GIG PN-EN ISO 9001 Quality Management System Certyfikat nr QS/14/07

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PCA POLSKIE CENTRUM AKREDYTACJI CERTYFIKACJA SYSTEMÓW ZARZĄDZANIA AC 083 QMS

PROGRAMMABLE FREQUENCY CONVERTER type FP-S2

- **Wide range of input frequencies 0.01 Hz ÷ 100kHz,**
- **Programmable output standards of analog signals: 0-20mA, 4-20mA, 0-10V**
- **Two programmable alarm thresholds,**
- **Galvanic isolation of circuits input / output / supply**
- **Mounting on TS35 rail**
- **Setting the parameters using the AsSETUP program**

APPLICATION:

The transmitter converts the linear frequency of the input signal to a standard analog signal 0÷20mA, 4÷20mA or 0÷10V. The input, output and power supply circuit are mutually galvanically isolated.

The converter has relay outputs and optical indication of two alert thresholds .

The measured frequency range 0.01 Hz ÷ 100 kHz is divided into six sub-bands.

The converter is configured by AsSETPU program and RS232 serial port. The user can program the following parameters:

- lower and upper range of the frequency of the input signal,
- sub-frequency (multiplier range),
- standard output signal,
- switching thresholds of two alarm signals (two thresholds for each signal allows you to set the maximum, minimum or off of the alarm).

On request, the converter can be equipped with selective input system allowing shaping of the frequency response and the input circuit adapted to small and large signal amplitudes. Standard input has hysteresis (Schmidt system), which reduces object interference.

A typical application of the converter is to work with:

- angle-pulse track converters
- two-wire proximity sensors (e.g. NAMUR 1.2 / 2.1 mA) or three-wire sensors,
- oscillation and vibration sensors,
- cooperation with turbine flow meters and vortex (Vortex)
- flow meters with pulse output signal such as COMMON OPTO, with 1.2 / 2.1 mA signal.

BASIC TECHNICAL PARAMETERS:

1.	Dimensions	-	22,5x99x114,5mm
2.	Mouting		on TS35 rail
3.	Power supply	-	22V÷30Vdc / 80mA
4.	**Standard input signal:**		
	- voltage	-	$0/10V \div 0/24V$ /20kΩ
	switching thresholds Hi/Lo		4V/5,2V
	- current	-	NAMUR 1,2mA/2,1mA/1kΩ
	switching thresholds Hi/Lo	-	1,45mA/1,85mA
5.	**Custom input signal:**		
	- voltage	-	10mV …100V
	- current	-	0,1mA … 1A
6.	**Frequency range:**	-	0,01Hz ÷ 100kHz
7.	**Output signal:**	-	**programmable**
	- current	-	$0 / 4 \div 20mA$ / 800Ω
	- voltage	-	$0 \div 10V$ / 2kΩ
8.	Output update time	-	0,25 …1 sec.
8.	Class	-	0,1%
			(for Δ=fmax-fmin>150)
9.	Non linerity error	-	±0.05%
10.	Maximum output current	-	25mA
11.	Load of alarm signals	-	1A/120Vac
		-	2A/24Vdc
12.	Connection of object	-	0,5 ...1,5mm²
13.	Insulation test voltage	-	2 kV
14.	Ambient temperature error	-	0,01% / °C
15.	Additional output to power the sensor e.g. proximity sensor:		
	standard	-	8,2V / 20mA
	acceptable	-	3 … 12V
16.	Operating conditions:	-	
	Ambient temperature	-	0 ÷ +55°C
	Relative humidity	-	up to 90%

Safety reqirements – PN-EN 61010-1:2002

EMC requirements – PN-EN 61000-6-1, PN-EN 61000-6-3

DESCRIPTION OF OPERATION:

The converter measures the frequency of the input pulse by counting them in a unit of time or by measuring their period. The analog output signal is updated at least once per t=period+1second and set the states of alarm signals.

Lit green LED indicates power supply and the internal efficiency of the processor.

Lit red LED indicates alarm thresholds are exceeded.

To program the parameters of the converter:
- use any PC, with installed AsSETUP, equipped with a serial port,
- connect the computer's RS232 port to the COM interface of the converter (socket RJ11, cable sold separately: Cable RS232 (labor-automatyka.pl))
- power the device,
- run the AsSETUP.

The program allows you to read and modify the currently programmed parameters. The program should have loaded the configuration for FP-S2 converter

The design of the converter is adapted for mounting on TS35 mounting rail in the control cabinet.

For small input signals, to reduce the impact of object interference, connection cable should be shielded.

PARAMETERS CONFIGURABLE IN THE AsSETUP:

- Upper frequency range fmax: **100 ... 1000**
- Lower frequency range fmin: **0 ... 990**
- Multiplier range:

1 – 0,0001Hz	**2** – 0,001Hz
3 – 0,01Hz	**4** – 0,1Hz.
5 – 1Hz	**6** – 10Hz
7 - 100Hz	

- Type of the analog output
    - **1** – output 0…10V
    - **2** – output 0…20mA
    - **3** – output 4…20mA
- Upper threshold of the alarm 1 **0 … 1000**
- Lower threshold of alarm 1   **0 … 1000**
- Upper threshold of the alarm 2 **0 … 1000**
- Lower threshold of the alarm 2 **0 … 1000**

When programming the alarm thresholds one should take into account the multiplier range. If the two alarm thresholds are equal, the alarm is switched off. If the upper limit is greater than the lower threshold set the maximum alarm (the alarm is activated when the signal is higher than the upper threshold and turned off when the signal is below the lower threshold). If the upper limit is less than the lower threshold set the minimum alarm (the alarm is enabled with a signal lower than the upper threshold and off when the signal is higher than the lower threshold).
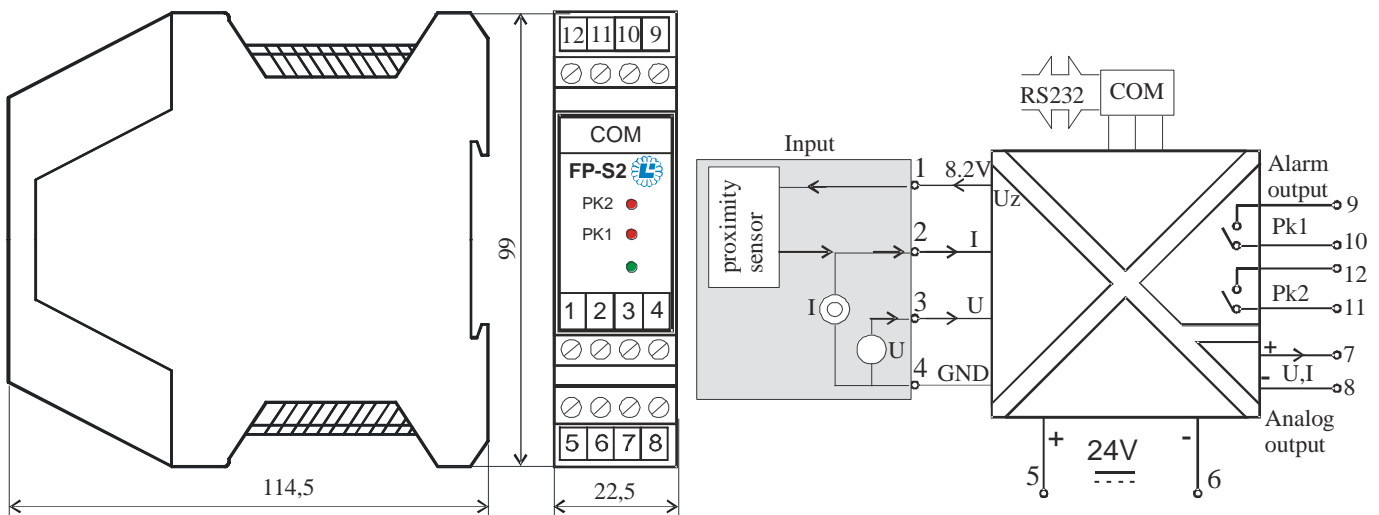

Figure of the casing and description of the terminals of the FP-S2 converter.

HOW TO ORDER: PROGRAMMABLE FREQUENCY CONVERTER type FP-S2

Special requirements, i.e. differing from the standard version, should be specified.