



Strain Gauge Measuring Amplifier BA 627

Manual



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Further information on the BA 627 can be found on our website www.ast.de.

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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.

The BA 627 must not be used as the sole means of preventing dangerous conditions on machines and systems. Machines and systems must be designed in such a way (e.g. with mechanical locks, limit switches) that faulty conditions cannot lead to a dangerous situation.

It must be ensured that incorrect settings on the device, its malfunction or failure cannot lead to material damage or a hazard for the operating personnel or others.



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

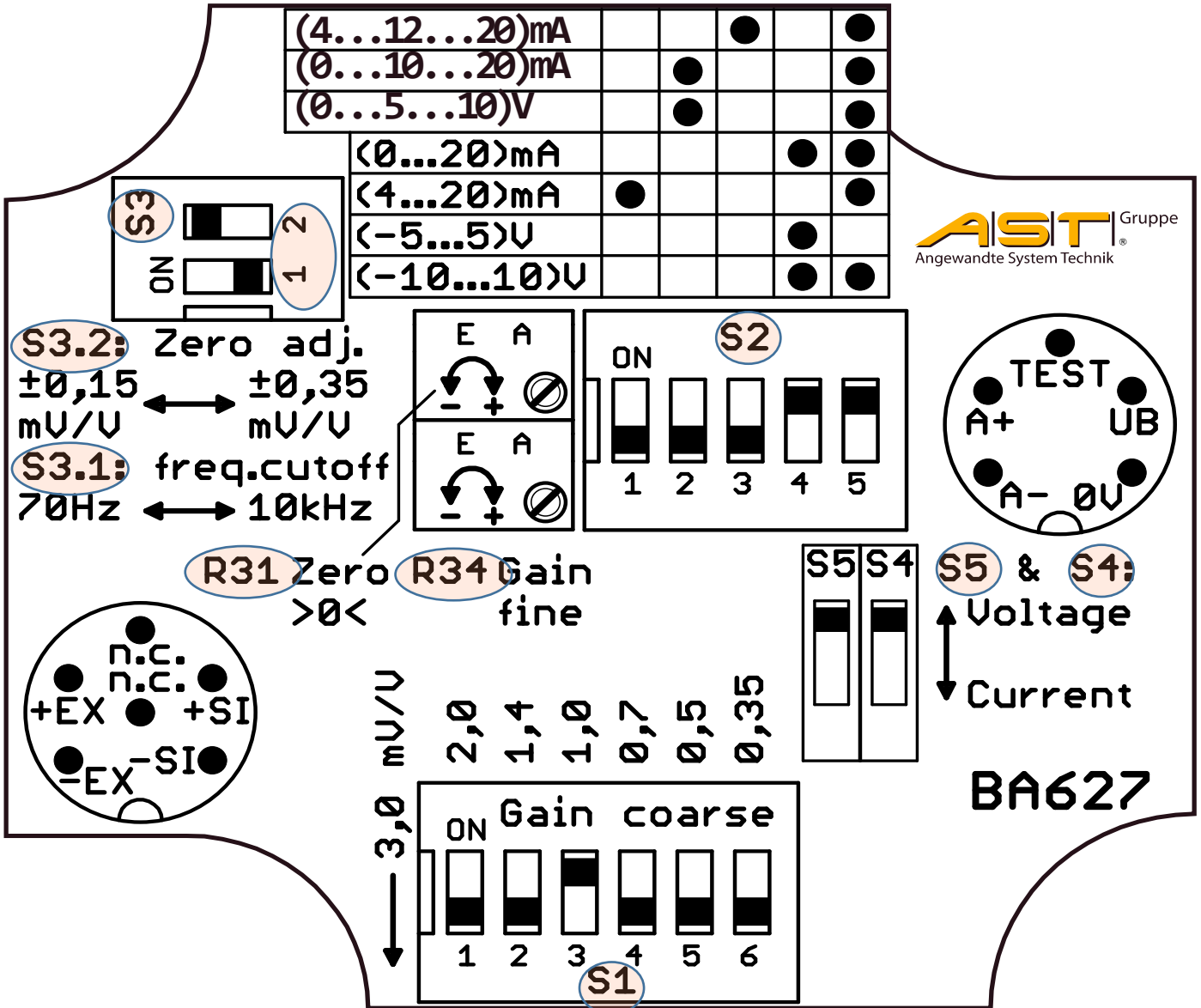
The amplifier BA 627 is supplied with the following settings.

Input signal:	1m V/V
Zero point:	±0.15 mV/V
Output signal:	±10 V
Filter:	10 kHz



Note: After changing the factory settings (except except limiting frequency) using the switch, the gain (Gain Fine) and the zero point (Zero >0<) must first be readjusted!

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-Schalter ON	keiner	1	2	3	4	5	6
Empfindlichkeit (mV/V)	3,0	2,0	1,4	1,0	0,7	0,5	0,3

Table 1

2.3. Signal output (S2, S4, S5)

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

Ausgang	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**!

2.4. Zero range (S3-2)

DIP switch **S3-2** can be used to switch the setting range of potentiometer **R31 Zero >0<** between approx. ± 0.35 mV/V or approx. ± 0.15 mV/V.



NOTE With the zero range ± 0.15 mV/V is possible to adjust the zero point more exactly..

2.5. Zero alignment (R31 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 independently of the sensor resistance and largely independent of the gain.

2.6. Amplification (R34 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.

2.7. Limiting frequency (S3-1)

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

2.8. 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 RL ≤ 250Ω
Voltage output/ burden	V	-10 ... +10; -5 ... +5; 5 ±5 for RL ≥ 10kΩ
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
Signal input "Test"		
Bridge imbalance when UB = 24 V	mV/V	approx. +0.5 (for 350 Ω full brigde)
Power supply (UB)		
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	°C	-20 ... +60
Strorage temperature range	°C	-40 ... +70
Construction		
Housing		Aluminium
Weight	Kg	BA627-ST: approx. 0.2 / BA627-KL: approx. 0.5
Dimensions (W x H x T)		
• BA627-ST	mm	64 x 58 x 34l
• BA627-KL	mm	125 x 80 x 57
terminal blocks, wire size (BA627-KL)	mm ²	0.14 ... 1.5
Environmental protection (EN 60529/DIN 40050-9)		P 65

3.2. Anschluss

The connections for the measuring signals and the power supply are made via circular connectors on the BA627-ST, so that quick and easy installation and commissioning is possible, and via terminal strips on the BA627-KL. To protect against interference signals, the use of shielded cables is prescribed for the power supply and the measuring signals. The shields of all cables leading to the device must be connected to the metal circular connectors.

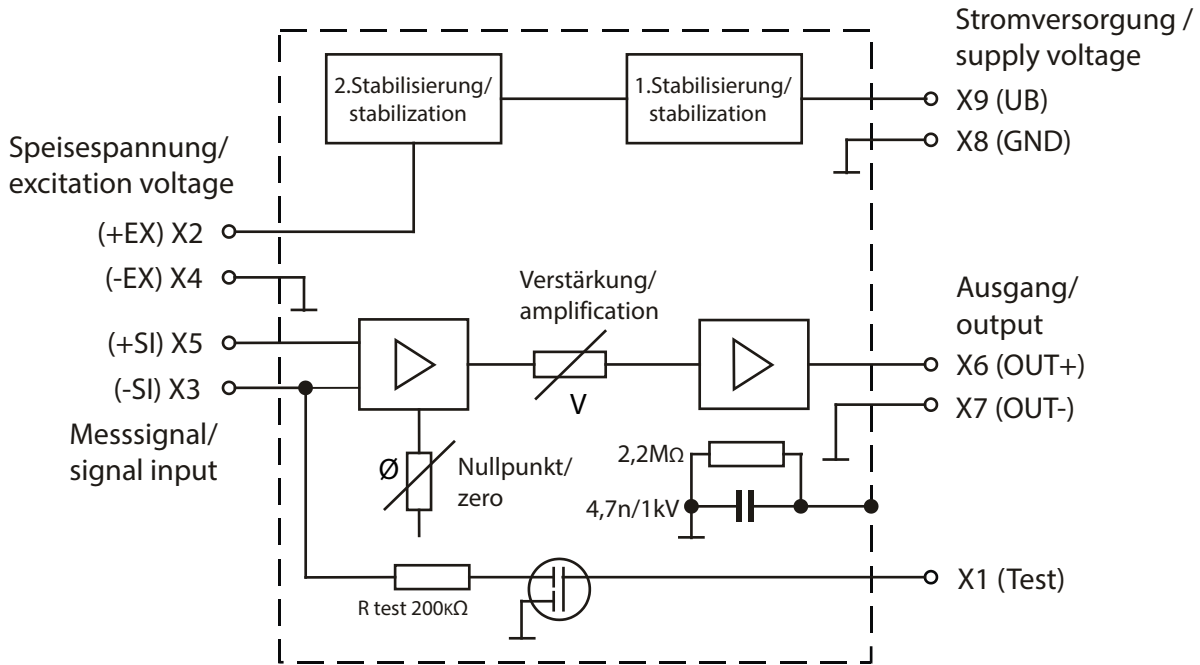


Figure 1 - Wiring diagram

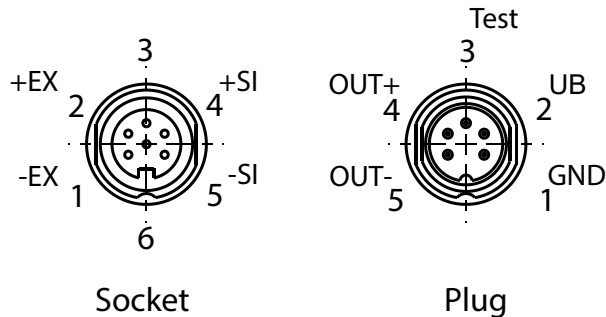


Figure 2: connection BA 627-ST

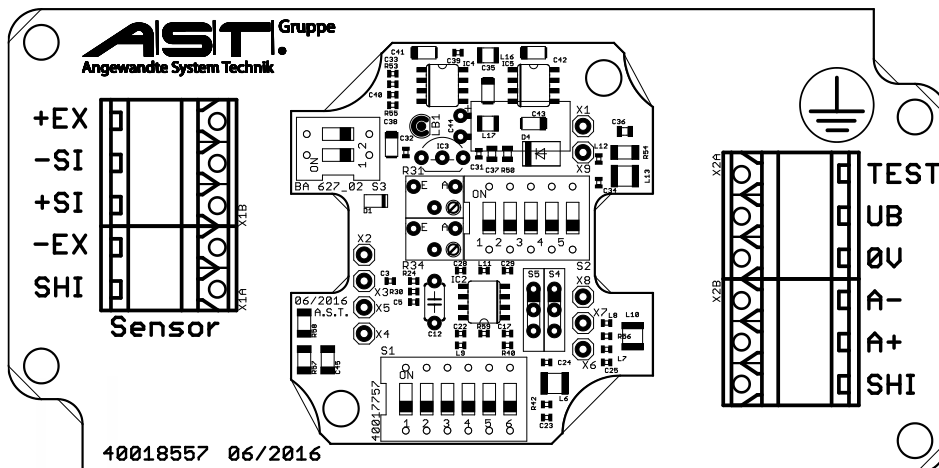


Figure 3: connection BA 627-KL

3.3. Dimensions

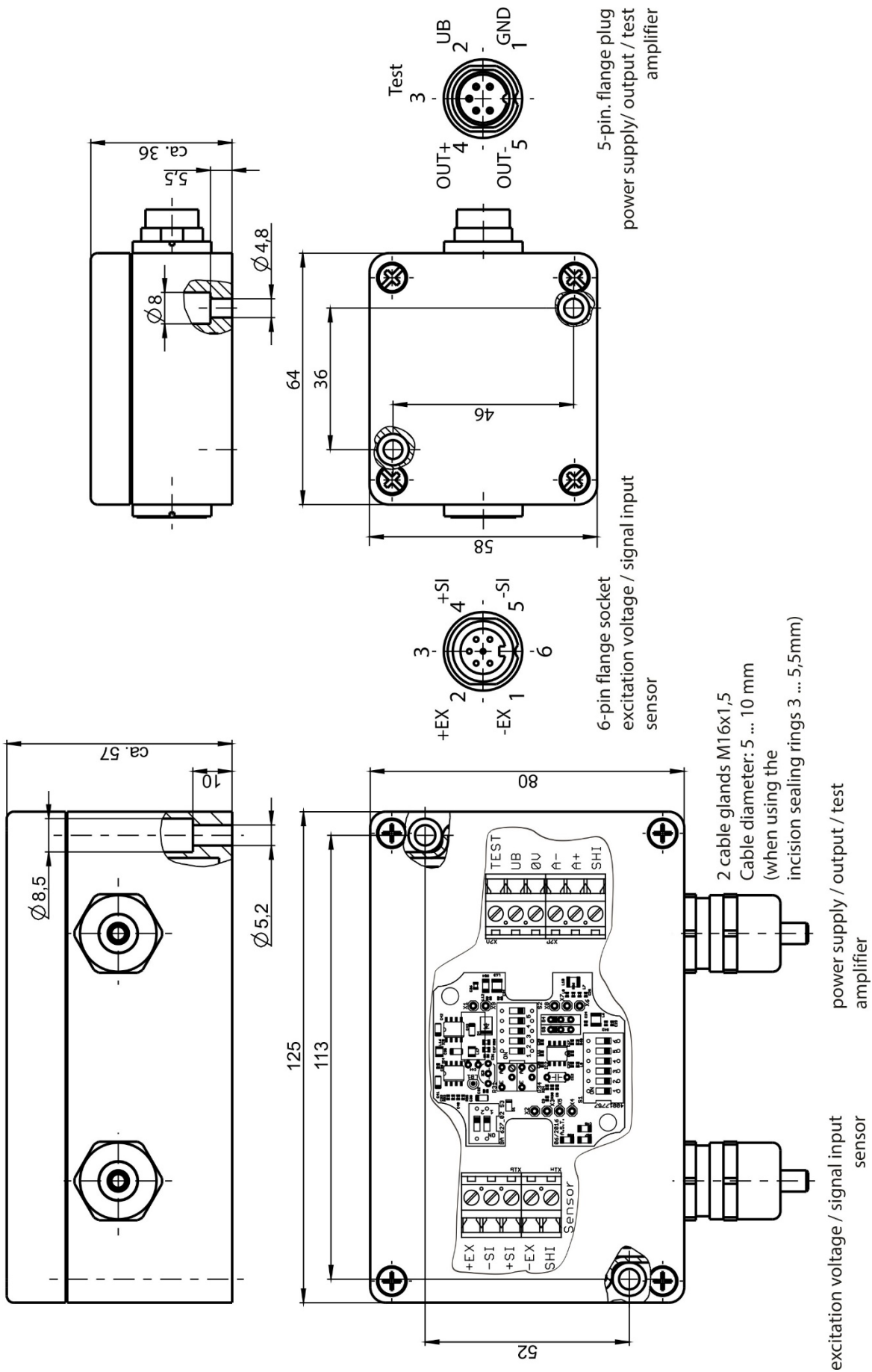


Figure 4 - Dimensions

EC Declaration of Conformity

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Mess- und Regeltechnik



EG-Konformitätserklärung
EC Declaration of Conformity

No. 22/16

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

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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

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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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