

Strain Gauge Measuring Amplifier BA 627

Original of the
Manual

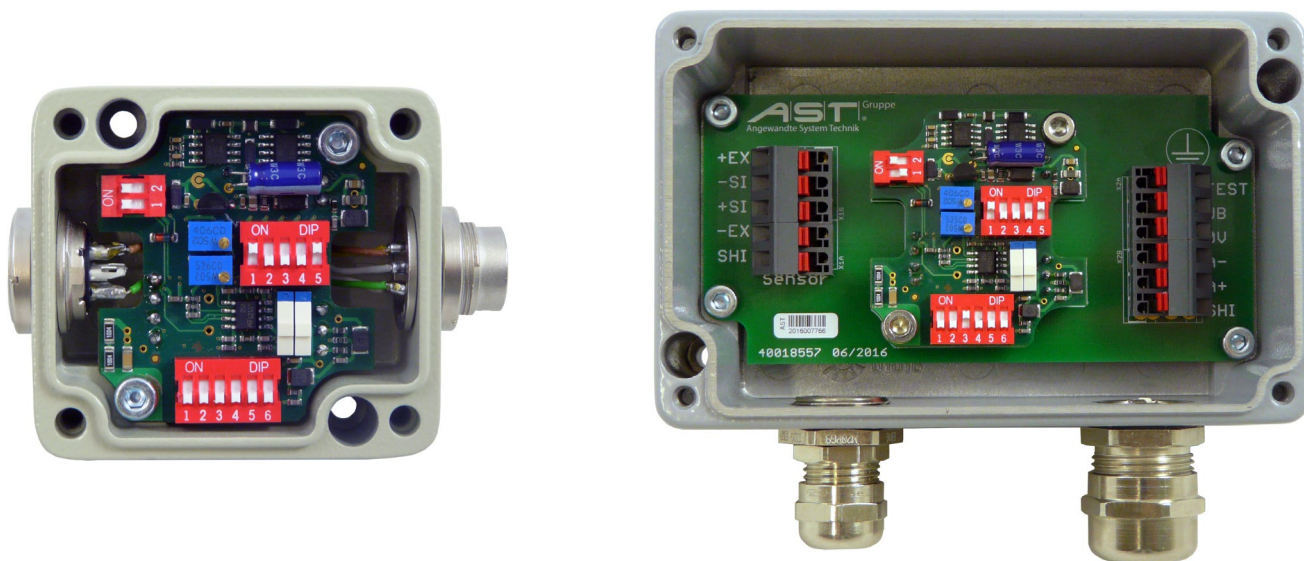


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1. Safety precautions

In this operating manual, the installation, putting into operation and the operation itself of the Strain Gauge Bridge Amplifier BA 627 is described. It is assumed that all measures are taken by qualified staff only who have adequate knowledge in the fields of measuring and control engineering.



ATTENTION! Any non-compliance with these safety precautions may result in severe damage to property and health.

1.1. Field of application

The Strain Gauge Bridge Amplifier BA 627 has been designed to the purpose of amplifying the output signals of sensors with metal-foil strain gauges, preferably force transducers and transform them into standard signals. Any other application is regarded contrary to the intended purpose. The manufacturer does not accept any liability for damages resulting from such inappropriate usage. In this case it is the user alone who has to bear the risk.

1.2. Installation

The unit must be installed and connected in compliance with the current DIN- and VDE-standards. Supply cables and signal lines shall be installed so that interference signals such as electrical interference do not have any adverse effects on the function of the equipment.

1.3. Maintenance

The device does not contain any components that require maintenance. Repairs shall be carried out by the manufacturer only.

1.4. Factory setting

The amplifier BA 627 is supplied with the following settings.

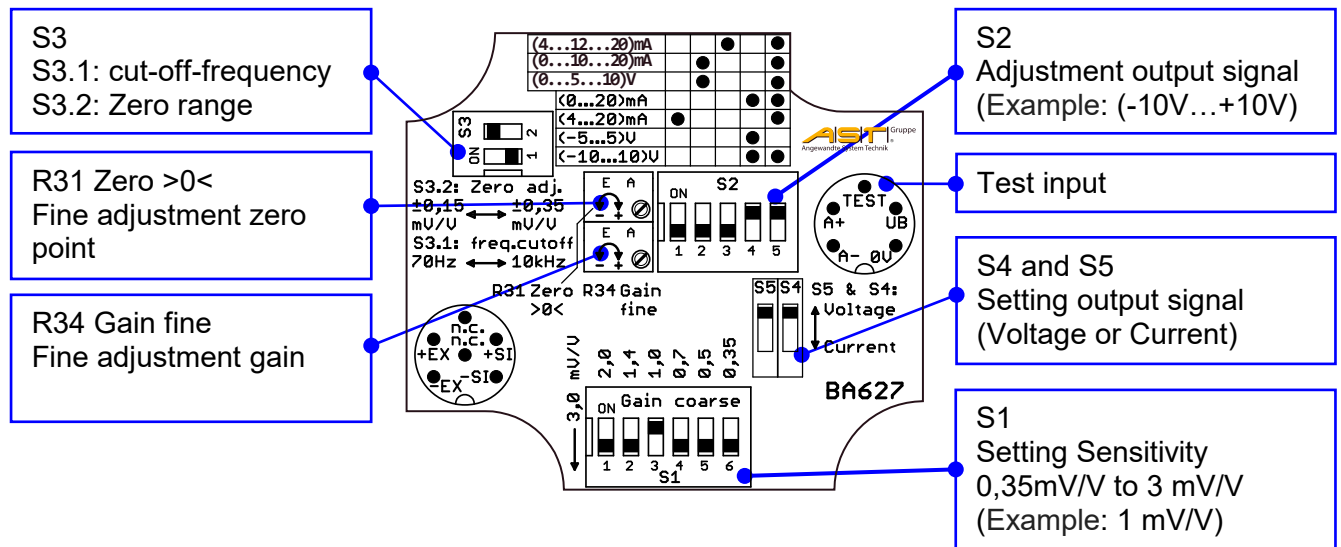
Input signal:	1m V/V
Zero point:	$\pm 0,15$ mV/V
Output signal:	± 10 V
Filter:	10 kHz



NOTE: After reset to factory settings, the amplifier has to be newly adjusted to the sensor!

2. Operation

2.1. Overview operating elements BA 627



2.2. Sensitivity (S1)

Set the DIP-switches according of Table 1 to "ON" to select the input sensitivity (mV/V)

DIP-Switch ON	none	1	2	3	4	5	6
Sensitivity (mV/V)	3,0	2,0	1,4	1,0	0,7	0,5	0,35

Table 1

2.3. Signal output (S2, S4, S5)

Set the DIP-switches according of Table 2 to "ON" to select the output signal.

Output	S2-1	S2-2	S2-3	S2-4	S2-5	S4	S5
4 ... 12 ... 20 mA			ON		ON	Current	Current
0 ... 10 ... 20 mA		ON			ON	Current	Current
0 ... 5 ... 10 V		ON			ON	Voltage	Voltage
0 ... 20 mA				ON	ON	Current	Current
4 ... 20 mA	ON				ON	Current	Current
-5V ... +5 V				ON		Voltage	Voltage
-10V ... +10 V				ON	ON	Voltage	Voltage

Table 2



ATTENTION! Check the right positions of DIP-switches **S4** and **S5**!

Zero alignment (Zero >0<)

Use the **R31 Zero >0<** potentiometer of the measuring amplifier to align zero.

Depending on the position of **S3-2**, the zero point can be adjusted to approx. ± 0.35 mV/V or approx. ± 0.15 mV/V (see also 2.5) independently of the sensor resistance and largely independent of the gain.

2.4. Zero range (S3-2)

Select the range of the zero point $\pm 0,35$ mV/V or $\pm 0,15$ mV/V with the DIP-switch **S3-2**. (see too 2.4).



NOTE With the zero range $\pm 0,15$ mV/V its possible to adjust the zero point more exactly.

2.5. Amplification (Gain fine)

Use the **R34 Gain fine** potentiometer of the measuring amplifier to align output signal. The adjustment range is ± 25 %.

Depending on the setting the following range are possible S1 (see too 2.2).

Sensitivity (S1) (mV/V)	0,35	0,5	0,7	1,0	1,4	2,0	3,0
Min (mV/V)	0,28	0,4	0,56	0,8	1,12	1,6	2,4
Max (mV/V)	0,42	0,6	0,84	1,2	1,68	2,4	3,6



NOTE Check the zero point after changing of amplification.

2.6. Cut-off-frequency (S3-1)

Select the cut-off-frequency **10 kHz** or **70 Hz** with the DIP-switch **S3-1**.

2.7. Test input

If you connect the test input **Test** with **+24V** then you create an offset of 0.5mV/V at a 350 Ohm strain gauge bridge.

The recorded value can be used for checking the measuring device.

3. Specifications

3.1. General technical data

Accuracy Class	%	0.2
Input signal range (+Si/-Si)	mV/V	0.28 ... 3.6 (4-wire technology)
Bridge resistance of the strain gauge bridge	Ω	350 ... 1000
Excitation voltage (+Ex/-Ex)	VDC	10
Fine adjustment (input signal range)	%	approx. ± 25
Output Signal		
Current output/ burden	mA	0/4 ... +20 ; 10 ± 10 ; 12 ± 8 for $R_L \leq 250\Omega$
Voltage output/ burden	V	-10 ... +10; -5 ... +5; 5 ± 5 for $R_L \geq 10k\Omega$
Zero adjustment range	mV/V	± 0.35 or ± 0.15 (DIL-Switch)
Limiting frequency (-3dB)	Hz	10.000 or 70 (DIL-Switch)
Temperatur effect on zero at 2mV/V	%/10K	≤ 0.05
Temperatur effect on zero at 1mV/V	%/10K	0.1
Temperatur effect on amplification at 2mV/V	%/10K	≤ 0.07
Max. noise output: (-10 ... 0 ... +10V)	mV	≤ 10
Max. noise output: (0/4 ... 20)mA	μA	≤ 50
Test-signal input		
Bridge imbalance when $U_B = 24 V$	mV/V	approx. +0.5 (for 350 Ω full bridge)
Power supply (U_B)		
Nominal voltage	VDC	24
Voltage range	VDC	19 ... 28
Current consumption (at 350 Ω full bridge)	mA	ca. 44 (plus output current)
Environmental conditions		
Operating temperature range	$^{\circ}C$	-25 ... +60
Storage temperature range	$^{\circ}C$	-40 ... +70
Construction		
Housing		Aluminium
Weight	Kg	BA627-ST: approx. 0.2 / BA627-KL: approx. 0.5
Dimensions (W x H x T)	mm	
• BA627-ST	mm	64 x 58 x 34
• BA627-KL	mm ²	125 x 80 x 57
terminal blocks, wire size (BA627-KL)		0,14 ... 1,5
Environmental protection (EN 60529/DIN 40050-9)		P 65

3.2. Connections

Installation recommendations:

- Use shielded cables.
- Connect the housing of the connector with shield

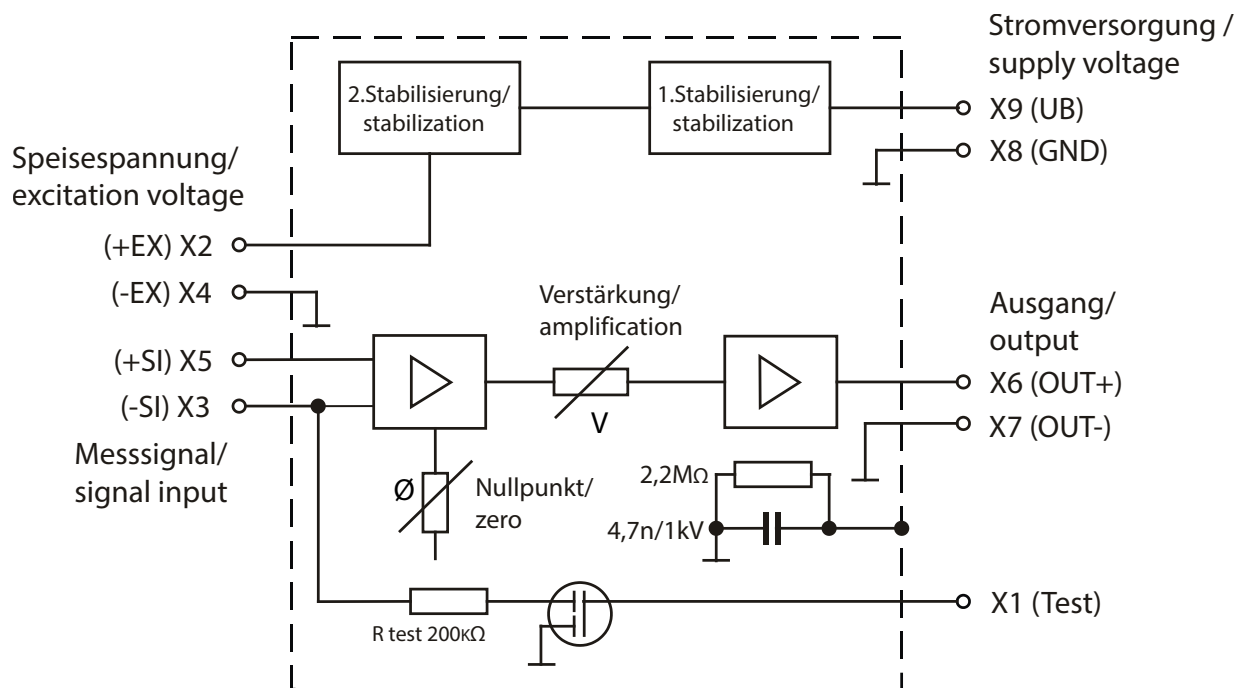


Figure 1: Wiring diagram

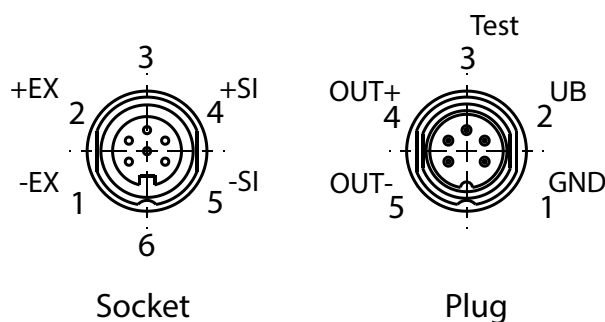


Figure 2: connection BA 627-ST

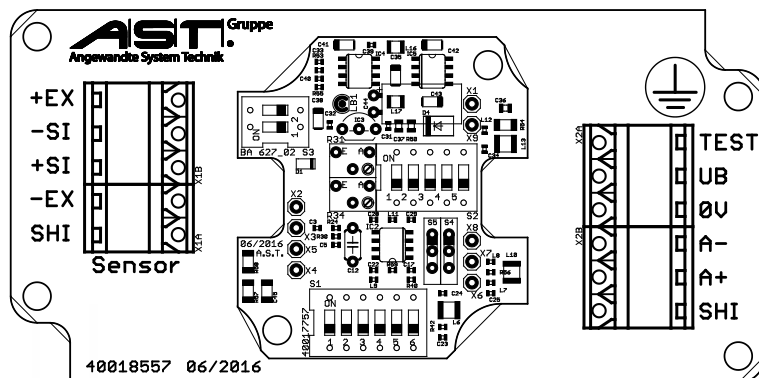


Figure 3: connection BA 627-KL

3.3. Dimensions

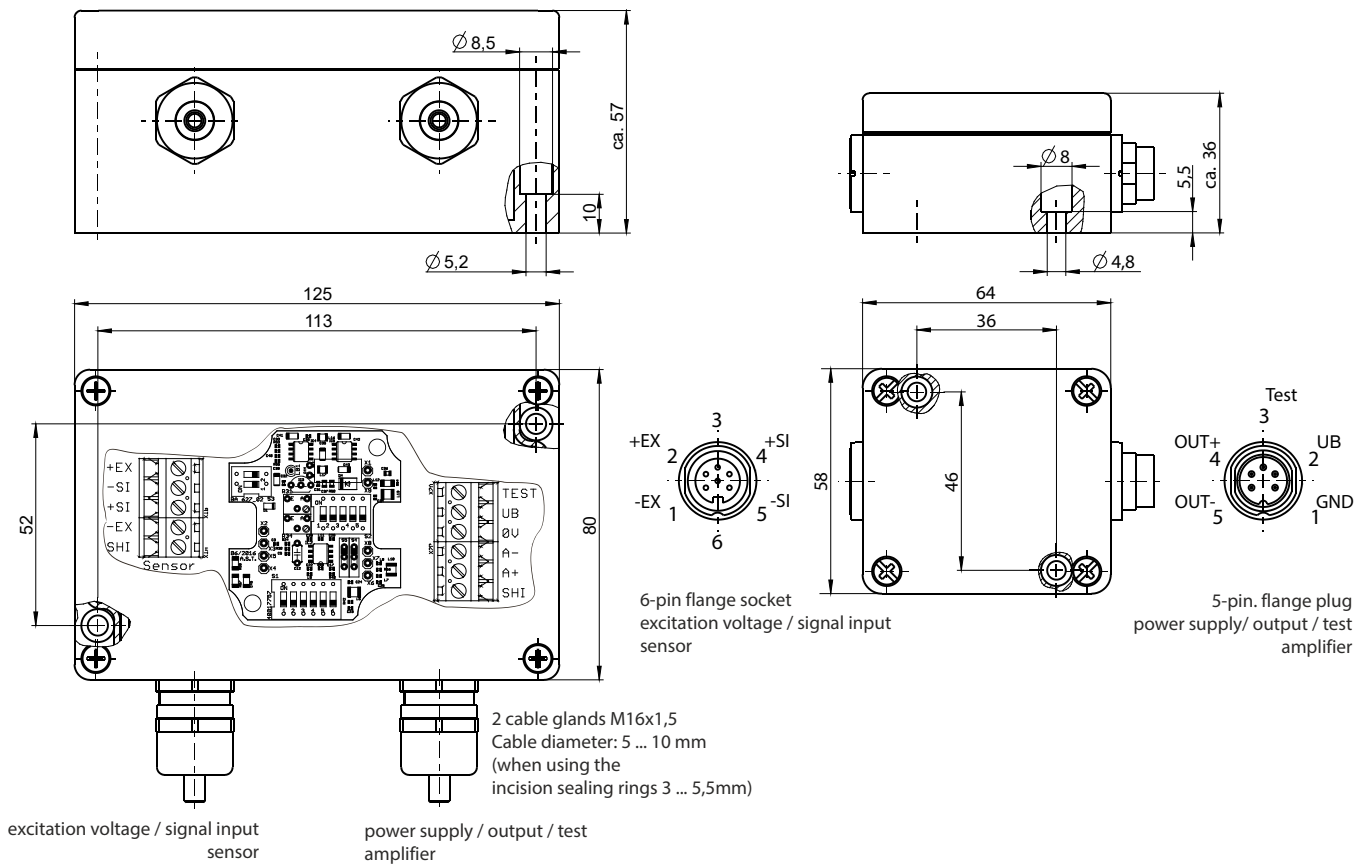


Figure 4 - Dimensions

4. EC Declaration of Conformity

A.S.T. - Angewandte System Technik GmbH
Mess- und Regeltechnik



EG-Konformitätserklärung EC Declaration of Conformity

No. 22/16

Hersteller: A.S.T. - Angewandte System Technik GmbH
Manufacturer: Mess- und Regeltechnik

Anschrift: Marschnerstraße 26, 01307 Dresden
Adress: Bundesrepublik Deutschland

Produktbezeichnung: DMS-Messverstärker BA 624.xx, BA 625xx, BA 626.xx,
BA 627-KL, BA 627-ST, BA 643.xx

Product description: Strain Gauge Measuring Amplifier BA 624.xx, BA 625xx, BA 626.xx, BA
627-KL, BA 627-ST, BA 643.xx

Das bezeichnete Produkt stimmt in der von uns in Verkehr gebrachten Ausführung mit den Vorschriften folgender Europäischer Richtlinien überein:

The product described above in the form as delivered is in conformity with the provisions of the following European Directives:

2014/30/EU Richtlinie des Rates zur Angleichung der Rechtsvorschriften der Mitgliedsstaaten über die elektromagnetische Verträglichkeit.
Council Directive on the approximation of the laws of the Member States relating to electromagnetic compatibility.

Die Konformität mit der Richtlinie 2014/30/EU wird nachgewiesen durch die Einhaltung folgender harmonisierter Normen:

Conformity to the Directive 2014/30EU is assured through the application of the following harmonised standard:

Störfestigkeit:	DIN EN 61000-6-2
Interference resistance:	
Störaussendung:	DIN EN 61000-6-3
Emitted interference:	

Dresden, den 14.10.2016

gez. Dr.-Ing. Gerd Heinrich
Qualitätsmanagementbeauftragter

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