

**BM200-DV 系列隔离式安全栅**  
**BM200-DV Series Isolation Safety Barrier**

**安装使用说明书 V1.3**  
**Installation and Operation Instruction V1.3**

安科瑞电气股份有限公司

Acrel Co., Ltd.

# 申 明

## DECLARATION

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This company reserve power of revision of product specification described in this manual, without notice.

Before ordering, please consult local agent for the latest specification of product.

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## 1 概述 General

BM200 系列隔离式安全栅给危险区的变送器提供电源,变送器产生的电压信号隔离转换成对应的线性电压或电流信号输出至安全区,该产品需独立供电,输入/输出/电源三隔离。既可直接与指针表,数显表相接,也可以与自控仪表(如 PLC)、各种 A/D 转换器、以及计算机系统配接。

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

## 2 执行标准 Executive standard

GB/T 3836.1-2021 《爆炸性环境 第 1 部分:设备 通用要求》

GB/T 3836.4-2021 《爆炸性环境 第 4 部分:由本质安全型“i”保护的的设备》

GB/T 28471.1-2012 《工业过程测量和控制系统用隔离式安全栅 第 1 部分:通用技术条件》

GB/T 28471.2-2012 《工业过程测量和控制系统用隔离式安全栅 第 2 部分:性能评定方法》

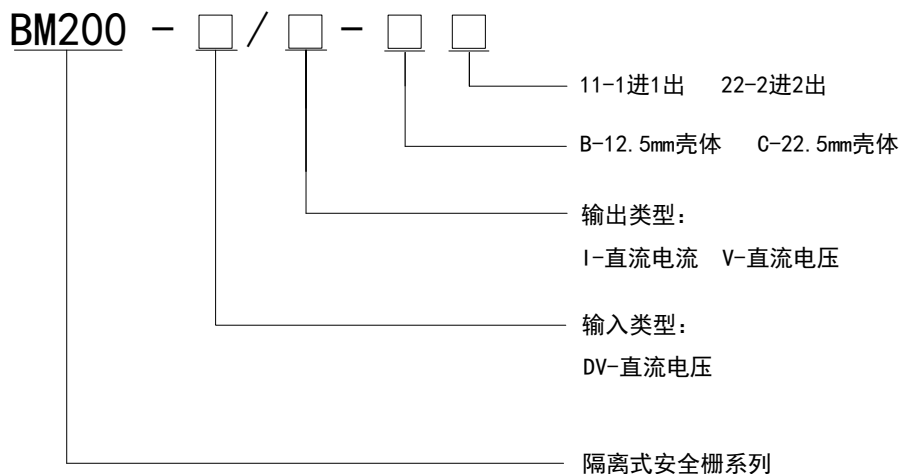
GB/T 3836.1-2021 "Explosive Environment Part 1: Equipment General Requirements"

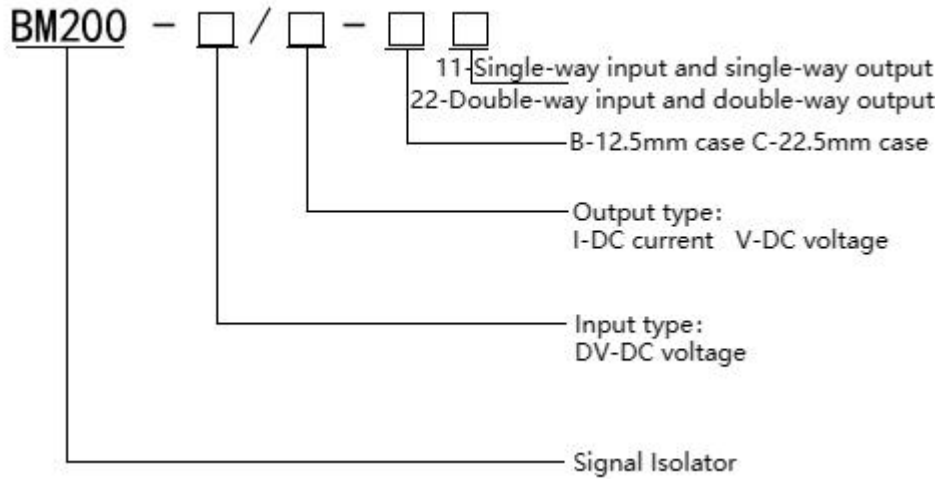
GB/T 3836.4-2021 "Explosive atmospheres Part 4: Equipment protected by intrinsically safe "i" "

GB/T 28471.1-2012 "Isolated safety barriers for industrial process measurement and control systems - Part 1: General technical conditions"

GB/T 28471.2-2012 "Isolated safety barriers for industrial process measurement and control systems - Part 2: Performance evaluation methods"

## 3 产品型号 Type of products





#### 4 技术参数 Technical parameter

型号 Model	BM200-DV/I-B11、BM200-DV/I-C22 BM200-DV/V-B11、BM200-DV/V-C22
通道类型 Channel type	1 进 1 出、2 进 2 出 single-way input and single-way output; double-way input and double-way output
输入类型 Input type	电压量 Voltage
输入信号 Input signal	0~5V /0~10V/1~5V/2~10V (配电电压: 10V/20mA) 0~5V /0~10V/1~5V/2~10V (Distribution voltage: 10V/20mA)
输出信号 Output signal	0~20mA /4~20mA (安全侧输出); 负载电阻: $\leq 550 \Omega$ 0~5V /1~5V (安全侧输出); 负载电阻: $\geq 330K \Omega$ 0~10V/2~10V (安全侧输出); 负载电阻: $\geq 500K \Omega$ 0~20mA /4~20mA (Safe side input); Load resistance: $\leq 550 \Omega$ 0~5V /1~5V (Safe side input); Load resistance: $\geq 330K \Omega$ 0~10V /2~10V (Safe side input); Load resistance: $\geq 500K \Omega$
传输精度 Transmission accuracy	0.2%
温度漂移 Temperature drift	50ppm (电压输出为 100ppm) 50ppm (Voltage output: 100ppm)
响应时间 Response time	5ms 达到最终值的 90% 5ms to reach 90% of final value
功耗 Power consumption	24V 电源, 20mA 输出时: $\leq 80mA$ (一进一出) $\leq 150mA$ (两进两出) 24V power supply, 20mA output: $\leq 80mA$ (one in, one out) $\leq 150mA$ (two in and two out)
供电电压 Power supply	20~35V DC

使用环境温度 Work temperature	-20℃~+60℃
储存温度 Storage temperature	-40℃~+80℃
相对湿度 Relative humidity	≤95%RH, 不结露, 无腐蚀性气体场所 ≤95%RH, no condensation, no corrosive gas place
海拔 Altitude	≤2500m
防护等级 Protection level	IP20
重量 Weight	约 110g (12.5mm 壳体) 约 150g (22.5mm 壳体) About 110g (12.5mm shell) About 150g (22.5mm shell)
安装方式 Installation method	导轨式安装 Guide rail installation
绝缘强度 Dielectric strength	本安端与非本安端≥2500V AC; 电源与非本安端≥500V AC Intrinsically safe end and non-intrinsically safe end ≥ 2500V AC; power supply and non-intrinsically safe end ≥ 500V AC

## 5 认证参数 Authentication Parameters

证书号 Certificate No	2023322316005039	
防爆标志 Explosion-proof signs	[Ex ia Ga] II C	
端子 Terminal	10、11 端子间 BM200-DV/I (V)-B11 10、11/14、15 端子间 BM200-DV/I (V)-C22 Between terminals 10 and 11 BM200-DV/I (V)-B11 Between terminals 10 and 11/14 and 15 BM200-DV/I (V)-C22	10、12 端子间 BM200-DV/I (V)-B11 10、12/14、16 端子间 BM200-DV/I (V)-C22 Between terminals 10 and 12 BM200-DV/I (V)-B11 Between terminals 10 and 12/14 and 16 BM200-DV/I (V)-C22
最大允许电压 Maximum allowable voltage	Um=250V	Um=250V
电压 Voltage	Uo=13.7V	Uo=15V
电流 Current	Io=3mA	Io=101mA

功率 Power	Po=11mW	Po=379mW
电容 Capacitance	II C: Co=0.79uF II B: Co=5.0uF II A: Co=18.1uF	II C: Co=0.58uF II B: Co=3.55uF II A: Co=14.0uF
电感 Inductance	II C: Lo=1H II B: Lo=1H II A: Lo=1H	II C: Lo=2.4mH II B: Lo=11mH II A: Lo=23mH

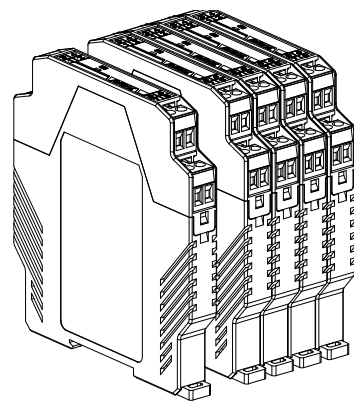
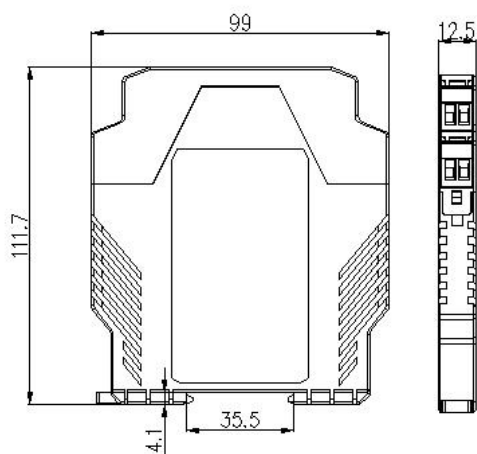
## 6 安装与接线 Install and wiring

### 6.1 外形尺寸 Outline dimension

产品分类 Product category	产品型号 Type of products	外形尺寸 Outline dimension
BM200	BM200-DV/I-B11、BM200-DV/V-B11	99mm*112mm*12.5mm
	BM200-DV/I-C22、BM200-DV/V-C22	99mm*112mm*22.5mm

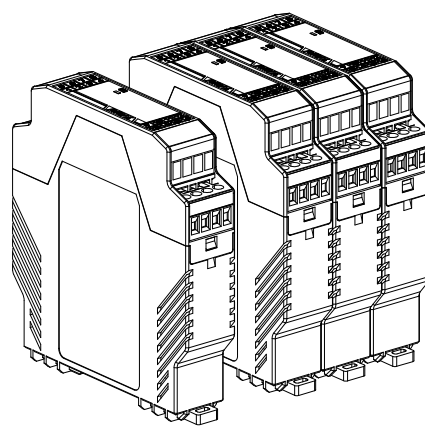
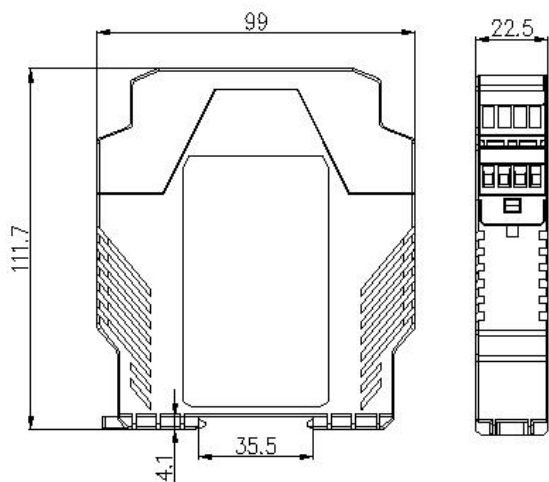
#### 6.1.1 BM200-DV/I-B11、BM200-DV/V-B11 壳体尺寸图:

BM200-DV/I-B11、BM200-DV/V-B11 outline dimension:



#### 6.1.2 BM200-DV/I-C22、BM200-DV/V-C22 壳体尺寸图:

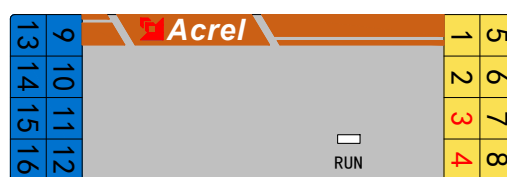
BM200-DV/I-C22、BM200-DV/V-C22 outline dimension:



6.1.3 前面板示意图 Schematic diagram of front panel



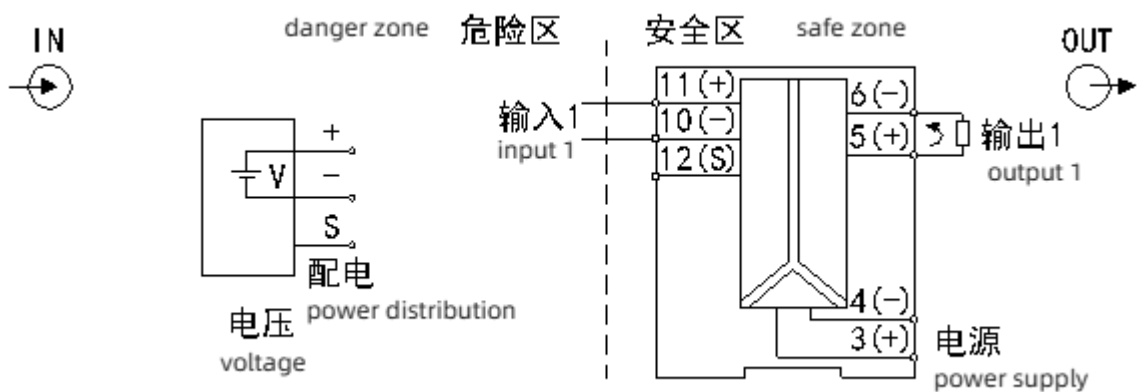
前面板 1: 外形 B, 24V 供电  
Front panel 1: case B, 24V Power supply



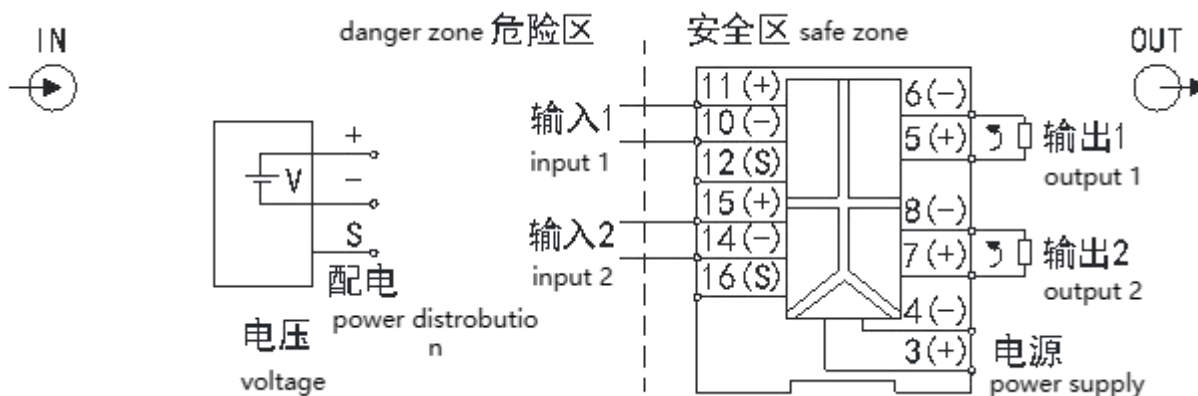
前面板 2: 外形 C, 24V 供电  
Front panel 2: case C, 24V Power supply

## 6.2 接线图 Wiring

### 6.2.1 BM200-DV/I-B11、BM200-DV/V-B11:



### 6.2.2 BM200-DV/I-C22、BM200-DV/V-C22:



## 7 注意事项 Precautions

- 7.1 本产品符合 GB/T 3836.1-2021《爆炸性环境 第1部分：设备 通用要求》和 GB/T 3836.4-2021《爆炸性环境 第4部分：由本质安全型“i”保护的 设备》标准，应在相应标准要求下进行安装、操作、维护。
- 7.2 本产品必须安装在安全区域，周围空气不含对铬、镍、银镀层起腐蚀作用的介质。
- 7.3 凡与安全栅连接的仪表，必须是具有防爆合格证的仪表，在安全栅与一次仪表组成本质安全防爆系统时，必须经国家指定的防爆检验认可
- 7.4 在未全部断开接线时，严禁用兆欧表直接测试端子之间的绝缘参数，否则会引起内部快速熔断器熔断。
- 7.5 安全栅本安侧电源等接线不得混接其他非本安侧线路，任何接错线可能会导致危险的发生，本产品本安端和非本安端电路配线，在行线槽中应当分开铺设。
- 7.6 仪表接线采用可拆卸的接线端子，导线采用横截面积大于 0.5mm<sup>2</sup> 的屏蔽线，本安侧应选用本安电缆。

7.1 This product complies with the standards of GB/T 3836.1-2021 "Explosive Environment Part 1: General Requirements for Equipment" and GB/T 3836.4-2021 "Explosive Environment Part 4: Equipment Protected by Intrinsically Safe "i" and should be Install, operate and maintain according to the requirements of corresponding standards.

7.2 This product must be installed in a safe area, and the surrounding air does not contain media that corrode chromium, nickel, and silver plating.

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

7.4 It is strictly forbidden to use a megohmmeter to directly test the insulation parameters between terminals when all wiring is not disconnected, otherwise it will cause the internal fast fuse to blow.

7.5 The intrinsically safe side power supply wiring of the safety barrier must not be mixed with other non-intrinsically safe side lines. Any wrong connection may cause danger. The intrinsically safe end and non-intrinsically safe end circuit wiring of this product should be in the line trough. Lay separately.

7.6 The instrument wiring uses detachable terminals, and the conductors use shielded wires with a cross-sectional area greater than 0.5mm<sup>2</sup>. The intrinsically safe side should use intrinsically safe cables.

## 8 应用实例 Application examples

举例 1 输入：1 路 0-5V，输出：1 路 0-20mA，工作电源：24V DC  
订货型号：BM200-DV/I-B11

举例 2 输入：2 路 0-10V，输出：2 路 0-5V，工作电源：24V DC  
订货型号：BM200-DV/V-C22

Example 1 Input: 1 channel 0-5V, output: 1 channel 0-20mA, working power supply: 24V DC  
Order model: BM200-DV/I-B11

Example 2 Input: 2 channels 0-10V, output: 2 channels 0-5V, working power supply: 24V DC  
Order model: BM200-DV/V-C22

说明书修订记录 Manual revision record

日期 Date	旧版本 Old version	新版本 New version	修改内容 Modify content
2022.12.12	V1.1	V1.2	1. 修改 5 认证参数部分电感参数值 1. Modify some inductor parameter values in 5 certification parameters
2023.02.15	V1.2	V1.3	1. 增加 5 认证参数部分证书号 2. 删除 6.1.1 部分实物图，改为轴视图 1. Add 5 certification parameters and part of the certificate number 2. Delete part of the physical diagram in 6.1.1 and change it to axis view

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