

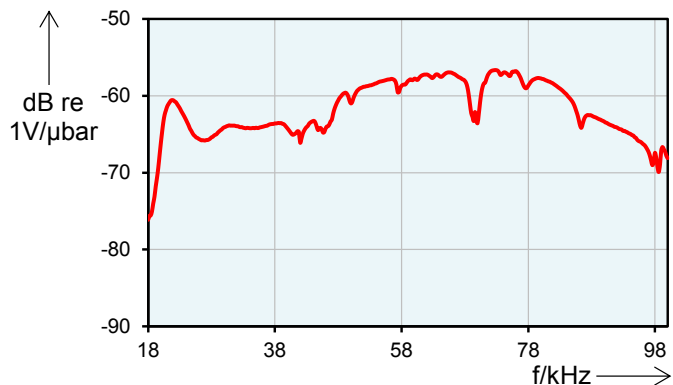
AE-Sensor Data Sheet

SHM-MP1

The SHM-MP1 is an acoustic emission measurement point optimized for structural health monitoring. It consists of


- a plastic holder which is screwed to the monitored structure
- a piezoelectric AE sensor
- a piezoelectric emitter which allows automatic sensor test
- an electronic device for preamplification/impedance conversion and control of the emitter
- a plastic hood for mechanical protection and strain relief

The low frequency response makes it especially suited for monitoring large objects or objects made of highly attenuating material. The preamplifier has no gain and just converts the high impedance piezoelectric transducer output to a low impedance signal suitable for long cable transmission. It is therefore suited for detecting high energy AE sources such as tendon or wire rupture in tensioned concrete. The watertight design of the components allows outdoor usage. The picture shows the device without the hood.



Technical Specification

Frequency Range (f_{Peak}) [kHz]	25 to 80	Size (D x H) [mm]	160 x 110 x 70
Power Supply [V_{DC}]	28 ± 2	Weight [g]	680
Typ. Power [W]	0.56 / 2.5 @ Signal 0% / 100%	Case Material	Stainl. Steel (1.4571/ 1.4404)
Integrated Preamplifier	Yes	Wear Plate	Ceramics
Preamplifier Gain [dB]	0	Connector	SMA
Pulse Through	Yes	Shield Cross-Talk [dB]	< -80
Operating Temperature [°C]	-40 to +85	Typ. Noise (max. 1/s) [dB_{AE Peak}]	54 @ 25 - 45 kHz
Vibration – Sinus Sweep	2 Oct/Min, 5 to 50 Hz, 20 g	Typ. Noise [μV_{RMS}]	163 @ 25 - 45 kHz
Ingress Protection Rating	IP68, max. 0.2 bar with connected cable		

Standards and Directives		Certifications
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		
	Sensor Cable	e.g. CBL-1-xM-V86

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 (<https://www.vallen.de/quote-ref>)
2. Make sure that you comply to regulations at the AE-sensor installation site
3. Store these instructions

⚠ CAUTION	<i>CAUTION indicates a hazardous situation which, if not avoided, may result in minor or moderate injury.</i>
<h3>Damaging of AE-sensor</h3> <p>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.</p> <p>Risk:</p> <p>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.</p> <p>How to avoid the risk of damaging an AE-sensor:</p> <ul style="list-style-type: none"> • 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 <p>How to avoid using a non-functional AE-sensor:</p> <ul style="list-style-type: none"> • 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 	

	<h3>Redemption and Disposal Information of used Vallen Equipment.</h3> <ul style="list-style-type: none"> • Equipment labelled with the symbol shown on the left must be disposed separately from unsorted municipal waste within the European Union. • Owners of old instruments request our agreement to return old electronic equipment. The goods to be returned must be described unambiguously and identified by serial and/or identification number. You can fill in our contact form (www.vallen.de/contact) or send us an email to sales@vallen.de. • Upon our approval owners may ship the goods free of costs to us. • We will dispose the goods according to the relevant laws and regulations on our costs. • Goods returned without our approval will not be accepted and returned to the owner on his account. • We explicitly point out that according to § 19a ElektroG3 you are responsible to delete any personal data on the appliances considered for disposal.
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