

## Digital Amplifier ProfiBus DA-PB

### Scope of Supply

Amplifier in DIN Rail Mount enclosure

Standard: 1 channel ProfiBus

Device description file on disk

### Variant

2PB: 2 channel ProfiBus  
in DIN Rail Mount enclosure

### Additional Options

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



Pic. similar



Other interfaces are also possible:  
ProfiNet, EtherNet, EtherCAT, CanOpen



### ProfiBus Strain Gauge Amplifier

#### Special Features

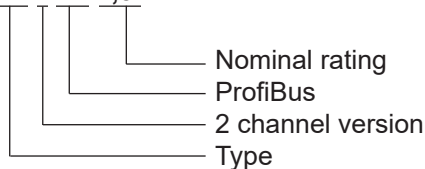
- 24 bit  $\Sigma$ - $\Delta$ -AD converter for highest precision
- Very fast cycle time for time-critical applications
- Simple integration of the interface in ProfiBus networks
- Bus and application are galvanically isolated up to 1.5 kV
- ProfiBus DPV0 / DPV1

The amplifier DA-PB is used whenever full bridge strain gauge sensors (e.g. force sensors) are to be connected with ProfiBus 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.

### Ordering Example

**DA-2PB-1,5**



### Please consider with the order:

The amplification of the DA-PB is preset and in particular correlation with the nominal rating of the HAEHNE sensor.

Version DA-PB	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

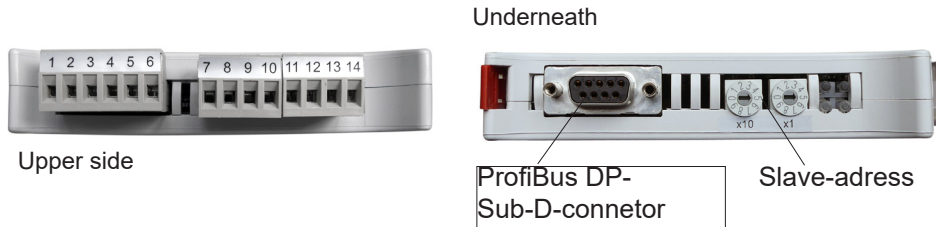
### Ordering example for option F:

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

**DA-PB-F1000-1,5**

**Technical Data**

<b>Power supply</b> Attention: The auxiliary power must be grounded!	Power supply	24 V DC (9 ... 36 V)
	Typical current requirements with standard wiring	approx. 150 mA
<b>Strain gauge excitation supply</b>	Voltage ( $V_4$ )	10 V DC
	Option J	5 V DC
	Current max.	160 mA
<b>Signal</b>	-160 % ... 0 ... +160 % $\hat{=}$ 8000...0000...7FFF	
<b>Data width</b>	1 word	
<b>Resolution</b>	16 bit	
<b>Enclosure protection</b>	Standard: P20	
<b>Nominal temperature range</b>	0...+60° C	
<b>Terminal cross-section</b>	AWG 24-12	



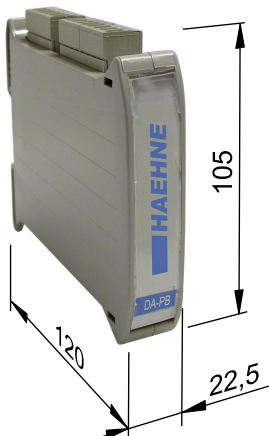
**Terminal Assignment DIN Rail enclosure**

Power Supply					Reference potential for Ex protection	Sensor A				Sensor B			
1	2	3	4	5	6	7	8	9	10	11	12	13	14
+24 V	+24 V*	0 V	0 V*	PE	GND	$V_4^+$	$V_4^-$	$V_1^+$	$V_1^-$	$V_4^+$	$V_4^-$	$V_1^+$	$V_1^-$

$V_1$ : Signal voltage  $V_4$ : Supply voltage

\* Power supply for other devices  
The maximum current of 1 Ampere must not be exceeded.

**Dimensions**



## Digital Amplifier ProfiBus DA-PB

### Technical Information

#### Design and Data Transmission

The analog processed and digitally converted signals are transmitted to the ProfiBus. The measuring range is  $\pm 160\%$  of nominal force. If the measurement direction has a vertical component, e.g. the roll weight, these force values are already transmitted without acting web forces. In order to determine the web tension force correctly the tare value (roll weight portion) and the web geometry have to be considered.

#### Measurement Data Transmission

Exemplary presentation in 16 bit register as complement of two																							
Measure- ment value based on $F_{nom}$	Measurement value of bridge output signal $V_1$ [mV]		hex	dez (unsigned)	dez (signed)	MSB								LSB									
						15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0		
+150 %	Nominal rating x 10 V/5 V (option J)	x	1,5	7800	30720	30720	0	1	1	1	1	0	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	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	0	0
-50 %			-0,5	D800	55296	-10240	1	1	0	1	1	0	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	0
-150 %			-1,5	8800	34816	-30720	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0

#### ProfiNet Master Adjustment

The required device description file (KUNB0E... GSD) is supplied by HAEHNE and must be read in the configuration tool of the PLC.

The device "Kunbus-COM-Profibus" must be added in the configuration software to the project. The appropriate module must be selected in the device configuration. The data are represented as a two's complement in the 16 bit register. In the configuration software, this is the "Ip\_02" entry under "Input Modules"

For the 2 channel version, the module must be inserted twice.

The slave address can be set with the rotary switches from 1 - 99:

