

Castle 'SONUS' GA216I Combined Integrating Sound Level Meter



The Castle SONUS range of pocket sized sound level meters bring simplicity and power to the worlds of Noise at Work and Environmental sound monitoring. From a basic sound pressure meter to full data-logging, combined sound and dosimeter, the range of systems covers a wide diversity of applications.

The Castle SONUS GA216I is a feature packed instrument that is fully compliant with IEC 61672-1:2002 Class 2, IEC 60651: 1979 Type 2 and IEC 60804: 2001 Type 2. This meter gives simultaneous Leq (rms. average) and peak measurement for assessments to the Noise at Work Regulations 1989. It has a high-specification measurement microphone and is cased in tough, crack resistant ABS plastic.

Mobility of instrumentation is essential for effective noise measurement. As the name indicates, the Castle SONUS 'Pocket Meters' pack all the necessary features into pocket sized proportions

The data-logging instruments have a USB connection and are compatible with the Castle dBdataPRO software, where data can be presented in the desired format and copied and pasted into other applications, so you don't have to change the way you have always completed your reports.

There are a number of system packages available to suit many applications from simple tasks such as alarm monitoring, to a fully weatherproof system for long-term environmental monitoring, there are also dedicated packages for Noise at Work requirements.

POCKET POWER

Feature-Packed

Designed for **Industrial Safety Officers** and **Safety Managers** for compliance with the Health and Safety at Work Act; Noise at Work regulation 1989. The Castle GA216I provide all the necessary information you need for completing Noise at Work risk assessments.

- Integrated equivalent level (Leq) measurement
- Personal Sound Exposure Level (LEPd)
- Sound Pressure (Lp) to 0.1 dB resolution
- 'A' and 'C' frequency weighting (toggle)
- 'Slow' and 'Fast' Time weighting (toggle)
- Simultaneous measurement of Lp, Lmax, and Cpeak
- Lmax - maximum Lp hold (rms.)
- Cpeak - maximum peak level
- Elapsed time (running time hrs, min, sec)
- Single Event Sound Exposure Level (LAE)
- Overload and Under-range indication
- Battery condition (Life approx. 12 hours)

A Tough Case for all Weathers...

The physical design and construction of the Castle GA216I casing is extremely tough and durable, made from a substantial thickness of ABS, crack resistant plastic, the GA216I will stand up to almost any industrial environment.

Simplicity and Power...

Using the meter could not be simpler. The simple operating system uses logical keys to immediately display the information you need. The power of this little wonder means that it can measure simultaneous 'A' weighted levels as well as monitoring the Peak levels. This is a vital feature for Noise at Work 1989 assessments.

Future-Proof...

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

SONUS GA216I SPECIFICATION

DESCRIPTION

GA216I Class 2, Integrating Sound Level Meter

APPLICABLE STANDARDS

IEC 61672-1:2002 (Integrating, Sound Exposure and Sound Level Meters)

IEC 60651:1979+A1+A2 (Sound Level Meters)

IEC 60804:2000 (Integrating Function)

MICROPHONE AND PREAMPLIFIER

Type 7052 Pre-Polarised $\frac{1}{2}$ " (13.2 mm)

Free-Field, Electret Condenser Microphone:

20Hz – 8KHz ± 2 dB

-32 dB ± 3 dB re 1V/Pa

Custom pre-amplifier design

Typical actuator to free-field correction factor (based on 500Hz=0) is as follows

20Hz: 0	1kHz: 0
25Hz: 0	1.25kHz: +0.1
31.5Hz: 0	1.6kHz: +0.3
40Hz: 0	2kHz: +0.4
50Hz: 0	2.5kHz: +0.5
63Hz: 0	3.15kHz: +0.8
80Hz: 0	4kHz: +1.2
500Hz: 0	5kHz: +1.6
630Hz: 0	6.3kHz: +2.3
800Hz: 0	8kHz: +3.6

DISPLAY

Back-lit LCD panel (8x1 Characters)

Alpha-Numeric display for measured results

LEVEL RANGE

Measuring Range:

35-140

Linear operating range (IEC61672-1):
65dB

3 Measurement Ranges (IEC61672-1):

35-100

55-120 - Reference Range

75-140

NOISE FLOOR

Typical 'A' Weighting <32 dB(A) rms.

'C' Weighting <38 dB(C) rms.

FREQUENCY WEIGHTING

'A' and 'C' to IEC 61672-1:2002 and IEC 60651:1979+A1+A2

FREQUENCY RANGE

20 Hz - 8 kHz (including microphone)

1 Hz - 20 kHz (electrical characteristics)

TIME WEIGHTING

Slow and Fast

INSTRUMENT RESPONSE

Simultaneous rms. and Peak

MEASUREMENT PARAMETERS

Lp (Sound Pressure Level), Leq (Equivalent Sound Level), Lmax (maximum Level), Cpeak (Max. Peak Level), LEpd (Sound Exposure Level), LAE (Single Event Sound Exposure Level)

Other Displays: Elapsed time, Overload, Battery Life

CALIBRATION

Software controlled 91.0 to 120.0 dB (1kHz) in 0.1 dB steps

PROCESSING

A to D Converter: 12-bit, 352Hz sampling

Controller: 8MHz, micro-controller

POWER REQUIREMENTS

Batteries: 1 x 6LR61 (size PP3), Life: >12 hours (alkaline batteries, continuous operation).

SIZE AND WEIGHT

Dimensions: 60mm (width) x 35mm (depth excluding pocket clip) x 135mm (height without microphone) or 210mm (height with microphone)

Weight: 220gms (including battery)

MANUALS

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

ACCESSORIES

GA601 Single Level Calibrator:

KA010 Kit Case for GA216I, GA601 and Accessories

Note: Items marked * will be available as upgrades in the near future.

In the interest of continued developments, Castle reserve the right to change the product specifications without notice

SONUS PRODUCT RANGE

Sound Meters	Class 1	Class 2
Basic— sound pressure level	GA116B	GA216B
Integrating—(Leq)	GA116I	GA216I
Data-logging	GA116L	GA216L
Dosemeters		
Basic Dedicated Dosemeter		GA257B
Data-logging Dosemeter		GA257L

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To the Safety, Health and Environment Professional...

The issues faced every day by Health, Safety and Environmental professionals are vast and varied. At Castle, we have spent a lot of time developing products and services to make your life easier!

Castle Group Ltd are one of the leading international group specialists in technical safety, health and environment solutions. Whether you are in Industry, Construction, Local Authority or anywhere there are safety or environment issues, we are a resource you really could use. We can help with Noise, Vibration, Air sampling, Gas detection, Light and temperature and just about anything else that needs measuring. The following services show you how we can help

FREE Health & Safety Training Seminars!

To get you off the ground, refresh your knowledge or just to get a taste, Castle is continually running FREE Safety, Health and Environmental seminars around the country. Covering subjects from Noise at Work, to COSHH and Audiology, the list is ever growing, as are the locations. Check out our web site for the next seminar near you.



www.castlegroup.co.uk

Castle Instruments

Dealing with many Safety, Health and Environmental issues may well mean you need access to a plethora of **equipment** and **instrumentation** to carry out measurements and assessments necessary for the job.

At Castle we can provide you with just about any of the equipment you might need. All our equipment comes with the **guarantee** of back-up and support you only get from a company with 40 years under its belt! Here are a few of the core products we can offer, but we can also source anything you may need!

Noise and Vibration Measurement Equipment
Audiometers, Otoscopes and Booths
Air-Sampling Pumps, Calibrators and Consumables
Gas-Detection and Personal Monitors
Emissions and Air Quality
Light, Temperature, Humidity and Airflow

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Castle Training Academy

Training is becoming an ever more important area of consideration to industry **professionals** and the Castle Training Academy is fulfilling the need for more and more companies every year. The Academy now offers **competence** training along with IOSH and CIEH **qualifications**. What is more, look out for our NEW City & Guilds provision. All courses come with professional **CPD** points and many are eligible for CITB and Train to Gain **grant funding**.

You can see a full list of courses and book-online on our website.

www.castletrainingacademy.com.



CastleRent

There are a number of **reasons** why rental may be the solution for you. You may only have a one-off use, a special contract, a limited budget or a need for supplementary products. In any case, our **flexible booking** system, next day a.m. delivery and open-pricing mean that you can address any of these issues without delay. For long-term contracts, such as construction projects, Castle Rent is also a **tax efficient** way to 'own' equipment. Finally, for peace of mind, what better way is there to try a product before deciding to buy it? We even give you money back if you do purchase!

The Advantages of Castle Rent;

- Easier on cash-flow
- Rent for long- or short-term as you need it
- Let the Tax Man pay for you!
- Try before you buy
- Four weeks for the price of three
- No on-going maintenance costs
- Sourcing service for any other equipment you need

www.castle-rent.com

Castle Care

Measurement instrumentation must be **regularly** calibrated to a traceable standard and this is certainly true for most health, Safety and Environmental monitoring equipment. At Castle, our team of **highly trained and experienced** technical staff can service and calibrate almost any type of monitoring equipment from Noise and Vibration meters to Thermometers to Scales. The Castle '**Premier Service**' includes menu pricing and a normal turnaround time within 5 days. What is more, we will evaluate any instrument and return it for **FREE** if you do not want to proceed.



Castle premier service and calibration offers...

- Free Evaluation Service
- Clear and Simple Pricing
- UKAS Accreditation Available
- Large range of equipment calibrated
- 4 Levels of calibration available for most equipment
- Annual contract calibrations with up to 20% off

www.castle-care.com

Castle Contracts

For companies with **multiple** pieces of **equipment**, there is also Castle's 'Contract Calibrations'; an annual scheme to take the hassle out of maintaining equipment certification. Castle will issue calibration **reminders**, collect your equipment if required and return it calibrated as soon as possible. This scheme also affords a **saving** of up to 20% on annual calibration charges.

www.castle-care.com

Castle Consultancy

Castle **experts** are waiting to help you. Because we have a **network** of consultants across the country, we are poised to **react** to your requirement. Not only can we normally provide a local service, but we can usually help right away if you need us to!

Whether you are limited for time, in need of further **expertise** or just want some **advice**, we can assist. We have provided a wide range of services to many top companies for projects large and small.

Here are some of the services we can provide, but if it's not here, just ask!

- Noise or Vibration risk assessments
- Building Acoustics
- COSHH compliance
- Environmental Impact Assessments
- Air Quality Monitoring
- Occupational Health Screening programmes

www.castle-consultancy.com

Castle Online

You can access all our products and services online whenever you want, just go to www.castlegroup.co.uk and you will find a **knowledgebase** packed full of useful facts and information. You will also find details of all our upcoming **FREE seminars** and training courses as well as product information on literally hundreds of health, safety and environmental items, which are available to purchase directly through a secure server. Among other things you will find:

- HS&E Measurement Products
- Books, Standards and Publications
- HS&E CD's DVD's
- Stopwatches and Timers
- Scales and Distance Measurement
- Water Testers

You will also find our shop on ebay of all places - <http://stores.ebay.co.uk/Castle-Group-Safety> or just go onto ebay and type Castle Group Safety in the shops section.

Who are Castle

For 40 years, Castle has been driving forward with product and service innovation. For a number of the early years, the company focussed on the development of sound and vibration measuring equipment. This was then progressed by adding training courses, rental and consultancy eventually leading to the Castle of today, which is helping many customers deal with a vast range of health, safety and environmental issues in a variety of ways. The future is a very exciting place at Castle and we are working on many new initiatives with our customers firmly in mind!