

AE-Sensor Data Sheet

VS150-RSC

The VS150-RSC is a piezoelectric AE-sensor with integrated Vallen Smart Line™ preamplifier. Its frequency response is characterized by a peak at 150 kHz, where it exhibits a resonance. It is suitable for almost all AE application and especially suited for integrity inspection of metallic pressure vessels. The integrated preamplifier has 34 dB gain and supports pulse through for automatic sensor testing. The VS150-RSC supports the Vallen Smart Line™ protocol. Vallen Smart Line™ products are supported since Release R2018.0726.

Vallen Smart Line™ features: sensor type, serial number and gain are automatically identified and read by the AE system.



Technical Specification

| | | | |
|---|------------------------------|---|---------------------------------|
| Frequency Range (f_{Peak}) [kHz] | 100 to 450 (150) | Size (D x H) [mm] | 28.6 x 31.5 |
| Power Supply [V_{DC}] | 28 ± 2 | Weight [g] | 81 |
| Typ. Power [W] | 0.8 / 2.5 @ Signal 0% / 100% | Case Material | Stainless Steel (1.4571/1.4404) |
| Integrated Preamplifier | Yes, Vallen Smart Line™ | Wear Plate | Ceramics |
| Preamplifier Gain [dB] | 34 | Connector | BNC |
| Pulse Through | Yes | Shield Cross-Talk [dB] | < -80 |
| Operating Temperature [°C] | -40 to +85 | Typ. Noise (max. 1/s) [dB_{AE Peak}] | 25.2 @ 95 - 300 kHz |
| Vibration – Sinus Sweep | 2 Oct/Min, 5 to 50 Hz, 20 g | Typ. Noise [μV_{RMS}] | 5.0 @ 95 - 300 kHz |
| Ingress Protection Rating | IP40 | | |

Standards and Directives

| | |
|-----------------------------------|------------------------|
| EMC Directive | 2014/30/EU |
| EMC Standards | EN61326-1, EN61326-2-3 |
| Shock and Vibration Stand. | EN60068-2-6 |
| AE Standard | EN13477-1, EN13477-2 |

Accessories

| | | | |
|------------------------|-------|---------------------|-------------|
| Mounting Holder | MAG4R | Sensor Cable | CBL-1-xM-V1 |
|------------------------|-------|---------------------|-------------|

Important instructions for your safety

The sensor was produced according to the state of technology and tested against highest quality standards and technical safety requirements. A risk of malfunction remains which can lead to

danger to life of operator, uninvolved third parties as well as damage of object under test or objects in its vicinity. Read the safety instructions carefully before using the AE-sensor.

Supplemental safety directives

1. Read the Acoustic Emission Sensors document (<http://www.vallen.de/quote-ref>)
2. Make sure that you comply to regulations at the AE-sensor installation site
3. Store these instructions

CAUTION

CAUTION indicates a hazardous situation which, if not avoided, may result in minor or moderate injury.

Damaging of AE-sensor

An AE-sensor can get damaged when it is not operated within specified limits or handled carelessly. The function of the AE-sensor may be compromised or it may even be inoperable although its appearance e.g. housing, connector or wear plate do not indicate any damage.

Risk:

A damaged- or defective AE-sensor may not be able to detect potentially dangerous situations if it is used in a safety relevant inspection of e.g. pressure vessels or engineering structures such as bridges or dams. Failing of an object under inspection (e.g. bursting of a pressure vessel, collapsing of a bridge, etc.) may lead to fatal casualties.

How to avoid the risk of damaging an AE-sensor:

- Do not store, transport or operate the sensor outside its specified environmental conditions
- Do not drop the AE-sensor and handle it with care
- Transport AE-sensors only in the boxes provided by Vallen Systeme

How to avoid using a non-functional AE-sensor:

- Do not use an AE-sensor that is visibly damaged.
- Check the function and response of an AE-sensor prior to an inspection or AE-test by the use of controlled artificial sources
- Check the function and response of an AE-sensor in regular intervals or when suspected to be damaged or to have undergone severe environmental conditions

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