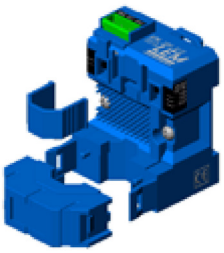
AC Current Transducer APR-B420L

I_{PN} = 10 ... 400 A

Split-core transducer for the electronic measurement of AC currents (all waveforms), with galvanic separation between the primary circuit and the secondary circuit. Switch selectable measuring ranges and true rms 4-20 mA current output (loop powered).



Elecrical data

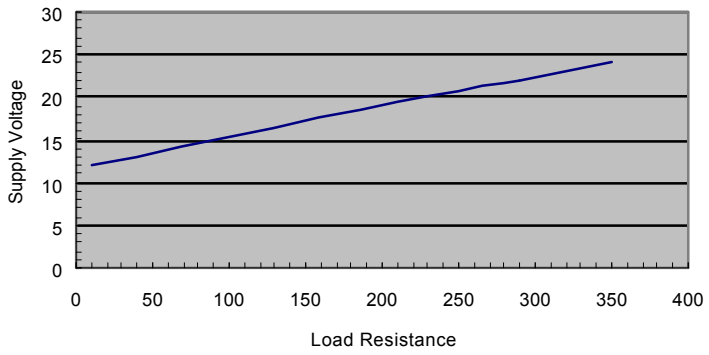
Primary nominal current I_{PN} (At.rms)	Output current I_{OUT} (mA)	Types	RoHS since date code
10, 25, 50	4-20	**APR 50 B420L**	46354
50, 75, 100	4-20	**APR 100 B420L**	47009
100, 150, 200	4-20	**APR 200 B420L**	46317
200, 300, 400	4-20	**APR 400 B420L**	46291

U_C	Supply voltage (loop powered)	+12 … 24	V DC
R_L	Load resistance, with U_C = +24 V DC [1]	< 350	Ω
I_{SL}	Output current limitation [2]	< 25	mA
$\hat{I}_P$	Overload capability [3]	no limitation	

Accuracy - Dynamic performance data

X	Accuracy @ I_{PN}, T_A = 25 °C (excluding offset)	< ±1	% of I_{PN}
ε_L	Linearity error (0 … ±I_{PN})	< ±0.5	% of I_{PN}
I_{OE}	Electrical offset current @ T_A = 25 °C	4	mA
TCI_{OE}	Temperature coefficient of I_{OE}	±1	µA/K
TCI_{OUT}	Temperature coefficient of I_{OUT} (% of reading)	±0.1	%/K
t_r	Step response time to 90 % of I_{PN}	< 400	ms
BW	Frequency bandwidth (±1 %)	30 … 6000	Hz

Notes: [1] Max. Load Resistance vs. Supply voltage



[2] The output current will never exceed this value for safety and protection reasons. The output value is not valid when measuring above the primary nominal current value.

[3] Although the transducer can withstand very high currents, the measuring performance specified in the datasheet is valid within the 4-20 mA output range only.

Features

- VFD and SCR waveform currents measurement
- True rms output
- Split-core type
- Loop powered 4-20 mA current output
- DIN rail or Panel mounting
- Switch selectable measuring ranges
- Insulating plastic case recognized according to UL 94-V0.

Advantages

- Large aperture for cable up to ⌀ 18 mm
- High insulation between primary and secondary circuits
- Eliminates insertion loss
- 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 wy to measure power supply or ballast input power.

Application domains

- Energies and Automation.

Current Transducer APR-B420L

General data

T_A	Ambient operating temperature	−20 … +60	°C
T_S	Ambient storage temperature	−20 … +85	°C
m	Mass	90	g
IPxx	Protection degree	IP 20	

Insulation coordination

U_b	Rated insulation rms voltage [1], 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 [2], 50 Hz, 1 min	5	kV
U_e	Partial discharge extinction rms voltage @ 10 pC	1.5	kV
$\hat{U}_W$	Impulse withstand voltage 1.2/50 µs	6.1	kV
d_{CP}	Creepage distance	5.5	mm
d_{Cl}	Clearance	5.5	mm
CTI	Comparative tracking index (Group I)	600	

Notes: [1] 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.
For example:

Cable insulation (primary)	Category
HAR 05	600 V CAT III
HAR 07	1000 V CAT III

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

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

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 manufacturer' operating instructions.



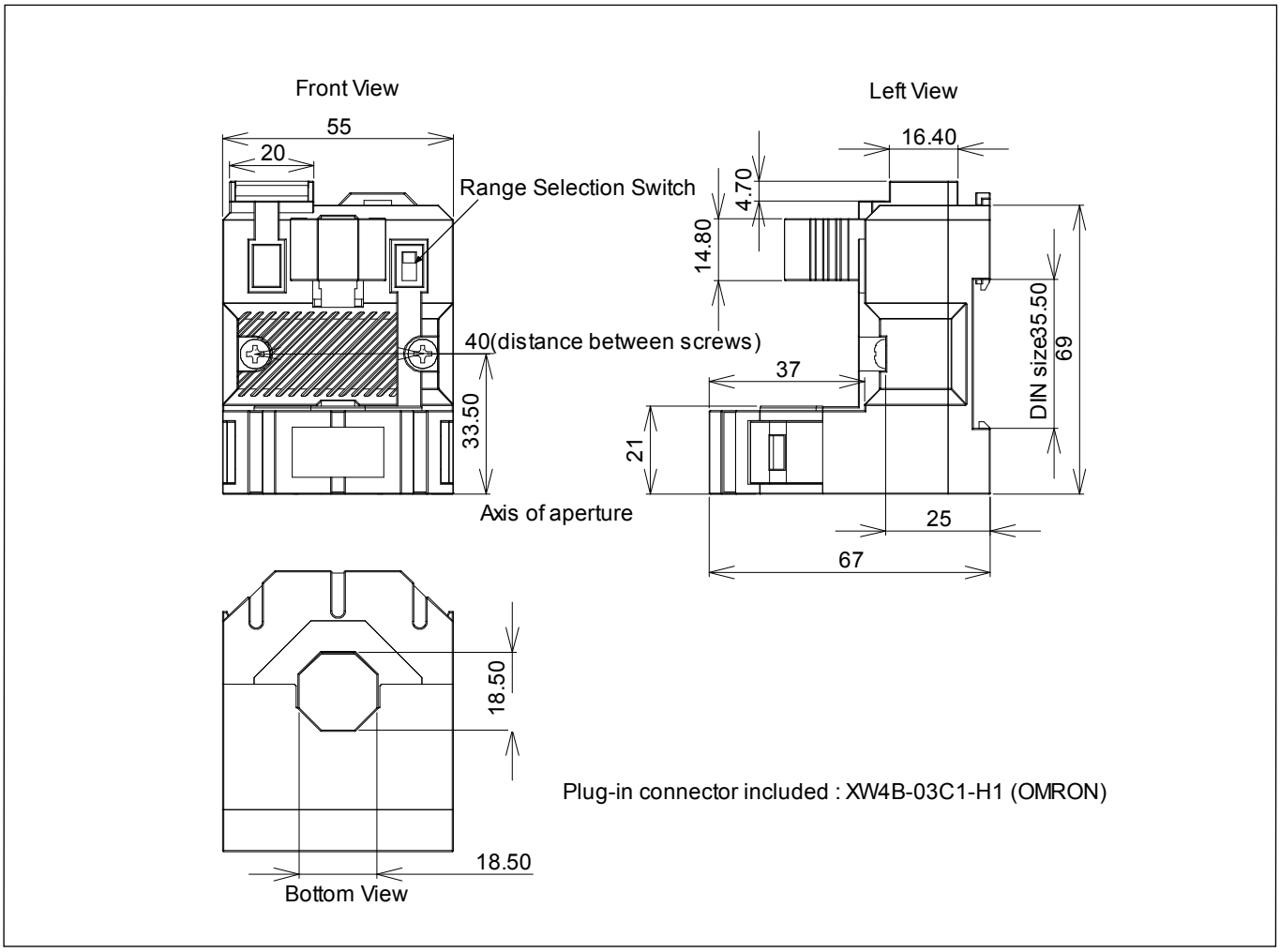
Caution, Risk of electrical shock

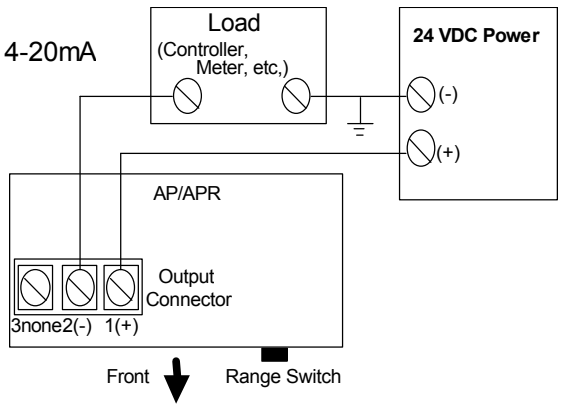
When operating the transducer, certain parts of the module may carry hazardous live voltage (eg. primary conductor, power supply).
The user shall ensure to take all measures necessary to protect against electical shock. The transducer is a build-in device containing conducting parts that shall not be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

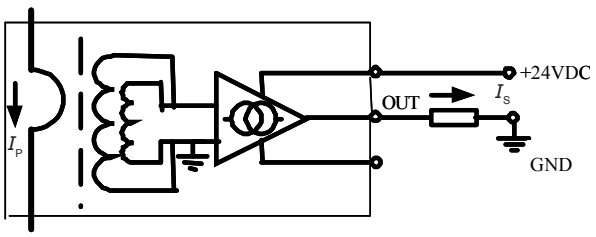
Safe and trouble-free operation of this transducer can only be guaranteed if transport, storage and installation are carried out correctly and operation and maintenance are carried out with care.

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Dimensions AP(R)-B420L (in mm)







Connections

- Wires up to ⌀ 2 mm
- Female connector provided (spring terminal blocks)
- User-friendly spring-cage connection for no-tool direct conductor connection

Mechanical characteristics

- General tolerance ±1 mm
- Primary aperture ⌀ 18.5 mm
- Panel mounting 2 holes ⌀ 4 mm
- Distance between holes 40 mm

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

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