



ServoWire® SM Servodrives



ServoWire SM 230 Series

- Network Drives: Eight models offer continuous output currents from 2.4 to 60 amps RMS/phase
- 600 to 15,000 watts of output power
- 115 or 230 VAC input

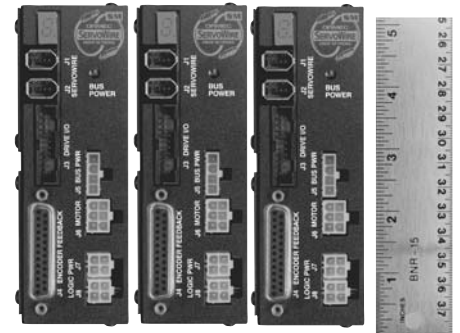
See page 22 for specifications



ServoWire SM 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 SM LP Series

- Network Drives: Two models offering 3.0 and 5.0 amps RMS/phase continuous output currents
- 200 to 400 watts of output power
- 24 to 96 VDC input bus; 24 VDC for logic power

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ServoWire SM drives are designed to offer high performance motion control using all-digital servodrives connected via an open standard FireWire network. Three series of drives offer solutions with power from 200 to 24,000 watts, and continuous current output from 2.4 to 60 amps RMS/phase.

ServoWire SM Drives

ServoWire SM drives provide high performance servo operation utilizing digital networking technology based on IEEE-1394 (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, encoder-based 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 DC, 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-1394 standard.

Performance

ServoWire SM 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 SM 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 SM 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 drives interface motors using quadrature encoders and hall track information, serial encoders and resolvers (optional). They provide smooth output torque using three-phase sinusoidal commutation.

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.

IEEE 1394 Interface (OHCI)

OHCI (Open Host Controller Interface) standards were created by leading software and hardware vendors (including Microsoft, Apple, Compaq, Intel, and Texas Instruments) to assure that application and operating system software, including device drivers, work properly with any OHCI compliant hardware. ServoWire SM systems utilize OHCI compliant IEEE 1394 cards as the interface between the SMLC and the drives, and have been tested with a wide variety of vendor's cards.

I/O and Feedback Option Modules

ServoWire SM drives include interfaces for I/O and feedback option modules. I/O option modules allow customization of ServoWire SM drives to add application specific I/O circuitry. Examples would be additional discrete input and output points, analog inputs and outputs.

Feedback option modules provide for the addition of an auxiliary encoder interface, making a ServoWire SM 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.

ORDERING GUIDE

ServoWire SM Servodrives

SAC-SMMA03/S	AC Servodrive, 24-96 VDC input, 3.0/6.0 A rms/ph cont/peak, serial & quad fdbk
SAC-SMM203/S	AC Servodrive, 115/230 VAC input, 2.4/4.1 A rms/ph cont/peak, serial & quad fdbk
SAC-SMM205/S	AC Servodrive, 115/230 VAC input, 4.1/7.1 A rms/ph cont/peak, serial & quad fdbk
SAC-SMM210/S	AC Servodrive, 115/230 VAC input, 8.2/14 A rms/ph cont/peak, serial & quad fdbk
SAC-SMM217/S	AC Servodrive, 115/230 VAC input, 14/24 A rms/ph cont/peak, serial & quad fdbk
SAC-SMM220/S	AC Servodrive, 115/230 VAC input, 16/28 A rms/ph cont/peak, serial & quad fdbk
SAC-SMM225/S	AC Servodrive, 230 VAC input, 25/50 A rms/ph cont/peak, serial & quad fdbk
SAC-SMM235/S	AC Servodrive, 230 VAC input, 35/70 A rms/ph cont/peak, serial & quad fdbk
SAC-SMM260/S	AC Servodrive, 230 VAC input, 60/120 A rms/ph cont/peak, serial & quad fdbk
SAC-SMM405/S	AC Servodrive, 460 VAC input, 5/10 A rms/ph cont/peak, serial & quad fdbk
SAC-SMM410/S	AC Servodrive, 460 VAC input, 10/20 A rms/ph cont/peak, serial & quad fdbk
SAC-SMM417/S	AC Servodrive, 460 VAC input, 17/34 A rms/ph cont/peak, serial & quad fdbk
SAC-SMM425/S	AC Servodrive, 460 VAC input, 25/50 A rms/ph cont/peak, serial & quad fdbk
SAC-SMM435/S	AC Servodrive, 460 VAC input, 35/70 A rms/ph cont/peak, serial & quad fdbk
SAC-SMM450/S	AC Servodrive, 460 VAC input, 50/100 A rms/ph cont/peak, serial & quad fdbk

Option #1

A Multi-Rev Encoder Backup Battery

SAC-SM-RES ServoWire SM Drive Resolver Feedback Option Module, 14/16-bit, 6000 RPM max.

CON-SM-J3 ServoWire SM Drive (SAC-SM_) I/O (J3) header crimp & insert connector, w/ key

ServoWire Cables

CBL-SW/2	ServoWire Cable, 2 ft. (0.7 M)
CBL-SW/6	ServoWire Cable, 6 ft. (2.0 M)
CBL-SW/14	ServoWire Cable, 14 ft. (4.5 M)
CBL-SW/33	ServoWire Cable, 33 ft. (10 M)

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