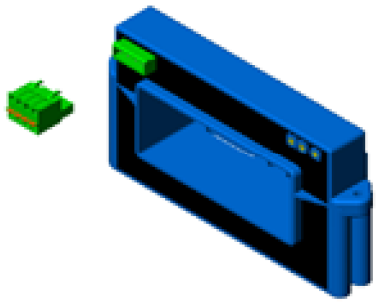
AC/DC Current transducer AHR-B10

I_{PN} = 500 .. 2000 A

The transducer for the electronic measurement of DC & distorted AC waveform currents, with galvanic isolation between the primary circuit (power) and the secondary circuit (measurement).
True RMS 0-10 V voltage output.



Electrical data

Primary nominal DC & AC current I_{PN} (At rms)	Primary AC current max. peak value [1] I_P (A)	Output voltage (Analog) V_{OUT} (VDC)	Type
500	2000	0-10	**AHR 500 B10**
800	2500	0-10	**AHR 800 B10**
1000	2000	0-10	**AHR 1000 B10**
1500	2500	0-10	**AHR 1500 B10**
2000	3000	0-10	**AHR 2000 B10**

R_L	Load resistance	≥ 10	kΩ
V_C	Supply voltage	+ 20 .. 50	V DC
I_C	Current Consumption	35	mA
V_{SL}	Output voltage limitation	< 14	V
$\hat{I}_P$	Overload capability (Ampere Turns)	30000	At

Performance data

X	Accuracy @ I_{PN}, T_A = 25°C (excluding offset)	< ±1	% of I_{PN}
ε_L	Linearity error (1% of I_{PN} .. ± I_{PN})	< ±1.0	% of I_{PN}
V_{OE}	Electrical offset voltage, T_A = 25°C	< ±1.0	% of I_{PN}
TCV_{OE}	Temperature coefficient of V_{OE} (0 .. + 60 °C)	± 2.0	mV/K
	(- 40 .. + 70 °C)	± 4.0	mV/K
TCV_{OUT}	Temperature coefficient of V_{OUT} (% of reading)	± 0.15	%/K
t_r	Response time to 90% of I_{PN} step	< 150	m s
BW	Frequency bandwidth (±1 dB)	DC, 20 .. 6000	Hz

General data

T_A	Ambient operating temperature	- 40 .. + 70	°C
T_S	Ambient storage temperature	- 40 .. + 85	°C
m	Mass	650	g
IPxx	Protection degree	IP20	

Note : [1] The max. peak AC current is the highest peak level of the primary signal that is taken into account for accurate true r.m.s. calculation. Yet the device is designed for maximum continuous true r.m.s value equal to I_{PN}, whereas the output is limited by the above specified output limitation.

Features

- DC + distorted AC waveform currents measurement
- True RMS output
- Busbar or panel mounting
- Split core type
- Insulated plastic case recognized according to UL94-V0.

Advantages

- High isolation between primary and secondary circuits
- Eliminates insertion loss
- Easy installation.

Applications

- ***AC power supplies or Motors:***
  True RMS current sensing - the most accurate way to monitor power supply or motor input power
- ***VFD Controlled Loads:***
  VFD output current monitoring to indicate how the motor and the attached load are operating
- ***SCRs or Switch-mode Rectifiers:***
  Accurate measurement of output current
- ***Renewable Energy Installations or Backup Batteries:***
  Continuous condition minitoring allowing automatic failure detection/ anticipation.

Application domain

- Energy and Automation

LEM reserves the right to carry out modifications on its transducers, in order to improve them, without prior notice.

Current Transducer AHR-B10

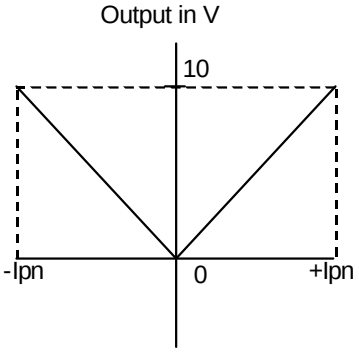
Isolation characteristics

V_b	Rated isolation voltage rms [1)]	500	V
	with IEC 61010-1 according to the 61326 standards and following conditions:		
	- Reinforced isolation		
	- Over voltage category III		
	- Pollution degree PD2		
	- Heterogeneous field		
V_d	Rms voltage for AC isolation test [2)], 50 Hz, 1min	5.8	kV
dCp	Creepage distance	11.9	mm
dCl	Clearance distance	11.9	mm
CTI	Comparative tracking index (Group I)	250-399	

Notes : [1)] If insulated cable is used for the primary circuit, the voltage category could be improved according to the insulation characteristics given by the cable manufacturer.

[2)] Between primary (completely filling the aperture) and secondary.

Output polarity with DC input



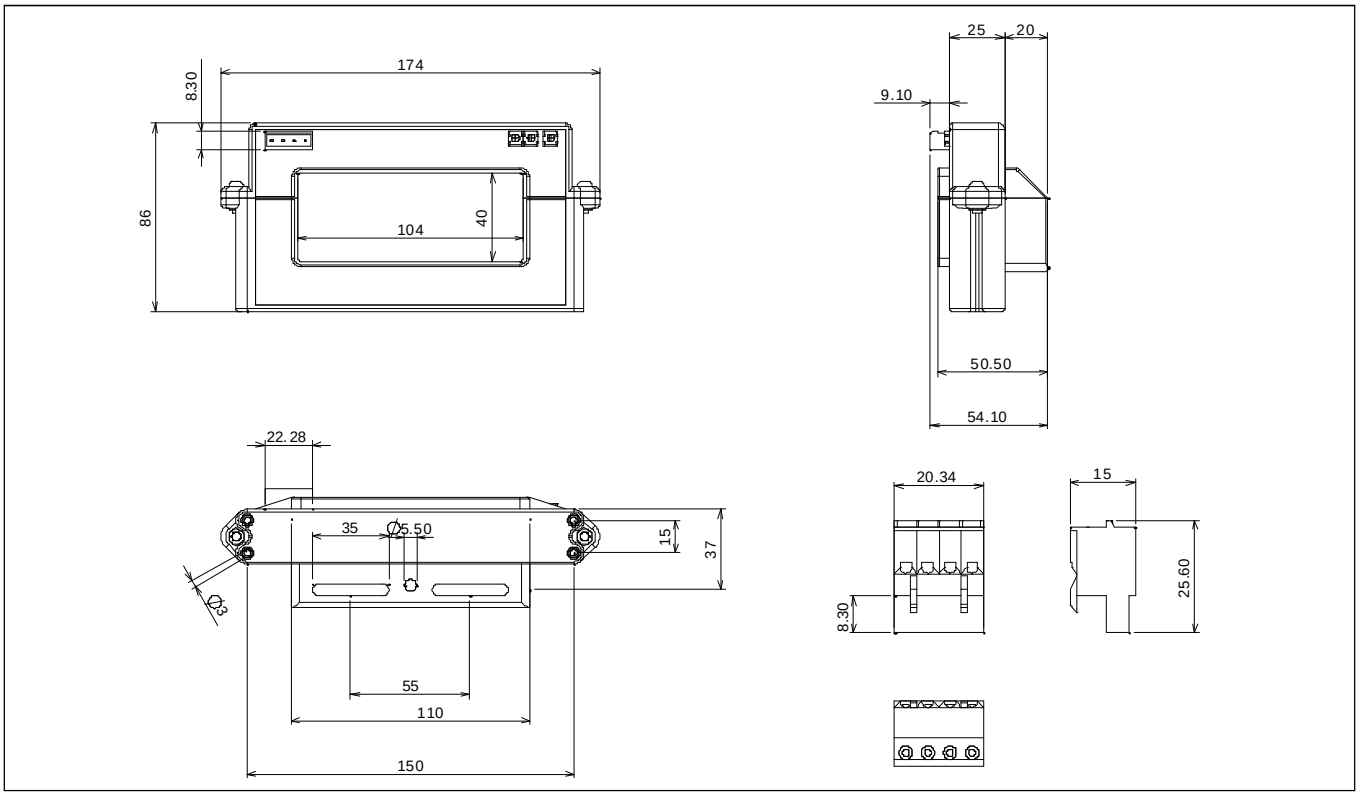
Safety

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.
Installation and maintenance should be done with main power supply disconnected.
The operator must have an accreditation to install this material.

Caution! Risk of electrical shock

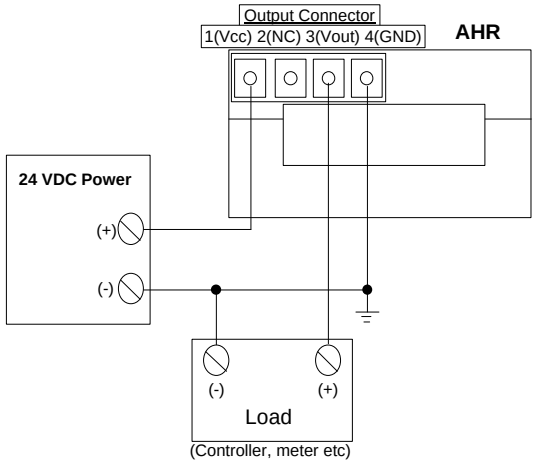
When operating the transducer, certain parts of the module can carry hazardous voltage (e.g. primary conductor, power supply).
Ignoring this warning can lead to injury and/or cause serious damage.
The user must take care of all protection guarantee against electrical shock.
This transducer is a built-in device, whose conducting parts must be inaccessible after installation. A protective housing or additional shield could be used.

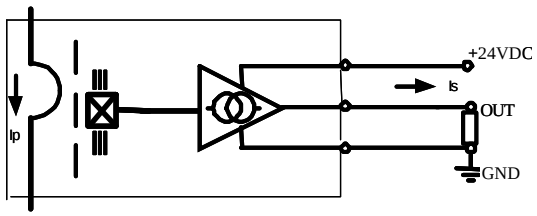
Dimensions AHR-B10 (in mm. 1 mm = 0.0394 inch)



Connections

- Wires up to 2 mm ∅
- Female connector provided (screw terminals)





Mechanical characteristics

• General tolerance	± 1 mm
• Primary aperture	104 x 40 mm
• Busbar fastening	1 hole ∅ 5.5 mm & 2 slots 5.5 x 30 mm
Panel mounting	4 holes ∅ 3.2 mm
Distance between hole axes	15 x 150 mm

Remarks

- The return busbar and primary conductor elbow must be located at a minimum distance of 2.5 x the window length away from the transducer case.
- The temperature of the primary busbar can not exceed 90°C.
- Dynamic performances are the best with a primary busbar completely filling the primary aperture.
- This is a standard model. For different versions (supply voltages, different outputs, bidirectional measurements...), please contact us.

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