EURAX G 537
Transducer for phase angle difference

EURAX plug-in module in Euro format

CE

*Fig. 1. EURAX G 537 as plug-in module for 19″ rack-mounted case, front plate width **7 TE.***

Application

The transducer **EURAX G 537** (Fig. 1) converts the phase angle difference of two synchronised supplies 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.

Features / Benefits

- **Measuring inputs: Sine, rectangular or distorted wave forms of nominal input voltages with dominant fundamental waves**

Measured variables	Nominal input voltages	Measuring range limits
Phase angle difference	10 to 690 V	±10 to < ±180 °el

- **Measuring output: Unipolar, bipolar or live zero output variables**
- **Measuring principle: Measurement of the zero crossing interval**
- **Wide DC, AC power pack tolerance / Universal**
- **Plug-in module (front plate width 7 TE) for 19″ rack-mounted case / Ease of mounting in rack system**

Technical data

General

Measured quantity:	Phase angle difference
Measuring principle:	Measurement of the zero crossing interval

Measuring inputs ⊣►

Measuring range:	See section «Specification and ordering information»
Nominal frequency f_N:	50 or 60 Hz
Nominal input voltage U_N:	Generator and bus bar 10…230 V or 230…690 V (max. 230 V with power supply from voltage measuring input)
Sensitivity:	10 … 120% U_N
Own consumption:	< U_N · 1.5 mA per measuring input

Overload capacity:

Measured quantities U_N	Number of applications	Duration of one application	Interval between two successive applications
1.2× U_N [1]	---	permanently	---
2 × U_N [1]	10	1 s	10 s

[1] But max. 264 V with power supply from voltage measuring input.

Measuring output ⊣►

Load independent DC current:	0…1 to 0…20 mA resp. live-zero 0.2…1 to 4…20 mA ± 1 to ± 20 mA
Burden voltage:	+ 15 V, resp. – 12 V
Load independent DC voltage:	0…1 to 0…10 V resp. live-zero 0.2…1 to 2…10 V ± 1 to ± 10 V
Load capacity:	Max. 4 mA
Voltage limit under $R_{ext} = \infty$:	≤ 25 V
Current limit under overload:	Approx. 1.3 × I_{AN} at current output Approx. 30 mA at voltage output
Residual ripple in output current:	< 0.5% p.p.
Nominal value of response time:	4 periods of the measuring frequency
Other ranges:	2, 8 or 16 periods of the measuring frequency

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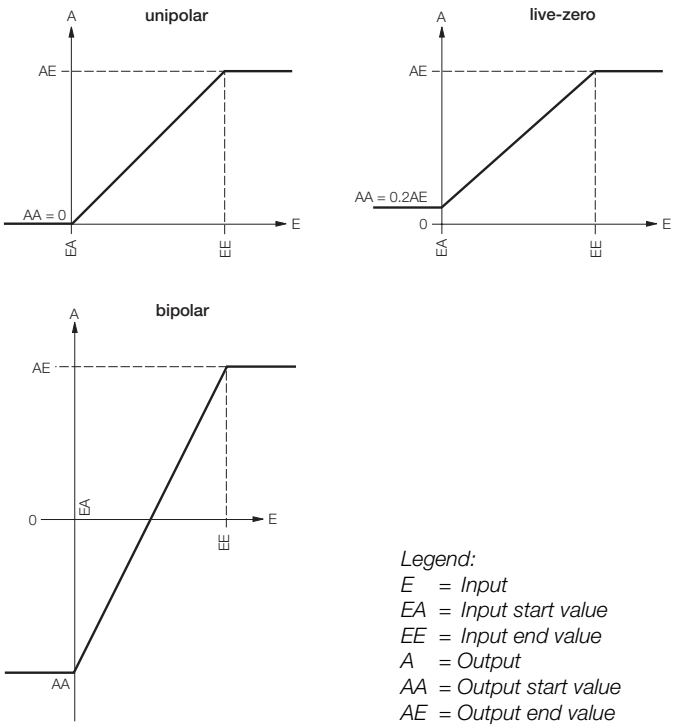
Behaviour of output current in different operating states:

Operating state[1]		Output	
Generator voltage U_G	Bus bar voltage U_S	unipolar	bipolar
leading ($f_G = f_{S)}$		$> I_{AN} / 2$	positive
missing[2]	nominal value	indefinite	indefinite
nominal value	missing[2]		
missing[2]	missing[2]		

[1] *With power supply switched on*
[2] *E.g. switched off or fault condition*

Output characteristic



Legend:
E = Input
EA = Input start value
EE = Input end value
A = Output
AA = Output start value
AE = Output end value

Accuracy (acc. to IEC 688)

Reference value:	$\Delta\varphi = 90°$
Basic accuracy:	Class 0.5

Reference conditions:

Ambient temperature	15…30 °C
Input voltage	$U_G = 0.8 \ldots 1.2\ U_S$
Frequency	$f_N \pm 10\%$
Wave form	Sine
Power supply	At nominal range
Output burden	$\Delta\ R_{ext}$ max.

Safety

Protection class:	II (protection isolated, EN 61 010)
Pollution degree:	2
Installation category:	III
Rated insulation voltage (against earth):	230 resp. 400 V, inputs 230 V, power supply 40 V, output
Test voltage:	50 Hz, 1 min. acc. to EN 61 010-1 3700 resp. 5550 V, inputs versus all other circuits 3250 V, inputs versus each other 3700 V, power supply versus output

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 … + 33% AC ± 15%
24 … 60 V DC, AC	

or

Power supply from voltage measuring input:	24…60 V AC or 85…230 V AC
Power consumption:	Approx. 2 W resp. 4 VA

Installation data

Mechanical design:	Plug-in module for 19″ rack-mounted case, Euro format 100 × 160 mm
Space requirements:	7 TE (35.26 mm) (see section “Dimensional drawing”)
Front plate colour:	Grey RAL 7032
Designation:	EURAX G 537
Mounting position:	Any
Electrical connections:	32-pole plug acc. to DIN 41 612, pattern F Contact fitting see section “Electrical connections”
Coding:	By coding pins, removed / not removed, see section “Electrical connections”
Weight:	Approx. 0.21 kg

Environmental conditions

Operating temperature:	– 10 to + 55 °C
Storage temperature:	– 40 to + 70 °C
Relative humidity of annual mean:	≤ 75%

Ambient tests

EN 60 068-2-6:	Vibration
Acceleration:	± 2 g

Frequency range:	10 … 150 … 10 Hz, rate of frequency sweep: 1 octave/minute	Acceleration:	3 × 50 g, 3 shocks each in 6 directions
Number of cycles:	10, in each of the three axes	EN 60 068-2-1/-2/-3:	Cold, dry heat, damp heat
EN 60 068-2-27:	Shock		

Table 2: Specification and ordering information

Order Code **537 -**			
Features, Selection	*SCODE	no-go	
1. Mechanical design			
2) Plug-in module for 19″ rack-mounted case			2 . . . . .
2. Nominal input frequency			
1) 50 Hz			. 1 . . . . .
2) 60 Hz			. 2 . . . . .
9) Non-standard [Hz] ≥ 10 to 1500; With power supply from measuring input min. 40 Hz, max. 400 Hz			. 9 . . . . .
3. Nominal input voltage Generator and bus bar:			
1) U_N: 100 V	A		. . 1 . . . .
2) U_N: 230 V	A		. . 2 . . . .
9) Non-standard [V] ≥ 10.00 to 690; 3 phase system: Input voltage = phase to phase voltage With power supply from measuring input min. 24 V, max. 230 V, see feature 6, lines 3 and 4			. . 9 . . . .
4. Measuring range			
1) – 120 … 0 … 120 °el			. . . 1 . . .
9) Non-standard [°el] Measuring range – 180…0…180, but unambiguous output value up to – 175…0…175 °el; measuring span ≤ 20 °el			. . . 9 . . .
5. Output signal			
1) 0 … 20 mA			. . . . 1 . .
2) 4 … 20 mA			. . . . 2 . .
9) Non-standard 0…1.00 to 0…< 20, [mA] – 1.00…0…1.00 to – 20…0…20 (symmetrical) 0.2…1 to < (4…20) (AA/AE = 1/5)			. . . . 9 . .
A) 0 … 10 V			. . . . A . .
Z) Non-standard 0…1.00 to 0…< 10, [V] – 1.00…0…1.00 to – 10…0…10 (symmetrical) 0.2…1 to 2…10 (AA/AE = 1/5)			. . . . Z . .
AA = Output start value, AE = Output end value			
6. Power supply			
1) 85 … 230 V DC, AC			. . . . . 1 .
2) 24 … 60 V DC, AC			. . . . . 2 .
3) Internal from measuring input (24 … 60 V AC)		A	. . . . . 3 .
4) Internal from measuring input (85 … 230 V AC)			. . . . . 4 .

Continuation of "Table 2: Specification and ordering information" see on next page!

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Continuation of “Table 2: Specification and ordering information”

Order Code **537 -**			
Features, Selection		*SCODE	no-go
7. Response time			
1) 4 periods of the input frequency (Standard)	1		
2) 2 periods of the input frequency	2		
3) 8 periods of the input frequency	3		
4) 16 periods of the input frequency	4		
8. Test certificate			
0) Without test certificate	. 0		
D) Test certificate in German	. D		
E) Test certificate in English	. E		

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

Electrical connections

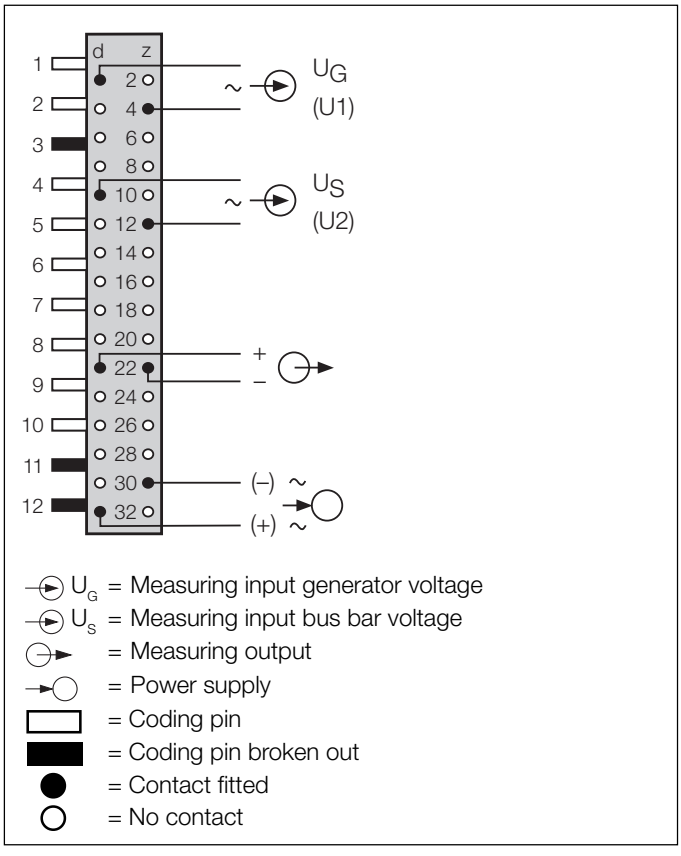

Fig. 2. EURAX G 537, view of the rear of plug-in module.

Dimensional drawing

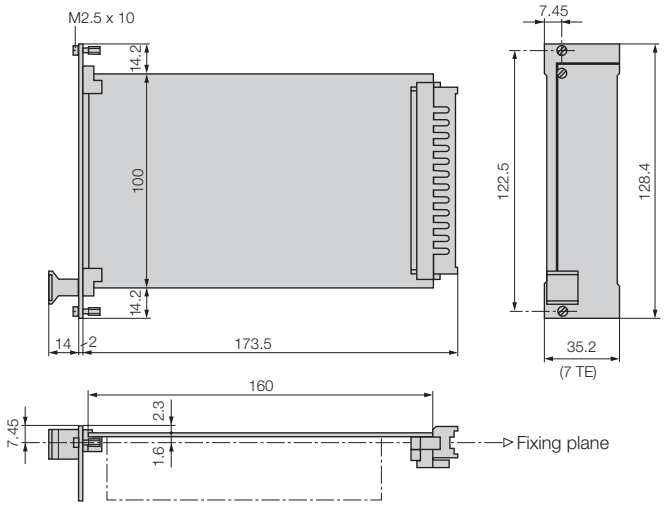

*Fig. 3. EURAX G 537, front plate width **7 TE.***

Printed in Switzerland • Subject to change without notice • Edition 08.01 • Data sheet No. G 537-2 Le

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