

Intrinsic Safety Barrier

Universal Temperature



MD-UT3

Universal Temperature Intrinsic Safety Barrier



- Support 3 Channels
- 24 VDC Supply
- Analog Signal Type
- Modbus RTU, RS-485 Interface
- Connection with Screw Terminals
- Thermocouple, RTD
- Configurable with Modbus Protocol

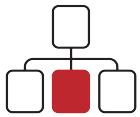
Product Features



RTD



Thermocouple

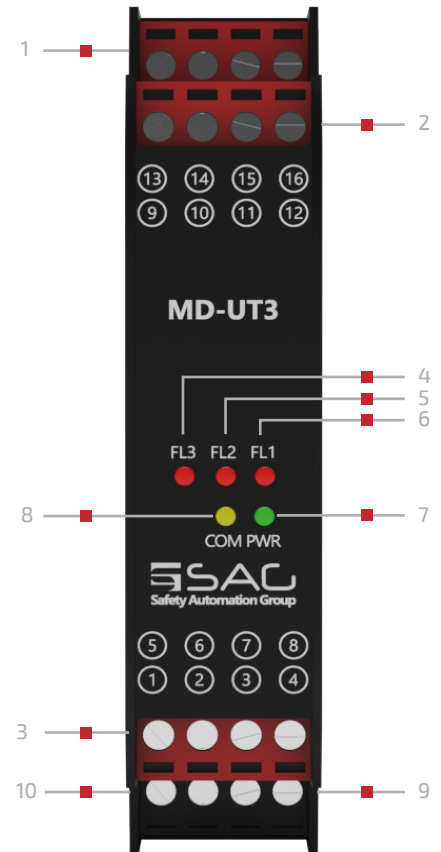


Modbus RTU



MD-UT is a universal intrinsically safe barrier. It can measure analog signal be configured with the Modbus protocol. It can be purchased 1-2 or 3 channels. The current and power consumption of the input is about 208 mA and 5W respectively, and the power dissipation is less than 1W with the 35 mm DIN mounting rail acc. The **MD-UT** can measure temperature and support various temperature sensors, including 2-3 and 4 wire RTDs, from PT10 to PT1000. When accuracy is not critical you can use 2-wire RTDs. Of course, 3 and 4-wire constructions are used in industries and laboratories where close accuracy is imperative. In addition to this, the thermocouple sensors can be read with different types (B, E, J, K, L, R, N, S, T-Type). The CJC is internal, and its deviation is about ± 0.8 K. When installed in hazardous areas, the temperature value collected is transmitted back to the safe areas through the Modbus protocol. Also, the environmental conditions are -20 to $+60$ °C as an operation, and -25 to $+65$ °C as storage temperature.

Front View

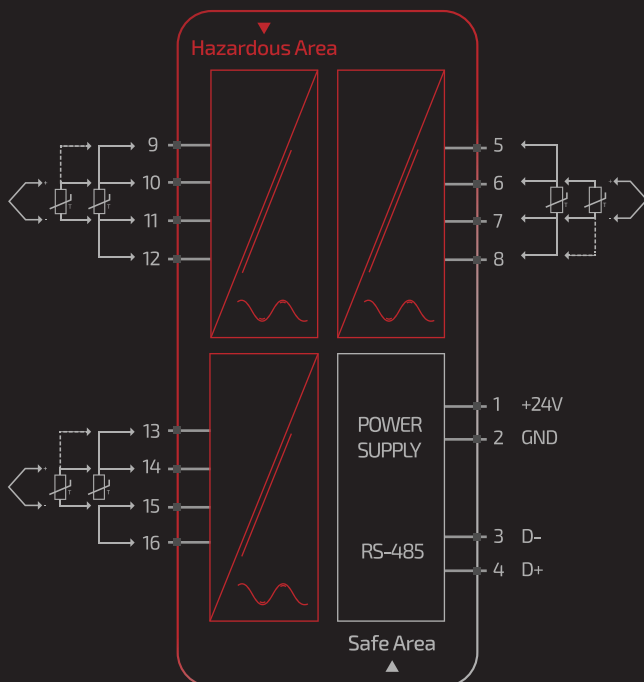


1. Analog Input : Channel 3
2. Analog Input : Channel 2
3. Analog Input : Channel 1
4. Fault LED Channel 1
5. Fault LED Channel 2
6. Fault LED Channel 3
7. Power LED
8. Communication LED
9. RS-485 Terminal
10. Power Supply Terminal

Connection View

MD-UT3

UNIVERSAL TEMPERATURE
INTRINSIC SAFETY BARRIER



1. +24VDC	5.	Channel 1
2. GND	6.	Analog Input
	7.	RTD,Thermocouple
	8.	
	9.	Channel 2
	10.	Analog Input
	11.	RTD,Thermocouple
	12.	
3. RS-485 (D-)	13.	Channel 3
4. RS-485 (D+)	14.	Analog Input
	15.	RTD,Thermocouple
	16.	

MD-UT3 PIN Configuration

Universal Temperature Barrier

TECHNICAL DATA

MD-UT3

GENERAL SPECIFICATION

Signal Type Analog Input

Number of Channels 3 Channel

SUPPLY

Rated Voltage 24 VDC Nom (20-30 VDC) Reverse Polarity Protected

Connection Terminal 1 PIN 1(+24 VDC), Terminal 1 PIN 2 (GND)

Power Dissipation < 1 W

Current Consumption Approx. 208mA

Max. Power Consumption 5 W

INPUT

Input Thermocouple, 2-3-4 Wire RTD

Connection Terminals 2,3,4

Rated Values -

Integration Time 400 ms

Input Range ± 500 mV (TC/mV), 0-4 k Ω (RTD/res)

RTD

RTD (PT10,PT50,PT100,PT500,PT1000)

Type of Measuring 2,3 and 4 Wire

Measurement Loop Monitoring Sensor Breakage

Measuring RTD Current 323 μ A

THERMOCOUPLE

Thermocouple B, E, J, K, L, N, R, S, T – Type (IEC 584-1: 1995)

Cold Junction Compensation Internal

Measurement Loop Monitoring -

DEVIATION

RTD Max 0.1% of Span

Thermocouple Deviation of CJC: ± 0.8 K

DATA CONNECTION

Modbus RTU RS-485 connection up to 115.2 kbps for Monitor/ Configuration

Connection Terminal1 PIN 3 (D-), Terminal1 PIN 4 (D+)

MOUNTING

Mounting On 35 mm DIN Mounting Rail Acc. to EN 60715:2001

Universal Temperature Barrier

TECHNICAL DATA

MD-UT3

ISOLATION

Input / Power Supply 1500 VDC

Example. safe electrical isolation by reinforced insulation according to IEC/EN 61010⁻¹

Rated insulation voltage 300 V_{eff} test voltage 3 kV, 50 Hz, 1 min.

ENVIRONMENTAL CONDITIONS

Operation Temperature Temperature Limits -20 to +60 °C

Storage Temperature Temperature Limits -25 to +65 °C

APPROVALS

IEC60079-0, IEC60079-11, IEC60079-15

FM & FM-C No.3024643,3029921C,conforms to Class 3600,3610,3611,3810

LOCATION

Safe Area/Non-Hazardous Locations or Zone 2, Group IIC T4, Class I, Division 2, Groups A, B, C, D

Temperature Code T4 and Class I, Zone 2, Group IIC, IIB, IIA T4 installation.

SAFETY DESCRIPTION

ATEX II 1 G Ex ic [ia Ga] IIC T4 Gc, II 3 G Ex ic [ic] IIC T4 Gc, II 1 D Ex ic [ia IIIC Da] IIC Gc
II 3 D Ex ic [ic IIIC Dc] IIC Gc

IECEX Ex ic [ia Ga] IIC T4 Gc, Ex ic [ic] IIC T4 Gc, Ex ic [ia IIIC Da] IIC Gc, Ex ic [ic IIIC Dc] IIC Gc

North American Zones Class 1, Zone 2 AEx ic [ia Ga] IIC T4 Gc, Class I, Zone 2 AEx [ic] IIC T4 Gc
Zone 20 Ex ic [ia IIIC Da] IIC Gc, Zone 2 Ex ic [ic IIIC Dc] IIC Gc

North American Div Class I, Division 2, Groups A, B, C, D T4, Class II, Division 2, Groups F, G

ASSOCIATED ELECTRICAL APPARATUS

Vo/Voc 17.0 V, Io/Isc = 85 mA, Po/Po = 1.45 W

IECEX 24V, Ci = 6 nF, Li = 0 nH. Um = 30 V, -20 °C ≤ Ta ≤ 60°C.

ORDERING INFORMATION

MD-UT N

MD:

Modbus Compatible

UT:

Universal Temperature Intrinsic Safety Barrier

N:

Number of Channels

1 : One Channel

2 : Two Channel

3 : Three Channel

ORDERING INFORMATION

MD-UT1 Universal Temperature Intrinsic safety barrier, 1 channel

MD-UT2 Universal Temperature Intrinsic safety barrier, 2 channel

MD-UT3 Universal Temperature Intrinsic safety barrier, 3 channel



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