Intrinsic Safety Barrier

Sink Analog(Voltage)

Safety Automation Group

MD-AV3

Sink Analog Intrinsic Safety Barrier (Voltage)

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

Product Features

Voltage

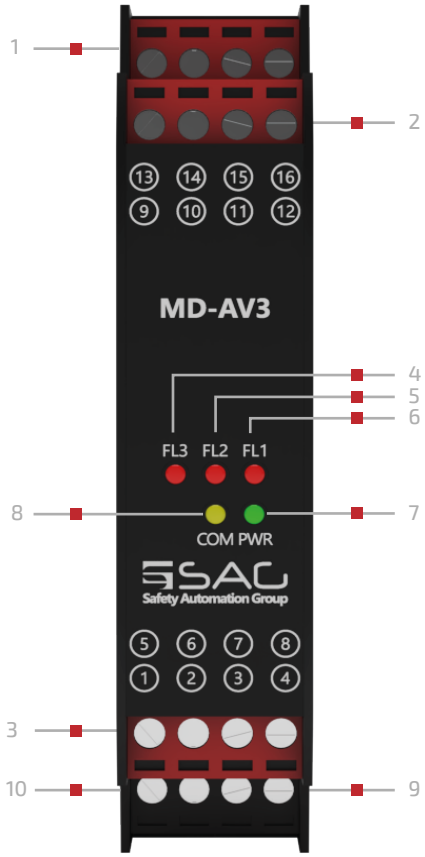
Modbus RTU

MD-AV is an isolated barrier used for intrinsic safety applications that features up to three channels. Each channel measures in the voltage range of -5~5v, 0~5v, 0~10v, and -10~10v from the Hazardous area (Zone 0 or 1). It can be configured and transmitted with the MODBUS protocol RS-485 Interface on an integrated CPU, communicating with PLCs or PACs directly.

The MD-AV restricts the level of current and voltage accordingly, to prevent the risk of spark or ignition in a hazardous area. What's more, the barrier is equipped with a fault LED, so as to alert the user to short circuit and open circuit faults.

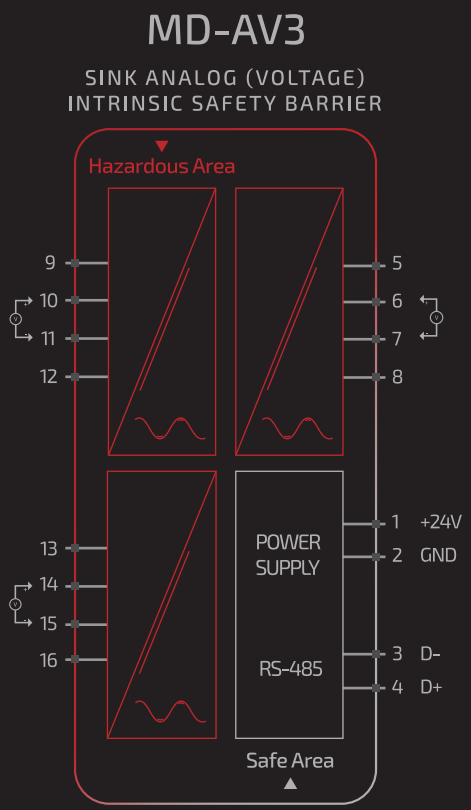
The current and power consumption of the input are about 208 mA and 5W respectively. The power dissipation is less than 1W, and it is mounted on a 35 mm DIN mounting rail acc. Moreover, the environmental conditions are -20 to +60 °C, and -25 to +65 °C as storage temperature.

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-AV3 PIN Configuration

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

Sink Analog Barrier(Voltage)

TECHNICAL DATA

MD-AV3

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	Voltage
Connection	Terminals 2,3,4
Rated Values	-
Integration Time	400 ms
Input Range	(sink, -10 to 10 volts)

VOLTAGE

Range	0 ... 10 V, 2 ... 10 V, 0 ... 1 V, -100 ... 100 mV, -10 ... 10V
Resolution	-

DEVIATION

Voltage	0.1 % of Span

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

ISOLATION

Input / Power Supply	1500 VDC Example. safe electrical isolation by reinforced insulation according to IEC/EN 61010^-1 Rated insulation voltage 300 Veff 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

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TECHNICAL DATA

MD-AV3

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	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
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-AV N

MD:
Modbus Compatible
AV:
Sink Analog Intrinsic Safety Barrier (Voltage)

Number of Channels

N: 1 : One Channel 2 : Two Channel 3 : Three Channel

ORDERING INFORMATION

MD-AV1	Sink Analog Intrinsic Safety Barrier (Voltage), 1 channel
MD-AV2	Sink Analog Intrinsic Safety Barrier (Voltage), 2 channel
MD-AV3	Sink Analog Intrinsic Safety Barrier (Voltage), 3 channel

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