SOLID STATE TILT TRANSDUCER
TT-470 SERIES

DESCRIPTION

The **TT-470 Series Solid State Tilt Transducer** is a programmable, 2-wire, 4-20 mA loop-powered device specifically designed to provide analog positive feedback of damper or valve position to a building automation system. The 4-20 mA signal is quickly and easily field programmed using an integral pushbutton, to span any rotational range between 10° and 360° (one full rotation).

The **TT-470** contains no mercury or other hazardous substances and meets or exceeds all current RoHS environmental standards. The transducer includes an integral crank arm style mounting bracket and is available in 2 models; the **TT-470** fits a 1/2" shaft and the **TT1-470** fits a 1" shaft. The shaft must be horizontal.

TT-470

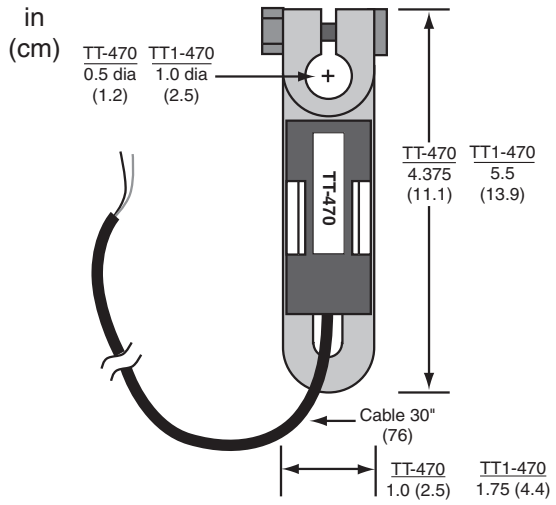
FEATURES

- ***Easy and quick installation saves time and money***
- ***Field programmable rotation range for full flexibility***
- ***2-wire, loop-powered 4-20 mA signal for compatibility with any automation system***
- ***Polarity correcting for fool proof wiring***

SPECIFICATIONS

Power	9 to 40 VDC
Signal	4-20 mA, 2-wire loop powered
Impedance	1000Ω at 24 VDC
Output resolution	0.8 mA @ 90° rotation, 0.2 mA @ 360°, ±0.1 mA
Sensor type	Solid state orientation sensor
Installation	1/2" shaft (TT-470) 1" shaft (TT1-470)
Wiring	30 inch plenum-rated cable 2-conductor 16 AWG unshielded
Sensing angle	Programmable from ±10° to 360° rotation
Operating temperature	-20° to 150°F (-29° to 66°C)
Indicator lamp	Red LED
Weight	
TT-470	0.46 lb (0.21 kg)
TT1-470	0.80 lb (0.36 kg)
Enclosure	Indoors only, not suitable for outdoor installation

DIMENSIONS



NOTE: Transducer must be oriented in clip as shown, TT-470 text visible.

PROGRAMMING INSTRUCTIONS

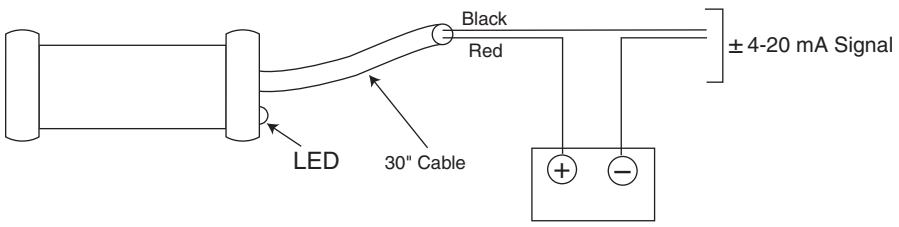
TT-470 Series

The **TT-470** is easily and quickly field-calibrated such that any 2 points between ±10° to 360° rotation can equate to a 4 to 20 mA output. For best results, calibrate the **TT-470** while on the actual shaft where it is to be installed. The **TT-470** will only work on a horizontal shaft. Do not remove the **TT-470** plastic caps.

1) Position the damper to its default position, (for example) fully closed, and locate the **TT-470** on the shaft such that the LED is visible to the operator. Tighten the **TT-470** crank arm nut.
2) Connect the 2-wire 4-20 mA loop wiring; the LED will flash brightly once to confirm the microprocessor is active and then will glow dimly. The **TT-470** is not polarity sensitive. Alternatively, connect a 9-volt battery or any other 9-40 VDC power supply for the calibration process. Calibration is maintained in memory when power is removed.
3) With the **TT-470** located in the position that is desired to represent 4 mA output, press the pushbutton (located under the plastic cap near the cable gland) and hold until the LED becomes bright.
4) Immediately, while the LED is still bright, push and release the button again. The LED will now blink once per second to indicate it is in calibration mode.
5) Slowly rotate the damper blades to the fully open (for example) position, or whatever damper shaft position is desired to represent 20 mA output.
6) Press and hold the calibration button until the LED stops flashing.
7) Release the calibration button. The **TT-470** is now calibrated and the LED will glow dimly.

The **TT-470** can be calibrated without attaching it to the final damper shaft, using the same steps as above, but to assure maximum accuracy it should be calibrated while on the actual damper shaft where it is to be installed. The **TT-470** can be re-calibrated at any time by repeating the steps above. Calibration can be confirmed with a multimeter, using the same procedure as with any other 4-20 mA 2-wire signal device.

WIRING



NOTE: Calibration button is near the LED, concealed under the flexible plastic end cap. **DO NOT REMOVE THE END CAP.**

ORDERING INFORMATION

MODEL	DESCRIPTION
TT-470	Tilt transducer with 1/2-in crank arm
TT1-470	Tilt transducer with 1-in crank arm

	Related Product
DCP-1.5-W	Power supply, 24 VAC in, 24 VDC out