

GA802
Vehicle Noise
Analyser



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 the Noise at Work Regulations.

It is my intention for Castle Group Ltd to provide a complete range of Noise and Vibration products and Services of the highest standard. If you would like to know more about any of our other products and services then please complete the reply paid card in this manual and return it to us for prompt action or telephone on +44(0)1723 584250.

Simon Bull

A handwritten signature in black ink, consisting of several loops and a horizontal line at the end, representing the name Simon Bull.

Sales and Marketing Director

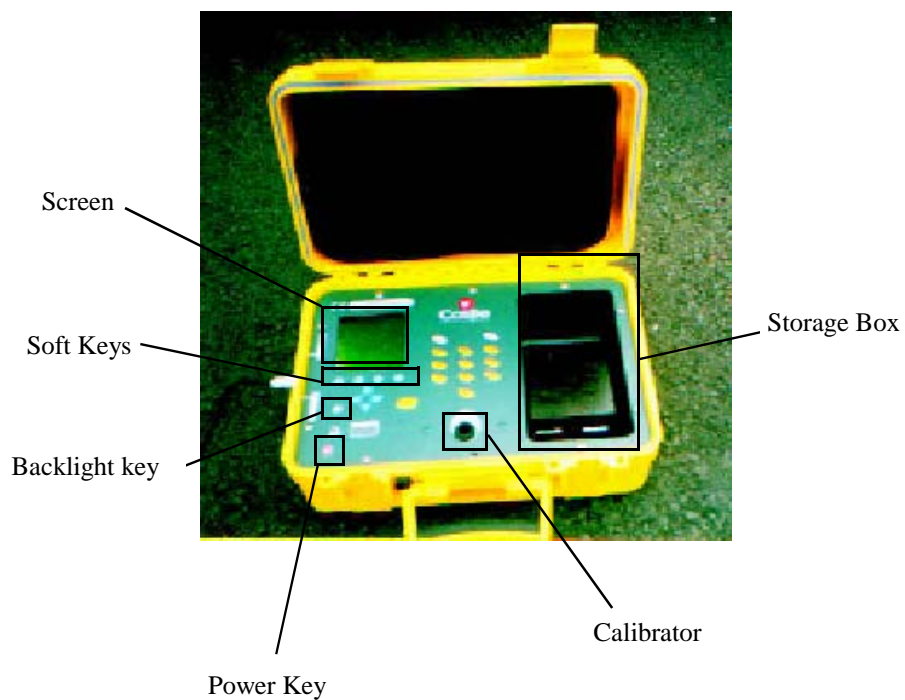
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Instrument Introduction

The GA802 is designed to be a highly accurate sound meter for use in the motor industry, to enable testing to the ISO 5130 stationary vehicle noise test.

Now that similar regulations have been implemented in motor sport, the GA802 is ready and able to meet this challenge. The 'Sport' test function has taken the existing test system and improved upon it to enable quick and easy testing of multiple cars in a short period of time.



Powering On and Off

Press and hold the 'power' key until the screen displays the instrument name. When prompted type in the user name by cycling around the keys until the letter you require is displayed, (the cursor will automatically move to the next space, provided the same key is not pressed within 3 seconds). The default user name is C167 then press enter.

To switch off the instrument, press and hold the 'power' key until the screen goes blank.

Calibrating

The instrument should always be calibrated before use, the instrument has its own built-in calibrator. The instrument's in-built default calibration level is 94dB.

Switch on the instrument and plug the microphone cable into the end socket labelled 'Mic'. Carefully attach the microphone to the other end of the microphone cable and insert into the calibrator and follow the on screen instructions.

You will be prompted to calibrate the instrument each time you switch it on, you can also calibrate the instrument by selecting 'Calib' from the menu.

Backlight

To switch on the back light press the 'backlight' key, the screen will then illuminate. To switch off the back light simply press the back light key again.

The back light remains on until you switch it off.

Menu Structure

Test:	enables you to test a vehicle previously entered
New:	allows you to enter new vehicle details
Sport:	enable you to perform a quick test on vehicles
User:	enables you to amend users
Setup:	displays the instrument's setup
Comm:	sets the instrument into communication mode
Calib:	allows you to calibrate the instrument
Charge:	enables you to charge the battery
SLM:	switches the instrument into Sound Level Meter mode

The TEST option

Allows you to carry out a full test on vehicles whose data has previously been stored in the instrument. If no data has been stored about the vehicle you wish to test then you would need to select 'New' from the menu. (See page 10 for details of how to perform a test).

The NEW option

Allows you to enter data about the vehicle you wish to test. To enter data on a new vehicle select 'New' from the menu and follow the on-screen instructions. Remember after each letter you type to press the right arrow key to move the cursor along one space.

Once all the data has been entered about a vehicle you will be prompted to carry out the full test. During the test when the vehicle reaches the RPM displayed on screen, the LED light on the keyboard will turn red, indicating to enter the value. The results of the test will then be displayed on screen.

This option performs three tests on each vehicle.

The SPORT option

To perform the quick test, one test per vehicle select 'Sport' from the menu and enter the information requested on-screen.

Once all of the information about the vehicle has been entered you can begin the test by pressing 'START' using the soft keys. Again once the vehicle reaches the correct RPM the LED light on the keyboard will turn red, indicating to enter the value. The results of the test will then be displayed on screen.

The USER option

This option allows you to edit an existing user and change the access level allowed for the user. Once you have amended the existing user you can either select 'save' or 'delete'.

Save will save the current user settings

Delete will delete the user from the instrument.

The SETUP option

Displays the instrument's current settings. From this option you can also change the date and time, the contrast setting for the screen by using the up and down arrow keys. To move from one value to another use the left and right arrow keys. Pressing enter will store the settings.

The COMM option

Sets the instrument into communications mode enabling the instrument data to be downloaded to a PC using the dBdata4 Vehicles PC software*.

*Only results from the full test can be downloaded to a PC

The CALIB option

Allows you to calibrate the instrument. The instrument can be calibrated at any time by selecting this option from the menu.

To calibrate the instrument follow the on-screen instructions.

The CHARGE option

This option enables you to charge the instrument battery. To charge the battery plug the power adapter into the side socket marked 'Aux', select charge from the menu and press enter to turn on the battery charger. The instrument will then start to charge, once you have finished charging, press enter to turn off the battery charger and remove the power adapter. When fully charged the instrument will switch off.

If the instrument is allowed to run flat and will not power on, you can trickle charge the instrument by plugging in the power adapter. The instrument will slowly charge even though the instrument is not switched on. This however does take more time. Once the instrument has enough charge to be switched on the instrument should be charged in the usual way.

The SLM option

When in Sound Level Meter (SLM) mode the instrument displays the current noise level.

Create a New User

To create a new user switch the instrument on, when prompted to enter the user name, type in the name of the new user and press enter.

When the new user name is displayed press enter, then confirm the new user's name and press enter again. When prompted select 'save'. The new user has now been created.

Select the Access Level for a User

To select the access level for the user you have created, switch the instrument on and enter the default user name 'C167' (or any user name who has supervisor access level), after calibrating select 'User' from the menu, press the up and down arrow keys to change the access level between 'User' and 'Supervisor', then select 'Save'.

Access Levels

The instrument has two access levels 'User' and 'Supervisor'. Both access levels can use the instrument to perform either the full test or the quick test, however in order to amend existing users, change user access levels and to delete users you must have 'Supervisor' access.

Deleting a User

To delete a user from the instrument, select 'User' from the menu, select the user name you wish to edit, press enter. When the user name and access level is displayed you can then select 'delete'.

You must have supervisor access rights to be able to delete a user or modify a user's access level.

Performing a Full Test

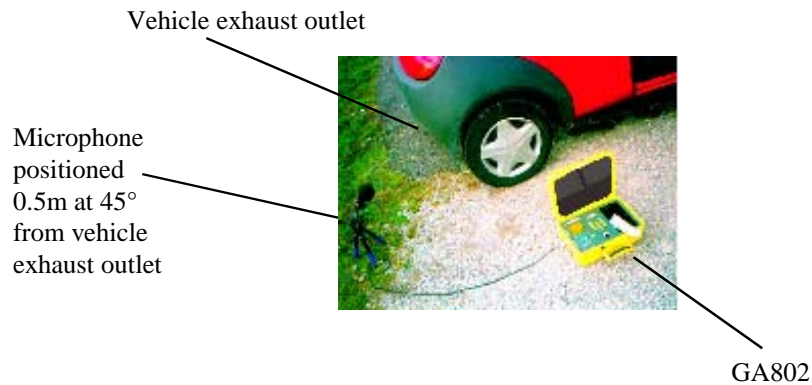
To perform a full test select 'New' from the menu, if no data has been previously stored on the vehicle, or select 'Test' if data already exists in the instrument relating to the vehicle. Then follow the on-screen instructions, entering the information when it is requested. Once all of the information has been entered set up the microphone on the tripod and position the microphone at an angle of 45°, 0.5m away from the vehicle exhaust outlet. (See picture opposite).

The full test consists of three tests on the same vehicle after each test has been performed you must press the enter key to store the value for that test, after the three tests are completed you will get an overall test figure stating whether the vehicle has passed or failed the test.

Performing a Quick Test

To perform a quick test select 'Sport' from the menu and follow the on screen instructions, entering the data as it is requested. You will be prompted to give the event a name and number (this enables you to select the data stored using the event name to test more vehicles at a later date). Once all of the information has been entered, set up the microphone on the tripod and position the microphone at an angle of 45°, 0.5m away from the vehicle exhaust outlet. (See picture opposite). The quick test performs one test and gives the test figure along with the pass or fail result for that vehicle.

If you wish to test a number of vehicles using the data previously entered, you simply select 'Sport' from the menu and then select the name you gave to the event, after entering a driver number (to identify the driver), the previously recorded data will be displayed, the quick test can then be started.



Displaying Test Results

To display test results produced by performing the quick (Sport) test, select 'Sport' from the menu and select the event data you wish to view, then select 'View' by using the soft keys. This displays the event name and number. Now select the event name you wish to view and select enter, the drivers which were tested are now displayed along with their test results. To display test results performed by the Full Test dBdata4 Vehicles PC software will be required.

Deleting Test Data

To delete test data produced by performing the quick (Sport) test, select 'Sport' from the menu, then select the event data you wish to delete and select 'Del' by using the soft keys. You will then be asked if you wish to erase all of the data, pressing escape will take you back to the menu, pressing enter will delete the data. Once the data has been deleted you will be taking back to the menu. To delete test results performed by the Full Test dBdata4 Vehicles PC software will be required.

Technical Specification

Standards	EN60651 Type 1 1994 BS3539 1986 IEC942 Class 1 (calibrator)
Range	70-130 dB(A) (60 dB range) in one range only
Weighting	'A' only
Response	RMS 'FAST' & 'SLOW' (on supervisor level menu)
Parameters	SPL dBA and MAX RMS dBA
Clock	Real Time and Date
Memory	4 megabytes of Flash memory (non volatile)
Security	Password coded set up menu with two levels 1. Supervisor 2. User Operator identifier printed with each record
Control Panel	Positive touch wipe clean key pad
Inputs	Microphone – Rion UC-52

Outputs	RS232 Direct to a printer or PC computer
Batteries	Built-in rechargeable (fixed lead acid) with up to 50 hours run-time
Charging	100 – 240V AC supply module

Mechanical

The unit is housed in a weatherproof ABS attaché case

Dimensions 350W x 270D x 160H (mm)

Weight Approximately 5kg

Temperature Storage range: -20°C to +50°C

Operation range: -20°C to +50°C

WARNING! - DO NOT subject the instrument to temperatures greater than 70°C or less than -20°C

Humidity Effect <0.5 dB from 30% RH to 90% RH

WARNING! - The instrument is not water resistant when opened

Magnetic Field No noticeable effect

Calibration

Built-in electro-acoustic 94dB @ 1KHz

One touch automatic re-calibration

Display

Dot matrix liquid crystal display (LCD) 92 mm x 92 mm

Back light for night use

Microphone

<i>Type</i>	Rion UC-52 Pre-polarised Electret 0.5 inch standard
<i>Performance</i>	Free field response 550 Ohm impedance
<i>Cable</i>	5m soft cable

Reference Direction of Incidence

Zero degrees about the axis of the microphone capsule

Extension Cable

Attenuation due to a 10m extension cable <1 dB below 12 KHz

Windshield

Attenuation due to windshield <0.2 dB

Communication Port

<i>RS-232</i>	2400 baud, 8 bit, no parity, 2 stop bits
<i>Connector</i>	LEMO FGG2K307CLAD55Z

EMC Performance

Radiated emissions to EN50 081-2 No significant emissions from the instrument.

Radiated immunity to EN50 082-2 No degradation in performance when subjected to 10V/m modulated

Acoustic RPM Detector

<i>Range</i>	0 to 19999 RPM
<i>Accuracy</i>	Better than $\pm 3\%$
<i>Display</i>	LED active light (RPM value shown on GA802 LCD)

Supplied Accessories

<i>Cable (5m)</i>	1
<i>Power Supply</i>	1
<i>Windshield</i>	1
<i>Measuring Stick</i>	1
<i>Pen</i>	1

Warranty and After Sales Service

Castle Group 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, 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	UK:	(01723) 584250
	INT:	44 1723 584250
Fax	UK:	(01723) 583728
	INT:	44 1723 583728

Any misuse or unauthorised repairs will invalidate the warranty.

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