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# AC Current Transducer AT-B420L

Split-core transducer for the electronic measurement of AC waveform currents, with galvanic separation between the primary circuit and the secondary circuit. 4-20 mA current output proportional to the RMS value of the RMS value of primary current.



$$I_{PN} = 5 \dots 150 \text{ A}$$



## Electrical data

Primary nominal RMS current $I_{PN}$ (At RMS)	Output current $I_{out}$ (mA)	Type
5	4-20	AT 5 B420L
10	4-20	AT 10 B420L
20	4-20	AT 20 B420L
50	4-20	AT 50 B420L
100	4-20	AT 100 B420L
150	4-20	AT 150 B420L

$R_L$	Load resistance with $U_C = +24 \text{ V DC}^1$	< 600	$\Omega$
$U_C$	Supply voltage (loop-powered)	+20 ... 30	V DC
$I_{SL}$	Output current limitation	< 30	mA
$\hat{I}_P$	Overload capability	- continuous - 1 min	120 % of $I_{PN}$ 150 % of $I_{PN}$

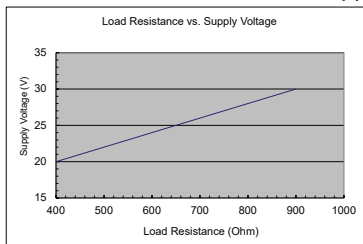
## Performance data

$X$	Accuracy @ $I_{PN}, T_A = 25 \text{ }^\circ\text{C}$ (excluding offset)	< $\pm 1.5$	% of $I_{PN}$
$\varepsilon_L$	Linearity error	< $\pm 0.5$	% of $I_{PN}$
$I_{OE}$	Electrical offset current, $T_A = 25 \text{ }^\circ\text{C}^2$	$4 \pm 0.2$	mA
$t_r$	Step response time to 90 % of $I_{PN}$	$\leq 100$	ms
$BW$	Frequency bandwidth	50/60	Hz

## General data

$T_A$	Ambient operating temperature	-20 ... +60	$^\circ\text{C}$
$T_S$	Ambient storage temperature	-20 ... +85	$^\circ\text{C}$
$m$	Mass	90	g
IPxx	Protection degree	IP 40	

Notes: <sup>1)</sup> Maximum load resistance vs supply voltage



<sup>2)</sup> Deviation of the offset during test IEC 61000-4-3 @ 10 V/m between 280 to 500 MHz.

## Features

- RMS output
- Loop-powered 4-20 mA current output
- Split-core type
- $\varnothing$  16 mm sensing aperture for non-contact measurement
- Terminal output
- Insulating plastic case recognized according to UL 94-V0.

## Advantages

- High insulation between primary and secondary circuits
- Compact case
- Cost-effective solution
- Easy installation.

## Applications

- **Automation and Supervision**  
Current measurement for process regulation by distributed PLCs or remote control (e.g. SCADA software)
- **Safety and Condition Monitoring**  
Load monitoring for protection systems and predictive maintenance (e.g. conveyers, pumps or HVAC motors)
- **Energy management**  
Convenient connection to power consumption sub-meters.

## Application domain

- Energy and Automation.

## Current Transducer AT-B420L

### Insulation coordination

$U_b$	Rated insulation RMS voltage <sup>1)</sup> , reinforced or basic insulation with IEC 61010-1 standards and following conditions: - Reinforced insulation - Over voltage category CAT III - Pollution degree PD2 - Heterogeneous field	300	V
$U_d$	RMS voltage for AC insulation test <sup>2)</sup> , 50 Hz, 1 min	3.5 Min	kV
$d_{Cp}$	Creepage distance	6	mm
$d_{Cl}$	Clearance	6	mm
$CTI$	Comparative tracking index (group I)	600	

**Notes:** <sup>1)</sup> If insulated cable is used for the primary circuit, the voltage category could be improved according to the insulation coordination given by the cable manufacturer

<sup>2)</sup> Between primary (completely filling the hole) and secondary.



## 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](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

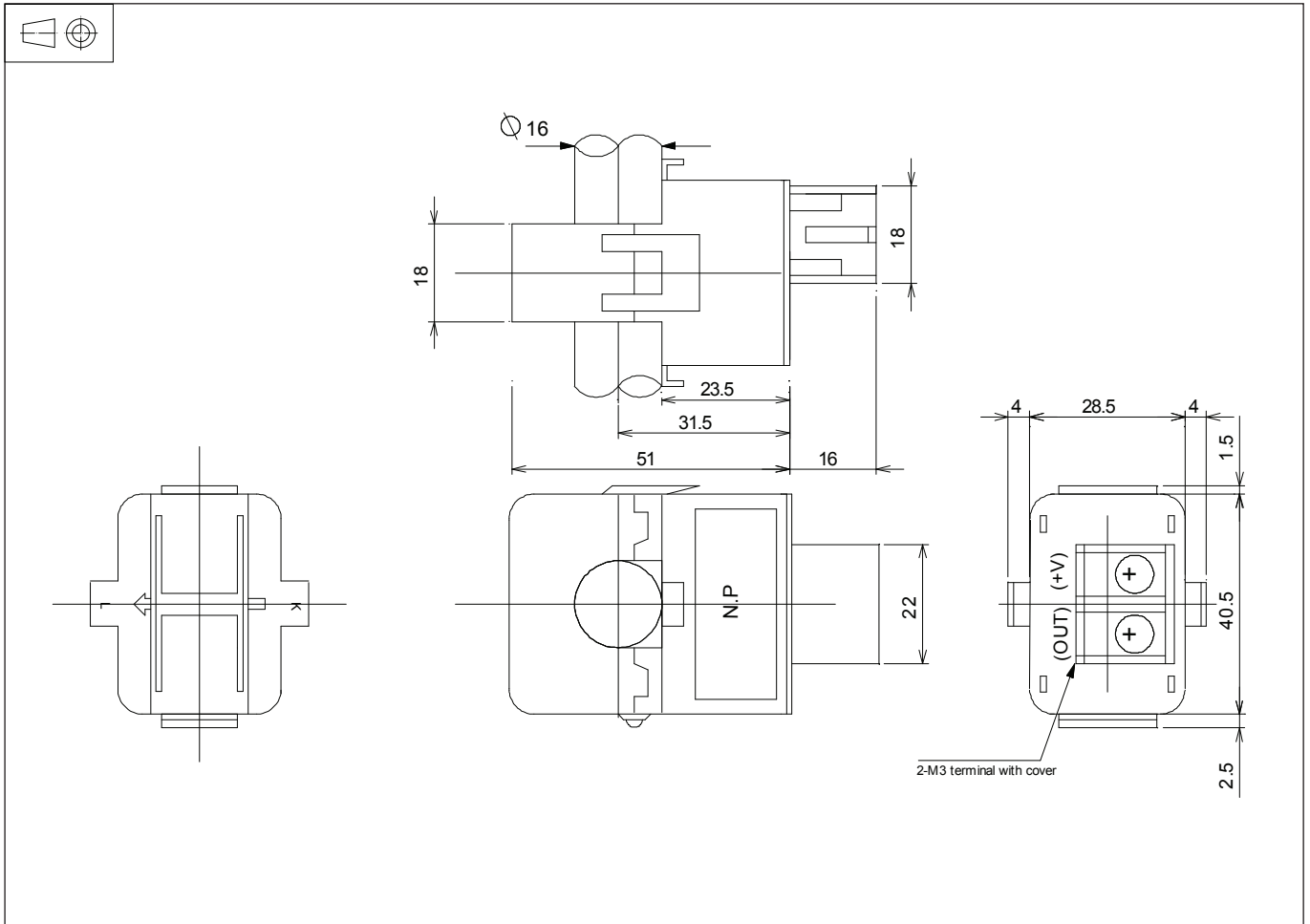
When operating the transducer, certain parts of the module may carry hazardous live voltage (eg. primary conductor, power supply). The user shall ensure to take all measures necessary to protect against electrical shock. The transducer is a build-in device containing conducting parts that shall not be 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 AT-B420L (in mm)

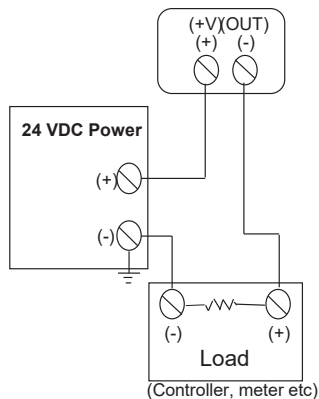


## Mechanical characteristics

- General tolerance  $\pm 1$  mm
- Primary aperture  $\varnothing 16$  mm
- Fastening Cable tie

## Connections

- Wires up to 2 mm  $\varnothing$



## Remarks

- Attention: contact areas (air gap) must be kept clean (particle free) to ensure proper performance.

