

## Measuring transducers (True RMS)

### I 420 transducers for AC current

### U 420 transducers for AC voltage

I 420 and U 420 are transducers for measuring not sinusoidal AC current/voltage, either directly or via a transformer.

The output gives a load independent DC signal that can be connected to one or several receiving instruments such as panel indicators, recorders, regulators or distant controllers. The transducers work with power supply and have galvanic separation between in- put, output and power supply.

Transducers in plastic case are mounted directly on profiled bars TS35. Connection to selfopening clamps for max 6 mm<sup>2</sup> wires. Transducers for mounting in 19" racks have width 8 TE, which gives place for 10 modules in a rack.

The transducers are manufactured according to IEC 688.

#### Order facts:

Enclosed for mounting on profiled bar 35 EN 50022	19" rack modul (wide 8 TE)	
<b>Type</b>	<b>Type</b>	
<b>I 420L-15x</b>	<b>I 420R-15x</b>	
<b>U 420L-15x</b>	<b>U 420R-15x</b>	
Replace x with last digit for output according to table below		
Output	External resistans load	Last digit x
0 - 5 mA	0-3000 Ω	1
0 -10 mA	0-1500 Ω	2
0 -20 mA	0- 750 Ω	3
4 -20 mA	0- 750 Ω	4
0 -10 V	> 700 Ω	5

#### Order form:

Current transducer    **I 420L-154**  
 Input                    0 - 5 A, 50 Hz  
 Output                    4 - 20 mA  
 Power supply            230 V, 50 Hz  
 Enclosed for mounting on profiled bar 35 EN 50022

## Technical data

#### Input I 420

Measuring range        Any value between 300 mA and 10 A  
 Frequency                15...40-70...1000 Hz  
 Consumption (burden) < 0,05 VA  
 Overload                 $2 \times I_{in}$  continuously  
                                   $10 \times I_{in}$  during 15 s  
                                   $40 \times I_{in}$  during 0,5 s

#### Input U 420

Measuring range        Any value between 10 and 500 V  
 (Rack version max 300 V)  
 Frequency                15...40-70...1000 Hz  
 Consumption (burden)  $< U_{in} \times 1 \text{ mA, VA}$   
 Overload                 $1.5 \cdot U_{in}$  continuously  
                                   $2 \cdot U_{in}$  during 10 s

#### Output

Current output signal: min 0-1 mA  
                                  max 0-20 mA  
 Standard ranges        0...5/10/20 mA, 4-20 mA  
 Load                    max 15 V  
 Current limitation      < 30 mA

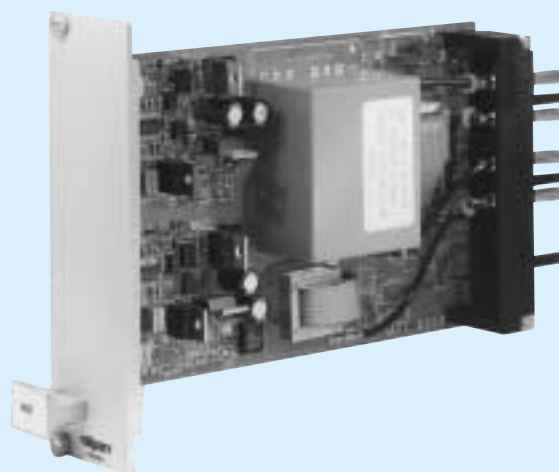
Voltage:                    0-10 V  
 Burden                    >700 Ω

Ripple                    < 1% p.p.

IU420-FA



IU420-FB



## General data

Accuracy                    class 0,5 according to IEC 688  
                                  0,2 on request  
 Linearity error            < 0,1%  
 Response time 0-90%    < 250 ms  
 Temperature influence < 0,1% / 10°C  
 Temperature range      -25...+60°C operation  
                                  -40...+70°C storage  
 Test voltage                5,6 kV, 50 Hz, 1 min  
                                  (Rack version 3,7 kV)  
 Power supply              24, 110, 230 VAC ±15%, 47-70 Hz, ca 2 VA  
                                  24-130 VDC ±20%, ca 2,5 W  
 Weight                    0,5 kg

#### Options on request

## Standards

General standards for measuring transducers EN 60688, IEC 688  
 EMC                        emission EN 50081-2  
                                  immunity EN 50082-2\*)  
 Safety                      EN 61010-1, IEC 1010-1  
 Inputs                      overvoltage cat. III  
 Outputs                    overvoltage cat. II  
 Pollution degree        2

\*) At certain frequencies can minor deviations from the class accuracy occur during the disturbance

## Design

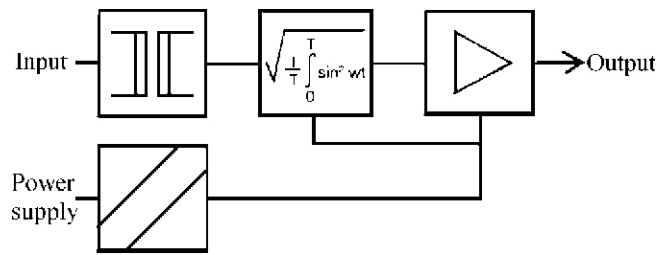
The transducer consists of an input transformer that transforms the input signal to a proper level and at the same time gives galvanic separation between in- and output.

In the next stage squaring and dividing is made after which the signal is fed to the output amplifier. Here the signal is transformed to a proportional load independent DC signal.

In case of DC power supply a switched unit is used which gives galvanic separation and covers the whole span 24-130 VDC.

In case of AC the power supply is taken from a transformer which gives galvanic separation. Parts that need separate power are fed via a rectifier stage.

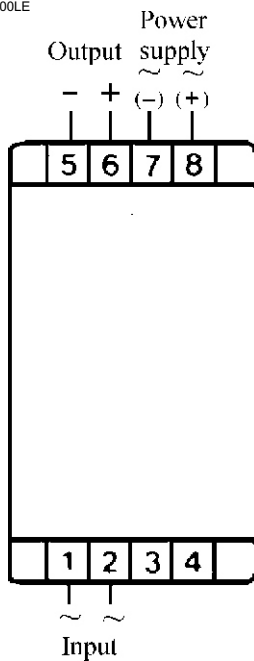
IU420DCE



## Connection diagrams

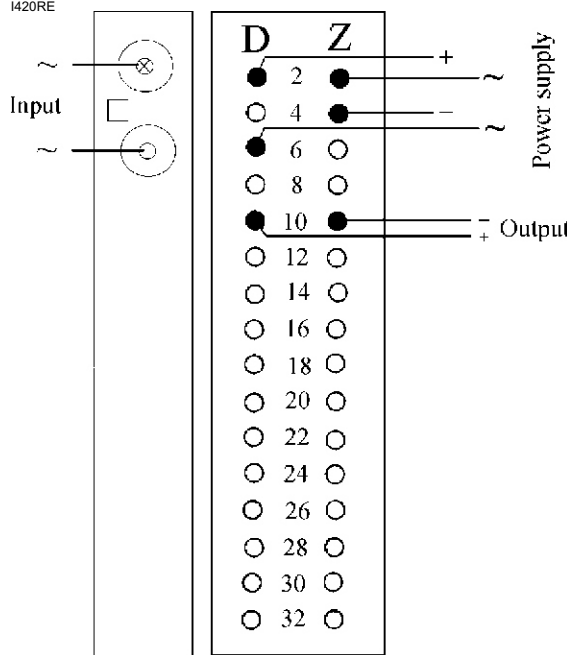
I/U 420 L

IU400LE



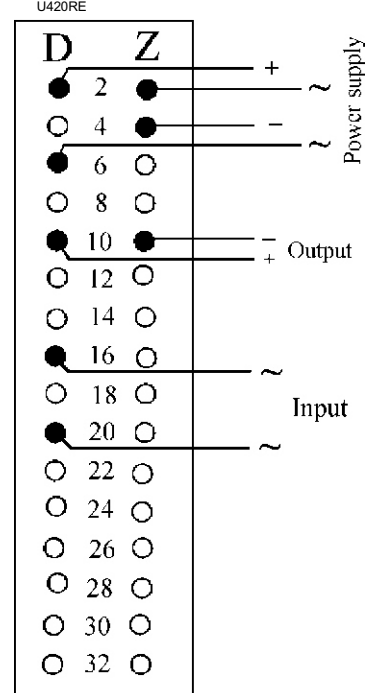
I 420R

I420RE



U 420R

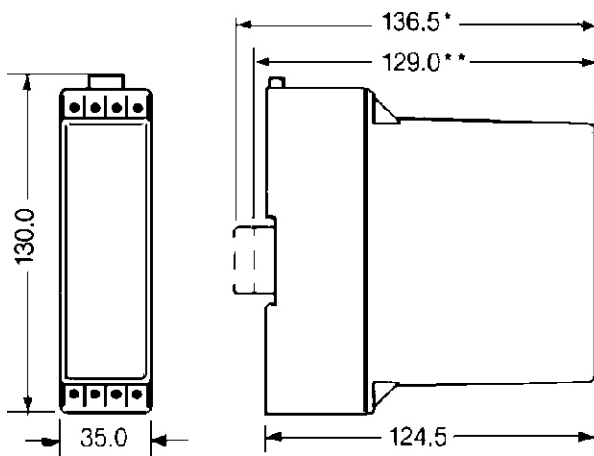
U420RE



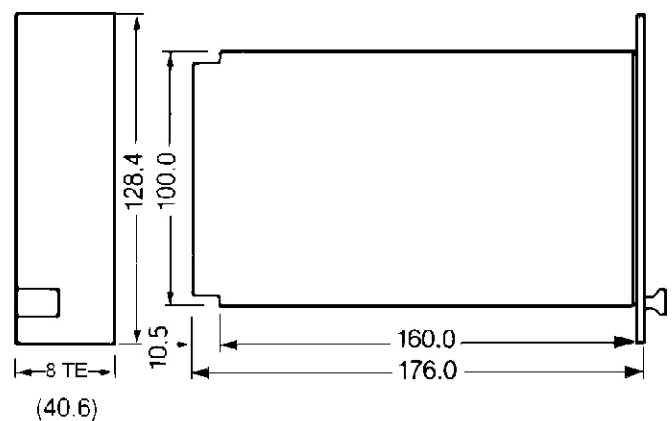
## Dimensions, mm

I/U 420L

MAT0MVME



I/U 420R



\*) Profile bar 35 EN 50022, height 15 mm

\*\*) Profile bar 35 EN 50022, height 7,5 mm