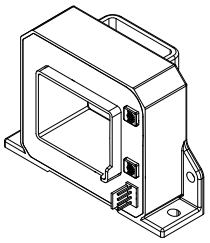
Current Transducer HAT 600-S/SP200

For the electronic measurement of currents: DC, AC, pulsed..., with galvanic separation between the primary circuit and the secondary circuit.

I_{PN} = 600 A

U_{out} = ±4 V



Electrical data

I_{PN}	Primary nominal RMS current	600	A
I_{PM}	Primary current, measuring range	±1800	A
U_C	Supply voltage (±5 %) [1]	±15	V
I_C	Current consumption	±20	mA
R_{INS}	Insulation resistance @ 500 V DC	> 1000	MΩ
U_{out}	Output voltage (Analog) @ $\pm I_{PN}$, R_L =10 kΩ, T_A = 25 °C	±4	V
R_{out}	Output internal resistance	100	Ω
R_L	Load resistance	> 10	kΩ

Accuracy - Dynamic performance data

ε_{tot}	Total error @ I_{PN} , T_A = 25 °C (excluding offset)		≤ ±1	% of I_{PN}
ε_L	Linearity error [2] (0 ... $\pm I_{PN}$)		≤ ±1	% of I_{PN}
U_{OE}	Electrical offset voltage @ T_A = 25 °C		< ±20	mV
U_{OM}	Magnetic offset voltage @ I_P = 0, after an excursion of 1 × I_{PN}		< ±10	mV
TCU_{OE}	Temperature coefficient of U_{OE}	−40 ... +80 °C	< ±1	mV/K
		+80 ... +105 °C	< ±1.5	mV/K
TCU_{out}	Temperature coefficient of U_{out} (% of reading)		< ±0.05	%/K
$t_{D\,90}$	Delay time to 90 % of the final output value for I_{PN} step [3]		< 5	µs
BW	Frequency bandwidth (−3 dB)		DC ... 25	kHz

General data

T_A	Ambient operating temperature	−40 ... +105	°C
$T_{A\,st}$	Ambient storage temperature	−40 ... +105	°C
m	Mass	245	g
	Standards	IEC 61010	
		UL 508	

Notes: [1] Operating at ±12 V ≤ U_C < ±15 V will reduce the measuring range

[2] Linearity data exclude the electrical offset

[3] For a di/dt = 50 A/µs.

Features

- Hall effect measuring principle
- Galvanic insulation between primary and secondary circuit
- Low power consumption
- Insulation plastic case recognized according to UL 94-V0.

Special feature

- TCU_{out} < ±0.05 %/K.

Advantages

- Easy installation
- Small size and space saving
- Only one design for wide current ratings range
- High immunity to external interference.

Applications

- DC motor drives
- Switched Mode Power Supplies (SMPS)
- AC variable speed drives
- Uninterruptible Power Supplies (UPS)
- Battery supplied applications
- Power supplies for welding applications.

Application domain

- Industrial.

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Insulation coordination

U_d	RMS voltage for AC insulation test, 50 Hz, 1 min	4.9	kV
U_{Ni}	Impulse withstand voltage 1.2/50 µs	> 9.9	kV
		Min	
d_{Cp}	Creepage distance	11	mm
d_{Cl}	Clearance	11	mm
CTI	Comparative tracking index (group IIIa)	275	

Applications examples

According to IEC 61010-1 standard and following conditions:

- Over voltage category III
- Pollution degree PD2
- Non-uniform field

	IEC 61010-1
d_{Cp}, d_{Cl}, U_{Ni}	Nominal voltage
Basic insulation	1100 V
Reinforced insulation	550 V

Safety

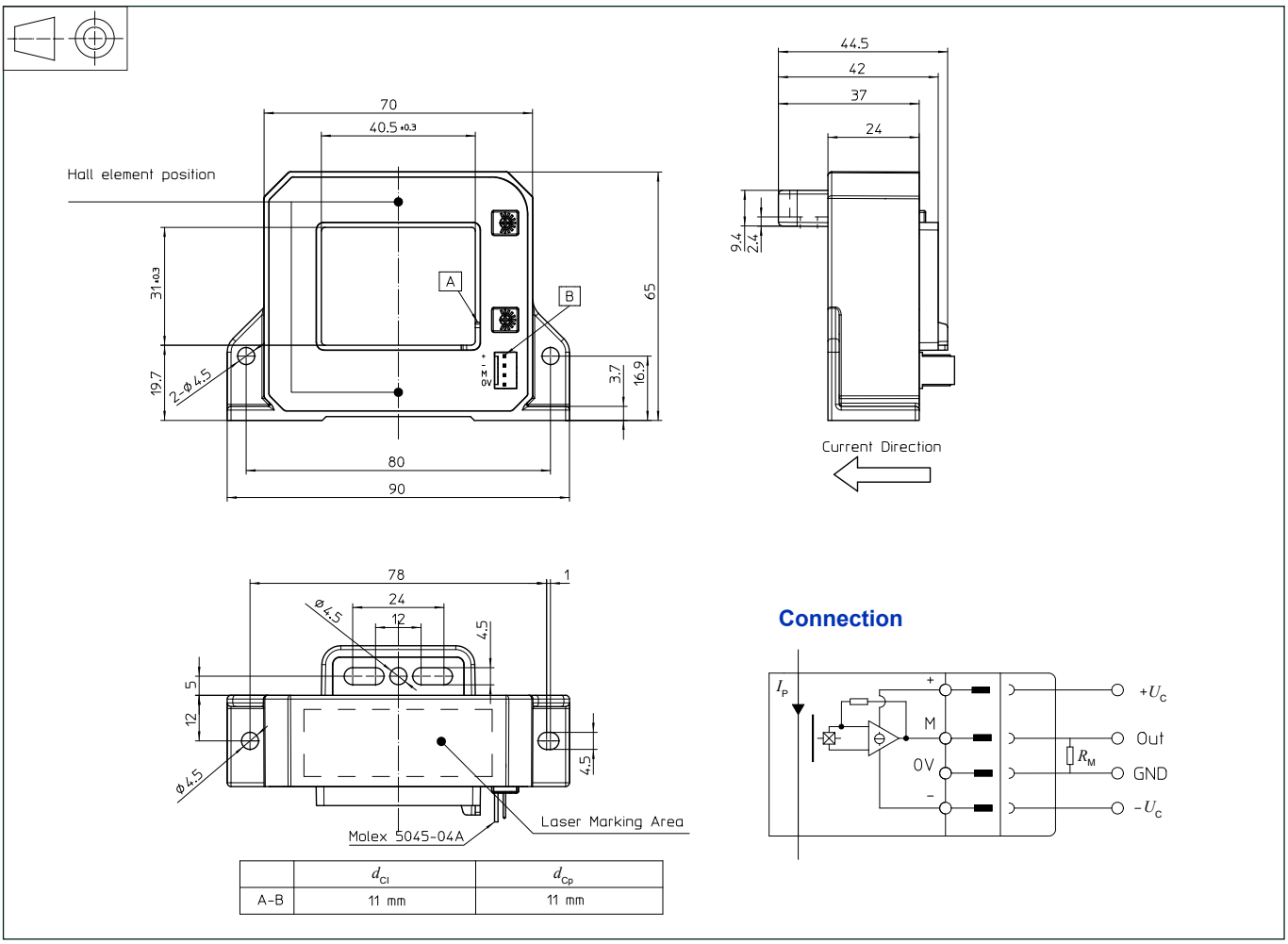
This transducer must be used in limited-energy secondary circuits according to IEC 61010-1.

This transducer must be used in electric/electronic equipment with respect to applicable standards and safety requirements in accordance with the manufacturer's operating instructions.

Caution, risk of electrical shock

When operating the transducer, certain parts of the module can carry hazardous voltage (eg. primary busbar, power supply).
Ignoring this warning can lead to injury and/or cause serious damage.
This transducer is a build-in device, whose conducting parts must be inaccessible after installation.
A protective housing or additional shield could be used.
Main supply must be able to be disconnected.

Dimensions HAT 600-S/SP200 (in mm)



	d_{Cl}	d_{Cp}
A-B	11 mm	11 mm

Mechanical characteristics

- General tolerance ±1 mm
- Transducer fastening:
  Vertical position 2 holes ⌀ 4.5 mm
  M4 steel screws
  Recommended fastening torque 1.2 N·m (±10 %)
- Transducer fastening:
  Horizontal position 2 holes ⌀ 4.5 mm
  M4 steel screws
  Recommended fastening torque 1.2 N·m (±10 %)
- Busbar mounting 3 holes ⌀ 4.5 mm
  M4 steel screws
  Recommended fastening torque 1.2 N·m (±10 %)
- Connection of secondary Molex 5045-04A

Remarks

- I_S is positive when I_P flows in the direction of the arrow.
- Temperature of the primary busbar should not exceed 100 °C.
- Installation of the transducer must be done unless otherwise specified on the datasheet, according to LEM Transducer Generic Mounting Rules. Please refer to LEM document N°ANE120504 available on our Web site: **https://www.lem.com/en/file/3137/download/.**

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