



# Castle

GROUP

technical safety & environmental solutions

vibration measurement solutions for the workplace and environment

## Pro-DX excieo

human &  
environmental  
vibration meter

- Parallel Triaxial Measurement
- Special Modes for Hand-arm and Whole Body Measurements
- Minimal instruction Operation
- Input of Employee Names and Tool Information
- Universal Mode For Multiple Applications
- Compliant With ISO 8041:2005

[www.castlegroup.co.uk](http://www.castlegroup.co.uk)





technical safety & environmental solutions



# Pro-Dx Excio

## GA2005 human & environmental vibration meter

What is Human Vibration Exposure?...

Long term exposure to vibration can lead to permanent disability for employees and to huge civil claims and massive insurance premiums for companies. Any hand contact with a vibrating surface will result in Hand Arm Vibration Exposure. The most commonly known Hand Arm Vibration problem is Vibration White Finger. Whole Body Vibration Exposure results from seated or standing people being in contact with vibrating surfaces.

For Companies to protect themselves and their employees properly, it is imperative to measure the levels of exposure. The Castle Excio Vibration meter can provide these measurements with the simplest of instruction and the greatest of ease. The final results are presented in Castle's VIBdataPRO software, which instantly gives daily exposures and maximum operating times.



**HAND-ARM**



**WHOLE-BODY**

### ENVIRONMENTAL VIBRATION

Vibration can also cause problems in the environment when buildings or people are exposed. If severe enough, damage to buildings will result from such activities as piling, blasting or longer term levels from railways or roads. The same kind of vibrations can also cause disturbance of sleep or annoyance in residential areas. The Castle Excio is ideally suited for this type of monitoring with a weatherproof, long term monitoring kit available.

### ENGINEERING VIBRATION MONITORING

The Excio is also ideally suited to machine monitoring as it can store thousands of results. Measuring at regular intervals over longer periods of time can give a strong indication of machine part condition. Vibration severity is also commonly used as an indication to machine performance.

### EXCIO FEATURES...

- PARALLEL TRIAXIAL MEASUREMENT
- SPECIAL MODES FOR HAND-ARM AND WHOLE BODY MEASUREMENTS
- MINIMAL INSTRUCTION OPERATION
- INPUT OF EMPLOYEE NAMES AND TOOL INFORMATION
- UNIVERSAL MODE FOR MULTIPLE APPLICATIONS
- COMPLIANT WITH ISO 8041:2005



Pro-Dx Excio with the tri-axial seat accelerometer

## Legislation and Litigation

The introduction of "The Control of Vibration at Work Regulations 2005" in the UK and similar throughout Europe is an important signal that employers should be protecting employees from this debilitating exposure. Government enforcement is fairly rigorous but this may not be enough to protect companies from civil claims! It is important to seek advice to avoid a potentially very expensive problem!



### VERSATILE & FUNCTIONAL

The use of state-of-the-art Digital Signal Processing (DSP) Technology has meant the Excio could be loaded with 12 frequency filters. This means that, whilst the meter has simple-to-use, dedicated modes for Hand Arm and Whole Body measurement, it also has the ability to adapt to many other applications. Advanced data-logging functions and simple file management increase the flexibility and range of applications further.

### SOFTWARE SYNERGY

The power of much modern technology comes into its own when attached to a PC and this is also true for the Excio. Castle's VIBdataPRO software presents meaningful information in a clear and concise format that can either be viewed in tabular or graphical form; from there, the information is simply 'copied' and 'pasted' into other applications you choose, for example word processors and spreadsheets.

### THE HUMAN TOUCH...

Irrespective of Technical performance, many instruments neglect the user as part of the working equation. The Castle Pro-DX Excio is pleasing to the eye and ergonomically designed to fit ease of use. Its similarity to a mobile phone is no co-incidence. It feels and operates using sequences we know so well. Never has a technical instrument been so 'user friendly'.

### FUTURE PROOF...

The built in software for these meters is designed to suit future upgrading for feature enhancements, legislative changes or instrument upgrades. Details are sent to the customers as soon as they become available with the Castle Pro-DX meters, you will always be in step with the law and market requirements.



Rugged construction and easy connectivity

### EXCIEO SYSTEMS

**VK024** Hand Arm Risk Measurement (HARM) System

**VK025** Whole Body Vibration (WBV) System

**VK026** HARM and WBV Combined System

**VK027** Environmental and Industrial Vibration System

**VK028** Outdoor Environmental Vibration System



information & ordering: **01723 584250/**[www.castlegroup.co.uk](http://www.castlegroup.co.uk)

## WHO ARE CASTLE?

Castle are a world renowned manufacturer of first class products for Noise, Vibration and Audiometry. With a focus on innovation, quality and value engineering, we provide up to the minute products for busy professionals. Our highly-trained staff will ensure that you are guided to the perfect product solution.

[www.castlegroup.co.uk](http://www.castlegroup.co.uk)

## CASTLE SERVICES



Castle's Training Courses are recognised by leading industry bodies, provide in-depth knowledge and a high level of hands-on practical experience, giving participants 'Competent Person' status.  
[www.castle-training.com](http://www.castle-training.com)



Castle has an extensive range of Noise and Vibration instrumentation available for rent. Cost effective short term rental for those who work to a tight budget. Long term rental offers financial benefits for frequent users.  
[www.castle-rent.com](http://www.castle-rent.com)



Castle consultants are available to help you, whatever the problem, for Noise & Vibration issues, The same ethos applies to a raft of other Safety, Health and Environmental issues including COSHH, Air Quality Monitoring, Display Screen Equipment and Manual Handling.  
[www.castle-consultancy.com](http://www.castle-consultancy.com)



We offer many essential products for Health, Safety & Environmental applications, from Anemometers for wind speed, to Personal Protective Equipment and everything in-between.  
[www.cassafe.com](http://www.cassafe.com)

## PRO-DX EXCIEO (GA2005) TECHNICAL SPECIFICATION

### PRO-DX EXCIEO: MODELS

Excio H (GA2005H) - Hand Arm Vibration  
Excio W (GA2005W) - Whole Body Vibration  
Excio C (GA2005C) - HAV and WBV Combined  
Excio E (GA2005E) - Environmental & Engineering Vibration  
Excio M (GA2005M) - Multi-Function Vibration

### APPLICABLE STANDARDS

ISO8041:1990 type 1 and latest draft of ISO8041 revision (Human Vibration Meters) ISO8041: 2005  
BS4675:1978, ISO2954:1975 Requirements for Instruments measuring vibration severity ROHS compliant

### ACCELEROMETERS

*For Hand Arm Vibration: KD1006*  
Sensitivity: 10mV/g, Range (f.s.)  $\pm 500g$ ,  
Frequency response 2-5000Hz  $\pm 10\%$   
*For Whole Body Vibration: KD1007*  
Sensitivity: 100mV/g, Range (f.s.)  $\pm 50g$ ,  
Frequency response 0.5-3000Hz  $\pm 5\%$   
*For Environmental Vibration: TBA*  
*For Engineering Vibration (single Axis): KD1003*  
Sensitivity: 100mV/g, Range (f.s.)  $\pm 80g$ ,  
Frequency response 2-13000Hz  $+5\%$

### DISPLAY

Electro-Luminescent, Back-lit LCD panel (160x160 pixels)  
Vibration Meter displays  
Numerical: Parallel Tri-axial results  
Bar graph: Time History plot  
Real time clock: Day, Month, Year, Hour, Minute, Second language display:  
English, French\*, German\*, Spanish\* and Italian\*

### LEVEL RANGE

Linear Operating Range: 74 dB  
HARM: RMS Range: 0.02-5000m/s<sup>2</sup>  
Peak Range: 0.2-7000m/s<sup>2</sup>  
WBV & Engineering: RMS Range: 0.001-500m/s<sup>2</sup>  
Peak Range: 0.02-700m/s<sup>2</sup>

### NOISE FLOOR

Typical: TBA

### FREQUENCY WEIGHTING

Severity: Ws, Fa(0.4-100Hz), Fb(0.4-1250Hz), Fc(6.3-1250Hz)  
HARM: W<sub>h</sub>  
WBV: W<sub>b</sub>, W<sub>c</sub>, W<sub>d</sub>, W<sub>e</sub>, W<sub>j</sub>, W<sub>k</sub>, W<sub>m</sub>

### FREQUENCY RANGE

1Hz - 6.3 kHz (electrical characteristics)  
See accelerometer frequency range

### DETECTORS

rms, rmq and Peak

### REAL-TIME TRI-AXIAL MEASUREMENT

Real-time 3 channel measurement to give simultaneous display and integration for tri-axial measurement.

### MEASUREMENT PARAMETERS

All Variations (H, W, C, E & M)  
Arms, Amin, Amax, Aeq, Amp, PEAK, Velocity, Displacement.  
Variations W, C & M  
CFmp, CF, VDV  
Variations E & M  
Fast-data, VDV  
Units: m/s<sup>2</sup>, cm/s<sup>2</sup>, g, dB, mm/s,  $\mu m$

### LOG TIME INTERVALS

1s -12hours user definable in one second intervals (all parameters) up to 99 hours, cumulative every 12 hours.

### TRIGGER FUNCTION

Trigger source: internal value (rising or falling)

### TIMER FUNCTION

A Program Log Timer to give multiple Start-Stop timings (with sleep mode), Repeat timer and programming function\* to control multiple measurement tasks (date independent). Real Time Clock and Calendar, plus measurement duration.

### REAL TIME CLOCK

Time and Date - accuracy better than 5s per day.

### MEMORY

4Mb On-board FLASH, 2Mb available for data storage

### INPUTS

3-Channel input for Voltage mode, charge mode (via interface unit) and Direct DC Power input via external socket: 12V

### SIGNAL OUTPUT

RS232: 19200 Baud, 8 bit, no parity, bi-directional, standard USB interface, 'AC' output

### PROCESSING

A to D Converters: 20-bit Stereo, 16kHz sampling DSP: 5MIPS, 5MHz processor Controller: 16bit, running at 16MHz

### POWER REQUIREMENTS

12 volts DC (with mains adapter), Batteries: 6 x MN1500 (size AA), Life: approximately 12 hours (alkaline batteries, continuous operation). Simultaneous mains and battery operation.

### SIZE AND WEIGHT

Dimensions: Height: 255mm (without Cable)  
x Width: 100mm (max) x Depth: 49mm  
Weight: 780g approximately (including batteries)

### MANUALS

Multi-language manuals\*: English, French, German, Spanish and Italian.

### KITS

VK024 Hand Arm Risk Measurement (HARM) System  
VK025 Whole Body Vibration (WBV) System  
VK026 HARM and WBV Combined System  
VK027 Environmental and Industrial Vibration System  
VK028 Outdoor Environmental Vibration System

### ACCESSORIES

KD1006 HARM Tri-axial Accelerometer  
KD1007 Tri-axial Seat-pad WBV Accelerometer  
ZL1096-02 Tri-axial Accelerometer Cable  
ZL1097 Industrial Coiled Cable  
GA505 Portable, Battery Operated, Thermal Printer  
ZL1084-01 Printer Cable for use with GA505.  
PC009 VibdataPRO Windows Analysis Software.  
KA015 Kit Case for Excio and Accessories  
KA019 Weatherproof Enclosure  
PSU4 Power Supply  
ZL1064-01 AC Output Cable

Note: Items marked \* will be available as upgrades soon. In the interest of continued developments, Castle reserve the right to change the product specifications without notice

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