



Your PDF Guides

You can read the recommendations in the user guide, the technical guide or the installation guide for OMRON SGDH. You'll find the answers to all your questions on the OMRON SGDH in the user manual (information, specifications, safety advice, size, accessories, etc.). Detailed instructions for use are in the User's Guide.

User manual OMRON SGDH
User guide OMRON SGDH
Operating instructions OMRON SGDH
Instructions for use OMRON SGDH
Instruction manual OMRON SGDH

YASKAWA

Σ -II Series SGM□H/SGDH

USER'S MANUAL

SGMAH/SGMPH/SGMGH/SGMHS/SGMDH/SGMUH Servomotors
SGDH SERVOPACK



YASKAWA

MANUAL NO. SIEPS8000005C



[You're reading an excerpt. Click here to read official OMRON SGDH user guide](http://yourpdfguides.com/dref/2889905)

<http://yourpdfguides.com/dref/2889905>

Manual abstract:

Every precaution has been taken in the preparation of this manual. Nevertheless, 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. About this Manual Intended Audience This manual is intended for the following users. · Those selecting -II Series servodrives or peripheral devices for -II Series servodrives. · Those wanting to know about the ratings and characteristics of -II Series servodrives. · Those designing -II Series servodrive systems. · Those installing or wiring -II Series servodrives. · Those performing trial operation or adjustments of -II Series servodrives. · Those maintaining or inspecting -II Series servodrives.

Description of Technical Terms The terms in this manual are defined as follows: · Servomotor or motor = -II Series SGMAH, SGMPH, SGMGH, SGMSH, SGMDH, SGMUH servomotor. · SERVOPACK = -II Series SGDH amplifier. · Servodrive = A set including a servomotor and servo amplifier. · Servo System = A servo control system that includes the combination of a servodrive with a host computer and peripheral devices. · Parameter number = Numbers that the user inputs toward the SERVOPACK.

Indication of Reverse Signals In this manual, the names of reverse signals (ones that are valid when low) are written with a forward slash (/) before the signal name, as shown in the following example: · S-ON=/S-ON · P-CON=/P-CON iii Quick access to your required information Read the chapters marked with Chapter to get the information required for your purpose. Ratings and Characteristics System Design Panel Configuration and Wiring Trial Operation and Servo Adjustment Inspection and Maintenance SERVOPACKs, Servomotors, and Peripheral Devices Chapter 1 Outline Chapter 2 Selections Chapter 3 Specifications and Dimensional Drawings Chapter 4 SERVOPACK Specifications and Dimensional Drawings Chapter 5 Specifications and Dimensional Drawings of Cables and Peripheral Devices Chapter 6 Wiring Chapter 7 Digital Operator/Panel Operator Chapter 8 Operation Chapter 9 Adjustments Chapter 10 Inspection, Maintenance, and Troubleshooting Chapter 11 Appendix Visual Aids The following aids are used to indicate certain types of information for easier reference. · Indicates important information that should be memorized, including precautions such as alarm displays to avoid damaging the devices. · Indicates supplemental information. IMPORTANT INFO EXAMPLE · Indicates application examples.

TERMS · Indicates definitions of difficult terms or terms that have not been previously explained in this manual. iv Related Manuals Refer to the following manuals as required. Manual Name -II Series SGM H/SGDM Digital Operator Operation Manual -II Series SERVOPACKs Personal Computer Monitoring Software Operation Manual -II Series SGDH Fully Closed Interface Unit User's Manual Type: JUSP-FC100 -II Series SGDH MECHATROLINK Interface Unit User's Manual Type: JUSP-NS100 -II Series SGDH DeviceNet Interface Unit User's Manual Type: JUSP-NS300 -II Series Indexer Application Module User's Manual Type: JUSP-NS600 Manual Number TOE-S800-34 Contents Provides detailed information on the operating method of JUSP-OP02A-2 type Digital Operator (option device). Describes the using and the operating methods on software that changes the local personal computer into the monitor equipment for the -II Series servomotor. Provides detailed information on the fully closed control of the JUSP-FC100 interface unit. SIE-S800-35 SIE-C718-5 SIE-C718-4 Provides detailed information on the MECHATROLINK communications. Describes the DeviceNet communications. SIE-C718-6 SIE-C718-9 Provides detailed information on the positioning by the communications and the contact points. v Safety Information The following conventions are used to indicate precautions in this manual. Failure to heed precautions provided in this manual can result in serious or possibly even fatal injury or damage to the products or to related equipment and systems.

WARNING Indicates precautions that, if not heeded, could possibly result in loss of life or serious injury. CAUTION Indicates precautions that, if not heeded, could result in relatively serious or minor injury, damage to the product, or faulty operation. In some situations, the precautions indicated could have serious consequences if not heeded. PROHIBITED Indicates prohibited actions that must not be performed. For example, this symbol would be used as follows to indicate that fire is prohibited: · MANDATORY Indicates compulsory actions that must be performed. For example, this symbol would be used as follows to indicate that grounding is compulsory: · The warning symbols for ISO and JIS standards are different, as shown below. ISO JIS The ISO symbol is used in this manual. Both of these symbols appear on warning labels on Yaskawa products.

Please abide by these warning labels regardless of which symbol is used. vi Notes for Safe Operation Read this manual thoroughly before checking products on delivery, storage and transportation, installation, wiring, operation and inspection, and disposal of the AC servodrive. WARNING · Never touch any rotating motor parts while the motor is running. Failure to observe this warning may result in injury. · Before starting operation with a machine connected, make sure that an emergency stop can be applied at any time.

Failure to observe this warning may result in injury. · Never touch the inside of the SERVOPACKs. Failure to observe this warning may result in electric shock. · Do not touch terminals for five minutes after the power is turned OFF. Residual voltage may cause electric shock. · Do not touch terminals for five minutes after voltage resistance test. Residual voltage may cause electric shock. · Follow the procedures and instructions for trial operation precisely as described in this manual. Malfunctions that occur after the servomotor is connected to the equipment not only damage the equipment, but may also cause an accident resulting in death or injury. · The multiturn limit value must be changed only for special applications. Changing it inappropriately or unintentionally can be dangerous. · If the Multiturn Limit Disagreement alarm (A.CC) occurs, check the setting of parameter Pn205 in the SERVOPACK to be sure that it is correct. If Fn013 is executed when an incorrect value is set in Pn205, an incorrect value will be set in the encoder. The alarm will disappear even if an incorrect value is set, but incorrect positions will be detected, resulting in a dangerous situation where the machine will move to unexpected positions.

· Do not remove the front cover, cables, connectors, or optional items while the power is ON.



[You're reading an excerpt. Click here to read official OMRON SGDH user guide](http://yourpdfguides.com/dref/2889905)

<http://yourpdfguides.com/dref/2889905>

Failure to observe this warning may result in electric shock. · Do not damage, press, exert excessive force or place heavy objects on the cables. Failure to observe this warning may result in electric shock, stopping operation of the product, or burning. · Provide an appropriate stopping device on the machine side to ensure safety. A holding brake for a servomotor with brake is not a stopping device for ensuring safety. Failure to observe this warning may result in injury. · Do not come close to the machine immediately after resetting momentary power loss to avoid an unexpected restart. Take appropriate measures to ensure safety against an unexpected restart. Failure to observe this warning may result in injury.

· Connect the ground terminal to electrical codes (ground resistance: 100 or less). Improper grounding may result in electric shock or fire. vii WARNING · Installation, disassembly, or repair must be performed only by authorized personnel. Failure to observe this warning may result in electric shock or injury. · Do not modify the product.

Failure to observe this warning may result in injury or damage to the product. Checking on Delivery CAUTION · Always use the servomotor and SERVOPACK in one of the specified combinations. Failure to observe this caution may result in fire or malfunction. Storage and Transportation CAUTION · Do not store or install the product in the following places. · Locations subject to direct sunlight.

· Locations subject to temperatures outside the range specified in the storage or installation temperature conditions. · Locations subject to humidity outside the range specified in the storage or installation humidity conditions. · Locations subject to condensation as the result of extreme changes in temperature. · Locations subject to corrosive or flammable gases. · Locations subject to dust, salts, or iron dust. · Locations subject to exposure to water, oil, or chemicals. · Locations subject to shock or vibration. Failure to observe this caution may result in fire, electric shock, or damage to the product. · Do not hold the product by the cables or motor shaft while transporting it. Failure to observe this caution may result in injury or malfunction.

· Do not place any load exceeding the limit specified on the packing box. Failure to observe this caution may result in injury or malfunction. viii Installation CAUTION · Never use the products in an environment subject to water, corrosive gases, inflammable gases, or combustibles. Failure to observe this caution may result in electric shock or fire. · Do not step on or place a heavy object on the product. Failure to observe this caution may result in injury. · Do not cover the inlet or outlet parts and prevent any foreign objects from entering the product. Failure to observe this caution may cause internal elements to deteriorate resulting in malfunction or fire. · Be sure to install the product in the correct direction. Failure to observe this caution may result in malfunction.

· Provide the specified clearances between the SERVOPACK and the control panel or with other devices. Failure to observe this caution may result in fire or malfunction. · Do not apply any strong impact. Failure to observe this caution may result in malfunction. ix Wiring CAUTION · Do not connect a three-phase power supply to the U, V, or W output terminals.

Failure to observe this caution may result in injury or fire. · Securely connect the power supply terminals and motor output terminals. Failure to observe this caution may result in fire. · Do not bundle or run power and signal lines together in the same duct. Keep power and signal lines separated by at least 30 cm (11.

81 in). Failure to observe this caution may result in malfunction. · Use twisted-pair shielded wires or multi-core twisted pair shielded wires for signal and encoder (PG) feedback lines. The maximum length is 3 m (118.11 in) for reference input lines and is 20 m (787.40 in) for PG feedback lines. · Do not touch the power terminals for five minutes after turning power OFF because high voltage may still remain in the SERVOPACK. Make sure the charge indicator is turned OFF first before starting an inspection. · Avoid frequently turning power ON and OFF. Do not turn power ON or OFF more than once per minute.

Since the SERVOPACK has a capacitor in the power supply, a high charging current flows for 0.2 seconds when power is turned ON. Frequently turning power ON and OFF causes main power devices such as capacitors and fuses to deteriorate, resulting in unexpected problems. · Observe the following precautions when wiring main circuit terminal blocks. · Remove the terminal block from the SERVOPACK prior to wiring. · Insert only one wire per terminal on the terminal block. · Make sure that the core wire is not electrically shorted to adjacent core wires. · Do not connect the SERVOPACKneral Precautions Note the following to ensure safe application. · The drawings presented in this manual are sometimes shown without covers or protective guards. Always replace the cover or protective guard as specified first, and then operate the products in accordance with the manual.

· The drawings presented in this manual are typical examples and may not match the product you received. · This manual is subject to change due to product improvement, specification modification, and manual improvement. When this manual is revised, the manual code is updated and the new manual is published as a next edition. · If the manual must be ordered due to loss or damage, inform your nearest Yaskawa representative or one of the offices listed on the back of this manual. · Yaskawa will not take responsibility for the results of unauthorized modifications of this product.

Yaskawa shall not be liable for any damages or troubles resulting from unauthorized modification. xii CONTENTS About this Manual-----

----- iii Related Manuals ----- v Safety Information -----

----- vi Notes for Safe Operation----- vii 1 Outline 1.1 Checking Products -----

----- 1-2 1.1.1 Check Items-----1-2 1.

1.2 Servomotors -----1-2 1.1.3 SERVOPACKs -----1-4 1.

-----1-3 1.2 Product Part Names ----- 1-4 1.



[You're reading an excerpt. Click here to read official OMRON SGDh user guide](http://yourpdfguides.com/dref/2889905)

<http://yourpdfguides.com/dref/2889905>

2.1 Servomotors	1-4	1.2.2 SERVOPACKs	1-7
	1-5	1.3 Examples of Servo System Configurations	1-7
3.1 Single-phase, 100 V, 200 V and 220 V Main Circuit	1-7	1.3.2 Three-phase, 200 V Main Circuit	1-9
1-8	1.3.3 Three-phase, 400 V Main Circuit	1-9	1.4 Applicable Standards
	1.4.1 North American Safety Standards (UL, CSA)	1-10	1.4.
2 CE Marking	1-10	2 Selections 2.1 Servomotor Model Designations	
	2-2	2.1.1 Model SGMAH (3000 min-1)	2-2
2 Model SGMPH (3000 min-1)	2-4	2.1.3 Model SGMGH (1500 min-1)	2-8
	2-6	2.1.4 Model SGMGH (1000 min-1)	2-8
1.5 Model SGMSH (3000 min-1)	2-10	2.1.6 Model SGMDH (2000 min-1)	
2-12	2.1.7 Model SGMUH (6000 min-1)	2-13	2.2 Selecting Servomotors
	2.2.1 Support Tool for the Capacity Selection of the AC Servomotors	2-14	2.2.
2 Servomotor Capacity Selection Examples	2-14	2.3 SERVOPACK Model Designations	2-15
Series SERVOPACKs and Applicable Servomotors	2-16	2.5 Selecting Cables	2-17
and SGMPH Servomotors	2-17	2.5.1 Cables for SGMAH and SGMGH Servomotors	2-22
	2.5.2 Cables for SGMSH/SGMDH/SGMUH Servomotors	2-22	xiii
	2.6 Selecting Peripheral Devices	2-26	2.6.
1 Special Options	2-26	2.6.2 Molded-case Circuit Breaker and Fuse Capacity	2-26
	2.6.3 Noise Filters, Magnetic Contactors, Surge Suppressors and DC Reactors	2-26	2.
6.4 Regenerative Resistors and Brake Power Supply Units	2-26	2-29	2-30
	2-31	3 Specifications and Dimensional Drawings 3.1 Ratings and Specifications of SGMAH (3000 min-1)	3-4
	3-4	3.1.1 SGMAH Servomotors Without Gears	3-4
1.2 SGMAH Servomotors With Standard Backlash Gears	3-6	3.1.3 SGMAH Servomotors With Low-backlash Gears	
3-8	3.2 Ratings and Specifications of SGMPH (3000min-1)	3-11	3.2.1 SGMPH Servomotors Without Gears
	3.2.2 SGMPH Servomotors With Standard Backlash Gears	3-13	3.2.
	3.3 Ratings and Specifications of SGMGH (1500min-1)	3-17	3.3.1 SGMGH Servomotors (1500min-1) Without Gears
	3-17	3.3.2 SGMGH Servomotors (1500min-1) With Standard Backlash Gears	3-21
	3-23	3.4 Ratings and Specifications of SGMGH (1000min-1)	3-26
1 SGMGH Servomotors (1000min-1) Without Gears	3-26	3.4.2 SGMGH servomotors (1000min-1) With Standard Backlash Gears	3-29
	3.4.3 SGMGH Servomotors (1000 min-1) With Low-backlash Gears	3-31	3.
5 Ratings and Specifications of SGMSH (3000min-1)	3-33	3.5.1 SGMSH Servomotors (3000min-1) Without Gears	3-33
	3.5.2 SGMSH Servomotors (3000min-1) With Low-backlash Gears	3-36	3.
6 Ratings and Specifications of SGMDH (2000min-1)	3-39	3.6.1 SGMDH Servomotors (2000min-1) With Holding Brakes	3-39
	3.7.1 SGMUH Servomotors (6000min-1) Without Holding Brakes	3-41	3.8
	3.8.1 Mechanical Specifications of Servomotors	3-43	3.8.1
2 3.8.3 3.8.4 3.8.5 3.8.6 Precautions on Servomotor Installation		Mechanical Tolerance	
		Direction of Servomotor Rotation	
		Impact Resistance	
		Vibration Resistance	
		Vibration Class	3-43
		3.9 Terms and Data for Servomotors With Gears	3-46
10 Servomotor Dimensional Drawings	3-48	xiv 3.11 Dimensional Drawings of SGMAH Servomotors (3000 min-1)	
	3-49	3.11.1 SGMAH Servomotors (3000 min-1) Without Gears	3-49
2 SGMAH Servomotors (3000 min-1) With Brakes	3-53	3.11.3 SGMAH Servomotors (3000 min-1) With Standard Backlash Gears	3-57
	3.11.4 SGMAH Servomotors (3000 min-1) With Standard Backlash Gears and Brakes	3-64	3.
11.5 SGMAH Servomotors (3000 min-1) With Low-backlash Gears	3-71	3.12 Dimensional Drawings of SGMPH Servomotors (3000 min-1)	
	3-79	3.12.1 SGMPH Servomotors (3000 min-1) Without Gears and Brake	3-79
	3.12.2 SGMPH Servomotors (3000 min-1) With Brakes	3-81	3.12.3 SGMPH Servomotors (3000 min-1) With Standard Backlash Gears
	3-83	3.12.	
4 SGMPH Servomotors (3000 min-1) With Standard Backlash Gears and Brakes	3-86	3.12.5 SGMPH Servomotors (3000 min-1) With Low-backlash Gears	3-89
	3.13 Dimensional Drawing of Output Shafts With Oil Seals for SGMAH and SGMPH Servomotors	3-93	3.13.1 SGMAH Servomotors
	3-93	3.13.2 SGMPH Servomotors	3-93
Servomotors	3-93	3.14 Dimensional Drawings of SGMGH Servomotors (1500 min-1)	
	3-94	3.14.	
	1 SGMGH Servomotors (1500 min-1) Without Gears and Brakes	3-94	3.



You're reading an excerpt. Click here to read official OMRON SGD user guide
<http://yourpdfguides.com/dref/2889905>

14.2 SGMGH Servomotors (1500 min-1) 200-V Specifications Without Gears and With Brakes	3-96	3.14.3 Servomotors SGMGH (1500 min-1) 400-V Specifications Without Gears and With Brakes	3-99
14.4 SGMGH Servomotors (1500min-1) With Standard Backlash Gears and Without Brakes (Foot-mounted Type)	3-102	3.14.5 SGMGH Servomotors (1500min-1) With Standard Backlash Gears and Without Brakes (Flange-mounted Type)	3-108
6 SGMGH Servomotors (1500min-1) With Low-backlash Gears and Without Brakes (Flange-mounted Type)	3-116	3.15 Dimensional Drawings of SGMGH Servomotors (1000 min-1)	3-120
3.15.1 SGMGH Servomotors (1000 min-1) Without Gears and Brakes	3-120	3.15.2 SGMGH Servomotors (1000 min-1) Without Gears and With Brakes	3-122
3.15.3 SGMGH Servomotors (1000 min-1) With Standard Backlash Gears and Without Brakes (Foot-mounted Type)	3-125	3.15.4 SGMGH Servomotors (1000 min-1) With Standard Backlash Gears and Without Brakes (Flange-mounted Type)	3-130
15.5 SGMGH Servomotors (1000 min-1) With Low-backlash Gears and Without Brakes (Flange-mounted Type)	3-137	xv 3.16 Dimensional Drawings of SGMSH Servomotors (3000min-1)	3-141
3.16.1 SGMSH Servomotors (3000min-1) Without Gears and Without Brakes	3-141	3.16.2 SGMSH Servomotors (3000 min-1) 200-V Specifications Without Gears With Brakes	3-143
3.16.3 SGMSH Servomotors (3000 min-1) 400-V Specifications Without Gears With Brakes	3-145	3.16.4 SGMSH Servomotors (3000 min-1) With Low-backlash Gears and Without Brakes (Flange-mounted Type)	3-147
3.17 Dimensional Drawings of SGMDH Servomotors (2000min-1)	3-151	3.17.1 SGMDH Servomotors (2000min-1) Without Gears and With/Without Brakes	3-151
3.18 Dimensional Drawings of SGMUH Servomotors (6000min-1)	3-153	3.18.1 SGMUH Servomotors (6000min-1) Without Gears and Without Brakes	3-153
3.18.2 SGMUH Servomotors (6000min-1) Without Gears and With Brakes	3-154	3.19 Shaft End Specifications for SGMGH, SGMSH and SGMDH Servomotors	3-156
4 SERVOPACK Specifications and Dimensional Drawings	4-3	4.1.1 4.1.2 4.1.3 4.1.4 4.1.5 4.1.6 4.1.7 4.1.8 4.1.9 4.1.10 4.1.11 4.1.12 4.1.13 4.1.14 4.1.15 4.1.16 4.1.17 4.1.18 4.1.19 4.1.20 4.1.21 4.1.22 4.1.23 4.1.24 4.1.25 4.1.26 4.1.27 4.1.28 4.1.29 4.1.30 4.1.31 4.1.32 4.1.33 4.1.34 4.1.35 4.1.36 4.1.37 4.1.38 4.1.39 4.1.40 4.1.41 4.1.42 4.1.43 4.1.44 4.1.45 4.1.46 4.1.47 4.1.48 4.1.49 4.1.50 4.1.51 4.1.52 4.1.53 4.1.54 4.1.55 4.1.56 4.1.57 4.1.58 4.1.59 4.1.60 4.1.61 4.1.62 4.1.63 4.1.64 4.1.65 4.1.66 4.1.67 4.1.68 4.1.69 4.1.70 4.1.71 4.1.72 4.1.73 4.1.74 4.1.75 4.1.76 4.1.77 4.1.78 4.1.79 4.1.80 4.1.81 4.1.82 4.1.83 4.1.84 4.1.85 4.1.86 4.1.87 4.1.88 4.1.89 4.1.90 4.1.91 4.1.92 4.1.93 4.1.94 4.1.95 4.1.96 4.1.97 4.1.98 4.1.99 4.1.100	4-3
4.2 SERVOPACK Ratings and Specifications	4-4	4.2.1 Single-phase 100 V	4-3
4.2.2 Single-phase 220 V (Option)	4-4	4.2.3 Three-phase 400 V	4-4
4.2.3 SERVOPACK Installation	4-7	4.3.1 Single-phase 200 V, 30 W to 400 W, and 100 V, 30 W to 200 W Models	4-9
4.3.2 Three-phase 200 V, 500 W to 1.5 kW, and Single-phase 220 V, 800 W, 1.5 kW Models	4-9	4.3.3 Three-phase 200 V, 2.0 kW to 5.0 kW Models	4-11
4.3.4 Three-phase 200 V, 6.0 kW to 15 kW Models	4-12	4.3.5 Three-phase 400 V, 500 W to 3.0 kW Models	4-13
4.3.6 Three-phase 400 V, 5.0 kW Model	4-14	4.3.7 Three-phase 400 V, 6.0 kW, 7.5 kW Models	4-15
4.3.8 Three-phase 400 V, 11.0 kW, 15.0 kW Models	4-16	4.4 SERVOPACK's Power Supply Capacities and Power Losses	4-17
4.4.1 SERVOPACK Overload Characteristics and Allowable Load Moment of Inertia	4-19	4.4.2 Starting and Stopping Time	4-20
4.4.3 Load Moment of Inertia	4-20	4.4.4 SERVOPACK Dimensional Drawings	4-23
4.4.5 Dimensional Drawings of Base-mounted SERVOPACK Model	4-24	4.5.1 Single-phase 100 V: 30 W/50 W/100 W (A3BE/A5BE/01BE) Single-phase 200 V: 30 W/50 W/100 W/200 W (A3AE/A5AE/01AE/02AE)	4-24
4.5.2 Single-phase 100 V: 200 W (02BE) Single-phase 200 V: 400 W (04AE)	4-25	4.5.3 Three-phase 200 V: 500 W/750 W/1.0 kW (05AE/08AE/10AE) Single-phase 220 V: 750 W (08AE-S)	4-26
4.5.4 Three-phase 200 V: 1.5 kW (15AE) Three-phase 400 V: 500 W/750 W/1.0 kW/1.5 kW (05DE/08DE/10DE/15DE)	4-27	4.5.5 Single-phase 220 V: 1.5 kW (15AE-S) Three-phase 200 V: 2.0 kW/3.0 kW (20AE/30AE) Three-phase 400 V: 2.0 kW/3.0 kW (20DE/30DE)	4-28
4.5.6 Three-phase 200 V: 5.0 kW (50AE) Three-phase 400 V: 5.0 kW (50DE)	4-29	4.5.7 Three-phase 200 V: 6.0 kW/7.5 kW (60AE/75AE)	4-30
4.5.8 Three-phase 400 V: 6.0 kW/7.5 kW (60DE/75DE)	4-31	4.5.9 Three-phase 200 V: 11.0 kW/15.0 kW (11AE/15AE)	4-32
4.5.10 Three-phase 400 V: 11.0 kW/15.0 kW (11DE/15DE)	4-33	4.6 Dimensional Drawings of Rack-mounted SERVOPACK Model	4-34
4.6.1 Single-phase 100 V: 30 W/50 W/100 W (A3BE-R/A5BE-R/01BE-R) Single-phase 200 V: 30 W/50 W/100 W/200 W (A3AE-R/A5AE-R/01AE-R/02AE-R)	4-34	4.6.2 Single-phase 100 V: 200 W (02BE-R) Single-phase 200 V: 400 W (04AE-R)	4-35



[You're reading an excerpt. Click here to read official OMRON SGD user guide](http://yourpdfguides.com/dref/2889905)

<http://yourpdfguides.com/dref/2889905>

8.3 Single-phase 220 V: 750 W (08AE-S-R) Three-phase 200 V: 500 W/750 W/1.0 kW (05AE-R/08AE-R/10AE-R) -----	4-36
4.8.4 Three-phase 200 V: 1.5 kW (15AE-R) Three-phase 400 V: 500 W/750 W/1.0 kW/1.5 kW (05DE-R/08DE-R/10DE-R/15DE-R) -----	4-37
4.8.5 Single-phase 220 V: 1.5 kW (15AE-S-R) -----	4-38
4.8.6 Three-phase 200 V: 2.0 kW/3.0 kW (20AE-R/30AE-R) Three-phase 400 V: 2.0 kW/3.0 kW (20DE-R/30DE-R) -----	4-39
4.8.7 Three-phase 200 V: 5.0 kW (50AE-R) Three-phase 400 V: 5.0 kW (50DE-R) -----	4-40
- xvii 4.	
9 Dimensional Drawings of Duct-ventilated SERVOPACK Model -----	4-41
4.9.1 4.9.2 4.9.3 4.9.4 Three-phase 200 V: 6.0 kW/7.5 kW (60AE-P/75AE-P) ----- Three-phase 400 V: 6.0 kW/7.5 kW (60DE-P/75DE-P) ----- Three-phase 200 V: 11.0 kW/15.0 kW (1AAE-P/1EAE-P) -----	4-41
4.9.4 Three-phase 400 V: 11.0 kW/15.0 kW (1AAE-P/1EAE-P) -----	4-41
5.1 Specifications and Dimensional Drawings of Cables and Peripheral Devices 5.1 Specifications and Dimensional Drawings of Servomotor Main Circuit Cable -----	5-3
5.1.1 Cables for SGMAH and SGMPH Servomotors Without Brakes -----	5-3
5.1.2 Cables for SGMAH and SGMPH Servomotors With Brakes -----	5-3
5.1.3 Flexible Cables for SGMAH and SGMPH Servomotors Without Brakes -----	5-4
5.1.5 Cables for 400 V SGMAH and SGMPH Servomotors Without Brakes -----	5-5
5.1.6 Cables for 400 V SGMAH and SGMPH Servomotors With Brakes -----	5-6
5.2.1 Wire Size -----	5-7
5.2.2 SGMAH and SGMPH Servomotor Connectors for Standard Environments -----	5-8
5.2.4 SGMSH Servomotor (1500 min-1) Connectors for Standard Environments -----	5-11
5.2.5 SGMGH Servomotor (1000 min-1) Connectors for Standard Environments -----	5-12
5.2.6 SGMSH Servomotor (3000 min-1) Connectors for Standard Environments -----	5-15
5.2.7 SGMDH Servomotor (2000 min-1) Connectors for Standard Environments -----	5-17
5.2.9 SGMGH Servomotor (1500 min-1) Connectors Conforming to IP67 and European Safety Standards -----	5-19
5.2.10 SGMGH Servomotor (1000 min-1) Connectors Conforming to IP67 and European Safety Standards -----	5-22
5.2.11 SGMSH Servomotors (3000 min-1) Connectors Conforming to IP67 and European Safety Standards -----	5-27
5.2.12 SGMDH Servomotors (2000 min-1) Connectors Conforming to IP67 and European Safety Standards -----	5-30
5.2.14 SGMUH Servomotors (6000 min-1) Connectors Conforming to IP67 and European Safety Standards -----	5-35
5.3.2 5.3.3 5.3.4 5.3.5 Cable Types -----	5-38
5.3.2 5.3.3 5.3.4 5.3.5 Cable Types -----	5-38
5.3.5 Cable Types -----	5-45
5.4 Encoder Cables for CN2 Connector -----	5-46
5.4.1 Encoder Cable With Connectors For SGMAH and SGMPH Servomotors -----	5-47
5.4.2 Encoder Cable for SGMGH, SGMSH, SGMDH, and SGMUH Servomotors -----	5-48
5.4.4 Encoder Cable With a SERVOPACK Connector and Encoder Loose Leads for SGMAH and SGMPH Servomotors -----	5-49
5.4.5 Encoder Cable with a SERVOPACK Connector and Encoder Loose Leads for SGMGH, SGMSH, SGMDH, and SGMUH Servomotors -----	5-50
5.4.6 Encoder Flexible Cables for SGMGH, SGMSH, SGMDH, and SGMUH Servomotors -----	5-52
5.5 Connectors and Cables for Encoder Signals -----	5-53
5.5.1 Connectors and Cables for SGMAH and SGMPH Servomotors -----	5-55
5.5.2 Connectors and Cables for SGMGH, SGMSH, SGMDH, and SGMUH Servomotors -----	5-55
5.5.6 Flexible Cables -----	5-57
5.5.7 I/O Signal Cables for CN1 Connector -----	5-59
5.7.2 Connector Type and Cable Size -----	5-60
5.8 Peripheral Devices -----	5-62
5.8.1 Cables for Connecting Personal Computers -----	5-63
5.8.2 Digital Operator -----	5-63
5.8.3 Cables for Analog Monitor -----	5-64
5.8.4 Connector Terminal Block Converter Unit -----	5-65
----- 5-66 5.	
5.8.6 External Regenerative Resistor -----	5-67
5.8.7 Regenerative Resistor Unit -----	5-69
5.8.8 Absolute Encoder Battery -----	5-71
5.8.9 Molded-case Circuit Breaker (MCCB) -----	5-72
----- 5-73 5.	



[You're reading an excerpt. Click here to read official OMRON SGD user guide](http://yourpdfguides.com/dref/2889905)
<http://yourpdfguides.com/dref/2889905>

8.10 Noise Filter-----	5-75	5.8.11 Magnetic Contactor-----	5-80
12 Surge Suppressor-----	5-86	5.8.13 DC Reactor for Harmonic Suppression-----	5-88
8.15 Encoder Signal Converter Unit-----	5-89	5.8.16 MECHATROLINK-I I/F Unit-----	5-91
- 5-90 5.8.17 DeviceNet I/F Unit-----	5-92	5.8.18 PROFIBUS-DP I/F Unit-----	5-94
		5.8.19 INDEXER Module-----	5-94
8.20 Setup Support Tool SigmaIndexer-----	5-96	5.8.21 Fully-closed I/F Unit-----	6-2
6.1 Wiring Main Circuit-----	6-2	6.1.1 Names and Functions of Main Circuit Terminals-----	6-4
	6-2	6.1.2 Wiring Main Circuit Power Supply Connector (Spring Type)-----	6-4
3 Typical Main Circuit Wiring Examples-----	6-5	6.2 Wiring Encoders-----	6-8
Connecting an Encoder (CN2) and Output Signals from the SERVOPACK (CN1)-----	6-8	6.2.1	6-8
2 Encoder Connector (CN2) Terminal Layout-----	6-9	6.3 Examples of I/O Signal Connections-----	6-10
2 6.3.3 6.3.4 6.3.5 6.3.6 Speed Control Mode-----	6-10	6.3.1 6.3.	6-10
Torque Control Mode-----	6-10	6.3.2 Position Control Mode-----	6-11
I/O Signal Connector (CN1) Terminal Layout-----	6-10	6.3.3 6.3.4 6.3.5 6.3.6 Speed Control Mode-----	6-11
Interface Circuit-----	6-10	6.3.4 6.3.5 6.3.6 Speed Control Mode-----	6-12
6-16 6.4 Others-----	6-19	6.3.5 6.3.6 Speed Control Mode-----	6-13
	6-19	6.3.6 Speed Control Mode-----	6-14
	4.1	6.4.2 6.4.3 6.4.4 6.4.5 6.	6.
	4.6	6.4.7 6.4.	6.4.
8 Wiring Precautions-----		Wiring for Noise Control-----	Installation
Conditions of EMC Directives-----		Installation Conditions of UL Standards-----	Using More Than One
SERVOPACK-----		Extending Encoder Cables-----	Operating Conditions on 400-V Power
Supply Voltage-----	6-19	DC Reactor for Harmonic Suppression-----	6-20
Regenerative Resistors-----	6-20	6.5.1 Regenerative Power and Regenerative Resistance-----	6-23
2 Connecting External Regenerative Resistors-----	6-26	6.5.2 Regenerative Power and Regenerative Resistance-----	6-27
7.1 Functions on Digital Operator/Panel Operator-----	6-30	7.1.1 Functions on Digital Operator/Panel Operator-----	6-31
7-2 7.1.1 7.1.2 7.1.3 7.1.4 Connecting the Digital Operator-----	6-33	7.1.2 Functions on Digital Operator/Panel Operator-----	6-31
7-3 Basic Mode Selection and Operation-----	6-33	7.1.3 Functions on Digital Operator/Panel Operator-----	6-31
	6-33	7.1.4 Connecting the Digital Operator-----	6-31
	6-33	7.2 Key Names and Functions-----	6-31
	6-33	7.3 Basic Mode Selection and Operation-----	6-31
	6-33	7.4 Status Display-----	6-31
	6-33	7-6 7.	6-31
	6-33	2 Operation in Utility Function Mode (Fn 7.2.1 7.2.2 7.2.3 7.2.4 7.2.	6-31
5 7.2.6)-----	6-33	7.2.5 7.2.6 7.2.7 7.2.8 7.2.9 7.2.10 7.2.11 7.2.12 7.2.13 7.2.14 7.2.15 7.2.16 7.2.17 7.2.18 7.2.19 7.2.20 7.2.21 7.2.22 7.2.23 7.2.24 7.2.25 7.2.26 7.2.27 7.2.28 7.2.29 7.2.30 7.2.31 7.2.32 7.2.33 7.2.34 7.2.35 7.2.36 7.2.37 7.2.38 7.2.39 7.2.40 7.2.41 7.2.42 7.2.43 7.2.44 7.2.45 7.2.46 7.2.47 7.2.48 7.2.49 7.2.50 7.2.51 7.2.52 7.2.53 7.2.54 7.2.55 7.2.56 7.2.57 7.2.58 7.2.59 7.2.60 7.2.61 7.2.62 7.2.63 7.2.64 7.2.65 7.2.66 7.2.67 7.2.68 7.2.69 7.2.70 7.2.71 7.2.72 7.2.73 7.2.74 7.2.75 7.2.76 7.2.77 7.2.78 7.2.79 7.2.80 7.2.81 7.2.82 7.2.83 7.2.84 7.2.85 7.2.86 7.2.87 7.2.88 7.2.89 7.2.90 7.2.91 7.2.92 7.2.93 7.2.94 7.2.95 7.2.96 7.2.97 7.2.98 7.2.99 7.2.100	6-33
7-8 List of Utility Function Modes-----	6-33	7-8 Alarm Traceback Data Display (Fn000)-----	6-33
7-9 Zero-point Search Mode (Fn003)-----	6-33	7-10 Parameter Settings Initialization (Fn005)-----	6-33
7-11 Alarm Traceback Data Clear (Fn006)-----	6-33	7-12 Automatic Offset-adjustment of Motor Current Detection	6-33
Signal (Fn00E)-----	6-33	7-13 7.2.7 Manual Offset-adjustment of Motor Current Detection	6-33
	6-33	(Fn00F) 7-14 7.	6-33
2.8 Password Setting (Protects Parameters from Being Changed) (Fn010)-----	6-33	7-15 xx 7.2.9 Motor	6-33
Models Display (Fn011)-----	6-33	7-16 7.2.	6-33
10 Software Version Display (Fn012)-----	6-33	7-17 7.2.11 Application Module Detection Results Clear (Fn014)-----	6-33
7-18 7.3 Operation in Parameter Setting Mode (Pn)-----	6-33	7-19 7.3.1 Setting Parameters-----	6-33
Input Circuit Signal Allocation-----	6-33	7-23 7.3.3 Output Circuit Signal Allocation-----	6-33
	6-33	7-26 7.	6-33
4 Operation in Monitor Mode (Un)-----	6-33	7-28 7.4.1 List of Monitor Modes-----	6-33
Operation 8.1 Trial Operation-----	6-33	8-4 8.1.1 8.1.2 8.1.3 8.	6-33
1.4 8.1.5 Trial Operation for Servomotor without Load-----	6-33	8-6 Trial Operation for Servomotor without Load from Host Reference-----	6-33
-8-9 Trial Operation with the Servomotor Connected to the Machine-----	6-33	8-15 Servomotor with Brakes-----	6-33
Position Control by Host Controller-----	6-33	8-16 8.2 Control Mode Selection-----	6-33
3 Setting Common Basic Functions-----	6-33	8-18 8.3.1 8.3.2 8.	6-33
3.3 8.3.4 8.3.5 8.3.6 Setting the Servo ON Signal-----	6-33	8-18 Switching the Servomotor Rotation Direction-----	6-33
8-19 Setting the Overtravel Limit Function-----	6-33	8-20 Setting for Holding Brakes-----	6-33
8-22 Selecting the Stopping Method After Servo OFF-----	6-33	8-25 Instantaneous Power Loss Settings-----	6-33
	6-33	8-26 8.	6-33



[You're reading an excerpt. Click here to read official OMRON SGDH user guide](http://yourpdfguides.com/dref/2889905)
<http://yourpdfguides.com/dref/2889905>

4 Absolute Encoders	8-27	8.4.
1 8.4.2 8.4.3 8.4.4 8.4.5 8.4.		
6 8.4.7 8.4.8 Interface Circuits	8-28	Selecting an Absolute Encoder
8-29 Handling Batteries	8-29	Replacing Batteries
8-30 Absolute Encoder Setup (Fn008)	8-30	Absolute Encoder Reception Sequence
Multiturn Limit Setting	8-36	Multiturn Limit Setting When Multiturn Limit Disagreement (A. CC) Occurred
8-37 8.5 Operating Using Speed Control with Analog Reference	8-38	8.5.1
2 8.5.3 8.5.4 8.5.5 8.5.6 8.5.		
7 8.5.8 Setting Parameters	8-38	Setting Input Signals
8-39 Adjusting Offset	8-40	Soft Start
8-43 Speed Reference Filter	8-43	Using the Zero Clamp Function
Encoder Signal Output	8-45	Speed Coincidence Output
8.6 Operating Using Position Control	8-48	8.6.1 8.6.2 8.6.3 8.6.4 8.6.5 8.6.
6 8.6.7 Setting Parameters		Setting the Electronic Gear
Reference-		Positioning Completed
Output Signal-		Smoothing-
(INHIBIT)	8-48 8-50 8-53 8-57 8-58 8-59 8-60	8.7 Operating Using Torque Control-
8.7.2 8.7.3 8.7.4 Setting Parameters		Torque Reference Input
Adjusting the Reference Offset	8-61 8-61 8-62	Limiting Servomotor Speed during Torque Control-
8-64 8.8 Operating Using Speed Control with an Internally Set Speed	8-66	8.8.1 Setting Parameters
8-66 8.		
8.2 Input Signal Settings	8-67	8.8.3 Operating Using an Internally Set Speed
8-67 8.9 Limiting Torque	8-69	Internal Torque Limit (Limiting Maximum Output Torque)
Torque Limit (Output Torque Limiting by Input Signals)		Torque Limiting Using an Analog Voltage Reference
External Torque Limit and Analog Voltage Reference	8.9.5	Checking Output Torque Limiting
during Operation	8.9.1 8.9.	
2 8.9.3 8.9.4 8-69 8-70 8-72 8-73 8-74 8.		
10 Control Mode Selection	8-75	8.10.1 Setting Parameters
8-75 8.10.2		
Switching the Control Mode	8-75	8.
11 Other Output Signals	8-77	8.11.1 Servo Alarm Output (ALM) and Alarm Code Output (ALO1, ALO2, ALO3)
8.11.2 Warning Output (WARN)		8.11.3 Running Output Signal (ITGON)
8.11.4 Servo Ready (/S-RDY) Output	8-77 8-78 8-78 8-79	9 Adjustments 9.1 Autotuning
9-2 9.		
1.1 Servo Gain Adjustment Methods	9-2	9.1.2 List of Servo Adjustment Functions
9-3 9.2 Online Autotuning-	9-5	9.2.1 9.2.2 9.2.
3 9.2.4 9.2.5 9.		
2.6 9.2.7 Online Autotuning	9-5	Online Autotuning Procedure
9-6 Selecting the Online Autotuning Execution Method	9-7	Machine Rigidity Setting for Online Autotuning
Method for Changing the Machine Rigidity Setting	9-9	Saving the Results of Online Autotuning
Procedure for Saving the Results of Online Autotuning	9-11	xxii 9.3 Manual Tuning
3.1 9.3.2 9.3.3 9.3.4 9.3.5 Explanation of Servo Gain	9-12	Servo Gain Manual Tuning
9-13 Position Loop Gain	9-13	Speed Loop Gain
9-14 Speed Loop Integral Time Constant	9-14	9.
4 Servo Gain Adjustment Functions	9-15	9.4.1 Feed-forward Reference
Torque Feed-forward-	9-16	9.4.3 Speed Feed-forward
9-17 9.4.4 Proportional Control Operation (Proportional Operation Reference)	9-18	9.4.
5 Using the Mode Switch (P/PI Switching)	9-19	9.4.6 Setting the Speed Bias
9-22 9.4.7 Speed Feedback Filter	9-22	9.



You're reading an excerpt. [Click here to read official OMRON SGD user guide](http://yourpdfguides.com/dref/2889905)

1 Servomotors 1.2 Product Part Names 1.2.1 Servomotors (1) SGM AH and SGMPH Without Gears and Brakes Servomotor connector Servomotor main circuit cable Nameplate Flange Output shaft Encoder (Detecting section) Encoder connector Encoder cable (2) SGMGH/SGMSH/SGMDH/SGMUH Without Gears and Brakes Servomotor connector Encoder connector Nameplate Flange Encoder (Detecting section) Output shaft 1-4 1.2 Product Part Names 1.2.2 SERVOPACKs (1) SGD H for 30 W to 5.0 kW With the front cover open Battery holder Used to house the backup battery for an absolute encoder. Refer to 5.8.

8 Absolute Encoder Battery, 8.4.3 Handling Batteries, and 8.4.4 Battery Replacement Procedure. CN5 Analog monitor connector Used to monitor motor speed, torque reference, and other values through a special cable. Refer to 5.8.3 Cables for Analog Monitor or 9.5 Analog Monitor.

1 CN8 Battery connector MODE/SET DATA/ CHARGE POWER Used to connect to the backup battery for an absolute encoder. Refer to 5.8.8 Absolute Encoder Battery, 8.4.

3 Handling Batteries, and 8.4.4 Battery Replacement Procedure. Panel display 5-digit, 7-segment LED used to display SERVOPACK status, alarm status, and other values when parameters are input. Refer to 7.

1.2 Key Names and Functions. YASKAWA SERVOPACK YASKAWA Front cover SERVOPACK model Refer to 2.1 SERVOPACK Model Designations. SGD H-Panel operator Charge indicator Lights when the main circuit power supply is ON and stays lit as long as the main circuit power supply capacitor remains charged. Therefore, do not touch the SERVOPACK even after the power supply is turned OFF if the indicator is lit. Panel keys MODE/SET CHARGE DATA/ POWER Used to set parameters. Refer to 7.1.2 Key Names and Functions.

Power ON indicator Lights when the control power supply is ON. CN3 Connector for personal computer monitoring and digital operator Used to communicate with a personal computer or to connect a digital operator. Refer to 5.8.1 Cables for Connecting Personal Computer and 5.8.2 Digital Operator. Main circuit power supply terminals Used for main circuit power supply input. Refer to 6.1 Wiring Main Circuit.

Control power supply terminals Used for control power supply input. Refer to 6.1 Wiring Main Circuit. CN1 I/O signal connector Used for reference input signals and sequence I/O signals. Refer to 6.

3 Examples of I/O Signal Connections. Regenerative resistor connecting terminals Used to connect external regenerative resistors. Refer to 6.5 Connecting Regenerative Resistors. Nameplate (side view) Indicates the SERVOPACK model and ratings.

Refer to 1.1.3 SERVOPACKs. Servomotor terminals Connects to the servomotor power line. Refer to 6.1 Wiring Main Circuit. CN2 Encoder connector Connects to the encoder in the servomotor. Refer to 6.2 Wiring Encoders. Ground terminal Be sure to connect to protect against electrical shock.

Refer to 6.1 Wiring Main Circuit. INFO Connecting terminal of DC Reactor For connecting a reactor, refer to 6.4.8 DC Reactor for Harmonic Suppression.

1-5 1 Outline 1.2.2 SERVOPACKs (2) SGD H for 6.0 kW to 15.0 kW Power indicator Panel operator SERVOPACK 200V Panel display CN8 Battery connector CN8 SERVOPACK model CN3 Connector for personal computer monitoring and digital operator SGD HVer.

YASKAWA POWER Battery holder CN3 MODE/SET DATA/ CN5 BATTERY CN5 Analog monitor connector Panel switch Charge indicator CHARGE ! WARNING Control circuit terminal L1C L2C CN1 CN2 CN2 Encoder connector CN1 I/O signal connector Nameplate (side view) L1 L2 L3 + B1 B2 U V W Main circuit power supply terminals: L1, L2, L3 Servomotor terminals: U, V, W Ground terminal Regenerative resistor connecting terminals: B1, B2 * Control circuit terminal and regenerative resistor connecting terminals differ the position of the terminal block by the SERVOPACK model. Refer to Chapter 4 SERVOPACK Specifications and Dimensional Drawings for details. SERVOPACK Model SGD H-60AE, 75AE SGD H-60DE, 75DE SGD H-1AAE, 1EAE SGD H-1ADE, 1EDE Reference 4.7.7, 4.

9.1 4.7.8, 4.9.

2 4.7.9, 4.9.3 4.7.10, 4.9.4 1-6 1.3 Examples of Servo System Configurations 1.

3 Examples of Servo System Configurations This section describes examples of basic servo system configuration. 1.3.1 Single-phase, 100 V, 200 V and 220 V Main Circuit Power supply Single-phase 100/200 VAC R T 1 Molded-case circuit breaker (MCCB) Protects the power supply line by shutting the circuit OFF when overcurrent is detected. (Refer to 5.8.9.) For connecting a DC reactor, refer to 6.4.8 DC Reactor for Harmonic Suppression.

2 SGD H-08AE-S SERVOPACK for SGM AH-08A and SGMPH08A servomotors and SGD H-15AE-S SERVOPACK for SGMPH-15A servomotor apply to the power supply of singlephase 220 V. Connect the following power supply between L1 and L3. +10% Single-phase 220 to 230 VAC (50/60 Hz) -15% 3 For connecting a DC reactor, refer to 6.4.8 DC Reactor for Harmonic Suppression.

1 Noise filter Used to eliminate external noise from the power line. (Refer to 5.8.10.) SGD HAE/BE SERVOPACK Magnetic contactor Turns the servo ON and OFF.

Install a surge suppressor. (Refer to 5.8.11.) YASKAWA SERVOP ACK 200V SGD H- Digital operator (Refer to 5.8.2.) MODE/SET CHARGE DATA/ POWER (Refer to 5.8.2.)

) Connection cable for digital operator Personal computer 2 L1 L2 + 1 CN 3 1 (Refer to 5.8.1.) CN 1 Connection cable for personal computer + 2 - L1C L2C B1 B2 U V W CN I/O signal cable Host controller Turns the brake power supply ON or OFF. Install a surge protector. (Refer to 5.8.11.) Magnetic contactor (Refer to 5.7.)

) Brake power Regenerative supply resistor Used for a servomotor with a brake. (Refer to 5.8.5.) Connect an external regenerative resistor to terminals B1 and B2 if the regenerative capacity is insufficient. (Refer to 5.8.6.) Encoder cable (Refer to 5.4, 5.)

5.) (Refer to 5.1, 5.2.) Servomotor main circuit cable SGM H Servomotor 1-7 1 Outline 1.3.2 Three-phase, 200 V Main Circuit 1.3.2 Three-phase, 200 V Main Circuit Power supply Three-phase 200 VAC R S T Molded-case circuit breaker (MCCB) Protects the power supply line by shutting the circuit OFF when overcurrent is detected. (Refer to 5.)

8.9.) The main circuit positive-side terminal is only available to use at three-phase 200 VAC, 6 kW SERVOPACK. Do not use 1 or 2. 2 Be sure to disconnect the lead between B2 and B3, before connecting an external regenerative resistor to the SERVOPACK. 3 For connecting a DC reactor, refer to 6.4.8 DC Reactor for Harmonic Suppression. 1 Noise filter Used to eliminate external noise from the power line. (Refer to 5.)

8.10.) Magnetic contactor Turns the servo ON and OFF. Install a surge suppressor. (Refer to 5.)

8.11.) SGD HAE SERVOPACK (Refer to 5.8.2.)

) Digital operator (Refer to 5.8.2.) Connection cable for digital operator Personal computer YASKAWA 200V SERVOPACK SGD H- MODE/SET CHARGE DATA/ POWER Connection cable for personal computer (Refer to 5.)



[You're reading an excerpt. Click here to read official OMRON SGDH user guide](http://yourpdfguides.com/dref/2889905)

<http://yourpdfguides.com/dref/2889905>