ServoSensor™

PawTawJohn Services, Inc

(208) 687-1478 / www.pawtaw.com

ServoSensor™

description

The S-Series ServoSensor™ is a complete servo controller installed and interfaced inside an MTS® R-Series platform. It consists of a Servo Controller Module (SCM), driver module (DM) and sensing element (SE) combined inside the sensor head body. MTS® proprietary technology is integrated directly to the SCM. This integration in the SCM provides the ServoSensor™ Controller with very fast displacement measurements and servo control outputs. Hydraulic cylinders can typically be positioned to .001".

features

New Features
- Two new velocity loop window selections
- 1"/sec to 400"/sec...01"/sec to 40"/sec
- Discrete output can be programmed

Features
- Operates from single +24 Vdc power supply
- Low supply current – typical 100mA with current controlled devices
- Voltage or current drive output
- Single cable run to ServoSensor™ Controller
- Servo device interfaced at ServoSensor™ end cap
- 1 millisecond Servo Loop update time
- Two wire RS-485 network compatible
- Up to 26 units per link
- User selectable baud rates
- 16 bit CRC error checking
- Visible indications for power and status located on end cap
- Same robust design as MTS Temposonics® R-Series sensor
- Four user selectable modes of operation
- Reverse polarity protected
- ESD protected

ServoSensor™ Setup Software
- PTJ Servo Control Center software provided
- Operates under Windows 95/98, ME, 2000 Pro, NT
- Programmable port location used to program the ServoSensor™ when the host controller cannot

ServoSensor™ Applications
- Hydraulic cylinders – linear motion
- Pneumatic cylinders
- Linear measure in control of ball screw applications, etc.

Certifications
- CE Certified
- EN50082-2 Immunity
- EN50081-2 Emissions
- FCC Part 15 Subpart B
- Industry Canada ICES-003
- Tested to IP67 Standard

Industry Applications
- Aerospace
- Automotive
- Food products industry
- Metal manufacturing
- Plastic manufacturing
- Steel manufacturing/production
- Wood products industry

component descriptions

Component Descriptions
- Pressure housing
- Rod style, hollow stainless steel tube for basic mounting structure
- Inserts into hydraulic/pneumatic cylinders with bored pistons

Sensing Element
- Self-contained magnetostrictive device anchored inside the main body of sensor cartridge

Driver Module
- Provides power conversions for driving the SE
- Supplies power for SCM
- Provides data control interfacing to SCM

Servo Control Module
- Consists of MTS proprietary data acquisition technology, high speed micro controller, serial interface, servo driver and a power conversion device.

End Cap
- Houses one eight pin female connector for servo cable, one eight pin male connector for com cable
- Red and green visual status indicators (LED's)

hardware specifications

Drive Output
- Output: current, thermal and short circuit protected
- Range: 0 to ±10 Vdc or 0 to ±50 mA, factory set
- Resolution: 12 bit

Loop Update Time
- 1 msec to 110"

Velocity
- .1 to 400"/sec @ .001" resolution

Resolution
- In inches: 0.0005" to 32.0"; 0.001" to 65.0"; 0.002" to 131.0"
- In millimeters: 0.01 mm to 655.35 mm; 0.02 mm to 1310.07 mm; 0.04 mm to 2621.40 mm
- Inches or millimeter resolution set at factory per time of order

Discrete I/O
- - Isolation: 2500 VAC
- - Three source 24 Vdc inputs
- - One source 24 Vdc output; 25 mA max
- - 3 microsecond on/5 microsecond off
- - Maximum input voltage: 28.8 Vdc

Power Requirements
- Voltage: +24 Vdc, -5 to +5%
- Current: 100 mA typical with +/-50 mA drive output
- DC-DC converter isolation: 1000 Vrms

Temperature
- Range –40 to 75 degrees C

Dimensions
- ServoSensor™ length: Stroke dependent
- End cap length: 6.5 inches including straight connectors

Communication Interface
- RS-485 two wire
- ASCII code with eight bit
- 16 bit CRC
- Baud rates: 19.2, 38.4, 57.6, 115.2 kb
- See ServoSensor™ manual for comunication instruction set

Visual Indicators
- Indicators located at end cap of controller
- Red lamp indicates power applied
- Green lamp indicates controller status
- Green lamp flashes at rates that equate to operation or faults

system integration

Single Unit Slave System
During normal operations, the ServoSensor™ communicates serially with the host computer in time frames based on the baud rate. The host computer monitors status and position information sent by the unit. When a new target is necessary, a target and velocity command is sent one time. If target is acknowledged, we return to reading position and status. An operator interface would be connected to some form of input/output device installed locally in the computer or externally.

Multi-Unit Slave System
A multiple slave system is integrated similar to a single slave system, except ServoSensorsTM are installed on an RS-485 two-wire network. A host computer requires an RS-485 interface. An RS-485 card can be used. New PLC modules loaded with translator software also can be used for multiple axes. Address loading of the ServoSensorTM on a network would be required and would be accomplished using program software.

Discrete Control Inputs
The ServoSensorTM Controller has three independent discrete +24 Vdc inputs for control of the servo loop. One input is called the set enable, one is called controlled device power and the third is called trigger.

Discrete Control Output
The discrete output is a 24 Vdc signal that is programmed to act differently in two modes. With the first mode, the output will come on when a set is achieved and within a target window specified in the program. The second mode is used with the cycle program mode. When a cycle is complete the output will come on.

Probe Lengths
Probe lengths are available in one inch (1") to sixty-five inches (65.0"). Consult the factory for longer lengths. Probes are available in inches or millimeters.

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(208) 687-1478 / www.pawtaw.com
18125 N Ramsey Rd, Rathdrum, ID 83858