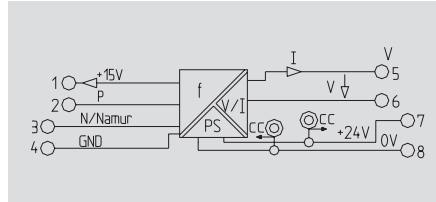


Frequency signal isolator/converter

f/DC disconnecter converter

- 3-way isolation
- Max. input frequency 100 kHz
- Input and output adjustable via DIP-switch
- Calibration not necessary
- Special partitions can be programmed

PRO Frequency



Technical data

Input

Sensor/
Rated input level
Resolution

Output

Output voltage/Output current
Load resistance voltage/Current
Offset current/Offset voltage

Accuracy

Temperature coefficient
Step response time

Status indicator

General data

Supply voltage
Power consumption
Current-carrying cap. of cross-connect.
Operation temperature
Storage temperature
Default settings

Approvals

Insulation coordinates

Standards
EMC standards
Rated voltage
Impulse withstand voltage
Isolation voltage Input, output/
Overvoltage category
Pollution severity
Clearance & creepage path

/

Dimensions

Clamping range (rating- / min. / max.) mm²
Length x width x height mm

Information

Ordering data

Type of connection

Screw connection
Tension clamp c.

Information

Accessories

Information

2-, 3-wire PNP/NPN, namur initiator, push-pull step/
threshold / hysteresis: namur: ca 1.7 mA/ca 0.2 mA;
NPN: ca 6.5 V/ca 0.2V; PNP: ca 6.7V/ca 0.5V
0.1 mHz resp. 5 ppm of measurement value

0...10 V/0(4)...20 mA

>= 1 kΩ / <= 600 Ω

max. 100 μA/max. 0.05 V

0.2 % of output range

max. 200 ppm/K of output range

360 ms + 2-fold period time of input frequency

LED green

24 Vdc +/- 25 %

max. 1.6 W at I_{out}= 20 mA

<= 2 A

0 °C...+55 °C

-20 °C...+85 °C

0...10kHz / 4...20mA

CE / ESD / cURus

EN 50178 (safe separation)

EN 50081, EN 50082, EN 55011, EN 61000-6-2, EN 61326

300 V

6 kV

4 kVeff / 5s/

III

>= 5.5 mm

Screw connection

2.50 / 0.50 / 2.50

Tension clamp c.

1.50 / 0.50 / 2.50

92.4 x 12.5 x 112.4

92.4 x 12.5 x 112.4

TU=23°C, single module

Type

Qty.

Order No.

WAS4 PRO Freq

1

8581180000

WAZ4 PRO Freq

1

8581190000

Voltage supply 24V and 0V with ZQV 2.5N/2
cross-connection

Selecting the operating mode

Operating mode	Switch 2	
	3	4
0...f _{max}	<input type="checkbox"/>	<input type="checkbox"/>
f _{min} ...f _{max}	<input type="checkbox"/>	<input checked="" type="checkbox"/>
saving	<input type="checkbox"/>	<input type="checkbox"/>
f _{min}	<input checked="" type="checkbox"/>	<input type="checkbox"/>

$$f = (A+B) \times C$$

Selecting the frequency

A	Switch 1			
	1	2	3	4
0	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
1	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
2	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
3	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
4	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
6	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
7	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
8	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
10	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
12	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Selecting the frequency

B	Switch 1			
	5	6	7	8
0	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
0,1	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
0,2	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
0,3	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
0,4	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
0,5	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
0,6	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
0,7	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
0,8	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
0,9	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Selecting the frequency

C	Switch 2	
	1	2
x1	<input type="checkbox"/>	<input type="checkbox"/>
x10	<input type="checkbox"/>	<input type="checkbox"/>
x100	<input checked="" type="checkbox"/>	<input type="checkbox"/>
x1000	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

Selecting the output

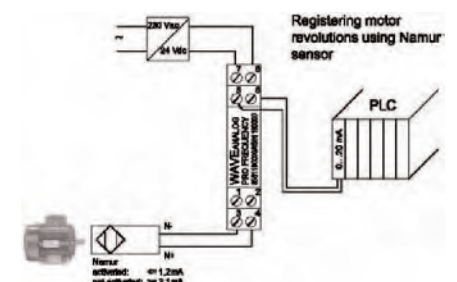
Output	Switch 2			
	5	6	7	8
0...10 V	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
0...20 mA	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4...20 mA	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
0...5 V	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

Special range (frequency generator is required)

Funktion	Switch 2			
	1	2	3	4
save min. frequency	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
save max. frequency	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
select special range	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

■ = ein
□ = aus

Application



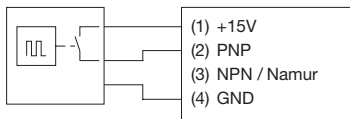
Articles with coloured order number are kept permanently in stock at the central warehouse in Germany.
Delivery times see page X.2

Frequency signal transformer

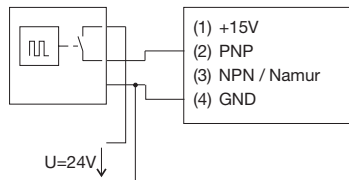
WAVEANALOGUE PRO Frequency

Connection configuration of the sensors

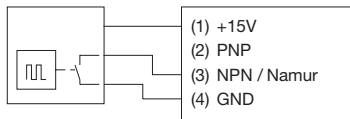
3-wire initiator with PNP output



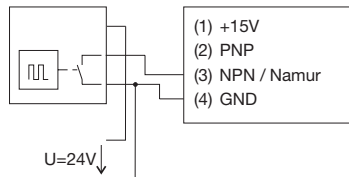
3-wire initiator with PNP output and external supply



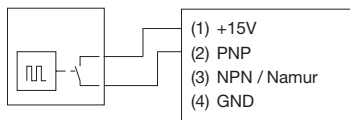
3-wire initiator with NPN output



3-wire initiator with NPN output and external supply

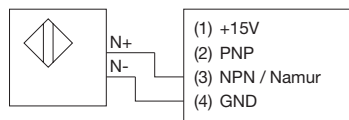


2-wire initiator

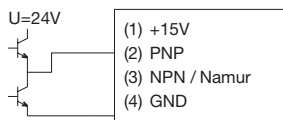


(residual current < 1 mA)

Namur initiator



Push pull output cascade



Setting help for any input and output values

Setting the input range using the DIP switches (no frequency generator required):

There are 2 different cases:

1. Lower measuring frequency = 0 Hz

- Choose operating mode "= ... fmax" S2.3 = 0 and S2.4 = 0
- Set the upper measuring frequency using DIP switches S1 and S2.1, S2.2 (see table)
- That's all

2. Lower measuring frequency ≠ 0 Hz

- First the lower measuring frequency must be saved. Select mode "save fmin". S2.3 = 1 and S2.4 = 0. Set the frequency using DIP switches S1 and S2.1, S2.2 (see table)
- To save the frequency, briefly connect the module to the power supply.
- Select mode "fmin...fmax" S2.3 = 0 and S2.4 = 1
- Set the upper measuring frequency using DIP switches S1 and S2.1, S2.2 (see table).
- That's all.

Adjusting the input range using a frequency generator

- Select the switch setting for saving the frequency: S2.1 = 0, S2.2 = 1, S2.3 = 1 and S2.4 = 1
- Apply min. frequency to the module
- Connect the module to the power supply
- The LED lights up when the input frequency is being measured. If the LED goes off, the frequency has been saved and the module can be disconnected from the power supply again.
- Repeat with max. frequency: S2.1 = 1, S2.2 = 0, S2.3 = 1 and S2.4 = 1
- Select special range: S2.1 = 1, S2.2 = 1, S2.3 = 1 and S2.4 = 1