Part type designation	Part number
µ-bridge	00019918-00

µ-bridge Sensor

Impacts and the growth of defects in a material will generate stress waves, which travel at the speed of sound (in the material) through the machine. For example if a small defect is present in a rolling element bearing, every time an element passes over a defect, a wave will be produced.

There are several methods available to detect these waves. We use a force bridge transducer known as a µ-bridge (mybridge).

On low speed shafts the impacts due to bearing defects are often in a similar frequency range to the running speed of other components, which generate vibration of the entire machine and are picked up by standard accelerometers, with the result that the small defect signals are drowned out. Stress waves are not normally generated by the rotation of the machine, so stress wave methods are better at detecting defect indications on the low speed components of machines.

Our transducer has two patches which have to be individually attached to the surface of the machine. The transducer then measures the force between these two points using the mechanical bridge as an amplifier to provide sufficient strain to be measurable. Built in electronics provide temperature compensation and convert the signal to an IEPE format.

Features

- Sensor design specific to Bachmann
- Uses well established principles
- Detects impacts rather than machine vibration
- Analogous to acoustic emission or shock pulse methods
- High precision on bearings with very low speeds – good track record

µ-bridge

Technical data	
Sensor type	IEPE standard
Operating current (constant current)	Between 4 mA and 10 mA
Output voltage (offset)	11 V ±0.5 V
Max. saturation degree	8 V
Sensitivity	0.7 V/N
Signal-to-noise ratio	83 dB
Carrier-to-interference ratio	79 dB
Lower cut-off frequency high pass 1st order	f_g = 1.6 Hz [1)]
Upper cut-off frequency	f_g > 10 kHz [1)]

[1)] *Where f_g is the filter corner frequency*