

# SST-2000 Speed Switches/ Transmitters

SST-2000A™ and SST-2000H™ Series Speed Switches/Transmitters receive signal input from a passive or active magnetic pickup, shaft encoder, contact closure, flowmeter, etc., to provide proportional analog outputs and either 0, 2, or 4 relay trip setpoints.

**2-Year  
Warranty**



See: *THIRD PARTY APPROVALS\**

## FEATURES

- Proportional outputs of either 4–20 mA (standard), 0–5 Vdc, or 0–10 Vdc are field-selectable. Standard 0–1 mAdc meter output included.
- Models available with up to four alarm setpoints.
- Field-selectable frequency range.
- Field-adjustable sensitivity control.
- Field-programmable for many types of sensors, including contact closure input.
- Repeater output drives counters and self-powered digital tachometers such as Dynalco's SPD-100 and SPD-700.
- Regulated 14 Vdc output powers active pickups (e.g. M910), accessories, and digital meters such as DPM-105 or MTH-103D, and the 12 Vdc versions of the internally lighted SPD-100L and LST-100L.
- Alarms are field-configurable for DPDT (SST-2400 A or -H only), overspeed, underspeed, energize, de-energize, latch, auto-reset.
- Integral VERIFY, requires external meter. Permits viewing and setting of setpoint value without actuating the relays.



### \*THIRD PARTY APPROVALS

**CSA** (Canadian Standards Association)

**SST-2000A** Series: General certification:  
LR 92270

**SST-2000H** Series: Cl. I, Div. 2, Group  
C & D approval: LR45322

*Approval contingent upon housing  
an SST-2000H Series device in a  
CSA-certified enclosure.*

**CE** (Conformité Européen)

**SST-2000A & SST-2000H**

89/336/EEC, Light Industrial;  
72/23/EEC, Low Voltage Directive

- **Input Frequency:** Full-scale values from 0–0.1Hz (6 pulses per minute) to 0–50,000 Hz.
- **Function:** Converts frequency input (speed, rate) into linear proportional dc output. Provides alarm setpoints for over- and underspeed control and for sequential, startup, and shutdown switching.
- **Applications:** Includes engines, machines, I/P drivers, instrumentation, process control, recording, measurement.
- **Signal Sources:** Includes magnetic pickups, ac generators, contact closures, photocells.
- **Output Range Capability:** Current source up to 50 mAdc output always included.
- **Alarm Setpoints:** Available with two or four relays. Also available with no relays if only proportional outputs are required.

# SPECIFICATIONS

## ELECTRICAL

**Input Signal Frequency Range:** Standard input range is field-selectable from 0–80 Hz to 0–20 kHz. Ranges as low as 0–0.1 Hz and up to 0–50,000 Hz are available options.

**Input Signal Sensitivity:** Field-adjustable from approximately 5 mVrms to 100 mVrms by internal sensitivity potentiometer. Normal factory setting is 25 mVrms. Maximum permissible signal is 50 Vrms for the standard unit.

**Input Impedance:** Nearly infinite at low signal levels; a minimum of 10 k $\Omega$  at signal levels exceeding +15.0 V peak or –1.0 V peak.

**Power:** 115 Vac  $\pm$ 10%, 47–420 Hz/22–30 Vdc, maximum 5 W or 150 mAdc. Optional: 220 Vac,  $\pm$ 10%, 50/60 Hz/22–30 Vdc.

**Proportional Output:** 4–20 mAdc. The maximum load is 1 k $\Omega$  with the unit powered by 115/220 Vac or 30 Vdc; and 750 ohms with the unit powered by 22 Vdc. The maximum load is approximately linear between 22 Vdc and 30 Vdc. Other custom ranges are available.

**Auxiliary Meter Output:** Proportional 0–1 mAdc, filtered, for meter or recorder loads up to 750  $\Omega$ .

**Supply Output:** Regulated +14 Vdc ( $\pm$ 5%), at terminals 11(+) and 4(–); maximum load 40 mAdc.

**Repeater Output:** Square wave 14 V peak-to-peak, positive going, at terminals 29 and 4 to operate signal-powered digital tachometers SPD-100 and SPD-700.

**Output Ripple and Noise:** 0.1% of full-scale maximum over 10% to 100% of full-scale.

**Verifying Setpoints:** *No input signal required.* Jumpering specific terminals overrides the 0–1 mA auxiliary meter output at terminals 7 and 8; instead, the actual setpoint value is output and viewed using an external meter at terminal 7 and 8.

**Response Time:** 150 milliseconds, 10% to 90% rise, is standard. Full-scale frequency ranges below 80 Hz are proportionally slower.

**Linearity:** 0.1% of full-scale (0.05%, typical), all outputs.

**Output and Setpoint Stability:** Less than 0.05% of full-scale change with a 10% change in supply voltage.

## RELAYS

**Logic:** Field-programmable by switches for overspeed, underspeed, energize, de-energize, latch, auto-reset, and DPDT.\*

**Ratings: “A” series:** Contact rating: 6.0 A @ 28 Vdc or 115 Vac (resistive); 2.0 A @ 220 Vac. Maximum inductive load 75 Vdc, 1.0 A, into 500 mH, for up to 100,000 cycles; SPDT.\*

**“H” series:** Contact rating: 5 A (resistive) @ 24 Vdc; 1.0 A @ 120 Vac; 0.5 A @ 220 Vac; SPDT.\*

*\*For DPDT, relays 1 & 3 and 2 & 4 work together as separate DPDT trips.*

**Alarm Setpoints:** Relay setpoints are easily adjustable using 25–turn cermet potentiometers. Potentiometer adjustments are accessible through holes in the cover plate.

**ALARM DISABLE:** Jumpering terminal 31 to terminal 7 disables all alarms, allowing for startup conditions and special functions.

**ALARM RESET:** Momentary jumpering of terminal 32 to terminal 7 resets all latched alarms. Permanent jumpering converts all latching alarms to auto-reset.

## OPTIONS

**ENCLOSURES:** XP and NEMA rated enclosures are available.

**OPEN PICKUP:** Relay 1 switches in the event of an open or disconnected magnetic pickup. Relay 1 will still react when its setpoint is traversed. **NOTE:** *Not available with signal isolation transformer option.*

**PNEUMATIC TRIP:** Pulses relay 1 for 100 milliseconds; trips optional Dynalco SPV-200 Solenoid Pneumatic Valve on overspeed.

**UNDERSPEED CLASS “C” LOGIC:** Arms relay 2 as setpoint 2 is traversed on increasing speed. Pulses relay 2 as setpoint 2 is traversed on decreasing speed. Use for tripping the pneumatic SPV-200 on underspeed or for general underspeed electrical shutdown.

**EXPANDED SCALE INPUT:** Provides full meter output, full proportional output, and full setpoint range over a limited input range e.g. 0–1 mA and 4–20 mA over 800–1000 Hz input frequency.

## ENVIRONMENTAL

**TEMPERATURE RANGE:** –40°F to +160°F (–40°C to +71°C) operating. –40°F to +180°F (–40°C to +82°C) storage.

**Weight:** 2.6 lbs (1.17 kg)

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