

Fibre Optic Sensing

# Frauscher Sensonic Unit Specification

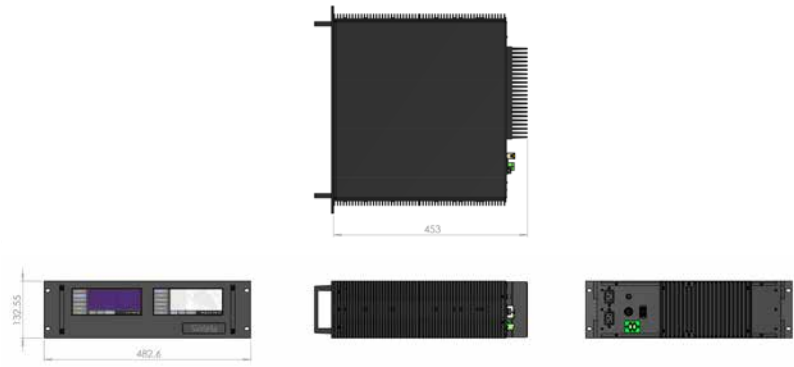
Frauscher Sensonic system represents the next step in the evolution of Distributed Fibre Sensing. It provides distributed acoustic data over long fibre lengths with a high detection sensitivity in a compact, low power unit.

Sensonic generates valuable real-time data on train journeys, asset and infrastructure condition – all based on a single technology and without the need for additional on-board or trackside components.



## Functional specification

<b>Number of Sensing Fibres</b>		2	
<b>Sensing range @ 6.5m gauge length</b>		Up to 50 km per fibre (100 km in total)	
<b>Standard operating wavelength</b>		1550 nm	
<b>Measurement type</b>		Quantitative	
<b>Acoustic Frequency Range</b>	<b>Min</b>	< 1 mHz [Arbitrarily selectable]	
	<b>Max</b>	Nyquist -> 10 kHz @ 5 km	Nyquist -> 1 kHz @ 50 km
<b>Standard fibre types</b>		SMF-28e ITU-T G.652, G.654 or G.655	
<b>Fibre attenuation for given specs</b>		0.2 dB / km at 1550 nm	
<b>Maximum acceptable loss budget</b>		20 dB (e.g. 50 km x 2 x 0.2 dB / km)	
<b>Maximum acceptable back reflection</b>		< 2%	
<b>Laser Safety Class</b>		Class 1 (IEC 60825-1, 21CFR1040.10)	



## Processing capability

<b>Built-in processing</b>	GPU:	32 Terra OPS 512 core Volta with Tensor Cores
	CPU:	8 core ARM v8.2 64 bit
	Memory:	16GB 137 GB/s
	DL Accelerator:	2 x NVDLA Engines

## Interfaces

<b>Optical connectors</b>	2 x E2000 APC	
<b>Data Interface</b>	<b>Electrical</b>	SFP, 1GBASE-T, 100 m, Cat6 or 7 twisted pair
	<b>Optical</b>	SFP, 1000BASE-ZR, 100 km, single mode fiber

<b>Data accessibility</b>	Via USB-C 2 x 2 TB removable SSD
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## Power

<b>Power supply</b>	100-240 VAC at 50-60 Hz Dual redundant power supplies
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<b>Power consumption</b>	<100 W
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## Size and Weight

<b>Size</b>	<b>Format</b>	19-inch 3U Enclosure
	<b>Height x Width x Depth</b>	132 mm x 483 mm x 453 mm

<b>Weight</b>	17kg
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## Environmental

<b>Heat management</b>	Passive cooling (for high reliability)
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<b>Storage temperature range</b>	-20 °C – 70 °C
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<b>Operating temperature range</b>	-5 °C – 50 °C
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<b>Operating humidity (max)</b>	85% non-condensing
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<b>Ingress Protection</b>	IP50 [Protected against dust]
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