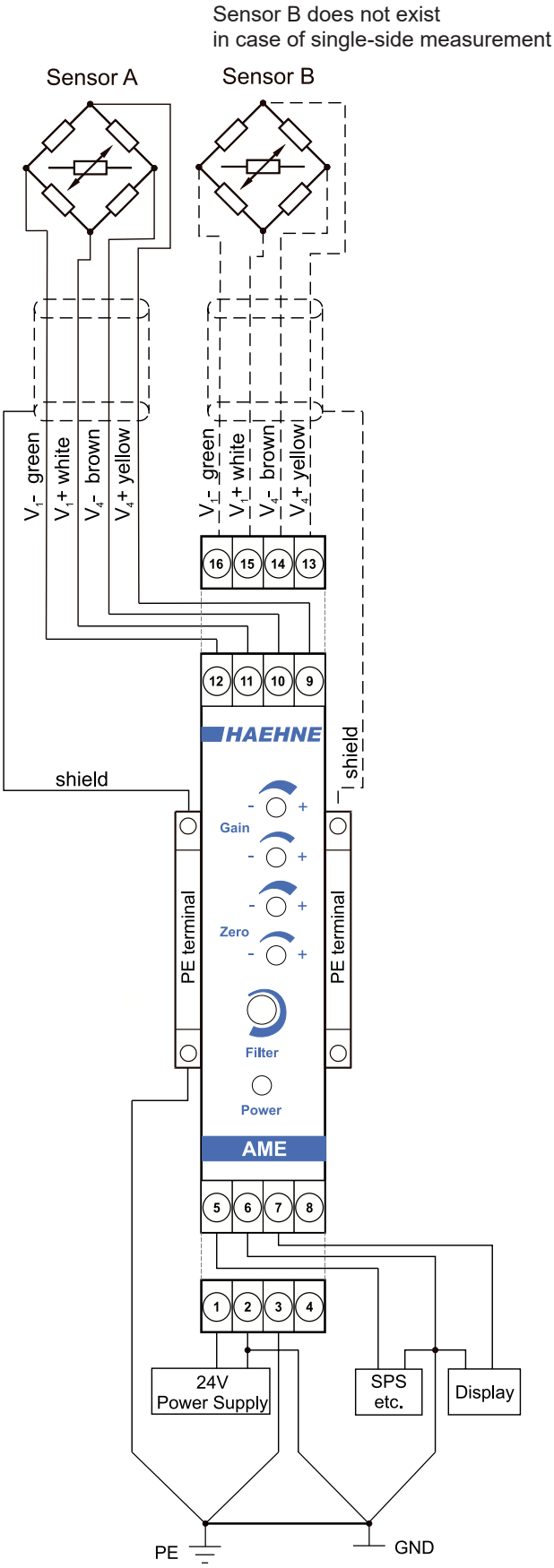
Measuring Amplifier AME3

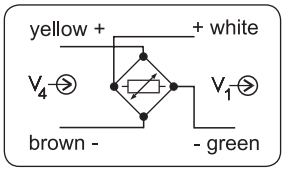
Technical Information

Connection diagram

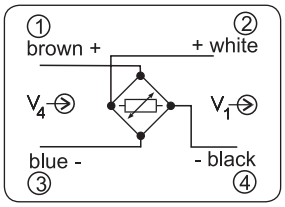


Sensor cable lead color with connection variant:

N3, S, S3, S4, T



N1, N2, S1, S2



V_1: Signal voltage
V_4: Supply voltage

Different connection in case of explosion proof application

V_1	Output signal of full bridge strain gauge
V_2	Direct voltage output
V_3	Filtered voltage output
V_4	Excitation voltage to the full bridge strain gauge in the sensors
V_5	Supply voltage 24 V DC
I_1	Current output (option C and N)

Terminal diagram

Terminal	Assignment	
1	+24 V	V_5
2	0 V	
3	PE	
4	GND	Amplifier outputs
5	V_2	
6	GND	
7	V_3	
8	I_1	
9	V_4+	Sensor A
10	V_4-	
11	V_1+	
12	V_1-	
13	V_4+	Sensor B
14	V_4-	
15	V_1+	
16	V_1-	

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Calibrate the measuring system

The following steps are necessary in order to calibrate the measuring system consisting of sensors and AME3:

1. Allow 10 minutes warm-up after applying power in order to achieve stable temperature conditions inside the amplifier.
2. Connect voltage meter to the direct output V_2 of the AME3 (terminal 5 +, terminal 6 -).
3. For zero adjust purposes apply the normal pre-load to the completely mounted sensors but not the regular force acting in the production process. In case of web tension measurement this is the measuring roll, however without the web (paper, foil, ...).
4. Use the zero adjust pots "coarse" and "fine" to set the voltage at the direct output V_2 to 0 V.
5. Switch voltage meter to the measuring range > 10 V.
6. For the adjustment of the amplification (gain) apply the calibration load. This force should be about 80 … 100 % of the nominal force. The output signal V_2 can be adjusted to the desired values with gain pots "coarse" and "fine".
7. Remove the load from the strain gauge sensors and check the output signal. If the zero position differs substantielly from the previous zero adjust repeat the calibration steps 3 to 6.

If it is not possible to apply a defined calibration load, carry out the following alternative steps at points 4 and 6:

• **In addition to point 4:** measure and note the mV value (V1 zero) of the sensor at signal input V1.

• **alternative to point 6:** to adjust the gain, use the strain gauge transducer with the maximum possible load. Measure and note the mV value (V_1force) of the sensor at signal input V_1.

Calculate the difference between V_1force and V_1zero: V_1diff = V_1force - V_1zero

Calculate the output signal V_2force to be set: V_2force = V_1diff * desired gain

Nominal value sensor	Amplification
1,5mV/V	666.7
1,0mV/V	1000.0
0,75mV/V	1333.3
0,5mV/V	2000.0

Example calculation: V_2force = 7.2 mV * 666.7 mV / V = 4800.24 mV = 4.8 V

Set the calculated output signal V_2force with the gain potentiometers gain coarse and gain fine.

Technical modifications reserved.

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