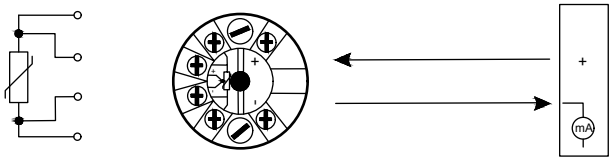
# UNIVERSAL IN-HEAD TRANSMITTER

TCX-5331A

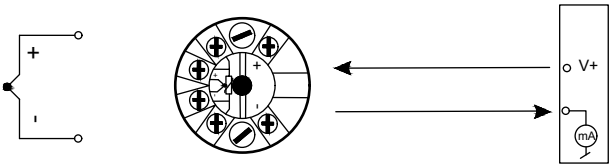
## FEATURES / BENEFITS

- RTD, TC, Ohm, or mV input
- Extremely high measurement accuracy
- 1.5 kVAC galvanic isolation
- Programmable sensor error value
- For DIN form B sensor head mounting

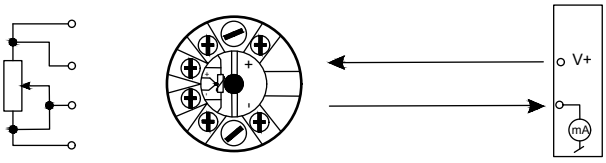
**ORDER YOUR TRANSMITTER:** Use the part number: TCX-5331A



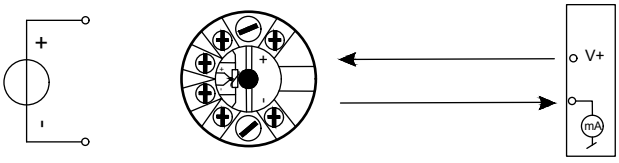

RTD to 4-20 mA




Thermocouple to 4-20 mA




Resistance to 4-20 mA




mV to 4-20 mA

# UNIVERSAL IN-HEAD TRANSMITTER

## SPECIFICATIONS

| Environmental Conditions | |
|---|---|
| Operating Temperature | -40°C to +85°C |
| Calibration Temperature | 20°C to 28°C |
| Relative humidity | < 98% RH (non-condensing) |
| Protection degree (enclosure/terminal) | IP68 / IP00 |
| **Mechanical Specifications** | |
| Dimensions | Ø 44 x 20.2 mm |
| Weight approx. | 50 g |
| Wire size | 1 x 1.5 mm² / stranded wire |
| Screw terminal torque | 0.4 Nm |
| Vibration | IEC 60068-2-6 |
| 2...25 Hz | ±1.6 mm |
| 25...100 Hz | ±4 g |
| **Common Specifications** | |
| Supply voltage | 7.2...35 VDC |
| Internal power dissipation | 25 mW...0.8 W |
| Isolation voltage, test / working | 1.5 kVAC / 50 VAC |
| Response time (programmable) | 1...60 s |
| Voltage drop | 7.2 VDC |
| Warm-up time | 5 min. |
| Programming | Loop Link |
| Signal / noise ratio | Min. 60 dB |
| EEprom error check | < 3.5 s |
| Accuracy | Better than 0.05% of selected range |
| Signal dynamics, input | 20 bit |
| Signal dynamics, output | 16 bit |
| Effect of supply voltage change | < 0.005% of span / VDC |
| EMC immunity influence | < ±0.5% of span |
| Extended EMC immunity: NAMUR NE21, A criterion, burst | < ±1% of span |

| Input Specifications | |
|---|---|
| Max. offset | 50% of selected max. value |
| RTD type | Pt100, Ni100, lin. R |
| Cable resistance per wire | 5 Ω max. |
| Sensor current | Nom. 0.2 mA |
| Effect of sensor cable resistance | < 0.002 Ω / Ω |
| Sensor error detection | Yes |
| Linear resistance min / max | 0 Ω...5000 Ω |
| TC input types | B, E, J, K, L, N, R, S, T, U, W3, W5, LR |
| Cold junction compensation | < ±1.0°C |
| Sensor error detection | Yes |
| Sensor error current: when detecting / else | Nom. 33µA / 0 µA |
| Voltage input measurement range | -12...800 mV |
| Min. measurement range (span) | 5 mV |
| Input resistance | 10 MΩ |
| **Output Specifications** | |
| Signal range | 4…20 mA |
| Min. signal range | 16 mA |
| Load (@ current output) | ≤ (Vsupply - 7.2) / 0.023 [Ω] |
| Load stability | ≤ 0.01% of span / 100 Ω |
| Sensor error indication | Programmable 3.5…23 mA |
| NAMUR NE43 Upscale/ Downscale | 23 mA / 3.5 mA |
| Updating time | 440 ms |
| of span | = of the presently slected range |
| **Observed Authority Requirements** | |
| EMC | 2014/30/EU |
| RoHS | 2011/65/EU |
| EAC | TR-CU 020/2011 |
| **Approvals** | |
| ATEX | II 3 G Ex nA [ic] IIC T4...T6 Gc, II 3 G Ex ic IIC T4...T6 Gc, II 3 D Ex ic IIIC Dc |
| IECEx | Ex nA [ic] IIC T4...T6 Gc, Ex ic IIC T4...T6 Gc, Ex ic IIIC Dc |
| ATEX 2014/34/EU | KEMA 10ATEX0002 X |
| IECEx | DEK 13.0035X |
| INMETRO | DEKRA 16.0013 X |
| CCOE | P337392/1 |
| DNV-GL Marine | Stand. f. Certific. No. 2.4 |