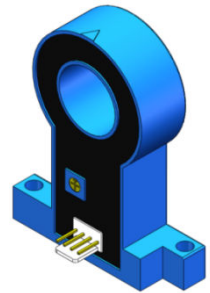


Hall effect Current Sensor

SCB1



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



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Technical Parameters

Model Parameters (25℃)	SCB1-/SCB1T-			
	50A	100A	200A	300A
Primary Current (A) I_{PN}	50A	100A	200A	300A
Primary Current Max. Peak Value (A) I_{PM}	±100A	±200A	±400A	±400A
Turns ratio K_N	1:1000	1:1000	1:2000	1:3000
Secondary coil internal resistance R_S @ $T_A=70℃$	20Ω	20Ω	40Ω	77Ω
Output signal I_{SN} @ I_{PN} , (Remark 2)	±50mA	±100mA	±100mA	±100mA
Measure resistance R_M @ I_{PN} , $V_c=±15V$,	50~200Ω	30~100Ω	30~80Ω	0~40Ω

Electrical Data

Item	Min.	Typical	Max.	Unit
Input power supply voltage range V_c (±5%) (Remark 1)	±12	±15	±18	V _{DC}
Current consumption I_c @ ±15V	13mA+Output Current I_s			mA
Accuracy X @ I_{PN} , $T_A=25℃$	-	±0.5	±0.8	%
Linearity ε_L @ $R_L=10K\Omega$, $T_A=25℃$	-	±0.1	±0.5	%
Offset current I_{OE} @ $T_A=25℃$, $I_P=0$	-	±0.2	±0.5	mA
Magnetic offset current I_{OM} @ $I_P \rightarrow 0$	-	±0.2	±0.5	mA
Temperature coefficient of offset current TCI_{OE}	-	±0.2	±1	mA
Response time t_D @ $0 \rightarrow I_{PN}$	-	1	-	us
Bandwidth 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	-	60	-	g

Remarks:

1. V_c greater than the maximum value may cause the measurement device to fail permanently.

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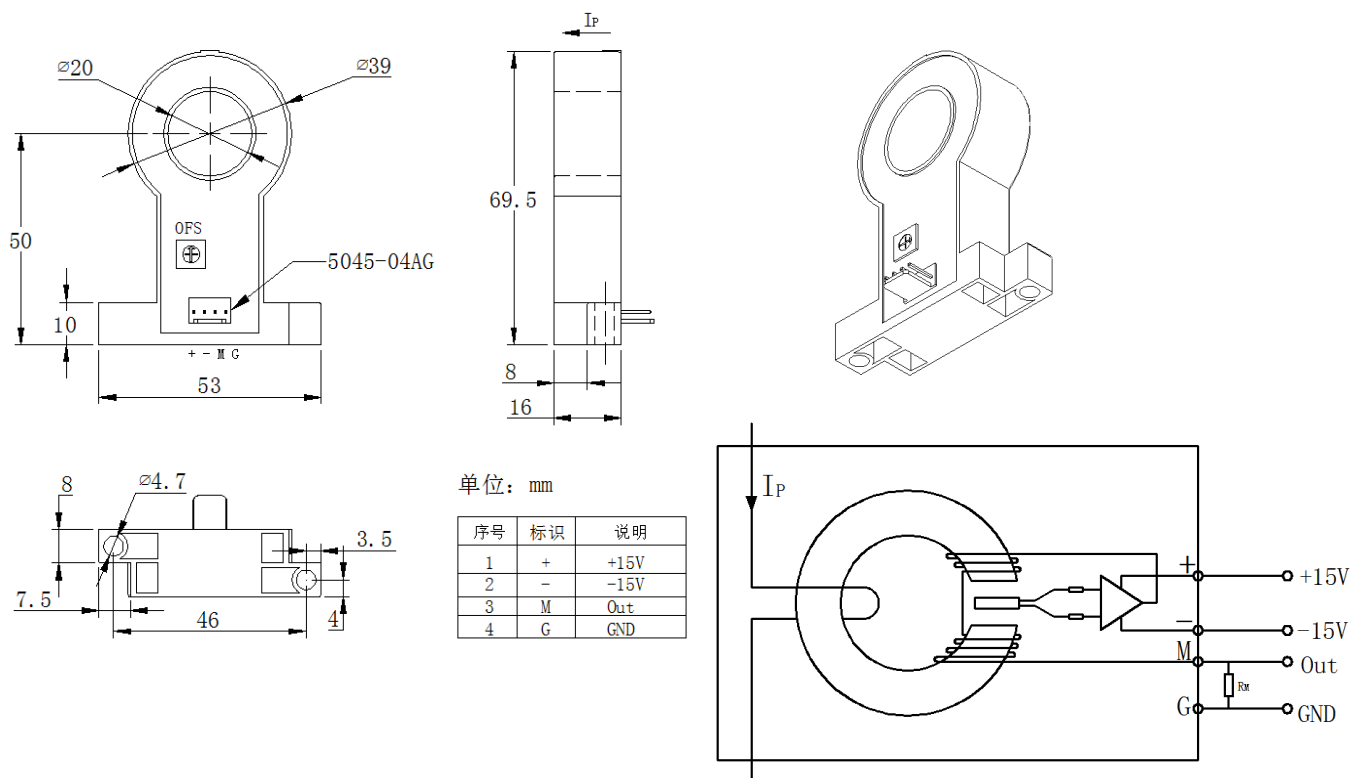
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$$2. I_{OUT} = I_{SN} * \frac{I_P}{I_{PN}} + I_{OE}$$

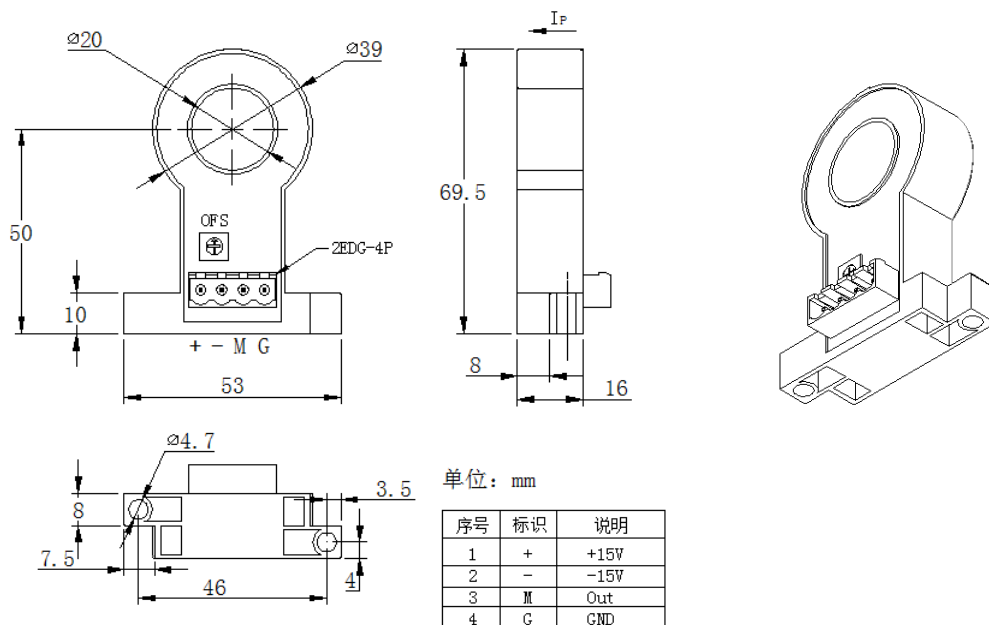
3. Follow speed di/dt > 100A/uS

Dimensions (in mm)

SCB1



SCB1T



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Notes:

1. Size error: $\pm 1\text{mm}$;
2. Primary aperture: $\varnothing 20\text{mm}$;
3. Fastening hole: $\varnothing 4.5\text{mm} \times 2$;
4. SCB1 output terminal: Molex 5045-04AG;
SCB1T output terminal: 2EDGVC-5.08-4P;
5. The IP indication direction is the positive direction of the current, and the OFS is the zero adjustment;
6. Incorrect wiring may cause damage to the sensor.

Data Sheet

Model Parameters (25°C)	SCB1V-/SCB1VT-			
	50A	100A	200A	300A
Primary Current (A) I_{PN}	50A	100A	200A	300A
Primary Current Max. Peak Value (A) I_{PM}	±100A	±200A	±400A	±400A
Turns ratio K_N	1:1000	1:1000	1:2000	1:3000
Output signal I_{SN} @ I_{PN}	±5V(0.5%)			

Electrical Data

Item	Min.	Typical	Max.	Unit
Input power supply voltage range V_c (±5%) (Remark 1)	±12	±15	±18	V_{DC}
Current consumption I_c @±15V	13mA+Output Current I_s			mA
Secondary coil internal resistance R_s @ $T_A=70^\circ C$	-	100	-	Ω
Measure resistance R_M @ $I_{PN}, V_c=\pm 15V$	-	10	-	$K\Omega$
Accuracy X @ $I_{PN}, T_A=25^\circ C$	-	±0.5	±0.8	%
Linearity ε_L @ $R_L=10K\Omega, T_A=25^\circ C$	-	±0.1	±0.5	%
Offset current I_{OE} @ $T_A=25^\circ C, I_P=0$	-	±20	±25	mV
Magnetic offset current I_{OM} @ $I_P \rightarrow 0$	-	±10	±15	mV
Temperature coefficient of offset current TCI_{OE}	-	±0.2	±1	mA
Response time t_D @ $0 \rightarrow I_{PN}$	-	1	-	us
Bandwidth BW	-	50	100K	Hz
Ambient operating temperature T_A	-40	25	85	$^\circ C$
Ambient storage temperature T_s	-40	25	90	$^\circ C$
Withstand voltage V_D @50Hz, 60s, 0.1mA	-	3000	-	V_{AC}
Weight m	-	60	-	g

Remarks:

1. V_c greater than the maximum value may cause the measurement device to fail permanently.

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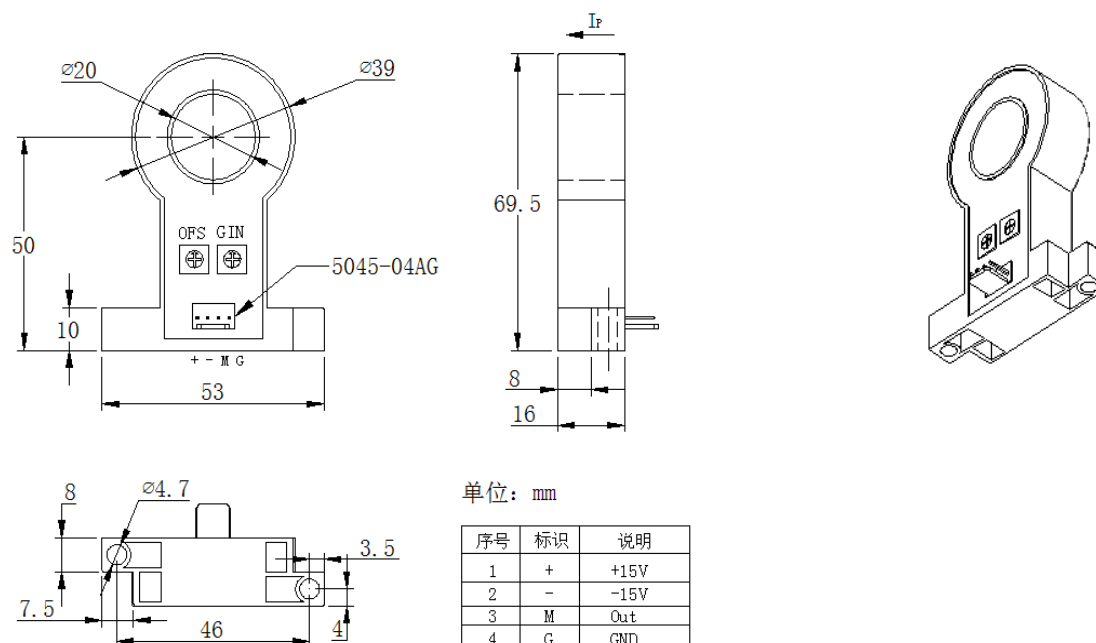
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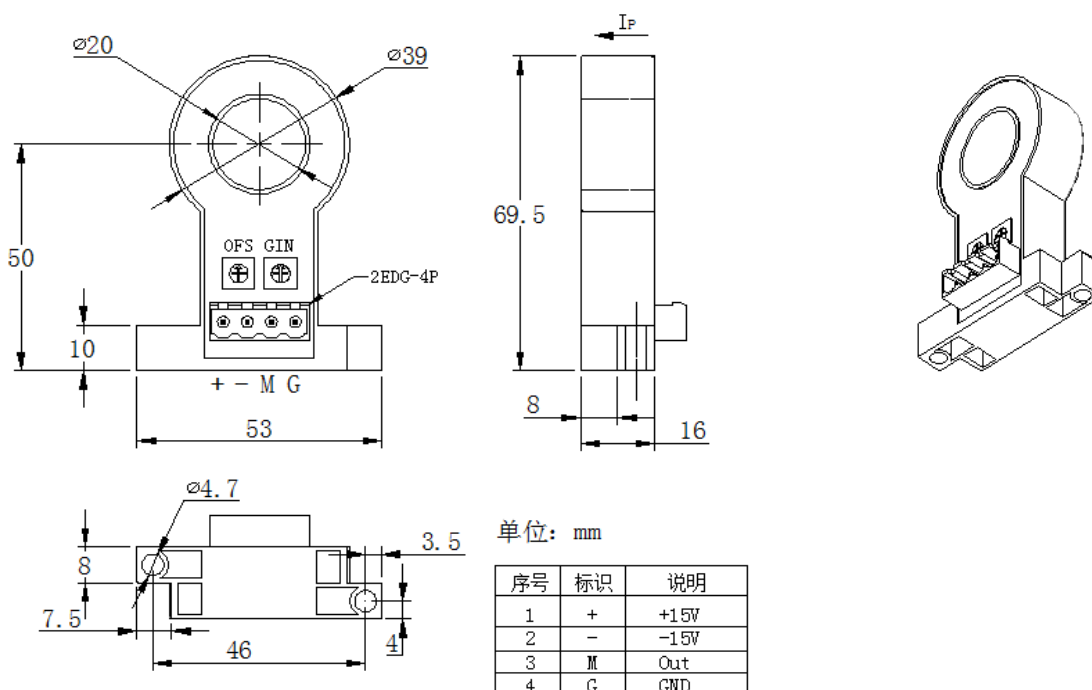
$$2. \quad V_{OUT} = 5.05 * \frac{R_L}{100 + R_L} * \frac{I_P}{I_{PN}} + V_{OE}$$

3. Follow speed $di/dt > 100A/\mu S$

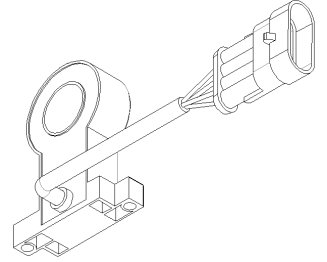
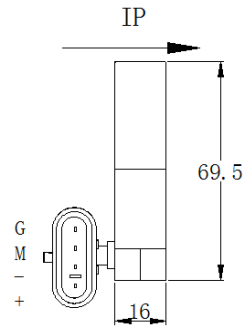
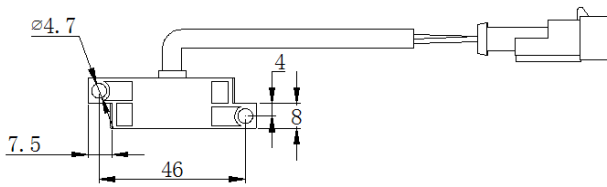
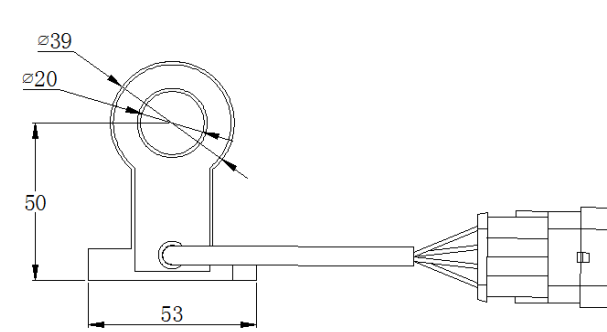
SCB1V(Voltage Output)Dimension (in:mm)



SCB1VT(Voltage Output)Dimension (in:mm)



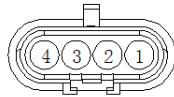
SCB1R(Voltage Output)Dimension (in:mm)



单位: mm

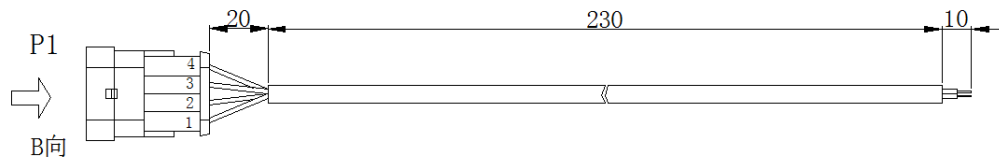
序号	标识	说明
1	G	0V
2	M	Output
3	-	-15V
4	+	+15V

P1胶壳B向视图



胶壳: 282106-1/AMP
端子: 282404-1/AMP
防水堵: 281934-1/AMP

- 1: 20#黑色 (GND)
- 2: 20#绿色 (信号)
- 3: 20#黄色 (-12V)
- 4: 20#红色 (+12V)



Notes:

- Size error: ± 1 mm;
- Primary hole diameter: $\phi 20$ mm;
- Fastening hole: $\phi 4.5$ mm*2;
- SCB1V Output Terminal: Molex 5045-04AG;
SCB1VT output terminal: 2EDGVC-5.08-4P;
SCB1R Housing: 282106-1/AMP
SCB1R terminal: 282404-1/AMP
SCB1R Waterproof Plug: 281934-1/AMP
- The IP indication direction is the positive direction of the current, the OFS is the zero adjustment, and the GIN is the output adjustment;
- Incorrect wiring may cause damage to the sensor.