

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.

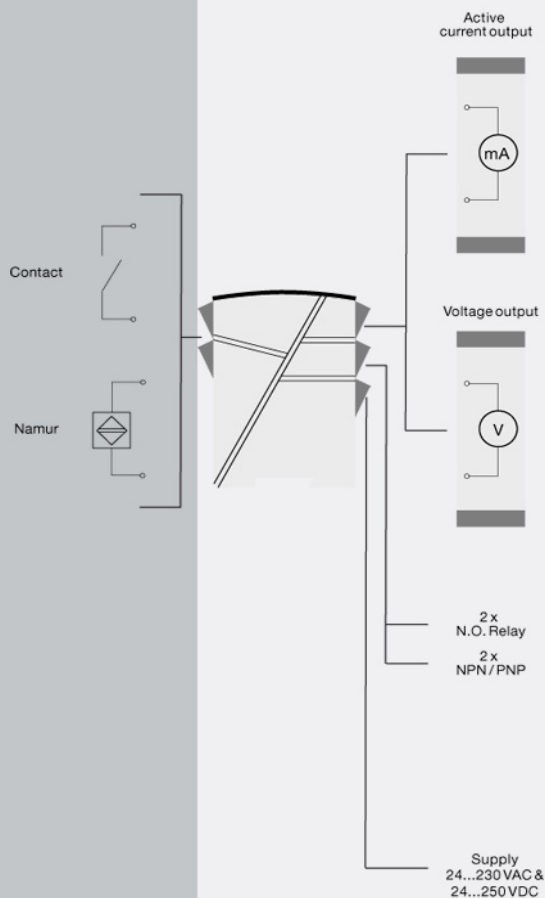
Technical characteristics

- 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 EN 60715/35 mm
Wire size.....	0.13...2.08 mm ² AWG 26...14 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
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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.....	EAEU KZ 7500361.01.01.08756