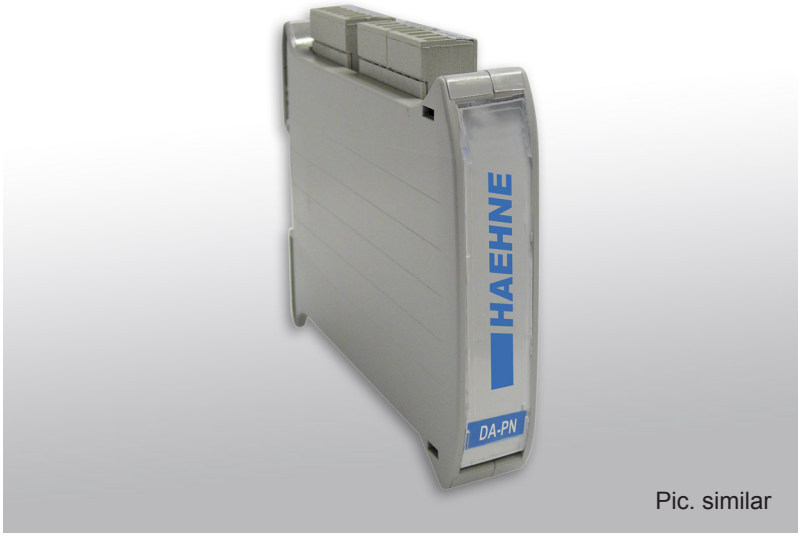
Digital Amplifier ProfiNet DA-PN

Scope of Supply
Amplifier in DIN Rail Mount enclosure

Additional Options
F: (Potentially explosive atmospheres):
Use with safety barriers



Pic. similar

1 Channel ProfiNet Strain Gauge Amplifier

Special Features

- 24bit Σ-Δ-AD converter for highest precision
- Very fast cycle time for time-critical applications
- Simple integration of the interface in PROFINET networks
- ProfiNet IRT with 2 Port Switch (2 x RJ-45), Conformance Class C
- Neighborhood detection within the network (LLDP)

The amplifier DA-PN is used whenever full bridge strain gauge sensors (e.g. force sensors) are to be connected with ProfiNet networks. The primary field of application is web tension and force measurement.

The sensor signals are converted into digital signals with a cycle time of 0.5 ms. They are averaged and provided to the interface circuit at a distance of approx. 6 ms. From there, they are then switched in the corresponding data format.

Oerdering Example

DA-PN-1,5
- Nominal rating
- ProfiNet
- Type

Please consider with the order:

The amplification of the DA-PN is pre-setted and in particular correlation with the nominal rating of the *HAEHNE* sensor.

Version DA-PN	Nominal rating of the sensor
-1,5	1.5 mV/V
-1,0	1.0 mV/V
-0,75	0.75 mV/V
-0,5	0.5 mV/V

Ordering example for option F:

Indicate the total resistance from measuring chain for option F (e. g. 1000 Ohm):

DA-PN-1,5F1000

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Technical Data

Power Supply Attention: The auxiliary power must be earthed	Spannung	24 V DC (9 ... 36 V)
	Typical current requirements with standard wiring	approx. 150 mA
Strain gauge excitation supply	Voltage (V_4):	10 V DC
	Option J	5 V DC
	Current max	160 mA
Signal	-160 % …0 … +160 % $\hat{=}$ 8000…0000…7FFF	
Data width	1 word	
Resolution	16 bit	
Standard enclosure protection	IP20	
Nominal temperature range	0…+60° C	
Terminal cross-section	AWG 24-12	

Design and Data Transmission

The analog processed and digitally converted signals are transmitted to the ProfiNet. The measuring range is ± 160 % of nominal force. If the measurement direction has a vertical component, e.g. the roll weight, then force values are transmitted without acting web forces. In order to determine the web tension force correctly the tara value (roll weight portion) and the web geometry have to be accounted for.

Measurement Data Transmission

Presentation in 6-bit-register as complement of two

Measurement value based on F_{nom}	Measurement value of bridge output signal V_1 [mV]			hex	dez (unsigned)	dez (signed)	MSB 15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	LSB 0
+150 %	Nominal rating x	10 V/ 5 V (otion J) x	1,5	7800	30720	30720	0	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0
+100 %			1,0	5000	20480	20480	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0
+50 %			0,5	2800	10240	10240	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0
0 %			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
-50 %			-0,5	D800	55296	-10240	1	1	0	1	1	0	0	0	0	0	0	0	0	0	0	0
-100 %			-1,0	B000	45056	-20480	1	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0
-150 %			-1,5	8800	34816	-30720	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0

Terminal assignment

Terminal	Assignment	
1	+24 V	Power supply
2	+24 V	
3	0 V	
4	0 V	
5	PE	
6	GND	Reference potential for Ex protection

Terminal	Assignment	
7	V_{4+}	Sensor A
8	V_{4-}	
9	V_{1+}	
10	V_{1-}	
11	V_{4+}	Sensor B
12	V_{4-}	
13	V_{1+}	
14	V_{1-}	

V_1: Signal voltage V_4 : Supply voltage

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