

## BM200-DI 系列隔离式安全栅

## BM200-DI Series Isolated Safety Barrier

安装使用说明书 V1.3

Installation and Operation Manual V1.3

安科瑞电气股份有限公司

Acrel Co., Ltd

# 申 明

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# 1 概述

## 1 Overview

BM200 系列隔离式安全栅给危险区的变送器提供电源，变送器产生的电流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。可用在电流源、二线制、三线制变送器设备。

The BM200 series isolation safety barrier provides power to the transmitter in the hazardous area. The current 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 used in current source, two-wire and three-wire transmitter equipment.

# 2 执行标准

## 2 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》

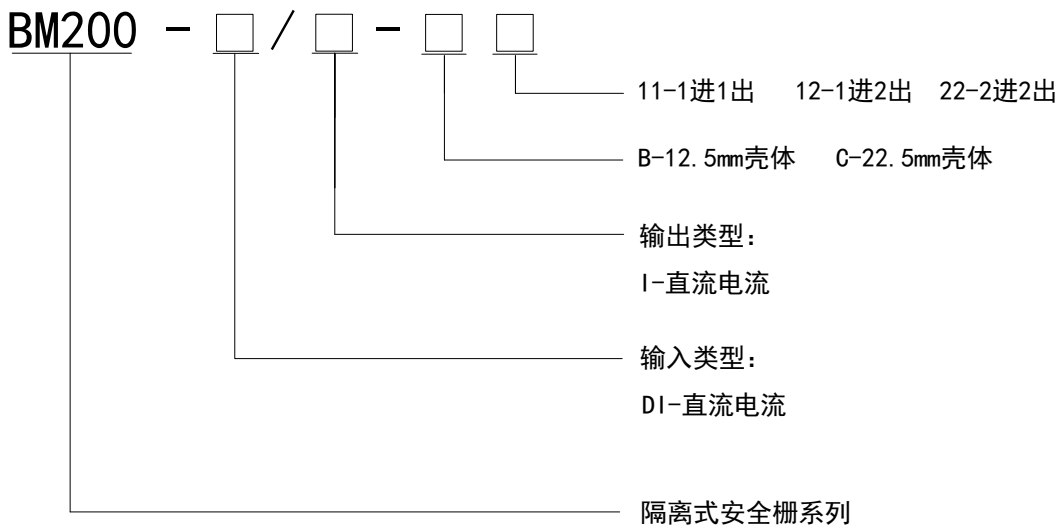
GB/T 3836.4-2021 《Explosive atmospheres Part 4: Equipment protected by intrinsically safe "i"》

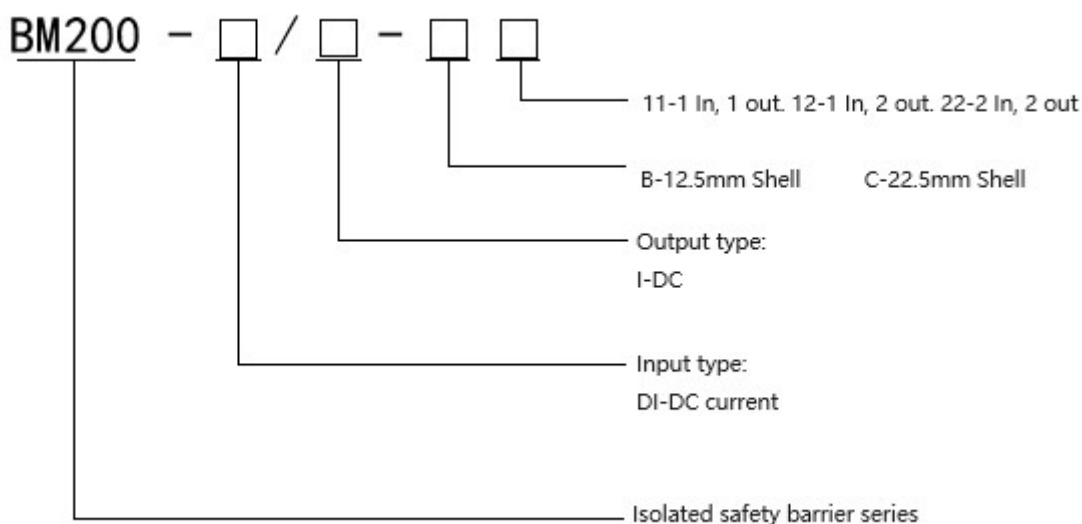
GB/T 28471.1-2012 《Isolated safety barriers for industrial process measurement and control systems - Part 1: General technical conditions》

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

## 3 Product model





## 4 技术参数

### 4 Technical Parameter

型号 Type	BM200-DI/I-B11、BM200-DI/I-C12、BM200-DI/I-C22
通道类型 Channel type	1 进 1 出、1 进 2 出、2 进 2 出 1 in 1 out, 1 in 2 out, 2 in 2 out
输入类型 Input type	电流型 Current
输入信号 Output signal	0~20mA /4~20mA (配电电压: 14.0V/20mA) 0~20mA/4~20mA (Distribution voltage: 14.0V/20mA)
输出信号 Output Signal	0~20mA /4~20mA (安全侧输出); 负载电阻: ≤550Ω 0~20mA /4~20mA (safety side output); Load resistance: ≤550 Ω
传输精度 Transmission accuracy	0.2%
温度漂移 Temperature drift	50ppm
响应时间 Response time	5ms 达到最终值的 90% 5ms to reach 90% of final value
供电电压 Supply voltage	20~35V DC
功耗 Consumption	24V 电源, 20mA 输出时: ≤70mA (一进一出) ≤110mA (一进两出) ≤160mA (两进两出) 24V power supply, 20mA output: ≤70mA (one in, one out) ≤110mA (one in, two out) ≤160mA (two in and two out)
使用环境温度 Working 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	导轨式安装 Din-rail mounted
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

### 5 Authentication parameter

证书号 Certificate No.	2023322316005036
防爆标志 Explosion-proof signs	[Ex ia Ga] II C
端子 Terminal	10、11、12 端子间 BM200-DI/I-B11 14、15、16 端子间 BM200-DI/I-C12 10、11、12/14、15、16 端子间 BM200-DI/I-C22 Between terminals 10, 11, 12 BM200-DI/I-B11 Between terminals 14, 15, 16 BM200-DI/I-C12 10, 11, 12/14, 15, 16 terminals BM200-DI/I-C22
最大允许电压 Maximum allowable voltage	Um=250V
电压 Voltage	Uo=27.9V
电流 Current	Io=93mA
功率 Power	Po=650mW
电容 Capacitance	II C: Co=0.084uF II B: Co=0.654uF II A: Co=2.16uF
电感 Inductance	II C: Lo=6mH II B: Lo=20mH II A: Lo=50mH

## 6 安装与接线

### 6 Installation and wiring

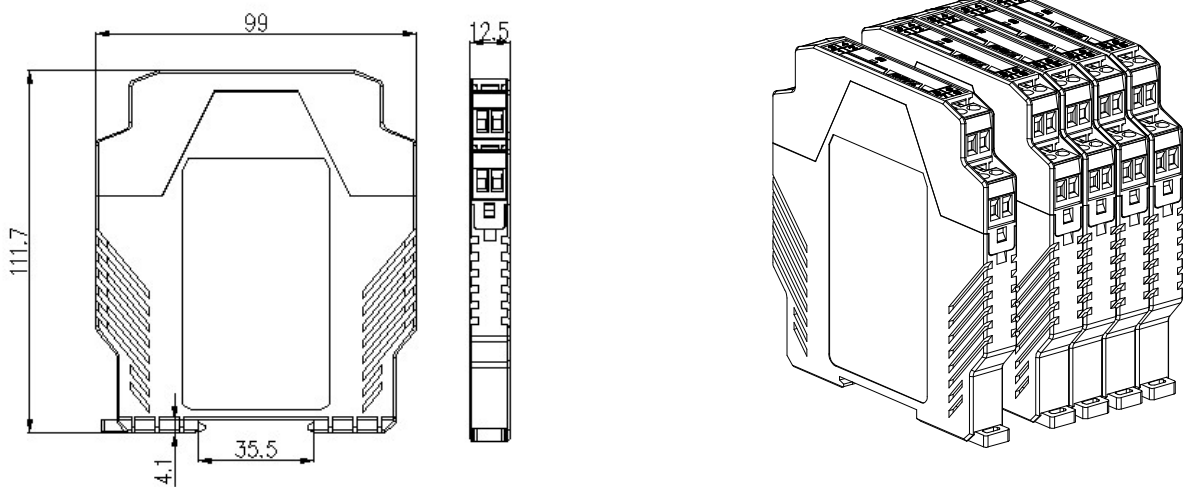
#### 6.1 外形尺寸

##### 6.1 Dimension

产品分类 Product Categories	产品型号 Product number	外形尺寸 Dimensions
BM200	BM200-DI/I-B11	99mm*112mm*12.5mm
	BM200-DI/I-C12、BM200-DI/I-C22	99mm*112mm*22.5mm

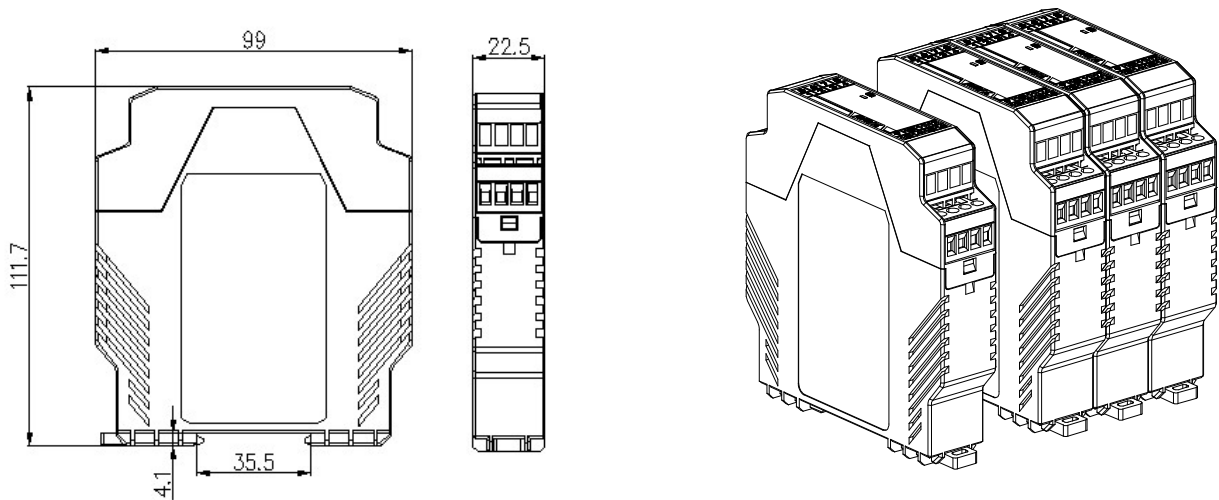
##### 6.1.1 BM200-DI/I-B11 壳体尺寸图:

##### 6.1.1 BM200-DI/I-B11 shell dimensions:



##### 6.1.2 BM200-DI/I-C12、BM200-DI/I-C22 壳体尺寸图:

##### 6.1.2 BM200-DI/I-C12, BM200-DI/I-C22 shell dimensions:



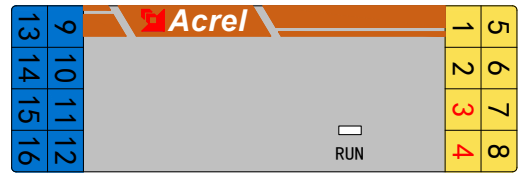
##### 6.1.3 前面板示意图

##### 6.1.3 Front panel diagram



前面板 1: 外形 B, 24V 供电

Front panel 1: Shape B, 24V power supply



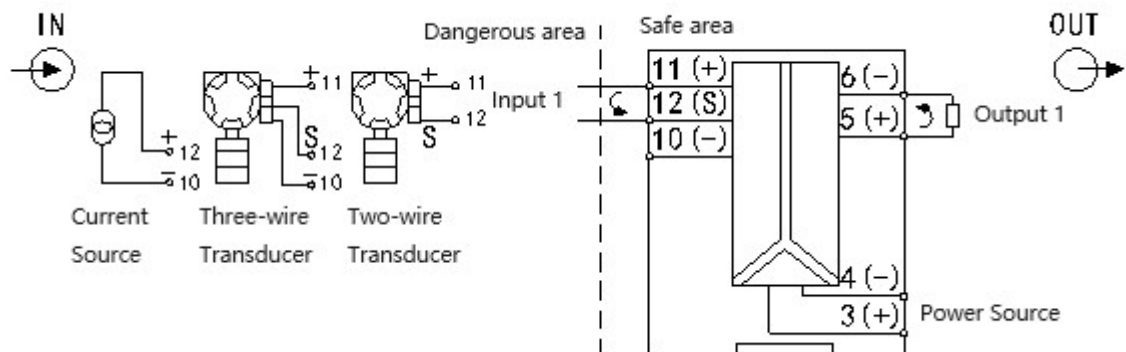
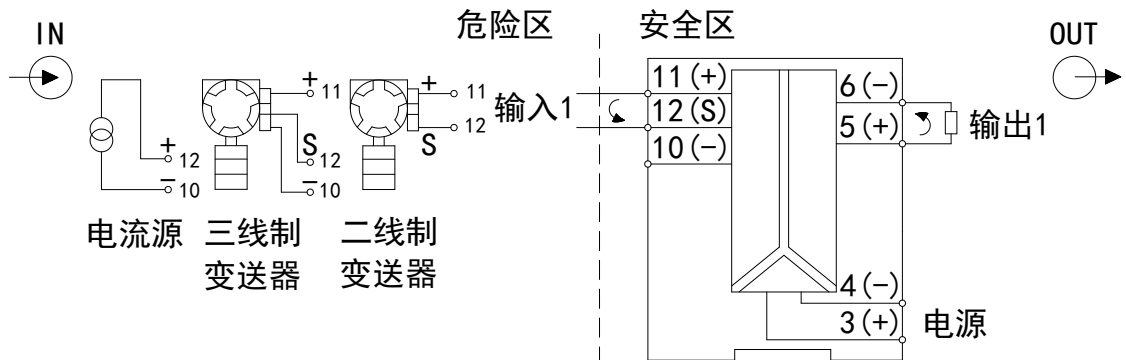
前面板 2: 外形 C, 24V 供电

Front panel 2: Shape C, 24V power supply

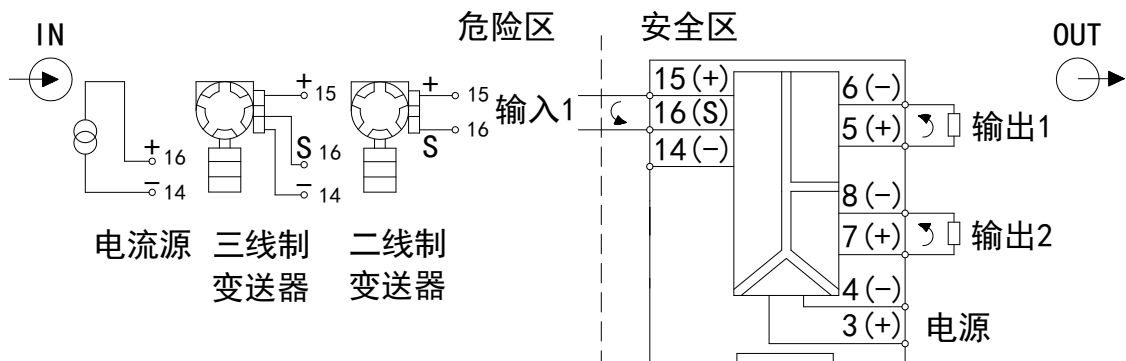
## 6.2 接线图

### 6.2 Wiring diagram

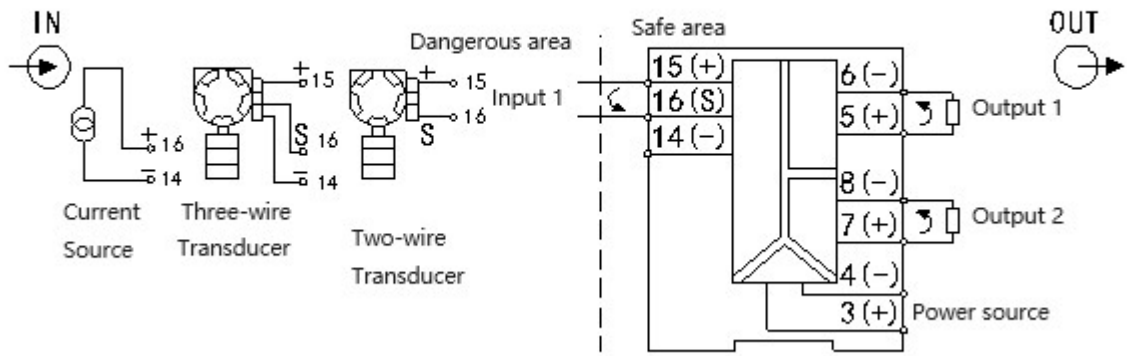
#### 6.2.1 BM200-DI/I-B11:



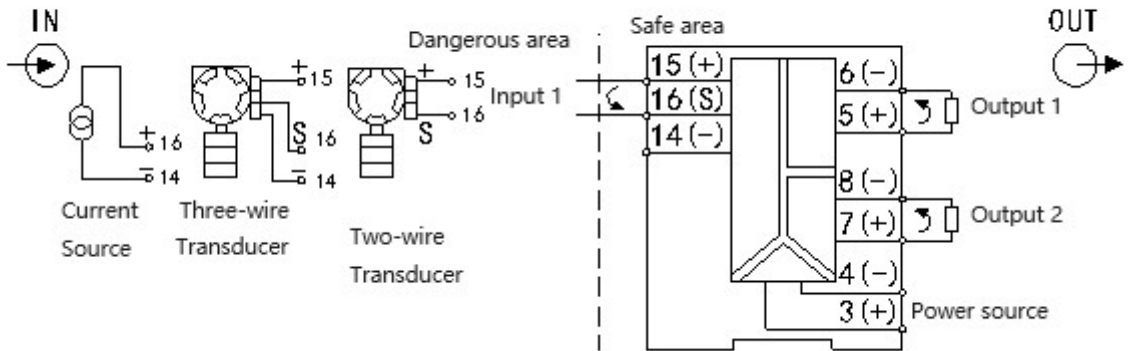
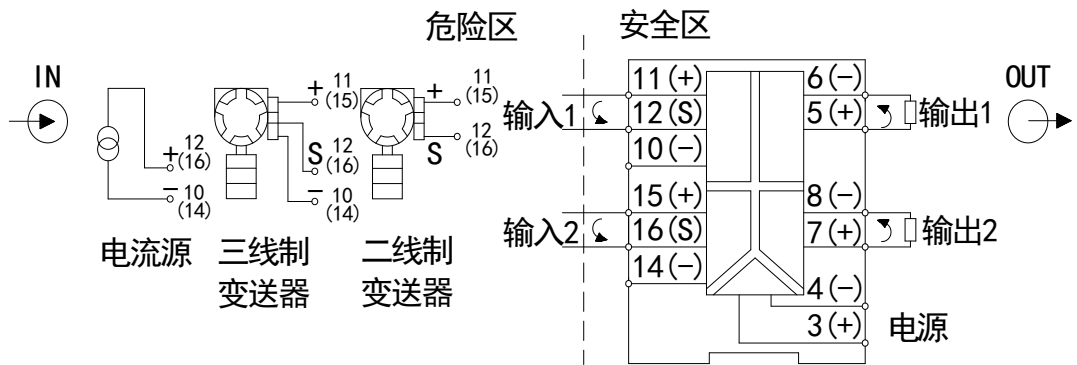
#### 6.2.2 BM200-DI/I-C12:







6.2.3 BM200-DI/I-C22:



7 注意事项

7 Precaution

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”保护的的设备》标准，应在相应标准要求下进行安装、操作、维护。

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 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。

7.2 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 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
- 7.3 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 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。
- 7.4 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 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。
- 7.5 The intrinsically safe side power supply wiring of the safety barrier must not be mixed with other non-intrinsically safe side lines. Any wrong wiring 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 仪表接线采用可拆卸的接线端子，导线采用横截面积大于  $0.5\text{mm}^2$  的屏蔽线，本安侧应选用本安电缆。
- 7.6 The instrument wiring uses detachable terminal blocks, and the conductors use shielded wires with a cross-sectional area greater than  $0.5\text{mm}^2$ . The intrinsically safe cable should be used on the intrinsically safe side.

## 8 应用实例

### 8 Example

- 举例 1 输入：1 路 4-20mA，输出：2 路 4-20mA，工作电源：24V DC  
订货型号：BM200-DI/I-C12
- 举例 2 输入：1 路 0-20mA，输出：1 路 0-20mA，工作电源：24V DC  
订货型号：BM200-DI/I-B11

Example 1 Input: 1 channel 4-20mA, output: 2 channels 4-20mA, working power supply: 24V DC  
Order model: BM200-DI/I-C12

Example 2 Input: 1 channel 0-20mA, output: 1 channel 0-20mA, working power supply: 24V DC  
Order model: BM200-DI/I-B11

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

总部：安科瑞电气股份有限公司

地址：上海市嘉定区育绿路 253 号

电话：0086-21-69158338 0086-21-69156052 0086-21-59156392 0086-21-69156971

传真：0086-21-69158303

网址：www.acrel.cn

邮箱：ACREL001@vip.163.com

邮编：201801

生产基地：江苏安科瑞电器制造有限公司

地址：江苏省江阴市南闸街道东盟工业园区宏图路 31 号

电话：0086-510-86179966

传真：0086-510-86179975

网址：www.jsacrel.cn

邮箱：sales@email.acrel.cn

邮编：214405

Headquarter: Acrel Co., LTD.

Address: No.253 Yulv Road Jiading District, Shanghai, China

TEL.: 0086-21-69158338 0086-21-69156052 0086-21-59156392 0086-21-69156971

Fax: 0086-21-69158303

Web-site: [www.acrel.cn](http://www.acrel.cn)

Email: ACREL008@vip.163.com

Postcode: 201801

Manufacturer: Jiangsu Acrel Electrical Manufacturing Co., LTD.

Address: No.5 Dongmeng Road,Dongmeng industrial Park, Nanzha Street,Jiangyin

TEL: 0086-510-86179966

Fax: 0086-510-86179975

Web-site: www.jsacrel.cn

Email: sales@email.acrel.cn

Postcode: 214405