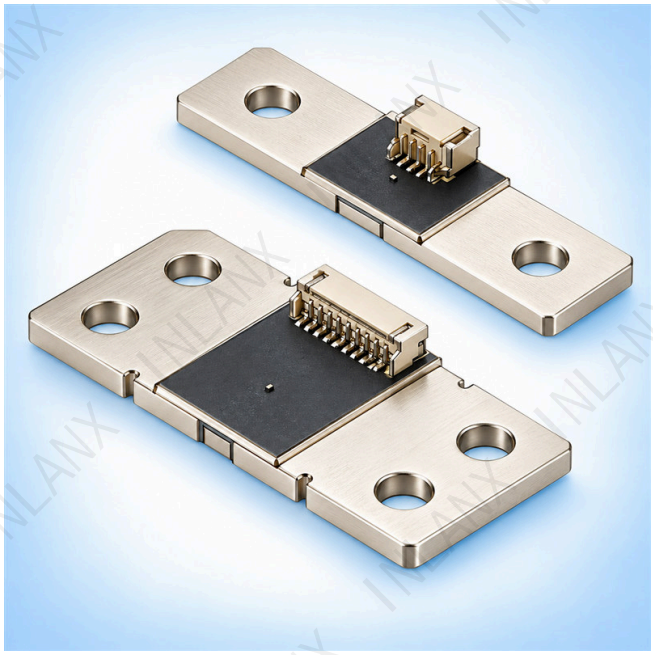
HSM Shunt Current Sensor Modules

Features

- Rated current: 350–1000 A
- Built-in NTC; real-time temperature signal
- Inductance <3 nH; thermal EMF 1 µV/°C
- Operation -40°C to 125°C; accuracy ±0.2%
- RoHS, REACH and AEC-Q200 compliant

Applications

Current sensing, power-battery BMS and energy storage systems.



Standard Electrical Specifications

Type	Current (A)	NTC	Connector	Peak Current (A)
HSM-350	350	10kΩ	4pin	860A@30s 1000A@10s
HSM-500	500	10kΩ	4pin	860A@30s 1200A@10s
HSM-800	800	10kΩ	7pin	1200A@30s 1700A@10s
HSM-1000	1000	10kΩ	9pin	1400A@30s 2000A@10s

Shunt Specifications

Type	Size	Resistance Value (µΩ)	Resistance Tolerance	Operating Temperature	TCR (20–120°C) (ppm/°C)
HSM-350	8420	100	±5%	-65℃ ~+170℃	±100
HSM-500	8420	50	±5%	-65℃ ~+170℃	±125
HSM-800	8436	25	±5%	-65℃ ~+170℃	±125
HSM-1000	8436	25	±5%	-65℃ ~+170℃	±200

NTC Specifications

Zero-power resistance: 10 kΩ at 25°C; R25 tolerance ±1%; B (25/50°C): 3380 K; operating temperature: -40°C to 150°C.

Connector Pin Assignments • 350 / 500 A

Component	Manufacturer	Part No.	Pin definition
Connector	MOLEX	502352-0400	1：TEMP_P
Connector	MOLEX	502352-0400	2：SHUNT1_P
Connector	MOLEX	502352-0400	3：SHUNT1_N
Connector	MOLEX	502352-0400	4：TEMP_N
Connector mates part	MOLEX	560123-0400, 505151-0401	

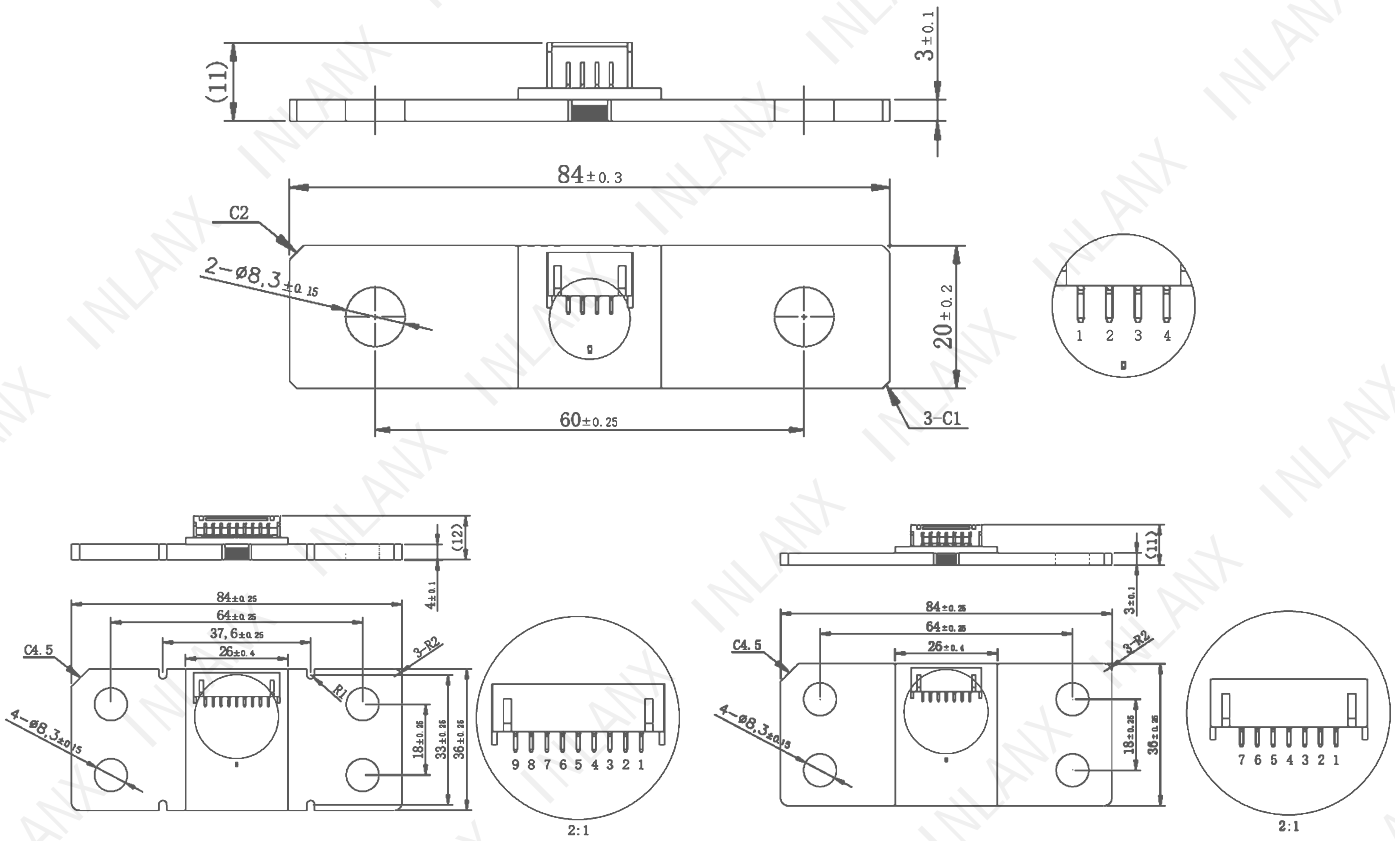
Connector Pin Assignments • 800 A

Component	Manufacturer	Part No.	Pin definition
Connector	MOLEX	5023520700	1：TEMP_P
Connector	MOLEX	5023520700	2：SHUNT0_P
Connector	MOLEX	5023520700	3：SHUNT1_P
Connector	MOLEX	5023520700	4：SHUNT1_N
Connector	MOLEX	5023520700	5：SHUNT0_N
Connector	MOLEX	5023520700	6：TEMP_N
Connector	MOLEX	5023520700	7：SHUNT_GND
Connector mates part	MOLEX	5601230700	

Connector Pin Assignments • 1000 A

Component	Manufacturer	Part No.	Pin definition
Connector	MOLEX	5023520900	1：SHUNT3_P
Connector	MOLEX	5023520900	2：SHUNT3_N
Connector	MOLEX	5023520900	3：SHUNT1_P
Connector	MOLEX	5023520900	4：SHUNT1_N
Connector	MOLEX	5023520900	5：SHUNT2_P
Connector	MOLEX	5023520900	6：SHUNT2_N
Connector	MOLEX	5023520900	7：SHUNT2_GND
Connector	MOLEX	5023520900	8：SHUNT2_TEMP_P
Connector	MOLEX	5023520900	9：SHUNT2_TEMP_N
Connector mates part	MOLEX	5601230900	

Mechanical Dimensions • mm



Endurance Tests

Items	Additional Requirements	Reference	Limits
Temperature Cycling	1000 Cycles (-40℃ to +125℃)	JESD22 Method JA-104	±0.5%
High Temperature Exposure	1000hrs.@T=125℃.Unpowered.	MIL-STD-202 Method 108	±0.5%
Low Temperature Storage	250hrs.@T=-40℃.Unpowered.	MIL-STD-202 Method 108	±0.5%
Moisture Resistance	t=24 hours/cycle. Note: Steps 7a & 7b not required. Unpowered, 20 cycles.	MIL-STD-202 Method 106	±0.5%
Damp Heat Storage	1000hrs 85℃/85%RH，Unpowered.	MIL-STD-202 Method 103	±0.5%
Mechanical Shock	100g , 6ms , axes ±X 、 ±Y and ±Z, 3 Shocks per axis, total 18 times.	MIL-STD-202 Method 213	±0.5%
Vibration	(10 - 2000 Hz) ,5 g's for 20 min, 12 cycles each of 3 orientations.	MIL-STD-202 Method 204	±0.5%
Free Fall	3 axis, 2 falls per DUT by axis, 1m, concrete ground or steel plate	ISO 16750-3	±0.5%

Ordering Information

Example: HSM -1000 -8436 -0001. Rated current in A; 8436 denotes 84×36 mm, 8420 denotes 84×20 mm; 0001 is the internal code.

Foam or blister-tray packaging. Source revision A1.0, 30-May-2023, first issue.