

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 | ≥ 10 Hz to ≤ 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 |

¹ 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
 ± 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 voltage output: Approx. 30 mA

Residual ripple in output current: $< 0.5\%$ p.p.

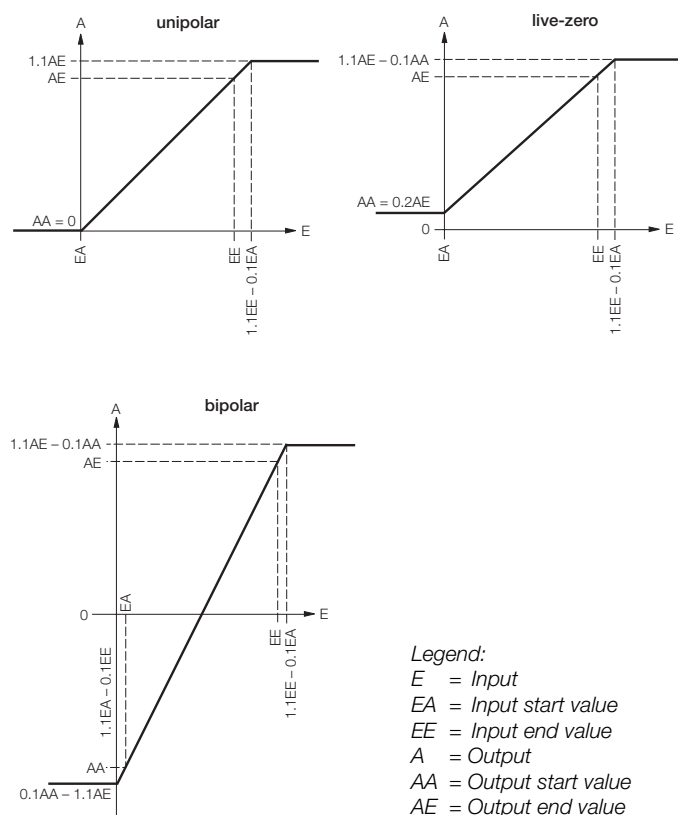
Nominal value of response time: 4 periods of the measuring frequency

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: ΔR_{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% AC ± 15% |
| 24 ... 60 V DC, AC | |

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 | | | | | | |
| 1. Mechanical design 2) Plug-in module for 19" rack-mounted case | | | 2 | | | | | |
| 2. Nominal input voltage 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 | | | | | | | | |
| 3. Measuring range 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 | | | | | |
| 4. Output signal 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 | | | | | |
| 5. 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) | | A | 4 | | | | | |
| 6. 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 | | | | | |
| 7. 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".

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Electrical connections

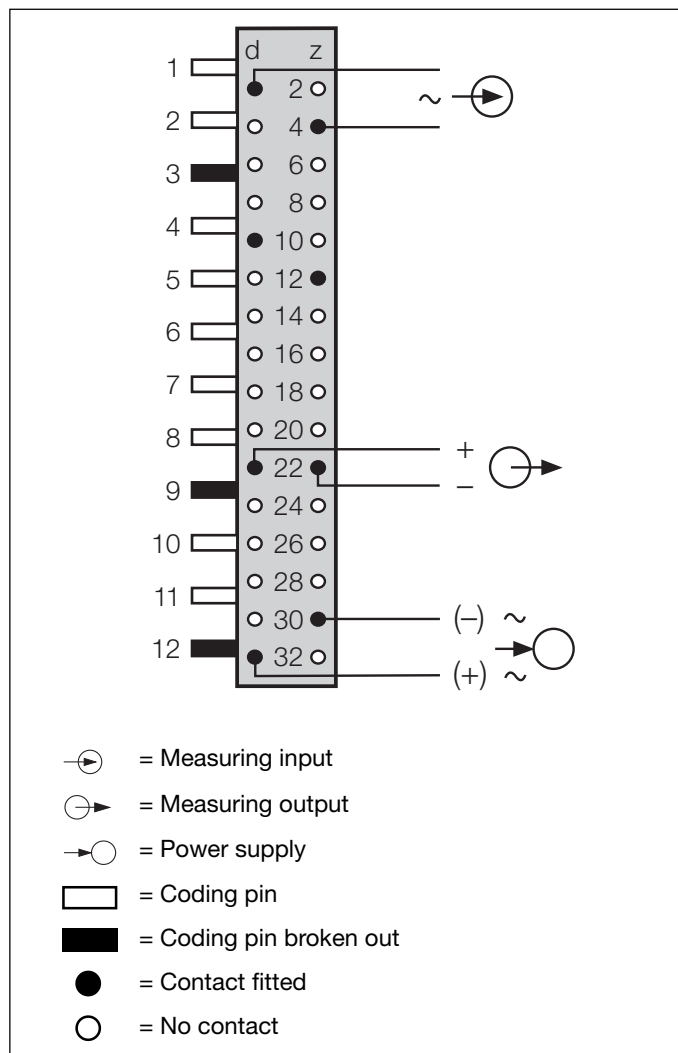


Fig. 2. EURAX F 534, view of the rear of plug-in module.

Dimensional drawing

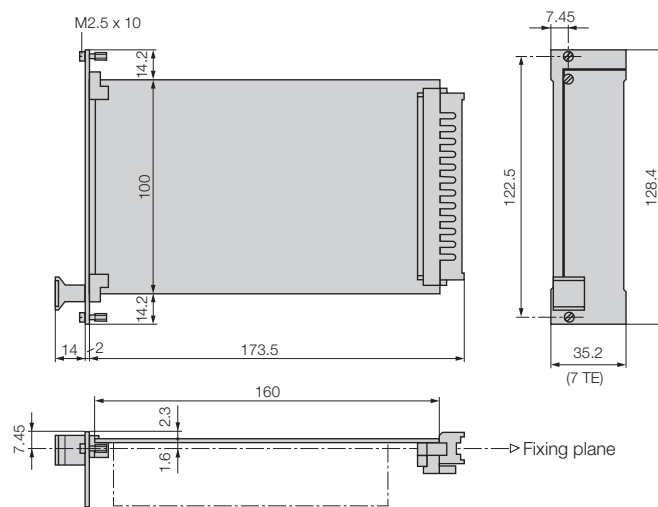


Fig. 3. EURAX F 534, front plate width 7 TE.