Hall Effect Current Sensor HER1K0T03

I_{pn} = 1000A

Representative image only

Features

- Plastic outer case compliant to UL 94-V0

Advantage

- Very good linearity
- Excellent accuracy
- Low temperature drift
- Wide frequency bandwidth
- Optimized response time

Applications

- AC variable speed drives and servo motor drives
- Static converters for DC motor drives
- Battery supplied applications
- Uninterruptible power supplies (UPS)
- Switched mode power supplies (SMPS)
- Power suppliers for welding applications.

Application domain

- Industrial
- Railways

Standards

- UL508*
- EN50178 (IEC 62477)
- EN 50155

Insulation Characteristics

Parameters	Symbol	Value	Units
Dielectric strength between primary & secondary + test winding + screen, 50Hz, 60 seconds	V_{d1}	6.0	kVrms
Dielectric strength between screen & secondary + test winding, 50Hz, 60 seconds	V_{d2}	1.0	kVrms
Dielectric strength between secondary & test winding, 50Hz, 60 seconds	V_{d3}	500	Vrms
Comparative tracking index	CTI	>250	V
Insulation resistance at 500 VDC	R_{is}	>100	MΩ
Creepage distance		88.00	mm
Clearance distance		45.00	mm

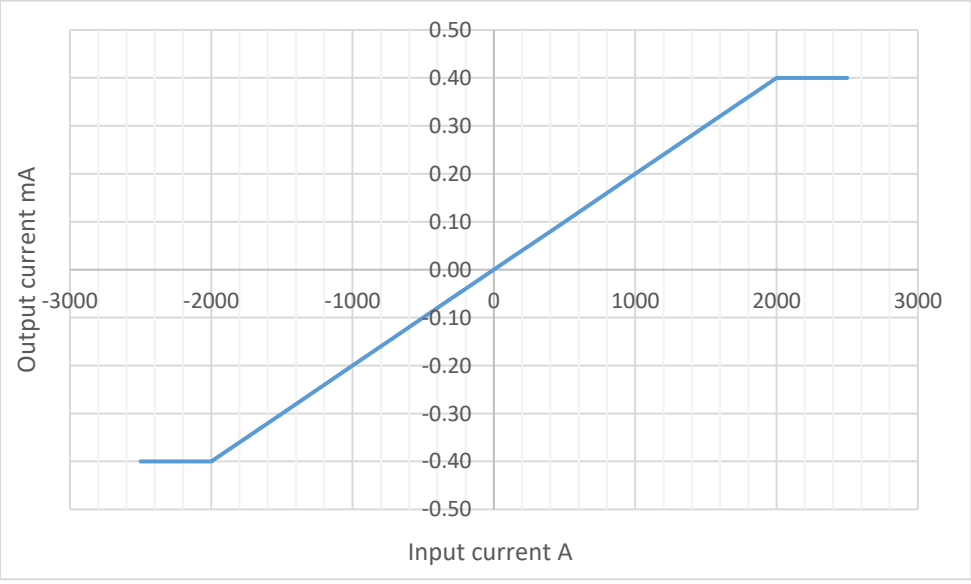
Specifications (Unless otherwise specified temperature is 25°C)

Parameters	Symbol	Condition	Min	Typ	Max	Units
Input current nominal	I_{pn}			1000		Arms
Input current measuring range	I_p		-2000		+2000	A
Burden resistance	R_b	with ±15V at ±1000A max	0		25	Ω
		with ±15V at ±1500A max	0		5	Ω
		with ±24V at ±1000A max	0		65	Ω
		with ±24V at ±2000A max	0		12	Ω
Secondary winding resistance	R_S	at +70°C		44		Ω
Output current at I_{pn}	I_{out}			200		mA
Number of secondary turns	N_S			5000		- - -
Theoretical sensitivity	G_{th}			0.20		mA/A
Supply voltage (±5%)	V_s			±24		V
Current consumption	I_C	V_s = ±24 V		32+I_{out}		mA
Offset current	I_{Off}		-0.4		+0.4	mA
Variation of I_{off} wrt temperature	I_{ot}	-40 to +70°C	-0.5		+0.5	mA
Linearity error	Σ_L		-0.1		+0.1	%
Overall accuracy at I_{pn}	X_G		-0.3		+0.3	%
Response time at 90% of I_{pn}	t_{ra}			< 1		µs
Frequency bandwidth	BW	-3dB, small signal bw	DC		100	kHz
di/dt accurately followed	di/dt			>50		A/µs
Ambient operating temperature	T_A		-40		+70	°C
Ambient storage temperature	T_S		-40		+85	°C
Mass	m			1.2		kg

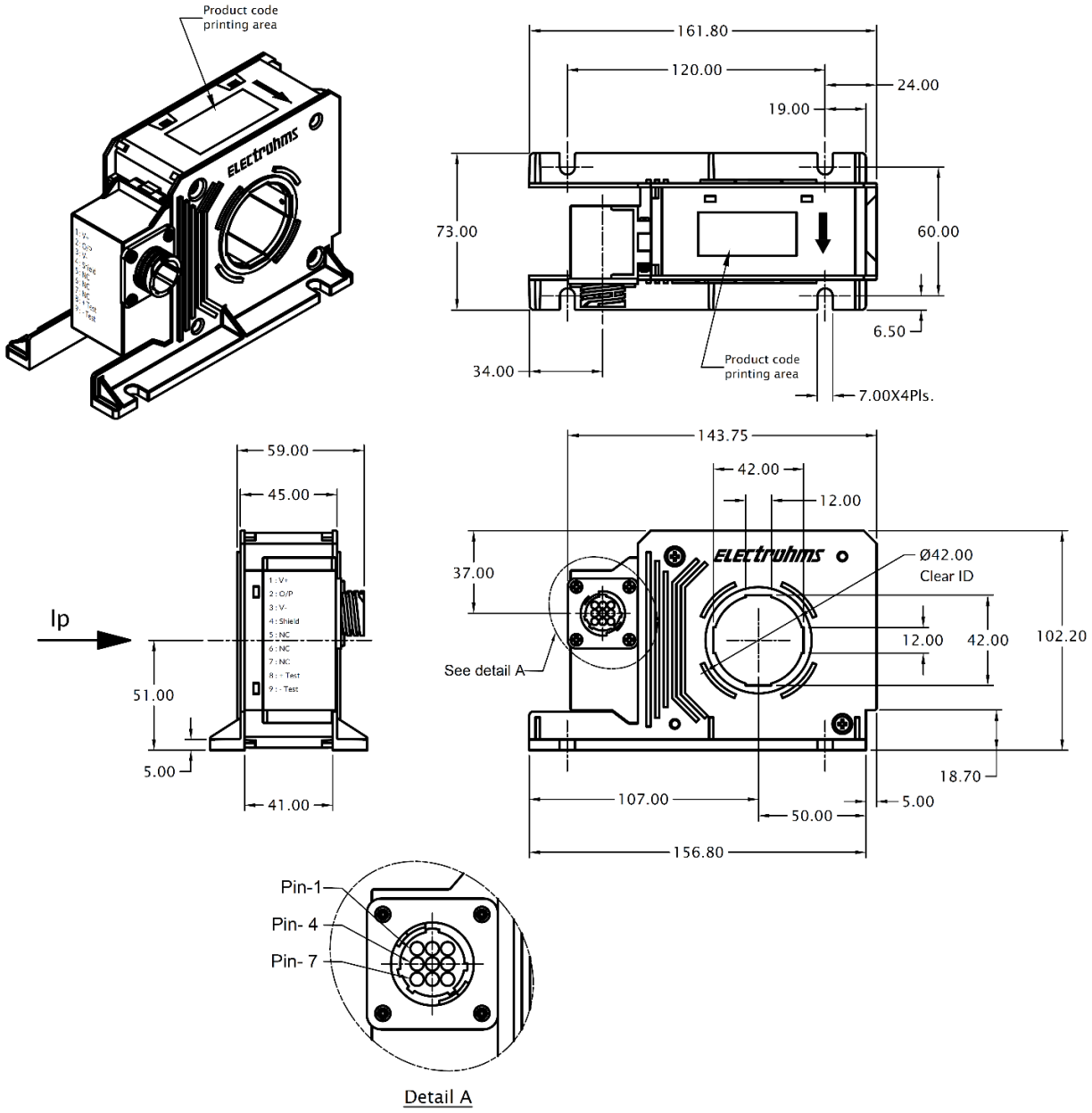
Test circuit

Number of test turns	N_t			1000		
Resistance of test winding	R_t	at 70°C		20		Ω
Test current	I_t	for 10s		1		A
		for 5s		2		A

Input & Output Characteristics



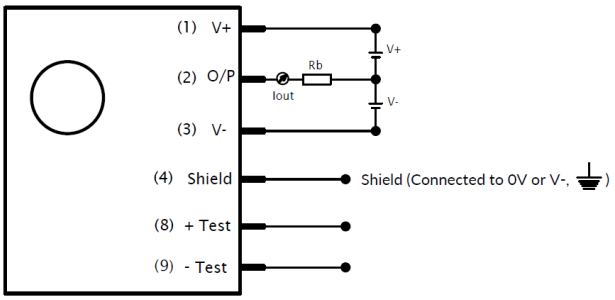
Mechanical dimensions



Tolerance unless otherwise specified

0.5 up to 3 in mm	>3 up to 6 in mm	>6 up to 30 in mm	>30 up to 120 in mm	>120 up to 400 in mm	>400 up to 1000 in mm	ALL DIMENSIONS ARE IN 'mm'	
± 0.20	± 0.30	± 0.50	± 0.80	± 1.20	± 2.0	SCALE -NTS	

Connection Diagram



Pins 5, 6 & 7 no connection (NC)

General information

- Connector on the product: Connector header, part no- 206705-1, & corresponding pin part no: 202236-7, TE Connectivity AMP Connectors
- Suggested mating connector: Connector housing, part no- 206708-1, & corresponding pin part no: 66104-8, TE Connectivity AMP Connectors
- Sensor mounting: 4 slots X Ø 7.0 mm, M6 steel screws, recommended fastening torque 4.6 N-m
- It is recommended to centrally locate the current carrying conductor or completely fill the central opening for optimum performance
- Output is positive when current (I_p) flows in the direction of arrow
- Electrohms reserves the right to make modifications on products for improvements without prior notice
- * Designed to meet UL508

Safety

- This Sensor 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 Sensor, 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.
- A protective housing or additional shield could be used.
- Disconnecting the main power must be possible.
- Over currents (»I_{PN}) can cause an additional voltage offset due to magnetic remanence.
- The temperature of the primary conductor shall not exceed 100 °C.
- This Sensors may only be used in electrical or electronic systems which fulfil the relevant regulations (Standards, EMC Requirements).
- Pay attention to protect non-isolated high-voltage current carrying parts against direct contact (e.g. with a protective housing)
- When installing the sensor, ensure that the safe separation (between primary circuit and secondary circuit) is maintained over the whole circuits and their connections.