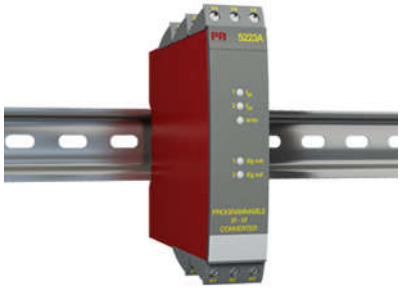
PERFORMANCE MADE SMARTER



## Programmable f/I-f/f converter

# 5223A

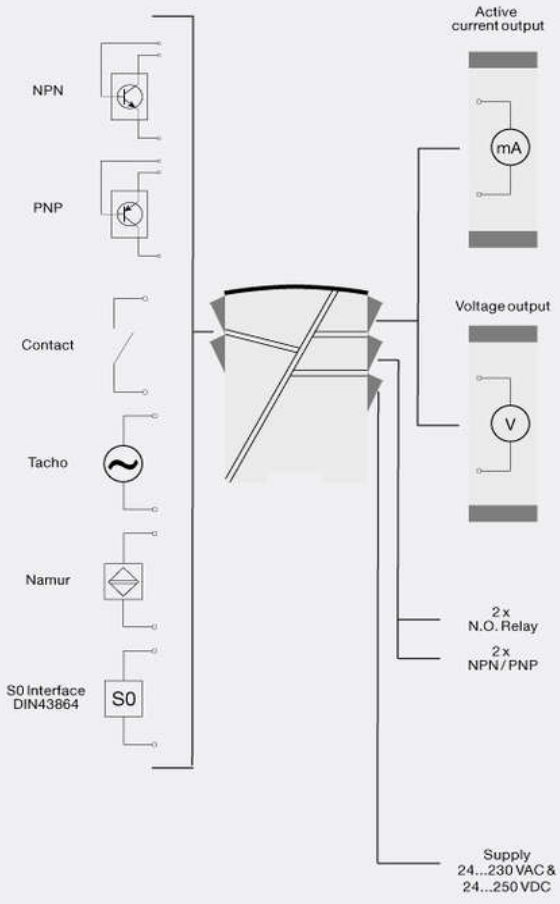
– Pulse calculator
– Frequency generator
– Galvanic isolation
– Analog current and voltage output
– PNP / NPN output, optional relays
– Universal supply

**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.

## Applications




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Order:

| Type | Output | |
|---|---|---|
| 5223A | Analog + NPN / PNP | : 1 |
| | Analog + relay output | : 2 |

## 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 $mm^2$ 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
Signal / noise ratio..... Min. 60 dB
Response time, analog..... < 60 ms + period
Response time, digital output..... < 50 ms + period
Signal dynamics, output..... 16 bit
Effect of supply voltage change..... < 0.005% 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..... 90% 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..... f/f converter output
Other output types..... Frequency generator
*of span..... = of the presently selected range

## Observed authority requirements

EMC..... 2014/30/EU
LVD..... 2014/35/EU
EAC..... TR-CU 020/2011