



ULTRA SMALL AC SERVO DRIVES SIGMA-5 MINI SERIES



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Experience & Innovation

For almost 100 years YASKAWA has been supplying mechatronic products and is one of the leading companies for motion control products worldwide. YASKAWA develops and manufactures Inverter Drives, Servo Drives, Motion Controllers and Robots and has introduced many

ground-breaking innovations over the past decades. YASKAWA products are used in all fields of machine building and industrial automation and have a high reputation for their outstanding quality and durability.

New super compact, super low capacity models

Since the April 2007 release, more than 2,000 businesses have already shown their appreciation for the Sigma-5 Series performance and functionality by placing orders. Now, the Sigma-5 Series lineup introduces the new super compact AC servomotor SGMMV (with models ranging from 3.3 W to 30 W) and the corresponding DC power input SGDVSERVOPACKs. These products use limited space effectively and help reduce device footprints.

As small, high performance servo drives that can be powered by batteries, they can be used in clean room robots, automated guided vehicles (AGV) and other battery driven transportation systems. They also comply with various standards (including CE Marking, UL and RoHS Directive) for use in European, North American and Asian nations.

Best in Class Servo Drives

The Sigma-5 servo system fits in motion applications demanding ultra small motors, high accuracy, fast positioning and perfect multi-axis synchronization

Highest performance for maximum efficiency

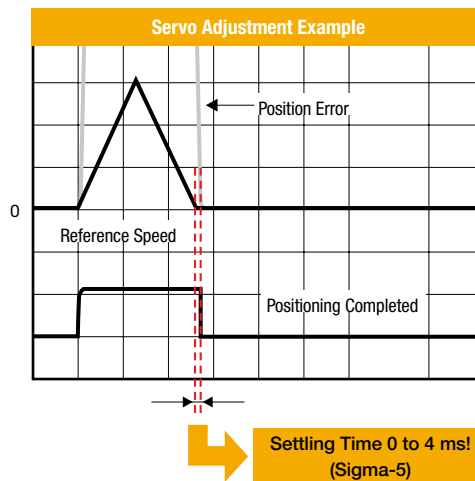
- ▶ Semicon production devices
- ▶ PCB assembly equipment
- ▶ SMT placement systems
- ▶ Wafer processing systems
- ▶ Feeder systems
- ▶ Clean room robots
- ▶ Liquid crystal production devices
- ▶ Chip moulder, electronic component production devices
- ▶ Micro Robots
- ▶ Assembly devices
- ▶ Inspection devices, measuring devices
- ▶ Clean systems



Sigma-5 Mini Delivers the Highest Performance in the Industry



Outstanding
frequency response
1,6 kHz



Simple tuning

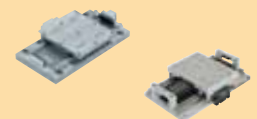
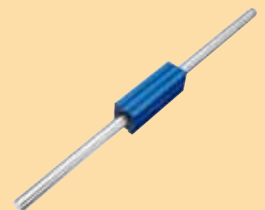
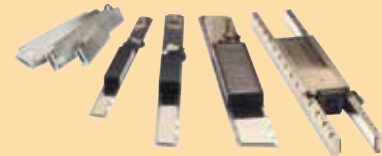
- New tuning-less Function
- New Advanced Autotuning
- New "One-Parameter" Tuning

Compact design for a wide range of applications

Useful for applications that require compactness or the use of DC input, and a wide range of other applications, from semiconductor production devices, chip mounters and inspection devices requiring high speeds and responsiveness to simple positioning and high speed operation applications.

- ▶ Automated guidance vehicles (AGV)
- ▶ Biomedical devices
- ▶ Printing systems
- ▶ Packaging machines
- ▶ Erosion machines
- ▶ Welding equipment
- ▶ Looms (Textile)
- ▶ automated guided vehicles
- ▶ Metal working machines
- ▶ Bonders, probers, IC handlers, chip sorters, OHT
- ▶ Dispensers, scribes, electrode TAB bondings, inspection devices
- ▶ Mounters, inserters, solder printers
- ▶ Winding machines, spring makers
- ▶ X-Y robots, assembly robots
- ▶ Screwing devices

YASKAWA Servo Drives



Σ-V MINI

Main Features (SGMMV Servomotor)



Highest dynamics and precision for applications with compact dimensions

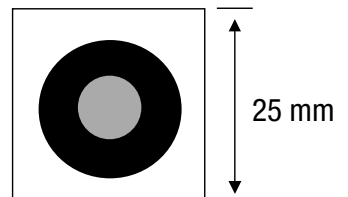
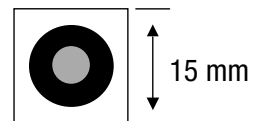
High dynamics and precision in smallest dimensions, has always been a demand in mechanical engineering. YASAKAWA provides ultra compact servo motors, the Sigma-5 Mini series. With a

flange diameter comparable to a one cent coin, it allows a variety of new applications with servo motors. Sigma-5 Mini motors offer highest performance with minimal size for maximum efficiency.

- ▶ Extensive lineup of super compact, super small capacity products
- ▶ Two flange sizes (15 mm and 25 mm) available
- ▶ 24 VDC and 48 VDC inputs, plus 200 VAC input and brake for the 25 mm version.
- ▶ This extensive lineup meets customer applications and requirements in detail.
- ▶ High resolution 17-bit (131,072 pulses/revolution) absolute value serial encoder for high-precision positioning.
- ▶ SERVOPACK parameter settings also enable use as an incremental type
Maximum speed 6000 rpm
- ▶ High speed (rated speed 3000 rpm and maximum speed 6000 rpm) improves device takt time

Technical specifications

SGMMV Servomotor Model SGMMV-		Capacity	Supply voltage
Flange 15 mm	B3E2A□□	3.3 W	24/48 VDC
	B5E2A□□	5.5 W	
	B9E2A□□	11 W	
Flange 25 mm	A1E2A□□	15 W	24/48 VDC
	A1A2A□□		200 VAC
	A2E2A□□	20 W	24/48 VDC
	A2A2A□□		200 VAC
	A3E2A□□	30 W	24/48 VDC
	A3A2A□□		200 VAC



Rated Speed: 3000 rpm Max. speed: 6000 rpm
Encoder: 17 bit absolute

* 230V motors will be supported by standard Sigma-5 Servopack (10- 20W => SGDVR90, 30W => 1R6A)

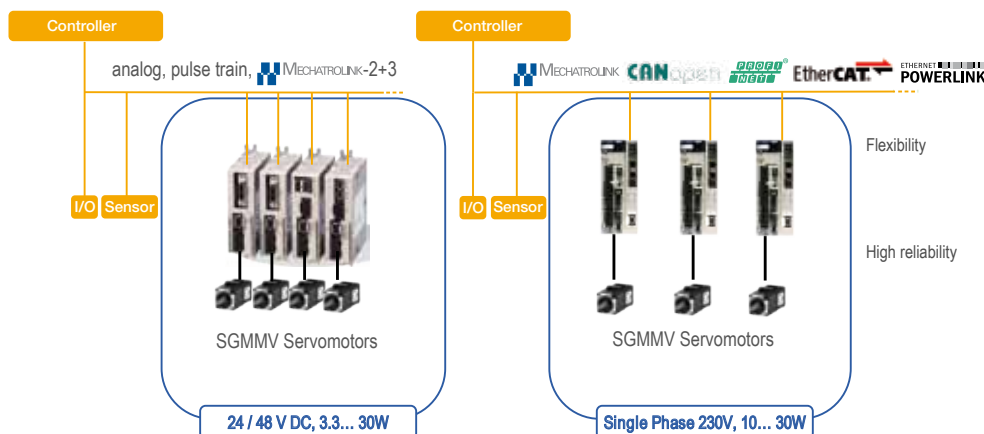
Main Features (SGDV SERVOPACK with DC Power Input)

Smart and minimized in size - the SERVOPACK is smaller than the palm of your hand

Efficient use of limited space, reduces the footprint of control panels and devices. The small, high performance servos can be powered by batteries to upgrade clean room robots, automated guided vehicles (AGV) and other battery driven transportation systems.

These SERVOPACK products retain the control performance and easy handling of the Sigma-5 Series while adding new advanced autotuning, which allows users to quickly make optimal adjustments of their servo drives.

- ▶ Compact design 30 mm W × 100 mm H (116 mm with attachment) × 80 mm D
- ▶ Supports DC power input
- ▶ As the control power is separated from the main circuit power supply, the main circuit power supply can be separately shut down when there is an alarm, and troubleshooting can be easily performed.
- ▶ High performance and easy use with the latest technology



230V motors will be supported by standard Sigma 5 Servo pack (10-20W => SGDVR-R90, 30W => 1R6A)

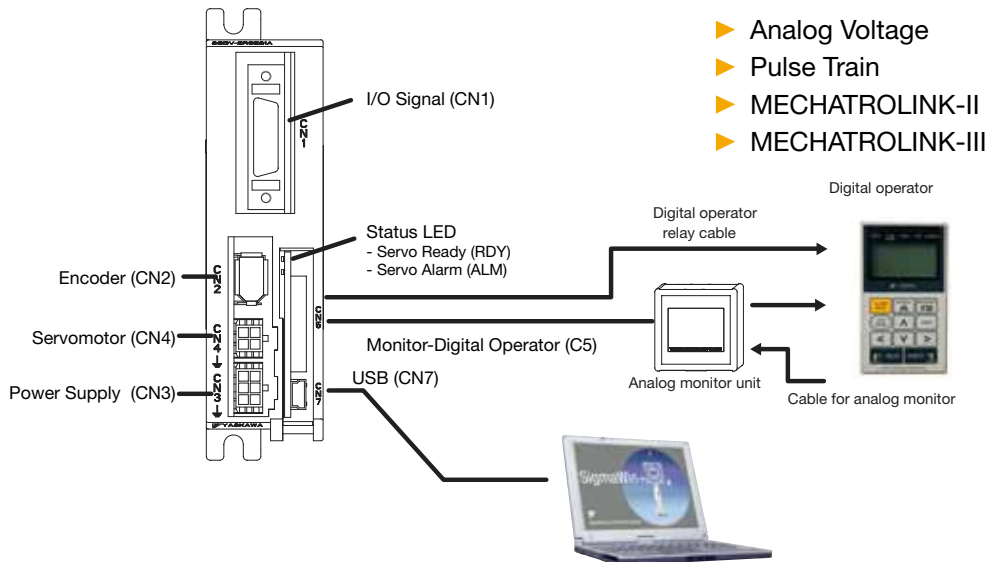
Technical specifications

Power supply voltage:	Main power: 24/48 VDC Control power: 24 VDC
Available Power:	3 – 30 W
Interfaces:	MECHATROLINK-II MECHATROLINK-III Analogue speed Pulse train

Σ-V MINI

SERVOPACK Part Interfaces

The 24/48 VDC SERVOPACKs provide the following interfaces for a variety of applications and can be combined with YASKAWA Motion Controllers.



MECHATROLINK-II and III comm. reference doesn't have digital interface. In this case an additional communication port will be embedded.

Easy Setup



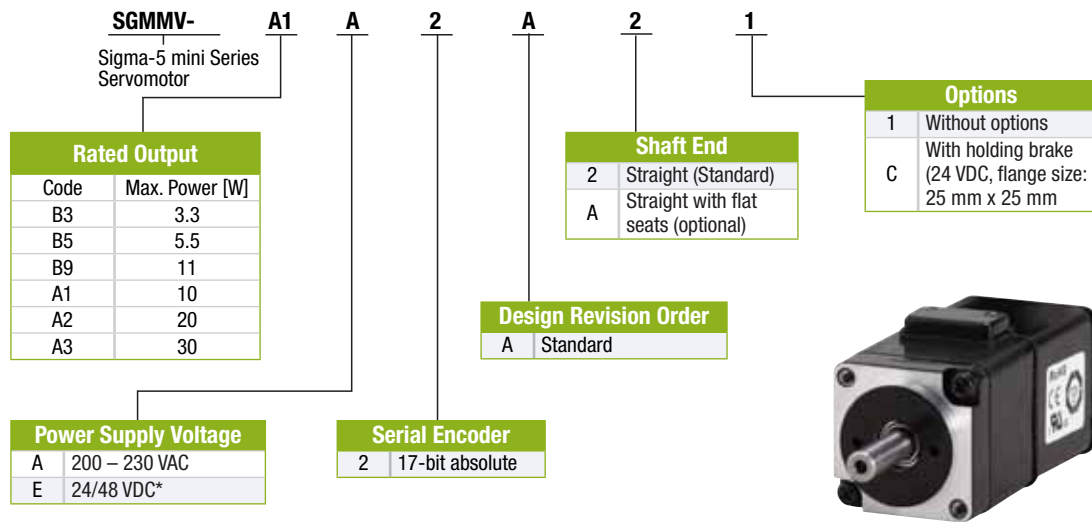
With a collection of handy functions Sigma-5 supports the installation and wiring of the product. You can download free applications which makes installation quick and easy.

Features

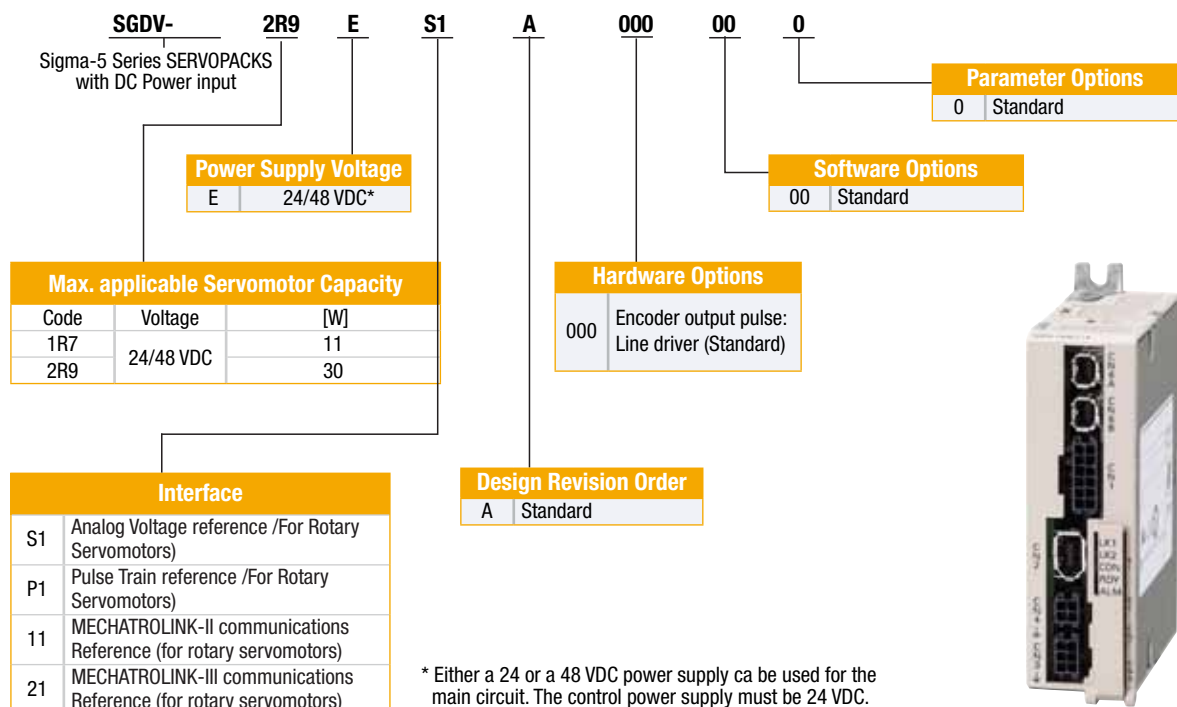
- ▶ Simple parameter set-up with wizard-aided input
- ▶ The SigmaWin+ wiring check function checks your wiring in a single operation
- ▶ Realtime trace of adjustment state means you can check instantly
- ▶ Even without servo adjustment and with load changes, oscillation- and vibration-free drive is possible up to 20 times the load moment of inertia.
- ▶ The reference filter and feedback gain adjustment functions have a new automatic feed forward gain adjustment for optimal adjustment performance. The friction compensation function automatically cancels out the effect of friction on machine characteristics.



Servo Motor Model Designations



SERVOPACK Model Designations





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