TT518 Programmable Temperature Transmitter

Overview

This transmitter amplifies a signal from a RTD or linear resistance, and it turns the signal into a current which increases from 4 to 20 milliamperes as the temperature or input signal increases. This industry-standard 4-20mA signal travels thousands of feet over a pair of wires, ignoring electrical interference and bringing the temperature, accurately, into your computer or controller. Drawing power directly from the signal line, only 2 wires are needed for power and signal.

- RTD or Ohm input
- Accurate, Stable 4–20mA Output
- PC and field-programmable
- FM Approved Intrinsically Safe

Converts multiple inputs

Temperature measurement can be done with one of several RTD's: 100 Ω, 1000 Ωplatinum, 100 ΩNickel and 1000 Ω Nickel.
Because amplification and conversion of the input signal is performed within a few feet of the sensor, electrical interference in noisy environments is eliminated. The transmitter can be mounted at the field location in a standard DIN form B head or on a DIN rail inside a local box.

Applications

- Single temperature measurement

Configuration

The TT518 is delivered configured to the customer's specifications, including the transmitter's measurement range and RTD type.

PC Programming

The TT518 transmitter can be configured via a standard PC using a programming kit. It can be configured before installation or while installed in the process - even in hazardous areas. Communication is 2-way, so set-up and serial/tag numbers can be retrieved from the transmitter.

Electrical Specifications

Ambient temperature range: -40°C to +85°C

Common Specifications

Supply voltage: 8 -30 VDC

Warm-up time: 5 min.

Communication interface: PC Interface/Loop Link

Signal/noise ratio: Min. 60 dB

Response time (programmable): 0.33 sec. to 60 sec.

Update time: 135 msec.

Calibration temperature: 20 to 28°C

Effect of supply voltage change: < 0.005% of span/VDC

EMC-Immunity influence: < ±0.5% of span

Vibration: IEC 600 68-2-6 Test FC

Lloyd's specification no. 1: 4 g / 2 - 100 Hz

Max. wire size: AWG14 (1.5 mm^2)

Air humidity: 0 - 95% RH

Dimensions: Ø1.73 x 0.84 in (Ø44 x 20.2mm)

Tightness (enclosure/terminal): IP 68 / IP00

Weight: 50g

Inputs (common specifications)

Max. offset: 50% of selected max. value

Cable resistance per wire (max.): 10Ω

Sensor current: >0.2mA, <0.4mA

Effect of sensor cable resistance:
(3-wire): < 0.002 Ω/Ω

Basic accuracy:
PD/PF (Pt100/1000): <±0.3°C
Linear Resistance: <±0.2Ω

Temperature coefficient:
PD/PF (Pt100/1000): <±0.01°C/°C
Linear Resistance: <±20mΩ/°C

Current output:
Signal range: 4 - 20 mA
Min. signal range: 16 mA
Load resistance : < (Vsup. – 8) / 0.023 [Ω]
Load stability: ± 0.01% of span / 100 Ω

Sensor error detection:
Programmable: 3.5 - 23 mA, or no action
Namur NE43 Downscale/Upscale: 3.5 mA/ 23 mA

Approvals:
EMC: EN 61326-1
ATEX.: KEMA 03ATEX1535
FM: 2D5A7
CSA: 1125003
GOST R: Yes
GOST Ex: Yes
DNV Marine: Stand. F. Certification No. 2.4

Input

The input type is selected to be one of these types:

- RTD (3-wire): PT100, PT1000
- High level

Output

The 4-20 mA output follows the TT518 input configuration, reflecting the temperature and/or resistance. The unit is protected against polarity reversal. The output signal action can be reversed with respect to the input signal. Sensor and/or cable errors can be programmed to cause the output to go to a fixed value.