



Operating Manual

Pocket Sound Level Meter Range

GA213, GA215 and GA256

www.castlegroup.co.uk

Thank you for buying a Castle product, I am sure you will find both the goods and the service to be of the highest quality but if not, then please feel free to write to me personally and I will ensure that your needs are dealt with immediately.

This manual is designed to show you the operation of the goods you have purchased and a very brief insight into acoustics itself. If you would like to become a competent person in the eyes of the law, then you may like to know more about our Competent Persons training course for Noise at Work Regulations. You can visit www.castle-training.com to find out more.

It is my intention for Castle Group Ltd to provide a wide range of technical health and safety products and Services of the highest standard. If you would like to know more about any of our other products and services then please telephone on +44(0)1723 584250 or visit www.castlegroup.co.uk

A handwritten signature in black ink, appearing to read 'Simon Bull', with a stylized flourish at the end.

Simon Bull
Managing Director

Copyright

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Precautions

- Only operate the instrument as described in this manual.
- These are precision instruments, protect from shocks and vibrations.
- Ambient conditions for the operation of the unit are as follows:-
 - Temperature: -10°C to +50°C
 - Relative Humidity: 25 to 90%
- Protect the unit from extremes of temperature and humidity, direct sunlight and air with a high salt or sulphur content.
- Always turn the unit off after use. Remove the batteries from the instrument when not in use.
- Do not use any solvents or cleaning agents on the instrument. Use only a soft dry cloth or a soft cloth lightly moistened with water when necessary.
- Do not allow any conductive objects, such as wire or metal particles to enter the unit.
- Do not try to disassemble the instrument or attempt any repairs as this will invalidate your warranty. Take a note of the condition of the instrument and contact your authorised Castle service station.
- To ensure continued precision performance of your instrument have it checked and serviced at regular intervals.

Contacting Castle Group

This manual contains complete operating instructions for the Castle Pocket Sound Level Meter range, read it carefully and you will quickly become familiar with your instrument and its operation.

If you do encounter problems with the operation of your instrument please feel free to contact customer support with your enquiry on: -

Telephone:	+44 (0)1723 584250
Fax:	+44 (0)1723 583728
Website:	www.castlegroup.co.uk
Email:	techsupport@castlegroup.co.uk sales@castlegroup.co.uk

Contents

Introduction.....	1
Using the Manual.....	1
Sample Keypad Layout.....	2
Operating Tips.....	3
Battery Installation / Check.....	4
Microphone	4
Switching the Instrument On & Off.....	5
Information Button.....	5
Pause / Play Button	6
Display Button.....	6
Menu Button.....	8
Calibration.....	8
Frequency / Time Weighting	9
Criterion / Exchange Rate.....	9
Keypad Lock.....	10
Contrast.....	10
Clear Button	11
Changing Range.....	11
Technical Specifications	12
Instrument Disposal	18
EC Declaration of Conformity.....	19
Warranty and After Sales Service	20
Accessories.....	21
Instrument Details	21
Trouble Shooting	22
Disclaimer.....	23

Introduction

ALL

Thank you for purchasing your product from Castle Group Ltd.

The GA213, GA215 and GA256 are part of Castle's 'Pocket' meter range and have been designed to surpass the requirements of the new international Class 2 sound level meter standard IEC 61672-1:2002. They may be used in industry or for general purpose measurement to ascertain noise levels accurately yet economically.

Using the Manual

ALL

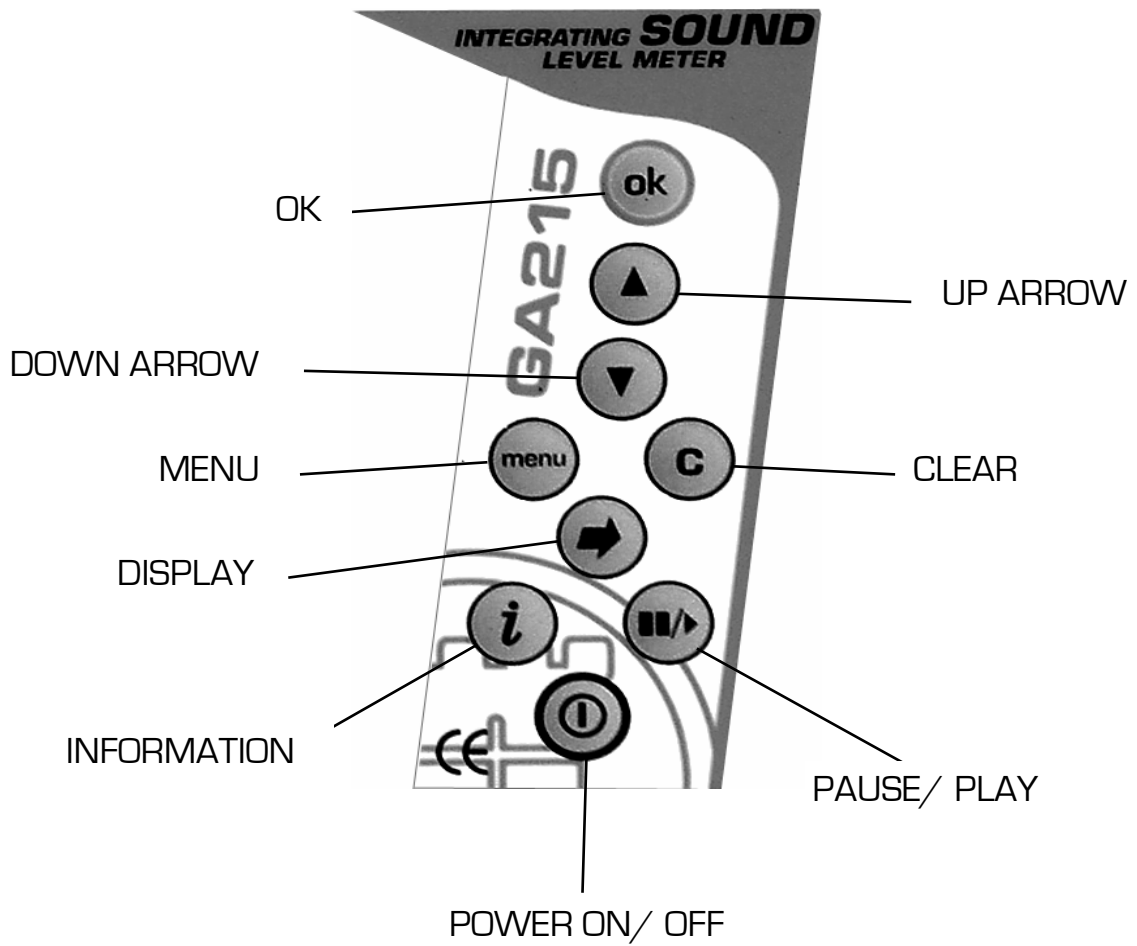
Since this manual covers the operating instructions for three instruments the shaded areas of the title serves to inform the user which functions are present on your instrument.

As an example, the following title informs you that this function is only applicable to the GA213/215

Example

GA213/215

Sample Keypad Layout



This section is designed to enable you to get the best measurement results out of your instrument.

- Always check the battery status of the instrument before use.
- Always calibrate the instrument prior to carrying out any measurements.
- Always **CLEAR** any previous data recorded prior to taking new readings and after calibrating.
- The instrument can be set-up in advance to the required frequency and time weightings/ criterion and exchange rates for the measurements that you are wanting to carry out.
- To work out the most suitable range to select first take initial samples of the expected noise levels from the area you will be measuring in. Then select the range which these levels fall nearest the middle of e.g. if the levels expected are around 85dB then select the '55 - 120 range' *[GA213/ GA215 only]*.
- When taking noise measurements hold the instrument as far in front of the body as is comfortable to minimise interference of the sound field. *[GA213/ GA215 only]*
- On a GA256 clip the dosimeter microphone as near to the operators ear as possible e.g. shirt collar.
- To prevent accidental keypresses which could affect the results of a GA256, use the LOCK feature to lock-out the keypad.
- Always point the microphone towards the main source of the noise to be measured (0° reference direction).
- When measuring low noise levels on the bottom range, be aware of the self generated noise levels of the instrument – see specifications. *[GA213/ GA215 only]*

Battery Installation / Check

ALL

To prepare the equipment for use a heavy duty alkaline battery type 6LR61 should be fitted, such as a Procell/Duracell MN1604, Ever Ready 6LF22 Gold Seal, or equivalent.

The battery door is located on the bottom left hand side of the instrument. Open the battery door cover by sliding the cover downward towards the bottom of the instrument. The cover will now swing open exposing the battery compartment. Insert the battery observing the correct polarity as marked on the case wall.

Close the battery compartment door by reversing the procedure above. The instrument is now ready for calibration and use.

The battery condition is shown on the LCD during the power-on sequence, but can also be checked at any time by pressing the 'i' key. Pressing the key once will display the battery status screen, with the battery condition indicated by a series of vertical bars - 4 bars shows a fully charged battery, while 1 bar shows one that is almost flat. It is recommended that the battery should be replaced if only 1 bar is displayed. The screen will flash BAT. LOW when the battery level drops below a sustainable level whilst the instrument is in use. If this happens, replace the battery.

Microphone

ALL

The microphone capsule fitted to your instrument is a high quality class 2 instrumentation grade 1/2 inch capsule.

The GA256 is fitted with a DOSE meter microphone assembly in order that it can be attached to the collar of a noise exposed worker.

Measurement microphones by the very nature of their manufacture are precision components that are easily damaged through incorrect use. Great care must be taken when using the instrument to ensure the longevity of the microphone.

PLEASE NOTE THAT THE INSTRUMENT IS NORMALLY SUPPLIED WITH A PROTECTIVE WHITE PLASTIC CAP COVERING THE END OF THE MICROPHONE WHEN DELIVERED. THIS CAP MUST BE REMOVED PRIOR TO USING THE INSTRUMENT.

Switching the Instrument On & Off

ALL

Press and release the **POWER** button once and the instrument turns on. Allow the instrument to scroll through its start-up sequence before pressing any other button; this will take approximately 3 seconds.

When the instrument has completed its start-up sequence the display will change to LP (or Lex on GA256) in PAUSED mode using the settings that were last selected.


To switch off, press and release the **POWER** button once and the display goes blank.

PLEASE ENSURE THAT ALL REQUIRED READINGS FROM THE INSTRUMENT HAVE BEEN TAKEN BEFORE TURNING OFF THE INSTRUMENT AS ALL DATA IS LOST WHEN THE INSTRUMENT IS TURNED OFF.

i (Information) Button

ALL

A scrolling sequence exists with this button, repeated pressing of the button will allow you to scroll through the various information screens available on your instrument.

BAT 	Battery capacity remaining	ALL
dBa SLOW	Indicates the current frequency and time weighting	GA213/215
85/3	Indicates the current criterion and exchange level	GA256
VER1.28	Indicates the firmware version number	ALL
www.castlegroup.co.uk	Scrolling web-site address	GA213/215
PLAY	Indicates the instrument is in PLAY mode	ALL
PAUSED	Indicates when the instrument is in pause mode (only displayed if instrument is in pause mode)	ALL

 /▶ (Pause / Play) Button	ALL
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Press **||/▶** button **PAUSED**

All functions can be held so that they do not update by pressing the **||/▶** button. Once **PAUSED** the display may be read as normal, allowing the user to take note of any required readings.

For normal operation of the instrument to continue press the **||/▶** button once more and the instrument will briefly show **PLAY** before returning to the currently displayed parameter.

Please note instrument automatically powers on in **PAUSED** mode.

⇒ (Display) Button	ALL
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A scrolling sequence exists with this button, repeated pressing of the button will allow you to scroll through the various measurement screens available on your instrument.

GA213	GA215	GA256
Lp (SPL)	Lp (SPL)	Lex
Elapsed Time	Leq	Plx
Lmx	Elapsed Time	DO %
Pmx	Lmx	Pr %
Overload (if triggered)	Pmx	Hr %
	Lex	Elapsed Time
	LAe	Pmx
	Overload (if triggered)	Psq
		Overload (if triggered)

Under-range / Overload Indication

The display will also flash **UR** to indicate an under-range condition, or **OVERLOAD** to show the range has been exceeded. **UR** will continue to display as long as the condition persists. The **OVERLOAD** indicator will latch as shown in the table, and can only be reset by pressing the **C** (Clear) key. (See page 11).

You may leave the display menu by pressing any other button.

The table below is a breakdown of the display parameters and is accompanied by a brief description of each one: -

Display	Description	Instrument
93.7dBC	Level Pressure [Lp]	GA213/215
LEQ 93.7	Displays the LEQ	GA215
00:01:33	Run time duration	All
Lmx 97.3	Maximum Lp	GA215
Pmx 98.8	Maximum Peak	ALL
DO % 67	Dose (dependent on exchange and criterion)	GA256
Pr % 0	Displays the projected DOSE assuming an 8 hour shift	GA256
LEX 87.1	Displays the Lex [Lep'd]	GA215/256
Plx 78.6	Displays the projected Lex [Lep'd] assuming an 8 hour shift	GA256
LAe 93.1	Sound Exposure Level [SEL]	GA215
Hr%	Dose per Hour	GA256
Psq 0.02	Indicates the energy that has been received in Pa ² hours	GA256
OVERLOAD	Indicates if an OVERLOAD has occurred (Can only be reset by pressing the Clear key)	All
---.-	Indicates when values are at 0 e.g. when instrument is first powered on or after a reset in PAUSED mode.	GA213/215

Menu Button

ALL

A scrolling sequence exists with this button, repeated pressing of the button will allow you to scroll through the following menu screens available on your instrument: -

Calibration

ALL

It is recommended that the instrument's calibration is checked and adjusted where necessary with a calibrator before readings being taken. The calibration should be re-checked after taking readings to confirm the validity of the results. The calibrators recommended for use are the Castle GA601/GA607, which supply typically 94dB/ 104dB (relative to 20 μ Pa pressure) at a frequency of 1kHz.

Press *i* to check the battery condition. Replace the battery if the indication is low.

Press **MENU**

CAL <OK

Press **OK** and the instrument will now display the previous calibration level e.g. >94.0. The calibration will be performed at the selected level e.g. 94.0dB but may be changed in 0.1 dB steps to match the calibrator output by repeated pressing of the \blacktriangle or \blacktriangledown arrow buttons or in 1dB steps by repeated pressing of the *i* / **II**/ \blacktriangleright keys. Ensure the calibrator is attached to the microphone by gently inserting the microphone into the cavity of the calibrator. A certain amount of resistance should be felt whilst inserting the microphone as the o-ring seal on the calibrator forms a seal around the microphone. Ensure that the calibrator is switched on and set to the chosen level and all correction factors for atmospheric pressure and microphone type have been accounted for. The pressure to free-field correction value to be applied when used with a Castle calibrator GA601, GA607, and a B&K4231 is as follows:

Castle GA607 Calibrator Pressure To Free Field Correction = -0.2

Castle GA601 Calibrator Pressure To Free Field Correction = -0.2

B&K4231 Calibrator Pressure To Free Field Correction = -0.2

Press **OK** and the instrument will calibrate to the level of the calibrator. The display will show **CAL WAIT** while calibrating to the chosen level. When calibrated the display will show **COMPLETE** and will return to LP for the GA213/215 and DOSE for the GA256. It is recommended that the unit is then put into **PAUSED** mode and data is cleared. The instrument is now ready to take measurements.

If the calibration is interrupted or the input level is not within +/- 3dB of the chosen reference level then the display will show **NO INPUT** or **CAL FAIL**. Check to make sure the calibrator is switched on and emitting the correct level before proceeding again as indicated above.

Press **MENU** repeatedly until WTG < OK is displayed.

Press **OK** and the instrument will display the options available for WTG SETUP.

To change WTG use either the **▲** or **▼** arrow buttons. Pressing either of these two buttons allows you to scroll through the four available weighting choices, A SLOW, A FAST, C SLOW or C FAST.

***Note:** The symbol > indicates the current selection as you move around the weighting options.*

Press **MENU** repeatedly until CRIT/EXC is displayed.

Press **OK** and the instrument will display the options available for CRIT/EXC SETUP.

To change the CRIT/EXC use either the **▲** or **▼** arrow buttons. Pressing either of these two buttons allows you to scroll through the six available criterion and exchange choices, 90/3, 85/3, 90/5, 85/5, 80/3 or 80/5.

***Note:** The symbol > indicates the current selection as you move around the criterion/exchange options.*

Press **MENU** repeatedly until is displayed.

Press **OK** and the instrument will lock the keypad. The status of the battery will be displayed while the keypad is in lock mode

To UNLOCK the keypad press **C** , **OK** then **C** respectively.

The LOCK feature is used to lock the instrument keypad. All keypad functions are therefore disabled including the POWER button. The function is often used to avoid inadvertent operation or tampering while the instrument is being used.

***Note:** The LOCK function is only available when the instrument is in PLAY mode.*

Press **MENU** repeatedly until is displayed.

Pressing the ▲/▼ arrow buttons repeatedly will increase or decrease the contrast. When the desired contrast is reached, press the ⇌ button to return to LP mode.

C (Clear) Button

ALL

The **C** button is used to reset ALL data* (including the OVERLOAD indication).

Press **C**

Press **OK** to reset the data or any other button to cancel the request.

The instrument then returns to the previously displayed parameter.

** Use caution when using the **C** button as reset data cannot be recovered.*

Changing Range

GA213/215

A range change can be performed by the use of the ▲/▼ arrow buttons while in any of the DISPLAY modes (instrument displaying LP dBA etc).

Press the ▲ **or** ▼ arrow buttons repeatedly to scroll through the three available range choices, 35, 55, 75 until the required range comes into view, then press **OK** to select.

The instrument will return to the LP screen.

Note: *The symbol > indicates the current selection as you move around the range options.*

The individual characteristic applies to each instrument unless specifically worded otherwise.

Instrument Standards:

GA213 IEC 61672-1 : 2002 Class 2 Group X
IEC 60651 : 1979 Type 2 + A1:1993 + A2:2000 Group X
BS EN 60651 : 1994 Type 2 Group X

GA215 IEC 61672-1 : 2002 Class 2 Group X
IEC 60651 : 1979 Type 2 + A1:1993 + A2:2000 Group X
BS EN 60651 : 1994 Type 2 Group X
IEC 60804 : 2000 Type 2 Group X
BS EN 60804 : 2001 Type 2 Group X

GA256 IEC 61252 : 1993
BS EN 61252 : 1997 + A1:2001

Measurement Parameters:

GA213 Lp, Lmax, Pmax, Elapsed time

GA215 Lp, Leq, Lmax, Pmax, Lex, Elapsed time, LE

GA256 Pa²h, Lex, Projected Lex, DOSE%, Projected DOSE%,
DOHR, Pmax, Elapsed time

Peak Frequency Weighting:

GA213 C weighting to IEC 61672-1 Class 2

GA215 C weighting to IEC 61672-1 Class 2

GA256 Lin weighting

Time Weightings:

GA213/ GA215 SLOW and FAST according to IEC 61672-1 Class 2,
IEC 60651 Type 2.

RMS Frequency Weighting:

GA213	A and C weightings according to IEC 61672-1 Class 2, IEC60651 Type 2
GA215	A and C weightings according to IEC 61672-1 Class 2, IEC60651 Type 2
GA256	A weighting according to IEC 60651:1979

Level Ranges (dB) for A & C Weighting:

GA213 / GA215 Linear Operating Range, IEC 61672-1:2002			
31.5Hz	1kHz	4kHz	8kHz
41.0 - 60.6	41.0 - 100.0	41.0 - 100.0	41.0 - 99.0
55.0 - 80.6	55.0 - 100.0	55.0 - 100.0	55.0 - 119.0
75.0 - 100.6	75.0 - 140.0	75.0 - 140.0	75.0 - 139.0

GA213 / GA215 Primary Indicator Range IEC 60651:1979 (1kHz)
41.0 - 93.0
55.0 - 113.0
75.0 - 133.0

(Primary Indicator Range allows for a crest factor of 3 or approximately 7dB)

GA215 Linearity Range & Pulse Range IEC 60804:2000
41.0 - 100.0
55.0 - 120.0
75.0 - 140.0

Level Ranges (dB) for Peak Hold Display (wrt 1kHz)	
GA213 / GA215	GA256
63.0 - 103.0	100.0 - 143.0
83.0 - 123.0	
103.0 - 143.0	

Typical Electrical Self Generated Noise Level:

32 dBA, 38 dBC

Total Measuring Range:

The difference between the lowest possible measurement on the most sensitive range and the highest level on the least sensitive range at a frequency of 1kHz.

Instrument	A Weighted	C Weighted
GA213/ GA215	41.0 - 140.0	47.0 - 140.0

Reference Points:

Instrument	Description	Value
GA213/ GA215	Sound Level	94.0dB
GA213/ GA215	Range	55 - 120
GA213/ GA215	Frequency	1kHz

Starting Points for IEC 61672-1:2002 Linearity Testing:

The following apply at 31.5Hz, 1kHz, 4kHz, and 8kHz (GA213 / GA215):-

35-100 range: 74.0dB

55-120 range: 94.0dB

75-140 range: 114.0dB

Display:

Digital 1 x 8 alphanumeric, digit size 7mm x 5mm Liquid Crystal Display

Display Refresh Rate:

250ms

Detector Characteristics:

RMS and Peak

Warm up time

< 2 minutes

Microphone:

MK79 Aco ½" Electret Condenser Microphone Cartridge Type 7052.
Microphone reference point is the centre of the diaphragm.

Type MK79 (Aco 7052)	Specification
Diameter (inch)	0.5
Response Type	Free-Field
Polarisation (V)	0.0
Frequency Range (Hz)	20 - 8000
Sensitivity (mV/Pa)	25.0
Sensitivity (dB re 1V/Pa)	-32.0
Capacitance (pF)	18.0
Max. Sound Pressure Level (dB)	146.0
Temperature Coefficient (dB/°C)	-0.01

The pressure to free-field correction value to be applied when used with a Castle calibrator GA601/GA607 or B&K4231 is as follows: **-0.2dB**

The capsule can be removed by unscrewing anti-clockwise although great care must be taken when doing this to avoid damage to either the capsule or the instrument. Re-fitting is a reverse of the above.

Type MK79 (Aco 7052) Typical Microphone Response			
31.5Hz	0.2	1kHz	0.0
63Hz	0.1	2kHz	0.0
125Hz	0.0	4kHz	0.0
250Hz	0.0	8kHz	0.5
500Hz	0.0		

Typical Actuator to free field correction factors(dB) of an MK79 (Aco 7052) microphone (Based on 500Hz = 0)			
20Hz	0.0	500Hz	0.0
25Hz	0.0	630Hz	0.0
31.5Hz	0.0	800Hz	0.0
40Hz	0.0	1kHz	0.1
50Hz	0.0	1.25kHz	0.2
63Hz	0.0	1.6kHz	0.3
80Hz	0.0	2kHz	0.4
100Hz	0.0	2.5kHz	0.5
125Hz	0.0	3.15kHz	0.8
160Hz	0.0	4kHz	1.2
200Hz	0.0	5kHz	1.6
250Hz	0.0	6.3kHz	2.3
315Hz	0.0	8kHz	3.6
400Hz	0.0		

Maximum SPL at the Microphone for No Damage:

146 dB

Electrical Signal Input:

Electrical signals can be applied to the Castle Pocket range of sound level meters by removing the acoustical microphone and replacing with a dummy microphone having a series capacitor of 18pF $\pm 2\%$. The BNC termination is then used to interface with a suitable signal generator with an output impedance of 600W at 1kHz.

Maximum Peak to Peak Electrical Signal Input For No Damage:

7 Volts

Upper Frequency for Periodic Acoustic Testing (IEC 61672-3:2006):

4kHz

Calibration Reference Conditions:

Sound Field	Free Field
Air Temperature	23°C (73°F)
Relative Humidity	50%
Atmospheric Pressure	101.325 kPa
Sound Pressure Level	94.0dB
Reference Level Range	55 - 120dB
Reference Frequency	1kHz

The reference direction of incidence for all microphones is perpendicular to the front face (diaphragm surface) of the microphone.

Operating range:

0°C to +40°C

Warning: DO NOT subject the instrument to temperatures greater than 70°C or less than -20°C for any length of time.

Effect of Temperature:

Accuracy better than ± 0.5 dB over the range 0 to +40°C

Effects of Humidity:

Less than 0.5 dB over the range 25 to 90% relative humidity (provided there is no Condensation), relative to the value at 50% relative humidity and 40°C.

Storage range: 0 to 90% relative humidity in the absence of condensation

Effects of Vibration:

From 20Hz to 1kHz at 1ms^{-2} no noticeable effect

Magnetic Field:

No noticeable effect

Operator Presence in Free Field:

No noticeable effect when operator standing more than 2 metres behind instrument.

Windshield:

The effects of using the KG205 (60mm) windshield			
31.5Hz	0.0	1kHz	0.2
63Hz	0.1	2kHz	0.2
125Hz	0.1	4kHz	0.7
250Hz	0.1	8kHz	0.0
500Hz	0.2		

The meter conforms to the Standards quoted on Page 12 when fitted with the windshield.

Batteries:

1x MN1604 (size PP3) alkaline cell

Life Expentancy: 12 hours continuous use (approx)

Min Battery Level: 5.4V DC

Max Battery Level: 9.4V DC

Overall Dimensions:

210mm x 60mm x 35mm (approx.)

Overall Weight including Batteries:

220g

Radio Frequency Fields:

The GA213, GA215, GA256 fall into classification X for the susceptibility to Radio Frequency Fields.

Case Reflections:

GA213 / GA215 using the Aco 7052 microphone Stalk length 75mm from front of microphone grid to top of case body			
Frequency (Hz)	Case Effect (dB)	Frequency (Hz)	Case Effect (dB)
31.5	0.0	800	0.2
40	0.0	1000	0.0
50	0.0	1250	-0.3
63	0.0	1600	-0.2
80	0.0	2000	-0.5
100	0.0	2500	0.4
125	0.0	3150	-0.2
160	0.0	4000	-0.2
200	0.0	5000	0.1
250	0.1	6300	0.1
315	0.1	8000	0.0
400	0.1	10000	0.0
500	0.1	12500	-0.2
630	0.1	16000	0.0

Instrument Disposal:



The symbol shown here can be found on your instrument and means that the product is classed as electrical or electronic equipment and should be disposed of at the end of its life separately to your commercial or household waste.

The Waste of Electrical and Electronic Equipment Directive (2002/96/EC) has been established to help reduce the influx on landfill sites and effectively treat hazardous substances by using best practices for the recovery and recycling of products.

There are various collection systems in place within the EU for the disposal of your product. To find the nearest UK waste recycling point in your area, enter your postcode in the website www.recycle-more.co.uk

For more information please contact your local authority, the dealer where you purchased your product or Castle Group Ltd.

EC Declaration of Conformity:



The CE marking of this Castle Product indicates compliance with the EMC Directive.

Castle Group Ltd declares that the: -

- *GA213, GA215 and GA256 range of Pocket Sound Level Meters*

have in accordance with the following Electromagnetic Compatibility Directives: -

- *89/336/EEC*

been designed and manufactured to the following specification:

- *EN61326-1:1997 + A1:1998*

with the following Tests:

- *Radiated Emissions: EN55022:1995 Class: B*
- *ESD: EN61000-4-2:1995 Levels: $\pm 4kV$ [C], $\pm 8kV$ [A]*
- *Radio-frequency EM field amplitude mod: EN61000-4-3:1996 Level: 3V/m*

No differences in radio frequency emissions are apparent between the available ranges on GA213 or GA215 instruments.

We hereby declare that the instruments named above have been designed to comply with the relevant sections of the above referenced specifications, and that the above named instruments comply with all essential requirements of the specified Directives.

Warranty and After Sales Service:

Castle Group Ltd design and manufacture precision instruments, which if treated with reasonable care and attention should provide many years of trouble free service.

In the event of a fault occurring, during the warranty period, the instrument should be returned to Castle Group Ltd, in its original packaging, or to an authorised agent. Please enclose a clear description of the fault or symptom.

Details of the warranty cover are available from Castle Group Ltd or an authorised agent.

All instruments are designed to meet rigid British and International Standards. An annual calibration is recommended to ensure that these high standards are maintained. This is particularly important for cases in which instrument readings are to be used in litigation or compliance work.

For warranty and service return to:

The Service Department
Castle Group Ltd
Salter Road
Cayton Low Road Industrial Estate
Scarborough
North Yorkshire
YO11 3UZ

Telephone +44 (0)1723 584250
Fax +44 (0)1723 583728
email techsupport@castlegroup.co.uk
web www.castlegroup.co.uk

Any misuse or unauthorised repairs will invalidate the warranty.

Damage caused by faulty or leaking batteries is not covered by the warranty.

Accessories:

- GA601 – Single Level Calibrator (Class 2)
- GA607 – Dual Level Calibrator (Class 1)
- KG204 – Dosemeter Windshield (GA256)
- KG205 – Sml Windshield (GA213/ GA215)
- KA010 – Sml Attaché Case (Holds Instrument and Calibrator)
- 6LR61 – 9V Battery (Pack of 10)

Instrument Details:

For your records and for future correspondance with Castle Group Ltd regarding your instrument, please complete the following details: -

Instrument Model		
GA213 <input type="checkbox"/>	GA215 <input type="checkbox"/>	GA256 <input type="checkbox"/>

Instrument Serial Number

Purchase Date

Trouble Shooting:

Question	Answer
My instrument will not turn on?	<p>Check that there is a battery fitted to the instrument.</p> <p>Check that the battery is not flat.</p>
What is this white plastic cap fitted to the top of the microphone?	This is a protective cover for the sensitive microphone. You must remove it before using the instrument.
Where have my results gone?	The Pocket Meters do not have a backup memory so all readings are lost when the instrument is switched off. Always take a note of important readings before switching off the instrument
My instrument is on but will not respond to keypad presses?	Have you locked the keypad – see page 10 for details on this function.
I keep getting CAL FAIL when trying to calibrate my instrument – what am I doing wrong?	<p>Is the instruments microphone properly inserted in the calibrator?</p> <p>Is the calibrator switched on and working?</p> <p>Has the instrument and/or calibrator been knocked or moved as the calibration routine is taking place?</p> <p>Has the microphone been damaged?</p>
What is the black o-ring inside my calibrator's cavity for?	The o-ring is essential to seal around the microphone stabilising the pressure in the calibrator's cavity. If the o-ring is missing and/or damaged the instrument will not calibrate properly (see above).
When taking readings the display is constantly flashing *UR* – what does this mean?	This means that the noise you are measuring is below the bottom of the range you have the instrument selected to. Try selecting a lower range (see page 11 for details).
My readings are within range but I keep getting **OL** flashing on the screen – why is this?	The overload is triggered by the Peak reading whereas LP and LEQ are rms figures which are lower. Some noises feature very high peaks compared to the rms.

Question	Answer
My instrument has stopped responding to noise since I calibrated it?	Is the microphone capsule loose on the instrument? When removing the microphone from the calibrator it is possible to accidentally unscrew the microphone.
After taking my readings the figures are a lot higher than expected?	Did you clear the memory after calibration?

Disclaimer:

Whilst every effort is made to ensure the accuracy and reliability of both the instrument described and the associated documentation, Castle Group Ltd makes no representation or warranties as to the completeness or accuracy of this information.

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