

Intrinsic Safety Barrier

Sink Analog (Current and Voltage)



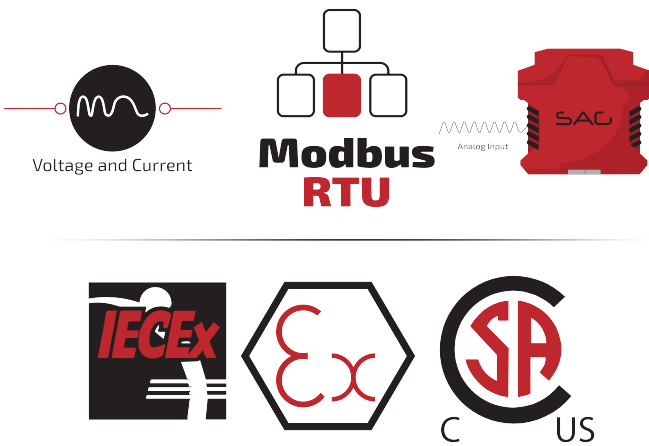
MD-CV1

Sink Analog Intrinsic Safety Barrier
(Current and Voltage)



- Support 1 Channels
- 24 VDC Supply
- Analog Signal Type
- Modbus RTU, RS-485 Interface
- Connection with Screw Terminals
- Configurable with Modbus Protocol
- Voltage and Current Input

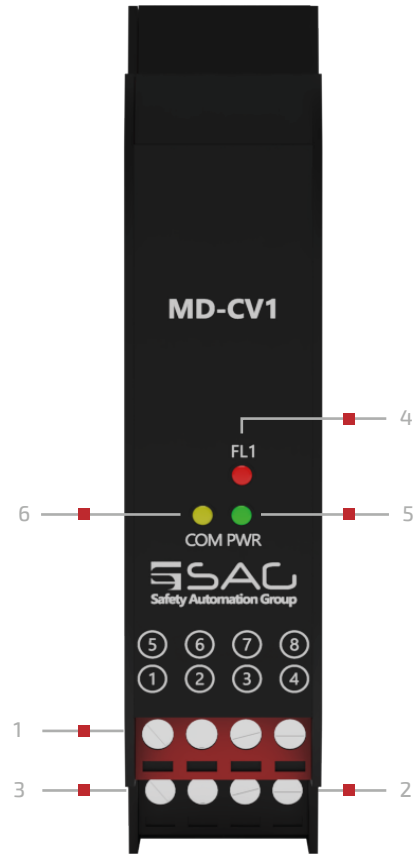
Product Features



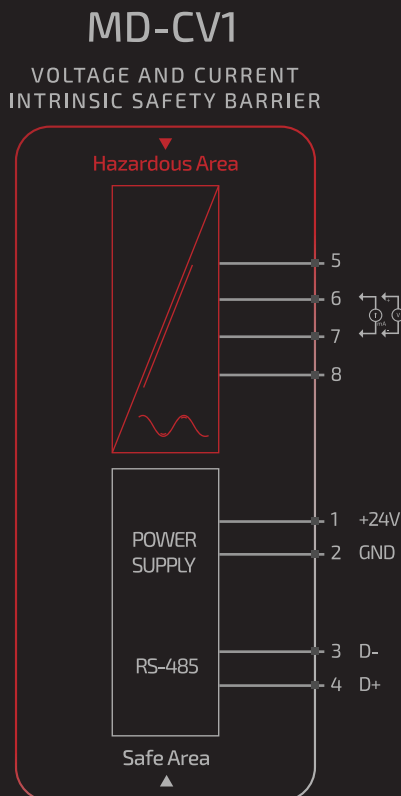
MD-CV is a sink voltage intrinsic safe barrier. It can read analog signals from hazardous areas (Zone 0 or 1) and transmit their values to a safe area (zone 2) through MODBUS. The **MD-CV** can support up to 3 channels, and they can all make a connection with the main station and communicate through the MODBUS-RTU protocol on the RS485 serial port, with a baud rate of up to 115.2 kbps. This allows for simultaneous Monitor/Configuration on an integrated CPU when communicating 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 thermal 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.

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

Front View



Connection View



MD-CV1 PIN Configuration

1. +24VDC	5. Channel 2
2. GND	6. Analog Input
3. RS-485 (D-)	7. Voltage and Current
4. RS-485 (D+)	8.

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TECHNICAL DATA

MD-CV1

GENERAL SPECIFICATION

Signal Type	Analog Input
Number of Channels	1 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
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
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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-CV1

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/Pe = 1.45 W

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

ORDERING INFORMATION

MD-CV

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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