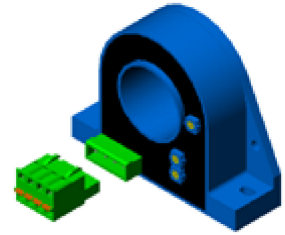


## AC/DC Current transducer DHR-C420

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 4-20mA current output.



$$I_{PN} = 100..1000 \text{ A}$$



### Features

- VFD and SCR waveforms current measurement
- True RMS output
- 4-20mA current output
- Panel mounting
- Eliminates insertion loss
- Insulated plastic case recognized according to UL94-V0

### Advantages

- Large aperture for cable up to  $\varnothing 32\text{mm}$
- High isolation between primary and secondary circuits
- Easy installation

### Applications

- **VFD Controlled Loads**  
VFD output indicates how the motor and attached load are operating.
- **SCR Controlled Loads**  
Accurate measurement of phase angle fired or burst fired (time proportioned) SCRs. Current measurement gives faster response than temperature measurement.
- **Switching Power Supplies and Electronic Ballasts**  
True RMS sensing is the most accurate way to measure power supply or ballast input power.

### Application domain

- Energy and Automation

### Electrical data

Primary Nominal DC & AC Current	Primary AC Current Max. Peak Value (*)	Output current	Type
$I_{PN}$ (A.t.RMS)	$I_P$ (A)	$I_{OUT}$ (mA/DC)	
100	600	4-20	<b>DHR 100 C420</b>
200	600	4-20	<b>DHR 200 C420</b>
300	1000	4-20	<b>DHR 300 C420</b>
400	1000	4-20	<b>DHR 400 C420</b>
500	1800	4-20	<b>DHR 500 C420</b>
600	1800	4-20	<b>DHR 600 C420</b>
1000	1800	4-20	<b>DHR 1000 C420</b>

$R_L$	Load resistance	< 300	$\Omega$
$V_C$	Supply voltage	+ 20 .. 50	V DC
$I_C$	Current consumption	30 mA + $I_{OUT}$	
$I_{SL}$	Output current limitation	< 25	mA
$\hat{I}_P$	Overload capability (Ampere Turns)	30000	A.t

### Performance data

<b>X</b>	Accuracy @ $I_{PN}$ , $T_A = 25^\circ\text{C}$ (excluding offset)	< $\pm 1$	% of $I_{PN}$
<b>e<sub>L</sub></b>	Linearity error (1% of $I_{PN}$ .. $\pm I_{PN}$ )	< $\pm 1.0$	% of $I_{PN}$
<b>I<sub>OE</sub></b>	Electrical offset current, $T_A = 25^\circ\text{C}$	4	mA
<b>TCI<sub>OE</sub></b>	Temperature coefficient of $I_{OE}$ (0..+60 °C)	$\pm 3.2$	$\mu\text{A}/\text{K}$
	(-40..+70 °C)	$\pm 6.4$	$\mu\text{A}/\text{K}$
<b>TCI<sub>OUT</sub></b>	Temperature coefficient of $I_{OUT}$ (% of reading)	$\pm 0.1$	%/K
<b>t<sub>r</sub></b>	Response time to 90% of $I_{PN}$ step	< 150	ms
<b>BW</b>	Frequency bandwidth ( $\pm 1\text{dB}$ )	DC 20..6000	Hz

### General data

<b>T<sub>A</sub></b>	Ambient operating temperature	- 40 .. + 70	$^\circ\text{C}$
<b>T<sub>S</sub></b>	Ambient storage temperature	- 40 .. + 85	$^\circ\text{C}$
<b>m</b>	Mass	260	g
<b>IPxx</b>	Protection degree	IP20	

**Note :** (\*) The Max. Peak AC Current is the highest peak level of the primary signal that is taken into account for accurate True RMS calculation. Yet the device is designed for maximum continuous True RMS value equal to  $I_{PN}$ , whereas the output is limited by the above specified output limitation.

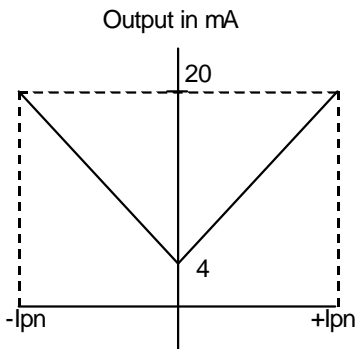
## Current Transducer DHR-C420

### Isolation characteristics

$V_b$	Rated isolation voltage rms with IEC 61010-1 acc. to the 61326 standards and following conditions : - Reinforced isolation - Over voltage category CAT III - Pollution degree PD2 - Heterogeneous field	300	V
$V_d$	Rms voltage for AC isolation test <sup>1)</sup> , 50 Hz, 1min	4.6	kV
<b>dCp</b>	Creepage distance	8.89	mm
<b>dCl</b>	Clearance distance	8.89	mm
<b>CTI</b>	Comparative tracking index (Group I)	> 600	

Note : <sup>1)</sup> 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

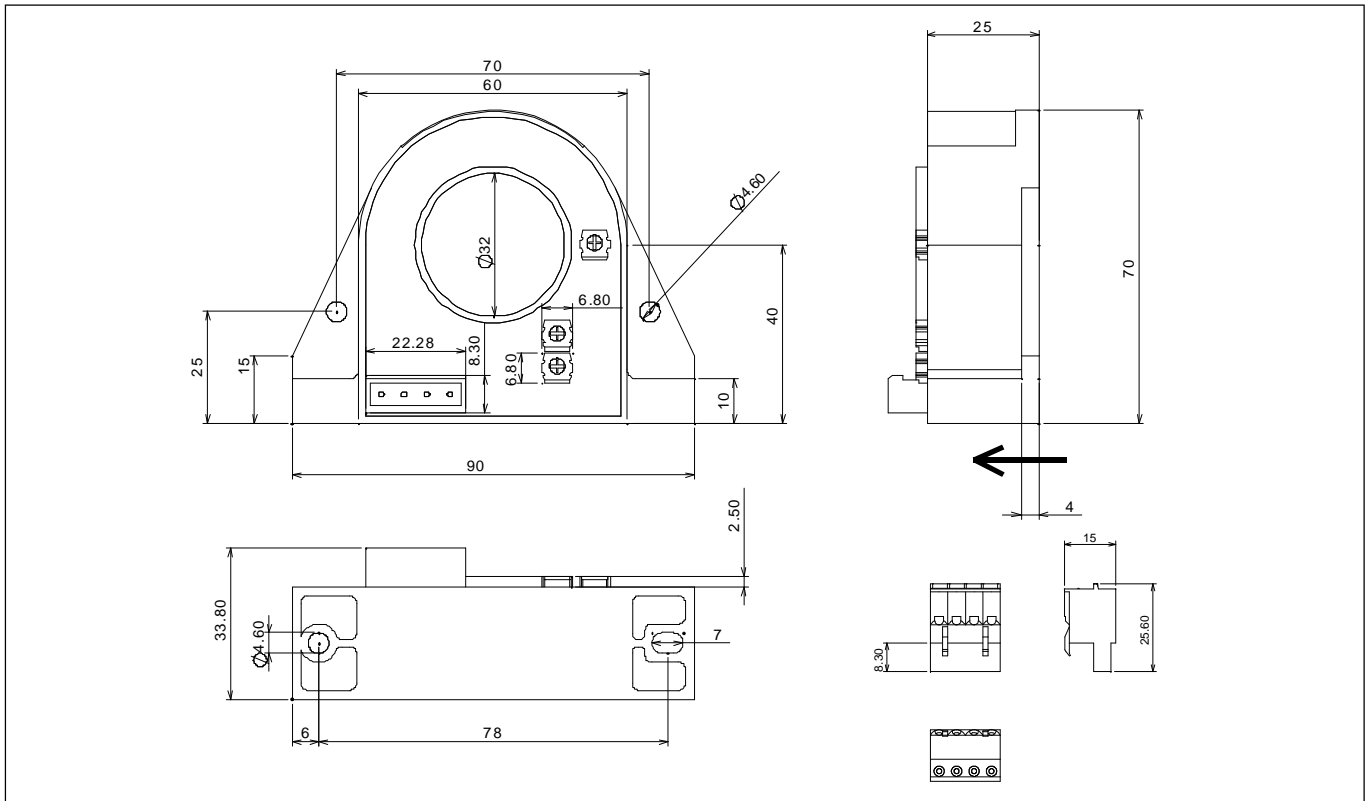
When operating the transducer, certain parts of the module can carry hazardous voltage (e.g. primary conductor, power supply).

Ignoring this warning can lead to injury and/or cause serious damage.

The user must take care of all protection guarantee against electrical shock.

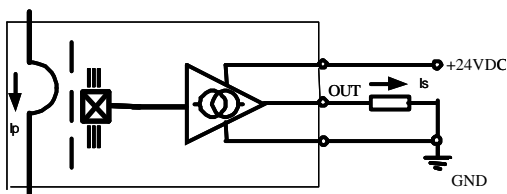
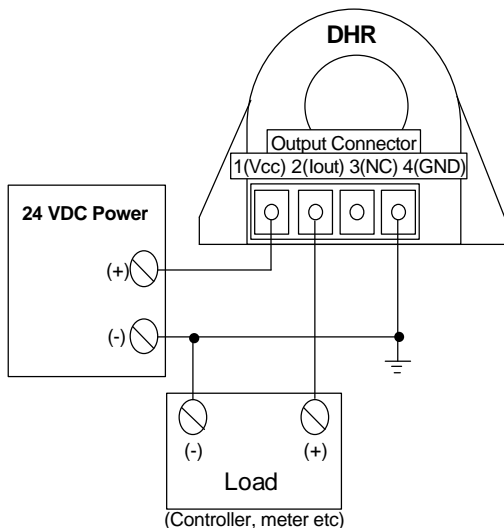
This transducer is a built-in device, whose conducting parts must be inaccessible after installation. A protective housing or additional shield could be used.

## Dimensions DHR-C420 (in mm. 1 mm = 0.0394 inch)



### Connections

- Wires up to 2 mm  $\varnothing$
- Female connector provided (screw terminals)



### Mechanical characteristics

- General tolerance  $\pm 1$  mm
- Primary aperture  $\varnothing 32.0$  mm
- Panel mounting 4 holes  $\varnothing 4.6$  mm
- Distance between holes 70 mm & 78 mm  
(see above drawings)

For panel mounting, replace M4 screws by new one (not supplied) with appropriate length to panel's thickness.

### Remarks

- $V_{OUT}$  is positive when  $I_p$  flows in the direction of the arrow.
- The return busbar and primary conductor elbow must be located at least at 2.5 x window length more far 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.