NORDMANN
METAL CUTTING MONITORING

Acoustic Emission Processor SEP

Technical specifications:

Power supply SEP:	+/- 15V
Current consumption:	Partial load: +- 60 mA, full load: +- 100 mA
Temperature range:	+5°C bis +45°C
Cable connection (to Tool Monitor):	3 x 0,25mm² + shield (e.g. LiYC11Y) (5m included in scope of supply. Length: max. 100 m)
SEP casing:	Aluminum alloy EN AC 44300/EN AC-44200 (DIN EN 1706) stainless steel cover screws 1.4567, captive
Material:	Aluminum
Surface:	Powder coating, oil-resistant
Weight:	570 g (w/o sensor)
Protection class:	IP65 EN 60529
Dimensions (WxHxD):	150 x 35 x 63 mm
Mounting:	2 holes inside for M4 fixation screws

- **Amplifies, filters and rectifies the measured values of all acoustic emission sensors**
- **Logarithmic output of the recitified acoustic emission level**
- **2 switchable frequency bands HF/NF**
- **Plug-in high-pass and low-pass filters**
- **Amplitude dynamics: 110 dB
=> no adjustment of measurement amplification to the height of the measured acoustic emission amplitudes required**
- **Water and oil tight (IP65)**

Sensor connection:

The acoustic emission processor **SEP** turn the signals from the sensor types **SEH**, **SEA(-Mini)**, **BSA**, **RSA**, **LSM** or **APS** into the measured value in a logarithmic scale (dB), which is monitored by the **TOOL MONITOR**.

The installation location of the acoustic emission processor **SEP** may be in the splash zone of cooling lubricant (protection class IP 65). After removing the cover of the SEP, it can be mounted using 2 screws with a maximum diameter of 4 mm.

The wires of the sensor coax cable are connected to a terminal in the **SEP** with the contacts on the PCB marked “Masse” (ground) and “Seele” (core). The cable shielding of SEH, SEA(-Mini), RSA, LSM and APS must be connected to the metal housing by tightening the clamping screw in the lead-though terminal.

You can check the proper connection of the sensor using a voltmeter: The voltage between the ground and core terminals must be 7 to 8V (except for BSA). If the cable is shorted (e.g. due to a pinched cable), the voltmeter will show 0V. If the cable is broken or torn, the measured voltage between ground and core will be 15V.

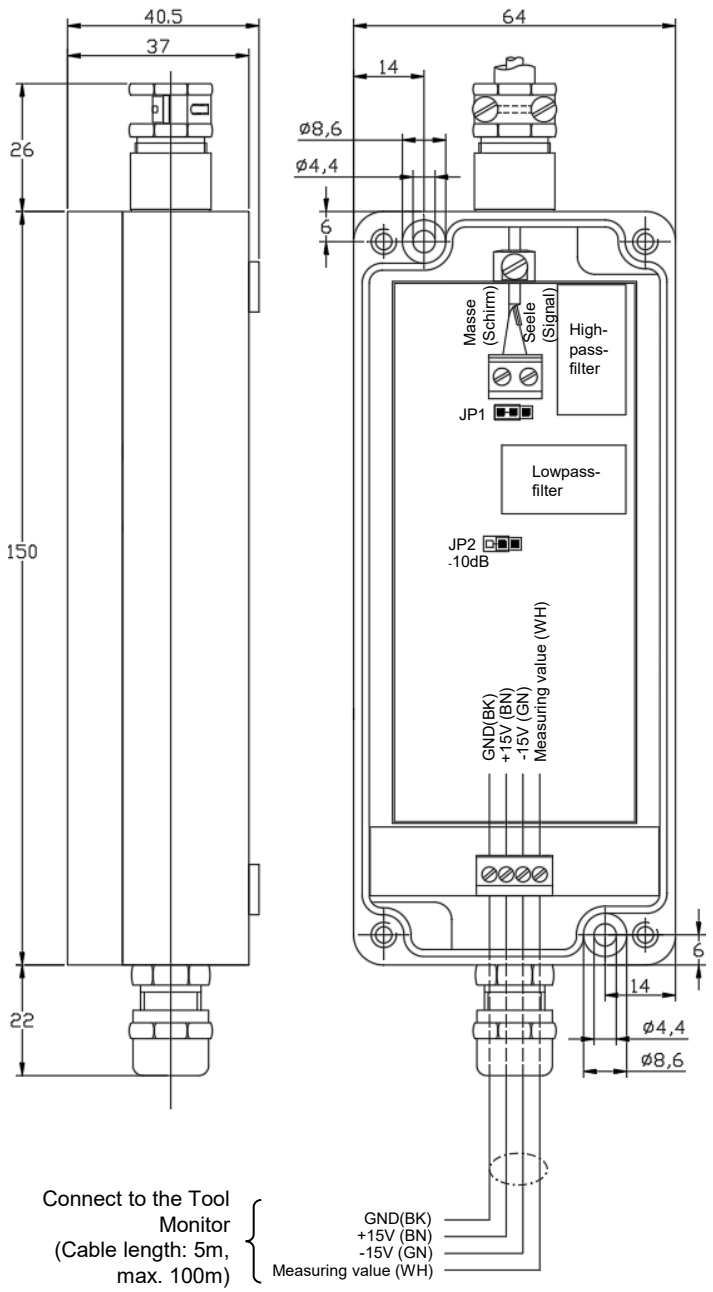
In combination with the sensors SEA or SEA-Mini, the SEP can be used to measure in a high-frequency (HF) or low-frequency (LF) measuring range. When selecting the HF range using jumper JP1, task-related adjustments can be made using plug-in high and low-pass filters. If the LF range is selected using jumper JP1, a low-frequency standard high-pass filter is preset, which has proven to be suitable for most monitoring applications, but also other plug-in low-pass filters can be selected.

When delivered, the position of the jumper JP1 depends on which sensor the SEP was ordered with, see the "Jumper assignment" table. Additional plug-in filters must be ordered separately.

Note for specialists: If comparative measurements in different frequency ranges are to be made with only one sensor, two or more SEPs containing different filters can be connected in parallel. For this purpose, the SEPs can be equipped with mini coaxial sockets and connected to each other via coaxial bridge cables, see separate data sheet.

The acoustic emission sensors SEA and SEA-Mini are also available as "NF" types in a special low-frequency version. The “NF” type has a higher sensitivity in the low-frequency range than the “MF” type. However, this is only advantageous so long as the ground noise of the machine does not raise the noise floor of the NF-jumpered SEA(-Mini)-MF. This means that the background noise of the machine must be low enough so that very weak acoustic emission signals can be measured.
If the SEA(-Mini)-NF is used, then the jumper marked "-10dB" should be placed in order to adjust the measuring range of this sensor to the scale of the Tool Monitor.
The jumper marked “-10dB” may also be used in combination with the SEA(-Mini)-MF for lowering a potentially too high measured value by 10dB.

Order code:	Application:
SEP 6.5	SEH, SEA (-Mini) (NF), SEA-Feder
SEP 6.5.1.10	SEH-Maxi
SEP 6.5.1.4	RSA (-2, -Ring)
SEP 6.5.1(3,10)	APS-Q/-L, LSM-Q/-L (3,10 [kHz])
SEP 6.5.8.21	BSA



Jumper assignment:

Jumper	Position	Function	Factory setting
JP1	HF	High-frequency measuring range (high- and low-pass filters can be modified and plugged in)	In position HF for delivery with SEH, RSA, APS
JP1	NF	Low-frequency measuring range (only low-pass filter can be modified)	In position NF for delivery with SEA (-Mini) MF/NF
JP2	-10dB	Measured value reduction by -10dB	Open (jumper not inserted)