

Programmable f/I-f/f converter

5223B

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



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.
- ATEX units have input for mechanical contact and NAMUR inductive proximity sensor.

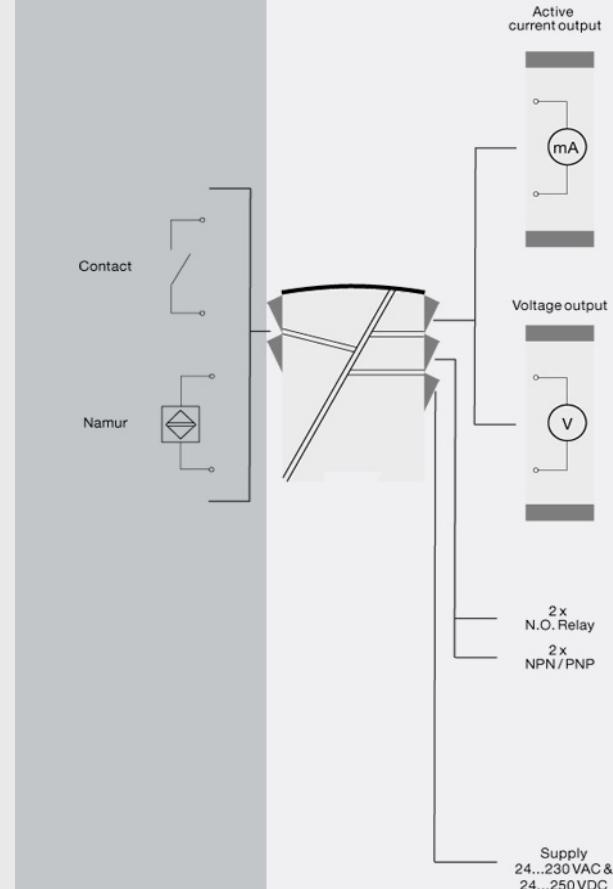
Technical characteristics

- 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, contact
- 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

Note

- Not suitable for new installations requiring certification to the latest ATEX standards - see ATEX certificate KEMA 04ATEX1001 for details.

Applications



Order:

Type	Output
5223B	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 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
 PELV/SELV..... IEC 61140
 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
 Effect of supply voltage change..... < 0.005% of span / VDC
 Temperature coefficient..... < ±0.01% of span / °C
 Linearity error..... < 0.1% of span
 NAMUR supply I.S. / Ex..... 8.9 VDC ±0.5 VDC / 8 mA
 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
 Min. pulse length..... 25 µs
 Input types..... NAMUR acc. to DIN 19234

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 (I.S. version 5223B)
 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

Approvals

ATEX..... KEMA 04ATEX1001
 EAC Ex..... RU C-DK.GB08.V.00410