

# SCT1P30/31

## Analog Voltage Input Transmitters

### FEATURES

- ACCEPTS MILLIVOLT AND VOLTAGE LEVEL SIGNALS
- 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
- $\pm 0.05\%$  ACCURACY
- $\pm 0.01\%$  LINEARITY
- CSA CERTIFICATION AND FM APPROVAL PENDING
- CE COMPLIANT

### DESCRIPTION

Each SCT1P30 and SCT1P31 voltage input transmitter provides a single channel of analog 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.

Special input and output circuits on the SCT1P30 and SCT1P31 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  $\pm 10\%$ . 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.

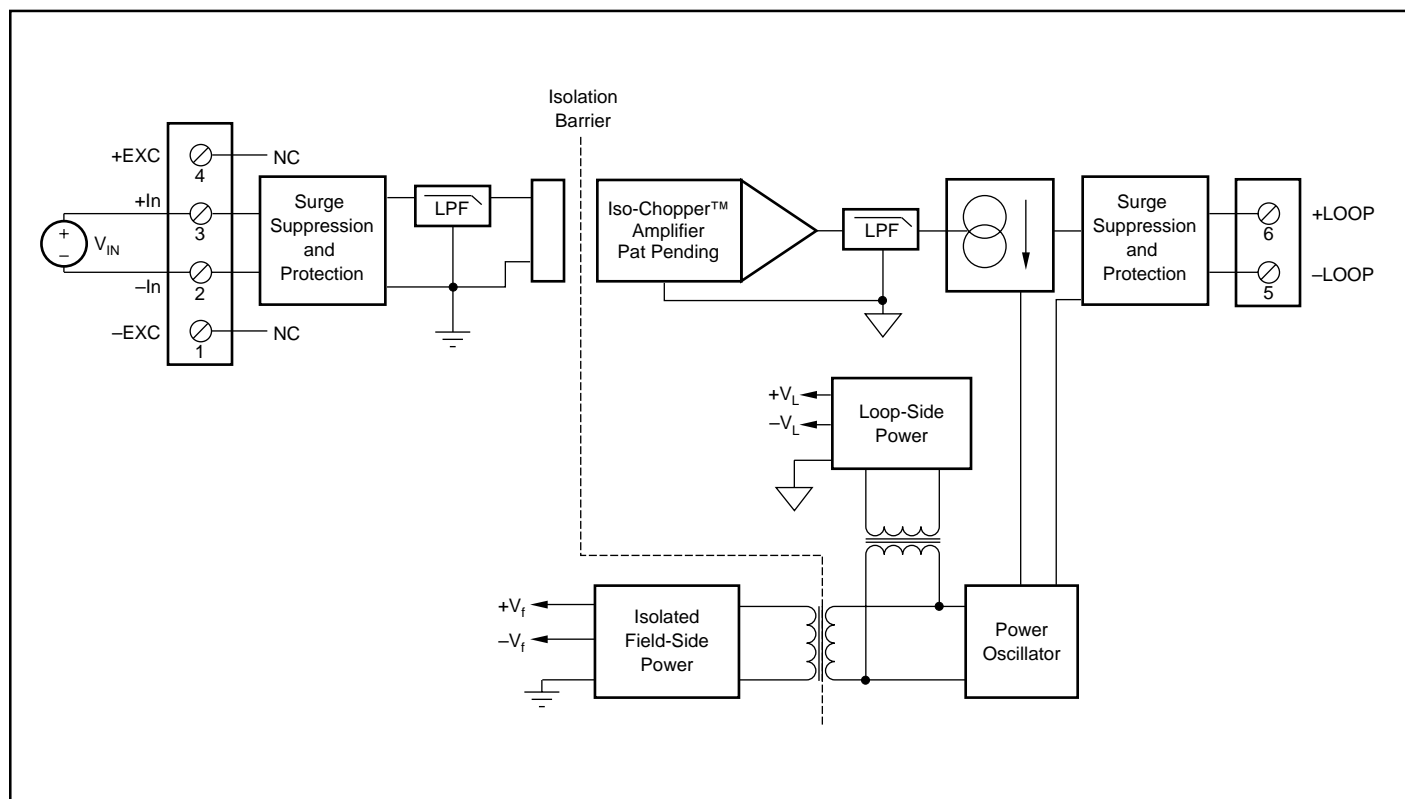


Fig 1: SCT1P30/31 Block Diagram

## SPECIFICATIONS Typical at T<sub>A</sub> = +25°C and +24V loop voltage

Transmitter	SCT1P30	SCT1P31
Input Range	±10mV to ±100mV	±1V to ±20V
Input Bias Current	±0.5nA	±0.05nA
Input Resistance		
Normal	50MΩ	2MΩ
Power Off	94kΩ	2MΩ
Overload	94kΩ	2MΩ
Input Protection		
Continuous	240Vrms max	*
Transient	ANSI/IEEE C37.90.1-1989	*
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 <sup>(1)</sup>	±0.05% span	*
Nonlinearity	±0.01% span	*
Stability		
Offset	±20ppm/°C	*
Gain	±80ppm/°C	±100ppm/°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)	*

\* Same specification as SCT1P30.

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

## ORDERING INFORMATION

MODEL	INPUT RANGE
SCT1P30-01	±10mV
SCT1P30-02	±50mV
SCT1P30-03	±100mV
SCT1P30-04	0 - 10mV
SCT1P30-05	0 - 50mV
SCT1P30-06	0 - 100mV
SCT1P31-01	±1V
SCT1P31-02	±5V
SCT1P31-03	±10V
SCT1P31-04	0 - 1V
SCT1P31-05	0 - 5V
SCT1P31-06	0 - 10V
SCT1P31-07	±20V
SCT1P31-08	0 - 20V

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