

SINEAX I 538

Transducer for AC current

With power supply
Carrying rail housing P8/35



Application

The transformer **SINEAX I 538** (Fig. 1) converts a sinusoidal AC current 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 I 538 in housing P8/35 clipped onto a top-hat rail.

Features

- Measuring input: AC current, sine wave forms

Measured variable	Measuring range limits
AC current	0 ... 0.8 to 0 ... 1.2 A or 0 ... 4 to 0 ... 6 A

- 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

Table 1: Standard versions

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

Nominal frequency	Measuring range	Output signal	Power supply	Order No.
50/60 Hz	0 ... 1 A	4 ... 20 mA	230 V AC	137 431
	0 ... 5 A	4 ... 20 mA	4-wire connection	137 449
	0 ... 1 A	4 ... 20 mA	24 V DC 4-wire connection	146 979
			24 V DC 2-wire technology	136 590
	0 ... 5 A	4 ... 20 mA	24 V DC 4-wire connection	146 987
			24 V DC 2-wire technology	136 607

Please complete the Order Code 538-41... according to Table 2: "Specification and Ordering Information" for versions with user-specific input and/or output ranges.

Technical data

Measuring input E \rightarrow

Nominal frequency f_N : 50 / 60 Hz

Nominal input current I_N
(measuring range end value): Measuring range limit value
0 ... 0.8 to 0 ... 1.2 A or
0 ... 4 to 0 ... 6 A

Own consumption: $\leq 5 \text{ mV} \cdot I_N$ with input end value

Overload capacity:

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

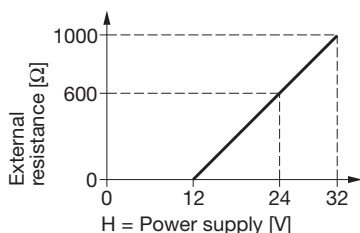
External resistance: $R_{\text{ext max.}} [\text{k}\Omega] \leq \frac{15 \text{ V}}{I_{\text{AN}} [\text{mA}]}$
 I_{AN} = Output current end value

SINEAX I 538

Transducer for AC current

With 2-wire connection

Standard ranges 4 ... 20 mA
External resistance R_{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:

≤ 1% p.p.

Setting time:

< 300 ms

Power supply H

AC voltage:

24, 110, 115, 120, 230 or 400 V,
± 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 ± 15%
Power consumption
≤ 1.5 W resp. ≤ 3 VA

Accuracy (acc. to EN 60 688)

Reference value:

Output end value

Accuracy:

Class 0.5

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

Power supply

in rated range

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

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:

≤ 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

SINEAX I 538

Transducer for AC current

Ambient tests		IEC 1000-4-2/-3/-4/-5/-6	
EN 60 068-2-6:	Vibration	EN 55 011:	Electromagnetic compatibility
Acceleration:	± 2 g	Germanischer Lloyd	
Frequency range:	10 ... 150 ... 10 Hz, rate of frequency sweep: 1 octave/minute	Type approval certificate:	No. 12 258-98 HH
Number of cycles:	10, in each of the three axes	Ambient category:	C
EN 60 068-2-27:	Shock	Vibration:	0.7 g
Acceleration:	3 × 50 g 3 shocks each in 6 directions		
EN 60 068-2-1/-2/-3:	Cold, dry heat, damp heat		

Table 2: Specification and ordering information (see also Table 1: Standard versions)

Description	*Blocking code	No-go with blocking code	Article No./ Feature
SINEAX I 538	Order Code 538 - xxxx xxx		538 –
Features, Selection			
1. Mechanical design			
Housing P8/35 for rail mounting			4
2. Nominal input frequency			
50 / 60 Hz			1
3. Measuring range			
0 ... 1 A			A
0 ... 5 A			B
Non-standard 0 ... 0.8 to 0 ... 1.2 or 0 ... 4 to 0 ... 6 [A]			Z
4. Output signal			
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, $R_{ext} \geq 1 \text{ k}\Omega$	A		A
Non-standard 0 ... 1.00 to 0 ... < 10 [V] 0.2 ... 1 to 2 ... 10	A		Z
5. Power supply			
24 V, 50/60 Hz	C	B	1
110 V, 50/60 Hz	C	B	2
115 V, 50/60 Hz	C	B	3
120 V, 50/60 Hz	C	B	4
230 V, 50/60 Hz	C	B	5
400 V, 50/60 Hz, max. 300 V versus earth	C	B	6
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

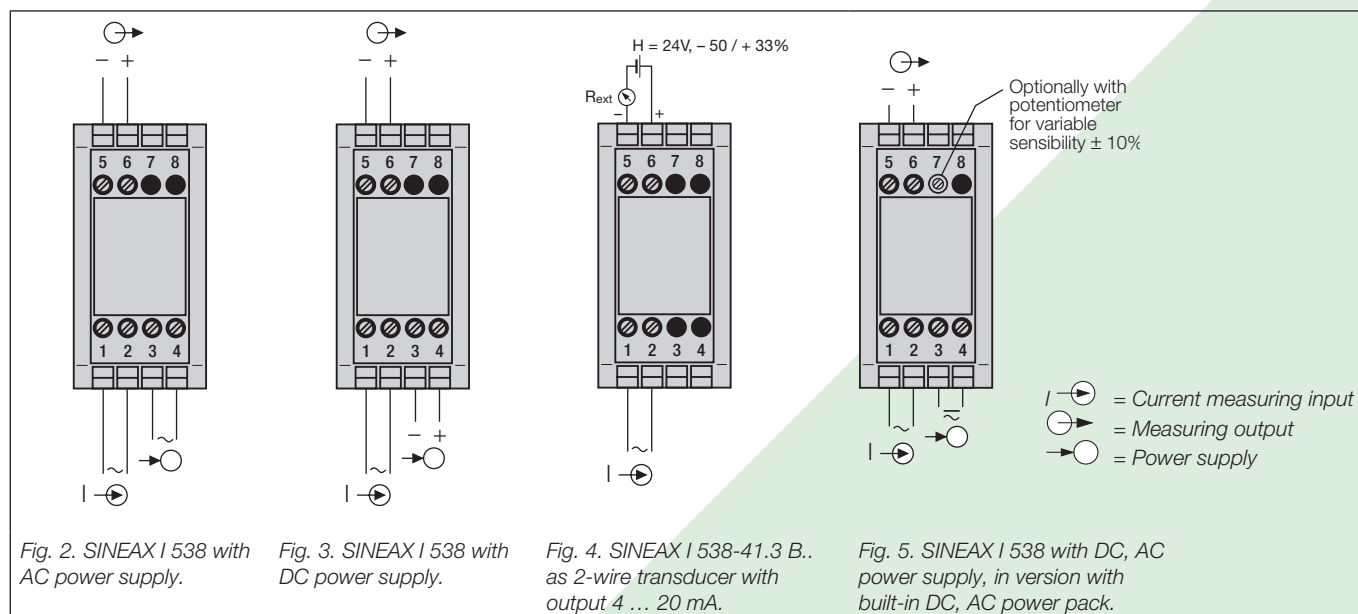
SINEAX I 538

Transducer for AC current

Description	*Blocking code	No-go with blocking code	Article No./ Feature
SINEAX I 538	Order Code 538 - xxxx xxx		538 -
Features, Selection			
6. Measuring range adjustable			
Measuring range end value permanently set (standard)			0
Measuring range can be adjusted approx. $\pm 10\%$ Only in combination with DC, AC power pack, feature 5, line C or D!		C	1
7. Test certificate			
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

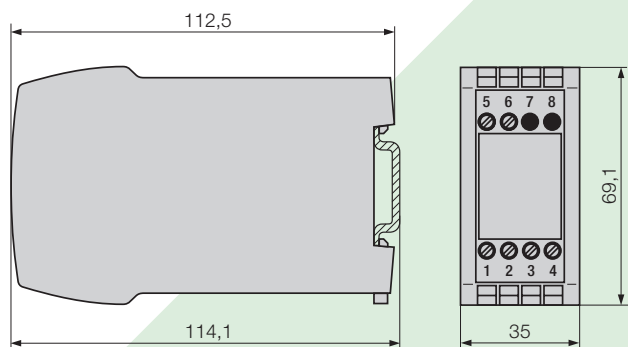


Fig. 6. SINEAX I 538 in housing **P8/35** clipped onto a top-hat rail (35 x 15 mm or 35 x 7.5 mm, acc. to EN 50 022).

CAMILLE BAUER

Rely on us.

Camille Bauer AG
 Aargauerstrasse 7
 CH-5610 Wohlen / Switzerland

Phone: +41 56 618 21 11

Fax: +41 56 618 35 35

e-Mail: info@camillebauer.com

www.camillebauer.com