

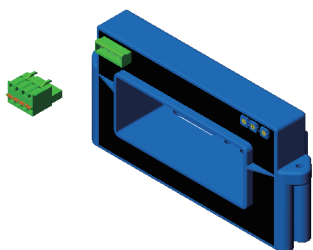


## AHR SERIES

AC/DC Current Transducers

Ranges from 500 to 2000A

4-20mA, 0-5 or 0-10 VDC Output  
True RMS



Installation guide  
Manuel d'installation  
Einbauvorschriften  
導入ガイド

### Important before to start

**WARNING: Do not mix the top and bottom parts of these transducers!**

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.

In order to guarantee safe operation of the transducer and to be able to make proper use of all the features and functions, please read the following instructions thoroughly.

### Installation

1. Mount the transducer to a surface if needed  
Use M4 screws of adequate length and tighten to 0.8Nm +/-20% torque.
2. Connect output wiring. (see diagram)
  - 0-5/10 VDC Model: Make sure output load is at least 10 k $\Omega$ .
  - 4-20mA Model: Make sure connection is correct.
3. Insert the wire in the transducer's hole.

### Safety and warning notes

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](http://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 manufacturer' operating instructions.



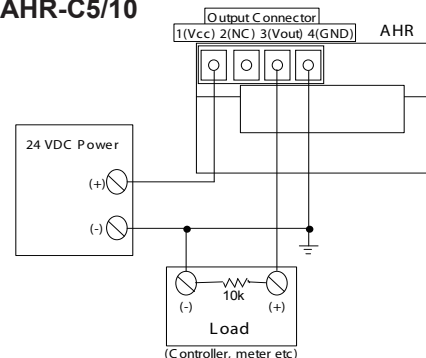
#### Caution! Risk of electrical shock

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.

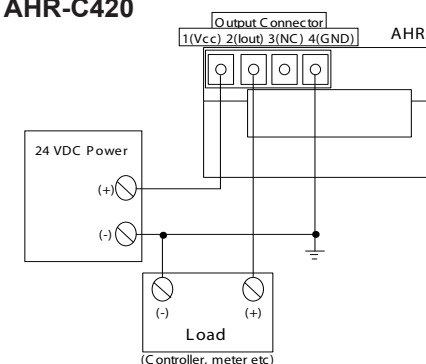
Safe and trouble-free operation of this transducer can only be guaranteed if transport, storage and installation are carried out correctly and operation and maintenance are carried out with care.

### Diagram

#### AHR-C5/10



#### AHR-C420



### Isolation Characteristics

$V_b$  Rms rated Voltage: 500 V

with IEC 61010-1 standards and following conditions :

- Reinforced isolation
- Over voltage category CAT III
- Pollution degree PD2
- Heterogeneous field

$V_d$  Rms voltage for AC isolation test, 50Hz, 1min 5.8 kV

ULXX Plastic case classification UL94-V0



### Specifications

#### Output Signal

AHR-B5	0-5VDC
AHR-B10	0-10VDC
AHR-B420	4-20mA

#### Output Limit

AHR-B5	7VDC
AHR-B10	14VDC
AHR-B420	25mA

#### Frequency Range

(+/- 1dB) DC &  
20-6000 Hz  
(All Waveforms)

#### Response Time

150 ms to 90% of step change

#### Accuracy

1% FS

#### Power Supply

20-50VDC Nominal

#### Output Load for voltage output

10 k $\Omega$  min,  
with  $V_c = +24$  V DC

#### Output Load for current output

300  $\Omega$  max,  
with  $V_c = +24$  V DC

#### Environmental

-40 to 70 Deg. C  
-40 to 158 Deg. F  
0-95% RH  
non-condensing

### At the heart of power electronics

LEM is a market leader in providing innovative and high quality solutions for measuring electrical parameters. Its core products - current and voltage transducers - are used in a broad range of applications in industrial, traction, energy, automation and automotive markets.

For more information: [www.lem.com](http://www.lem.com)



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## Description

AHR Series transducers combine a Hall effect technology and a signal conditioner into a single package. This provides higher accuracy and save valuable panel space.

AHR Series feature a True RMS output. They are designed for application on DC currents as well as on distorted current waveforms such as VFD (variable frequency drive) outputs.

## Trouble Shooting

## 1. Sensor has no output

- Polarity is not properly matched. *Correct wiring polarity.*
- Monitored load is not on or power supply is not on. *Check that the monitored load is on and power supply for transducer is actually on.*

## 2. Output Signal Too Low

- Monitored current is below minimum required. *Loop the monitored wire several times through the transducer until the "sensed" current rises above minimum.*

*Sensed Amps = (Actual Amps) x (Number of Loops). Count wire loops that go through the transducer.*

## For 0-5, 0-10 VDC Models

## Output Signal Too Low

- Output load too low. *Check output load, be sure it is at least 10 kΩ.*

## For 4-20mA Models

## 1. Sensor has no output

Power supply is not properly sized. *Check power supply voltage and current rating.*

## 2. Sensor is always at 4mA

Monitored load is not on. *Check that the monitored load is actually on.*

## Description

Les capteurs de la série AHR intègrent la technologie à effet Hall et un conditionnement de signal dans un seul boîtier. Ceci permet une plus grande précision tout en économisant une place précieuse dans les panneaux de contrôle.

La série AHR est à sortie TRMS. Ces capteurs sont adéquats pour la mesure de courants continus et/ou alternatifs sinusoïdaux ou non sinusoïdaux tels que les sorties de convertisseurs de fréquences.

## Problèmes

## 1. Absence de signal de sortie

- La polarité n'est pas correcte. *Vérifier et corriger la connexion du secondaire.*
- Le courant mesuré est inexistant ou il n'est pas alternatif. *Vérifier le fonctionnement de l'installation et que le courant primaire soit alternatif.*

## 2. Signal de sortie trop faible

- Le courant mesuré est inférieur au calibre minimum. *Effectuer plusieurs tours du câble primaire autour du trou du capteur jusqu'à atteindre le calibre sélectionné. Courant mesuré = (courant primaire) x (Nombre de tours). Compter le nombre de fils qui passent à travers le trou.*

## Pour les modèles 0-5, 0-10 VDC

## Signal de sortie trop faible

- L'impédance de sortie trop faible. *Vérifier que la charge du secondaire soit supérieure à 10 kΩ.*

## Pour les modèles 4-20mA

## 1. Absence de signal de sortie

L'alimentation n'est pas adaptée. *Vérifier la tension et le courant de l'alimentation.*

## 2. Le capteur est toujours à 4mA

Le courant mesuré est inexistant. *Vérifier le fonctionnement de l'installation primaire.*

## Beschreibung

Die Stromsensoren der AHR-Baureihe vereinigen die Hall-Effekt-Technologie mit einer Signalaufbereitung in einem Gehäuse. Damit wird eine höhere Genauigkeit erreicht und wertvoller Platz im Schaltschrank gespart. Die AHR-Baureihe gibt einen Echtheffektivwert (True RMS) aus. Diese Messumformer können Gleichströme und sinusförmige Wechselströme messen, aber auch nichtsinusförmige Wechselströme, wie sie als Ausgangsgröße bei Frequenzumrichtern typisch sind.

## Fehlersuche

## 1. Sensor liefert kein Ausgangssignal

- Anschlüsse der Spannungsversorgung vertauscht. *Polarität der Anschlüsse richtig stellen.*
- Überwachte Last ist kein Wechselstrom verbraucher oder ist nicht eingeschaltet. *Stellen Sie sicher, dass es sich um einen Wechselstromverbraucher handelt und er eingeschaltet ist.*

## 2. Ausgangssignal zu niedrig

- Überwachter Strom ist unter dem erforderlichen Minimum. *Führen Sie die Leitung mit dem zu überwachenden Strom mehrere Male durch die Öffnung bis der erforderliche Minima Strom erreicht ist. Gemessener Strom = (Strom im Leiter) x (Anzahl der Windungen). Für die Windungszahl ist die Anzahl der Leiter innerhalb der Öffnung maßgeblich.*

## Fehlersuche 0-5, 0-10 VDC - Modellen

## Ausgangssignal zu niedrig

- Zu niedriger Lastwiderstand. *Überprüfen Sie den Lastwiderstand und stellen Sie sicher, dass er wenigstens 10 kΩ.*

## Fehlersuche 4-20mA - Modellen

## 1. Sensor liefert kein Ausgangssignal

Die Stromversorgung ist nicht richtig dimensioniert. Überprüfen Sie Nennspannung und Nennstrom der Stromversorgung.

## 2. Der Sensor liefert immer 4 mA

Die überwachte Last ist nicht eingeschaltet. *Stellen Sie sicher, dass sie eingeschaltet ist.*

## 特長

AHR シリーズは、ホール素子技術と信号変換器を兼ね備えたトランスデューサです。高精度であり、パネルスペースの節約が可能です。AHR シリーズは T-RMS 出力機能搭載です。これらは DC 電流だけでなく、VFD(可変周波数ドライブ)出力のような、歪電流波形に適用した設計となっています。

## トラブルシューティング

## 1. センサーの出力がでない

- 極性は一致していますか？配線が正しいかご確認ください。
- 入力信号が入力されていない、もしくは製品の供給電源が切れていませんか？入力信号が入力されており、かつ電源が入っていることをご確認ください。

## 2. 出力信号が極端に低い

- 電流値を規定最小値より低くしていませんか？ワイヤーをトランスジューサー内に通し、電流値が規定値に上昇する巻数まで巻いてください。  
電流値の目安 = (現在の電流値) x (巻数)  
トランスジューサー内の巻数を数えてください。

## 0-5, 0-10 モデルについて

出力信号が極端に低い

- 負荷抵抗を低くし過ぎていませんか？負荷抵抗を最低でも 10k Ω にしてください。

## 4-20mA モデルについて

## 1. センサーの出力がでない

電源の値は正しいですか？電源電圧と定格電流値をご確認ください。

## 2. センサーが常に 4mA になる

入力信号の電流源が切れていませんか？入力信号が入っていることをご確認ください。