CE

SCT1P36
Potentiometer Input Transmitters

FEATURES

- INTERFACES TO POTENTIOMETERS UP TO 10,000 OHMS
- PROCESS CURRENT OUTPUT
- 1500Vrms TRANSFORMER ISOLATION
- ANSI/IEEE C37.90.1-1989 TRANSIENT PROTECTION
- INPUT AND OUTPUT PROTECTED TO 240VAC CONTINUOUS
- UP TO 100V LOOP VOLTAGE
- 160dB CMR
- 95dB NMR AT 60Hz, 90dB at 50Hz
- CSA CERTIFICATION AND FM APPROVAL PENDING
- CE COMPLIANT

DESCRIPTION

Each SCT1P36 potentiometer input transmitter provides a single channel of potentiometer input which is filtered, isolated, amplified, and converted to a process current output (Figure 1). Signal filtering is accomplished with a six-pole filter which provides 95dB of normal-mode-rejection at 60Hz and 90dB at 50Hz. Two poles of this filter are on the input side of the isolation barrier, and the other four are on the process loop side. After the initial field-side filtering, the input signal is chopped by a proprietary chopper circuit. Isolation is provided by transformer coupling, again using a proprietary technique to suppress transmission of common mode spikes or surges.

Excitation for the potentiometer is provided from the transmitter by two matched current sources. When using a three-wire connection to the potentiometer, this method allows an equal current to flow in each lead, which cancels the effects of lead resistances. The excitation currents are very small (0.25mA or less) which minimizes self-heating of the potentiometer.

Special input and output circuits on the SCT1P36 transmitters provide protection against accidental connection of power-line voltages up to 240VAC and against transient events as defined by ANSI/IEEE C37.90.1-1989.

Transmitter zero and span settings are adjustable up to ±10%. The adjustments are made using potentiometers located under the access plate on the top of the transmitter housing and are non-interactive for ease of use.

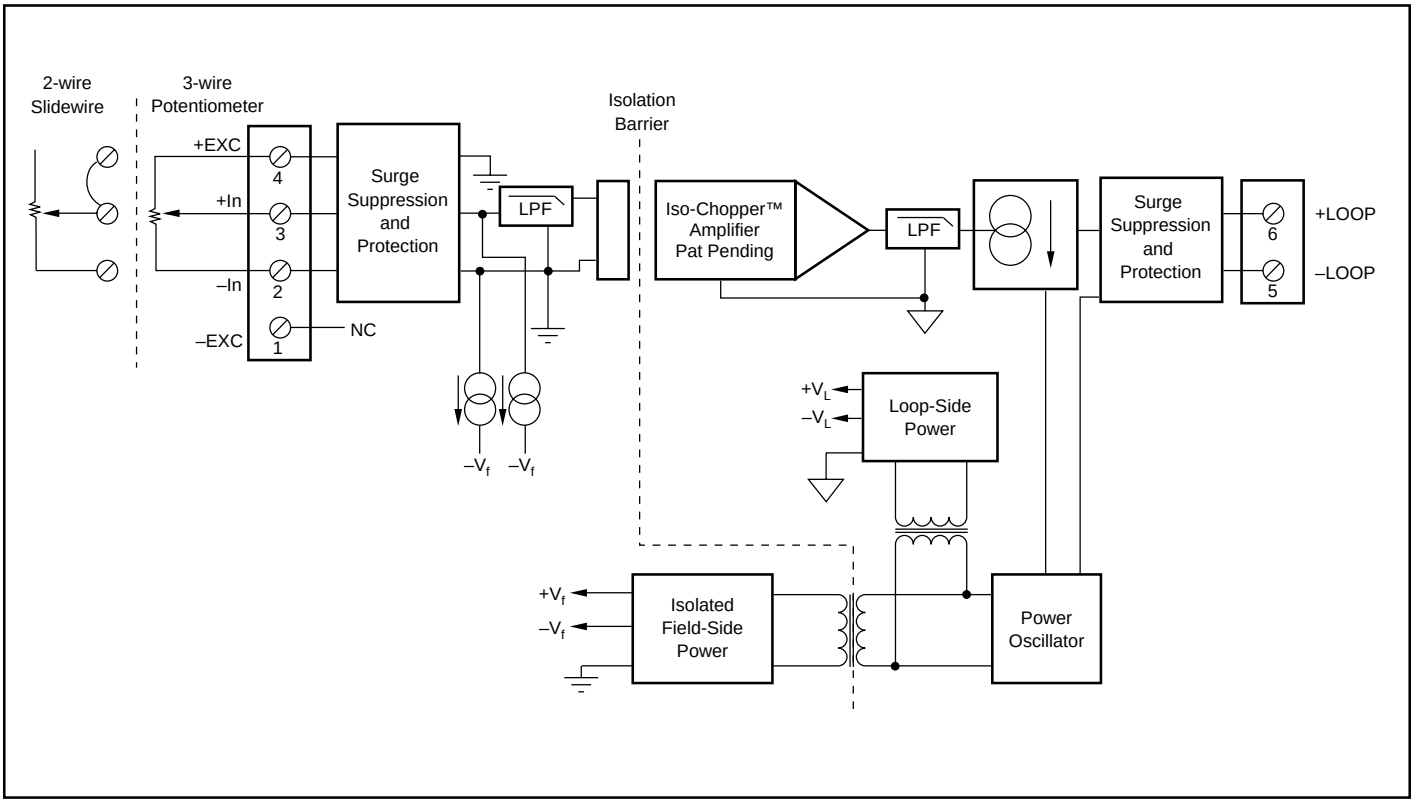

Fig 1: SCT1P36 Block Diagram

SPECIFICATIONS Typical at T_A = +25°C and +24V loop voltage

Transmitter	SCT1P36
Input Range	0 to 10KΩ
Input Resistance	
Normal	50MΩ
Power Off	90KΩ
Overload	90KΩ
Input Protection	
Continuous	240Vrms max
Transient	ANSI/IEEE C37.90.1-1989
Sensor Excitation Current	
100Ω, 500Ω, 1KΩ sensor	0.25mA
10KΩ sensor	0.1mA
Lead Resistance Effect	±0.02Ω/Ω
CMV, Input to Output	
Continuous	1500Vrms max
Transient	ANSI/IEEE C37.90.1-1989
CMR (50Hz or 60Hz)	160dB
NMR	95dB at 60Hz, 90dB at 50Hz
Adjustability	±10% zero and span
Accuracy(1)	±0.08% span
Stability	
Offset	50ppm/°C
Gain	80ppm/°C
Noise	
Output, 100KHz	3µArms
Bandwidth, –3dB	4Hz
Response Time, 90% Span	165ms
Output Range	4mA to 20mA
Output Limits	
Under-range	2.5mA
Over-range	28mA
Output Protection	
Reverse Polarity	Continuous
Over-voltage	240Vrms continuous
Transient	ANSI/IEEE C37.90.1-1989
Loop Supply Voltage	10.8V to 100V
Loop Supply Sensitivity	±0.0005%/V
Turn-On Delay	400ms
Environmental	
Operating Temp. Range	–40°C to +85°C
Storage Temp. Range	–40°C to +85°C
Relative Humidity	0 to 95% Noncondensing
RFI Susceptibility	±0.5% Span Error at 400MHz, 5W, 3ft
Mechanical Dimensions	2.98" dia x 1.67" height (75.7mm x 42.4mm)

NOTES: (1) Includes nonlinearity, hysteresis, and repeatability.

ORDERING INFORMATION

MODEL	INPUT RANGE
SCT1P36-01	0 to 100Ω
SCT1P36-02	0 to 500Ω
SCT1P36-03	0 to 1KΩ
SCT1P36-04	0 to 10KΩ