SSCNET™ Interface System:
Uncomplicated Reliability and Intelligent Motion Control

Overview

Soft Servo Systems offers a variety of PC-based CNC and general motion control (GMC) products for OEM machine builders. Each product is available with a choice of several servo and I/O communications hardware platforms, including the Mitsubishi SSCNET™ interface system.

The SSCNET interface system is built for SSCNET™ (3.5 ms cycle time) and SSCNET™ II (0.88 ms cycle time) synchronous serial communications from Mitsubishi Electric Automation. This market-proven, all-digital, minimal-hardware control architecture works with the Mitsubishi family of MR-J2 Super AC servo drives. Users can also take advantage of Soft Servo System’s optional and affordable fiber-optic VersioBus I/O network as part of their SSCNET interface system.

SSCNET Specifications

- SSCNET and SSCNET II: data transfer rate of 5.6 Mbps (synchronises the servo axes close to real time)
- SSCNET: command cycle time of 3.5 ms, range of 8 axes
- SSCNET II: command cycle time of 0.88 ms, range of 6 axes

SSCNET Features

- Highly reliable system with reduced networking
- Plug ‘N’ Play — just plug in the cable to start communicating with servo drives
- High speed networking with cycle times as low as 0.88 ms
- Ideal for synchronous operation such as performance-demanding machine tool applications
- Direct bus access results in better access to data. All data from the servo drives is returned to the controller via SSCNET, eliminating hand-shaking routines often needed to acquire data because all data appears in pre-defined data register areas.
- Simple wiring (a single SSNET cable) and only one interface card — no additional proprietary hardware components are required
- Daisy-chainable servo drives offer distributed control with a total network length of up to 30 meters, allowing distance between the PC, machine and peripherals
- Quick, simple installation results in reduced wiring faults
- Reduced maintenance costs and damages caused by operator error
- Noise problems are eliminated: all signals (including position data) are sent as serial data, not position pulses
- Supports absolute encoders

SSCNET Communications

Mitsubishi Electric’s Servo System Controller NETwork (SSCNET) is a dedicated motion controller network ensuring maximum control and flexibility. Up to 8 or 6 axes (SSCNET and SSCNET II, respectively) can be integrated into one network, using only a single, SSCNET interface cable and SSCNET PC board, with no hardware interface modules required.

SSCNET is a bus system in which the servo drives are daisy-chained together with one connection to the SSCNET adapter board. Cyclic speeds are inherent in the SSCNET network and independent of the types of controllers or amplifiers used in the system. This flexibility is possible because the SSCNET has a degree of inherent intelligence, which causes the controllers and amplifiers to default automatically to the highest speed applicable to all connected devices.
Some models of the Mitsubishi MR-J2 Super AC servo drives have committed (digital) home and limit switches; others do not. Currently, there are no hard-coded limit switch functions for the SSCNET interface system for ServoWorks CNC or SMP products, whether or not the servo drive has direct inputs for home and limit switches. Simulated limit switch functions using general I/O and PLC should be used instead.

### Mitsubishi Electric Automation, Inc.

Mitsubishi Electric Corporation, a global manufacturer of motors, motion controllers, servo drives and variable frequency drives (VFD), founded in 1921, is known for its maximum performance.

Mitsubishi Electric Automation (MEAU), a U.S. subsidiary of Mitsubishi Electric Corporation of Japan, supplies motion controllers, CNC controllers, servo drives and VFDs. MEAU has sales and service facilities throughout North America that support presale application support and post sale service requirements.

For more information, visit www.meau.com.

### Spindles

Mitsubishi offers SSCNET-compatible spindle drives, but they are not compatible with the FSC-200 adapter board, and therefore cannot be controlled directly by the SSCNET network. However, a general inverter spindle with a digital interface can be connected through a general I/O interface and controlled by S codes and PLC programming.

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