Intrinsic Safety Barrier

Sink Analog (Current and Voltage)

Safety Automation Group

MD-CV3

Sink Analog Intrinsic Safety Barrier (Current and Voltage)

Safety Automation Group

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

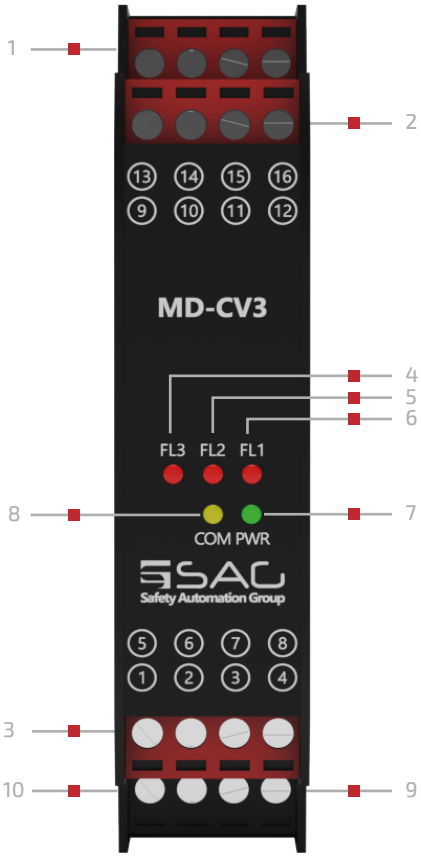
MD-CV is a sink voltage intrinsic safe barrier. It can read analog signals from hazardous areas (Zone 0 or 1) and transmit their values to a safe area (zone 2) through MODBUS. The MD-CV can support up to 3 channels, and they can all make a connection with the main station and communicate through the MOD-BUS-RTU protocol on the RS485 serial port, with a baud rate of up to 115.2 kbps. This allows for simultaneous Monitor/Configura-tion on an integrated CPU when communicat-ing with PLCs or PACs directly. By using this barrier, you can preserve any equipment that becomes an ignition source, when they are in the vicinity of explosive gases. This is achieved by limiting the electrical and ther-mal energies. Furthermore, possible faults, which might occur due to short circuits and open circuits, will activate the Fault LED on the barrier to warn the user of possible danger. The MD-CV can measure analog signals like voltage and current (as it applies to one channel) in a wide range of voltages, from -5~5v, 0~5v, 0~10v, and -10~10v, through to current in the range of 0 to 20 mA and 4-20mA.

Product Features

Voltage and Current

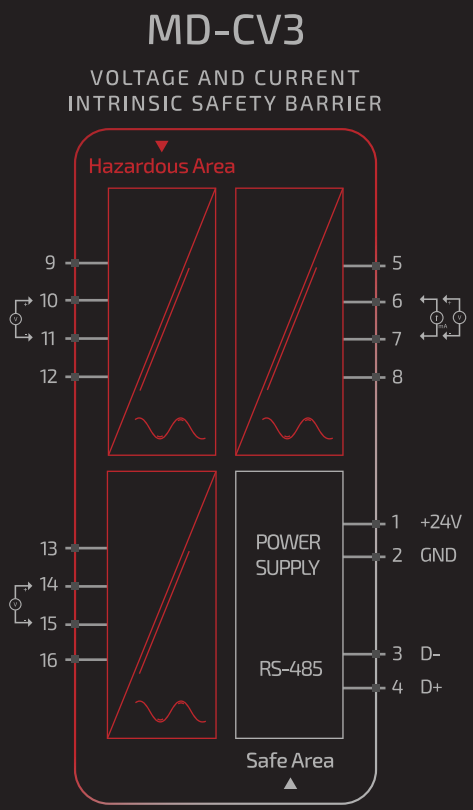
Modbus RTU

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-CV3 PIN Configuration

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

Sink Analog Barrier(Current and Voltage)

TECHNICAL DATA

MD-CV3

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	Current and Voltage
Connection	Terminals 2,3,4
Rated Values	-
Integration Time	400 ms
Input Range	(sink, -10 to 10 volts), (sink 0-20mA)

VOLTAGE

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

CURRENT

Range	0 ... 20mA, 4 ... 20 mA
Resolution	-

DEVIATION

Voltage	0.1 % of Span
Current	0.02%

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.

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TECHNICAL DATA

MD-CV3

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	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-CV N

MD:

Modbus Compatible

CV:

Sink Analog Intrinsic Safety Barrier (Current and Voltage)

N:

Number of Channels

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

ORDERING INFORMATION

MD-CV1	Sink Analog Intrinsic Safety Barrier (Current and Voltage), 1 channel
MD-CV2	Sink Analog Intrinsic Safety Barrier (Current and Voltage), 2 channel
MD-CV3	Sink Analog Intrinsic Safety Barrier (Current and Voltage), 3 channel

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