506

Series BM100 Signal Isolator

Installation and Operation Instruction V1.3

Acrel Co . , Ltd.

DECLARATION

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.

CONTENTS

1 General

BM100 series signal isolators can measure the electrical parameters such as current and voltage or non-electrical parameters such as temperature and resistance at high speed and accurately, and can be converted into standard analog signal output after the isolation device. It can be directly connected with pointer meter and digital display meter, and can also be connected with automatic control instrument (such as PLC), various A/D converters and computer systems. It is widely used in electric power, railway, petrochemical, metallurgy, chemical industry, food, warehousing and other industries.

2 Executive standard

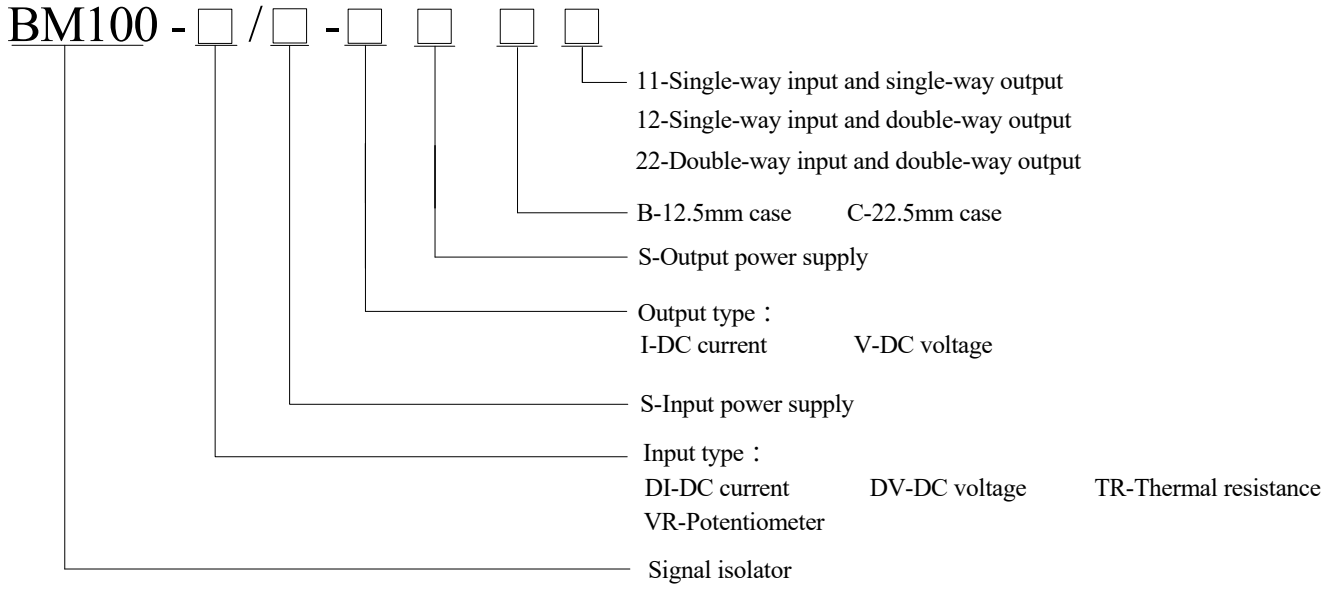
GB/T 18271.1-2017 "Process measurement and control devices-General methods and procedures for evaluating performance-Part 1:General considerations"

GB/T 18271.2-2017 "Process measurement and control devices-General methods and procedures for evaluating performance-Part 2:Tests under reference conditions"

GB/T 18271.3-2017 "Process measurement and control devices-General methods and procedures for evaluating performance-Part 3:Tests for the effects of influence quantities"

GB/T 18271.4-2017 "Process measurement and control devices-General methods and procedures for evaluating performance-Part 4:Evaluation report content"

3 Type of products



4 Technical parameter

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/Voltage/Thermal resistance Pt100/Resistance
Input signal	DC 0~20mA /4~20mA DC 0~5V /1~5V /0~10V Pt100(Minimum range: 50℃) 0~10KΩ(Minimum range: 1KΩ)

Output signal	DC 0~20mA /4~20mA ; Load resistance: ≤550Ω DC 0~5V /1~5V; Load resistance: ≥330KΩ Load resistance: ≥30KΩ(Pt100/Resistance input) DC 0~10V /2~10V; Load resistance: ≥500KΩ Load resistance: ≥30KΩ(Pt100/Resistance input)
Transmission accuracy	0.2%
Temperature modulus	50ppm/℃ (Voltage output: 100ppm/℃)
Response time	5ms to reach 90% of final value (RTD Pt100/resistance input: 1s to reach 90% of final value）
Power supply	20~35V DC or 85~265V AC/DC
Work temperature	-20℃~+60℃
Fix mode	Rail installation
Dielectric strength	≥1500V AC/1 min (Among input//output//power supply)

5 List of model selection

Analog signal input																	
Current input																	
Type	passageway			Input type			Input signal		Output type			Output signal				Power supply		
	one in one out	one in two out	two in two out	2-wire transmitter	3-wire transmitter	Current source	DC 0~20mA	DC 4~20mA	None loop power supply	Input loop power supply	Output loop power supply	DC 0~20mA	DC 4~20mA	DC 0/1~5V	DC 0/2~10V	DC 20~35V	AC/DC 85~265V	none
BM100-DI/I-B11	■			■	■	■	▲	■	■			▲	■			■		
BM100-DI/I-B11 (only current source)	■					■	■		■				■			■		
BM100-DI/I-C11	■					■	■	■	■			■	■				■	
BM100-DIS/I-B11	■					■	■	■		■		■	■					■
BM100-DI/IS-B11	■					■	■	■			■	■	■					■
BM100-DI/I-C12		■		■	■	■	▲	■	■			▲	■			■	■	
BM100-DI/I-C12 (only current source)		■				■	■		■			■	■			■		
BM100-DI/I-C22			■	■	■	■	▲	■	■			▲	■			■	■	
BM100-DI/I-C22 (only current source)			■			■	■		■			■	■			■		
BM100-DIS/I-C22			■			■	■	■		■		■	■					■
BM100-DI/IS-C22			■			■	■	■			■	■	■					■
BM100-DI/V-B11	■					■	■		■					■	■	■		
BM100-DI/V-C11	■					■	■		■					■	■		■	
BM100-DI/V-C12		■				■	■		■					■	■	■	■	
BM100-DI/V-C22			■			■	■		■					■	■	■	■	

Ps: The same shape indicates the corresponding input and output.

Analog signal input															
Voltage input															
Type	passageway			Input signal				Output signal						Power supply	
	one in one out	one in two out	two in two out	DC 0~5V	DC 1~5V	DC 0~10V	DC 2~10V	DC 0~20mA	DC 4~20mA	DC 0~5V	DC 1~5V	DC 0~10V	DC 2~10V	DC 20~35V	AC/DC 85~265V
BM100-DV/I-B11	■			■		■		■	■					■	
BM100-DV/I-C11	■			■	■	■	■	■	■						■
BM100-DV/I-C12		■		■			■	■	■					■	
BM100-DV/I-C22			■	■			■	■	■					■	
BM100-DV/V-B11	■			■	■	■	■			■	■	■	■	■	
BM100-DV/V-C11	■			■	■	■	■			■	■	■	■		■
BM100-DV/V-C12		■		■		■				■	■	■	■	■	
BM100-DV/V-C22			■	■		■				■	■	■	■	■	

Temperature signal input												
RTD input												
Type	passageway			Input signal	Input range	Output signal						Power supply
	one in one out	one in two out	two in two out	PT100	-200～850℃	DC 0～20mA	DC 4～20mA	DC 0～5V	DC 1～5V	DC 0～10V	DC 2～10V	DC 20～35V
BM100-TR/I-B11	■			■	■	■	■					■
BM100-TR/I-C12		■		■	■	■	■					■
BM100-TR/I-C22			■	■	■	■	■					■
BM100-TR/V-B11	■			■	■			■	■	■	■	■
BM100-TR/V-C12		■		■	■			■	■	■	■	■
BM100-TR/V-C22			■	■	■			■	■	■	■	■

Ps:The minimum range of PT100 input is 50℃.

Resistance signal input													
Potentiometer input													
Type	passageway			Input signal	Input range		Output signal						Power supply
	one in one out	one in two out	two in two out	Potentiometer	0 ～ 5KΩ	0 ～ 10KΩ	DC 0～ 20mA	DC 4～ 20mA	DC 0～ 5V	DC 1～ 5V	DC 0～ 10V	DC 2～ 10V	DC 20～ 35V
BM100-VR/I-B11	■			■	■	■	■	■					■
BM100-VR/I-C12		■		■	■	■	■	■					■
BM100-VR/I-C22			■	■	■	■	■	■					■
BM100-VR/V-B11	■			■	■	■			■	■	■	■	■
BM100-VR/V-C12		■		■	■	■			■	■	■	■	■
BM100-VR/V-C22			■	■	■	■			■	■	■	■	■

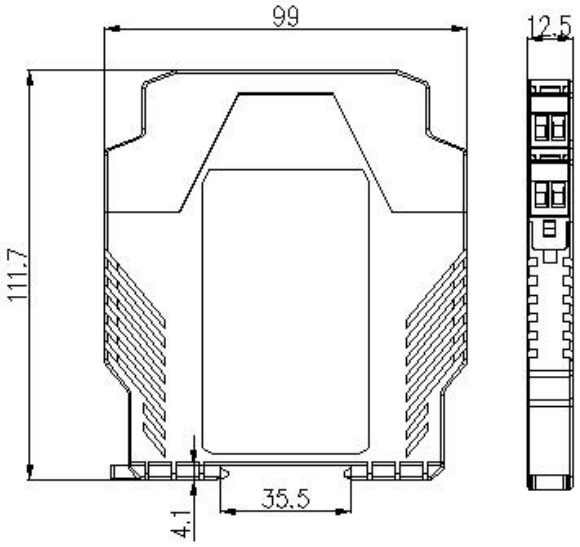
Ps:The minimum range of Potentiometer input is 1k.

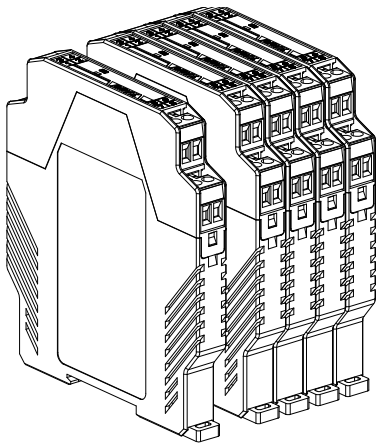
6 Install and wiring

6.1 Outline dimension

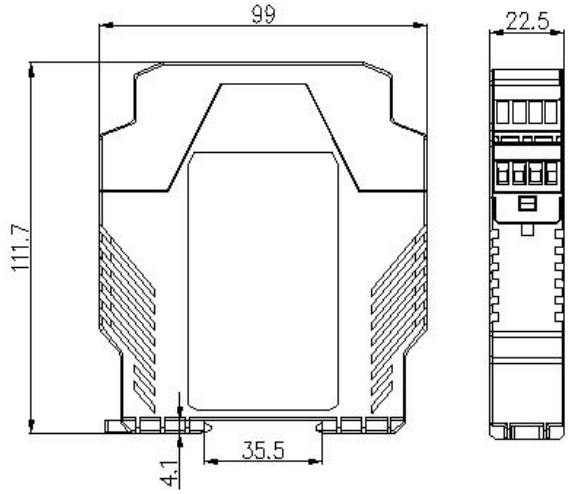
Product category	Type of products	Outline dimension
BM100	BM100-□□/□-B□□	99mm*112mm*12.5mm
	BM100-□□/□-C□□	99mm*112mm*22.5mm

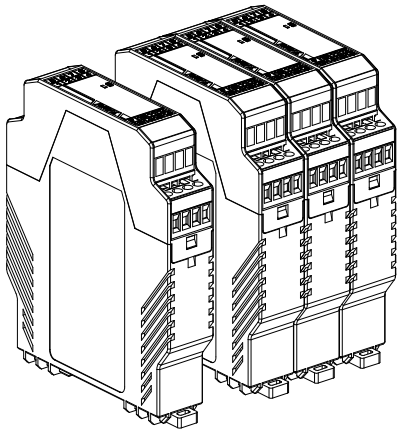
6.1.1 BM100-□□/□-B□□ outline dimension:



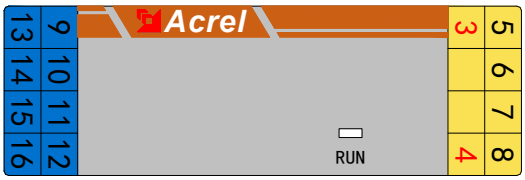


6.1.2 BM100-□□/□-C□□ outline dimension:

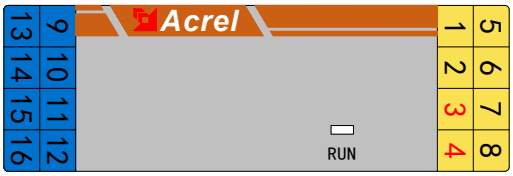




6.1.3 Schematic diagram of front panel



Front panel 1: case C, 220V Power supply



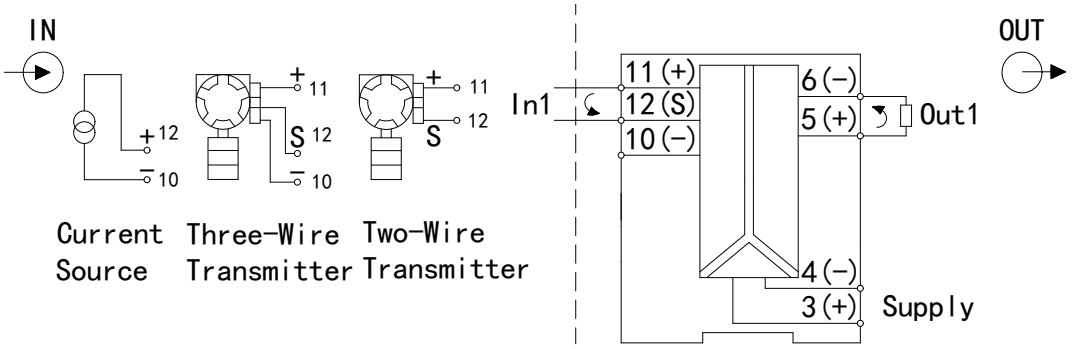
Front panel 2: case C, 24V Power supply

Front panel 3: case B, 24V Power supply

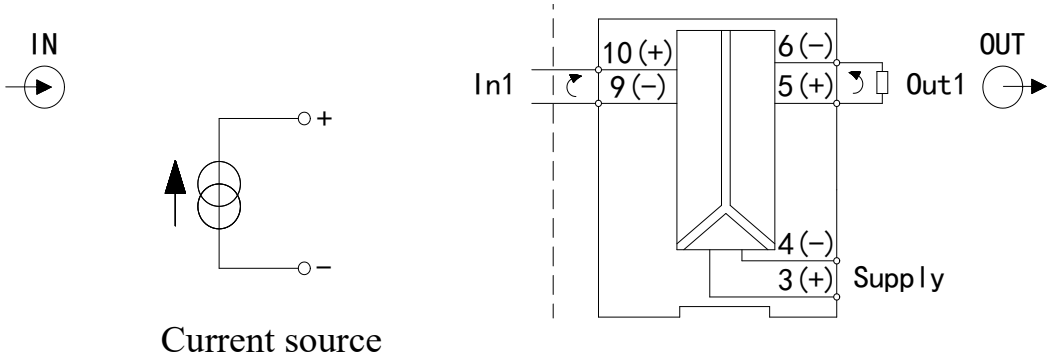
Front panel 4: case B, loop power supply and passive

6.2 Wiring

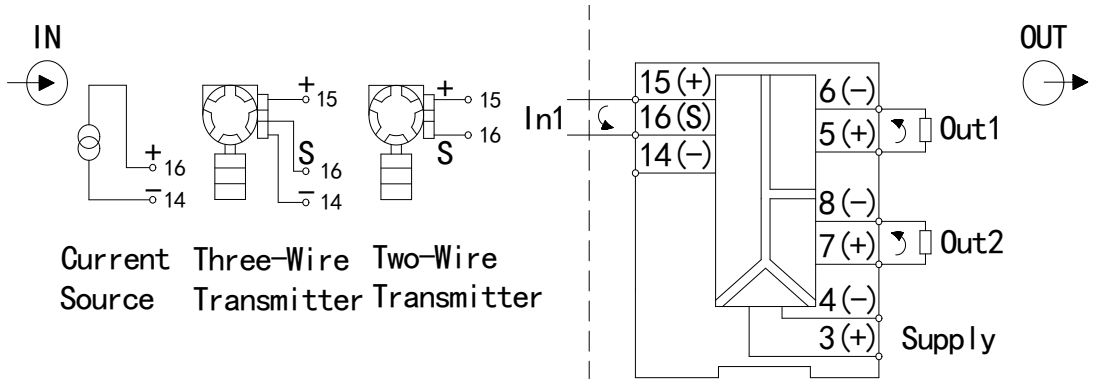
6.2.1BM100-DI/I-B11 (Power supply: 24V, with power distribution)：



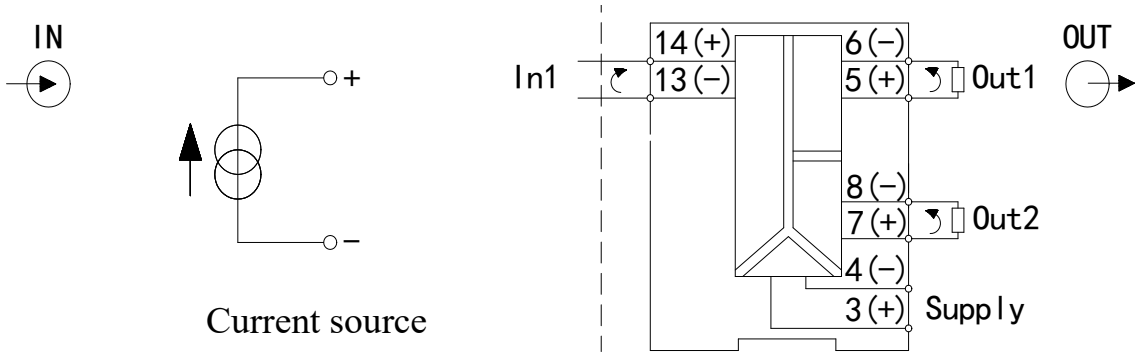
6.2.2 BM100-DI/□-B11 (Power supply: 24V, only current source input)：



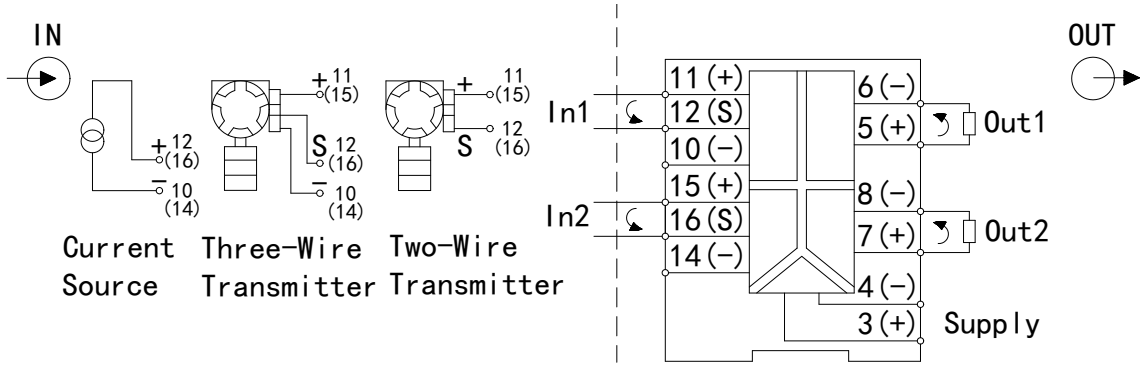
6.2.3 BM100-DI/□-C12 (Power supply: 24V, with power distribution)：



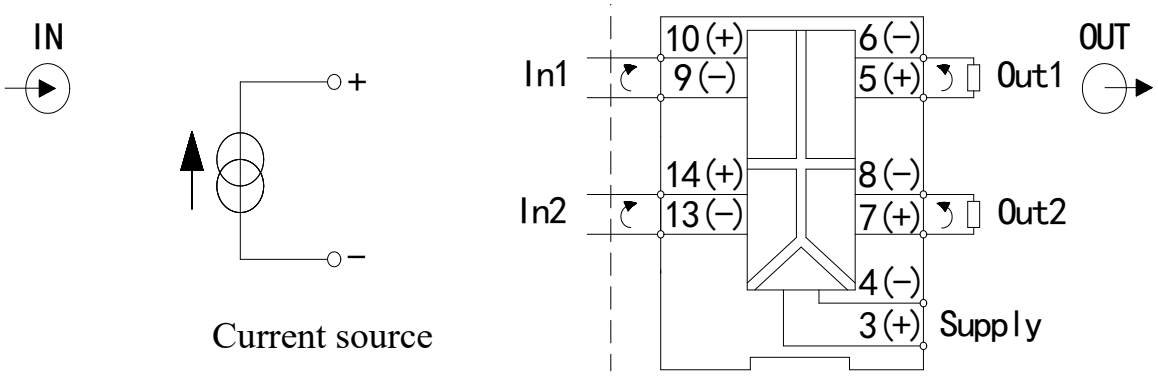
6.2.4 BM100-DI/□-C12 (Power supply: 24V, only current source input)：



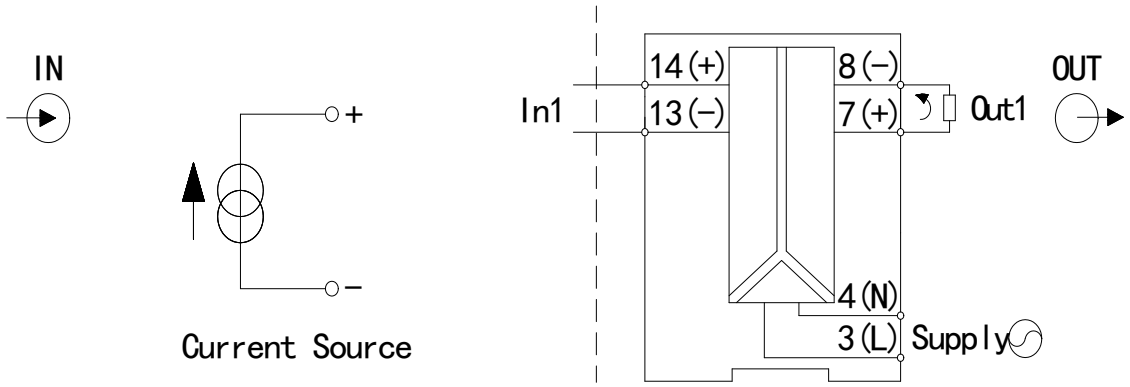
6.2.5 BM100-DI/□-C22 (Power supply: 24V, with power distribution)：



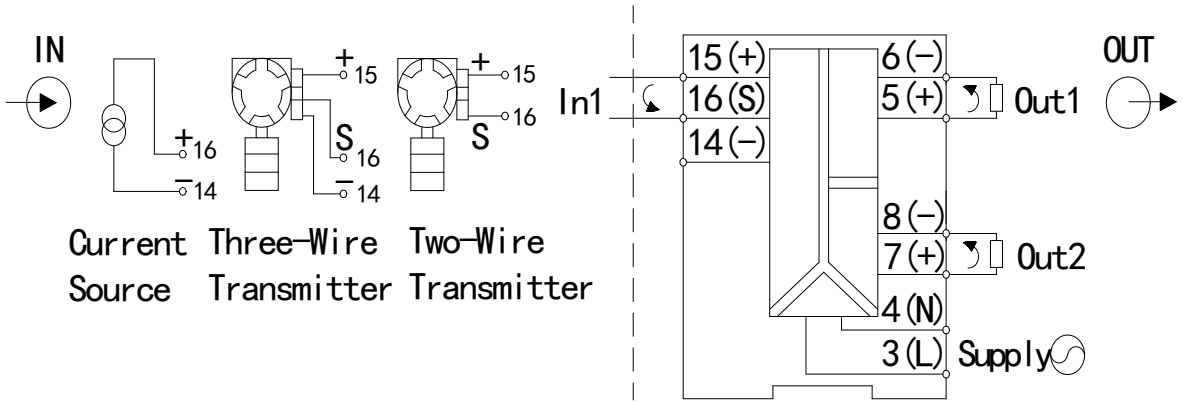
6.2.6 BM100-DI/□-C22 (Power supply: 24V, only current source input)：



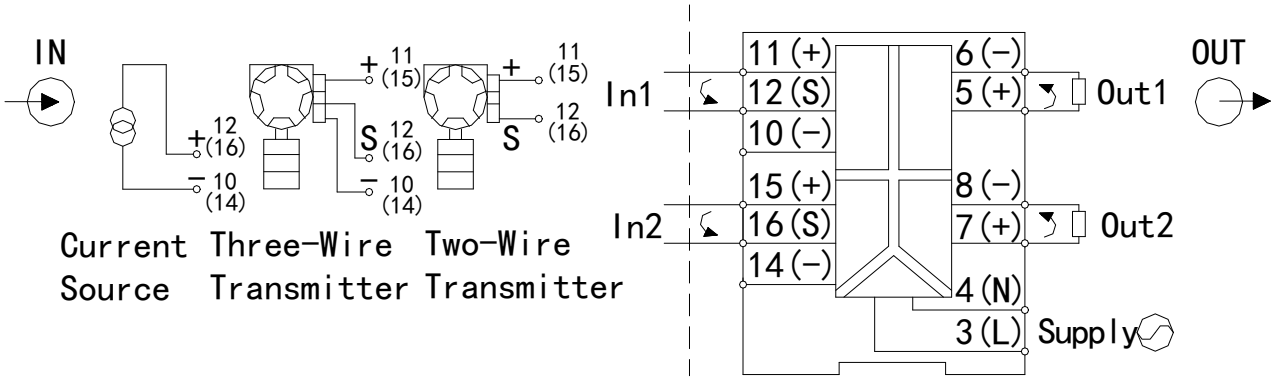
6.2.7 BM100-DI/□-C11(Power supply : 220V)：



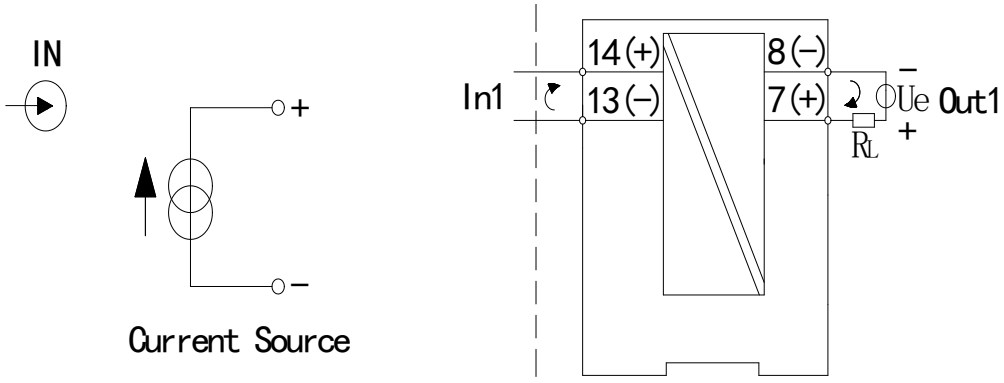
6.2.8 BM100-DI/□-C12(Power supply : 220V)：



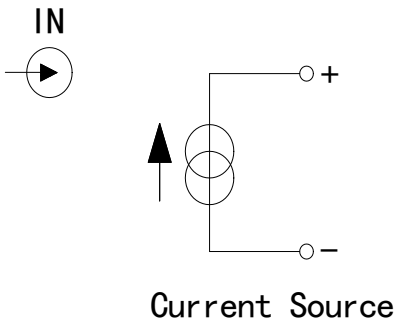
6.2.9 BM100-DI/□-C22(Power supply : 220V)：

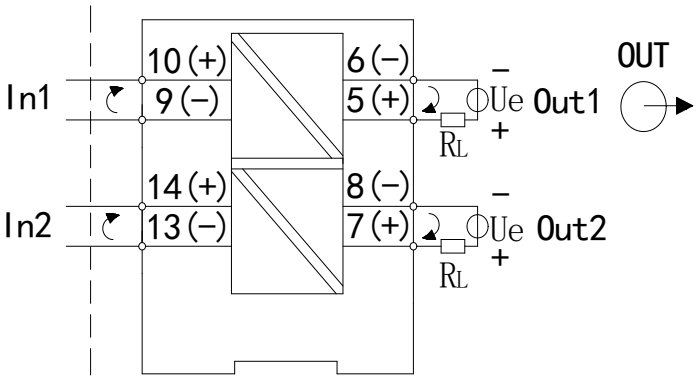


6.2.10 BM100-DI/IS-B11：

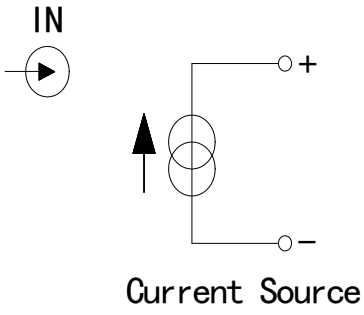


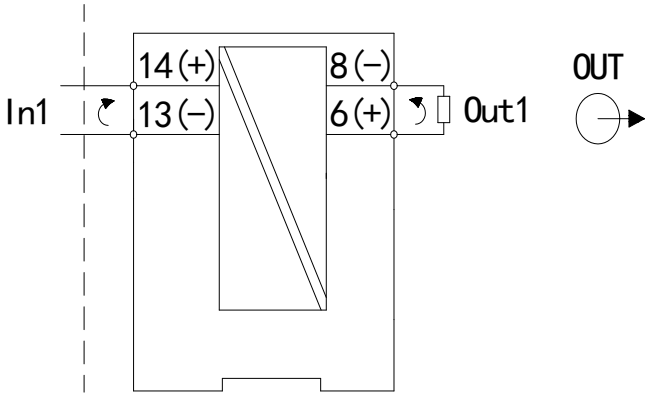
6.2.11 BM100-DI/IS-B22：



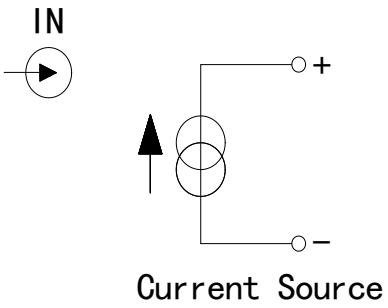


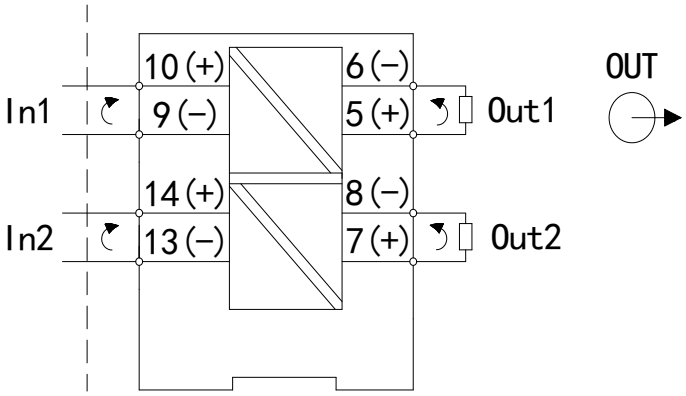
6.2.12 BM100-DIS/I-B11：



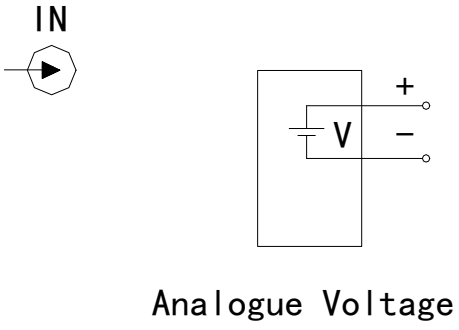


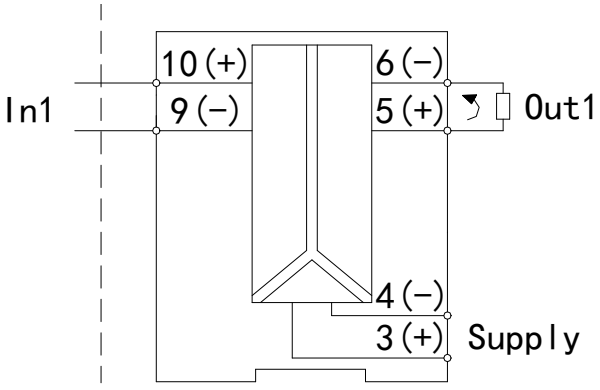
6.2.13 BM100-DIS/I-B22：



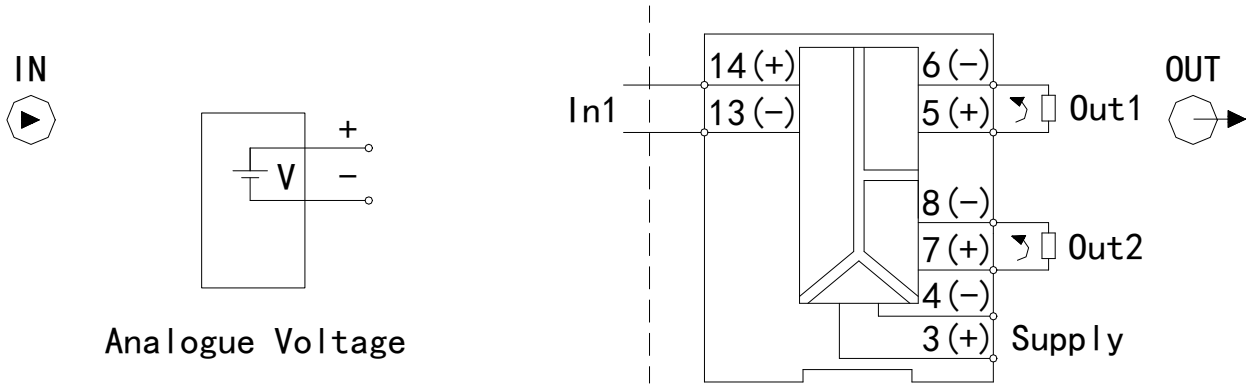


6.2.14 BM100-DV/□-B11:

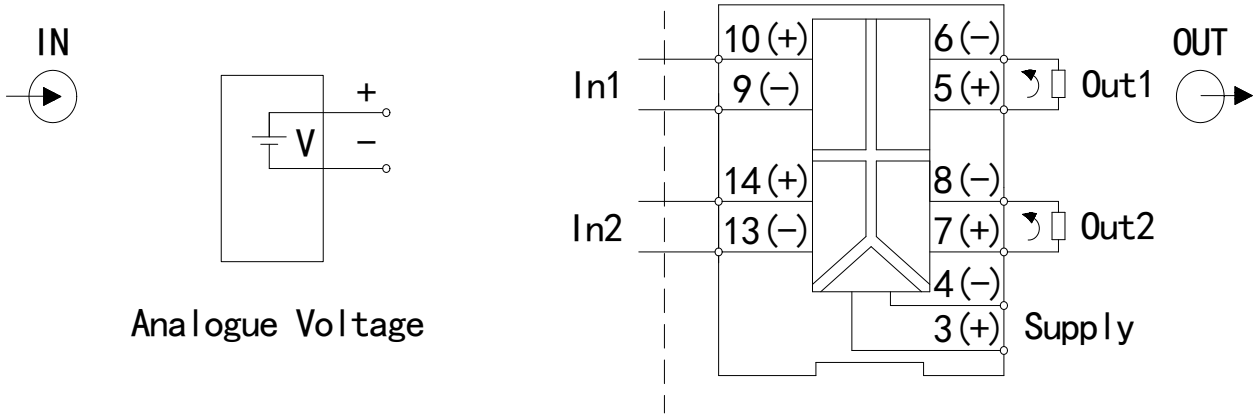




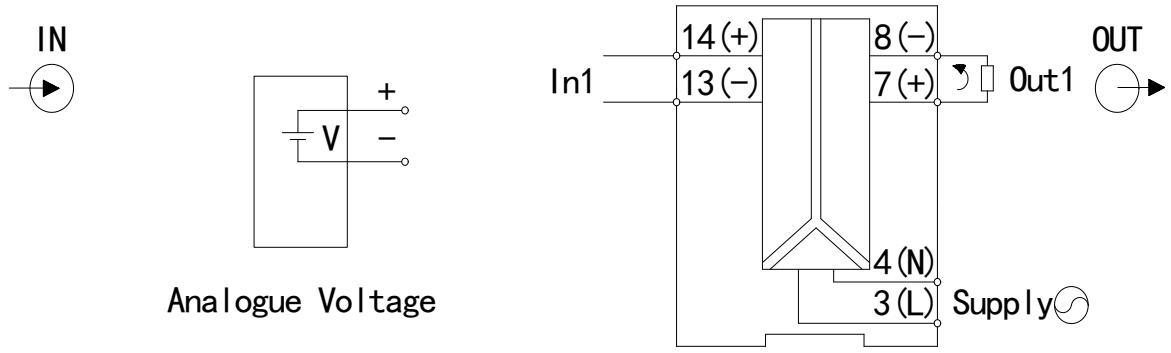
6.2.15 BM100-DV/□-C12:



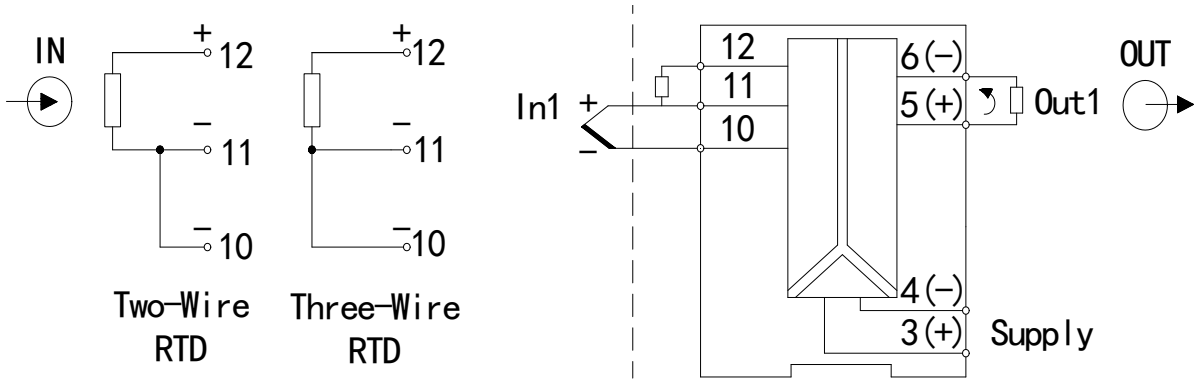
6.2.16 BM100-DV/□-C22:



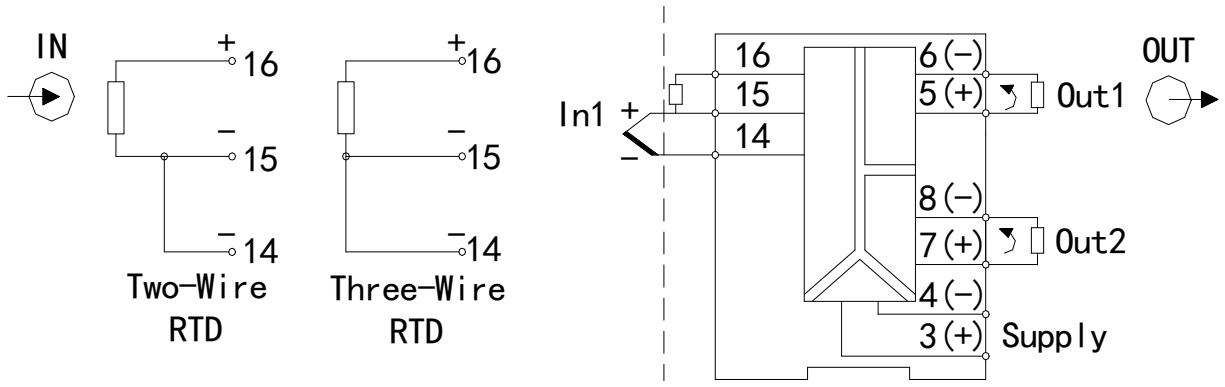
6.2.17 BM100-DV/□-C11(Power supply : 220V):



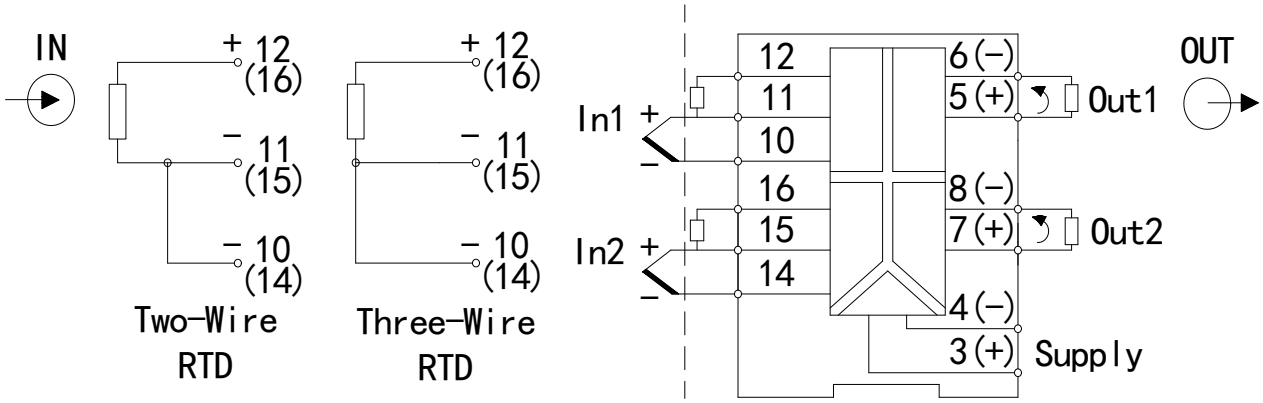
6.2.18 BM100-TR/□-B11:



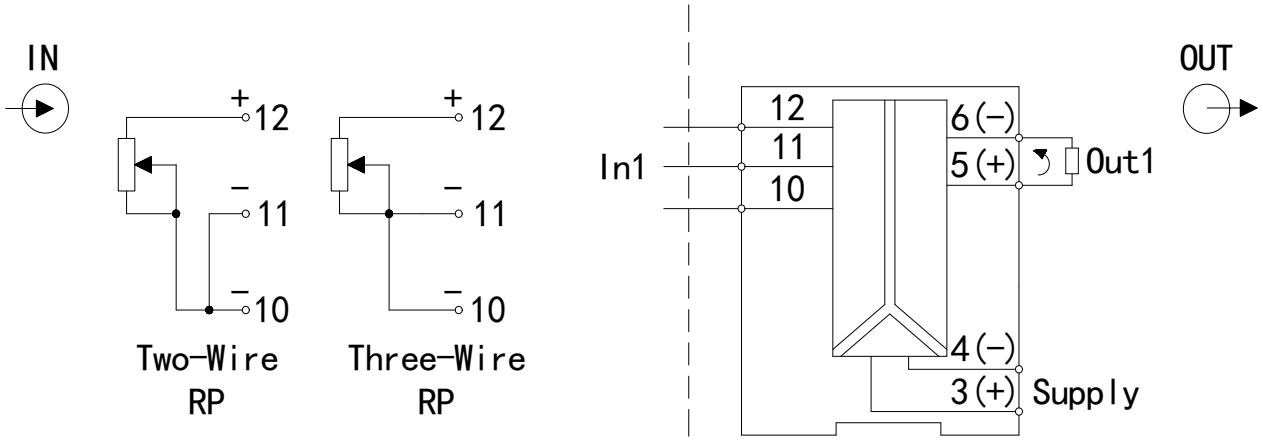
6.2.19 BM100-TR/□-C12:



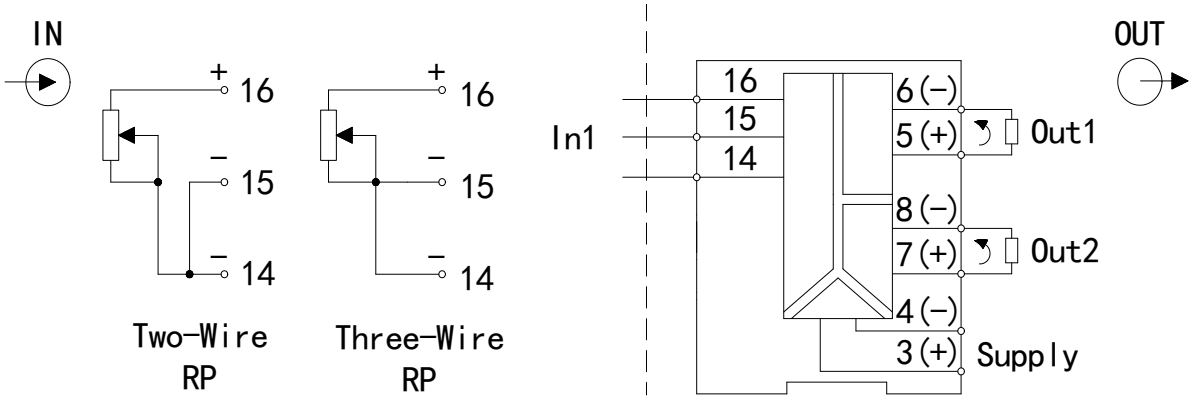
6.2.20 BM100-TR/□-C22:



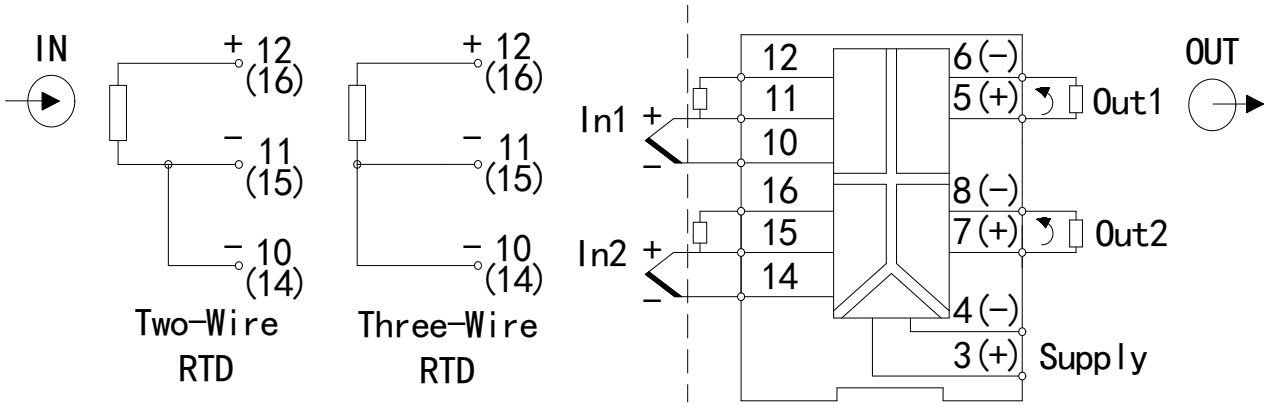
6.2.21 BM100-VR/□-B11:



6.2.22 BM100-VR/□-C12:



6.2.23 BM100-VR/□-C22:



7 Precautions

7.1 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.

7.2 The input signal type of the two-in-two-out instrument can only select voltage or current signal at the same time.

7.3 Switching between current output and voltage output is not possible, it needs to be done by changing the hardware, please specify clearly when ordering.

7.4 the instrument wiring adopts detachable terminal, and the conductor is recommended to use shielded wire with a cross-sectional area of 0.5mm^2 ~2.5mm^2 .

8 Application examples

E.g.1 Input: single-way 4-20mA , output: double-way 4-20mA , power supply: 24V DC
Type: BM100-DI/I-C12

E.g.2 Input: single-way 0-5V, output: double-way 0-20mA , power supply: 220V AC
Type: BM100-DV/I-C12 (Remarks: 220V)

E.g.3 Input: double-way PT100, output: double-way 0-20mA , power supply: 24V DC
Type: BM100-TR/I-C22

E.g.4 Input: single-way4-20mA, output: single-way 4-20mA , power supply: none
Type: BM100-DIS/I-B11

E.g.5 Input: double-way 4-20mA, output: double-way 4-20mA , loop power supply.
Type: BM100-DI/IS-B22

Headquarters: 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-electric.com
E-mail: ACREL008@vip.163.com
Postcode: 201801

Manufacturer: Jiangsu Acrel Electrical Manufacturing Co., LTD.
Address: No.5 Dongmeng Road,Dongmeng industrial Park, Nanzha Street,Jiangyin City,Jiangsu Province,China
TEL：0086-510-86179966
Fax：0086-510-86179975
Web-site: www.jsacrel.com
Postcode: 214405
E-mail: sales@email.acrel.cn