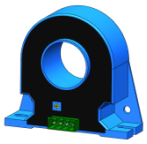
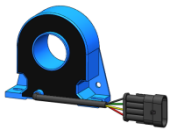
Hall effect Current Sensor

SCB12T, SCB12VT, SCB12R

Product description

Features

- Based on Hall effect measurement principle, close loop circuit mode.
- The isolation voltage between primary and secondary is greater than 3000VAC.
- Comply with UL94-V0 flame retardant rating.

Performance

- It can measure DC, AC, pulse, and various irregular waveform currents of cable conductors under isolation conditions.
- Very low temperature drift, zero drift, fast response time, good linearity, accuracy can reach 0.1%.
- Dynamic performance (di/dt and response time) is optimal when the busbar is fully filled with primary perforations.
- Strong ability to resist external electromagnetic interference (BCI, EFT, CS, CE, ESD, dv/dt, etc.).

Application

- It can be widely used in inverters, UPS, photovoltaic inverters, electric vehicle drives, high-frequency power supplies, inverter welding machines and other products.

Implementation standards

- GB/T 7665-2005
- JB/T 7490-2007
- JB/T 25480-2010
- JB/T 9473-2020
- SJ 20792-2000

Certification

SCB12T

Technical Parameters

Model / Parameters（25℃）	SCB12T-			
	100A	200A	300A	500A
Primary Current (A)I_{PN}	100A	200A	300A	500A
Primary Current Max. Peak Value (A) I_{PM}	±200A	±400A	±450A	±500A
Turns ratio K_N	1:1000	1:2000	1:3000	1:5000
Secondary coil internal resistance R_S @T_A=70℃	25Ω	33Ω	51Ω	95Ω
Output signal I_{SN} @I_{PN},	±100mA	±100mA	±100mA	±100mA
Measure resistance R_M @I_{PN},Vc=±15V,	30～95Ω	30～80Ω	30～60Ω	0～25Ω

Electrical Data

Item	Min.	Max.	Typical	Unit
Input power supply voltage range Vc （±5%）（Remark 1，Remark 2）	±12	±15	±18	V_{DC}
Current consumption Ic Ic @±15V	13mA+Output Current I_S			mA
Accuracy X @I_{PN}，T_A= 25℃	-	±0.5	±0.8	%
Linearity ε_L @R_L=10KΩ，T_A= 25℃	-	±0.1	±0.5	%
Offset current I_{OE} @T_A= 25℃,I_P=0	-	±0.2	±0.5	mA
Magnetic offset current I_{OM} @ I_P→0	-	±0.2	±0.5	mA
Temperature coefficient of offset current TCI_{OE}	-	±0.2	±1	mA
Response time t_D @ 0→I_{PN}	-	1	-	us
Band width BW	-	50	100K	Hz
Ambient operating temperature T_A	-40	25	85	℃
Ambient storage temperature T_s	-40	25	90	℃
Withstand voltage V_D@50Hz,60s,0.1mA	-	3000	-	V_{AC}
Weight m	-	260	-	g

Remarks:

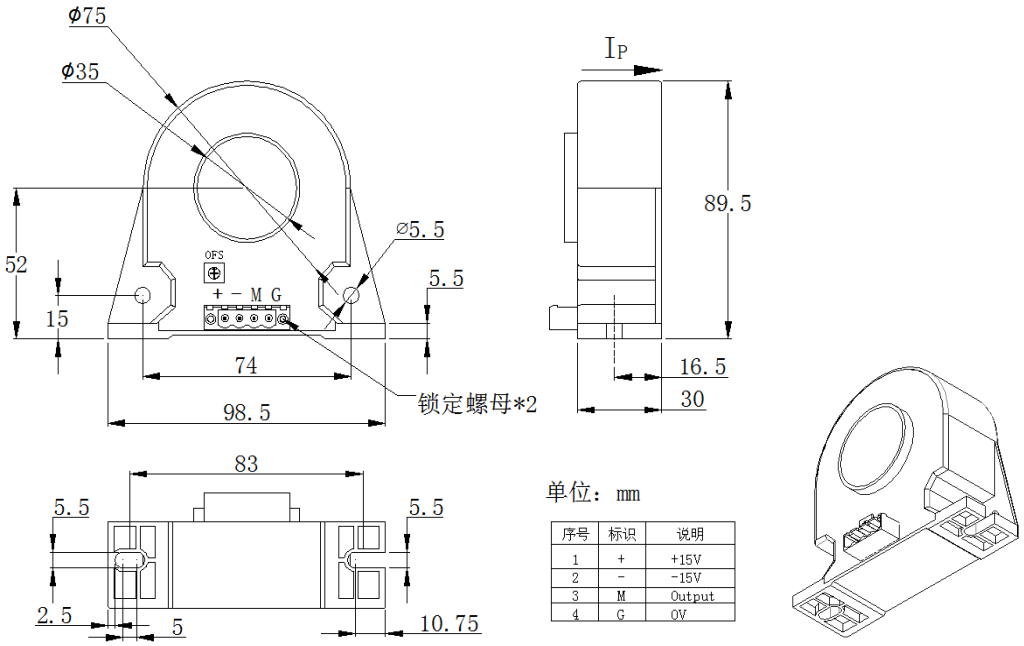
1. VC is greater than the maximum value, which may cause permanent failure of the measurement device.

2. $I_{OUT} = I_{SN} * \frac{I_P}{I_{PN}} + I_{OE}$

3. Follow speed di/dt＞100A/uS

Dimensions (in mm)

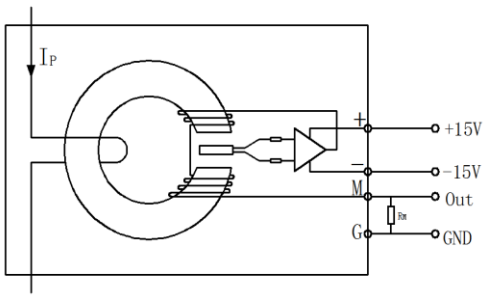
SCB12T



单位：mm

序号	标识	说明
1	+	+15V
2	−	-15V
3	M	Output
4	G	0V

Wiring Reference



Notes:

1. Size error: ±1mm;

2. Primary aperture: φ35mm;

3. Fastening hole: φ5.5mm*2;

4. SCB12T output terminal: 2EDGIV-5.08-4P;

5. The IP indication direction is the positive direction of the current;

SCB12VT, SCB12R

Technical Parameters

Model / Parameters（25℃）	SCB12VT-/SCB12R-			
	100A	200A	300A	500A
Primary Current (A)I_{PN}	100A	200A	300A	500A
Primary Current Max. Peak Value (A) I_{PM}	±200A	±400A	±450A	±500A
Turns ratio K_N	1:1000	1:2000	1:3000	1:5000
Output Voltage V_{OUT} @I_{PN}，	±5V(0.5%)			

Electrical Data

Item	Min.	Max.	Typical	Unit
Input power supply voltage range Vc （±5%）（Remark 1，Remark 2）	±12	±15	±18	V_{DC}
Current consumption Ic Ic @±15V	13mA+Output Current I_S			mA
Output internal resistance R_{OUT}	-	100	-	Ω
Load resistance R_L	-	10	-	KΩ
Accuracy X @I_{PN}，T_A= 25℃	-	±0.5	±0.8	%
Linearity ε_L @R_L=10KΩ，T_A= 25℃	-	±0.1	±0.5	%
Offset current I_{OE} @T_A= 25℃,I_P=0	-	±20	±25	mV
Magnetic offset current I_{OM} @ I_P→0	-	±10	±15	mV
Temperature coefficient of offset current TCI_{OE}	-	±0.2	±1	mA
Response time t_D @ 0→I_{PN}	-	1	-	us
Band width BW	-	50	100K	Hz
Ambient operating temperature T_A	-40	25	85	℃
Ambient storage temperature T_s	-40	25	90	℃
Withstand voltage V_D@50Hz,60s,0.1mA	-	3000	-	V_{AC}
Weight m	-	260	-	g

Remarks:

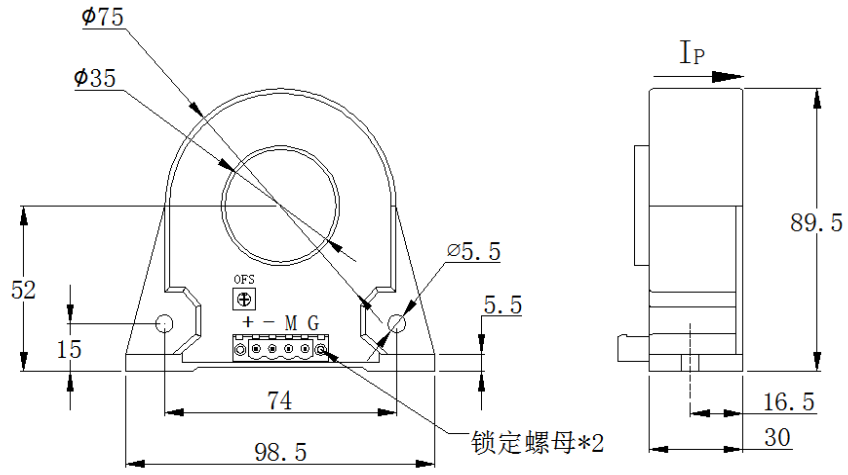
1. VC is greater than the maximum value, which may cause permanent failure of the measurement device.

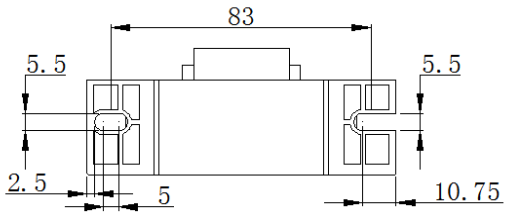
2. $V_{OUT} = 5.05 * \frac{R_L}{100 + R_L} * \frac{I_P}{I_{PN}} + V_{OE}$

3.di/dt＞100A/uS

SCB12VT

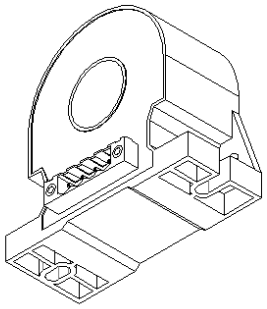
Dimension (in mm):





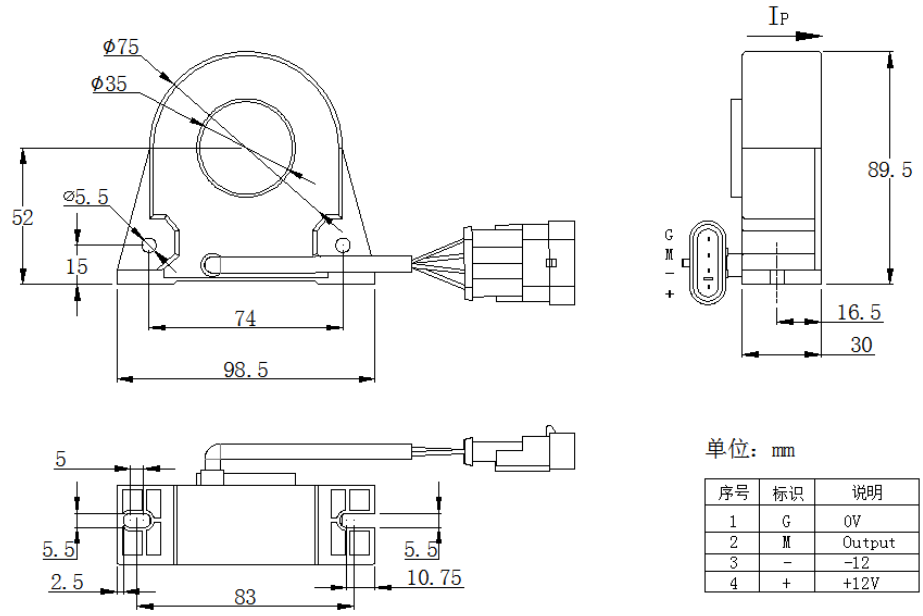
单位：mm

序号	标识	说明
1	+	+15V
2	−	−15V
3	M	Output
4	G	0V



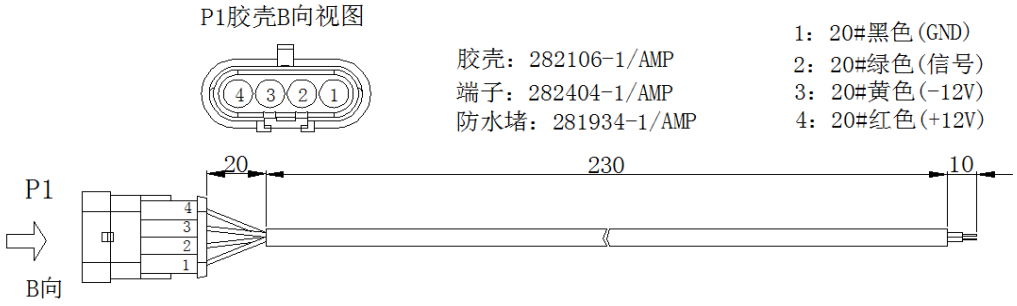
SCB12R(Voltage output)

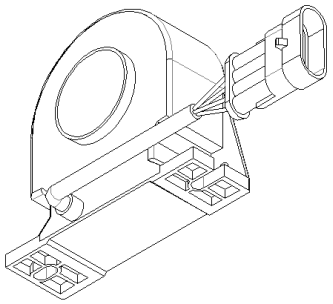
Dimension (in mm):



单位：mm

序号	标识	说明
1	G	0V
2	M	Output
3	−	-12
4	+	+12V





Notes:

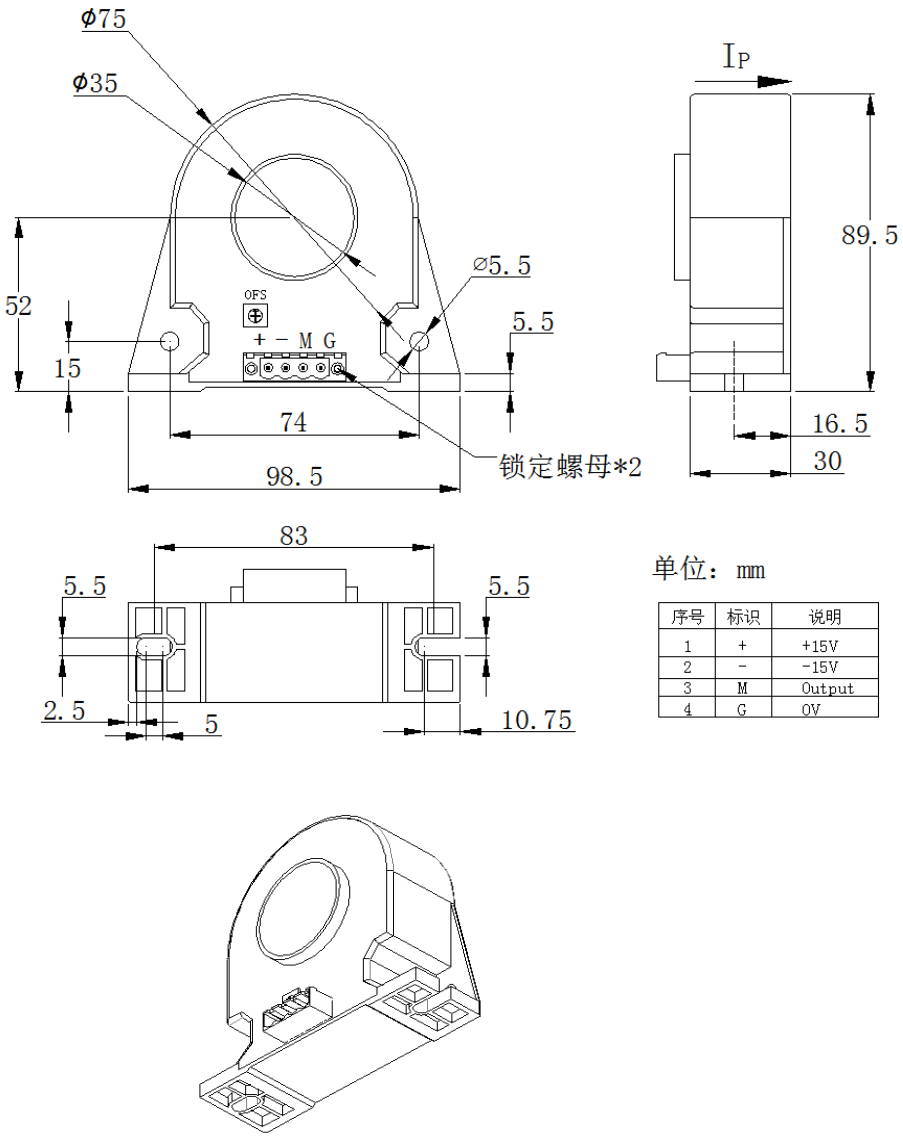
1. Size error: ±1mm;
2. Primary aperture: φ35mm;
3. Fastening hole: φ5.5mm*2;
4. SCB12VT output terminal: 2EDGIV-5.08-4P;
   SCB12R Shell: 282106-1/AMP
   SCB12R terminal: 282404-1/AMP
   SCB12R waterproof plug: 281934-1/AMP
5. The IP indication direction is the positive direction of the current;
6. Incorrect wiring may cause damage to the sensor.

Special model: SCB12-5A

Technical Parameters

Parameters(25°C) / Model	SCB12-			
	V	V	V	V
	5A	10A	20A	50A
Nominal Rms Current (Ipn)	±5AT	±10AT	±20AT	±50AT
Measuring Range (Ip)	15AT	30AT	60AT	100AT
Output voltage	±5V			
Load resistance R_L	10KΩ			
Working voltage	DC ±15V (±5%)			
Accuracy @ Ta=25°C	±1%			
Linearity @ Ta=25°C	±1%			
Offset Voltage	<±20mV			
Offset temperature characteristics	< ±0.02%/°C			
Thermal drift of Vo	<±0.1%/°C (If=0)			
Bandwidth	DC ~150kHz			
Response time	< 5uS			
Hysteresis offset	I: < 0.5mA V: <20mV (if=F.S. 0<--- --->Nominal RMS Current)			
Withstand voltage	3kVrms/50Hz/min			
Current consumption	20mA			
Operating temperature	-25 ~+80 °C			
Storage temperature	-40~+90 °C			

Dimensions (in mm)



序号	标识	说明
1	+	+15V
2	-	-15V
3	M	Output
4	G	0V

Notes:

1. Size error: ±1mm;
2. Primary aperture: φ35mm;
3. Fastening hole: φ5.5mm*2;
4. SCB12-5A output terminal: 2EDGIV-5.08-4P;
5. The IP indication direction is the positive direction of the current;
6. Incorrect wiring may cause damage to the sensor.