Pass-by Noise

The DEWETRON Pass-by Noise system is a flexible package of measurement hardware and powerful software. Online checks for validation, visualized online results including post-processing and reporting makes the pass-by noise system an all-in-one test solution.

Supported standards:

- *ISO 362*
- *SAEJ1470*
- *Customer specific test procedures*

The system can be expanded with additional hardware and software features to fulfill many additional measurement applications.

Key Features

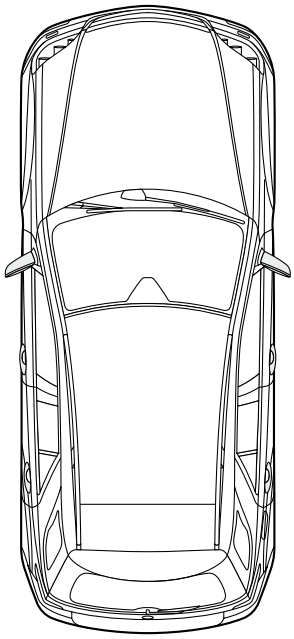
- *Flexible Pass-by Noise system for multi purpose use*
- *Integrated 100 Hz VGPS speed sensor*
- *Automated report generation*
- *Reuse of existing sensors*
- *Fully battery powered*
- *Re-use of existing sensors*
- *Multisensor input (voltage, strain, bridge,etc.)*
- *TEDS support for microphones*
- *CAN and OBD interface*

Speed and Distance
GPS system
Optical, radar or 5th wheel sensor

Temperature Sensors
Thermocouple
Infrared sensor
Tire temperature measurement

Vehicle CAN-Bus

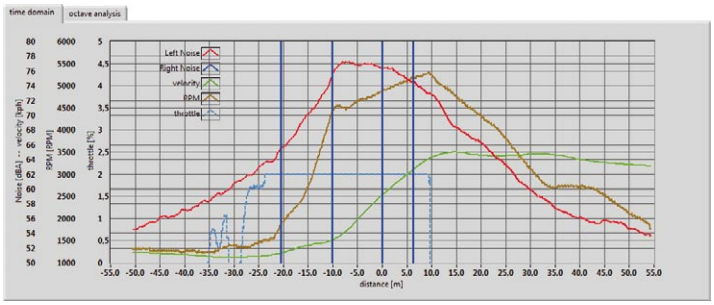
Sensors Brake System
String sensor:
Brake pedal position
Swatch:
Brake valve timing
Brake pedal sensor:
Brake pedal force
Pressure switch:
Brake pressure



Pass-by noise test acquires online the noise level of the car measured by two calibrated EN class1 microphones

The measurement is triggered by optical event markers.

One measurement device needed in the vehicle another one onsite. These two devices are synchronized via GPS clock operating in master slave mode.



The report according the regulation is created automatically after the measurement

Microphone Input
Noise level – left and right channel, shown in an oszilloscope and as FFT Spectrum

CAN-Bus Data
Synchronous data from CAN-bus

Analog Input
Vehicle speed, speed deviation, RPM, etc.

GPS
Position data

Video
Synchronized video information

Pass-by Noise Application

Community noise regulations put stringent requirements on road vehicle noise emission. Regulations apply to cars, trucks, buses, motorcycles, and scooters. Manufacturers have to certify the compliance of a vehicle according to international standards..

The measurement setup of noise emission of passing road vehicles is defined by international standards. Also environmental conditions like ground temperature is is considered in the standards. For different categories (two-wheelers, passenger cars, LCV, HCV, trucks, busses etc) different procedures exist.

For a pass-by noise test two synchrinized measurement systems are needed - one insite the vehicle and one onsite. The synchronization of the two measurement devices is done via GPS clock

Online data exchange is done via WLAN communication. The configurations of both units can now be done from the master measurement unit. DEWESoft Sequencer supports the measurement procedure step by step. During the measurement all mathematical calculations are done in the background. At the end of a testrun the results are e.g.: dBA levels, spectra, rpm, speed etc. Further offline analysis such as FFT, histogram, order analysis etc. are possible.

Similar fields of applications which can be covered with DEWETRON-PBN systems:

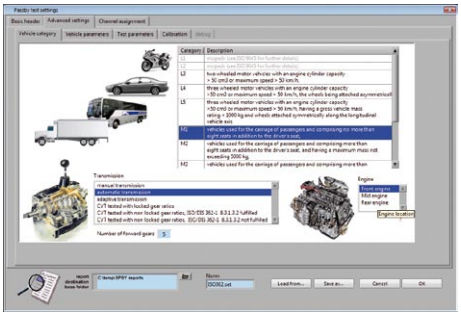
- *Sound pressure level emitted by stationary roadvehicles*
- *Noise investigations from power train*
- *Tyre-to-road sound emission*
- *Intake and exhaust noise*
- *Engine and gearbox acoustics*
- *Tire acoustic*
- *Psychoacoustic*
- *Media flow acoustics*
- *Air condition measurement*

Pass-by Noise Setup

The DEWESoft sequencer guides you through the measurement.

- *Configuration of sequence*
- *Configuration of gear setting during test run*
- *Definition of evaluation parameters*

Acording to the standards the test needs to be done in certain gears. The integrated gear selection wizard helps to find the proper gears for the test. With the master slave configuration, all data is available for the master and also the control from the slave can be done via the master device.



Vehicle Category

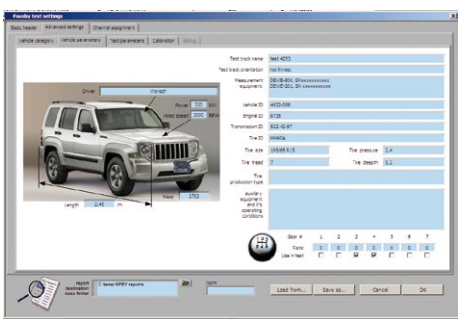
Select the proper category for your vehicle according to the classification of the standard. Choose the engine type and the position of the engine:

Transmission:

- *Manual, automatic, adaptive and CVT transmission*

Engine position:

- *Front, mid and rear engine*



Vehicle Parameters

All necessary data such as vehicle destignation, driver name, engine, transmission, tires, etc. are required for the report.

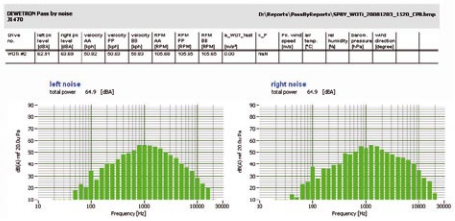
Test Parameters

The software checks the validity of the tests according the limits which are set up in this dialog. The software accepts all test runs within this tolerances.

- *Entry speed or rpm*
- *Noise level deviaton*
- *Gust wind speed*
- *Air temperature*

Reporting

The reports for the tests are predefined. The reports are generated as bmp files after the measurement. These files can be converted to pdf or printed to paper.



Calibration Check

The calibration of the microphones are requested before and after the test. This is done with a sound level calibrator.

DEWESoft Net

DEWESoft Net allows the communication between different DEWETRON instruments. Each unit can be configured as stand alone, as master or as slave. It's also possible to use any PC to control a measurement unit remotely.

Pass-by noise testing requires the master-slave communication via WLAN to send the measured data to the master unit. This allows controlling the maneuver from the master device. The relevant data are sent to the master, where they are visualized and processed.

DEWE GPS Clock

- *Synchronized measurements on decentralized instruments*
- *Continuous synchronization to absolute GPS time*
- *High stable clock output even when satellite connection is interrupted*

With this clock generator, DEWETRON provides fully synchronized data acquisition on decentralized solutions independent from their distance. The DEWE-GPS-CLOCK synchronizes continuously to the absolute GPS time of available satel-lites.

PBN Hardware Configuration

	DEWE-211-PBN	DEWE-510-PBN	DEWE-800-PBN
Application	In-vehicle, DC powered	On-site-system, battery powered	On-site-system, AC powered
Analog input channels	16 MDAQ inputs	16 DAQ series modules	16 DAQ series modules
Digital channels	8 x DIO + 2 CTR or 8 DI	8 x DIO + 2 CTR or 8 DI	8 x DIO + 2 CTR or 8 DI
Channel expansion	No	Yes	Yes
CAN interfaces	2	2	2
Video	DEWE-CAM or USB DirectX	DEWE-CAM or USB DirectX	DEWE-CAM or USB DirectX
Display	External MOB-DISP-x	External MOB-DISP-x	External
Power supply	8 – 30 V_{DC}, external AC adapter	Battery powered, 18 – 24 V_{DC}, external AC power supply	115 / 240 V_{AC}
Dimensions (W x D x H)	317 x 252 x 92 mm 12.48 x 9.92 x 3.62 in.	439 x 308 x 181 mm 17.28 x 12.13 x 7.13 in.	437 x 443 x 181 mm 17.2 x 17.44 x 713 in.
Weight	Typ. 5 kg (11 lb.)	Typ. 8 kg (17.6 lb.)	Typ. 12 kg (26.4 lb.)
MDAQ and DAQ series modules are available for almost all kinds of sensors			

Re-inventing Data Acquisition

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