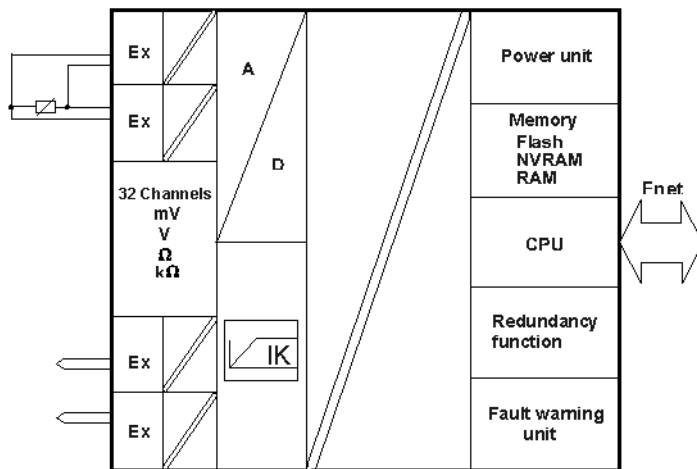


CTI 21 Ex - Temperature input module

Features / Applications



- 32 analog / temperature inputs, channel-wise configurability in 2-conductor switch
- 16 temperature inputs in 3/4-conductor switch
- Process current circuits in accordance with EN 50020 with type of protection EEx ib IIC
- Combined installation possible with "Non-Ex-modules" in one module sub-rack
- Assembly outside areas where there is a danger of explosion
- Central galvanic separation through opto-coupler
- Functional channel-wise galvanic separation of the inputs through relay multiplexer
- 16-Bit A/D transformer
- Module is capable of redundancy
- Monitoring the module
- Linearization
- Reference junction compensation
- Compensation of the line resistances
- Standardization of the measured values

Table: Sensor types for the module CTI 21 Ex

| Sensor type: | Specifications: | Measurement range: | Standard: |
|----------------------------------|--------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------|
| Resistance thermometer | Pt 100 (2-, 3-, 4-conductor) Ni 100 (2-, 3-, 4-conductor) | -200 ... +850 °C -60 ... +250 °C | DIN IEC 751 (from December 1990) DIN 43760 (from August 1985) |
| Thermocouples | U L | -50 ... +600 °C -50 ... +900 °C | DIN 43710 (from December 1985) |
| | T J E K R S B N | -50 ... +400 °C -50 ... +1200 °C -50 ... +1000 °C -50 ... +1372 °C -50 ... +1769 °C -50 ... +1769 °C +50 ... +1820 °C -50 ... + 1300 °C | DIN EN 60584-1 (from October 1996) IEC 584-1 |
| Thermocouples, resistance sensor | Freely selectable freestyle characteristics | Arbitrary | Without DIN / IEC reference |
| Resistance measurement | NTC, PTC | 0 ... 1000 Ohm | Linear without DIN / IEC reference |
| Voltage measurement | Measured value resolution can be set in stages | 0 ... 5 V | Linear without DIN / IEC reference |

Technical Data

| | | |
|---------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------|--------------------------|
| Input voltage ranges that can be set: | B1 = -10 ... +20 mV B2 = -10 ... +80 mV B3 = -10 ... +460 mV B4 = 0 ... +1.0 V B5 = 0 ... +5.0 V | |
| Input resistance: | R >= 10 MOhm | |
| Response threshold for line break: | R = 2.5 kOhm ± 10 % | |
| A/D transformation - type: | 16 Bit transformer (without preceding sign) | |
| Constant current: | I _{ko} = 1.0 mA ± 1.7 % (corrected by software) | |
| Zero deviation - zero: - temperature influence: | <= ± 0.1 % (relative to measurement range end value) <= ± 0.05 % / 10 K (relative to measurement range end value) | |
| Range deviation - range: - temperature influence: | <= ± 0.1 % (relative to current end value) <= ± 0.1 % / 10 K (relative to current value) | |
| Damping at power frequency (50 / 60 Hz) - common mode: - normal mode: | D > 120 dB D > 60 dB | |
| Switching current relay: | I _{max} < 150 mA | |
| In-resistance relay: | R _{on} < 200 mOhm | |
| Out-resistance relay: | R _{off} > 10 exp 10 Ohm | |
| Life-time at one switch per second: | t >= 30 years | |
| Galvanic separation: | Central / (functional channel-wise) | |
| Measured voltage: | 250 V _{eff} (in accordance with EN 50020) | |
| Voltage testing: | 245 V _{eff} (channels together; 'Contact breakdown voltage') 1500 V _{eff} (to the system in accordance with EN 50020) | |
| Ambient temperature: | 0 ... 50 °C (temperature for ventilating the module in the module sub-rack) | |
| Ex-type of protection intrinsic safety: | [EEx ib] IIC | [EEx ib] IIB |
| Ex-relevant open-circuit voltage (individual operation and redundancy operation) | U ₀ <= 9.25 V | U ₀ <= 9.25 V |
| Ex-relevant short-circuit current (individual operation) | I ₀ <= 10 mA | I ₀ <= 10 mA |
| Ex-relevant short-circuit current (redundancy operation) | I ₀ <= 20 mA | I ₀ <= 20 mA |
| Ex-relevant connection power (individual operation) | P ₀ <= 45 mW | P ₀ <= 45 mW |
| Ex-relevant connection power (redundancy operation) | P ₀ <= 90 mW | P ₀ <= 90 mW |
| Maximum permitted outer capacity (individual operation) | C ₀ <= 0.4 µF | C ₀ <= 44 µF |
| Maximum permitted outer capacity (redundancy operation) | C ₀ <= 0.8 µF | C ₀ <= 44 µF |
| Maximum permitted outer inductance (individual operation and redundancy operation) | L ₀ <= 50 mH | L ₀ <= 25 mH |
| Voltage supply - supply voltage: - fuse protection: | U _{v1} /U _{v2} = 20 ... 33 V G-fusible element 5 * 20 3.15 A slow-acting T 3.15 H | |

| | |
|----------------------------------|------------------------------------|
| Permitted overvoltages: | 35 V (for 1 s) 45 V (for 10 ms) |
| Current use (reference current): | < 250 mA at Uv = 24 V |
| Power loss: | Max. 6 W |

Ordering Information

| Catalog No. | | | | | | | | Description | |
|------------------------------|---|---|---|---|---|---|---|-------------------------------------------------------------|------------|
| 72141-4- | 0 | 7 | 8 | 8 | 7 | 4 | 1 | CTI 21 Ex - Temperature input module | |
| Additional Order Information | | | | | | | | | |
| | | | | | | | | Former System Packet (Indicate Version) | BA-No. 601 |
| Necessary Accessories: | | | | | | | | | |
| 72199-4- | 0 | 7 | 4 | 5 | 2 | 1 | 2 | CI 120 Connection Unit, blue , EExi-Version, Basic 8 TE | |
| | 0 | 7 | 4 | 5 | 2 | 0 | 2 | CI 121 Connection Unit, blue , EExi-Version, Redundant 8 TE | |
| 72199-4- | 0 | 7 | 8 | 9 | 4 | 4 | 1 | Cable Clamps | |
| | | | | | | | | | |
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