Typ:YST100

Analog 2-wire transmitter with digital adjustment

for connection to Pt100 resistance thermometers for installation in: terminal head Form B to DIN 43 729

Brief description

These transmitters are designed for industrial applications and are used to measure the temperature through Pt100 resistance thermometers in 2-/3-wire circuit connections.The 4-20 mA output signal is linear with temperature.

The continuous analog signal path enables an extremely fast reaction time of the output to a change in temperature (continuous analog measurement instead of digital sampling rate), resulting in a low-noise output signal that is insensitive to interference. A very high degree of precision - even with small ranges - is ensured thanks to the range-specific gain adjustment.

The transmitters are calibrated for a fixed range but can, at any time, be calibrated for a different range through the PC setup program.

Technical data

Input for resistance thermometer

Measurement input	Pt100 (EN 60 751)
Range limits	-200to+850°C
Connection circuit	2-/3-wire circuit
Smallest span	25°C
Largest span	1050°C
Unit	°C or °F
Zero shift	for spans < 75°C fixed zero: -40°C, -20°C 0°C, 20°C, 40°C
	for span 75 °C: ±50 °C
	for spans > 75 °C: see “Range organization” on page 7
Sensor lead resistance for 3-wire connection	≤ 11Ω per conductor
Sensor lead resistance for 2-wire connection	factory-set: 0Ω lead resistance settable through PC setup program
Sensor current	≤ 0.5 mA
Sampling rate	continuous measurement because of analog signal path

Measurement circuit monitoring to NAMUR recommendation NE43

Underrange	falling to ≤ 3.6 mA
Overrange	rising to ≥ 22 mA to < 28 mA (typically 24 mA)
Probe short-circuit	≤ 3.6 mA
Probe and lead break	positive: ≥ 22 mA to < 28 mA (typically 24 mA) negative: ≤ 3.6 mA

Output

Output signal	proportional DC current 4—20mA
Transfer characteristic	linear with temperature
Transfer accuracy	≤ ± 0.1 %
Damping of ripple on supply voltage	> 40dB
Burden (Rb)	Rb = (Ub - 7.5V) / 22mA
Burden error	≤ ± 0.02 % / 100Ω
Settling time on a temperature change	≤ 10 msec
Calibration conditions	24VDC / approx. 22°C
Calibration / configuration accuracy	≤ ± 0.2 % or ≤ ± 0.2 °C

Temperature transmitter YST100

Supply voltage

Supply voltage (Ub)	7.5—30VDC
Reverse polarity protection	yes
Supply voltage error	≤ ± 0.01% per V deviation from 24V

Housing

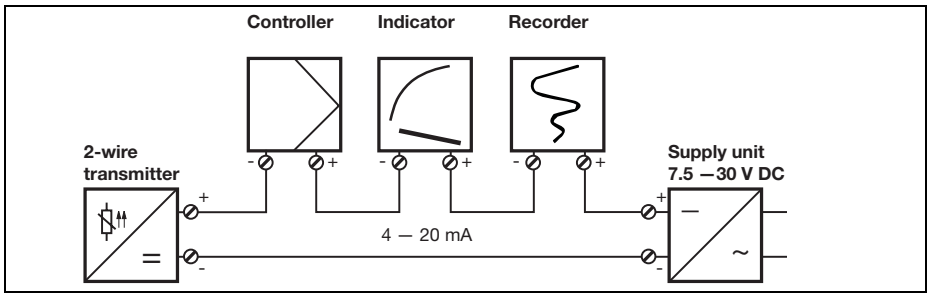
Material	polycarbonate (encapsulated)
Screw terminal	≤ 1.75mm²; max. torque 0.6Nm
Mounting	inside terminal head Form B DIN 43 729; in surface-mounting case (on request); in switch cabinet(fixing bracket is required)
	use only original accessories for mounting!
Operating position	unrestricted
Weight	approx. 45g

Ambient conditions

Operating temperature range	-40to+85°C
Storage temperature range	-40to+100°C
Temperature error	≤ ± 0.01% per °C deviation from 22°C
Climatic conditions	rel. humidity ≤ 95% annual mean, no condensation
Vibration strength	GL Characteristic 2 -
EMC - interference emission - immunity to interference	EN 61 326 Class B to industrial requirements
IP enclosure protection - in terminal head / open mounting - on C-rail	IP54 / IP00 -

System diagrams for 2-wire transmitter

Connection example with supply unit



Connection example with supply isolator