

Ziegler Transducer P11

Transducer for active or reactive power

in housing E16 for rail and wall mounting

Application

The transducer Ziegler (Figs. 1 and 2) converts to active or reactive power of a single-phase AC or three-phase system with balanced or unbalanced loads. The output signal is proportional to the measured value of the active or reactive power and is either a **load-independent** DC current or a **load-independent** DC voltage.

Input and output are electrically isolated from each other. The output is ungrounded, short and open-circuit proof and may be operated for any length of time in the open and shorted states.

The output signal is limited to approx. $1.3 \times I_{AN}$.

The unit is designed to withstand impulse voltages to IEC and ANSI/IEEE regulations.

Features / Benefits

- Measuring inputs: Sine or distorted wave-forms of nominal input currents and nominal input voltages

Meas. variables	Nominal input current	Nominal input voltage
Active or reactive power	0.01 to 10 A	10 to 660 V

- Measuring output: DC current signal (load-independent) or DC voltage signal
- Measuring principle: TDM system
- 3 wattmeter method
- Narrow housing, 70 mm / Saves space and therefore costs
- Snaps onto a DIN rail or screws onto a wall or panel / Adaptable to the circumstances at the place of installation
- Manufactured in SMD technology / Compact and reliable
- Screw terminals suitable for multistrand or solid wires / Easy wiring without problems
- **Two isolated outputs (Optional)**
- **Electric isolation between output 1 and output 2 is 500V.**

Technical data

General

Measured quantity: Active power, reactive power
 Measuring principle: Time-Division-Multiplication (pulse duration modulation) all-electronic, input and output isolated



Fig. 1. Ziegler P11 transducer in housing E16 clipped onto a top-hat rail.



Fig. 2. Ziegler P11 transducer in housing E16 screw hole mounting brackets pulled out.

Admissible measuring range end values (calibration factor c) ① to ⑥ :

$$\geq 0.75 \text{ to } 1.3 \cdot U_N \cdot I_N \quad (\text{single-phase AC power})$$

$$\geq 0.75 \text{ to } 1.3 \cdot \sqrt{3} \cdot U_N \cdot I_N \quad (\text{three-phase power})$$

Calculation of "c" in a single-phase system:

$$c = \frac{\text{unipolar range end value}}{U_N \cdot I_N}$$

Calculation of "c" in a three-phase system:

$$c = \frac{\text{unipolar range end value}}{U_N \cdot I_N \cdot \sqrt{3}}$$

When input connections are via a transformer, the primary values of U_N and I_N should be used in the calculation.

① to ⑥ see Section "Special features"

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Measuring input E \rightarrow

- Nominal frequency f_N (7): 50 or 60 Hz
- Nominal input voltage U_N (8): 100/ $\sqrt{3}$, 110/ $\sqrt{3}$, 100, 110, 200, 230, 400 or 500 V
- Nominal input current I_N (9): 1, 2 or 5 A
- Own consumption: < 0.1 VA per current circuit
 $U_N \cdot 1$ mA per voltage circuit
- Sensitivity: < 0.05% of range end value
- Overload capacity:

Measured quantity I_N, U_N	Number of applications	Duration of one application	Interval between two successive applications
2 $\times I_N$	continuously	---	---
10 $\times I_N$	5	15 s	5 min.
40 $\times I_N^1$	1	1 s	---
1.5 $\times U_N$	continuously	---	---
2 $\times U_N$	10	10 s	10 s
4 $\times U_N$	1	2 s	---

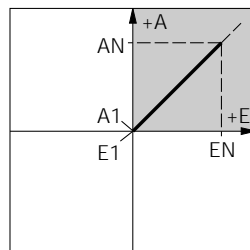
¹ But max. 250 A

Measuring output A \rightarrow

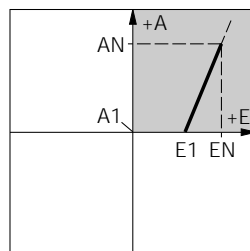
- Output signals: Load-independent DC voltage U_A or load-independent DC current I_A
- Standard ranges of U_A (10) to (13): 0...10 / 1...5 / -10...0...10 V
 Load capacity 20 mA
 External resistance
 $R_{ext} [k\Omega] > \frac{U_A [V]}{20 \text{ mA}}$ for one output
 $R_{ext} [k\Omega] > 10k\Omega/V$ for two output
- Standard ranges of I_A (14) to (17): 0...1/0...5/0...10/0...20/4...20 mA
 -1...0...1 / -2.5...0...2.5 / -5...0...5 / -10...0...10 / -20...0...20 mA
 Burden voltage ± 15 V for one output
 Burden voltage ± 12 V for two output
 External resistance
 $R_{ext} \text{ max. } [k\Omega] \leq \frac{\text{Burden voltage}}{I_{AN} [\text{mA}]}$
 I_{AN} = Full output value
- Voltage limit under $R_{ext} = \infty$: Approx. 40 V
- Current limit under overload: Approx. $1.3 \times I_{AN}$ with current output
 Approx. 30 mA with voltage output
- Span adjustment: Approx. $\pm 2\%$
- Output current ripple (18): < 1% p.p.
- Response time: < 300 ms

Output characteristic

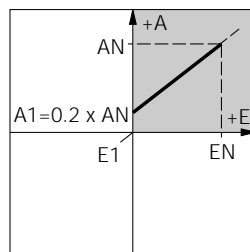
Typical examples



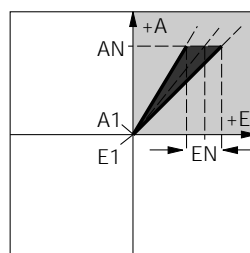
Characteristic a
 Input E1...EN
 Output A1...AN



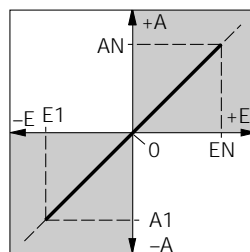
Characteristic b
 Input E1...EN
 Output A1...AN
 Given better resolution at top of range



Characteristic c
 Input E1...EN
 Output A1...AN
 Live-zero output signal

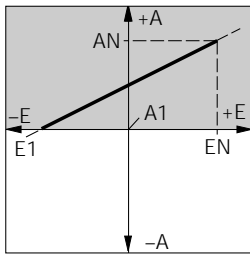


Characteristic d
 Input E1...EN $\pm 10\%$
 Output A1...AN
 Variable sensitivity

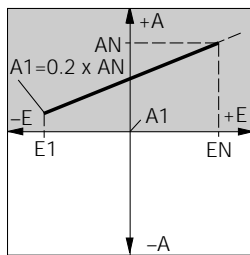


Characteristic e
 Input E1...0...EN
 Output A1...0...AN

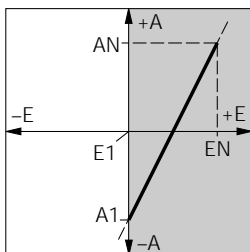
(7) to (18) see Section "Special features"



Characteristic f
Input E1...EN
Output A1...AN



Characteristic g
Input E1...EN
Output A1...AN
Live-zero output signal



Characteristic h
Input E1...EN
Output A1...AN

Accuracy (according to DIN/IEC 688-1)

Reference value: Output span
Exception: Characteristic e: The largest of the 2 unipolar output levels
Characteristic b: The output according to characteristic h

Basic accuracy: Class 0.5

Reference conditions

Ambient temperature 23 °C, ± 5 K
Input current 0...120% $I_N \cdot c$
Input voltage 0...120% U_N
Power factor $\cos\phi$ 0...1...0
Frequency $f_N \pm 10\%$
Distortion factor < 10%
Power supply $U_{HN} \pm 10\%$ (AC)
 $U_{HN} -15 / + 33\%$ (DC)
External resistance 0... R_{ext} max. with current output
 R_{ext} min. ... ∞ with voltage output

Influence effects (maxima)

Included in basic error

Linearity error $\pm 0.2\%$ for one output
current, voltage, $\cos\phi$ $\pm 0.4\%$ for two output

Frequency influence $f_N \pm 5\%$ $\pm 0.05\%$

Dependence on external resistance (ΔR_{ext} max.) $\pm 0.05\%$

Power supply influence $U_{HN} \pm 15\%$ $\pm 0.05\%$

Additional errors

Temperature influence (-25...+ 55°C) $\pm 0.2\%$ / 10 K for one output
 $\pm 0.3\%$ / 10 K for two outputs

Frequency influence 45 – 65 Hz $\pm 0.5\%$

Stray field influence 0.5 mT $\pm 0.2\%$

Power supply influence $U_{HN} \pm 20\%$ $\pm 0.2\%$

Influence of common mode voltage 220 V, 50 Hz or 10 V, 1 MHz $\pm 0.2\%$

HF surge voltage influence acc. to IEC 255-4 Class III, 2.5 kV, 1 kV, 200 Ω 1 MHz, 400 Hz $\pm 2.0\%$

acc. to ANSI/IEEE C37.90-1978 2.5 kV, 150 Ω 1 MHz, 50 Hz $\pm 1.0\%$

Power supply $\rightarrow \text{O}$

AC voltage (19) and (20) : 24, 115, 120, 230 or 240 V, $\pm 15\%$, 42 to 70 Hz
Power consumption approx. 5 VA for one o/p
Power consumption approx. 8 VA for two o/p
DC voltage: 24...90 (24...60V for Two output) or 90...240 V, -15 / + 33%,
Power consumption approx. 5 W for one o/p
Power consumption approx. 8W for two o/p

Installation data

Mechanical design: Housing type E16
Dimensions see Section "Dimensional drawings"

Material of housing: Lexan 940 (polycarbonate), flammability Class V-0 according to UL 94, self-extinguishing, non-dripping, free of halogen

Mounting: For snapping onto top-hat rail (35 x 15 mm or 35 x 7.5 mm) acc. to EN 50 022

or
directly onto a wall or panel using the pull-out screw hole brackets

(19) and (20) see Section "Special features"

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Mounting position:	Any	Test voltage:	4 kV / 50 Hz / 1 min. between electrically isolated circuits and versus housing
Electrical connections:	Screw-type terminals with indirect wire pressure, for max. $2 \times 2.5 \text{ mm}^2$ or $1 \times 6 \text{ mm}^2$		500 V / 50Hz / 1min. between output 1 versus output 2 for two output only
Weight:	Approx. 0.7 kg		

Regulations

Electrical standards:	Acc. to IEC 348
Housing protection:	IP 40 acc. to EN 60 529 Terminals IP 20
Insulation group acc. to DIN 57 110 b:	A (instrument) C (terminals)

Environmental conditions

Climatic rating:	Climate class 3Z acc. to VDI/VDE 3540
Operating temperature:	- 25 to + 55 °C
Storage temperature range:	- 40 to + 70 °C
Relative humidity of annual mean (21) :	≤ 75%
(21)	see Section "Special features"

Table 1: Electromagnetic compatibility

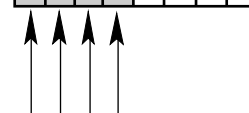
The basic standards EN 50 081-2 and EN 50 082-2 were taken in account

Conducted interference from the instrument	EN 55 011	Group 1, Class A
HF radiation from complete instrument	EN 55 011	Group 1, Class A
Electrostatic discharge	IEC 1000-4-2	Direct: ± 8 kV air Indirect: ± 4 kV contact
HF field influence on instrument	IEC 1000-4-3	80 MHz ... 1000 MHz: 10 V/m, 80% AM 1 kHz (ITU frequencies, 3 V/m)
Transient burst via connections	IEC 1000-4-4	± 2 kV, 5/50 ns, 5 kHz, > 2 min. capacitively coupled
Transient surge on power supply	IEC 1000-4-5	± 2 kV, 1.2/50 μs, symmetrical ± 4 kV, 1.2/50 μs, asymmetrical
HF interference via connections	IEC 1000-4-6	0.15 to 80 MHz: 10 V, 80% AM 1 kHz (ITU frequencies, 3 V) source 150 Ω

Table 2: Specification and ordering information

Order Code P11 –			
Features, Selection	*SCODE	no-go	
1. Mechanical design 3) Housing E16			
2. Measuring mode 4) Active power P	D		
5) Reactive power Q	E		

Order Code P11 –			
Features, Selection		*SCODE	no-go
3. Application			
A) Single-phase AC		F	
B) 3-wire 3-phase balanced load		G	
C) 3-wire 3-phase balanced load, phase shift U: L1-L3, I: L1		H	
D) 3-wire 3-phase balanced load, phase shift U: L1-L2, I: L1		H	
E) 3-wire 3-phase unbalanced load		I	
F) 4-wire 3-phase unbalanced load		J	
G) 4-wire 3-phase unbalanced load, open-Y		J	
4. Nominal frequency ⑦			
1) 50 Hz			. 1
2) 60 Hz			. 2
9) Non-standard [Hz] <input type="text"/>			. 9
Restriction: Class 1.0, linearity error $\pm 0.4\%$ With frequency < 40 Hz: response time < 800 ms, $I_N \leq 5$ A residual ripple < 2% p.p.			
5. Nominal input voltage (measuring input) ⑧			
A) $100/\sqrt{3}$ V; <input type="text"/>		GHIJ	. . A
B) $110/\sqrt{3}$ V; <input type="text"/>		GHIJ	. . B
C) 100 V; <input type="text"/>			. . C
D) 110 V; <input type="text"/>			. . D
E) 200 V; <input type="text"/>			. . E
F) 230 V; <input type="text"/>			. . F
G) 400 V; <input type="text"/>			. . G
H) 500 V; <input type="text"/>			. . H
Z) Non-standard [V;V] <input type="text"/>			. . Z
With a 3 phase system the nominal input voltage to be shown as phase to phase voltage . For transformer connection add semicolon with primary/secondary voltage in V, e.g. 6600/110 (in line D) or 120;14400/120 (in line Z, non-standard). For uneven values show 2 positions after the comma			
6. Nominal input current (measuring input) ⑨			
1) 1 A; <input type="text"/>			. . . 1
2) 2 A; <input type="text"/>			. . . 2
3) 5 A; <input type="text"/>			. . . 3
9) Non-standard [A;A] <input type="text"/>			. . . 9
For transformer connection add semicolon with primary/secondary current in A, e.g. 500/1 (in line 1) or 6.67;1600/6.67 (in line 9, non-standard). For uneven values show 2 positions after the comma			



A
B
C
D
E
F
G

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. 2
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. . A
. . B
. . C
. . D
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. . F
. . G
. . H
. . Z

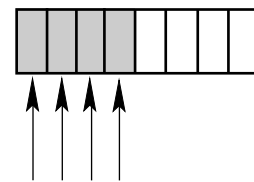
. . . 1
. . . 2
. . . 3
. . . 9

⑦ to ⑨ see Section "Special features"

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Order Code P11 –										
Features, Selection	*SCODE	no-go								
7. Measuring range P ⑥										
0) Not provided for active power measurement		D								
9) Measuring range P Specify measuring range in W, kW or MW; attention to the calibration factor. E.g. 0...1000 W, -40...0...40 kW, 0...100 MW. For 2 measuring ranges (see also Section "Technical data") select the highest range and the second range to be shown in feature 18		E								
8. Calibration P ① ②										
0) cP does not apply		D								
1) Calibration factor $cP \geq 0.75$ to 1.3; Class 0.5	T	E								
2) Calibration factor $cP \geq 0.25$ to 0.74; Class 1.0	T	E								
3) Calibration factor $cP > 1.3$ to 1.5; Class 1.0	T	E								
9) Calibration factor cP1/cP2 Limit $cP \geq 0.25$ to 1.5; $cP1:cP2 > 1$ to ≤ 2	U	E								
Calculation of the calibration factor c see Section "Technical data". For 2 measuring ranges specify both calibration factors in line 9										
9. Measuring range Q ⑥										
0) Not provided for reactive power measurement		E								
9) Measuring range Q Specify measuring range in Var, kVar, MVar; attention do calibration factor! E.g. 0...1000 Var, -40...0...40 kVar, 0...100 MVar. For 2 measuring ranges (see also Section "Technical data") select the highest range and the second range to be shown in feature 19		D								
10. Calibration Q ① ②										
0) cQ does not apply		E								
1) Calibration factor $cQ \geq 0.75$ to 1.3; Class 0.5	T	D								
2) Calibration factor $cQ \geq 0.25$ to 0.74; Class 1.0	T	D								
3) Calibration factor $cQ > 1.3$ to 1.5; Class 1.0	T	D								
9) Calibration factor cQ1/cQ2 Limit $cQ \geq 0.25$ to 1.5; $cQ1:cQ2 > 1$ to ≤ 2	U	D								
Calculation of the calibration factor c see Section "Technical data". For 2 measuring ranges specify both calibration factors in line 9										



0
 9
 . 0
 . 1
 . 2
 . 3
 . 9
 . . 0
 . . 9
 . . . 0
 . . . 1
 . . . 2
 . . . 3
 . . . 9

① ② and ⑥ see Section "Special features"

Order Code P11 –			
Features, Selection	*SCODE	no-go	
11. Output signal P (measuring output 1)	K		
0) Output P does not apply		D	
1) 0...10 V		E	
2) 1... 5 V	N	E	
3) -10...0...10 V		E	
9) Non-standard [V]		E	
A) 0... 1 mA		E	
B) 0... 5 mA		E	
C) 0...10 mA		E	
D) 0...20 mA		E	
E) 4...20 mA	N	E	
F) -1 ...0... 1 mA		E	
G) -2.5...0... 2.5 mA		E	
H) -5 ...0... 5 mA		E	
J) -10 ...0...10 mA		E	
K) -20 ...0...20 mA		E	
Z) Non-standard [mA]		E	
Line 9: 0...1.00 to 0...15 ^⑩ 0.2...1 to 3...15 ^⑬ -1.00...0...1.00 to -15...0...15 ^⑪ bipolar asymmetrical $||U_{max}|| \geq 1$ to 15 V ^⑫			
Line Z: 0...> 1.00 to 0...< 20 ^⑭ 1...5 to < (4...20) ^⑰ > (-1.00...0...1.00) to < (-20...0...20) ^⑮ bipolar asymmetrical $||I_{max}|| \geq 1$ to 20 mA ^⑯			
12. Output signal Q (measuring output 1)	L		
0) Output Q does not apply		E	
1) 0...10 V		D	
2) 1... 5 V	N	D	
3) -10...0...10 V		D	
9) Non-standard [V]		D	
A) 0... 1 mA		D	
B) 0... 5 mA		D	
C) 0...10 mA		D	
D) 0...20 mA		D	
E) 4...20 mA	N	D	
F) -1 ... 0... 1 mA		D	
G) -2.5... 0... 2.5 mA		D	
H) -5 ... 0... 5 mA		D	
J) -10 ... 0...10 mA		D	
K) -20 ... 0...20 mA		D	
Z) Non-standard [mA]		D	
Lines 9 and Z: Limit values for non-standard signals see feature 11			

↑	↑								
0	.	.	.	.	.	.	.	.	.
1	.	.	.	.	.	.	.	.	.
2	.	.	.	.	.	.	.	.	.
3	.	.	.	.	.	.	.	.	.
9	.	.	.	.	.	.	.	.	.
A	.	.	.	.	.	.	.	.	.
B	.	.	.	.	.	.	.	.	.
C	.	.	.	.	.	.	.	.	.
D	.	.	.	.	.	.	.	.	.
E	.	.	.	.	.	.	.	.	.
F	.	.	.	.	.	.	.	.	.
G	.	.	.	.	.	.	.	.	.
H	.	.	.	.	.	.	.	.	.
J	.	.	.	.	.	.	.	.	.
K	.	.	.	.	.	.	.	.	.
Z	.	.	.	.	.	.	.	.	.

⑩ to ⑰ see Section "Special features"

Ziegler Transducer P11

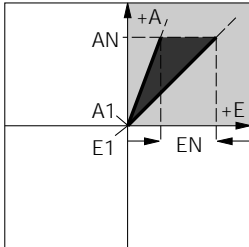
Transducer for active or reactive power

Order Code P11 –																				
Features, Selection	*SCODE	no-go																		
13. Power supply																				
0) Internal from voltage measuring input (≥ 24 to 500 V AC) (20)																				
1) 24 V, 50/60 Hz																				
3) 115 V, 50/60 Hz																				
4) 120 V, 50/60 Hz																				
6) 230 V, 50/60 Hz																				
7) 240 V, 50/60 Hz																				
9) Non-standard 50/60 Hz [V] <input type="text"/>																				
A) 24... 90 V DC, -15/+33%		M																		
B) 90...240 V DC, -15/+33%																				
C) 24...60 V DC, -15 / +33%		KL																		
14. Special features																				
0) Without	Y																			
1) With																				
Without special features (line 0): Order Code complete.																				
With special feature (line 1): The features to be omitted must be marked hereafter with / (slant line) in the order code until reaching the required feature																				
15. Zero displacement (3)																				
A) Zero displacement, P-output	N	EY																		
B) Zero displacement, Q-output	N	DY																		
10 to 125% in positive or negative direction, e.g. -20...0...20 MW into 0...10 mA or 4...20 mA																				
16. Smaller residual ripple in measuring output (18)																				
A) ≤ 0.5% p.p. instead of < 1% p.p. Restriction: Time response < 800 ms instead of < 300 ms (not possible for nominal frequencies < 50 Hz) (for current signals only)		Y																		
17. Measuring range adjustable (variable sensitivity) (4) (5)																				
A) Approx. ± 5%		NY																		
B) Approx. ± 10%		NY																		
Restriction: Accuracy class 1.0. Not possible with zero displacement or live-zero output																				
18. Second measuring range P (6)																				
Z) Measuring range <input type="text"/> Specify measuring range in W, kW or MW. Specify calibration factor in feature 8, line 9		ETY																		
19. Second measuring range Q (6)																				
Z) Measuring range <input type="text"/> Specify measuring range in Var, kVar or MVar. Specify calibration factor in feature 10, line 9		DTY																		
20. Improved climatic rating (DIN 40 040) (21)																				
A) Application class HVR instead of HVE (standard)		Y																		
21. Output Signal P or Q (measuring output 2) Refer Sr. No. 11 or 12	M																			

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

(3) to (6) and (18) to (21) see Section "Special features"

Special features

Nature of special features	
Admissible measuring range end value	
①	Calibration factor ≥ 0.25 to 0.74 Limitation: Class 1, linearity error $\pm 0.4\%$
②	Calibration factor ≥ 1.3 to 1.5 Limitation: Class 1, linearity error $\pm 0.4\%$
③	Zero displacement 10 to 125% in positive or negative direction
④	Variable sensitivity $\pm 5\%$ of full scale value
⑤	Variable sensitivity $\pm 10\%$ of full scale value Limitation: Class 1 (not possible with zero displacement or live-zero output)
⑥	Two calibration factors (c min. 0.25; c max. 1.5) Limitation: The sensitivity ratio should not exceed 1 : 2. Circuit change is achieved by soldering a wire link on the PCB.
 <p>Characteristic Input E1...EN Output A1...AN interchangeable sensitivity $1 \leq k \leq 2$</p>	
<p><i>Example: 1. Measuring range:</i> 0...10 MW $3 \times 50\,000 / 100\text{ V}$ $2 \times 100 / 5\text{ A}$ $c1 = 1.154$ Output 0...20 mA</p> <p><i>2. Measuring range:</i> 0...5 MW $c2 = 0.577$ Output 0...20 mA</p>	
Nominal frequency f_N	
⑦	between $16\frac{2}{3}$ Hz and 500 Hz, other than the standard frequencies 50 or 60 Hz Limitation: Class 1, linearity error $\pm 0.4\%$ With frequency < 40 Hz: Response time < 800 ms, $I_N \leq 5\text{ A}$ Residual ripple $< 2\%$ p.p.
Nominal input voltage U_N	
⑧	between 10 and 660 V, other than the standard values $100/\sqrt{3}$, $110/\sqrt{3}$, 100, 110, 200, 230, 400 or 500 V. Limitation: with $U_N > 500$ V overload capacity 2000 V, 2 s

Nature of special features										
Nominal input current I_N										
⑨	between 0.01 and 10 A, other than the standard values 1, 2 or 5 A Limitations: With $I_N > 5\text{ A}$ Power consumption < 0.3 VA per current circuit Overload capacity of current circuits $2 \times I_N$ continuous $10 \times I_N$ for 10 s, max. 5 times at 5 min. intervals $40 \times I_N$ for 1 s, max. 250 A, once only $f_N \geq 40$ Hz With $I_N > 8.3\text{ A}$ Reference conditions $I_E \leq 10\text{ A}$									
Output signal A										
⑩	Unipolar load-independent DC voltage* Ranges between 0...1 and 0...15 V, other than the standard range 0...10 V									
⑪	Bipolar symmetrical load-independent DC voltage* Ranges between -1...0...1 and -15...0...15 V, other than the standard range -10...0...10 V									
⑫	Bipolar asymmetrical load-independent DC voltage* Ranges									
	<table border="1"> <tr> <td>$-U_A$</td> <td>$+U_A$</td> <td>U_A total</td> </tr> <tr> <td>min. -1.0 V</td> <td>min. +1 V</td> <td>min. 2 V</td> </tr> <tr> <td>max. -15 V</td> <td>max. +15 V</td> <td>max. 30 V</td> </tr> </table>	$-U_A$	$+U_A$	U_A total	min. -1.0 V	min. +1 V	min. 2 V	max. -15 V	max. +15 V	max. 30 V
$-U_A$	$+U_A$	U_A total								
min. -1.0 V	min. +1 V	min. 2 V								
max. -15 V	max. +15 V	max. 30 V								
⑬	Live-zero* Ranges between 0.2...1 and 3...15 V, other than the standard range 1...5 V * Limitation: $U_{AN} < 4\text{ V}$ Additional error: Burden dependency ΔR_{ext} max. = 0.2% Reference condition: external resistance $2 \times R_{ext}$ min. $\pm 20\%$									
⑭	Unipolar load-independent DC current Ranges between 0...1 and 0...20 mA, other than the standard ranges 0...1 / 0...5 / 0...10 and 0...20 mA									
⑮	Bipolar symmetrical load-independent DC current Ranges between -1.0...0...1.0 and -20...0...20 mA, other than the standard ranges -1...0...1 / -2.5...0...2.5 / -5...0...5 / -10...0...10 and -20...0...20 mA									
⑯	Bipolar asymmetrical load-independent DC current Ranges									
	<table border="1"> <tr> <td>$-I_A$</td> <td>$+I_A$</td> <td>I_A total</td> </tr> <tr> <td>min. -1.0 mA</td> <td>min. +1 mA</td> <td>min. 2 mA</td> </tr> <tr> <td>max. -20 mA</td> <td>max. +20 mA</td> <td>max. 40 mA</td> </tr> </table>	$-I_A$	$+I_A$	I_A total	min. -1.0 mA	min. +1 mA	min. 2 mA	max. -20 mA	max. +20 mA	max. 40 mA
$-I_A$	$+I_A$	I_A total								
min. -1.0 mA	min. +1 mA	min. 2 mA								
max. -20 mA	max. +20 mA	max. 40 mA								
⑰	Live-zero Ranges between 1...5 and 4...20 mA, other than the standard range 4...20 mA									
Residual ripple in output current (for one output)										
⑱	$\leq 0.5\%$ p.p. instead of $< 1\%$ p.p. Limitation: Response time < 800 ms instead of < 300 ms (not possible for nominal frequency < 50 Hz)									

Ziegler Transducer P11

Transducer for active or reactive power

Nature of special features

Power supply

⑰ with AC voltage
any voltage between 24 and 500 V, for one output & 24 and 240 for two outputs, $\pm 15\%$, 42 to 70 Hz
Power consumption approx. 5VA for one output & 8VA for two outputs apart from the standard voltages 24, 115, 120, 230 and 240 V

⑳ without separate power supply connection
Power supply from voltage input signal *)
($24\text{ V} \leq H \leq 500\text{ V}$, f_N 50 or 60 Hz for one output)
($24\text{ V} \leq H \leq 240\text{ V}$, f_N 50 or 60 Hz for two output)
Limitation:
Reference condition: input voltage $U_N \pm 15\%$
Overload capacity of the input
 $1.2 \cdot U_N$ continuous
 $1.5 \cdot U_N$ 1 s
With $U_N \geq 170\text{ V}$
Impulse withstand voltage acc. to IEC 255-4, Cl. II:
1 kV, 1.2/50 μs , 0.5 Ws or overload capacity of the voltage input max. 680 V-, 2 s
The additional power taken from the input voltage signal is approx. 5 VA
*) Standard connection between:
L1 and N with single phase AC current and Open-Y connection.
Others between L1 and L2

Nature of special features

Climatic rating

㉑ Climate class 3Z acc. to VDI/VDE 3540, but temperature continuously -25 to $+55\text{ }^\circ\text{C}$.
Relative humidity $\leq 90\%$ annual mean (application class HVR acc. to DIN 40 040)

Type label

ZIEGLER INSTRUMENTS GERMANY			
P11-34E1 C391 00K0 60/////K			
SR.No. 05/01/1008			
15			16
230 V 50/60 Hz			
1	IL1	1	
5	IL3	7	
9	UL1	2	
11	UL3	8	
13-			14+
7-			8+
-20...20 mA Rmax 600 Ohm			
-20...20 mA Rmax 600 Ohm			
-100...100 MWatt			

_____ Type designation

_____ Works No.

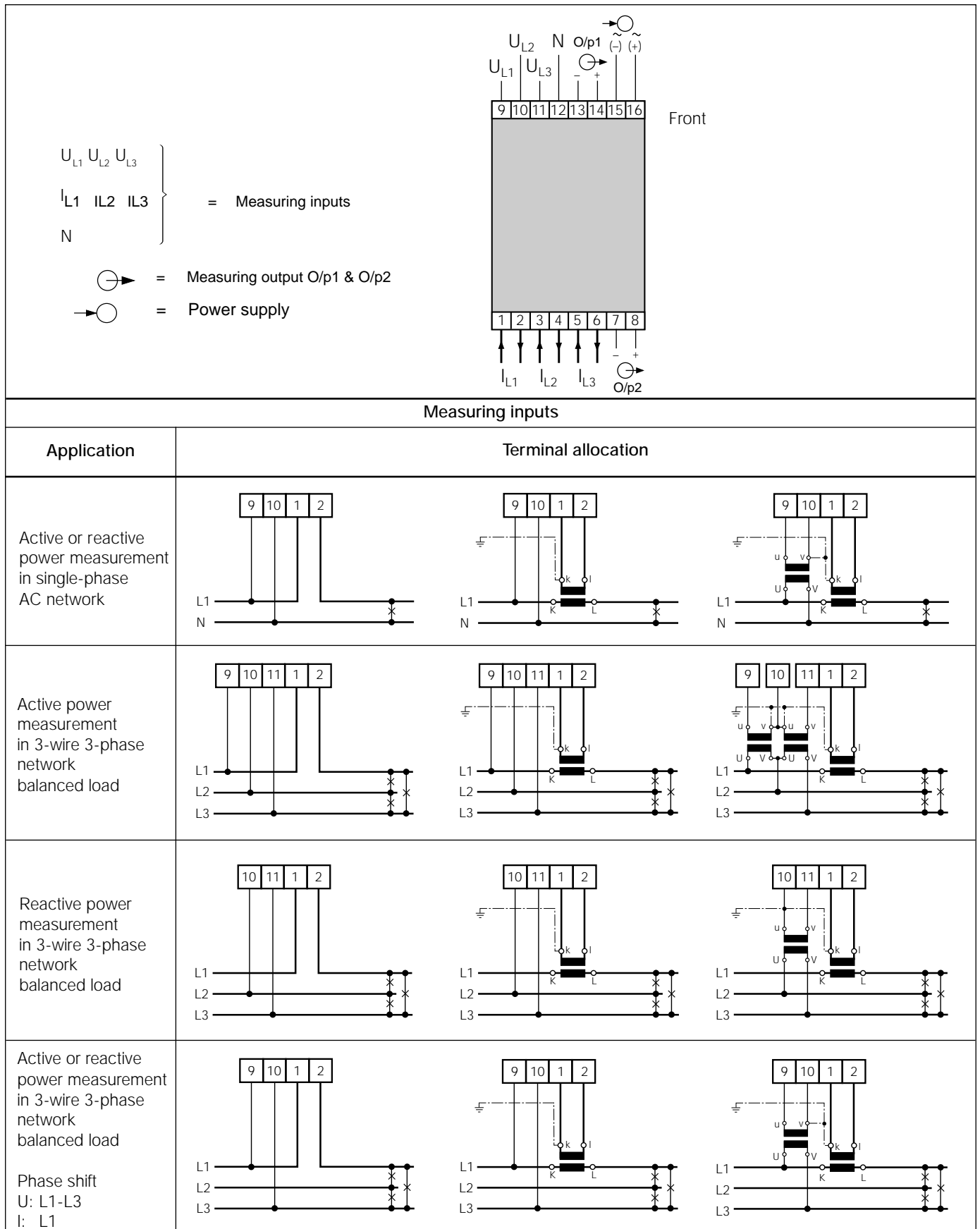
Power supply

Input Nominal voltage
Nominal frequency
Nominal current

Output Output signal
External resistance

Measuring range

Electrical connections



Ziegler Transducer P11

Transducer for active or reactive power

Measuring inputs

Application	Terminal allocation
<p>Active or reactive power measurement in 3-wire 3-phase network balanced load</p> <p>Phase shift U: L1-L2 I: L1</p>	
<p>Active or reactive power measurement in 3-wire 3-phase network unbalanced load</p>	
<p>Active power measurement in 4-wire 3-phase network unbalanced load</p>	<p><i>3 single-pole insulated voltage transformer in the high-voltage system</i></p>

Measuring inputs	
Application	Terminal allocation
Reactive power measurement in 4-wire 3-phase network unbalanced load	
	<p><i>3 single-pole insulated voltage transformer in the high-voltage system</i></p>
Active or reactive power measurement in 4-wire 3-phase network unbalanced load (special circuit)	<p><i>(Delta connection using 2 VT's L1 – N and L3 – N, Open-Y connection)</i></p>

Ziegler Transducer P11

Transducer for active or reactive power

Dimensional drawings

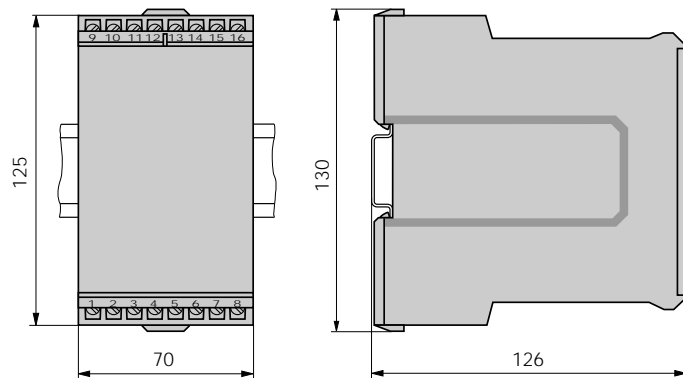


Fig. 3. Ziegler P11 in housing E16 clipped onto a top hat rail (35 ´ 15 mm or 35 ´ 7.5 mm, acc. to EN 50 022).

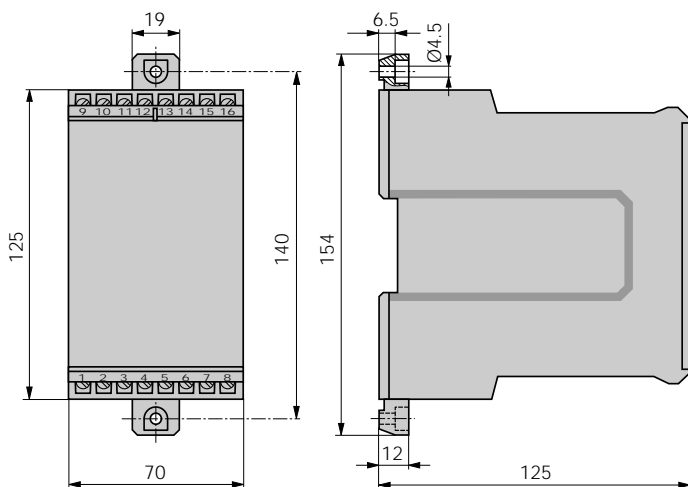


Fig. 4. Ziegler P11 in housing E16 with the screw hole brackets pulled out for wall mounting.

NOTES

Ziegler Transducer P11

Transducer for active or reactive power

. Subject to change without notice.
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ZIEGLER INSTRUMENTS

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