



VibroMatrix® Kit

VibroMatrix®

Kit for human Whole-Body Vibration Measurement



The VMSet-13 comes in a handy case and provides you with everything you need for the measurement of human whole-body vibration acc. to ISO 2631:1997 and directive 2002/44/EC.

Vibrations in all three axes can be measured simultaneously. The complete solution offers more than small hand-held units:

- The program guides you through the measurement reliably, with clear indications and graphics.
- Measured values as well as an assessment (red / yellow / green) are already indicated during the measurement.

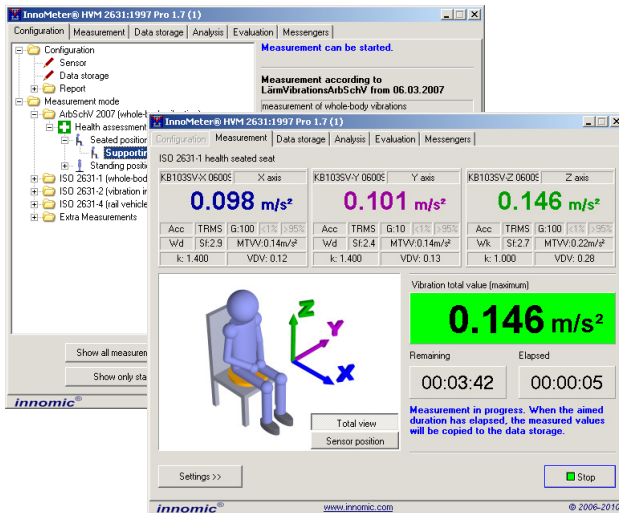
- Each measurement is automatically transferred to the data storage with time stamp and can be completed with your own remarks.
- A calculation sheet for combining different activities to one person-related daily vibration exposure is integrated.
- The Pro version additionally offers frequency analysis of both, weighted and unweighted vibration signal. Thus, components responsible for the exceedance are detected easily and time for development is reduced considerably.

	VMSet-13	VMSet-13P
Hardware		
Sensor for Vibration Measurement	- 1x Piezoelectric accelerometer, shear design - Sensitivity: 100 mV/g, linear frequency range: 0.3 .. 400 Hz - Operating temperature: -10 .. 80 °C - Accessories: Mounting straps, 3m cable, cable adapter to 3x BNC	
USB Box for Digitization	- 2x InnoBeamer LX2 - Inputs: 2x analog for vibration sensor(s), 1x digital for photoelectric reflex switch - Signal frequency: 0.1 .. 3200 Hz - Supply current: < 500 mA with supply of all sensors - no mains adapter required - Operating temperature: -20 .. 50 °C, weight: 350 gr. - Accessories: 1.8m USB cable	
Software Licenses		
InnoMeter HVM 2631	3x	3x Pro

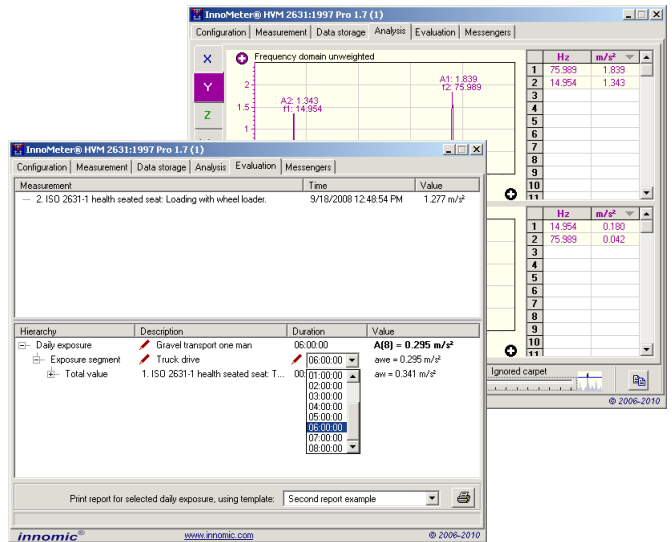


InnoMeter® HVM 2631 1.7

Human Whole-Body Vibration Measurement

VibroMatrix®


Clearly arranged selection and execution of the measurement



Integrated frequency analysis and calculator for daily vibration exposure

Measurement mode	X(m/s ²)	Y(m/s ²)	Z(m/s ²)	Total	Assessment
1. ISO 2631-1 comfort/perception seated seat (no backrest me...	0.200	0.220	0.629	0.696	acceptable
2. ISO 2631-1 health seated seat	0.097	0.350	0.019	0.360	good
3. ISO 2631-1 health seated seat	0.046	0.220	0.156	0.220	good
4. ISO 2631-1 health seated seat	0.387	9.824	0.330	9.824	bad

Measurement performed on 9/18/2008 at 4:09:21 PM
Meas time / MTV Int time 00:01:10 / 1:00:00
Dose A(B) / Duration 0.950 m/s² / 8h
Assessment no assessment health
Allowed daily exposure 18:18:11 71d
% of limit 100% 100% 100% 100%
Limit value (m/s²) X:1.150 Y:1.150 Z:0.800
Crest Factor X:19.297 Y:7.938 Z:11.728
MTVV (m/s²) X:0.855 Y:1.670 Z:0.097

Your remarks
Crest factor too large. MTVV value too large. VDV value too large. Duration too short.

Warning! MTVV is larger than 1.4 times the RMS value. Duration is shorter than the recommended minimum (00:03:47).

Automatic data storage

Application

The InnoMeter HVM 2631 was developed for the measurement of whole-body vibrations according to EN ISO 2631:1997 and directive 2002/44/EC.

If strong vibrations are transmitted to human beings, a decreased performance and even diseases might develop. For this reason, divers guidelines stipulate measurements acc. to EN ISO 2631, which assesses the vibration impact on human beings.

Furthermore, the InnoMeter HVM 2631 is applied for an objective vibration assessment with regard to comfort aspects.

For a measurement conforming to standards, a sensor is positioned between person and seat. The signals are transferred to the measurement software in real-time.

Properties

Compared to usual hand-held instruments, the InnoMeter HVM 2631 possesses a user guide. The user is guided through the measurement from the choice of measurement mode to the evaluation of measurement's results. Graphical drawings for sensor positioning ease multi-axial measurement and ensure a correct application of the standard.

Acc. to the standard, the InnoMeter 2631 is designed for three channels. The required measurands and weighting filters are integrated. By simply choosing the measurement mode, parameters are adjusted automatically acc. to the standard.

The following calculations are integrated as well so that single measurements are clearly evaluated with traffic light colors even while measuring.

Measurements can be saved, exported and read into again. In the calculation sheet, several measurements can simply be combined to a daily vibration exposure by drag & drop. The powerful report-function enables you to generate reports at the push of a button.

The Pro-Version additionally includes frequency analysis for both, the unweighted vibration signal and the signal weighted acc. to considerations concerning occupational health. This way, responsible components are quickly detected and vibration causes are eliminated purposefully.

Technical Data

	InnoMeter HVM 2631:1997 Pro	InnoMeter HVM 2631:1997
Signal Processing		
Filter	W_b, W_c, W_d, W_j, W_k and W_m filter acc. to the standard	
Measurand, Unit	Vibration acceleration in m/s^2	
Parameters	Simultaneous (!) measurement of Interval rms value, crest factor, maximum rms (MTVV), vibration dose value (VDV)	
Measurement duration	Adjustable 1 s .. 1 day	
Graphical Presentation		
Numeric Display	5 digits: 0.0001 .. 99999	
Refresh	1.. 4 times per second *	
Status Indicators	Sensor, measuring channel, measurand, parameter, gain, underload, overload	
Recommended Screen Resolution	From 800 x 600 pixels on	
Data Acquisition, Storage and Presentation		
Measurement Modes	<ul style="list-style-type: none"> - Whole-body vibration acc. to ISO 2631-1 (except for kinetosis assessment and rolling motion) - Vibration in buildings acc. to ISO 2631-2 - Rail vehicles acc. to ISO2631-4 	
Measurement	<ul style="list-style-type: none"> - User guide, indication of the selected measurement mode, help for the sensor positioning - Indication of vibration total value as well as elapsed and remaining measurement duration - For all axes: Indication of interval rms value, crest factor, MTVV 	
Data Storage	<ul style="list-style-type: none"> - Saving up to 100000 measurements - Indication of measurement mode, selected parameters as well as a verbally expressed assessment (good, acceptable, bad) - Integrated calculation and indication of the admissible exposure duration - Indication of detailed data for the marked measurement - For each measurement, remarks can be noted - Save and reload measured values in CSV format - Printing a report about the measurement, individual report examples can be configured 	
Calculator for Daily Vibration Exposure A(8)	<ul style="list-style-type: none"> - Several A(8) calculations possible at the same time - Export of the calculation into text file possible or print as a configurable report - Arbitrarily many exposure segments possible per A(8) calculation - Arbitrary name and duration of the exposure segments - Evaluation acceleration of the exposure segment calculated and indicated automatically - Arbitrarily many measurements can be included for each exposure segment 	
Vibration Analysis	<ul style="list-style-type: none"> - Separate analysis for each measurement - Analysis already carried out while measuring - Analysis for each measurement is saved - Frequency resolution 1 Hz - Automatic amplitude recognition - Zooming and scaling 	-
Event Notification		
Extra Display	Display of total vibration value as well as evaluation of single measurement in traffic light colors	
Radio Switch	Binary signaling of single measurement's evaluation (good/bad)	
Digital Output	Binary signaling of single measurement's evaluation (good/bad)	
E-Mail	Transfer of total vibration value as well as evaluation of single measurement	
Miscellaneous		
Available as a Kit	VMSet-13P VMSet-14P	VMSet-13 VMSet-14
General Functions	Instrument is cloneable	

* Centrally managed in InnoMaster

Changes without prior notice

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— D e u t s c h l a n d —

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