



ServoWire® SD Servodrives



Model
425
Shown

ServoWire SD 230 Series

- Network Drives: Eight models offer continuous output currents from 2.5 to 60 amps RMS/phase
- 600 to 15,000 watts of output power
- 115 or 230 VAC input

See page 22 for specifications

ServoWire SD 460 Series

- Network Drives: Six 460 Volt models offering continuous output currents from 5 to 50 amps RMS/phase
- 2,400 to 24,000 watts of output power
- 230 or 460 VAC input bus; 115 or 230 VAC for logic power

See page 24 for specifications

ServoWire SDdrives are designed to offer high performance motion control using all-digital servodrives connected via an open standard FireWire network. Two series of drives offer solutions with power from 600 to 24,000 watts, and continuous current output from 2.5 to 60 amps RMS/phase.

ServoWire SD Drives

ServoWire SD drives provide high performance servo operation utilizing digital networking technology based on IEEE-1394b (FireWire). This network not only provides high speed, but also ease of use through cost-effective, industry-standard cabling. Each ServoWire drive supports a variety of high performance servomotors. Consult ORMEC for OEM applications of user-supplied brushless rotary or linear motors—as well as DC brush-type and voice-coil motors.

All ServoWire drives utilize reliable IGBT-based intelligent power modules and provide a cost effective solution for today's motion control applications. ServoWire drives operate on 115, 230 or 460 VAC input power, and provide both output short circuit and overvoltage protection.

All-digital design eliminates the troublesome analog interface between PC and drive systems, replacing it with a modern high-speed network based on the IEEE-1394b standard.

Performance

ServoWire SD drives combine all-digital operation with DSP technology to produce fast update rates, and correspondingly high performance. The high bandwidth control loops in the ServoWire SD Drives, along with high-resolution motor feedback, combine for quick and accurate torque, velocity and position control. Position, velocity and torque loops are all closed in the ServoWire SD drives. This distributed control architecture allows for high performance without placing a heavy computing burden on the SMLC.

Programmable Drive Configuration

ServoWire drives have no pots, jumpers or field component changes whatsoever. Even factory adjustments are digital, automatically calibrated and stored in Flash memory. All user configurations are done in software using axis configuration tools in our ServoWire Pro software. Motor types

are selected from a database of ORMEC standard products or the custom motor editor can be used to add other motor types to the database.

Configuration data for each drive, containing motor parameters, all operational limits for torque and speed, I/O configurations, load inertia and servo loop tuning parameters, are stored in the SMLC and can be downloaded by the application program as needed over the ServoWire network. Simple cabling accommodates up to sixteen drives per network, and provides for quick and reliable installation.

Standard Motor Interface

ServoWire SD drives interface to motors that use encoders or resolvers. The encoders supported are quadrature encoders with hall track information, or serial encoders. The drives provide for smooth output torque by using three-phase sinusoidal commutation.

Field Oriented Control (FOC) and Space Vector Modulation (SVPWM) contribute to optimize performance at all motor speeds.

Integrated Drive I/O

Integrating high speed I/O at the drive level gives the user greater flexibility and tighter control over the interaction between motion and external sensors and actuators. External sensors can initiate motion

within one servo loop update and capture position with microsecond resolution.

Three optically isolated inputs, four optically isolated outputs and one bi-directional I/O point are available.

These may be used as general purpose I/O or for a variety of preprogrammed functionality, including an e-stop input, buffered encoder reference output, drive ready output, fail-safe brake output and more.

ORDERING GUIDE

ServoWire SD Servodrives

SAC-SDM203	AC Servodrive, 115/ 230 VAC input,	2.5 / 4.2 A rms/ph cont/peak
SAC-SDM205	AC Servodrive, 115/ 230 VAC input,	4.1 / 7.1 A rms/ph cont/peak
SAC-SDM210	AC Servodrive, 115/ 230 VAC input,	8.2 / 14.2 A rms/ph cont/peak
SAC-SDM217	AC Servodrive, 115/ 230 VAC input,	13.9 / 24.1 A rms/ph cont/peak
SAC-SDM220	AC Servodrive, 115/ 230 VAC input,	16.3 / 28.3 A rms/ph cont/peak
SAC-SDM225	AC Servodrive, 230 VAC input,	25.0 / 50.0 A rms/ph cont/peak
SAC-SDM235	AC Servodrive, 230 VAC input,	35.0 / 70.0 A rms/ph cont/peak
SAC-SDM260	AC Servodrive, 230 VAC input,	60.0 / 120.0 A rms/ph cont/peak
SAC-SDM405	AC Servodrive, 460 VAC input,	5.0 / 10.0 A rms/ph cont/peak
SAC-SDM410	AC Servodrive, 460 VAC input,	10.0 / 20.0 A rms/ph cont/peak
SAC-SDM417	AC Servodrive, 460 VAC input,	17.0 / 34.0 A rms/ph cont/peak
SAC-SDM425	AC Servodrive, 460 VAC input,	25.0 / 50.0 A rms/ph cont/peak
SAC-SDM435	AC Servodrive, 460 VAC input,	35.0 / 70.0 A rms/ph cont/peak
SAC-SDM450	AC Servodrive, 460 VAC input,	50.0 / 100.0 A rms/ph cont/peak

Feedback Type

-	S					Serial & quadrature encoder feedback interface
-	R					Resolver feedback interface

Options

-		0	0	0	0	no options (indicated by zeroes as placeholders)
-		B			0	add Multi-Rev Abs. Encoder Backup Battery Option
-			A		0	add Analog I/O Option
-				P	0	add Auxiliary Encoder Interface Option

ServoWire Cables

CBL-SW-B-3	Cable, ServoWire, 9p-9p, 3.3 ft. (1m)
CBL-SW-B-6	Cable, ServoWire, 9p-9p, 6.6 ft. (2m)
CBL-SW-B-14	Cable, ServoWire, 9p-9p, 14.8 ft. (4.5m)
CBL-SW-B-33	Cable, ServoWire, 9p-9p, 33.3 ft. (10m)

Panel Mount Regen Resistors

SAC-SWRR/0055	Regen Resistor, 55 watts, for SAC-S_210 (panel mounted, no enclosure)
SAC-SWRR/0095	Regen Resistor, 95 watts, for SAC-S_217 & SAC-S_220 (panel mounted, no encl.)
SAC-SWRR/0700	Regen Resistor w/ Enclosure, 700 watts, for SAC-S_210
SAC-SWRR/0845	Regen Resistor w/ Enclosure, 845 watts, for SAC-S_217, SAC-S_220, SAC-S_417 & SAC-S_425
SAC-SWRR/0846	Regen Resistor w/ Enclosure, 846 watts, for SAC-S_225 & SAC-S_235
SAC-SWRR/1700	Regen Resistor w/ Enclosure, 1700 watts, for SAC-S_260
SAC-SWRR/0230	Regen Resistor w/ Enclosure, 230 watts, for SAC-S_405
SAC-SWRR/0650	Regen Resistor w/ Enclosure, 650 watts, for SAC-S_405 & SAC-S_410
SAC-SWRR/0825	Regen Resistor w/ Enclosure, 825 watts, for SAC-S_425 & SAC-S_435
SAC-SWRR/1650	Regen Resistor w/ Enclosure, 1650 watts, for SAC-S_260 & SAC-S_450

Line Filters

SAC-LF215U	Line Filter, 115/230 VAC, Single Phase, 15 amps, UL, 4.2"l, 2.9"w, 2.0"d
SAC-LF230U	Line Filter, 115/230 VAC, Single Phase, 30 amps, UL, 5.5"l, 3.0"w, 2.8"d
SAC-LF30C	Line Filter, 230/460 VAC, Three Phase, 30 amps, UL, CSA, 13.9"l, 2.4"w, 5.9"d
SAC-LF55C	Line Filter, 230/460 VAC, Three Phase, 55 amps, UL, CSA, 14.8"l, 3.1"w, 7.3"d
SAC-LF100C	Line Filter, 230/460 VAC, Three Phase, 100 amps, UL, CSA, 17.2"l, 3.5"w, 8.7"d

IEEE 1394 Interface (OHCI)

The SD drives implement a 1394b interface, the third generation in the evolution of this IEEE standard. This high speed network connects the drives to the controller, providing significantly more control and data than is possible with a low speed network. Data transfers run at up to 400 MBit using the isochronous channel for time critical information and asynchronous channel for other data. Compatibility to earlier 1394 versions is maintained.

Feedback Option Modules

ServoWire SD drives include an interface for feedback option modules.

Feedback option modules provide for the addition of an auxiliary feedback interface, making a ServoWire SD drive an axis and a half unit. These modules also allow for a variety of motor encoder options, such as resolvers, serial and multi-rev absolute encoders.

Safety & Maintainability

Safety interlocks are standard in all ServoWire drives. The network's integral safety interlocks and comprehensive alarm detection provide safe operation for ServoWire drives and the SMLC. The I/O on each ServoWire Drive can be configured to include an e-stop input and drive ready output, which can be connected to the machine e-stop interlock circuit. Overall system maintainability is enhanced by extensive alarm detection and reporting via the ServoWire network.