

DSCT32

Analog Current Input Transmitters

Description

Each DSCT32 current 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 five-pole filter, which provides 80dB per decade of normal-mode rejection above 100Hz. An anti-aliasing pole is located on the field 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 DSCT32 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. Signal and loop power lines are secured to the module using screw terminals, which are in pluggable terminal blocks for ease of system assembly and reconfiguration.

The modules have excellent stability over time and do not require recalibration, however, zero and span settings are adjustable up to $\pm 10\%$ to accommodate situations where fine-tuning is desired. The adjustments are made using potentiometers located under the front panel label and are non-interactive for ease of use.

► Features

- Accepts Milliamp Level Signals
- Process Current Output
- 1500Vrms Transformer Isolation
- ANSI/IEEE C37.90.1 Transient Protection
- Input and Output Protected to 240VAC Continuous
- Up to 60V Loop Voltage
- 105dB CMR
- $\pm 0.03\%$ Accuracy
- $\pm 0.01\%$ Linearity
- Easily Mounts on Standard DIN Rail
- CSA C/US Certified
- CE Compliant

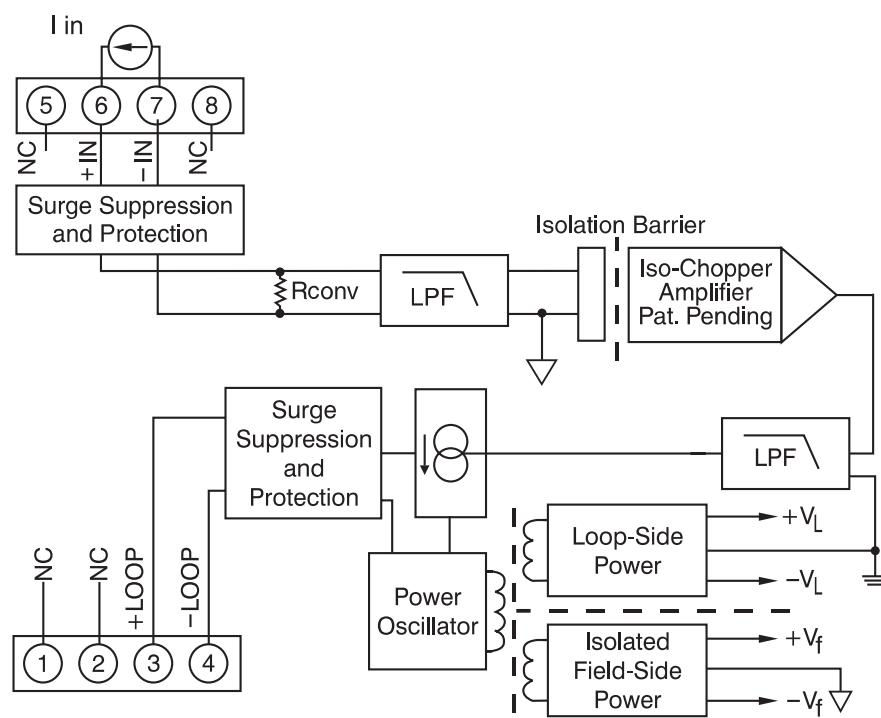


Figure 1: DSCT32 Block Diagram

Specifications Typical* at $T_A=+25^\circ\text{C}$ and +24VDC loop voltage

| Module | DSCT32 |
|-----------------------------|-------------------------------------|
| Input Range | 0-20mA or 4-20mA |
| Current Conversion Resistor | 50.00Ω |
| Input Protection | |
| Continuous | 240Vrms max |
| Transient | ANSI/IEEE C37.90.1 |
| CMV, Input to Output | |
| Continuous | 1500Vrms max |
| Transient | ANSI/IEEE C37.90.1 |
| CMR (50Hz or 60Hz) | 105dB |
| NMR (-3dB at 100Hz) | 80dB/decade Above 100Hz |
| Adjustability | ±10% Zero and Span |
| Accuracy ⁽¹⁾ | ±0.03% |
| Conformity | ±0.01% |
| Stability | |
| Offset | ±30ppm/°C |
| Gain | ±90ppm/°C |
| Noise | |
| Output, 100kHz | 3µArms |
| Bandwidth, -3dB | 100Hz |
| Response Time, 90% Span | 5ms |
| Output Range | 4mA to 20mA |
| Output Limits | |
| Under-range | 2.8mA |
| Over-range | 29mA |
| Output Protection | |
| Reverse Polarity | Continuous |
| Over-voltage | 240Vrms Continuous |
| Transient | ANSI/IEEE C37.90.1 |
| Loop Supply Voltage | 10.8V to 60V |
| Loop Supply Sensitivity | ±0.0005%/V |
| Turn-On Delay | 400ms |
| Environmental | |
| Operating Temp. Range | -40°C to +80°C |
| Storage Temp. Range | -40°C to +80°C |
| Relative Humidity | 0 to 95% Noncondensing |
| Emissions EN61000-6-4 | ISM, Group 1 |
| Radiated, Conducted | Class A |
| Immunity EN61000-6-2 | ISM, Group 1 |
| RF | Performance A ±0.5% Span Error |
| ESD, EFT | Performance B |
| Mechanical Dimensions | 2.95" x 0.89" x 4.13" |
| (h)(w)(d) | (75mm x 22.5mm x 105mm) |
| Mounting | DIN EN 50022 -35x7.5 or -35x15 rail |

Ordering Information

| Model | Input Range |
|-----------|-------------|
| DSCT32-01 | 4-20mA |
| DSCT32-02 | 0-20mA |

NOTES:

* Contact factory or your local Dataforth sales office for maximum values.

(1) Includes linearity, hysteresis and repeatability.