VOYAGER

SOUND ANALYZER & MOBILE DATA ACQUISITION

MICROFLOWN TECHNOLOGIES

Product leaflet

Sound analyzer & mobile data acquisition

VOYAGER AT A GLANCE

Voyager is a portable multi-channel sound analyzer that merges multiple functional units into one device. Data acquisition, signal conditioning and storage are combined into a powerful tablet unit suitable for sound and vibration data recording, NVH testing, acoustic troubleshooting and noise control.

Key features

- Portable multi-channel sound analyzer
- Triple modes: standalone, portable front-end & portable recorder
- Built-in battery and internal storage capacity
- Embedded touch controlled software
- Octave Bands, FFT, Spectrogram & Loudness
- Real time audio filters, for analysis and listening
- Compatibility with all Microflown probes
- Compatible with up to 2 additional (IEPE) sensors
- Comprehensive data compatibility

Key applycations

- Portable data recorder
- Mobile data acquisition
- Quality and End-of-Line Control
- Acoustic analysis NVH Testing
- Noise source identification & mapping
- Buzz, Squeak & Rattle noise localization
- Acoustic leakage detection
- Sound Intensity
- Sound Power

Standards

- **Calibration Instrumentation |** ISO-17025
- **Octave-Band Filtering |** ANSI S1.11-2004
- **Frequency weighting |** IEC 61672
- **Loudness |** ISO 532-1:2017
- **Loudness listening condition |** ISO 8253-2
- **Sharpness |** DIN 45629
- **Roughness |** P. Daniel & R. Weber (1997)

A touch of software ingenuity

The device interface is intuitive to operate and the modular applications enable easy usage by NVH experts and technicians alike. Inspired by the workflow operation, as daily used on mobile devises such as smartphones and tablets, a target was set to bring a similar approach and experience to the Voyager. All operations are easily done, fully configurable in a matter of seconds. The touch controlled interactive icons provides ready access to different modes & settings: you can listen to the signal in real-time, switch to playback or analysis mode with just a single touch operation icon. All settings and options are directly accessible and directly visible, leading to easy and fast operation.

Intuitive toggles provide single touch activation or deactivation of many features. The icon based menus leave a clear & large space open to display all your analysis data, offer the perfect balance between intuitive usage and visual display.

Measuring made easy

Modulair firmware licenses

MAKING THE RIGHT TOOLS AVAILABLE

One device with modular firmware licenses enabling a scalable platform, making the right tools available for your measurement campaign. Scale up at any moment by upgrading your firmware licenses.

LISTEN & VISUALIZE

Gain an acoustic impression of a sound event by listening to the sensor signal in real-time. Benefit from the superior advantages of the Microflown particle velocity sensor, in terms of background noise cancellation and signal-to-noise boost, for locating sound sources. Offering a variety of tools for visualizing and analyzing your data recordings or even in real-time, display spectrum, octave bands, spectrogram or loudness.

PSYCHOACOUSTICS & SOUND QUALITY

The Voyager Sound Quality module calculates key psycho-acoustic quantities, such as Loudness, Sharpness, and Roughness, turning human sensations into understandable numbers. This module provides an accurate way to measure sound that accounts for how people actually hear it, ensuring consistent and reliable sound quality estimations.

RECORD & PLAYBACK

The Voyager sets another milestone for portable recording. Capture data on the spot to analyze directly on your voyager, import your recordings in Velo for comprehensive processing and analysis or use the captures in your software of choice. Moreover, it is your portable recorder in the field for Scan&Paint 2D. Capturing Scan&Paint 2D data for your high-resolution sound maps, even down to 20Hz, has never been easier and more intuitive.

DATA ANALYSIS

All recorded data in the project can be selected for playback and comprehensive analysis. The intuitive software offers ready access to the analysis settings in the form of an all-in-one overview, with just a single touch command.

TARGETED BAND FILTERING

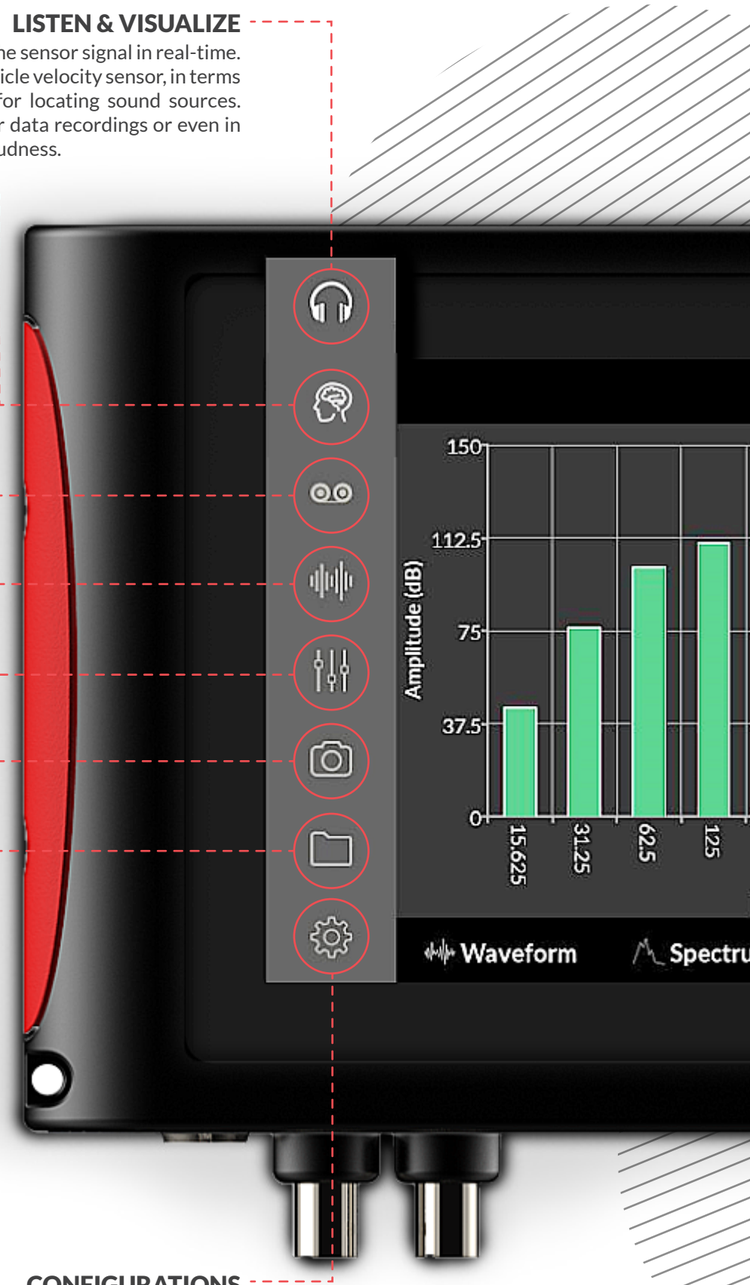
Implementation of real-time filters provides deeper insight into the analyzed data. Manage multiple IIR filters up to 20 orders for low, band-pass, band-stop or high pass filter on a single or all the channels interactively. The phase and magnitude response of the filters can be set individually in the dedicated settings pane.

CAMERA ICON

Store an optical reference linked to your acoustic measurement databy taking a picture with the the build-in camera.

DATA MANAGEMENT

The project based on-board data storage offers a reliable solution to structure and manage data. Raw data, filtered data, analyzed data, picturesand snapshots are saved and seamlessly export across multiple platforms, including the Microflown Velo software platform. Convert data to (time)corrected wav files including dynamic range settings for third party software compatibility.



CONFIGURATIONS

All the configuration settings of voyager are available in the configurationtab. Both global and project dependent settings can be adjusted ituitively. It contains three subtabs that can be easily accessed at the bottom of the screen: Sensors, Settings and Firmware.

MAKING THE RIGHT CONNECTIONS

Voyager, the next generation hardware platform. Be ready for a bright Microflown future together with voyager.The voyager will set the new standard as portable frontend for Microflown based measurements and solutions.

The voyager is a portable NVH testing device that merges multiple functional units like data acquisition, signal conditioning, battery, and storage into a powerful tablet device. A powerful tool as a standalone device, enabled by the many features and possibilities embedded in the firmware. Furthermore, a state of art interface to our Velo 64bit software platform and its unique solutions as mobile data acquisition. We'll further build on the Voyager, by both adding modules and capabilities to its embedded firmware and growing the amount of Velo applications.

PLUG & PLAY HARDWARE WITH 6 INPUT CHANNELS"

BNC AUXILIARY CHANNELS 5&6
Two multipurpose BNC input channels, either analogue or IEPE enabled, can be used with a variety of common sensors e.g. microphones or accelerometers. The signals could be used for example to caputre relative phase information or transfer functions.

LEMO INPUT CHANNELS 1-4
The input for the main sensor and compatible with all Microflown sensors. Naturally including the new robust PU Voyager probe, enabling new applications and bringing particle velocity to a broader world

HEADPHONES | 3,5 MM JACK
Connect the headphones for real time listening or audio playback, with or without filtering applied. Utilising the superior advantages of the Microflown, in terms of back ground noise reduction and signal-to-noise boost.

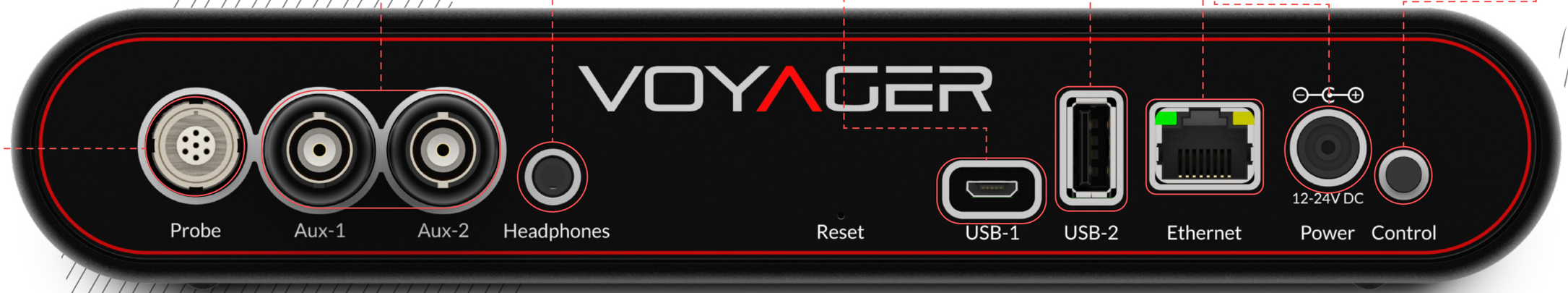
MICRO-USB | OTG
Multi-purpose port. Connect and flash the latest firmware to your Voyager device. Secondly, it offers a way to easy access the internal memory and transfer data to your computer. Last but not least, this port can be used to interface the Voyager as mobile DAQ with Velo

USB 2.0
The USB 2.0 is for general usageand connectcompatible external devices.

ETHERNET
Enable network features, such as remote control, data transfer and using the Voyager as network data acquisition.

CONTROL SWITCH
The device can be launched by short pressing this button. While the software is running, this control can be used to switch the screen ON and OFF with a short press.

POWER INPUT
Charge the build-in battery.



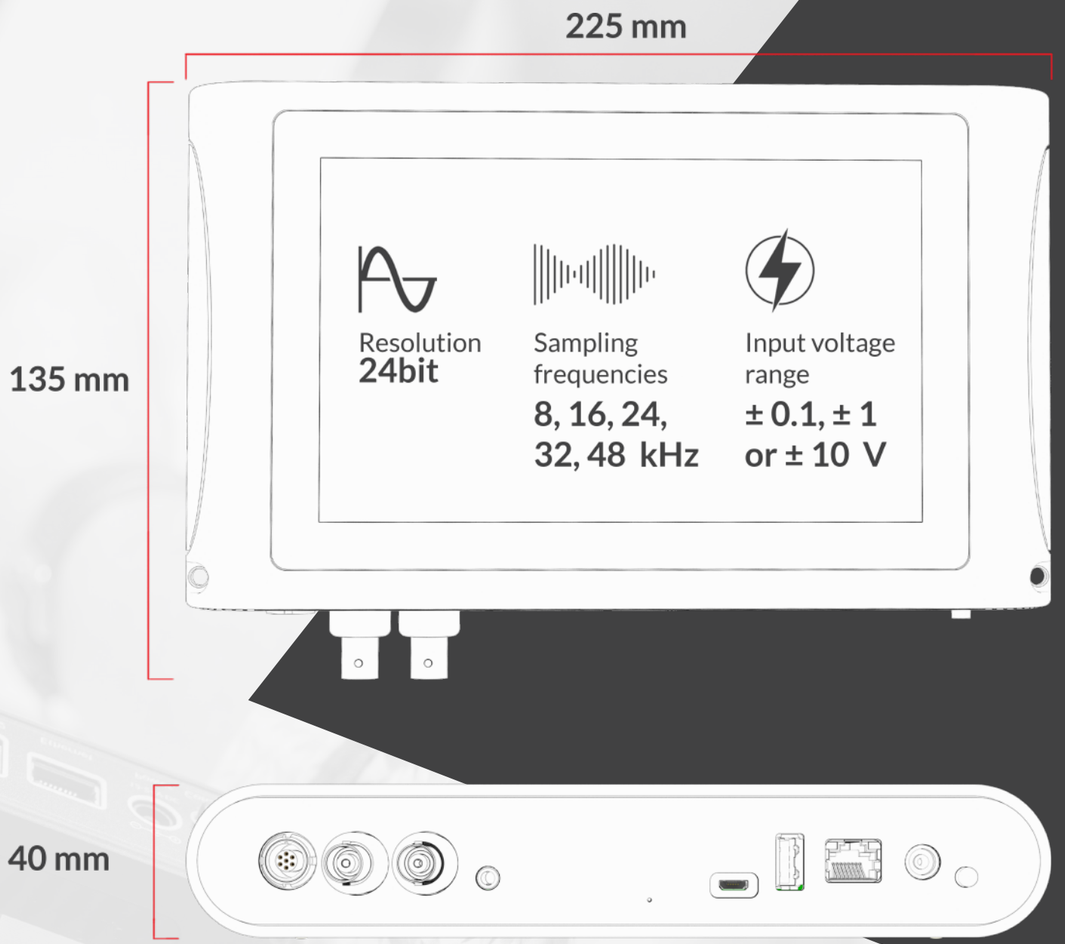
Hardware

FULL(Y) SPEC(KED)

The voyager is fully packed with the latest technology. The 24bit resolution offering a wide dynamic range, set your sample frequency starting from 8 ranging up to 48 kHz. The choice input ranges give you the range you need. Fast processing is possible thanks to the fast quad core processor and with 32GB of internal storage you can take on any project. The 6 hours of battery life are ready to support you in the field.

BUILT-IN CAMERA

The built-in camera enables you to store an optical reference linked to your acoustic measurement data by taking a picture. Furthermore, the option to synchronize video with measurement data enables the use of the device as a portable recorder for Scan&Paint 2D.



Weight
1300 g

CPU
Quad Core
1 Ghz

Internal
Storage
32 GB

Lithium-ion
6 Hours
4800 mAh

Operating
Temp
0 to
40 °C

Storage
Temp
-20 to
50 °C

Portable recording, anywhere

flexible & versatile

VOYAGER THE BEST TOOL FOR IN THE FIELD

Comprehensive exporting and support options

More flexible & versatile than ever before. Voyager offers comprehensive integrated exporting options. Directly convert the stored hd5 files to Wav format, in either of 32 or 16 bit, including an option to set dynamic range settings, enhancing compatibility with third-party software. Furthermore, there is documentation and API for integrating voyager as portable data acquisition with third-party or your in-house developed applications. Also, a Public GitHub repository is accessible as a tool for developers.

Field calibration with a sound callibrator

We are excited to introduce a real novelty for Microflown and its sensors. Our latest addition to the sensor family, the so-called PU Voyager, will be the first of Microflown sensors to be compatible with a standard sound calibrator for performing field calibration. This field calibration can be performed before or after your measurements as quality check to ensure good functioning of the sensor. It works as follow, a sound calibrator is used to validate the sensor against a known level, for example alt a level of 94dB at a frequency of 1kHz. To accomplish this our team of expert designed a special adapter suited for the PU Voyager probe and compatible with standard in the market available one-inch sound calibrators. On the Voyager device the new firmware offers an intuitive embedded, tool to execute fast and easy a field calibration. After performing the field calibration, the tool allows with one finger tough to update and introduce the new sensitives for the sensors in to the device.

video ▸

Remote acces and control with your smartphone, tablet or laptop!

Simply connect your voyager to the same network as your device and you can fully access and control the voyager remotely. Start your recordings or check the FFT in real time. Transfer files and folders easily to your device or enable a network based connection using voyager as portable frontend for Velo 64 bit.

Microflown's software platform

PARTNER UP WITH VELO

Voyager is a perfect matchwith our PC-based software platform called Velo. Setting a new hardware platform to offer you a more intuitive, plug & play experience withthe Velo software applications. Providing moreflexibility and easiness to measure anywhere and anytime.

Voyager file import

Go mobile and capture your vibro-acoustic data with your small battery-operated Voyager device and your Microflown probe. Easily transfer data by either USB or through a network drive to your PC for comprehensive data analysis in Velo. The recorded files can be imported directly into your Velo application to for example create a sound power ranking table or transmission loss calculation.

video ▸

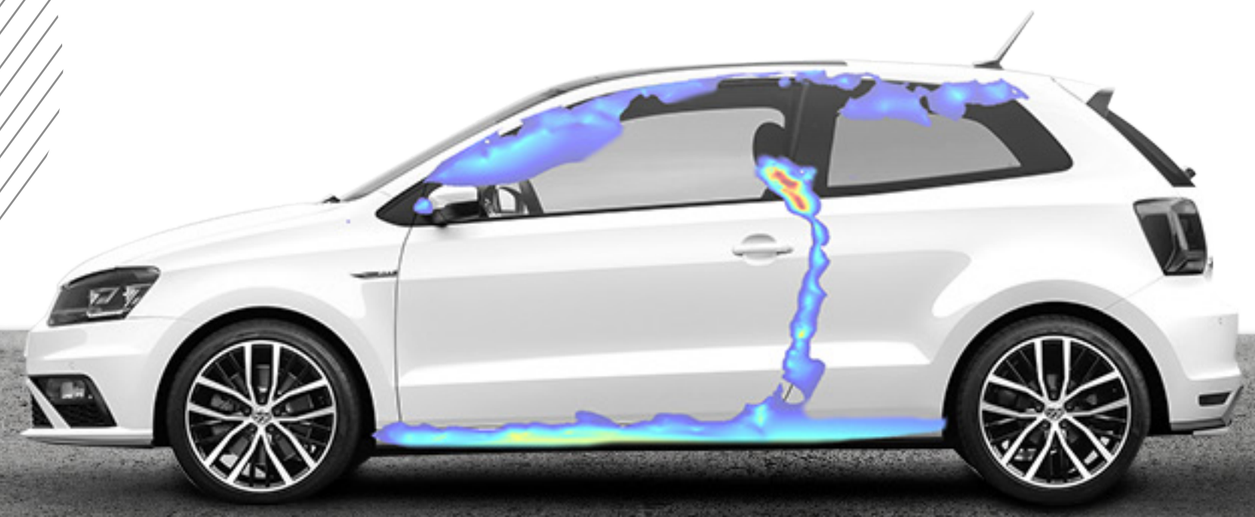
Mobile multi-channel data acquisition system

A new way to interface our sensors and probes with our Velo applications, voyager sets the new standard as a portable multi-channel data acquisition. Bringing your analogMicroflown Microflown sensor & probe signals in the digital domain into Velo. Start your measurement campaigns either by making a direct connection with your PC by using the Micro USB or connect voyager into the same network as your PC. Enabling to remotely connect to voyager as your Velo data acquisition system.

Portable recorder Scan&Paint 2D

Capturing Scan&Paint 2D data for your high-resolutionsound maps, even down to 20Hz, has never been easier and more intuitive.Directly capture data at the measurement location with your Voyager device. With one simple toggle you canenable this recording mode and enable Voyager as your portable recorder for Scan&Paint 2D. Simplify your testing times and get ready to measure without a PC or laptop.Localize your sound sources in a matter of minutes.

video ▸



VOYAGER FIRMWARE LICENSES

	LITE	STANDARD
Compatible with all Microflown probes (channel 1 to 4)	✓	✓
Display power spectrum (narrow band results)	✓	✓
Audio recording & storing		✓
Audio playback		✓
Camera		✓
Data exporting (e.g corrected .wav files)		✓
Octave analyser (1,1/3&1/12 octave bands)		✓
Spectogram		✓
Loudness		✓
Filtering opions		✓
IEPE sensor (channels 5&6)		✓
Sound intensity		✓
Sound Quality		✓

OPTIONAL FIRMWARE MODULES

	LITE	STANDARD
DAQ | Driver for Velo compatibility as frontend	✓	✓

REDUCE THE PRESSURE IN YOUR WORK

GO FOR PARTICLE VELOCITY

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