



MTP 300i

Failsafe High Speed Thermocouple Transmitter



Application

The MTP 300i has been specially developed for processes where safety and reaction speed are crucial. A typical example is high-pressure polymerization processes such as those used in the production of LDPE.

A high degree of integration allows transmitting temperature values in less than 4 ms. It features thorough self-diagnosis safety routines of both internal and external conditions. Provided an intrinsically safe barrier as supply, the MTP 300i can be installed in zone 1. Despite the high degree of integration, the design is customizable for all types or thermocouples and measurement ranges.

Scope of use

LDPE Plants
EVA plants
Gas turbines
Combustion Control

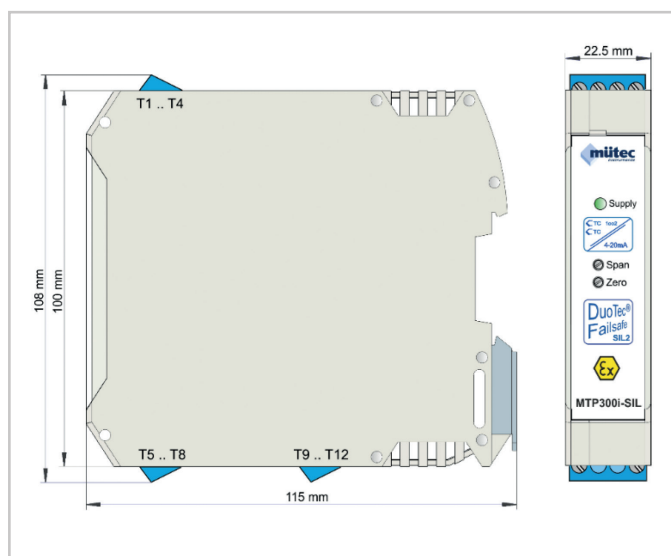
Safety Features

Featuring a safety-by-design approach, the MTP 300i provides a wide range of diagnostic functions. Apart from internal self-diagnosis, wire breaks or loose or short contacts can also be detected. The device is intrinsically safe and requires intrinsically safe barriers for supply.

| Safety Properties | FMEDA |
|-----------------------------------|-----------|
| Category | SIL 2 |
| Device type | Type B |
| HFT | 0 |
| SFF | 93 % |
| PFD _{avg} | 5,63E-5 % |
| Safe failure rate | 78,5 FIT |
| Safe detected failure rate | 0 FIT |
| Safe undetected failure rate | 78,5 FIT |
| Dangerous failure rate | 66 FIT |
| Dangerous detected failure rate | 61,3 FIT |
| Dangerous undetected failure rate | 4,7 FIT |

Main Benefits

- Failsafe thermocouple measurement
- Fastest reaction time (4 ms)
- All thermocouple types are supported
- Robust design with high dielectric strength
- SIL2 according to IEC/EN 61508
- ATEX rating up to zone 0
- High safety (4,7 FIT)
- 10-year proof test interval



Technical Data

| | |
|-----------------------------|--|
| Certificate | SIL 2 according to IEC 61508 ATEX:II 2(1)G Ex ib [ja Ga] IIC T4 Gb |
| Thermocouple inputs | $U_0 = 1$ VDC |
| Safety Data | $I_0 = 1.8$ mA $P_0 = 0.5$ mW $C_0 = 10$ μ F $L_0 = 100$ mH |
| Analog Output Supply | $U_i = 28$ VDC |
| Safety Data | $I_i = 95$ mA $P_i = 655$ mW $C_i = 26$ nF $L_i =$ negligible |
| Supply voltage range | 12.5 V ... 28 V |
| Current range | >3.5 ... <24 mA |
| Load | 70 ... 800 Ω |
| Cold junction compensation | -10° ... 70° C |
| Status LEDs | luminosity corresponds to 4 ... 20 mA |
| Behavior in case of failure | low |
| Power Consumption | Max. 560 mW, min. 50 mW |
| Temperature | -10° C...+70° C |
| Storage / Transport | -20° C...+80° C |
| Perm. Humidity | 10 %...95 % r.H no cond. |
| Max. operating Altitude | <2000 m above mean sea level |
| Temperature Coefficient | <0,05 %/10K (max.) |
| Galvanic isolation | EN 60079-11 |
| EMC | EN 61326-3-2 |
| PCB Material | FR4 |
| Housing Material | Polyamide |
| Protection Class | IP20 |
| Flammability UL94 | V0 |
| Mounting type | 35 mm DIN rail |

