



Model number

KFU8-FSSP-1.D

Frequency-voltage-current converter
10 kHz version

Features

- Limiting frequency 10 kHz
- Voltage or current output
- Indication in Hz or 1/min
- Incrementing output (Spacing factor 1 ... 1200)
- Multi-range power pack
- 2-, 3-, 4-wire and NAMUR sensors as well as rotary encoder connectable
- Auxiliary power output for sensors
- Connection via Power Rail
- Period measurement
- Display: Input in Hz or 1/min, output in V or mA
- Display devices can be set between 0.001 ... 2.5 sec.
- Protection degree IP20

Technical data

Supply

Rated voltage 196 ... 264 V AC ; 98 ... 132 V AC; 47 ... 63 Hz
20.4 ... 27.6 V DC

Power consumption AC: < 5 VA
DC: < 5 W

Indicators/operating means

Type 4-digit 7-segment display, red, 7 mm digit height

Display interval 0.001 ... 9999 Hz or
0,02 ... 9999 min⁻¹

Parameter assignment keypad-driven menu

Input 1

Connection terminals 8-, 9+

Connectable sensor types NAMUR sensors according to DIN EN 60947-5-6

Open loop voltage 8.2 V DC

Short-circuit current 6.5 mA

Switching point 1.2 ... 2.1 mA Switching hysteresis approx. 0.2 mA

Impedance 1.2 kOhm

Input 2

Connection terminals 7+, 13- sensor supply
terminals 14, 15 npn/pnp input (electrically isolated)

Connectable sensor types 2-, 3- or 4-wire proximity switches and incremental rotary encoder

Sensor supply 21.6 ... 26.4 V DC ; ≤ 30 mA short-circuit proof

Switching point high: 16 ... 30 V DC; max.10 mA; R_i ≅ 3 kOhm
low: 0 ... 6 V DC

Output

Analogue voltage output 0 ... 10 V DC; 2 ... 10 V DC; 30 mA max.;
resolution: 10 mV; R_i ≥ 330 Ω (terminal 5+, 6-)

Analogue current output 0 mA ... 20 mA; 4 mA ... 20 mA; resolution: 20 μA; R_i ≤
600 Ω (terminal 4-, 5+)

Digital incrementing ≥ (U_b -3 V), 20 mA, short-circuit proof (Terminals 1-, 2+)
with frequency division F_{in} /1 ... F_{in} /9999

Transfer characteristics

Input frequency ≤ 10000 Hz, pulse pause/pulse length: ≥ 40 μs

Deviation ≤ 0.2 % of full-scale value

Standard conformity

Electromagnetic compatibility acc. to EN 50081-2 / EN 50082-2

Ambient conditions

Ambient temperature -25 ... 60 °C (248 ... 333 K)

Storage temperature -40 ... 85 °C (233 ... 358 K)

Mechanical specifications

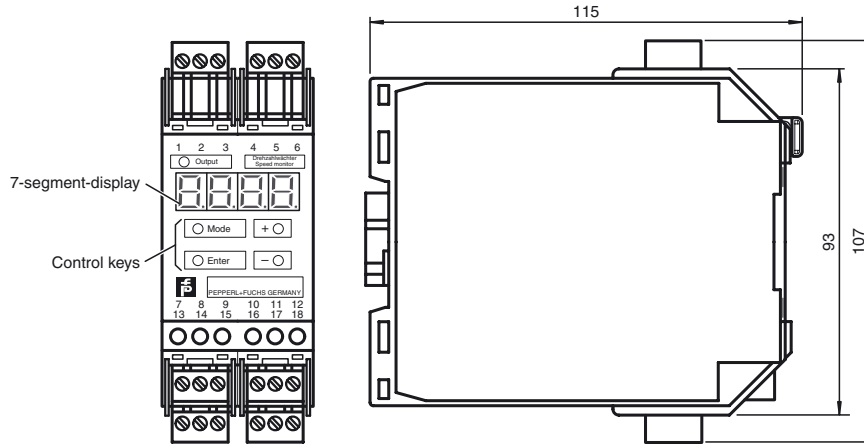
Protection degree IP20

Connection coded, removable terminals , max. core cross-section
0.34 ... 2.5 mm²

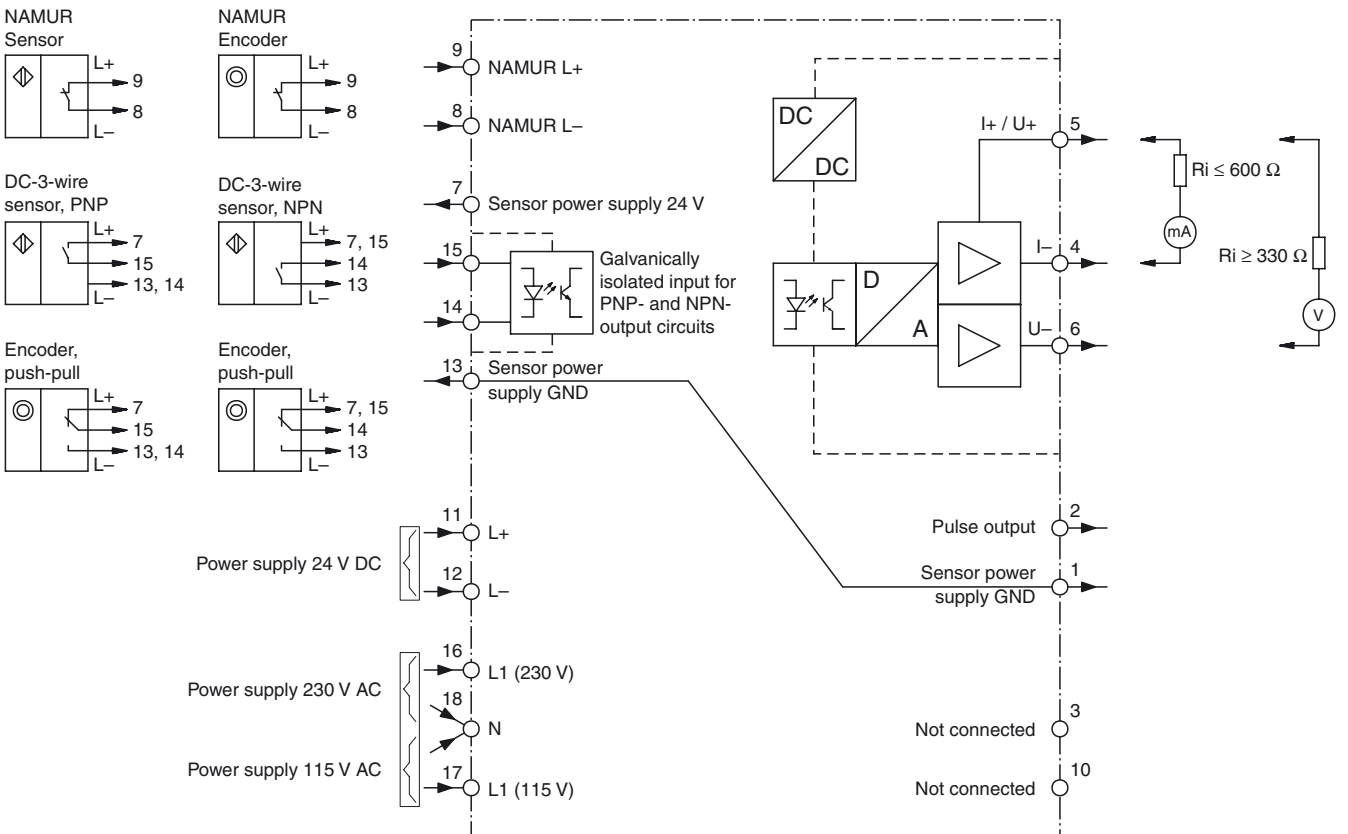
Construction type modular terminal housing in Makrolon, System KF

Mounting snap-on to 35 mm standard rail or screw fixing

Dimensions



Electrical connection



Function

The Frequency-Voltage/Current Converter KFU8-FSSP-1.D is a device for indicating and monitoring periodic signals, which occur in almost all areas of automation technology, i. e. frequencies in general and rotational speeds in special cases.

The input pulse train is evaluated in accordance with the cycle method, i. e. by measurement of the period of oscillation, and converted into a frequency by a μ controller. Depending on the selected measuring range limit value, the μ controller calculates a voltage/current value, which is proportional to the input frequency and outputs this via a digital-analogue converter.

A selection can be made between the following analogue signals: 0 V ... 10 V, 2 V ... 10 V, 0 mA ... 20 mA, 4 mA ... 20 mA.

The serially switched output provides the input frequency subdivided by the adjustable factor (1 ... 1200).

The frequently occurring special case of rotational speed measurement has been paid particular attention in the development of the device. For example, indications and inputs can be either in Hz or in 1/min.

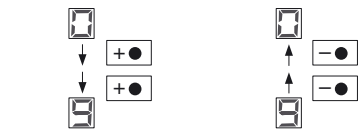
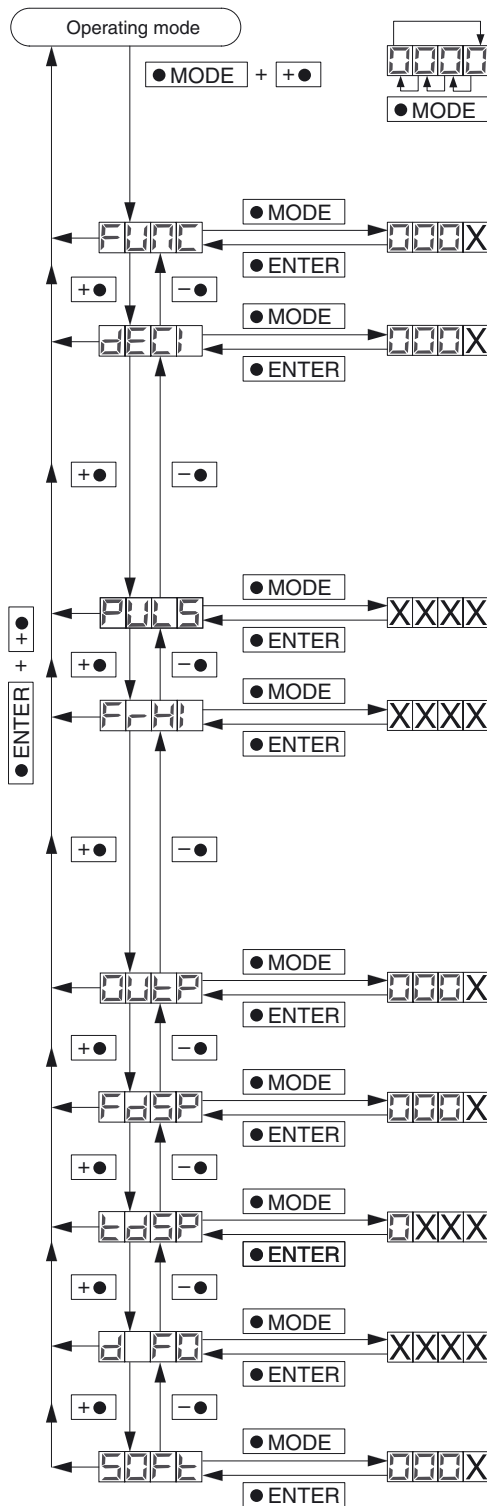
It is also possible, in applications involving slow processes, in which the signal sensors provide many pulses per revolution, to operate automatically with the actual rotational speed of the drive by specifying the number.

The supply voltage for the converter is 115 V AC, 230 V AC or 24 V DC. The version for alternating voltage provides a signal sensor supply of 24 V DC.

All current two, three and four-wire proximity switches and incremental encoders are accepted as a signal source at the input that is galvanically isolated via an opto coupler. Also, two terminals are reserved for the connection of proximity switches and incremental encoders in accordance with DIN 19234 (NAMUR).

The input signal - frequency in Hz or rotational speed in 1/min and the output signal - voltage in V or current in mA - is indicated on a 4-digit, 7-segment LED display on the front of the device. The parameter assignment is carried out via 4 buttons under the display.

Function description



Function selection:
 X=0: Frequency measurement 0.001 Hz...9999 Hz
 X=1: Speed measurement 0.02 min⁻¹...9999 min⁻¹
 Factory set: X = 1

Display and measurement range:
 0 ≤ X ≤ 3 at frequency measurement
 0 ≤ X ≤ 2 at speed measurement
 Factory set: X = 0

X	Frequency [Hz]	Speed [min ⁻¹]
0000	0 ... 9999	
000.1	0 ... 999.9	
00.02	0 ... 99.99	
0.003	0 ... 9.999	-

Pulse divider:
 Number of signals per rotation
 (is ignored during frequency measurement)
 1 ≤ XXXX ≤ 1200, Factory set: XXXX = 1

Measurement range final value:
 Frequency or speed, by which 10 V or 20 mA are applied to the analog output.
 0 ≤ XXXX ≤ 9999, Factory set: XXXX = 9999

Teach in of the current frequency or speed value as a measurement range final value by pressing the "MODE" button and then the "ENTER" button.

X	Analog output
0	0 V ... 10 V
1	2 V ... 10 V
2	0 mA ... 20 mA
3	2 mA ... 20 mA

Factory set: X = 0

Display:
 X=0: Frequency or speed
 X=1: Voltage display or current display
 Factory set: X = 0

Display rate:
 0.01 s ≤ X.XX ≤ 2.5 s
 Factory set: X.XX = 0.33 s

Division factor for pulse output:
 1 ≤ XXXX ≤ 1200
 Factory set: XXXX = 1

Software-version number:
 Can only be read.

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