Programmable f/I-f/f converter

5223A

- Pulse calculator
- Frequency generator
- Galvanic isolation
- Analog current and voltage output
- PNP / NPN output, optional relays
- Universal supply

Advanced features
- The 5223 transmitter can be configured with a standard PC and the Loop Link communications unit, or delivered fully configured.

Application
- The f/I function performs frequency to current and voltage conversion.
- The f/f function can be used for pulse division or multiplication and as a buffer collecting fast pulse trains.
- A scale factor may be entered in all functions. Using both digital inputs, pulse addition or subtraction are possible.
- The frequency generator function is used as e.g. a time base or clock generator.
- Input and supply polarity reversal protection.
- Current and voltage output signals galvanically separated from the supply and the inputs.
- Programmable digital outputs including NPN, PNP or relay options.

Technical characteristics
- 5 front LEDs, indicating f1 and f2 active inputs (not NPN), Dig.out.1 and 2 active outputs, and a programmable error signal.
- Analog current output can be configured to any current within 0...20 mA range.
- Voltage output range is selectable between 0...10 VDC and 0...1 VDC by use of internal jumpers.
- Input range:
  - Frequency: 0...20,000 Hz
  - Sensor types: NAMUR, tacho, NPN, PNP, TTL, S0
- Output range:
  - Current and voltage output: 0...20 mA / 0...10 V
  - Relay outputs: 0...20 Hz
  - NPN and PNP output as f/f: 0...1000 Hz
  - NPN and PNP output as generator: 0...20,000 Hz

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Environmental Conditions
Operating temperature: -20°C to +60°C
Calibration temperature: 20...28°C
Relative humidity: < 95% RH (non-cond.)
Protection degree: IP20

Mechanical specifications
Dimensions (HxWxD): 109 x 23.5 x 130 mm
Weight approx.: 240 g
DIN rail type: DIN 46277
Wire size: 1 x 2.5 mm² stranded wire
Screw terminal torque: 0.5 Nm

Common specifications
Supply
Supply voltage, universal: 21.6...253 VAC, 50...60 Hz or 19.2...300 VDC
Fuse: 400 mA SB / 250 VAC
Max. required power: 3.5 W
Internal power dissipation: 3 W

Isolation voltage
Isolation voltage, test / working: 3.75 kVAC / 250 VAC
Power-up delay: 0...999 s
Warm-up time: 1 min.
Programming: Loop Link
Response time, analog: < 60 ms + period
Response time, digital output: < 50 ms + period
Signal dynamics, output: 16 bit
Effect of supply voltage change: < 0.05% of span / VDC
Auxiliary voltage: NAMUR supply: 8.3 VDC ±0.5 VDC / 8 mA
S0 supply: 17 VDC / 20 mA
NPN / PNP supply: 17 VDC / 20 mA
Special supply (programmable): 5...17 VDC / 20 mA
Temperature coefficient: < ±0.01% of span / °C
Linearity error: < 0.1% of span
EMC immunity influence: < ±0.5%  

Input specifications
Common input specifications
Max. offset: 100% of selected max. frequency
Measurement range: 0...20 kHz
Min. measurement range: 0.001 Hz
Max. frequency, with input filter ON: 50 Hz
Min. period time with input filter ON: 20 ms
Input types: NAMUR acc. to DIN 19234
Input types: Tacho
Input types: NPN / PNP
Input types: 2-phase encoder
Input types: TTL
Input types: S0 acc. to DIN 43864

Output specifications
Common output specifications
Updating time: 20 ms
Current output
Signal range: 0...20 mA
Min. signal range: 5 mA
Load (@ current output): ≤ 600 Ω
Load stability: ≤ 0.01% of span / 100 Ω
Current limit: ≤ 23 mA
Voltage output
Signal range: 0...10 VDC
Min. signal range: 250 mV
Load (@ voltage output): ≤ 500 kΩ
Relay output
Max. switching frequency: 20 Hz
Max. voltage: 250 VRMS
Max. current: 2 AAC
Max. AC power: 100 VA
Max. load at 24 VDC: 1 A
Other output types: Active outputs (NPN / PNP)
Other output types: Frequency generator of span: = of the presently selected range

Observed authority requirements
EMC: TR-CU 020/2011
LVD: 2014/35/EU
EAC: 2014/30/EU

Order:
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<thead>
<tr>
<th>Type</th>
<th>Output</th>
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<tbody>
<tr>
<td>5223A</td>
<td>Analog + NPN / PNP</td>
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<tr>
<td></td>
<td>: 1</td>
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<tr>
<td></td>
<td>Analog + relay output</td>
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