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2-Wire Transmitters:

"Best of Breed" Accuracy, Linearity, Stability, Noise specifications. Outstanding Protection and Isolation performance for Input, Output and Power connections. Capable of operating on the widest of loop supply power and over the broadest operating temperature range!

Dataforth's Seven family groups provide 49 transmitter models that interface to a wide variety of voltage, current, temperature and position measuring devices. The DSCT is the latest introduction of Instrument Class products available from Dataforth, which provide superior specifications such as $\pm 0.03\%$ accuracy, five or six poles of filtering, 1500Vrms continuous isolation, low output noise, and much more.

The DSCT two-wire transmitter conditions and sends analog signals from sensors located in the "field" to monitoring and control equipment, usually computers, located thousands of feet away in central control areas. The DSCT accepts a wide range of inputs, including millivolt, volt, milliamp, thermocouple, RTD, potentiometer, and slidewire. It operates on power from a 2-wire signal loop and modulates the supply current to represent the input signal within a 4 to 20 milliamp range.

Two-wire transmission loops are very economical methods for connecting sensors to distant control rooms. Since the DSCT operates from the signal loop current, no additional, expensive power and wiring are required. Only low cost, twisted pair wiring is needed.

The DSCT employs a proprietary isolation barrier to isolate the sensor signal from the current loop, eliminating ground loops, permitting the grounding of both the sensor and the receiver, and protecting valuable control equipment from damage due to field power surges and lightning strikes. The transmitted 4 to 20mA signal is also virtually immune to noise pick-up and interference and is independent of any resistance in the loop wires. This combination of conditioning and transmission results in greater signal integrity and protection of system investment. Appropriate certification approvals are in process to allow operation in hazardous locations.

The Instrument Class DSCT product beats the competition in every significant performance category as the following technical specifications illustrate:

- => higher common mode rejection, 160dB, eliminates common mode voltage noise;
- => three times the accuracy, $\pm 0.03\%$ typical compared to ± 0.1 to 1.1% for other older designs;
- => improved linearity, $\pm 0.01\%$ typical compared to ± 0.03 to 0.1%;
- => temperature linearization for thermocouples use up to nine breakpoints providing conformity to $\pm 0.05\%$ versus up to $\pm 0.30\%$ for other designs;
- ⇒ much lower output noise, 3 μ Arms compared with 16 to 80 μ Arms;
- => 5 poles of filtering result in 85dB attenuation at 60Hz compared with 35 to 60dB;
- => 1500Vrms continuous isolation compared with 100 to 1000VDC;
- ⇒ => very wide range loop supply voltage from 10.8VDC minimum to 100VDC maximum allows use in any current loop.

- ⇒ fully protected output, i.e. continuous protection against reverse connection of loop voltage, overvoltage, accidental connection of up to 240VAC sustained, and transients (ref. ANSI/IEEE C37.90-1989);
- ⇒ => fully protected inputs, i.e. continuous protection against overvoltage, transients, and accidental connection of up to 240VAC sustained;
- ⇒ => high input impedance, >50M ohm compared with 1 to 10M ohm for other designs, of particular importance when interfacing to high impedance sensors.
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Operation and storage temperature is -40C to +80C, and relative humidity range is zero to 95% noncondensing. All models meet the requirements of EN50081-1 (radiated/conducted emissions) and EN50082-1 (ESD/RF/EFT immunity).

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The DSCT is packaged in a rugged thermoplastic DIN rail mountable case with dimensions of 2.95 x 0.89 x 4.13 inches (75mm x 22.5mm x 105mm). This material provides excellent impact properties, dimensional stability over temperature, chemical resistance and has a flammability rating of V-0. For ease of system assembly and reconfiguration, all signal lines are secured to the module using screw terminals integral with pluggable terminal blocks. These terminal blocks are equipped with pull-tabs, which also function as protective covers for the screw terminals. The modules may be mounted on standard DIN EN50022-35x7.5 or -35x15 rails.