2 mm across the entire cross sectional area of item 1.
Surface finish shall not exceed 25S.

(4) The surrounding mounting space (between device and enclosure) shall have the following dimentions:
30 mm or greater from each side (inverters of 4.0 kW or less)
50 mm or greater from each side (inverters of 5.5/7.5 kW)
100 mm or greater from top and bottom
For details or the mounting space, refer to fig. 1.

(5) Recommended thermal compound to be applied on item 1 shall be Type G746, manufactured by Shin-Etsu Chemical Co., Ltd. or equivalent. 100 μ m shall be applied evenly across the entire surface area (inverters of 4.0 kW or less)

(6) M4 screws shall be used for secureness onto end use heatsink with a tightening torque of 1.0 to 1.3 N.m.
M5 (inverters of 5.5/7.5 kW) screws shall be used for secureness onto end use heatsink with a tightening torque of 2.0 to 2.5 N.m.
Caution : When the inverter is not mounted adequately, it may cause over-heating or damage the inverter.

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com



Voltage	Max. Applicable Motor Output kW (HP)	Length of a
200 V single-phase 3-phase 400 V 3-phase	3.7 kW (5HP) or less	30 mm (1.18 in.) or more
200 V 3-phase 400 V 3-phase	5.5 kW (7.5HP) 7.5 kW (10HP)	50 mm (1.97 in.) or more

Fig. 1 Mounting dimensions

Table 1 Heat Loss 3G3MV/3G3JV

Model	200 V single phase 3G3 (MV/JV) AB models								
	AB001	AB002	AB004	AB007	AB015	AB022	AB040		
Heatsink (W)	3.7	7.7	15.8	28.4	53.7	64.5	98.2		
Inside unit (W)	10.4	12.3	16.1	23.0	29.1	49.1	78.2		
Total (W)	14.1	20.0	31.9	51.4	82.8	113.6	176.4		
Model	200 V three phase 3G3 (MV/JV) A2 models								
	A2001	A2002	A2004	A2007	A2015	A2022	A2040	A2055*	A2075*
Heatsink (W)	3.7	7.7	15.8	28.4	53.7	60.4	96.7	170.4	219.2
Inside unit (W)	9.3	10.3	12.3	16.7	19.1	34.4	52.4	79.4	98.9
Total (W)	13.0	18.0	28.1	45.1	72.8	94.8	149.1	249.8	318.1
Model	400 V three phase 3G3 (MV/JV) A4 models								
	A4002	A4004	A4007	A4015	A4022	A4030	A4040	A4055*	A4075*
Heatsink (W)	9.4	15.1	30.3	45.8	50.5	58.2	79.9	168.8	209.6
Inside unit (W)	13.7	15.0	24.6	29.9	32.5	37.6	49.2	87.7	99.3
Total (W)	23.1	30.1	54.9	75.7	83.0	95.8	129.1	256.5	308.9

***Note:** only for 3G3MV

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

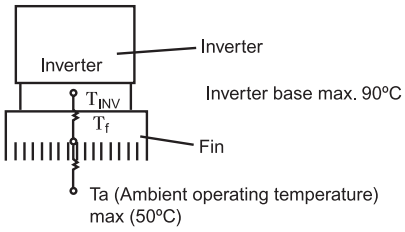
HEAT CALCULATION

The following is a simplified thermal model of the inverter. It explains the heat transfer from the sole plate of the finless inverter in order to maintain correct IGBT operating temperature.

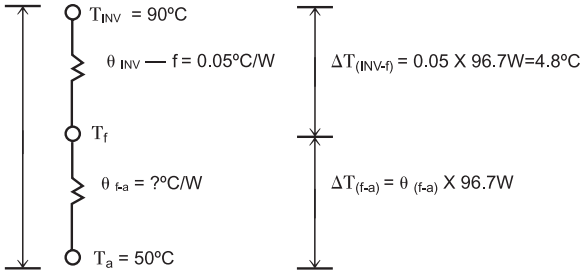
Ex 3G3M(J)V-A2037

$$\theta_{f\text{-}a} = \frac{90\text{–}4.8\text{–}50}{96.7} = \underline{0.36^{\circ}C/W}$$

By using this formula the correct heat transfer required to maintain correct base plate temperature is achieved



The quantity of heat (Inverter side) p = 96.7 W



Note. heat transfer of all Inverter base is 0.05ºC/W.

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

■ **Wiring 3G3JV**

• **control circuit**

Multi-function Contact Output (MA, MB, and MC)

Terminal screw size	Tightening torque N • m	Wire	Wire size mm^2 (AWG)	Recommended wire size mm^2 (AWG)	Cable
M3	0.5 to 0.6	Single wire	0.5 to 1.25 (20 to 16)	0.75 (18)	Cable with polyethylene sheath
		Stranded wire	0.5 to 1.25 (20 to 16)		

Sequential Input (S1 through S5 and SC) and Analog Monitor (AM or AC)

Terminal screw size	Tightening torque N • m	Wire	Wire size mm^2 (AWG)	Recommended wire size mm^2 (AWG)	Cable
M2	0.22 to 0.25	Single wire	0.5 to 1.25 (20 to 16)	0.75 (18)	Cable with polyethylene sheath
		Stranded wire	0.5 to 0.75 (20 to 18)		

Frequency Reference Input (FR, FS, and FC)

Terminal screw size	Tightening torque N • m	Wire	Wire size mm^2 (AWG)	Recommended wire size mm^2 (AWG)	Cable
M2	0.22 to 0.25	Single wire	0.5 to 1.25 (20 to 16)	0.75 (18)	Special cable with polyethylene sheath and shield for measurement use
		Stranded wire	0.5 to 0.75 (20 to 18)		

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

• Main circuit (power cables: 600V vinyl cables, etc.) 3-phase 200-VAC Model

Model 3G3JV-	Terminal symbol	Terminal screw	Screw tightening torque (N•m)	Wire size (mm^2)	Recommended wire size (mm^2)	Molded-case circuit breaker capacity (A)
A2001	R/L1, S/L2, T/L3, -, +1, +2, U/T1, V/T2, W/T3 ⏚	M3.5	0.8 to 1.0	0.75 to 2	2	5
A2002	R/L1, S/L2, T/L3, -, +1, +2, U/T1, V/T2, W/T3 ⏚	M3.5	0.8 to 1.0	0.75 to 2	2	5
A2004	R/L1, S/L2, T/L3, -, +1, +2, U/T1, V/T2, W/T3 ⏚	M3.5	0.8 to 1.0	0.75 to 2	2	5
A2007	R/L1, S/L2, T/L3, -, +1, +2, U/T1, V/T2, W/T3 ⏚	M3.5	0.8 to 1.0	0.75 to 2	2	10
A2015	R/L1, S/L2, T/L3, -, +1, +2, U/T1, V/T2, W/T3 ⏚	M3.5	0.8 to 1.0	2 to 5.5	2	20
A2022	R/L1, S/L2, T/L3, -, +1, +2, U/T1, V/T2, W/T3 ⏚	M3.5	0.8 to 1.0	2 to 5.5	3.5	20
A2040	R/L1, S/L2, T/L3, -, +1, +2, U/T1, V/T2, W/T3 ⏚	M3.5	1.2 to 1.5	2 to 5.5	5.5	30

Single-phase 200-VAC Model

Model 3G3JV-	Terminal symbol	Terminal screw	Terminal torque (N•m)	Wire size (mm^2)	Recommended wire size (mm^2)	Circuit breaker capacity (A)
AB001	R/L1, S/L2, T/L3, -, +1, +2, U/T1, V/T2, W/T3 ⏚	M3.5	0.8 to 1.0	0.75 to 2	2	5
AB002	R/L1, S/L2, T/L3, -, +1, +2, U/T1, V/T2, W/T3 ⏚	M3.5	0.8 to 1.0	0.75 to 2	2	5

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

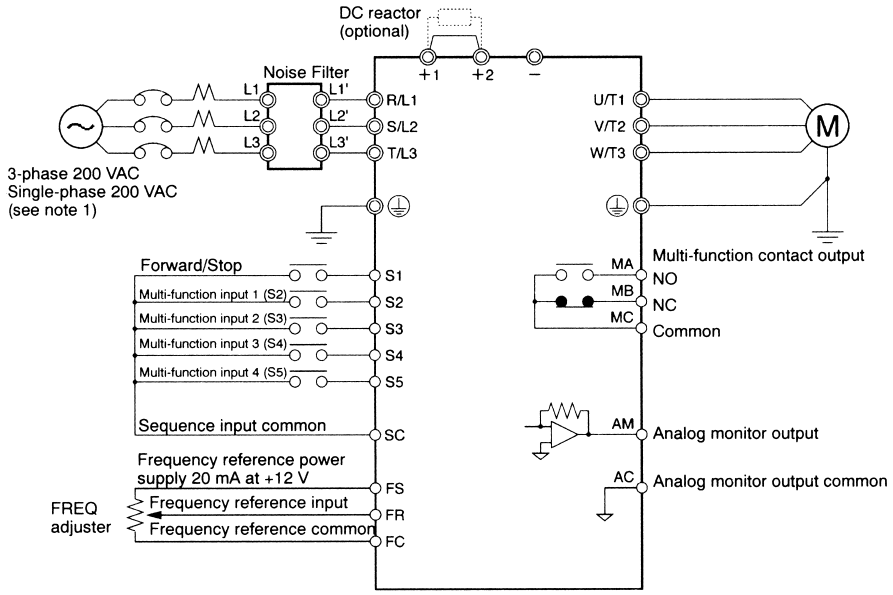
Model 3G3JV-	Terminal symbol	Terminal screw	Terminal torque (N•m)	Wire size (mm^2)	Recommended wire size (mm^2)	Circuit breaker capacity (A)
AB004	R/L1, S/L2, T/L3, -, +1, +2, U/T1, V/T2, W/T3	M3.5	0.8 to 1.0	0.75 to 2	2	10
	⏚					
AB007	R/L1, S/L2, T/L3, -, +1, +2, U/T1, V/T2, W/T3	M3.5	0.8 to 1.0	2 to 5.5	3.5	20
	⏚				2	
AB015	R/L1, S/L2, T/L3, -, +1, +2, U/T1, V/T2, W/T3	M3.5	0.8 to 1.0	2 to 5.5	5.5	20
	⏚				2	

3-phase 400-VAC Model

Model 3G3JV-	Terminal symbol	Terminal screw	Terminal torque (N•m)	Wire size (mm^2)	Recommended wire size (mm^2)	Circuit breaker capacity (A)
A4002	R/L1, S/L2, T/L3, -, +1, +2, U/T1, V/T2, W/T3	M3.5	0.8 to 1.0	2 to 5.5	2	5
	⏚					
A4004	R/L1, S/L2, T/L3, -, +1, +2, U/T1, V/T2, W/T3	M3.5	0.8 to 1.0	2 to 5.5	2	5
	⏚					
A4007	R/L1, S/L2, T/L3, -, +1, +2, U/T1, V/T2, W/T3	M3.5	0.8 to 1.0	2 to 5.5	2	5
	⏚					
A4015	R/L1, S/L2, T/L3, -, +1, +2, U/T1, V/T2, W/T3	M3.5	0.8 to 1.0	2 to 5.5	2	10
	⏚					
A4022	R/L1, S/L2, T/L3, -, +1, +2, U/T1, V/T2, W/T3	M4	1.2 to 1.5	2 to 5.5	2	10
	⏚					
A4030	R/L1, S/L2, T/L3, -, +1, +2, U/T1, V/T2, W/T3	M4	1.2 to 1.5	2 to 5.5	2	20
	⏚				3.5	
A4040	R/L1, S/L2, T/L3, -, +1, +2, U/T1, V/T2, W/T3	M4	1.2 to 1.5	2 to 5.5	2	20
	⏚				3.5	

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

- **Standard connections 3G3JV**



Note 1. Connect single-phase 200 VAC to terminals R/L1 and S/L2 of the 3G3JV-AB□.

Note 2. The braking resistor cannot be connected because no braking transistor is incorporated.

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

■ **Wiring 3G3MV**

• **control circuit**

Multi-function Contact Output (MA, MB, and MC)

Terminal screw size	Tightening torque N • m	Wire	Wire size mm^2 (AWG)	Recommended wire size mm^2 (AWG)	Cable
M3	0.5 to 0.6	Single wire	0.5 to 1.25 (20 to 16)	0.75 (18)	Cable with polyethylene sheath
		Stranded wire	0.5 to 1.25 (20 to 16)		

Sequential Input (S1 through S7 and SC), Multi-function Photocoupler Output (P1, P2, PC), RS-422/485 Communications (R+, R-, S+, S-) and Multi-function Analog Output (AM or AC), and Pulse Train Input (RP)

Terminal screw size	Tightening torque N • m	Wire	Wire size mm^2 (AWG)	Recommended wire size mm^2 (AWG)	Cable
M2	0.22 to 0.25	Single wire	0.5 to 1.25 (20 to 16)	0.75 (18)	Cable with polyethylene sheath
		Stranded wire	0.5 to 0.75 (20 to 18)		

Frequency Reference Input (FR, FS, and FC)

Terminal screw size	Tightening torque N • m	Wire	Wire size mm^2 (AWG)	Recommended wire size mm^2 (AWG)	Cable
M2	0.22 to 0.25	Single wire	0.5 to 1.25 (20 to 16)	0.75 (18)	Special cable with polyethylene sheath and shield for measurement use
		Stranded wire	0.5 to 0.75 (20 to 18)		

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

• **3-phase 200-VAC Model**

Model 3G3MV-	Terminal symbol	Terminal screw	Screw tightening torque (N•m)	Wire size (mm^2)	Recommended wire size (mm^2)	Molded case circuit breaker capacity (A)
A2001	R/L1, S/L2, T/L3, B1, B2, -, +1, +2, U/T1, V/T2, W/T3 ⏚	M3.5	0.8 to 1.0	0.75 to 2	2	5
A2002	R/L1, S/L2, T/L3, B1, B2, -, +1, +2, U/T1, V/T2, W/T3 ⏚	M3.5	0.8 to 1.0	0.75 to 2	2	5
A2004	R/L1, S/L2, T/L3, B1, B2, -, +1, +2, U/T1, V/T2, W/T3 ⏚	M3.5	0.8 to 1.0	0.75 to 2	2	5
A2007	R/L1, S/L2, T/L3, B1, B2, -, +1, +2, U/T1, V/T2, W/T3 ⏚	M3.5	0.8 to 1.0	0.75 to 2	2	10
A2015	R/L1, S/L2, T/L3, B1, B2, -, +1, +2, U/T1, V/T2, W/T3 ⏚	M4	1.25 to 1.5	2 to 5.5	2 3.5	20
A2022	R/L1, S/L2, T/L3, B1, B2, -, +1, +2, U/T1, V/T2, W/T3 ⏚	M4	1.2 to 1.5	2 to 5.5	3.5	20
A2040	R/L1, S/L2, T/L3, B1, B2, -, +1, +2, U/T1, V/T2, W/T3 ⏚	M4	1.2 to 1.5	2 to 5.5	5.5	30
A2055	R/L1, S/L2, T/L3, B1, B2, -, +1, +2, U/T1, V/T2, W/T3 ⏚	M5	2.5	5.5 to 8	8	50
A2075	R/L1, S/L2, T/L3, B1, B2, -, +1, +2, U/T1, V/T2, W/T3 ⏚	M5	2.5	5.5 to 8	8	50

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

Single-phase 200-VAC Model

Model 3G3MV-	Terminal symbol	Terminal screw	Terminal torque (N•m)	Wire size (mm^2)	Recommended wire size (mm^2)	Circuit breaker capacity (A)
AB001	R/L1, S/L2, T/L3, B1, B2, -, +1, +2, U/T1, V/T2, W/T3	M3.5	0.8 to 1.0	0.75 to 2	2	5
	⏚					
AB002	R/L1, S/L2, T/L3, B1, B2, -, +1, +2, U/T1, V/T2, W/T3	M3.5	0.8 to 1.0	0.75 to 2	2	5
	⏚					
AB004	R/L1, S/L2, T/L3, B1, B2, -, +1, +2, U/T1, V/T2, W/T3	M3.5	0.8 to 1.0	0.75 to 2	2	10
	⏚					
AB007	R/L1, S/L2, T/L3, B1, B2, -, +1, +2, U/T1, V/T2, W/T3	M4	1.2 to 1.5	2 to 5.5	3.5	20
	⏚				2	
AB015	R/L1, S/L2, T/L3, B1, B2, -, +1, +2, U/T1, V/T2, W/T3	M4	1.2 to 1.5	2 to 5.5	5.5	20
	⏚				3.5	
AB022	R/L1, S/L2, T/L3, B1, B2, -, +1, +2, U/T1, V/T2, W/T3	M4	1.2 to 1.5	2 to 5.5	5.5	40
	⏚					
AB040	R/L1, S/L2, T/L3, B1, B2, -, +1, +2, U/T1, V/T2, W/T3	M5	2.3 to 2.4	5.5 to 8	8	50
	⏚	M4	1.2 to 2.5	2 to 8	5.5	

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

3-phase 400-VAC Model

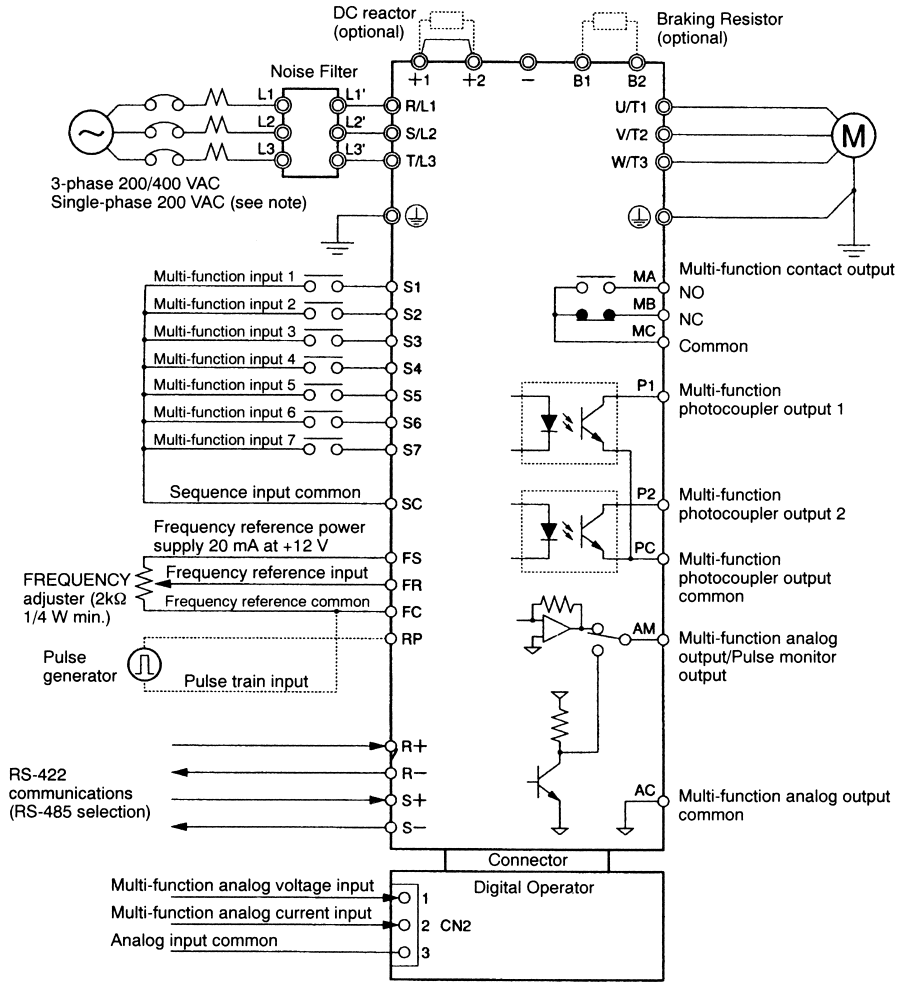
Model 3G3MV-	Terminal symbol	Terminal screw	Screw tightening torque (N•m)	Wire size (mm^2)	Recommended wire size (mm^2)	Molded-case circuit breaker capacity (A)
A4002	R/L1, S/L2, T/L3, B1, B2, -, +1, +2, U/T1, V/T2, W/T3	M4	1.2 to 1.5	2 to 5.5	2	5
	⏚					
A4004	R/L1, S/L2, T/L3, B1, B2, -, +1, +2, U/T1, V/T2, W/T3	M4	1.2 to 1.5	2 to 5.5	2	5
	⏚					
A4007	R/L1, S/L2, T/L3, B1, B2, -, +1, +2, U/T1, V/T2, W/T3	M4	1.2 to 1.5	2 to 5.5	2	5
	⏚					
A4015	R/L1, S/L2, T/L3, B1, B2, -, +1, +2, U/T1, V/T2, W/T3	M4	1.2 to 1.5	2 to 5.5	2	10
	⏚					
A4022	R/L1, S/L2, T/L3, B1, B2, -, +1, +2, U/T1, V/T2, W/T3	M4	1.2 to 1.5	2 to 5.5	2	10
	⏚					
A4030	R/L1, S/L2, T/L3, B1, B2, -, +1, +2, U/T1, V/T2, W/T3	M4	1.2 to 1.5	2 to 5.5	2	20
	⏚				3.5	
A4040	R/L1, S/L2, T/L3, B1, B2, -, +1, +2, U/T1, V/T2, W/T3	M4	1.2 to 1.5	2 to 5.5	2	20
	⏚				3.5	

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

Model 3G3MV-	Terminal symbol	Terminal screw	Screw tightening torque (N•m)	Wire size (mm^2)	Recommended wire size (mm^2)	Molded-case circuit breaker capacity (A)
A4055	R/L1, S/L2, T/L3, B1, B2, -, +1, +2, U/T1, V/T2, W/T3	M4	1.8	5.5	5.5	30
	⏚					
A4075	R/L1, S/L2, T/L3, B1, B2, -, +1, +2, U/T1, V/T2, W/T3	M5	1.8	5.5 to 8	5.5	30
	⏚					

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

• Standard Connections 3G3MV



Note Connect single-phase 200 VAC to terminals R/L1 and S/L2 of the 3G3MV-AB□.

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

■ Motor Protection Settings 3G3JV

Rated motor current (n32)

Set the rated motor current (n32) in order to prevent the motor from burning due to overloading.
Check the rated current on the motor nameplate and set the parameter.
This parameter is used for the electronic thermal function for motor overload detection (OL1). By setting the correct parameter, the overloaded motor will be protected from burning.

n32	**Rated Motor Current**			**Changes during operation**	No
Setting range	0.0% to 120% (A) of rated output current of Inverter	**Unit of setting**	0.1 A	**Default setting**	(see note 1)

Note 1. The standard rated current of the maximum applicable moter is the default rated motor current.
Note 2. Motor overload detection (OL1) is disabled by setting the parameter to 0.0.

Motor Protection Characteristics (n33 and n34)

• This parameter setting is for motor overload detection (OL1).

n33	**Motor Protection Characteristic Selection**			**Changes during operation**	No
Setting range	0 to 2	**Unit of setting**	1	**Default setting**	0

Set Values

Value	Description
0	Protection characteristics for general-purpose induction motors
1	Protection characteristics for Inverter-dedicated motors
2	No protection

- This parameter is used to set the electric thermal characteristics of the motor to be connected.
- Set the parameter according to the motor.
- If a single Inverter is connected to more than one motor, set the parameter to 2 for no protection. The parameter is also disabled by setting n32 for rated motor current to 0.0.

n34	**Motor Protection Time**			**Changes during operation**	No
Setting range	1 to 60 (min)	**Unit of setting**	1 min	**Default setting**	8

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

■ Motor Protection Settings 3G3MV

Rated motor current (n36)

- Check the motor nameplate and set this parameter to the rated current.
- This parameter is used as a vector control constant. Be sure to set the parameter correctly. This set value is also used for determining the electronic thermal characteristics to protect the motor from overheating. The correct set value protects the motor from burning that may result form overloading.

n036	**Rated Motor Current**	**Regis-ter**	0124 Hex	**Changes during operation**	No
Setting range	0.0% to 150% (A) of rated output current of the Inverter	**Unit of setting**	0.1 A	**Default setting**	See note

Note The default setting for this parameter is the standard rated current of the maximum applicable motor.

Motor Protection Functions (n037 and n038)

• This parameter setting is for motor overload detection (OL1).

n037	**Motor Protection Characteristics**	**Register**	0125 Hex	**Changes during operation**	No
Setting range	0 to 2	**Unit of setting**	1	**Default setting**	0

Note The default setting for this parameter is the standard rated current of the maximum applicable motor.

Set Values

Value	Description
0	Protection characteristics for general-purpose induction motors
1	Protection characteristics for Inverter-dedicated motors
2	No protection

- This parameter is used to set the electric thermal characteristics of the motor to be connected.
- Set the parameter according to the motor.
- If a single Inverter is connected to more than one motor, set the parameter to 2 for no protection. The parameter is also disabled by setting n36 for rated motor current to 0.0.

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

n038	**Motor Protection Time**	**Register**	0126 Hex	**Changes during operation**	No
Setting range	1 to 60 (min)	**Unit of setting**	1 min	**Default setting**	8

Set values

- This parameter is used to set the electronic thermal protection constant of motor overload detection OL1.
- The default setting does not need any changes in normal operation.
- To set the parameter according to the characteristics of the motor, confirm the thermal time constant with the motor manufacturer and set the parameter with some margin. In other words, set the value a little shorter than the thermal time constant.
- To detect motor overloading more quickly, reduce the set value, provided that it does not cause any application problems.

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

DIMENSIONS

Table 2 3G3MV Finless Dimensions in mm (inches) / Mass in kg (lb)

Voltage class	Model	W	H	D	W1	H1	H2	d	t	Mass	fig.
200 V three phase	A2001	68 (2.68)	128 (5.04)	71 (2.82)	56 (2.20)	118 (4.65)	5 (0.20)	M4	5 (0.20)	0.6 (1.32)	2
	A2002	68 (2.68)	128 (5.04)	71 (2.82)	56 (2.20)	118 (4.65)	5 (0.20)	M4	5 (0.20)	0.6 (1.32)	2
	A2004	68 (2.68)	128 (5.04)	71 (2.82)	56 (2.20)	118 (4.65)	5 (0.20)	M4	5 (0.20)	0.7 (1.54)	2
	A2007	68 (2.68)	128 (5.04)	71 (2.82)	56 (2.20)	118 (4.65)	5 (0.20)	M4	5 (0.20)	0.8 (1.76)	2
	A2015	108 (4.25)	128 (5.04)	73 (2.87)	96 (3.78)	118 (4.65)	5 (0.20)	M4	6 (0.24)	0.9 (1.98)	3
	A2022	108 (4.25)	128 (5.04)	82 (3.23)	96 (3.78)	118 (4.65)	5 (0.20)	M4	6 (0.24)	1.0 (2.20)	3
	A2040	140 (5.51)	128 (5.04)	78 (3.07)	128 (5.04)	118 (4.65)	5 (0.20)	M4	6 (0.24)	1.2 (2.64)	4
	A2055	180 (7.09)	260 (10.24)	125 (4.92)	164 (6.46)	244 (9.61)	8 (0.31)	M5	10 (0.39)	5.2 (0.20)	5
	A2075	180 (7.09)	260 (10.24)	125 (4.92)	164 (6.46)	244 (9.61)	8 (0.31)	M5	10 (0.39)	5.4 (0.21)	5
200 V single phase	AB001	68 (2.68)	128 (5.04)	71 (2.82)	56 (2.20)	118 (4.65)	5 (0.20)	M4	5 (0.20)	0.6 (1.32)	2
	AB002	68 (2.68)	128 (5.04)	71 (2.82)	56 (2.20)	118 (4.65)	5 (0.20)	M4	5 (020)	0.7 (1.54)	2
	AB004	68 (2.68)	128 (5.04)	94 (3.70)	56 (2.20)	118 (4.65)	5 (0.20)	M4	5 (0.20)	0.8 (1.76)	2
	AB007	108 (4.25)	128 (5.04)	82 (3.23)	96 (3.78)	118 (4.65)	5 (0.20)	M4	6 (0.24)	1.0 (2.20)	3
	AB015	108 (4.35)	128 (5.04)	98 (3.86)	96 (3.78)	118 (4.65)	5 (0.20)	M4	6 (0.24)	1.0 (2.20)	3
	AB022	140 (5.51)	128 (5.04)	98 (3.86)	128 (5.04)	118 (4.65)	5 (0.20)	M4	6 (0.24)	1.3 (2.86)	4
	AB040	170 (6.69)	128 (5.04)	119 (4.69)	158 (6.22)	118 (4.65)	5 (0.20)	M4	10 (0.39)	2.0 (4.40)	6

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

Voltage class	Model	W	H	D	W1	H1	H2	d	t	Mass	fig.
400 V three phase	A4002	108 (4.25)	128 (5.04)	82 (3.23)	96 (3.78)	118 (4.65)	5 (0.20)	M4	6 (0.24)	0.9 (1.98)	3
	A4004	108 (4.25)	128 (5.04)	82 (3.23)	96 (3.78)	118 (4.65)	5 (0.20)	M4	6 (0.24)	0.9 (1.98)	3
	A4007	108 (4.25)	128 (5.04)	82 (3.23)	96 (3.78)	118 (4.65)	5 (0.20)	M4	6 (0.24)	1.0 (2.20)	3
	A4015	108 (4.25)	128 (5.04)	98 (3.86)	96 (3.78)	118 (4.65)	5 (0.20)	M4	6 (0.24)	1.0 (2.20)	3
	A4022	108 (4.25)	128 (5.04)	98 (3.86)	96 (3.78)	118 (4.65)	5 (0.20)	M4	6 (0.24)	1.0 (2.20)	3
	A4030	140 (5.51)	128 (5.04)	78 (3.07)	128 (5.04)	118 (4.65)	5 (0.20)	M4	6 (0.24)	1.2 (2.65)	4
	A4040	140 (5.51)	128 (5.04)	78 (3.07)	128 (5.04)	118 (4.65)	5 (0.20)	M4	6 (0.24)	1.2 (2.65)	4
	A4055	180 (7.09)	260 (10.24)	125 (4.92)	164 (6.46)	244 (9.61)	8 (0.31)	M5	10 (0.39)	5.4 (0.21)	5
	A4075	180 (7.09)	260 (10.24)	125 (4.92)	164 (6.46)	244 (9.61)	8 (0.31)	M5	10 (0.39)	5.4 (0.21)	5

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

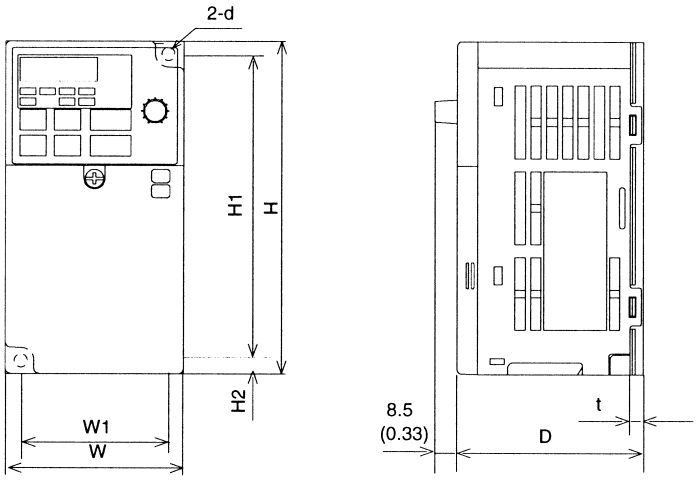


Fig. 2

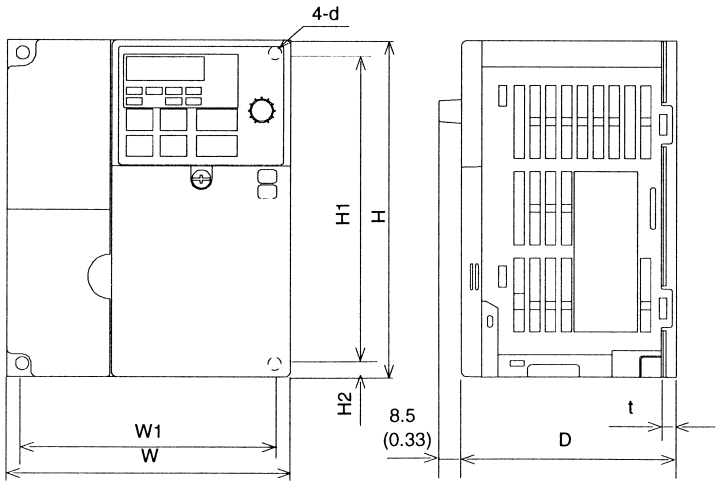


Fig. 3

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

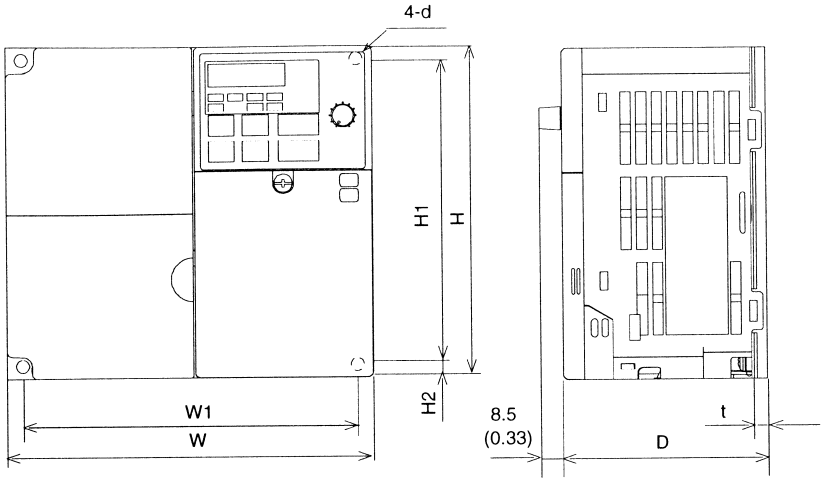


Fig. 4

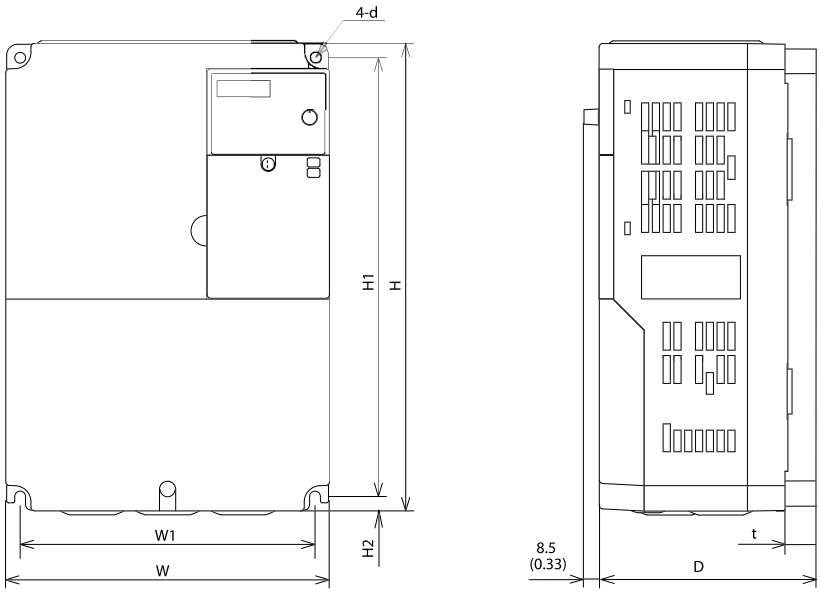


Fig. 5

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

Table 3 3G3JV Finless Dimensions in mm (inches) / Mass in kg (lb)

Voltage class	Model	W	H	D	W1	H1	H2	d	t	Mass	fig.
200 V three phase	A2001	68 (2.68)	128 (5.04)	65 (2.56)	56 (2.20)	118 (4.65)	5 (0.20)	M4	5 (0.20)	0.5 (1.10)	7
	A2002	68 (2.68)	128 (5.04)	65 (2.56)	56 (2.20)	118 (4.65)	5 (0.20)	M4	5 (0.20)	0.5 (1.10)	7
	A2004	68 (2.68)	128 (5.04)	65 (2.56)	56 (2.20)	118 (4.65)	5 (0.20)	M4	5 (0.20)	0.6 (1.32)	7
	A2007	68 (2.68)	128 (5.04)	65 (2.56)	56 (2.20)	118 (4.65)	5 (0.20)	M4	5 (0.20)	0.6 (1.32)	7
	A2015	108 (4.25)	128 (5.04)	71 (2.82)	96 (3.78)	118 (4.65)	5 (0.20)	M4	6 (0.24)	0.8 (1.76)	8
	A2022	108 (4.25)	128 (5.04)	96 (3.78)	96 (3.78)	118 (4.65)	5 (0.20)	M4	6 (0.24)	1.0 (2.20)	8
	A2040	140 (5.51)	128 (5.04)	96 (3.78)	128 (5.04)	118 (4.65)	5 (0.20)	M4	6 (0.24)	1.2 (2.64)	9
200 V single-phase	AB001	68 (2.68)	128 (5.04)	65 (2.56)	56 (2.20)	118 (4.65)	5 (0.20)	M4	5 (0.20)	0.5 (1.10)	7
	AB002	68 (2.68)	128 (5.04)	65 (2.56)	56 (2.20)	118 (4.65)	5 (0.20)	M4	5 (0.20)	0.5 (1.10)	7
	AB004	68 (2.68)	128 (5.04)	75 (2.95)	56 (2.20)	118 (4.65)	5 (0.20)	M4	5 (0.20)	0.7 (1.54)	7
	AB007	108 (4.25)	128 (5.04)	71 (2.82)	96 (3.78)	118 (4.65)	5 (0.20)	M4	6 (0.24)	0.9 (1.98)	8
	AB015	108 (4.25)	128 (5.04)	96 (3.78)	96 (3.78)	118 (4.65)	5 (0.20)	M4	6 (0.24)	1.0 (2.20)	8
400 V three phase	A4002	108 (4.25)	128 (5.04)	71 (2.82)	96 (3.78)	118 (4.65)	5 (0.20)	M4	6 (0.24)	0.9 (1.98)	8
	A4004	108 (4.25)	128 (5.04)	71 (2.82)	96 (3.78)	118 (4.65)	5 (0.20)	M4	6 (0.24)	0.9 (1.98)	8
	A4007	108 (4.25)	128 (5.04)	71 (2.82)	96 (3.78)	118 (4.65)	5 (0.20)	M4	6 (0.24)	1.0 (2.20)	8
	A4015	108 (4.25)	128 (5.04)	96 (3.78)	96 (3.78)	118 (4.65)	5 (0.20)	M4	6 (0.24)	1.0 (2.20)	8
	A4022	108 (4.25)	128 (5.04)	96 (3.78)	96 (3.78)	118 (4.65)	5 (0.20)	M4	6 (0.24)	1.0 (2.20)	8
	A4030	140 (5.51)	128 (5.04)	96 (3.78)	128 (5.04)	118 (4.65)	5 (0.20)	M4	6 (0.24)	1.2 (2.64)	9
	A4040	140 (5.51)	128 (5.04)	96 (3.78)	128 (5.04)	118 (4.65)	5 (0.20)	M4	6 (0.24)	1.2 (2.64)	9

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

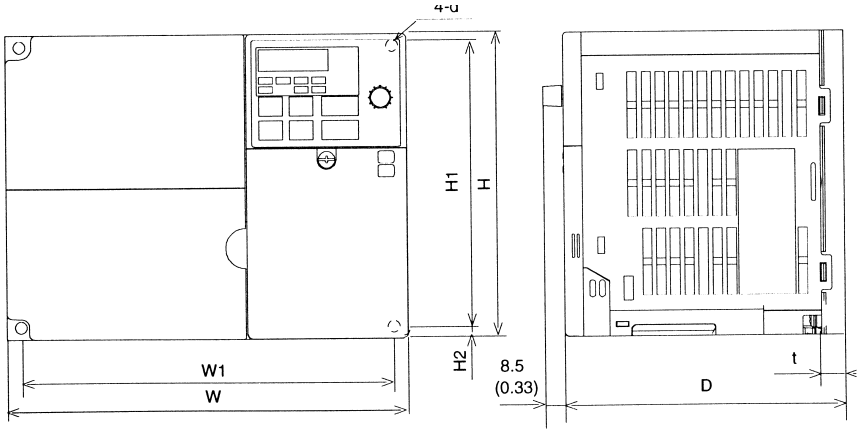


Fig.6

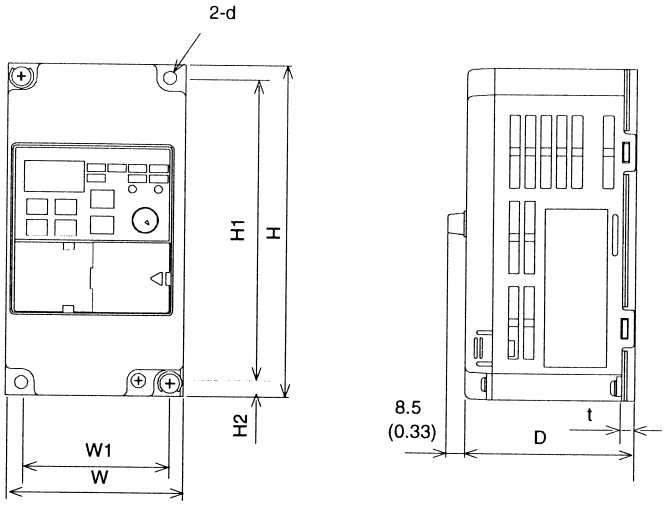


Fig. 7

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

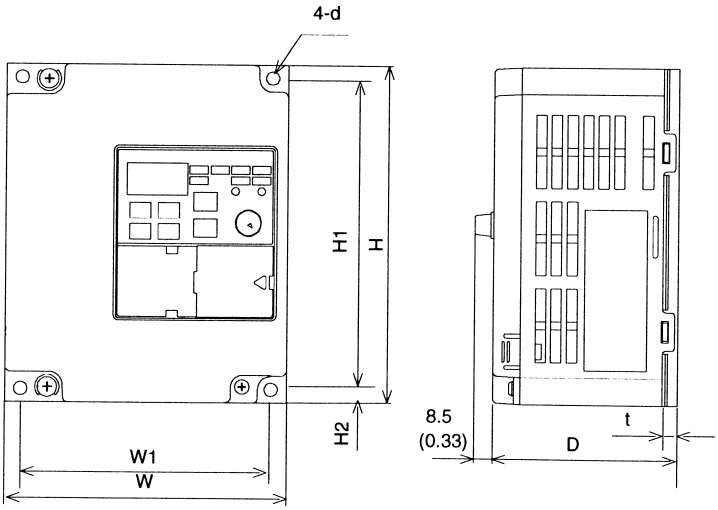


Fig. 8

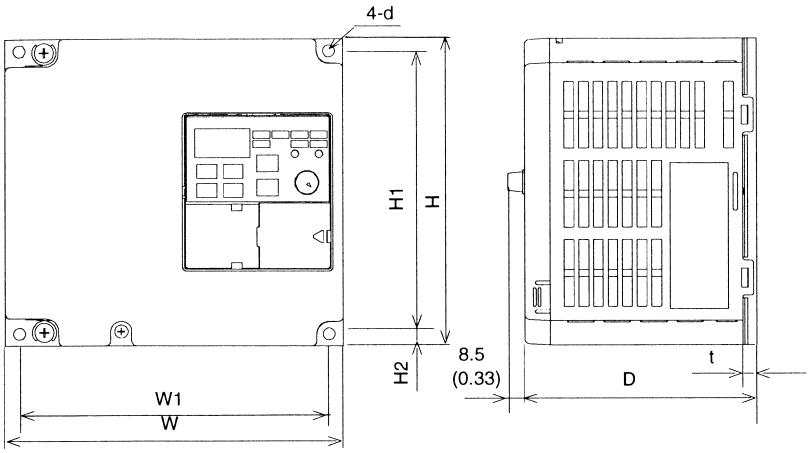


Fig. 9

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

Terms and Conditions of Sale

1. Offer; Acceptance. These terms and conditions (these "Terms") are deemed part of all quotes, agreements, purchase orders, acknowledgments, price lists, catalogs, manuals, brochures and other documents, whether electronic or in writing, relating to the sale of products or services (collectively, the "Products") by Omron Electronics LLC and its subsidiary companies ("Omron"). Omron objects to any terms or conditions proposed in Buyer's purchase order or other documents which are inconsistent with, or in addition to, these Terms.
2. Prices; Payment Terms. All prices stated are current, subject to change without notice by Omron. Omron reserves the right to increase or decrease prices on any unshipped portions of outstanding orders. Payments for Products are due net 30 days unless otherwise stated in the invoice.
3. Discounts. Cash discounts, if any, will apply only on the net amount of invoices sent to Buyer after deducting transportation charges, taxes and duties, and will be allowed only if (i) the invoice is paid according to Omron's payment terms and (ii) Buyer has no past due amounts.
4. Interest. Omron, at its option, may charge Buyer 1-1/2% interest per month or the maximum legal rate, whichever is less, on any balance not paid within the stated terms.
5. Orders. Omron will accept no order less than $200 net billing.
6. Governmental Approvals. Buyer shall be responsible for, and shall bear all costs involved in, obtaining any government approvals required for the importation or sale of the Products.
7. Taxes. All taxes, duties and other governmental charges (other than general real property and income taxes), including any interest or penalties thereon, imposed directly or indirectly on Omron or required to be collected directly or indirectly by Omron for the manufacture, production, sale, delivery, importation, consumption or use of the Products sold hereunder (including customs duties and sales, excise, use, turnover and license taxes) shall be charged to and remitted by Buyer to Omron.
8. Financial. If the financial position of Buyer at any time becomes unsatisfactory to Omron, Omron reserves the right to stop shipments or require satisfactory security or payment in advance. If Buyer fails to make payment or otherwise comply with these Terms or any related agreement, Omron may (without liability and in addition to other remedies) cancel any unshipped portion of Products sold hereunder and stop any Products in transit until Buyer pays all amounts, including amounts payable hereunder, whether or not then due, which are owing to it by Buyer. Buyer shall in any event remain liable for all unpaid accounts.
9. Cancellation; Etc. Orders are not subject to rescheduling or cancellation unless Buyer indemnifies Omron against all related costs or expenses.
10. Force Majeure. Omron shall not be liable for any delay or failure in delivery resulting from causes beyond its control, including earthquakes, fires, floods, strikes or other labor disputes, shortage of labor or materials, accidents to machinery, acts of sabotage, riots, delay in or lack of transportation or the requirements of any government authority.
11. Shipping; Delivery. Unless otherwise expressly agreed in writing by Omron:
    a. Shipments shall be by a carrier selected by Omron; Omron will not drop ship except in "break down" situations.
    b. Such carrier shall act as the agent of Buyer and delivery to such carrier shall constitute delivery to Buyer;
    c. All sales and shipments of Products shall be FOB shipping point (unless otherwise stated in writing by Omron), at which point title and risk of loss shall pass from Omron to Buyer; provided that Omron shall retain a security interest in the Products until the full purchase price is paid;
    d. Delivery and shipping dates are estimates only; and
    e. Omron will package Products as it deems proper for protection against normal handling and extra charges apply to special conditions.
12. Claims. Any claim by Buyer against Omron for shortage or damage to the Products occurring before delivery to the carrier must be presented in writing to Omron within 30 days of receipt of shipment and include the original transportation bill signed by the carrier noting that the carrier received the Products from Omron in the condition claimed.
13. Warranties. (a) Exclusive Warranty. Omron's exclusive warranty is that the Products will be free from defects in materials and workmanship for a period of twelve months from the date of sale by Omron (or such other period expressed in writing by Omron). Omron disclaims all other warranties, express or implied. (b) Limitations. OMRON MAKES NO WARRANTY OR REPRESENTATION, EXPRESS OR IMPLIED, ABOUT NON-INFRINGEMENT, MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OF THE PRODUCTS. BUYER ACKNOWLEDGES THAT IT ALONE HAS DETERMINED THAT THE PRODUCTS WILL SUITABLY MEET THE REQUIREMENTS OF THEIR INTENDED USE. Omron further disclaims all warranties and responsibility of any type for claims or expenses based on infringement by the Products or otherwise of any intellectual property right. (c) Buyer Remedy. Omron's sole obligation hereunder shall be, at Omron's election, to (i) replace (in the form originally shipped with Buyer responsible for labor charges for removal or replacement thereof) the non-complying Product, (ii) repair the non-complying Product, or (iii) repay or credit Buyer an amount equal to the purchase price of the non-complying Product; provided that in no event shall Omron be responsible for warranty, repair, indemnity or any other claims or expenses regarding the Products unless Omron's analysis confirms that the Products were properly handled, stored, installed and maintained and not subject to contamination, abuse, misuse or inappropriate modification. Return of any Products by Buyer must be approved in writing by Omron before shipment. Omron Companies shall not be liable for the suitability or unsuitability or the results from the use of Products in combination with any electrical or electronic components, circuits, system assemblies or any other materials or substances or environments. Any advice, recommendations or information given orally or in writing, are not to be construed as an amendment or addition to the above warranty. See http://oeweb.omron.com or contact your Omron representative for published information.
14. Limitation on Liability; Etc. OMRON COMPANIES SHALL NOT BE LIABLE FOR SPECIAL, INDIRECT, INCIDENTAL, OR CONSEQUENTIAL DAMAGES, LOSS OF PROFITS OR PRODUCTION OR COMMERCIAL LOSS IN ANY WAY CONNECTED WITH THE PRODUCTS, WHETHER SUCH CLAIM IS BASED IN CONTRACT, WARRANTY, NEGLIGENCE OR STRICT LIABILITY. Further, in no event shall liability of Omron Companies exceed the individual price of the Product on which liability is asserted.
15. Indemnities. Buyer shall indemnify and hold harmless Omron Companies and their employees from and against all liabilities, losses, claims, costs and expenses (including attorney's fees and expenses) related to any claim, investigation, litigation or proceeding (whether or not Omron is a party) which arises or is alleged to arise from Buyer's acts or omissions under these Terms or in any way with respect to the Products. Without limiting the foregoing, Buyer (at its own expense) shall indemnify and hold harmless Omron and defend or settle any action brought against such Companies to the extent based on a claim that any Product made to Buyer specifications infringed intellectual property rights of another party.
16. Property; Confidentiality. Any intellectual property in the Products is the exclusive property of Omron Companies and Buyer shall not attempt to duplicate it in any way without the written permission of Omron. Notwithstanding any charges to Buyer for engineering or tooling, all engineering and tooling shall remain the exclusive property of Omron. All information and materials supplied by Omron to Buyer relating to the Products are confidential and proprietary, and Buyer shall limit distribution thereof to its trusted employees and strictly prevent disclosure to any third party.
17. Export Controls. Buyer shall comply with all applicable laws, regulations and licenses regarding (i) export of products or information; (iii) sale of products to "forbidden" or other proscribed persons; and (ii) disclosure to non-citizens of regulated technology or information.
18. Miscellaneous. (a) Waiver. No failure or delay by Omron in exercising any right and no course of dealing between Buyer and Omron shall operate as a waiver of rights by Omron. (b) Assignment. Buyer may not assign its rights hereunder without Omron's written consent. (c) Law. These Terms are governed by the law of the jurisdiction of the home office of the Omron company from which Buyer is purchasing the Products (without regard to conflict of law principles). (d) Amendment. These Terms constitute the entire agreement between Buyer and Omron relating to the Products, and no provision may be changed or waived unless in writing signed by the parties. (e) Severability. If any provision hereof is rendered ineffective or invalid, such provision shall not invalidate any other provision. (f) Setoff. Buyer shall have no right to set off any amounts against the amount owing in respect of this invoice. (g) Definitions. As used herein, "including" means "including without limitation"; and "Omron Companies" (or similar words) mean Omron Corporation and any direct or indirect subsidiary or affiliate thereof.

Certain Precautions on Specifications and Use

1. Suitability of Use. Omron Companies shall not be responsible for conformity with any standards, codes or regulations which apply to the combination of the Product in the Buyer's application or use of the Product. At Buyer's request, Omron will provide applicable third party certification documents identifying ratings and limitations of use which apply to the Product. This information by itself is not sufficient for a complete determination of the suitability of the Product in combination with the end product, machine, system, or other application or use. Buyer shall be solely responsible for determining appropriateness of the particular Product with respect to Buyer's application, product or system. Buyer shall take application responsibility in all cases but the following is a non-exhaustive list of applications for which particular attention must be given:
   (i) Outdoor use, uses involving potential chemical contamination or electrical interference, or conditions or uses not described in this document.
   (ii) Use in consumer products or any use in significant quantities.
   (iii) Energy control systems, combustion systems, railroad systems, aviation systems, medical equipment, amusement machines, vehicles, safety equipment, and installations subject to separate industry or government regulations.
   (iv) Systems, machines and equipment that could present a risk to life or property. Please know and observe all prohibitions of use applicable to this Product.
   NEVER USE THE PRODUCT FOR AN APPLICATION INVOLVING SERIOUS RISK TO LIFE OR PROPERTY OR IN LARGE QUANTITIES WITHOUT ENSURING THAT THE SYSTEM AS A WHOLE HAS BEEN DESIGNED TO ADDRESS THE RISKS, AND THAT THE OMRON'S PRODUCT IS PROPERLY RATED AND INSTALLED FOR THE INTENDED USE WITHIN THE OVERALL EQUIPMENT OR SYSTEM.
2. Programmable Products. Omron Companies shall not be responsible for the user's programming of a programmable Product, or any consequence thereof.
3. Performance Data. Data presented in Omron Company websites, catalogs and other materials is provided as a guide for the user in determining suitability and does not constitute a warranty. It may represent the result of Omron's test conditions, and the user must correlate it to actual application requirements. Actual performance is subject to the Omron's Warranty and Limitations of Liability.
4. Change in Specifications. Product specifications and accessories may be changed at any time based on improvements and other reasons. It is our practice to change part numbers when published ratings or features are changed, or when significant construction changes are made. However, some specifications of the Product may be changed without any notice. When in doubt, special part numbers may be assigned to fix or establish key specifications for your application. Please consult with your Omron's representative at any time to confirm actual specifications of purchased Product.
5. Errors and Omissions. Information presented by Omron Companies has been checked and is believed to be accurate; however, no responsibility is assumed for clerical, typographical or proofreading errors or omissions.

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

OMRON

OMRON ELECTRONICS LLC

1 Commerce Drive
Schaumburg, IL 60173
847.843.7900
For US technical support or
other inquiries: 800.556.6766

OMRON CANADA, INC.

885 Milner Avenue
Toronto, Ontario M1B 5V8
416.286.6465

OMRON ON-LINE

Global - http://www.omron.com
USA - http://www.omron.com/oei
Canada - http://www.omron.ca

UNITED STATES

To locate a Regional Sales Office, local Distributor or to obtain product information, call: 847.843.7900

CANADA REGIONAL SALES OFFICES

Ontario	Toronto	416.286.6465
	Kitchener	519.896.1144
	Kingston	613.376.3968
Quebec	Montreal	514.636.6676
British Columbia	Vancouver	604.522.8855
Alberta	Edmonton	403.440.0818
	Calgary	403.257.3095

BRAZIL SALES OFFICE

Sao Paulo	55.11.5564.6488

ARGENTINA SALES OFFICE

Cono Sur	54.114.787.1129

MEXICO SALES OFFICES

Florida	954.227.2121	**Ciudad Juarez**	656.623.7083
Mexico, D.F.	555.534.1195	**Monterrey, N.L.**	818.377.4281

I202-E2-02 10/06

©2006 OMRON ELECTRONICS LLC
Printed in the U.S.A.

Specifications subject to change without notice.

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

Artisan Technology Group is an independent supplier of quality pre-owned equipment

Gold-standard solutions

Extend the life of your critical industrial, commercial, and military systems with our superior service and support.

We buy equipment

Planning to upgrade your current equipment? Have surplus equipment taking up shelf space? We'll give it a new home.

Learn more!

Visit us at **artisantg.com** for more info on price quotes, drivers, technical specifications, manuals, and documentation.

Artisan Scientific Corporation dba Artisan Technology Group is not an affiliate, representative, or authorized distributor for any manufacturer listed herein.

We're here to make your life easier. How can we help you today?

(217) 352-9330 | sales@artisantg.com | artisantg.com

ARTISAN® TECHNOLOGY GROUP