

# LABOR – ASTER

## INDUSTRIAL AUTOMATION



AC 083  
QMS

## FREQUENCY CONVERTER type F-S2

- Linear conversion of frequency into standard signal
- Complete separation of input, output and supply circuits
- Second bistate output of type OC (NPN)
- The converter can operate as duplicator of pulses. Input pulses are converted to two, three or four mutually separated pulses strings – check type F-S2-L2p/3p/4p

### APPLICATION

F-S2 converter linearly turns the input frequency signal into galvanic separated standard voltage or current signal.

On request, the converter can be equipped with a selective input circuit enabling the shaping of the transmission band. Lower-, upper- or middle- transmission filter with inclination of characteristic slope of  $0 \div \pm 18$  dB/octave can be achieved. Input circuit fits either small or high amplitudes of input signal.

Typical application of the converter is cooperation with:

- angle – impulse track converters,
- proximity sensors,
- vibrations and tremor sensors,
- turbine and rotational flowmeters (Vortex type),
- flowmeters with pulse output signal

In aim to diminish the trouble interferences shielded cable connection is recommended in case of small input signals.

F-S2 can be supplied either with 24Vdc voltage or 230V / 50Hz mains voltage; housing is then 25 mm or 40 mm wide respectively.

The beginning and the span of the range can be set by the user by means of the potentiometers (ZERO and RANGE) on the front panel of the converter.

### BASIC TECHNICAL PARAMETERS

Input signal:	voltage	-	1mV...100V
	current	-	10μA...5A
	frequency band	-	1Hz...10kHz
Input resistance:	voltage input	-	100kΩ (U≥100mV) 10kΩ (U<100mV)
	current input	-	50Ω
Output signal		-	any standard
Load resistance:	output 0...5mA	-	0...2kΩ
	output 0(4)...20mA	-	0...850Ω
	voltage output	-	>2kΩ
Supply	L24 version	-	21...28Vdc, 60mA
	L230 version	-	230V, 50Hz, 2VA
Class		-	0.2%
Nonlinearity		-	±0.1%
Temperature drift		-	0.025%/°C
Time constant		-	$\tau \geq 10/f_{LOWER}$ (0.1...4s)



Pulsations in the output signal	-	dependent on the lower frequency of the input signal (fig. 1)
Error due to voltage changes Uz and of load resistance	-	±0.1%
Supply voltage of the sensor	-	max 18V / 25mA
Galvanic separation	-	between all circuits
isolation test voltage	-	2kV / 50Hz or equivalent
Housing:	-	L24 version - 25mm L230 version - 40mm
Mounting	-	all-purpose strip hook

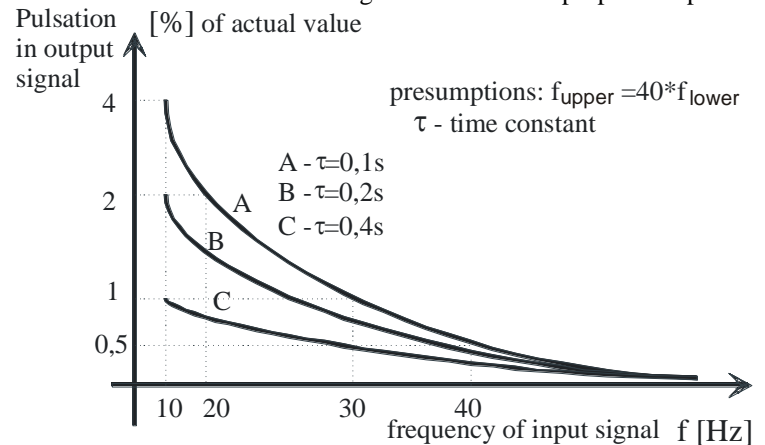
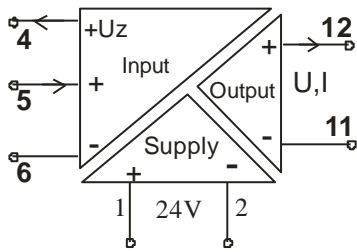
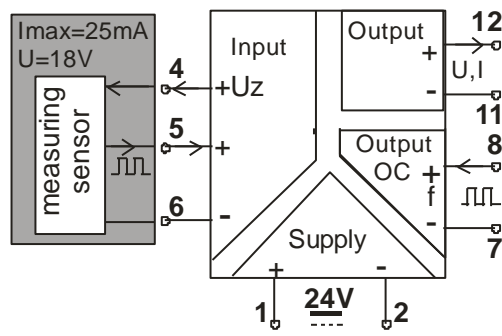


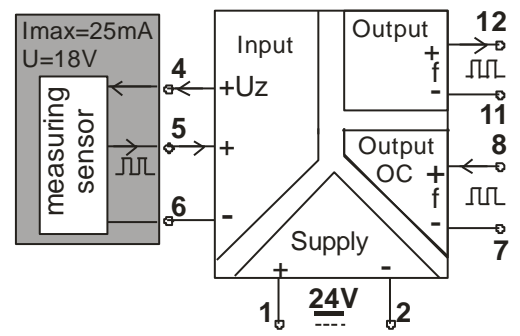
Fig. 1. Value of pulsations in output signal



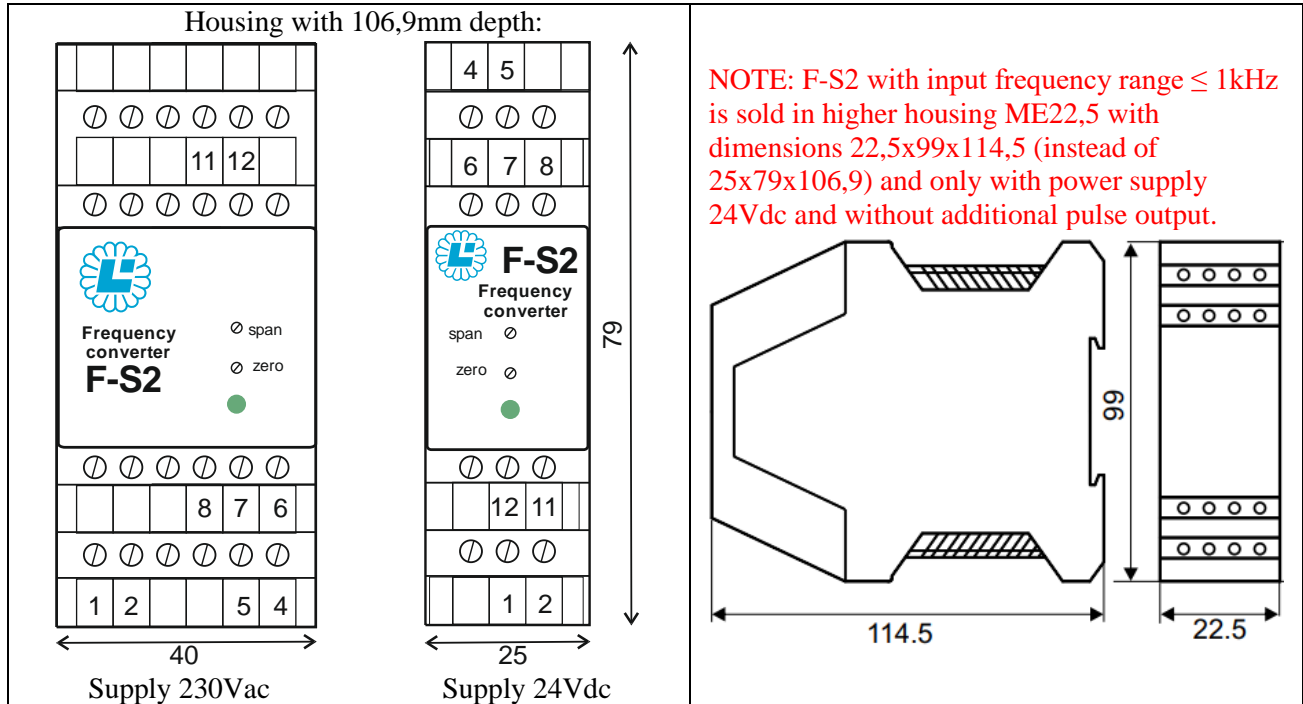
Analog output 11-12



Analog output 11-12 and one bistate output 7-8



Two/three/four bistate outputs (duplicator) – check type F-S2-L2p/3p/4p



**HOW TO ORDER F-S2-**

Version: \_\_\_\_\_

L24 - rail housing, supply 24Vdc

L230 - rail housing, supply 230V 50Hz

Input signal parameters: \_\_\_\_\_

frequency range (flower ...fupper), shape, amplitude (it should be described or drawn)

Output time constant: \_\_\_\_\_

from range 0.1...4 sec

Output1: \_\_\_\_\_

1 - 0...5mA ; 2 - 0...20mA ; 3 - 4...20mA ; 4 - 0...5V

5 - 0...10V ; 6 - 1...5V ; 7 - other (describe)

Output2: \_\_\_\_\_

0 - without output duplicating input pulses

OC - duplicating output type OC

0/?V - duplicating output type squarewave (specify upper voltage level)

**Note1:** Upon customer request additional pulse output can be added of the same frequency as the input pulse signal. This output can be square wave e.g. 0/24V or type OC.

**Note2:** It is also possible to have two or more outputs duplicating input pulses as type OC or active square wave. Then it is type F-S2-L2p, -L3p, L4p. Link: <https://labor-automatyka.pl/gb/frequency-pwm-duplicator/148-15-f-s2-l234p.html>

- Working conditions:**
- Ambient temperature - storing: -30°C...+60°C
  - Ambient temperature - working: -25°C...+60°C
  - Relative humidity: max 90%, no water vapor condensation
  - Ambient atmosphere: free from dust and aggressive fumes

**Order example:** type F-S2-L24-(30Hz...1000Hz, square wave 0/5V)-0.5s-3-0

Frequency converter, rail housing, supply 24Vdc, lower frequency 30Hz, upper frequency 1000Hz, input signal is voltage square wave with 0/5V levels, time constant 0.5 sec, output active 4...20mA, without pulse duplicating output.

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The manufacturer reserves the right to make changes to the product. Issue 07/2024