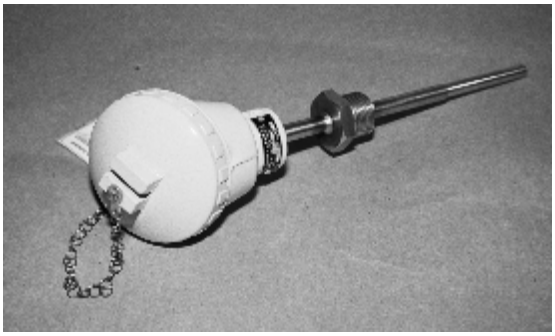
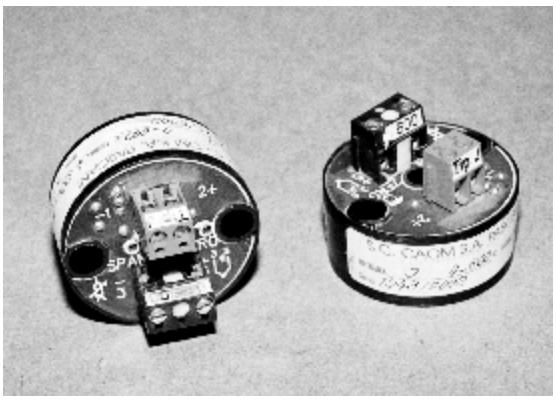
SYSTEM OF TEMPERATURE TRANSDUCERS WITH COMBINED OUTPUT SIGNAL



GENERALITIES

The temperature transducers with combined output signal are designed to measure the temperatures in industrial processes where the temperature information is send as a 4…20mA analogical signal. These transducers have a temperature sensor with a thermo resistance, a thermocouple or a 4…20 mA Silicon sensor and a transmitter (adapter, resistance- current converter, voltage –current converter), mounted into the connection box of the assembly and jointly calibrated.



PERFORMANCES

- 2-wire connection with protection to inverse connection[1]
- output in proportion to the intermediary value (resistance, voltage) or to temperature (linear alternative)
- 4…20 mA direct or 20…4 mA inverse[2] output
- interruptions signalization in sensor's circuit
- wide range of transducers.

TECHNICAL CHARACTERISTICS

The individual technical characteristics of the temperature sensor and the transmitter are introduced in their individual product catalogue sheets.

- the minimum measurement interval:
  - for transducer with Pt100 sensor and W_{100} = 1.385 or W_{100} = 1.391: 50^0 C
  - for transducer with thermocouple sensor: type J- 200^0C, type K- 300^0C, type T- 250^0C, type E- 150^0C, type R - 100^0C, type S - 1100^0C, type B[3] - 1500^0C
  - for transducer with temperature sensor type LM135/ LM 235/ LM 335: 5 ^{0}C
- output signal: analogical 4…2mA
- working temperatures range for the connection box: -25…+70 ^{0}C

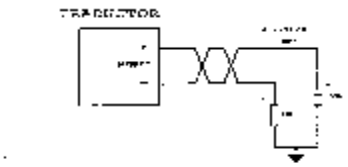
[1]The standard type with protected with serial diode. On request, we can execute transducers with protection with Zenner or Transorb diode. For these types, the minimum and maximum voltage is reduced.
[2]We are unable to make transducers with output in proportion to the linearized temperature.
[3]For an output in proportion with .e.m.t. , the performances degradation is reduced to 2 mV so the measurement interval decreased accordingly. It is applicable especially for R, S and B sensor types.

- transportation and storage temperatures range: -40…+85 ^{0}C

For details about these products, contact CAOM INC in Paşcani, Vatra street no 56, Iasi county, 705200, Romania
tel. 004023-761947, 765869, fax 0040232-761722, email: caom.sa@caom.ro www.caom.ro

- basic errors limits (including non-linearity error, hysteresis error, repeatability and reproducibility error) as reported to the range:
  for transducers with Pt100 sensor: ±0,5%
  for transducers with thermocouple type sensor and output proportional with temperature: ±1%
  for transducers with LM 135/ LM 232/ LM 335 sensor : ±1%
- supply voltage range:
  11…40 Vcc for transducers with resistive sensor and LM 135/ LM 232/ LM 335 sensor (on request, we can provide 9…30 Vcc for data acquisition systems where the supply voltage available is 12 Vcc, see note 1);
  13,5…40 Vcc for transducers with thermocouple type sensor and output proportional with the admission e.m.t. (on request, we can provide 11.6…30 Vcc for data acquisition systems where the supply voltage available is 12 Vcc, see note 1);
- recommended supply power : 24 Vcc
- loop resistance: 0 …to (Ua – Ua_{min})/ 0,02; where Ua is the supply power and Ua_{min} is the minimum supply power for that transducer type.

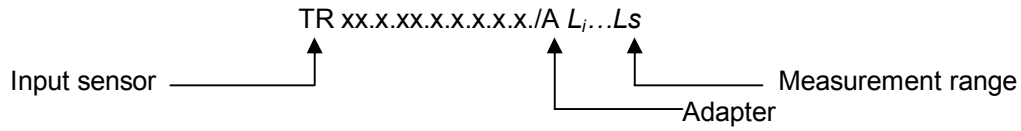
CONNECTION TO CIRCUIT



Connection to circuit for transducers with combined signal

CODING

According to coding regulations of the manufacturing company, the temperature transducers with combined output signal will be coded using the transducer symbol followed by the symbol /A and the limits of the measurement range.



CODING EXAMPLE

TR 51.2.01.3.4.3.8.1 /A 0…200

- temperature well with 4…20mA combined output signal RTD type, 1st class, PT 100, nominal length 250mm, stainless steel protection tube, temperature range -50…+250^0 C, fixed flange, immersion length 150mm, normal temperate climate execution, provided with adapter for measurement range 0…200 ^{0}C

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