

# EURAX F 534

## Transducer for measuring frequency

EURAX plug-in module in Euro format



### Application

The transducer **EURAX F 534** (Fig. 1) is intended for frequency measurement. The instrument change the measured value into a proportional **load independent** DC current or DC voltage.

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: Sine, rectangular or distorted wave forms of nominal input voltage with dominant fundamental waves**

Measured variable	Nominal input voltage	Measuring range limits
Frequency	10 to 690 V	$\geq 10$ Hz to $\leq 1.5$ kHz

- **Measuring output: Unipolar, bipolar or live zero output variables**
- **Measuring principle: Digital period measurement**
- **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**



Fig. 1. EURAX F 534 as plug-in module for 19" rack-mounted case, front plate width 7 TE.

### Technical data

#### General

Measured quantity: Frequency  
Measuring principle: Digital period measurement

#### Measuring input $\rightarrow$

Measuring ranges: Selectable between  $f_u = 10$  Hz and  $f_o = 1500$  Hz  
Min. span:  $f_u / (f_o - f_u) < 50$   
Nominal input voltage  $U_N$ : 10 ... 230 V or 230 ... 690 V (max. 230 V with power supply from voltage measuring input)  
Own consumption:  $< U_N \cdot 1.5$  mA  
Overload capacity:

Input quantity $U_N$	Number of applications	Duration of one application	Interval between two successive applications
$1.2 \times U_N^1$	---	dauernd	---
$2 \times U_N^1$	10	1 s	10 s

<sup>1</sup> But max. 264 V with power supply from voltage measuring input

Wave form: Any; fundamental wave only taken into account

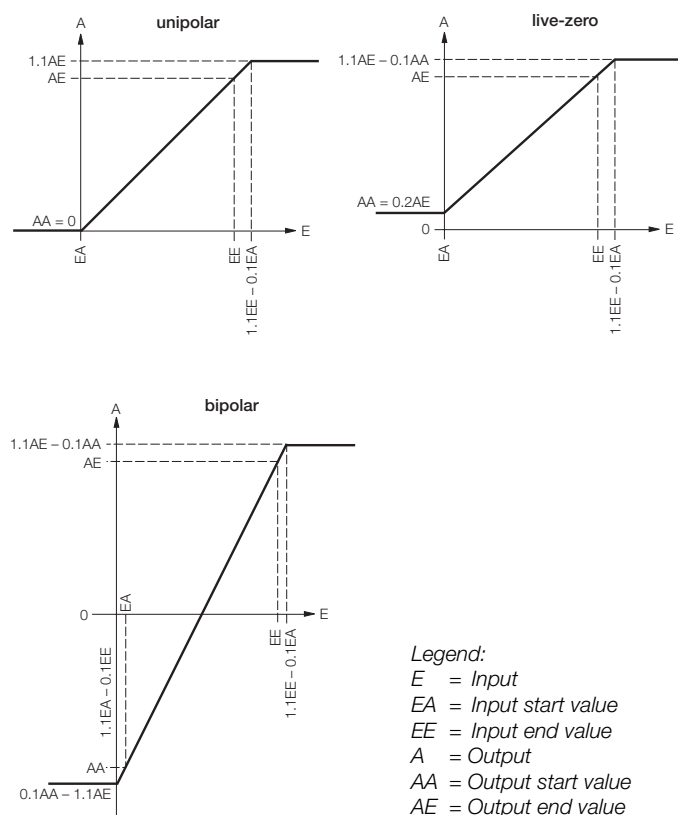
#### Measuring output $\rightarrow$

Load-independent DC current: 0 ... 1 to 0 ... 20 mA resp. live-zero  
0.2 ... 1 to 4 ... 20 mA  
 $\pm 1$  to  $\pm 20$  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  
 $\pm 1$  to  $\pm 10$  V  
Load capacity: Max. 4 mA  
Voltage limit under  $R_{ext} = \infty$ :  $\leq 25$  V  
Current limit under voltage output: Approx. 30 mA  
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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### Output characteristic



### Accuracy (acc. to IEC 688)

Reference value: Output span  
 Basic accuracy: Class 0.2

### Reference conditions

Ambient temperature: 15 ... 30 °C  
 Input voltage:  $U_{\min}$  to  $U_{\max}$   
 Input frequency: Within the measuring span  
 Distortion factor: No influence  
 Power supply: At nominal range  
 Output burden:  $\Delta R_{\text{ext}}$  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, input  
 230 V, power supply  
 40 V, output  
 Test voltage: 50 Hz, 1 min. acc. to EN 61 010-1  
 3700 resp. 5550 V, input versus all other circuits  
 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%
24 ... 60 V DC, AC	AC ± 15%

or  
 power supply from voltage measuring input: 24 ... 60 V AC or 85 ... 230 V AC  
 Note: 40 Hz < f < 400 Hz

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 F 534  
 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. 0.19 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  
 Number of cycles: 10, in each of the three axes  
 EN 60 068-2-27: Shock  
 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**

Order Code 534 -								
Features, Selection	*SCODE	no-go						
<b>1. Mechanical design</b> 2) Plug-in module for 19" rack-mounted case			2 . . . . .					
<b>2. Nominal input voltage</b> 1) $U_N$ : 10 ... 230 V			. 1 . . . . .					
2) $U_N$ : > 230 ... 690 V	A		. 2 . . . . .					
3 phase system: Input voltage = phase to phase voltage Line 2: Not possible with power supply from measuring input								
<b>3. Measuring range</b> 1) 45 ... 50 ... 55 Hz			. . 1 . . . . .					
2) 47 ... 49 ... 51 Hz			. . 2 . . . . .					
3) 47.5 ... 50 ... 52.5 Hz			. . 3 . . . . .					
4) 48 ... 50 ... 52 Hz			. . 4 . . . . .					
5) 58 ... 60 ... 62 Hz			. . 5 . . . . .					
9) Non-standard limit values [Hz] <input type="text"/> Start value $f_a \geq 10$ Hz, end value $f_e \leq 1.5$ kHz Min. span $f_a / (f_e - f_a) < 50$ With power supply from measuring input min. 40 Hz, max. 400 Hz			. . 9 . . . . .					
<b>4. Output signal</b> 1) 0 ... 20 mA			. . . 1 . . . . .					
2) 4 ... 20 mA			. . . 2 . . . . .					
9) Non-standard [mA] <input type="text"/> 0...1.00 to 0...< 20, - 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 [V] <input type="text"/> 0...1.00 to 0...< 10, - 1.00...0...1.00 to -10...0...10 (symmetrical) 0.2...1 to 2...10 (AA/AE = 1/5) AA = Output start value, AE = Output end value			. . . Z . . . . .					
<b>5. Power supply</b> 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)		A	. . . . 4 . . . .					
<b>6. Response time</b> 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 . . .					
<b>7. Test certificate</b> 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".

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### Electrical connections

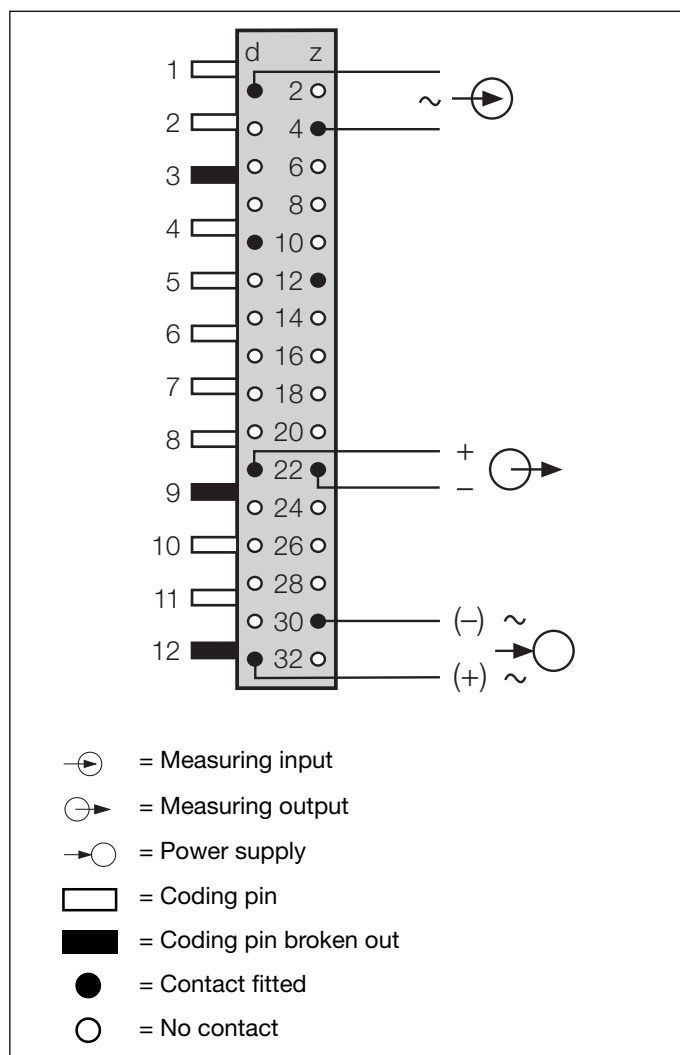


Fig. 2. EURAX F 534, view of the rear of plug-in module.

### Dimensional drawing

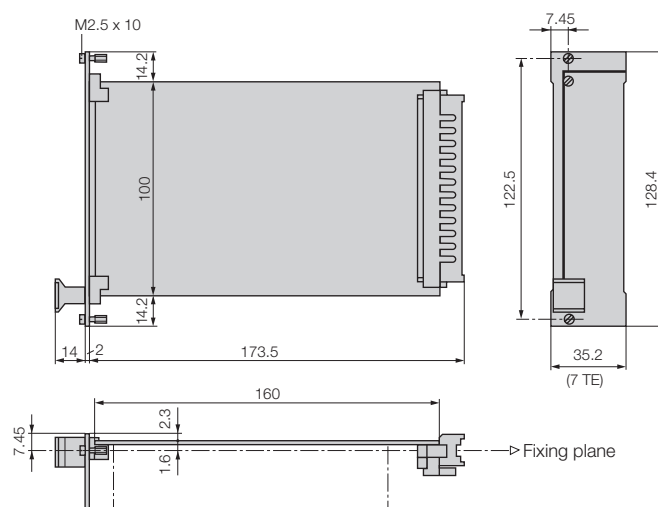


Fig. 3. EURAX F 534, front plate width 7 TE.