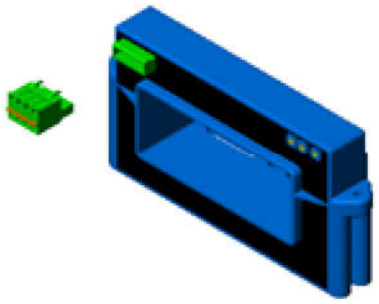
AC/DC Current transducer AHR-B10

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 [2]

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	

Notes : [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.

[2] WARNING: The specified characteristics of the transducer are only guaranteed if the paired top and bottom parts are mounted together and not mixed with similar parts of other transducers.

Features

- DC + distorted AC waveform currents measurement
- True RMS output
- Busbar or panel mounting
- Split core type
- Isolated 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

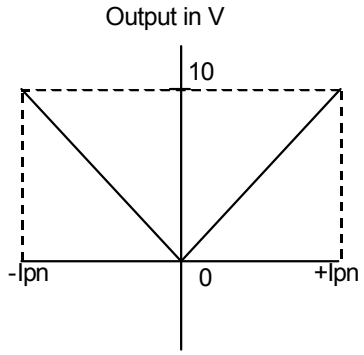
Isolation characteristics

V_b	Rated isolation voltage rms [3]	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 [4], 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 : [3] 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.

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

Output polarity with DC input



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Current Transducer AHR-B10

Safety and warning notes

In order to guarantee safe operation of the transducer and to be able to make proper use of all features and functions, please read these instructions thoroughly!
Safe operation can only be guaranteed if the transducer is used for the purpose it has been designed for and within the limits of the technical specifications.
Ensure you get up-to-date technical information that can be found in the latest associated datasheet under www.lem.com.



Caution! Risk of danger

Ignoring the warnings can lead to serious injury and/or cause damage!
The electric measuring transducer may only be installed and put into operation by qualified personnel that have received an appropriate training.
The corresponding national regulations shall be observed during installation and operation of the transducer and any electrical conductor.
The transducer shall be used in electric/electronic equipment with respect to applicable standards and safety requirements and in accordance with all the related systems and components manufacturers' operating instructions.

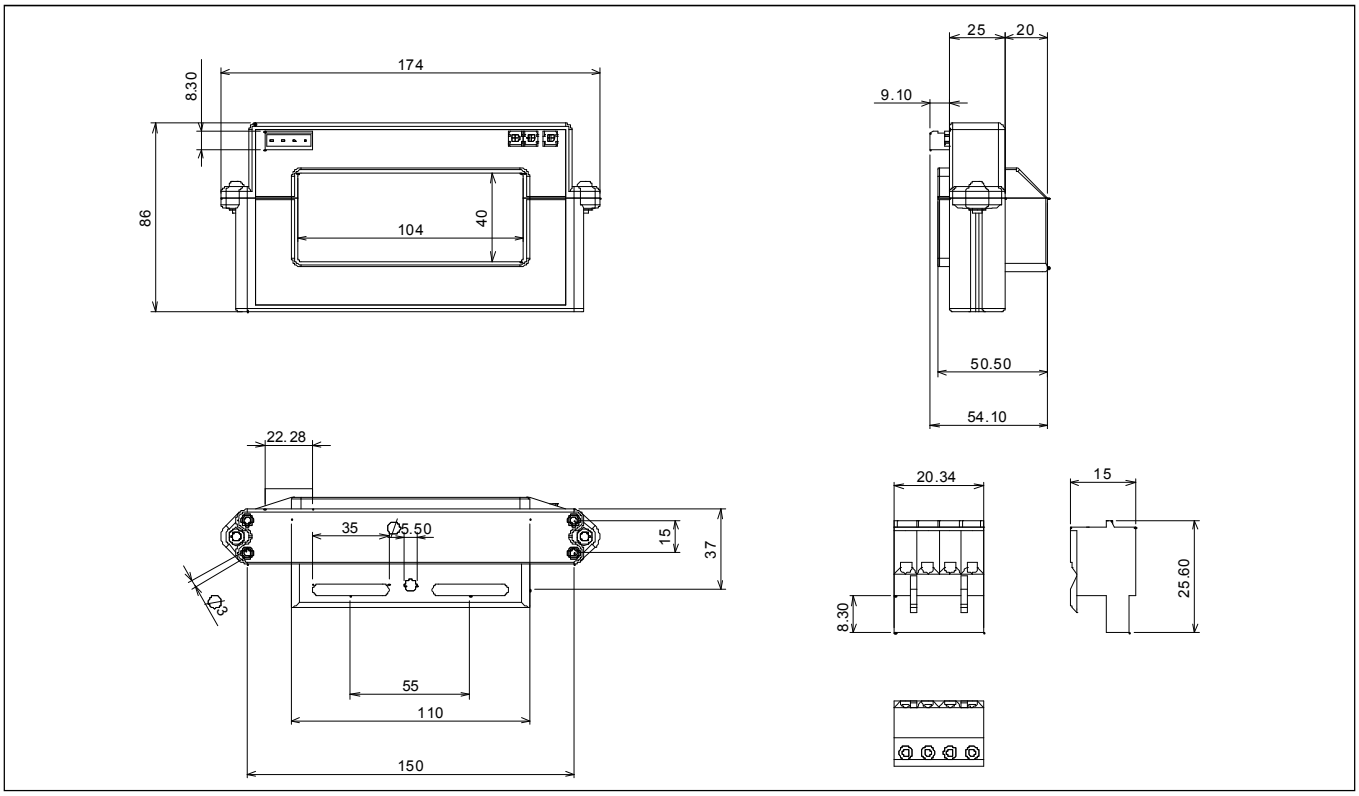


Caution! Risk of electrical shock

When operating the transducer, certain parts of the module may carry hazardous live voltage (e.g. primary conductor, power supply).
The user shall ensure to take all measures necessary to protect against electrical shock.
The transducer is a built-in device containing conducting parts that shall not be accessible after installation. A protective enclosure or additional insulation barrier may be necessary.
The transducer shall not be put into operation if the jaw opening is open (split core version) or the installation is not completed.
Installation and maintenance shall be done with the main power supply disconnected except if there are no hazardous live parts in or in close proximity to the system and if the applicable national regulations are fully observed.

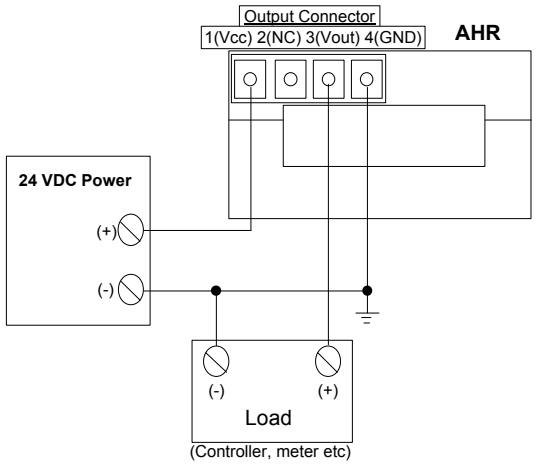
Safe and trouble-free operation of this transducer can only be guaranteed if transport, storage and installation are carried out correctly and operation and maintenance are carried out with care.

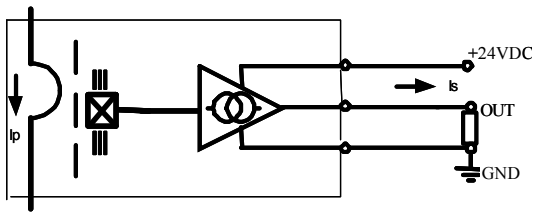
Dimensions AHR-B10 (in mm. 1 mm = 0.0394 inch)



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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