SINEAX I 542
Transducer for AC current

CAMILLE BAUER

Self-powered
With 2 measuring ranges
Carrying rail housing P8/35

Application

The transducer **SINEAX I 542** (Fig. 1) converts a sinusoidal AC current signal into an output signal that can serves several receiving instruments such as indicators, recorders, alarm units etc.

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.

Features / Benefits

- **Measuring input: 2 measuring ranges, 1/5 A or 1.2/6 A**
- **Self-powered / Less wiring expense**
- **Low power consumption / Smaller CT's can be used**
- **Standard version as per Germanischer Lloyd**

Layout and mode of operation

The transducer comprises a transformer W, a rectifier unit G and an amplifier V (Fig. 2).

The measured variable is isolated from the electronics by the transformer, and is rectified and smoothed in the rectifier unit. The amplifier amplifies the resultant signal and converts it into the load-independent DC signal.

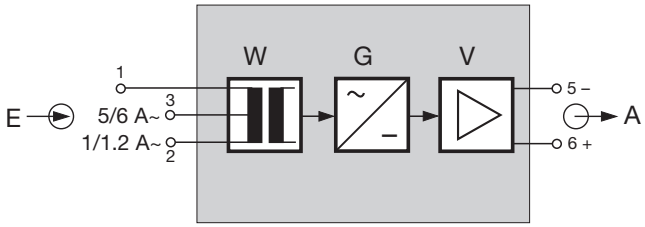


Fig. 2. Block diagram.

Table 1: Standard versions

The following transducer versions are available as standard versions. It is only necessary to quote the **Order No.:**

Description	Measuring range	Output signal	**Order No.**
Transducer for AC current, nominal frequency 50 / 60 Hz in housing P8/35	0…1 A / 5 A	0… 5 mA	129 595
	0…1 A / 5 A	0…10 mA	129 602
	0…1 A / 5 A	0…20 mA	129 610
	0…1.2 A / 6 A	0… 5 mA	136 417
	0…1.2 A / 6 A	0…10 mA	136 425
	0…1.2 A / 6 A	0…20 mA	136 433

Please complete the Order Code 542-4... . acc. to "Table 2: Specification and ordering information" for versions with user-specific input ranges and/or variable sensitivity.

Technical data

Measuring input E

Nominal frequency: 50 / 60 Hz

*Fig.1. SINEAX I 542 transducer in housing **P8/35** clipped onto a top-hat rail.*

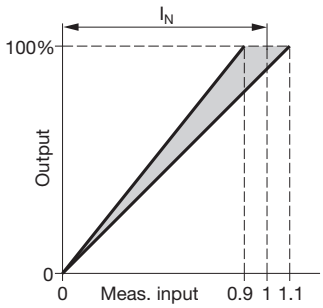
Nominal input current I_N (measuring range end value): Measuring range limit values 0…0.5 to 0…7.5 A (only one measuring range)

Own consumption at nominal frequency 50 Hz:

I_{AN} [mA]	[VA]
1	1.5
5	1.7
10	2.0
20	2.5

Setting (special feature): Admissible alteration of full scale output, variable sensitivity, adjustable with potentiometer

Setting range approx. 0.9 … 1.1 · I_N (approx. ± 10%)



Overload capacity:

Measured quantity I_N	Number of applications	Duration of one application	Interval between two successive applications
1.2 × I_N	—	continuously	—
20 × I_N	10	1 s	100 s

Measuring output A

Standard ranges: 0…1, 0…5, 0…10 or 0… 20 mA

Burden voltage: 15 V

External resistance: R_{ext} max. [kΩ] = $\frac{15\ V}{I_{AN}\ [mA]}$

I_{AN} = full output value

Not superimposed DC voltage U_A: 0 … 10 V
External resistance ≥ 200 kΩ

Current limit under overload: ≤ 1.7 · I_{AN}

Voltage limit under $R_{ext} = \infty$: ≤ 30 V

Residual ripple: ≤ 1% p.p.

Response time: ≤ 300 ms

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Transducer for AC current

Accuracy (acc. to EN 60 688)

Reference value:	Output end value
Basic accuracy:	Class 0.5
Reference conditions:	
Ambient temperature	15 … 30 °C
Input	0 … 100%
Frequency	f_N ± 2 Hz
Output burden	Current: 0.5 · R_{ext} max. Voltage: 2 · R_{ext} min.
Additional error:	
Temperature influence (– 10 … 55 °C)	± 0.2% / 10 K

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)
Pollution degree:	2
Installation category:	III
Test voltage:	50 Hz, 1 min. acc. to EN 61 010-1 3700 V, measuring input versus measuring output and outer surface 490 V, measuring 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
Mounting position:	Any
Weight:	Approx. 0.26 kg

Connecting terminals

Connection elements:	Screw-type terminals with indirect wire pressure
Permissible cross section of the connection leads:	≤ 4.0 mm² single-wire or 2 × 2.5 mm² fine-wire

Environmental conditions

Operating temperature:	– 10 to + 55 °C
Storage temperature:	– 40 to + 70 °C
Relative humidity of annual mean:	≤ 75%
Altitude:	2000 m max.
Indoor use statement	

Standard accessories

1 Operating Instructions in three languages: German, French, English

Table 2: Specification and ordering information

(see also Table 1: "Standard versions")

Order Code **542 –**	
Features, Selection	
1. Mechanical design	
4) Housing P8/35 for rail mounting	4 . . . .
2. Measuring range	
1) 0 … 1 / 5 A	. 1 . . .
2) 0 … 1.2 / 6 A	. 2 . . .
9) Non-standard [A] 0…0.5 to 0…7.5 A (for one measuring range only)	. 9 . . .
Lines 1 and 2: Lower or higher range depending on connection	
3. Output signal	
1) 0… 5 mA, R_{ext} ≤ 3 kΩ	. . 1 . .
2) 0…10 mA, R_{ext} ≤ 1.5 kΩ	. . 2 . .
3) 0…20 mA, R_{ext} ≤ 750 Ω	. . 3 . .
4) 0… 1 mA, R_{ext} ≤ 15 kΩ	. . 4 . .
A) 0…10 V, R_{ext} ≥ 200 kΩ	. . A . .
Z) Non-standard [V] 0…1 to 0…< 10	. . Z . .
4. Measuring range adjustable	
0) Meas. range end value permanently set	. . . 0 .
1) Measuring range can be adjusted approx. ± 10%	. . . 1 .
5. Test records	
0) Without test records	 0
D) Test records in German	. . . . D
E) Test records in English	. . . . E

Electrical connections

Connection	Connecting terminals
Measuring input E	1 and 2 or 1 and 3 acc. to version, see type label
Measuring output A	5 – and 6 +

Dimensional drawing

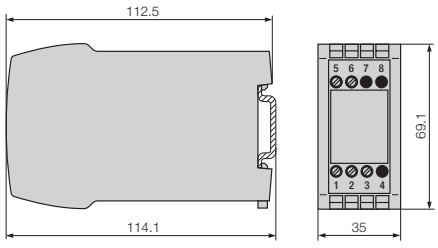

*Fig. 3. SINEAX I 542 in housing **P8/35** clipped onto a top-hat rail (35 × 15 mm or 35 × 7.5 mm, acc. to EN 50 022).*

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