

Series BM200-DI Isolated Safety Barrier

Installation and Operation Instruction V1.3

DECLARATION

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1 General

Series BM200 isolated safety barrier provides power to the transmitter in the hazardous area, and the voltage signal generated by the transmitter is isolated and converted into the corresponding voltage or current signal output to the safety zone. The product requires independent power supply, input/output/power supply three isolation. It can be used in current source, 2-wire system, 3-wire transmitter equipment.

2 Executive standard

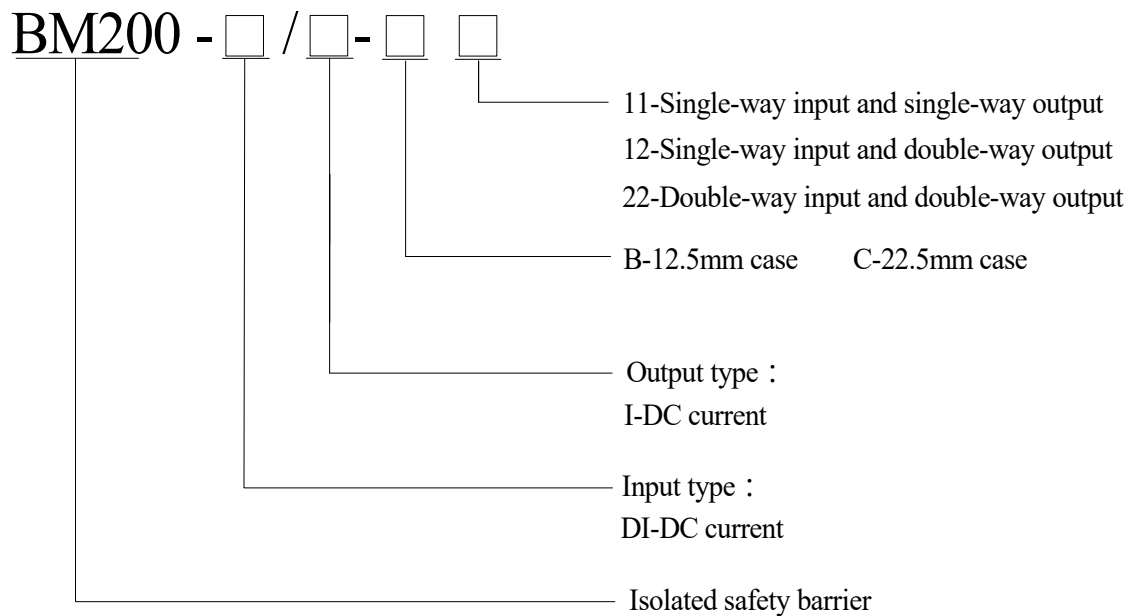
GB 3836.1-2021 “Explosive atmospheres—Part 1:Equipment—General requirements”

GB 3836.4-2021 “Explosive atmospheres—Part 4:Equipment protection by intrinsic safety i”

GBT 28471.1-2012 “Distributor for use in industrial-process measure and control systems—Part 1:General technical specification”

GBT 28471.2-2012 “Distributor for use in industrial-process measure and control systems—Part 2:Performance evaluation method ”

3 Type of products



4 Technical parameter

Type	BM200-DI/I-B11, BM200-DI/I-C12, BM200-DI/I-C22
Channel type	Single-way input and single-way output, single-way input and double-way output, double-way input and double-way output
Input type	Current
Input signal	0~20mA /4~20mA (Distribution voltage: 10V/20mA)
Output signal	0~20mA /4~20mA (Safe side output), Load resistance: ≤550Ω
Transmission accuracy	0.2%

Temperature modulus	50ppm
Response time	5ms to reach 90% of final value
Power supply	20~35V DC
Power consumption	24V power supply, 20mA output: $\leq 70\text{mA}$ (Single-way input and single-way output) $\leq 110\text{mA}$ (single-way input and double-way output) $\leq 160\text{mA}$ (double-way input and double-way output)
Use ambient temperature	-20°C~+60°C
Storage temperature	-40°C~+80°C
Relative humidity	$\leq 95\%RH$, no condensation, no corrosive gas place
Elevation	$\leq 2500\text{m}$
Degree of protection	IP20
Weight	About 110g (12.5mm housing) About 150g (22.5mmhousing)
Fix mod	Rail installation
Dielectric strength	Intrinsically safe side and non-intrinsically safe side $\geq 2500\text{V AC}$; Power supply and non-intrinsically safe side $\geq 500\text{V AC}$

5 Authentication parameter

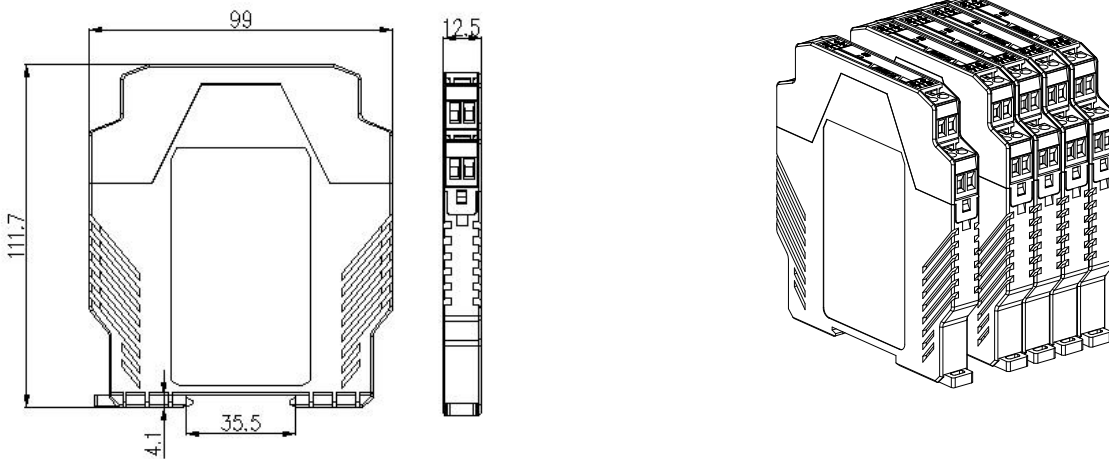
Certificate number	2023322316005036
Explosion-proof sign	[Ex ia Ga] II C
Terminal	Between 10, 11, 12 BM200-DI/I-B11 Between 14, 15, 16 BM200-DI/I-C12 Between 10, 11, 12/14, 15, 16 BM200-DI/I-C22
Maximum permissible voltage	$U_m=250\text{V}$
Voltage	$U_o=27.9\text{V}$
Current	$I_o=93\text{mA}$
Power	$P_o=650\text{mW}$
Capacitance	IIC: $C_o=0.084\mu\text{F}$ IIB: $C_o=0.654\mu\text{F}$ IIA: $C_o=2.16\mu\text{F}$
Inductance	IIC: $L_o=6\text{mH}$ IIB: $L_o=20\text{mH}$ IIA: $L_o=50\text{mH}$

6 Install and wiring

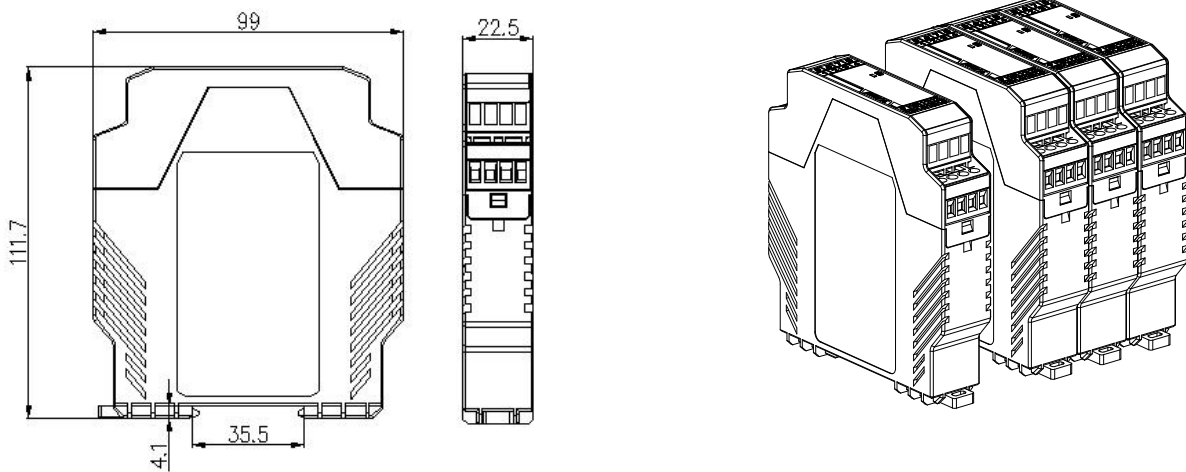
6.1 Outline dimension

Product category	Type of products	Outline dimension
BM200	BM200-DI/I-B11	99mm*114.5mm*12.5mm
	BM200-DI/I-C12, BM200-DI/I-C22	99mm*114.5mm*22.5mm

6.1.1 BM200-DI/I-B11 outline dimension:



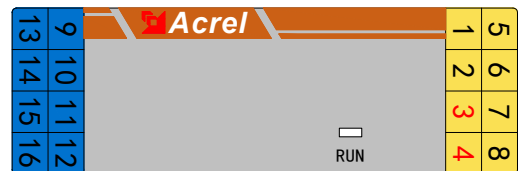
6.1.2 BM200-DI/I-C12, BM200-DI/I-C22 outline dimension:



6.1.3 Front panel schematic:



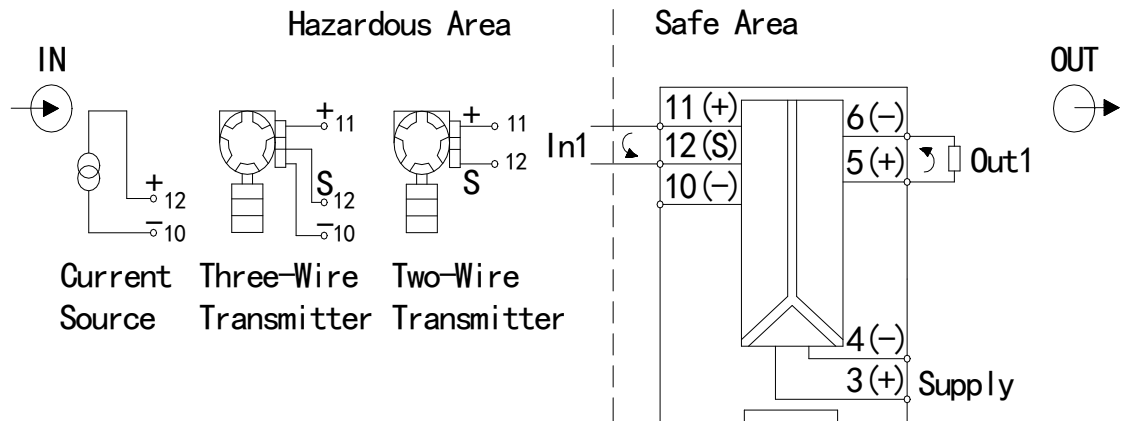
Front panel 1: shape B, power supply 24V



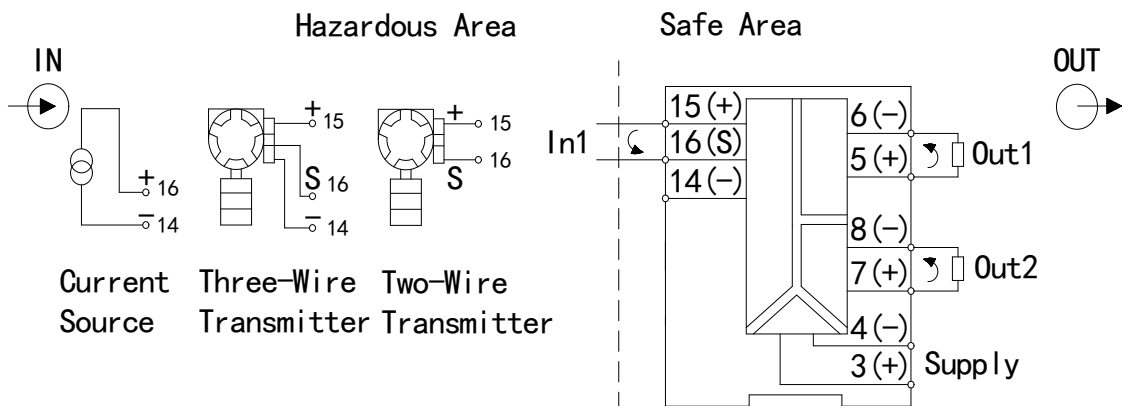
Front panel 2: shape C, power supply 24V

6.2 Wiring

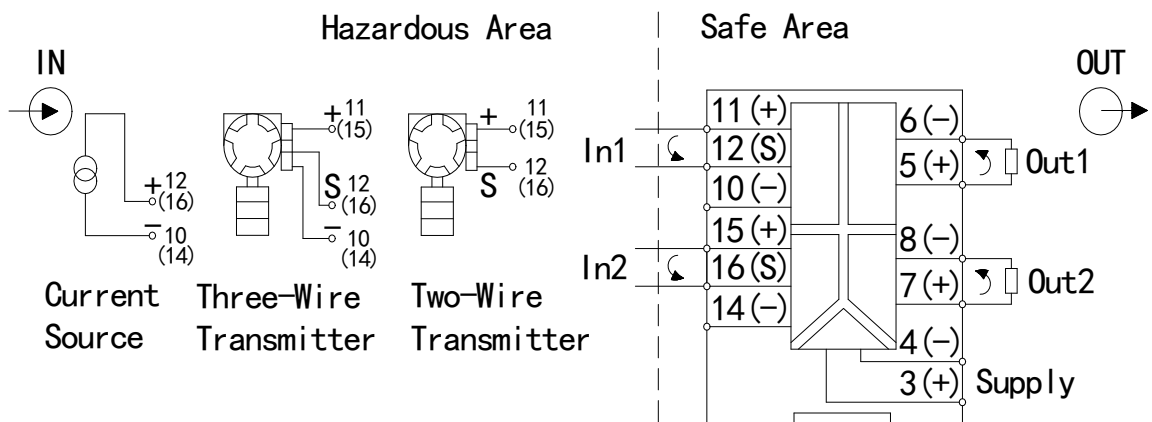
6.2.1 BM200-DI/I-B11:



6.2.2 BM200-DI/I-C12:



6.2.3 BM200-DI/I-C22:



7 Precautions

7.1 This product complies with GB3836.1-2021 "Distributor for use in industrial-process measure and control systems—Part 1:General technical specification" and GB3836.4-2021 "Explosive atmospheres—Part 4:Equipment protection by intrinsic safety i" standards, and installation, operation and maintenance should be carried out under the

requirements of corresponding standard.

7.2 This product must be installed in a safe area, and the surrounding air does not contain any medium that is corrosive to chromium, nickel and silver plating.

7.3 All instruments connected to the safety barrier must be instruments with explosion-proof certificate. When the safety barrier and a primary instrument form an intrinsically safe explosion-proof system, they must be approved by the state-specified explosion-proof inspection.

7.4 When the wiring is not completely disconnected, it is strictly forbidden to use a megohmmeter to directly test the insulation parameters between the terminals, otherwise the internal fast fuse will be blown.

7.5 The wiring of the intrinsically safe side power supply of the safety barrier should not be mixed with other non-intrinsically safe side circuits. Any wrong wiring may cause danger. The circuit wiring of the intrinsically safe and non-intrinsically safe of this product should be laid separately in the line groove.

7.6 The instrument wiring adopts detachable terminal blocks, the wire with a cross-sectional area greater than 0.5mm^2 , and the intrinsically safe side should be selected as an intrinsically safe cable.

8 Application examples

E.g.1 Input: single-way 4-20mA , output: double-way 4-20mA , auxiliary power supply: 24V DC

Type: BM200-DI/I-C12

E.g.2 Input: single-way 0-20mA, output: single-way 0-20mA , auxiliary power supply: 24V DC

Type: BM200-DI/I-B11

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Series BM200-DV Isolated Safety Barrier

Installation and Operation Instruction V1.3

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1 General

Series BM200 isolated safety barrier provides power to the transmitter in the hazardous area, and the voltage signal generated by the transmitter is isolated and converted into the corresponding voltage or current signal output to the safety zone. The product requires independent power supply, input/output/power supply three isolation. It can be directly connected with pointer meters, digital display meters, and can also be matched with automatic control instruments (such as PLC), various A/D converters, and computer systems.

2 Executive standard

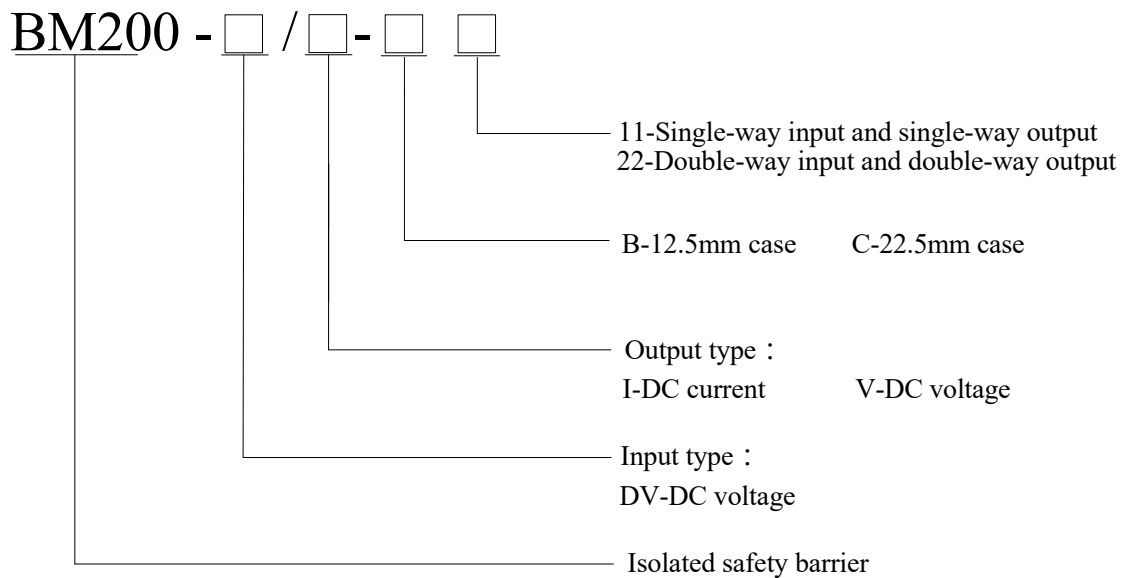
GB 3836.1-2021 “Explosive atmospheres—Part 1:Equipment—General requirements”

GB 3836.4-2021 “Explosive atmospheres—Part 4:Equipment protection by intrinsic safety i”

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GBT 28471.2-2012 “Distributor for use in industrial-process measure and control systems—Part 2:Performance evaluation method ”

3 Type of products



4 Technical parameter

Type	BM200-DV/I-B11、BM200-DV/I-C22 BM200-DV/V-B11、BM200-DV/V-C22
Channel type	Single-way input and single-way output, double-way input and double-way output
Input type	Voltage
Input signal	0~5V /0~10V/1~5V/2~10V (Distribution voltage: 10V/20mA)
Output signal	0~20mA /4~20mA (Safe side output), Load resistance: ≤550Ω

	0~5V /1~5V (Safe side output), Load resistance: $\geq 330K\Omega$ 0~10V/2~10V (Safe side output), Load resistance: $\geq 500K\Omega$
Transmission accuracy	0.2%
Temperature modulus	50ppm (Output voltage :100ppm)
Response time	5ms to reach 90% of final value
Power consumption	24V power supply, 20mA output: $\leq 80mA$ (Single-way input and single-way output) $\leq 150mA$ (double-way input and double-way output)
Power supply	20~35V DC
Use ambient temperature	-20°C~+60°C
Storage temperature	-40°C~+80°C
Relative humidity	$\leq 95\%RH$, no condensation, no corrosive gas place
Elevation	$\leq 2500m$
Degree of protection	IP20
Weight	About 110g (12.5mm housing) About 150g (22.5mmhousing)
Fix mod	Rail installation
Dielectric strength	Intrinsically safe side and non-intrinsically safe side $\geq 2500V AC$; Power supply and non-intrinsically safe side $\geq 500V AC$

5 Authentication parameter

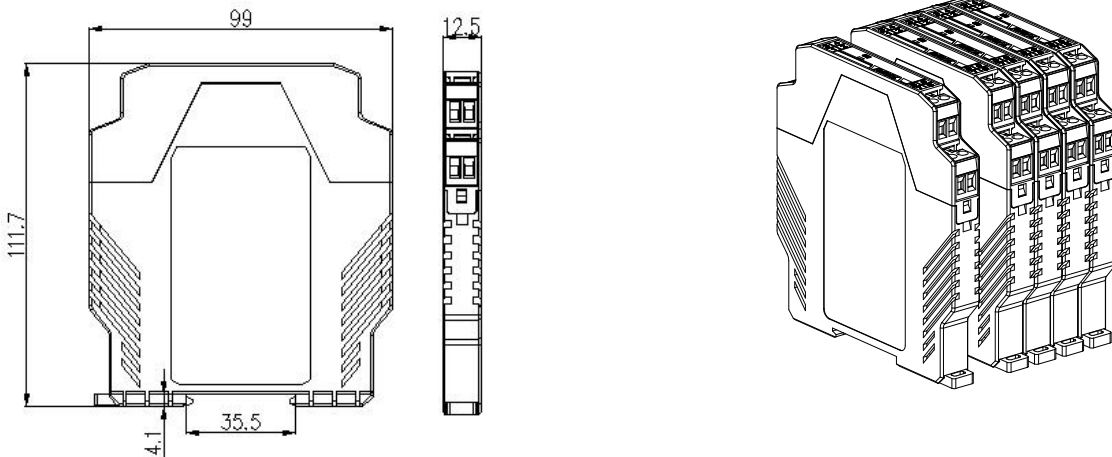
Certificate number	2023322316005039	
Explosion-proof sign	[Ex ia Ga] II C	
Terminal	Between 10, 11 BM200-DV/I(V)-B11 Between 10, 11/14, 15 BM200-DV/I(V)-C22	Between 10, 12 BM200-DV/I(V)-B11 Between 10, 12/14, 16 BM200-DV/I(V)-C22
Maximum permissible voltage	Um=250V	Um=250V
Voltage	Uo=13.7V	Uo=15V
Current	Io=3mA	Io=101mA
Power	Po=11mW	Po=379mW
Capacitance	IIC: Co=0.79uF IIB: Co=5.0uF IIA: Co=18.1uF	IIC: Co=0.58uF IIB: Co=3.55uF IIA: Co=14.0uF
Inductance	IIC: Lo=1H IIB: Lo=1H IIA: Lo=1H	IIC: Lo=2.4mH IIB: Lo=11mH IIA: Lo=23mH

6 Install and wiring

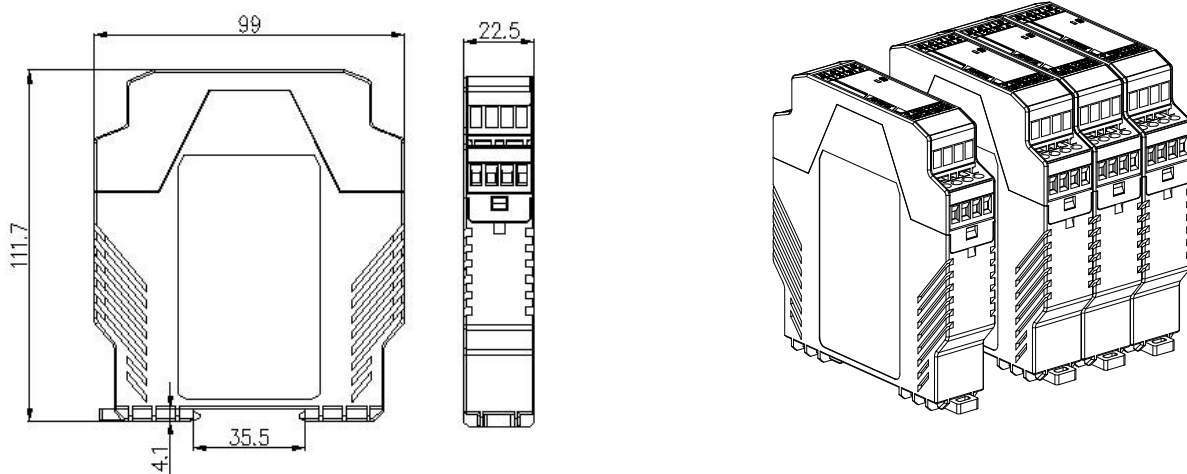
6.1 Outline dimension

Product category	Type of products	Outline dimension
BM200	BM200-DV/I-B11, BM200-DV/V-B11	99mm*114.5mm*12.5mm
	BM200-DV/I-C22, BM200-DV/V-C22	99mm*114.5mm*22.5mm

6.1.1 BM200-DV/I-B11, BM200-DV/V-B11 outline dimension:



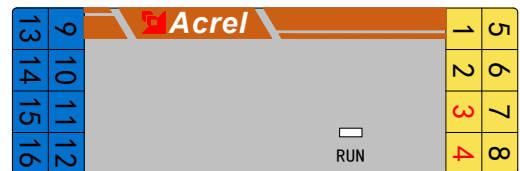
6.1.2 BM200-DV/I-C22, BM200-DV/V-C22 outline dimension:



6.1.3 Front panel schematic:



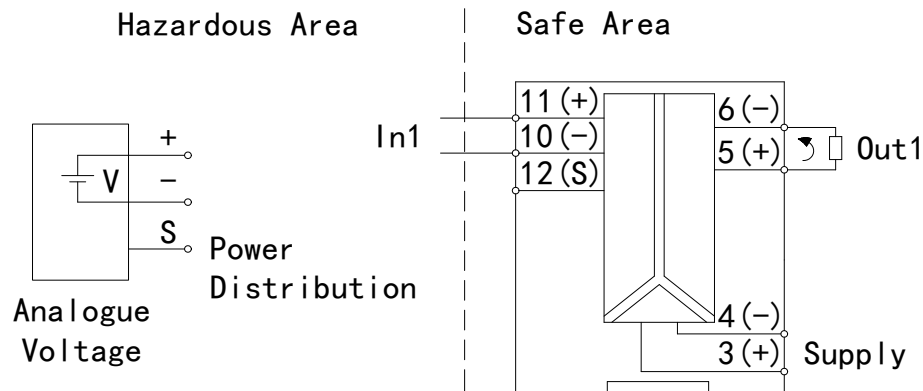
Front panel 1: shape B, power supply 24V



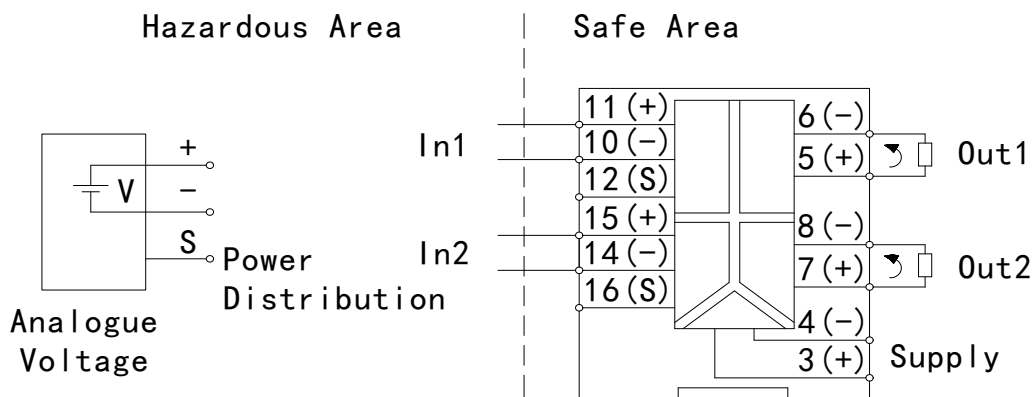
Front panel 2: shape C, power supply 24V

6.2 Wiring

6.2.1 BM200-DV/I-B11、BM200-DV/V-B11:



6.2.2 BM200-DV/I-C22、BM200-DV/V-C22:



7 Precautions

7.1 This product complies with GB3836.1-2021 “Distributor for use in industrial-process measure and control systems—Part 1:General technical specification ”and GB3836.4-2021 “Explosive atmospheres—Part 4:Equipment protection by intrinsic safety i ”standards, and installation, operation and maintenance should be carried out under the requirements of corresponding standard.

7.2 This product must be installed in a safe area, and the surrounding air does not contain any medium that is corrosive to chromium, nickel and silver plating.

7.3 All instruments connected to the safety barrier must be instruments with explosion-proof certificate. When the safety barrier and a primary instrument form an intrinsically safe explosion-proof system, they must be approved by the state-specified explosion-proof inspection.

7.4 When the wiring is not completely disconnected, it is strictly forbidden to use a megohmmeter to directly test the insulation parameters between the terminals, otherwise the internal fast fuse will be blown.

7.5 The wiring of the intrinsically safe side power supply of the safety barrier should not be mixed with other non-intrinsically safe side circuits. Any wrong wiring may cause danger. The circuit wiring of the intrinsically safe and non-intrinsically safe of this product should be laid separately in the line groove.

7.6 The instrument wiring adopts detachable terminal blocks, the wire with a cross-sectional area greater than 0.5mm², and the intrinsically safe side should be selected as an intrinsically safe cable.

8 Application examples

E.g.1 Input: single-way 0-5V , output: single-way 0-20mA , auxiliary power supply: 24V DC

Type: BM200-DV/I-B11

E.g.2 Input: double-way 0-10V, output: double-way 0-5V , auxiliary power supply: 24V DC
Type: BM200-DV/V-C22

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Series BM200-TR(VR、 TC) Isolated Safety Barrier

Installation and Operation Instruction V1.3

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1 General

Series BM200 isolated safety barrier can isolate the RTD and potentiometer signals in the hazardous area into corresponding linear voltage or current signals output to the safety zone. The product requires independent power supply, input/output/power supply three isolation. It can be directly connected with pointer meters, digital display meters, and can also be matched with automatic control instruments (such as PLC), various A/D converters, and computer systems.

2 Executive standard

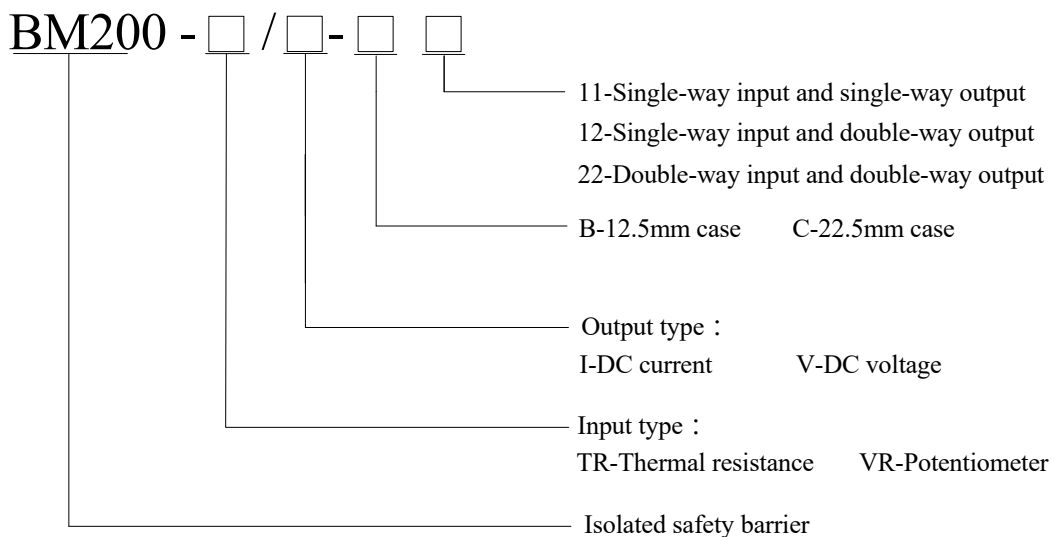
GB 3836.1-2021 “Explosive atmospheres—Part 1:Equipment—General requirements”

GB 3836.4-2021 “Explosive atmospheres—Part 4:Equipment protection by intrinsic safety i”

GBT 28471.1-2012 “Distributor for use in industrial-process measure and control systems—Part 1:General technical specification”

GBT 28471.2-2012 “Distributor for use in industrial-process measure and control systems—Part 2:Performance evaluation method”

3 Type of products



4 Technical parameter

Type	BM200-TR/I-B11、BM200-TR/I-C12、BM200-TR/I-C22 BM200-TR/V-B11、BM200-TR/V-C12、BM200-TR/V-C22
	BM200-VR/I-B11、BM200-VR/I-C12、BM200-VR/I-C22 BM200-VR/V-B11、BM200-VR/V-C12、BM200-VR/V-C22
Channel type	Single-way input and single-way output, single-way input and double-way output, double-way input and double-way output
Input type	RTD/Resistance
Input signal	Pt100: -200°C~850°C(minimum measuring range: 50°C) 0~10KΩ (minimum measuring range: 1KΩ)

Output signal	0~20mA /4~20mA (Safe side output); Load resistance: $\leq 550\Omega$ 0~5V/1~5V/0~10V/2~10V (Safe side output); Load resistance: $\geq 330K$
Transmission accuracy	0.2%
Temperature modulus	50ppm (Output voltage :100ppm)
Response time	1s to reach 90% of final value
Power supply	20~35V DC
Power consumption	24V power supply, 20mA output: $\leq 70mA$ (Single-way input and single-way output) $\leq 125mA$ (single-way input and double-way output) $\leq 150mA$ (double-way input and double-way output)
Use ambient temperature	-20°C~+60°C
Storage temperature	-40°C~+80°C
Relative humidity	$\leq 95\%RH$, no condensation, no corrosive gas place
Elevation	$\leq 2500m$
Degree of protection	IP20
Weight	About 110g (12.5mm housing) About 150g (22.5mmhousing)
Fix mod	Rail installation
Dielectric strength	Intrinsically safe side and non-intrinsically safe side $\geq 2500V AC$; Power supply and non-intrinsically safe side $\geq 500V AC$

5 Authentication parameter

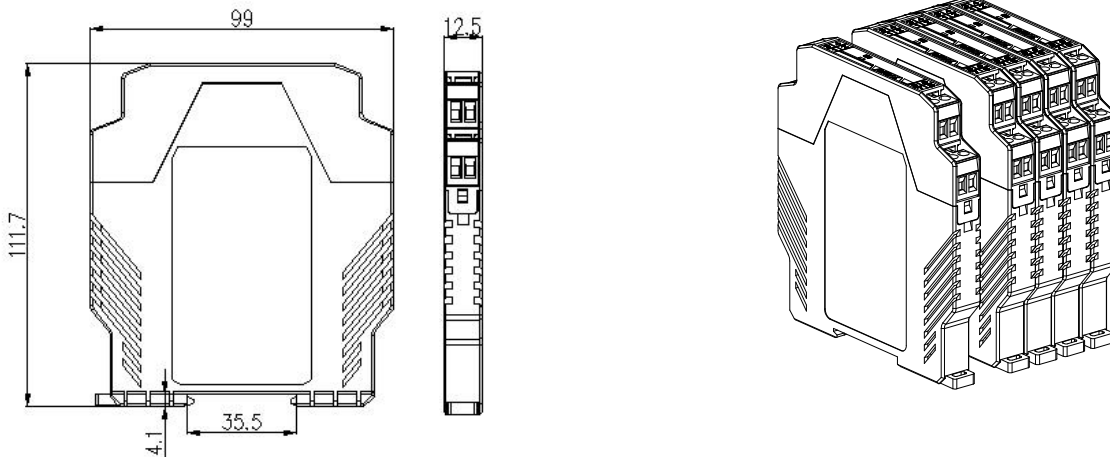
Certificate number	2023322316005037
Explosion-proof sign	[Ex ia Ga] II C
Terminal	Between 10, 11, 12 BM200-TR(VR)/I(V)-B11 Between 14, 15, 16 BM200-TR(VR)/I(V)-C12 Between 10, 11, 12/14, 15, 16 BM200-TR(VR)/I(V)-C22
Maximum permissible voltage	$U_m=250V$
Voltage	$U_o=5.4V$
Current	$I_o=20mA$
Power	$P_o=27mW$
Capacitance	IIC: $C_o=65\mu F$ IIB: $C_o=1000\mu F$ IIA: $C_o=1000\mu F$
Inductance	IIC: $L_o=80mH$ IIB: $L_o=300mH$ IIA: $L_o=600mH$

6 Install and wiring

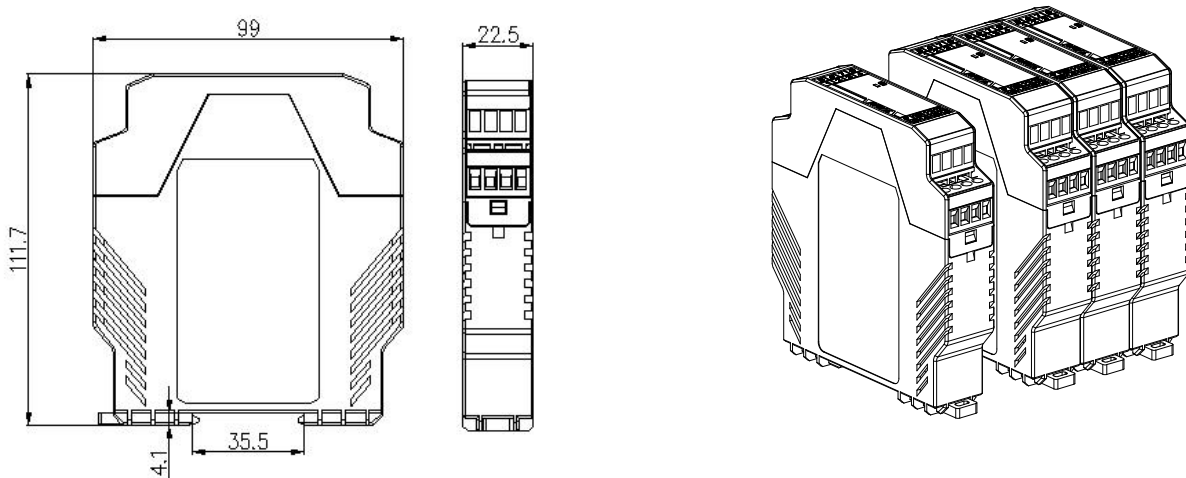
6.1 Outline dimension

Product category	Type of products	Outline dimension
BM200	BM200-TR/□-B11, BM200-VR/□-B11	99mm*114.5mm*12.5mm
	BM200-TR/□-C□2, BM200-VR/□-C□2	99mm*114.5mm*22.5mm

6.1.1 BM200-TR/□-B11, BM200-VR/□-B11 outline dimension:



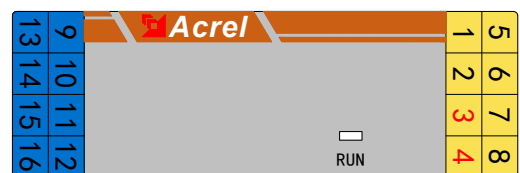
6.1.2 BM200-TR/□-C□2, BM200-VR/□-C□2 outline dimension:



6.1.3 Front panel schematic:



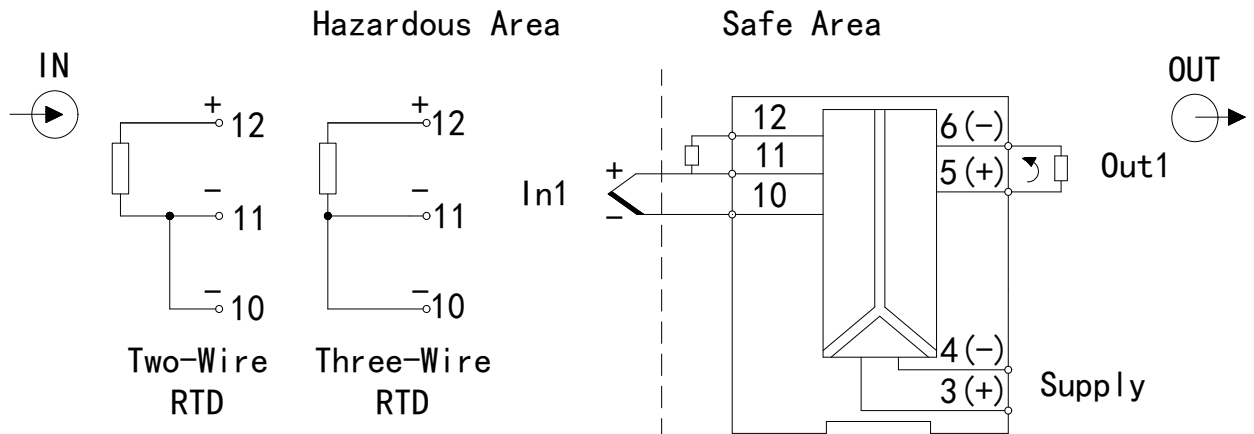
Front panel 1: shape B, power supply 24V



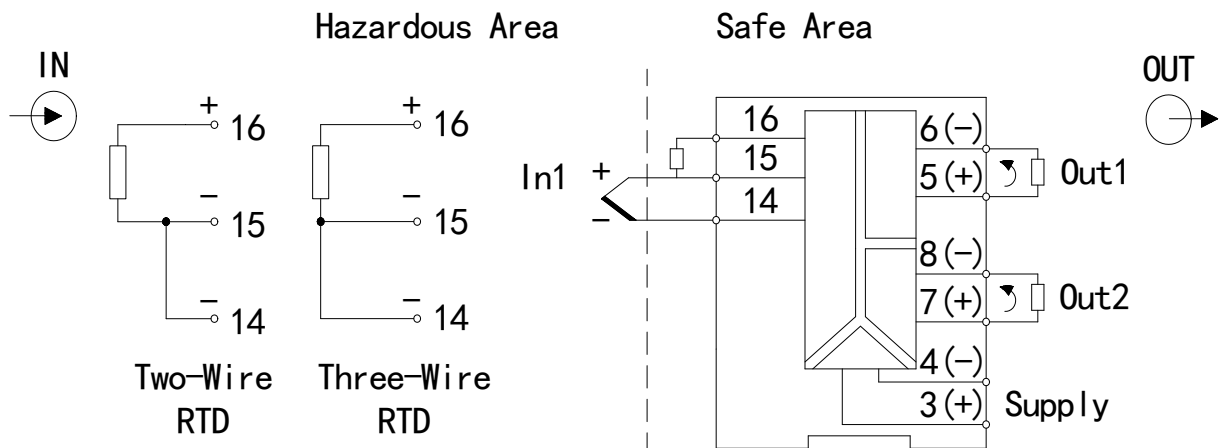
Front panel 2: shape C, power supply 24V

6.2 Wiring

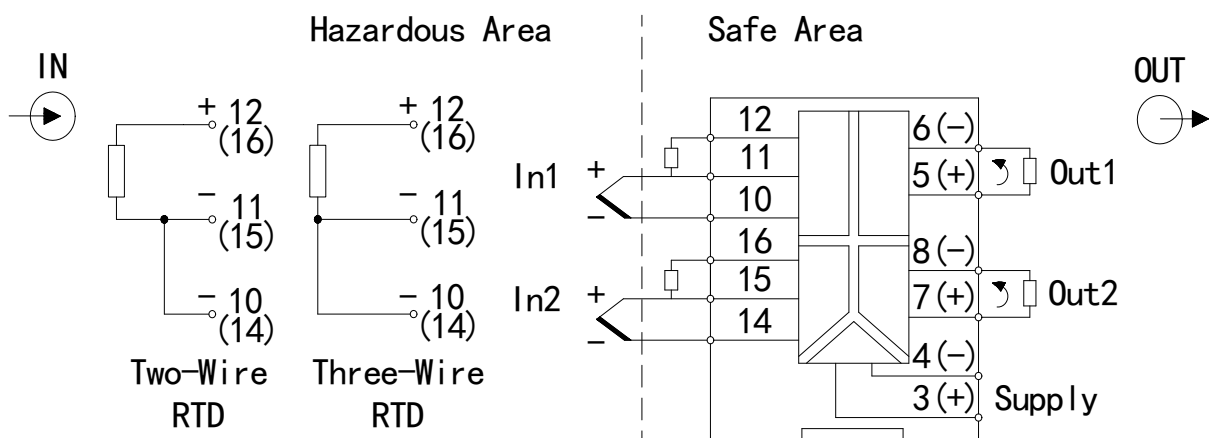
6.2.1 BM200-TR/I-B11、BM200-TR/V-B11:



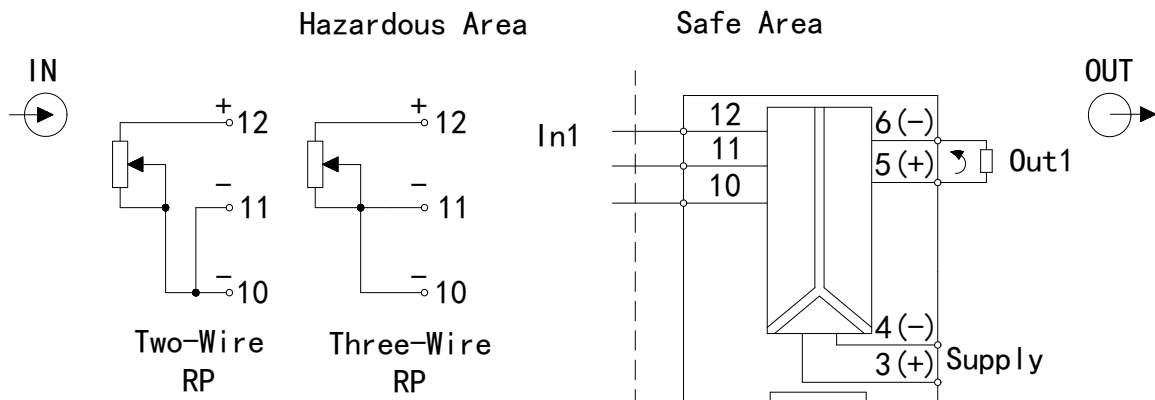
6.2.2 BM200-TR/I-C12、BM200-TR/V-C12:



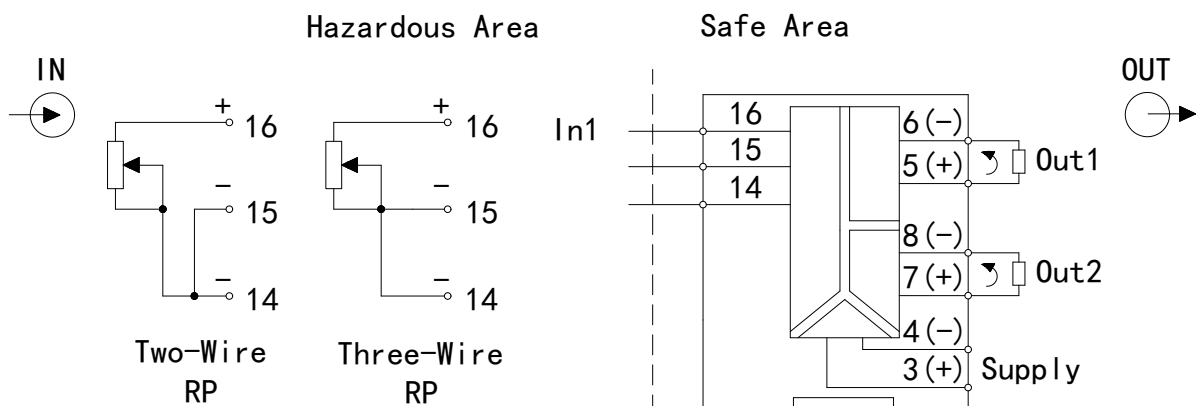
6.2.3 BM200-TR/I-C22、BM200-TR/V-C22:



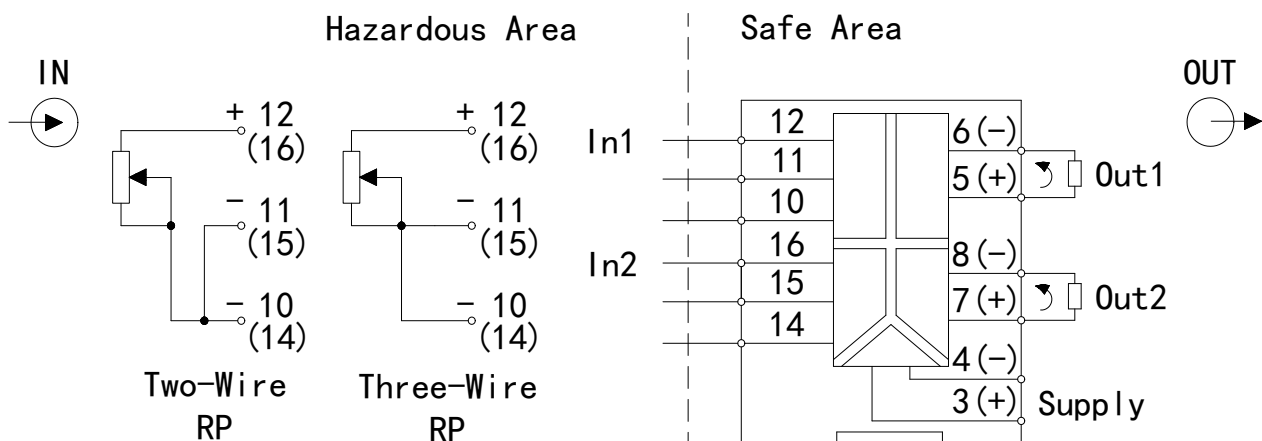
6.2.4 BM200-VR/I-B11、BM200-VR/V-B11:



6.2.5 BM200-VR/I-C12、BM200-VR/V-C12:



6.2.6 BM200-VR/I-C22、BM200-VR/V-C22:



7 Precautions

7.1 This product complies with GB3836.1-2021 “Distributor for use in industrial-process measure and control systems—Part 1:General technical specification ”and GB3836.4-2021 “Explosive atmospheres—Part 4:Equipment protection by intrinsic safety i ”standards, and installation, operation and maintenance should be carried out under the requirements of corresponding standard.

7.2 This product must be installed in a safe area, and the surrounding air does not contain any medium that is corrosive to chromium, nickel and silver plating.

7.3 All instruments connected to the safety barrier must be instruments with explosion-proof certificate. When the safety barrier and a primary instrument form an intrinsically safe explosion-proof system, they must be approved by

the state-specified explosion-proof inspection.

7.4 When the wiring is not completely disconnected, it is strictly forbidden to use a megohmmeter to directly test the insulation parameters between the terminals, otherwise the internal fast fuse will be blown.

7.5 The wiring of the intrinsically safe side power supply of the safety barrier should not be mixed with other non-intrinsically safe side circuits. Any wrong wiring may cause danger. The circuit wiring of the intrinsically safe and non-intrinsically safe of this product should be laid separately in the line groove.

7.6 The instrument wiring adopts detachable terminal blocks, the wire with a cross-sectional area greater than 0.5mm^2 , and the intrinsically safe side should be selected as an intrinsically safe cable.

8 Application examples

E.g.1 Input: single-way Pt100 , output: single-way 0-20mA , auxiliary power supply: 24V DC

Type: BM200-TR/I-B11

E.g.2 Input: single-way 0-10K Ω , output: double-way 0-5V , auxiliary power supply: 24V DC

Type: BM200-VR/V-C12

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