

SINEAX P530/Q531

Kétvezetékes AC teljesítmény-távadó



Sínre építhető tokozás P13/70, ill. P18/105



A **SINEAX P530/Q531** távadó 1-, vagy 3-fázisú szimmetrikusan, vagy aszimmetrikusan terhelte AC rendszer valódi, vagy meddő teljesítmény értékét alakítja át arányos terhelés független DC feszültség, vagy áram jellé. .
A távadó kielégíti a vonatkozó érintésvédelmi (IEC 1010 ill. EN 61 010) és EMC előírásokat
A tervezés és gyártás ISO 9001 minőségi rendszerben történt.



Fig. 1. Transducer SINEAX P530 in housing P18/105 clipped onto a top-hat rail.

Tulajdonságok

- Bemenet: táblázat szerinti szinuszos jel

Mért mennyiség	Névleges bemenő áram	Névleges bemenő feszültség
Hatásos, vagy meddő teljesítmény	1... 6 A	100... 690 V

- Kimenet: Unipoláris, bipoláris, vagy élőnullás kimenet
- Mérési elv: TDM rendszer
- DC-, AC táplálás, széles tápfeszültség tartomány
- Standard és Lloyd's Register of Shipping szerinti tengeri kivitel

Műszaki adatok

- Mért mennyiség: Hatásos, vagy meddő teljesítmény, unipoláris, vagy bipoláris (4-negyedes)
- Mérési elv: pulzus-szélesség moduláció (Time-Division-Multiplikation, TDM)

Mérő bemenetek

- Névleges frekvencia f_n : 50/60 Hz, szinusz
- Névleges bemenő feszültség U_n : 100... 690 V (85... 230 V táplálással a mért hálózathoz)
- Névleges bemenő áram I_n : 1... 6 A
- Kalibrációs tényező: 0.75... 1.3 hatásos teljesítménnyel, 0.5... 1.0 meddő teljesítménnyel
- Megengedett méréstartomány és értékek (kalibrációs tényező c): táblázat 2 szerint 6-os tulajdonság
- Saját teljesítmény igény:
 $\leq I^2 \cdot 0.01 \Omega$ áramáganként
 $U^2 / 400 \text{ k}\Omega$ feszültség áganként

Túlterhelhetőség

Mért mennyiség U_n	Ismétlések száma	Egy ismétlés hossza	Két ismétlés közötti idő
$1.2 * U_n$ (1)	-	folytonos	-
$2 * U_n$ (1)	10	1 sec	10 sec
$1.2 * I_n$	-	folytonos	-
$20 * I_n$	10	1 sec	100 sec

1) De max. 264 V, ha a táplálás a mért hálózathoz történik

Kimenet

- Terhelés független DC áram:
 $0... 1.0$ -től $0... 20 \text{ mA}$ -ig
 ill. élőnullás $0.2... 1$ -től $4... 20 \text{ mA}$ -ig
 $\pm 1.0... \pm 20 \text{ mA}$
- Feszültség a terhelésen: $\pm 15 \text{ V}$
- Terhelés független DC feszültség:
 $0... 1$ -től $0... 10 \text{ V}$ -ig,
 ill. élőnullás $0.2... 1$ -től $2... 10 \text{ V}$ -ig
 $\pm 1 \text{ V}... \pm 10 \text{ V}$
- Terhelés: 4 mA
- Feszültség korlát $R_{k\text{üls}\ddot{o}} = \infty$ esetén: $\leq 40 \text{ V}$
- Áramkorlát túlvezérléskor: kb. $1.3 * I_{AN}$ áramkimenet esetén, kb. 30 mA feszültség kimenet esetén
- Maradék hullámoosság az áramkimeneten: $< 1\% \text{ pp}$
- Válaszidő: $< 300 \text{ ms}$

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Transducer for Active or Reactive Power

Load independent DC voltage:	0 ... 1 to 0 ... 10 V resp. live-zero 0.2 ... 1 to 2 ... 10 V ± 1 V to ± 10 V
Load capacity:	4 mA
Voltage limit under $R_{\text{ext}} = \infty$:	≤ 40 V
Current limit under overload:	Approx. $1.3 \times I_{\text{AN}}$ at current output Approx. 30 mA at voltage output
Residual ripple in output current:	$< 1\%$ p.p.
Response time:	< 300 ms

Accuracy (acc. to EN 60 688)

Reference value:	Output end value
Basic accuracy:	Class 0.5

Reference conditions:

Ambient temperature	15 ... 30 °C
Input current	$I_N \cdot c$
Input voltage	U_N
Power factor	$\cos\phi = 0.8 \dots 1.0 \dots 0.8$ with active power $\cos\phi = 0.8 \dots 1.0 \dots 0.8$ with reactive power
Frequency	50 or 60 Hz
Wave form	Sine, distortion factor $< 1\%$
Power supply	At nominal range
Output burden	Current: $0.5 \cdot R_{\text{ext}}$ max. Voltage: $2 \cdot R_{\text{ext}}$ min.

Safety

Protection class:	II (protection isolated, EN 61 010)
Protection:	IP 40, housing (test wire, EN 60 529) IP 20, terminals (test finger, EN 60 529)
Pollution degree:	2
Installation category:	III
Rated insulation voltage (against earth):	400 V, inputs 230 V, power supply 40 V, output
Test voltage:	50 Hz, 1 min. acc. to EN 61 010-1 5550 V, inputs versus all other circuits as well as outer surface 3250 V, input circuits versus each other 3700 V, power supply versus output as well as outer surface 490 V, output versus outer surface

Power supply →○

DC-, AC-power pack (DC or 40 ... 400 Hz)

Table 1: Rated voltages and permissible variations

Rated voltage	Tolerance
85 ... 230 V DC, AC	DC $- 15 \dots + 33\%$ AC $\pm 15\%$
24 ... 60 V DC, AC	AC $\pm 15\%$

Power consumption: Approx. 2.5 W resp. 4.5 VA

Options

Power supply from voltage measuring input: ≥ 85 to 230 V AC
(Nominal input voltage range = internal power supply range)

Connected to the low tension: 24 V AC or 24 ... 60 V DC

Installation data

Mechanical design:	Housing P13/70 resp. P18/105
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:	Housing P13/70 approx. 0.3 kg Housing P18/105 approx. 0.7 kg

Connecting terminals

Connection element:	Screw-type terminals with indirect wire pressure
Permissible cross section of the connection leads:	≤ 4.0 mm ² single wire or 2 x 2.5 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!	

Ambient tests

EN 60 068-2-6:	Vibration
Acceleration:	± 2 g
Frequency range:	10 ... 150 ... 10 Hz, rate of frequency sweep: 1 octave/minute
Number of cycles:	10, in each of the three axes

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EN 60 068-2-27:	Shock	Germanischer Lloyd	
Acceleration:	3 x 50 g 3 shocks each in 6 directions	Type approval certificate:	No. 12 260-98 HH
EN 60 068-2-1/-2/-3:	Cold, dry heat, damp heat	Ambient category:	C
IEC 1000-4-2/-3/-4/-5/-6		Vibration:	0.7 g
EN 55 011:	Electromagnetic compatibility		

Table 2: Specification and ordering information

Description	*Blocking code	No-go with blocking code	Article No./ Feature
Order Code xxx - xxxx xxxx xx			
Features, Selection			
SINEAX P530, Transducer for active power			530 –
SINEAX Q531, Transducer for reactive power			531 –
1. Mechanical design			
Housing type P for rail mounting			4
2. Measuring mode / Application			
3-wire 3-phase balanced load, housing P18/105			1
Type 530 (active power) available also for 4-wire 3-phase balanced load			
3-wire 3-phase unbalanced load, housing P18/105			2
4-wire 3-phase unbalanced load, housing P18/105			3
Single-phase AC, housing P13/70	E		4
3. Nominal input frequency			
50 Hz			1
60 Hz			2
4. Nominal input voltage (measuring input)			
100 ... 115 V [V]			1
200 ... 230 V [V]			2
380 ... 440 V Single-phase AC max. 400 V [V]	A		3
600 ... 690 V Not possible with single-phase AC [V]	A	E	4
Non-standard U_N Non-standard [V]: ≥ 115.00 to < 600 with 3-phase system, ≥ 57.73 to ≤ 400 with single-phase AC; With power supply from measuring input max. 230 V [V]			9
Lines 1 to 9: Without PT: Specify effective nominal voltage With PT: Specify primary/secondary voltage in V, e.g. 16000/100 Input voltage U_N : – line-to-line voltage with 3-phase system – line-to-neutral voltage with single-phase AC			
5. Nominal input current (measuring input)			
1 A [A]			1
5 A [A]			2
Non-standard I_N [A] > 1 to ≤ 6 A [A]			9
With CT: Specify primary/secondary current in A			

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Transducer for Active or Reactive Power

Description	*Blocking code	No-go with blocking code	Article No./ Feature
Order Code xxx - xxxx xxxx xx			
Features, Selection			
SINEAX P530, Transducer for active power			530 –
SINEAX Q531, Transducer for reactive power			531 –
6. Measuring range W or Var			
Measuring range bipolar [W] or [Var] <input type="text"/>			1
Measuring range unipolar [W] or [Var] <input type="text"/>	B		2
Specify measuring range in W or Var, e.g. 500 at measuring range bipolar – 500 ... + 500 1000 at measuring range unipolar 0 ... 1000 Admissible measuring range end values (calibration factor c) With single-phase AC active power ≥ 0.75 to $1.3 \cdot U_N \cdot I_N$ With single-phase AC reactive power ≥ 0.5 to $1.0 \cdot U_N \cdot I_N$ With 3-phase system active power ≥ 0.75 to $1.3 \cdot \sqrt{3} \cdot U_N \cdot I_N$ With 3-phase system reactive power ≥ 0.5 to $1.0 \cdot \sqrt{3} \cdot U_N \cdot I_N$			
7. Output signal, start value			
Output bipolar, start value – 100% final value Not possible with unipolar measuring range		B	1
Output unipolar, start value 0			2
Output live-zero, start value 20% final value			3
8. Output signal, final value			
Output final value 20 mA			1
Output final value 10 mA			2
Output final value 5 mA			3
Output final value 2.5 mA			4
Output final value 1 mA			5
Non-standard (> 1.00 to < 20) [mA] <input type="text"/>			9
Output final value 10 V			A
Non-standard (1.00 to < 10) [V] <input type="text"/>			Z
9. Power supply			
85 ... 230 V DC, AC			1
24 ... 60 V DC, AC			2
From measuring input (≥ 85 to 230 V AC)		A	4
Connected to the low tension side 24 V AC / 24 ... 60 V DC			5
10. Additional lettering on type label			
Without additional lettering on type label			0
With additional lettering on type label 1 line with max. 40 letters, e.g. measuring location			9
11. Test records			
Without test records			0
Test records in German			D
Test records in English			E

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

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Transducer for Active or Reactive Power

Electrical connections

Terminal allocation housing P13/70

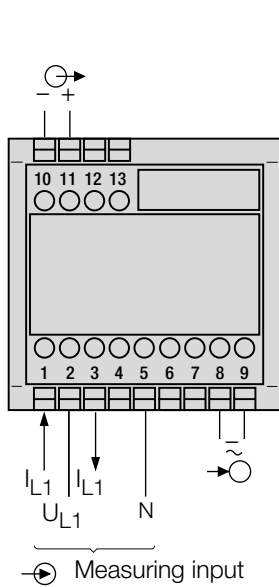


Fig. 2. Power supply connected to terminals 8 and 9.

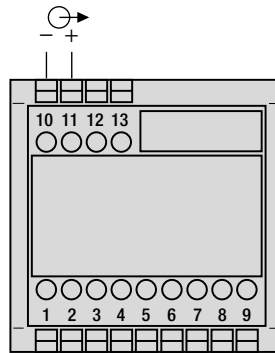
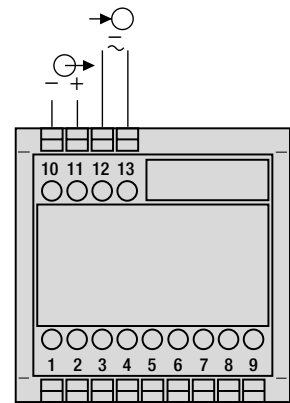


Fig. 3. Power supply internal from measuring input, without separated power supply.



- Measuring input
- Measuring output
- Power supply

Fig. 4. Power supply connected to the low tension terminal side 12 and 13.

Terminal allocation housing P18/105

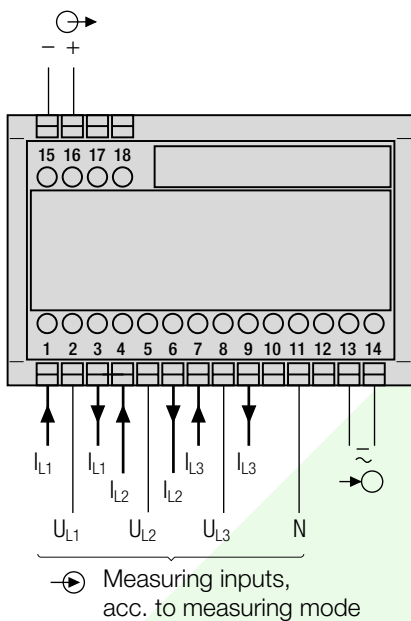


Fig. 5. Power supply connected to terminals 13 and 14.

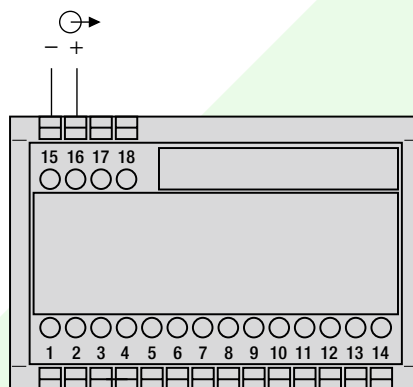


Fig. 6. Power supply internal from measuring input, without separated power supply.

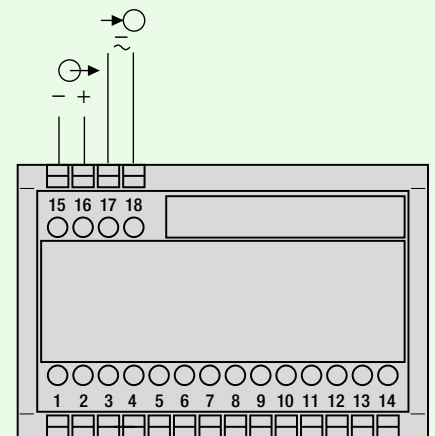


Fig. 7. Power supply connected to the low tension terminal side 17 and 18.

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Transducer for Active or Reactive Power

Measuring inputs	
Meas. mode/ Application	Terminal allocation
Active or reactive power measurement in single-phase AC network	
Active or reactive power measurement in 3-wire 3-phase network balanced load	
Active or reactive power measurement in 3-wire 3-phase network unbalanced load	
Active power measurement in 4-wire 3-phase network balanced load	

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Dimensional drawings

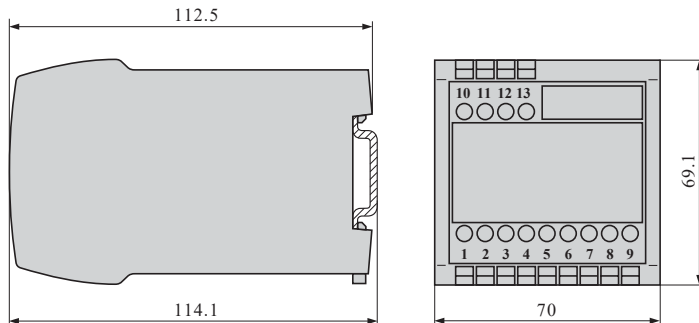


Fig. 8. SINEAX P530/Q531 in housing P13/70 clipped onto a top-hat rail (35 · 15 mm or 35 · 7.5 mm, acc. to EN 50 022).

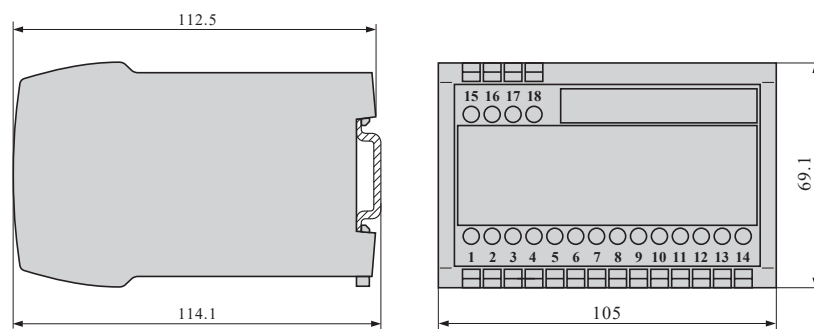


Fig. 9. SINEAX P530/Q531 in housing P18/105 clipped onto a top-hat rail (35 · 15 mm or 35 · 7.5 mm, acc. to EN 50 022).

Standard accessories

- 1 Operating Instructions

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