



## Преобразователь напряжения SINEAX U539

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дистрибьютора АО «ЮЕ-Интернейшнл»

# SINEAX U 539

## Transducer for AC voltage

With power supply  
Carrying rail housing P8/35



### Application

The transducer **SINEAX U 539** (Fig. 1) converts a sinusoidal AC voltage into a **load independent** DC current or a **load independent** DC voltage proportional to the measured value.

The transducer fulfils all the important requirements and regulations concerning electromagnetic compatibility **EMC** and **Safety** (IEC 1010 resp. EN 61 010). It was developed and is manufactured and tested in strict accordance with the **quality assurance standard** ISO 9001.



Fig. 1. Transducer SINEAX U 539 in housing P8/35 clipped onto a top-hat rail.

### Features

- Measuring input: AC voltage, sine wave forms

Measured variable	Measuring range limits
AC voltage	0 ... 50 to 0 ... 600 V

- Measuring output: Unipolar and live zero output variables
- Also available with output signal 4...20 mA in 2-wire connection
- Measuring principle: Rectifier method
- Standard as marine version per Lloyd's Register of Shipping

### Technical data

#### Measuring input E $\rightarrow$

Nominal frequency  $f_N$ : 50 / 60 Hz  
 Nominal input voltage  $U_N$   
 (measuring range end value): Measuring range limit values  
 0 ... 50 to 0 ... 600 V  
 Own consumption:  
 $< U_N \cdot 50 \mu\text{A}$  at  $U_N \leq 150 \text{ V}$   
 $< U_N \cdot 20 \mu\text{A}$  at  
 $U_N > 150 \text{ V to } \leq 400 \text{ V}$   
 $< U_N \cdot 5 \mu\text{A}$  at  $U_N > 400 \text{ V}$   
 Operating voltage: Max. 300 V acc. to EN 61 010  
 Overload capacity:

Measured quantity $U_N$	Number of applications	Duration of one application	Interval between two successive applications
$1.2 \cdot U_N$	—	continuously	—
$2 \cdot U_N$	10	1 s	10 s

#### Measuring output A $\rightarrow$

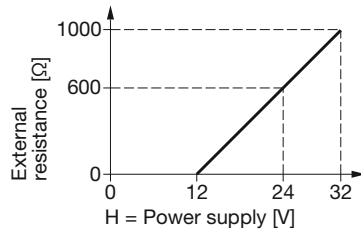
Load-independent  
 DC current: 0 ... 1.0 to 0 ... 20 mA  
 resp. live zero  
 0.2 ... 1 to 4 ... 20 mA  
 Burden voltage: 15 V  
 External resistance:  $R_{\text{ext max.}} [\text{k}\Omega] \leq \frac{15 \text{ V}}{I_{\text{AN}} [\text{mA}]}$   
 $I_{\text{AN}}$  = Output current end value

# SINEAX U 539

## Transducer for AC voltage

### With 2-wire connection

Standard ranges 4 ... 20 mA  
External resistance  $R_{\text{ext}}$  dependent  
on power supply H (12...32 V DC)



$$R_{\text{ext max.}} [\text{k}\Omega] = \frac{H [\text{V}] - 12 \text{ V}}{20 \text{ mA}}$$

Load-independent  
DC voltage:

0 ... 1 to 0 ... 10 V resp.  
live zero 0.2 ... 1 to 2 ... 10 V

External resistance:

$$R_{\text{ext min.}} [\text{k}\Omega] \geq \frac{U_A [\text{V}]}{10 \text{ mA}}$$

Current limit  
under overload:

< 30 mA

Voltage limit under  $R_{\text{ext}} = \infty$ :

< 40 V

Residual ripple in  
output current:

$\leq 1\%$  p.p.

Setting time:

< 300 ms

### Power supply H $\rightarrow$ ○

AC voltage:

230 V,  $\pm 15\%$ , 50 / 60 Hz  
Power consumption approx. 3 VA

DC voltage:

24 V,  $-15 / +33\%$ ,  
Power consumption approx. 1.5 W  
or  
24 V,  $-50 / +33\%$  at 2-wire con-  
nection and output 4...20 mA

DC or AC voltage:

DC, AC power pack  
(DC or 40 - 400 Hz)  
85 - 230 V or 24 - 60 V  
DC  $-15/+33\%$ , AC  $\pm 15\%$   
Power consumption  
 $\leq 1.5 \text{ W}$  resp.  $\leq 3 \text{ VA}$

### Accuracy (acc. to EN 60 688)

Reference value:

Output end value

Accuracy:

Class 0.5 ( $U_N \leq 500 \text{ V}$ )  
Class 1 ( $U_N > 500 \text{ V}$ )

### Reference conditions:

Ambient temperature

15 ... 30 °C

Input frequency

50 Hz

Curve shape

Sine-wave,  
Distortion factor < 1%

Output burden

Current:  $0.5 \cdot R_{\text{ext max.}}$

Voltage:  $2 \cdot R_{\text{ext min.}}$

In rated range

Power supply

### Safety

Protection class:

II (protection isolated, EN 61 010)

Housing protection:

IP 40, housing  
(test wire, EN 60 529)

IP 20, terminals  
(test finger, EN 60 529)

Contamination level:

2

Overvoltage category:

III (at  $\leq 300 \text{ V}$ )

II (at  $> 300 \text{ V}$ )

Rated insulation voltage  
(versus earth):

300 V input  
300 V power supply AC  
50 V power supply 24 V DC  
50 V output

Test voltage:

50 Hz, 1 min. acc. to EN 61 010-1  
3700 V, input versus all other circuits  
as well as outer surface  
3700 V, power supply AC versus  
output as well as outer surface  
490 V, power supply 24 V DC versus  
output as well as outer surface  
490 V, output versus outer surface

### Installation data

Mechanical design:

Housing **P8/35**

Material of housing:

Lexan 940 (polycarbonate),  
flammability Class V-0 acc. to UL  
94, self-extinguishing, non-dripping,  
free of halogen

Mounting:

For rail mounting

Weight:

Approx. 280 g  
with AC power supply  
Approx. 210 g  
with DC power supply  
Approx. 125 g  
with 2-wire connection  
Approx. 220 g  
with DC, AC power pack

### Connecting terminals

Connection element:

Screw-type terminals with indirect  
wire pressure

Permissible cross section  
of the connection leads:

$\leq 4.0 \text{ mm}^2$  single wire or  
 $2 \times 2.5 \text{ mm}^2$  fine wire

### Environmental conditions

Operating temperature:

$-10$  to  $+55$  °C

Storage temperature:

$-40$  to  $+70$  °C

Relative humidity of  
annual mean:

$\leq 75\%$

Altitude:

2000 m max.

Indoor use statement!

# SINEAX U 539

## Transducer for AC voltage

### Ambient tests

EN 60 068-2-6:	Vibration	EN 60 068-2-1/-2/-3:	Cold, dry heat, damp heat
Acceleration:	± 2 g	IEC 1000-4-2/-3/-4/-5/-6	Electromagnetic compatibility
Frequency range:	10 ... 150 ... 10 Hz, rate of frequency sweep: 1 octave/minute	EN 55 011:	
Number of cycles:	10, in each of the three axes	<b>Germanischer Lloyd</b>	
EN 60 068-2-27:	Shock	Type approval certificate:	No. 12 259-98 HH
Acceleration:	3 × 50 g 3 shocks each in 6 directions	Ambient category:	C
		Vibration:	0.7 g

### Specification and ordering information

Description	*Blocking code	No-go with blocking code	Article No./ Feature
<b>SINEAX U 539</b>	<b>Order Code 539 - xxxx xxx</b>		539 –
<b>Features, Selection</b>			
<b>1. Mechanical design</b> Housing P8/35 for rail mounting			4
<b>2. Nominal input frequency</b> 50 / 60 Hz			1
<b>3. Measuring range</b> 0 ... 100 V			A
0 ... 250 V			B
0 ... 500 V			C
Non-standard 0 ... 50 to 0 ... 600 V [M]			Z
<b>4. Output signal</b> 0 ... 20 mA, $R_{ext} \leq 750 \Omega$	A		1
4 ... 20 mA, $R_{ext} \leq 750 \Omega$	A		2
4 ... 20 mA, 2-wire connection, $R_{ext}$ dependent on power supply	B		3
Non-standard 0 ... 1 to 0 ... < 20 [mA] 0.2 ... 1 to < (4 ... 20)	A		9
0 ... 10 V, $R_{ext} \geq 1 k\Omega$	A		A
Non-standard 0 ... 1.00 to 0 ... < 10 [M] 0.2 ... 1 to 2 ... 10	A		Z
<b>5. Power supply</b> 230 V, 50/60 Hz	C	B	5
24 V DC	C	B	A
24 V DC via output circuit at 2-wire connection	C	A	B
24 ... 60 V DC, AC (DC, AC power pack)		B	C
85 ... 230 V DC, AC (DC, AC power pack)		B	D
<b>6. Measuring range adjustable</b> Measuring range end value permanently set (standard)			0
Measuring range can be adjusted approx. ± 10% Only in combination with DC, AC power pack, feature 5, line C or D!		C	1

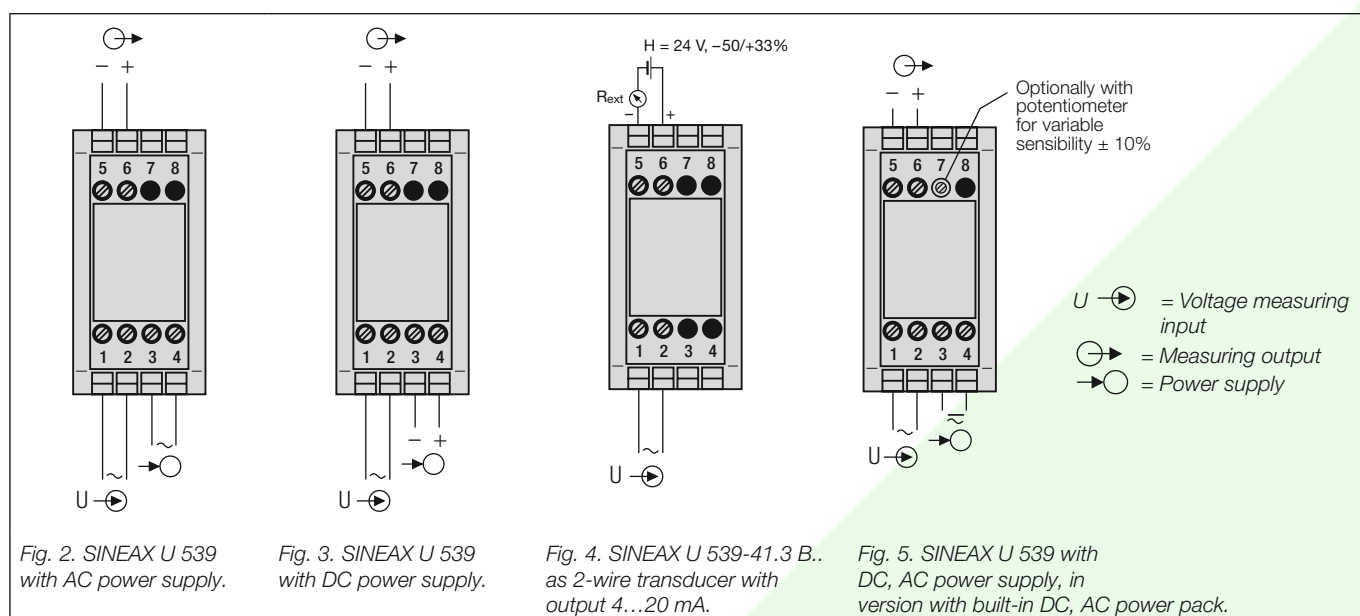
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## Transducer for AC voltage

Description	*Blocking code	No-go with blocking code	Article No./ Feature
<b>SINEAX U 539</b>	<b>Order Code 539 - xxxx xxx</b>		539 -
<b>Features, Selection</b>			
<b>7. Test certificate</b>			
Without test certificate			0
Test certificate in German			D
Test certificate in English			E

\* Lines with letter(s) under "no-go" cannot be combined with preceding lines having the same letter under "Blocking code".

### Electrical connections



### Dimensional drawing

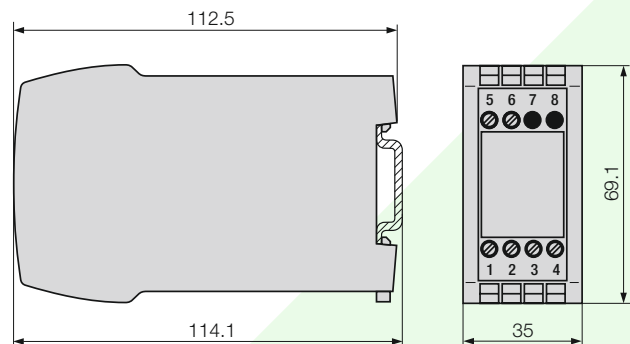


Fig. 6. SINEAX U 539 in housing P8/35 clipped onto a top-hat rail (35 x 15 mm or 35x7.5 mm, acc. to EN 50 022).

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