



TECHNICAL DOCUMENTATION

USER GUIDE FOR  
**GASSONIC 1701**  
PORTABLE TEST AND CALIBRATION UNIT





**USER GUIDE FOR**  
**GASSONIC 1701**  
**PORTABLE TEST AND CALIBRATION UNIT**

From serial number: 2008-001





# INDEX

Page:

- 1. Getting Started** ..... 6
  - 1.1. Installing The Battery Unit ..... 7
  - 1.2. Attach the Carrier Strap ..... 7
- 2. Battery Charging and Replacement** ..... 9
  - 2.1. When to charge the Gassonic 1701 ..... 9
  - 2.2. How to charge the Gassonic 1701 ..... 9
- 3. Replacement of the Battery Unit** ..... 10
- 4. Attaching the Gassonic 1701 to the Ultrasonic Gas Leak Detector Units** ..... 11
  - 4.1. The Gassonic 1701 used with the Gassonic Observer ..... 11
  - 4.2. The Gassonic 1701 used with the Gassonic MM0100 / EH6028 ..... 11
- 5. Gassonic 1701 Functions** ..... 12
  - 5.1. Introduction ..... 12
  - 5.2. Using the Gassonic 1701 on the Gassonic Observer ..... 12
    - 5.2.1. Gain Test ..... 13
    - 5.2.2. Calibration ..... 13
    - 5.2.3. Delay Test ..... 13
  - 5.3. Using the Gassonic 1701 with the Gassonic MM0100 and Gassonic EH6028 ..... 14
    - 5.3.1. Gain Test ..... 14
    - 5.3.2. Delay Test ..... 14
- 6. Using the Gassonic 1701 - Step By Step** ..... 15
  - 6.1. On/Off/Light Function ..... 16
  - 6.2. Gassonic Observer Tests and Calibration ..... 18
    - 6.2.1. Select Gassonic Observer ..... 18
    - 6.2.2. Gassonic Observer Gain Test ..... 19
    - 6.2.3. Gassonic Observer Delay Test ..... 23
    - 6.2.4. Gassonic Observer Calibration ..... 26
  - 6.3. Gassonic MM0100 Tests ..... 28
    - 6.3.1. Select Gassonic MM0100 ..... 28
    - 6.3.2. Gassonic MM0100 Gain Test ..... 29
    - 6.3.3. Gassonic MM0100 Delay Test ..... 33
  - 6.4. Gassonic EH6028 Tests ..... 36
    - 6.4.1. Select Gassonic EH6028 ..... 36
    - 6.4.2. Gassonic EH6028 Gain Test ..... 37
    - 6.4.3. Gassonic EH6028 Delay Test ..... 40
  - 6.5. Error Messages ..... 44



<b>7. Cleaning and Maintenance .....</b>	<b>46</b>
<b>8. Calibration .....</b>	<b>47</b>
<b>9. Disclaimer, Limitation of Damages and Product Liability .....</b>	<b>48</b>
9.1. The Product .....	48
9.2. Safety Considerations .....	48
9.3. Exclusion and Limitation of Liability .....	48
9.4. Product Liability .....	49

## ABOUT THIS USER GUIDE

This User Guide contains all the necessary information to use, handle and maintain the Gassonic 1701 Portable Test and Calibration Unit in a safe manner.

## SAFETY CONSIDERATIONS

### WARNINGS

- Do not remove or recharge the battery unit in areas with flammable gases/vapours in explosive concentrations.
- Batteries must only be charged using an original charger unit.

### OPERATION CONSIDERATIONS

- Always inform the safety personnel and control room staff before testing the Gas Leak Detectors.
- Only use the Gassonic 1701 within the valid calibration period.

**Copyright @ 2005 Innova Gassonic**

All rights reserved. No part of this publication may be reproduced or distributed in any form, or by any means, without prior consent in writing from Innova Gassonic, Ballerup, Denmark.





## 1. GETTING STARTED

The Gassonic 1701 comes in a waterproof suitcase complete with battery unit and charger.

Before using the Gassonic 1701 for the first time, you must ensure that the battery unit is fully charged. This will take approximately 2 hours.

### **WARNING!**

**Never recharge the battery unit in areas with flammable gases/vapours in explosive concentrations and always use an original battery charger unit.**





## 1.1 INSTALLING THE BATTERY UNIT

1. Locate the battery compartment at the base of the handle of the Gassonic 1701.
2. Rotate the battery unit until the raised moulding on the unit fits into the channel in the Gassonic 1701 housing.



3. Insert the battery unit into the battery compartment
4. Secure the battery unit with 6 Allen screws. These are located in a plastic bag inside the suitcase.





## 1.2 ATTACH THE CARRIER STRAP

The Gassonic 1701 comes complete with an optional carrier strap. This is mounted as follows:

1. Attach the clip to the lower bar of the Gassonic 1701 and wrap the carrier strap around the upper bar:



2. Let the end of the carrier strap go through the slot on the clip that is attached to the lower bar:



3. For additional safety, the wrist straps can be fitted around the wrist of the operator:





## 2. BATTERY CHARGING

The Gassonic 1701 is supplied with a separate battery power unit, containing 5NiMH cells.

### 2.1 When to charge the Gassonic 1701

A symbol in the lower right-hand corner of the Gassonic 1701 indicates when it is time to recharge the Gassonic 1701:



### 2.2 How to charge the Gassonic 1701

The Gassonic 1701 comes with a NiMH fast charger. The maximum charging time for full operation is approx. 2 hours.

To charge the Gassonic 1701:

1. Switch off the Gassonic 1701.
2. Open the rubber lid in the bottom of the Gassonic 1701.
3. Connect the charger to the mains supply.







4. Connect the small DC-plug from the charger to the socket in the bottom of the Gassonic 1701:



Charging is in progress when the red LED on the charger is lit.

### 3. REPLACEMENT OF THE BATTERY UNIT

The battery unit can be charged more than 500 cycles before any decline in its performance is noticeable.

When the capacity of the battery unit starts decreasing, replace the battery unit with a new battery unit.

Open the rubber lid in the bottom of the Gassonic 1701. Unscrew the 6 Allen screws and pull out the old battery unit. Refit a new unit and secure it with the 6 Allen screws.

A replacement battery unit is available from Innova Gassonic, order number: ZG0361B.





## 4. ATTACHING THE GASSONIC 1701 TO THE ULTRASONIC GAS LEAK DETECTOR UNITS



### 4.1 The Gassonic 1701 used with the Gassonic Observer

Turn and lock the Gassonic 1701 onto the detector by using the bayonet connection. Ensure that the two units are flush against each other.

**When the Gassonic 1701 is locked onto the Gassonic Observer, it will keep itself attached.**



### 4.2 The Gassonic 1701 used with the Gassonic MM0100/EH6028

Remove the Allen screw located next to the sensor-head of the Gassonic MM0100/EH6028. Place the detector cap of the Gassonic 1701 over the sensor-head of the Gassonic MM0100/EH6028, ensuring that the tap is inserted in the hole exposed by the removed Allen screw, and that the two units are pushed tightly together.

**When the Gassonic 1701 is locked onto the Gassonic MM0100, it will NOT keep itself attached; you will need to hold it in place on the detector.**





## 5. GASSONIC 1701 FUNCTIONS

### 5.1 Introduction

The Gassonic 1701 is designed for testing the Innova Gassonic ultrasonic gas leak detectors.

The testing options of the Gassonic Observer vary significantly from those of the Gassonic MM0100 and the Gassonic EH6028.

Only alarm trigger level tolerances can be tested on the Gassonic MM0100 and Gassonic EH6028 and if these are not within tolerance the unit must be sent back to the factory for inspection.

The Gassonic MM0100 and Gassonic EH6028 cannot be re-calibrated

The Gassonic Observer, however, has a more sophisticated test and calibration function, which is performed by using the Gassonic 1701.

Acceptable tolerances in all instruments is defined as +/- 3dB

### 5.2 USING THE GASSONIC 1701 ON THE GASSONIC OBSERVER

When using the Gassonic 1701 with the Gassonic Observer, three different operations are available:

- Gain Test
- Calibration
- Delay Test





### 5.2.1 Gain Test

The Gain Test of the Gassonic Observer is a test of the sensitivity of the detectors at four different sound levels: 99 dB, 89 dB, 79 dB, and 64 dB.

The Gain Test is to verify that the acoustic linearity of the Gassonic Observer is within its tolerances, in the full dynamic range.

The Gain Test does not change any settings on the Gassonic Observer.

If the Gain Test reveals that the four test sound levels are within tolerances, the Gassonic Observer does not need to be calibrated.

Before performing the calibration, it should be ensured that the windscreen and microphone of the Gassonic Observer are clean.

### 5.2.2 Calibration

Calibration of the Gassonic Observer should **ONLY** be performed if the Gain Test reveals that one or more of the test sound levels are outside tolerance levels.

The calibration sequence is a fully automated interaction between the Gassonic 1701 and the Gassonic Observer.

Calibration should always be performed if the microphone in the Gassonic Observer has been replaced. How to perform the calibration is described later in this manual.

### 5.2.3 Delay Test

The Delay Test is a test to verify the electrical connection (loop test) between the detector and the control panel (Fire & Gas panel or the DCS system).

In Delay Test mode the Gassonic 1701 will emit a constant high level ultrasonic signal into the Gassonic Observer while a timer indication on the Gassonic 1701 is displaying a count in seconds.

Communication between personnel doing the test at the Gassonic Observer and personnel in the control room can then verify the loop, as well as alarm delays introduced in the DCS system.



## 5.3 USING THE GASSONIC 1701 WITH THE GASSONIC MM0100 AND GASSONIC EH6028

When using the Gassonic 1701 with the Gassonic MM0100 and the Gassonic EH6028, two different operations are available:

- Gain Test
- Delay Test

### 5.3.1 Gain Test

When Gain Testing is performed on the Gassonic MM0100 or the Gassonic EH6028, the adjusted alarm trigger level in the detector is tested and verified by the Gassonic 1701.

This test is an automatic interaction between the Gassonic 1701 and the detector.

If the Gain Test reveals that the detector is outside tolerances, the detector can be sent back to the factory for repair.

How to perform the Gain Test is described later in this manual.

### 5.3.2 Delay Test

The Delay Test is a test to verify the electrical connection (loop test) between the detector and the control panel (Fire & Gas panel or the DCS system).

In delay test mode the Gassonic 1701 will emit a constant high level ultrasonic signal into the Gassonic MM0100 / EH6028 while a timer indication on the Gassonic 1701 will display a count in seconds.

Communication between personnel doing the test at the Gassonic MM0100 / EH6028 and personnel in the control room can then verify the loop, as well as alarm delays introduced in the DCS system.



## 6. USING THE GASSONIC 1701 - STEP BY STEP

This section presents a graphical description of how to perform a test sequence on the Gassonic Observer, MM0100 and EH6028 as well as a calibration on the Gassonic Observer using the Gassonic 1701.

The individual tests and functions are highlighted with a side bar in the following colours.

 = **ON/OFF/LIGHT FUNCTION**

 = **GASSONIC OBSERVER**

 = **GASSONIC MM0100**

 = **GASSONIC EH6028**

 = **ERROR MESSAGE**

## 6.1 ON/OFF/LIGHT FUNCTION

(This sequence can be performed at any point in the menu structure)

To power on the Gassonic 1701:

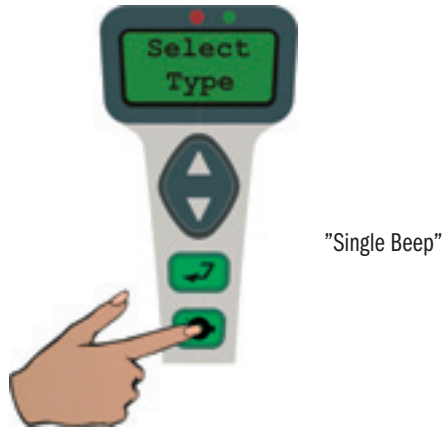


To switch on the backlight in the display and the flash light at the front end of the unit:





To switch off the backlight in the display and the flash-light at the front end of the unit:



To power off the Gassonic 1701, hold down the button for approximately 3 seconds:







## 6.2 GASSONIC OBSERVER TESTS AND CALIBRATION

### 6.2.1 Select Gassonic Observer

From power on and "Select Type", select Gassonic Observer:



Verify type Observer:





### 6.2.2 Gassonic Observer Gain Test

Select the Test gain function:



Verify Test gain function:



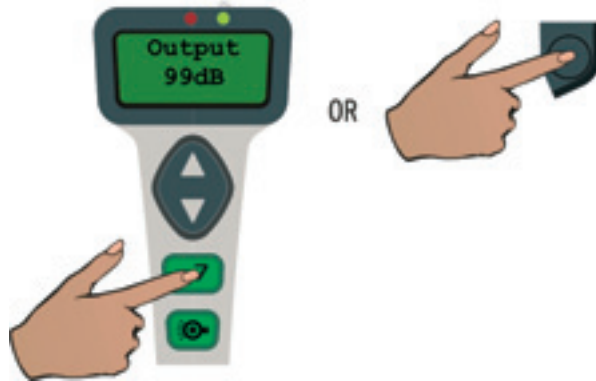
**Turn and lock the Gassonic 1701 over the sensor-head of the Gassonic Observer.**





**Start test:**

The test output will be constant for 8 seconds, then drop to 0dB for 3 seconds, upon which it will return to the constant output for 8 seconds. This sequence will repeat until the test is interrupted. Compare the output on the display of the Gassonic 1701 to that on the display of the Gassonic Observer.



Decrease the output to 89dB:

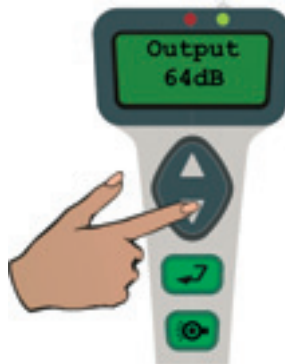




Decrease the output to 79dB:

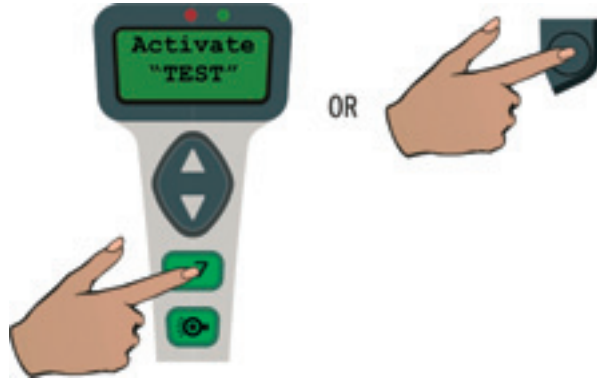


Decrease the output to 64dB:





Stop test:



Move one menu level up to select another Gassonic Observer test:



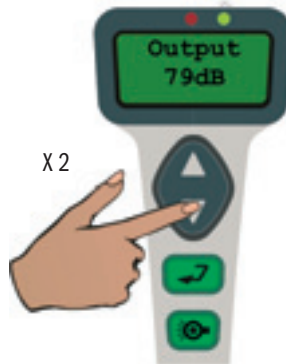


### 6.2.3 Gassonic Observer Delay Test

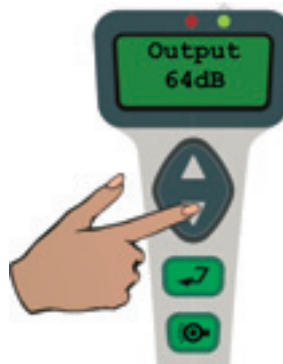
**This test requires communication between the user and the control room.**

**The detector should be inhibited during the test.**

Select the Test delay function:

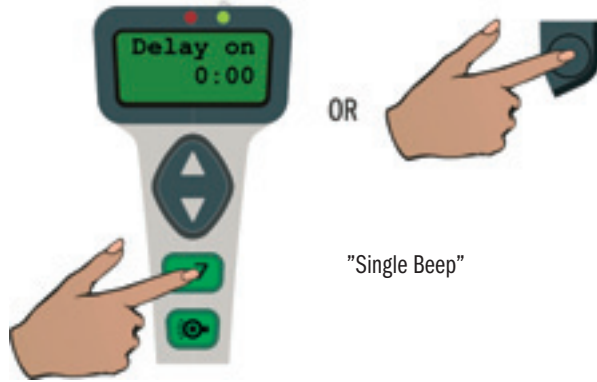


Verify Test delay function:

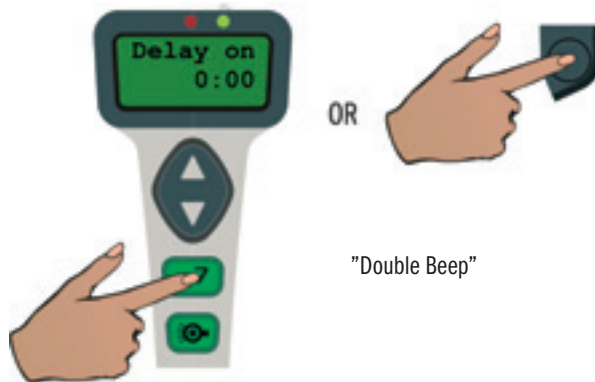




Start test:



The actual test time elapsed is shown on the display. When the control room observes an alarm, press "ENTER" or "TEST" to stop the test. The time readout on the display corresponds to the alarm delay setting of the system. This delay should be at least 10 seconds.





Move one menu level up to select another Gassonic Observer test:



Move another menu level up to select another unit:







### 6.2.4 Gassonic Observer Calibration

Select the Gassonic Observer Calibration function:



Verify Gassonic Observer Calibration function:

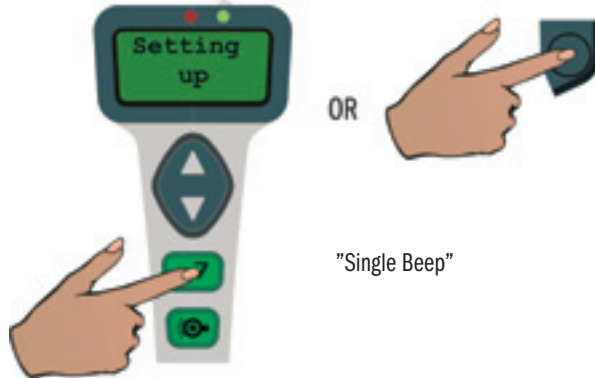


**Set the Gassonic Observer into Calibration Mode (see Installation and User Guide), turn and lock the Gassonic 1701 over the sensor-head of the Gassonic Observer.**





Start Gassonic Observer Calibration:



The calibration is done automatically while "wait..." is displayed on the screen.

End of calibration sequence:



## 6.3 GASSONIC MM0100 TESTS

### 6.3.1 Select Gassonic MM0100

From power on and "Select Type", select Gassonic MM0100:



Verify type MM0100:





### 6.3.2 Gassonic MM0100 Gain Test

Select the Test gain function:

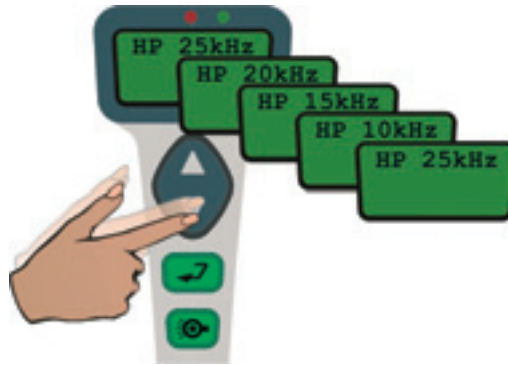


Verify Test gain function:





Select the correct filter setting (corresponding to the internal filter setting on the Gassonic MM0100, which is factory set to 25kHz).



Verify filter setting:

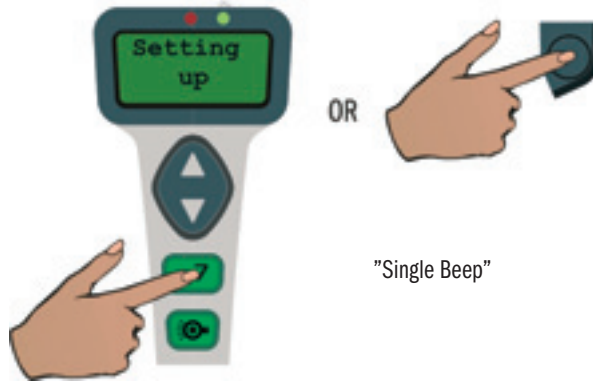


**Remove the Allen screw located next to the sensor-head of the Gassonic MM0100. Place the detector cap of the Gassonic 1701 over the sensor-head of the Gassonic MM0100, ensuring that the tap is inserted in the hole exposed by the removed Allen screw and that the two units are pushed tightly together.**



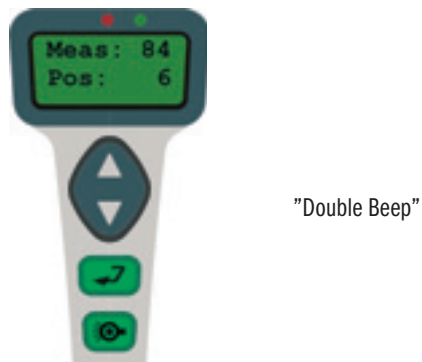


Start the Gassonic MM0100 Gain Test:



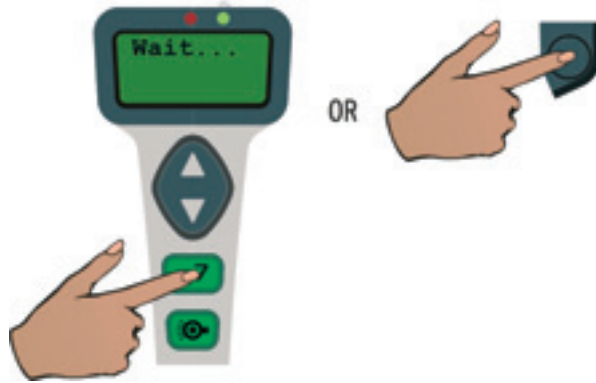
The Gain Test is done automatically while "wait..." is displayed on the screen. Pressing one of the two buttons again will abort the test.

End of gain test sequence:

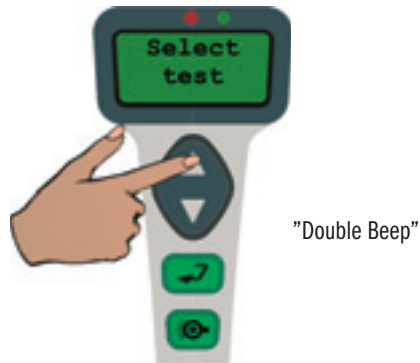




Another gain test can be performed immediately, on the same or another detector, by simply starting the test again.



Move one menu level up to select another Gassonic MM0100 test:



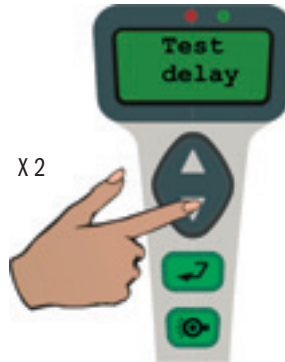


### 6.3.3 Gassonic MM0100 Delay Test

This test requires communication between the user and the control room.

The detector should be inhibited during the test.

Select the Test delay function:



Verify Test delay function:



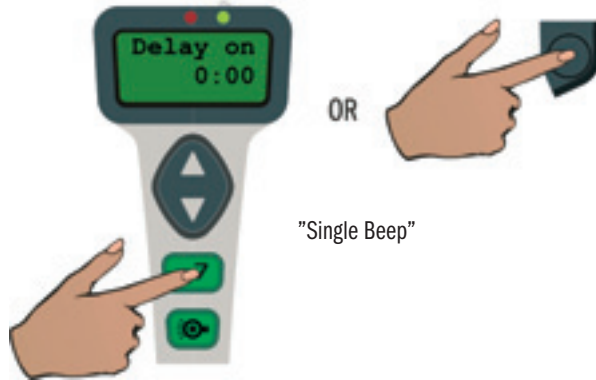
Place the detector cap of the Gassonic 1701 over the sensor-head of the Gassonic MM0100.



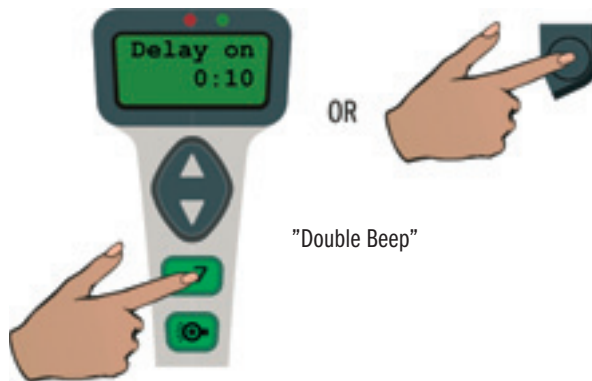




Start test:



The actual test time elapsed is shown on the display. When the control room observes an alarm, press "ENTER" or "TEST" to stop the test. The time readout on the display corresponds to the alarm delay setting of the system. This delay should be at least 10 seconds.





Move one menu level up to select another Gassonic Observer test:



Move another menu level up to select another unit:





## 6.4 GASSONIC EH6028 TESTS

### 6.4.1 Select Gassonic EH6028

From power on and "Select Type", select Gassonic EH6028:



Verify type EH6028:





### 6.4.2 Gassonic EH6028 Gain Test

Select the Test gain function:



Verify Test gain function:

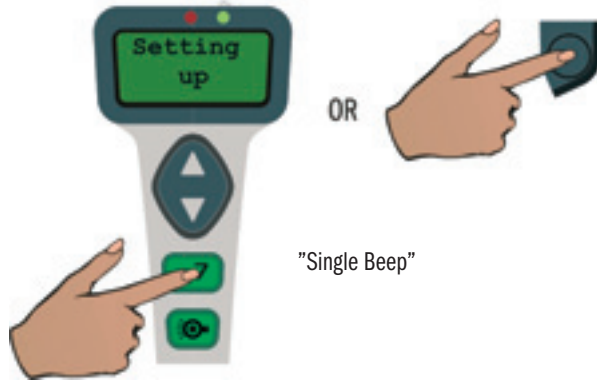


**Remove the Allen screw located next to the sensor-head of the Gassonic EH6028. Place the detector cap of the Gassonic 1701 over the sensor-head of the Gassonic EH6028, ensuring that the tap is inserted in the hole exposed by the removed Allen screw and that the two units are pushed tightly together.**



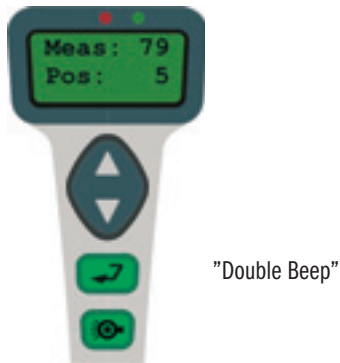


Start Gassonic EH6028 Gain Test:



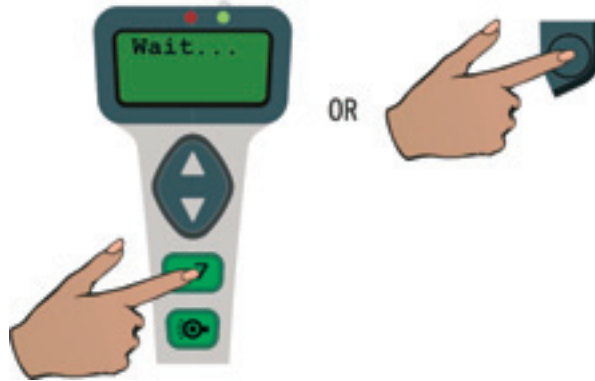
The Gain Test is done automatically while "wait..." is displayed. Pressing one of the two buttons again will abort the test.

End of gain test sequence:

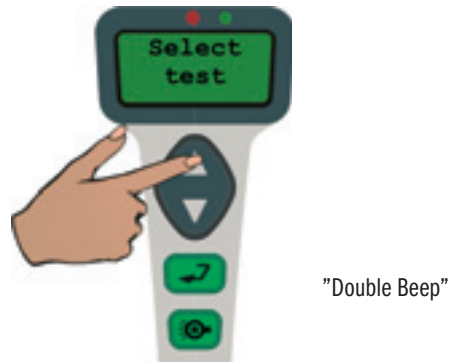




Another Gain Test can be performed immediately, on the same or another detector by simply starting the test again.



Move one menu level up to select another Gassonic EH6028 test:



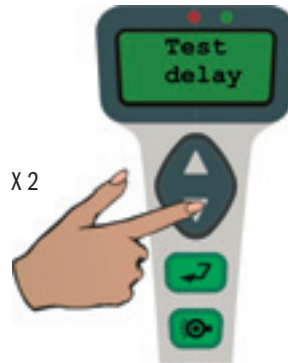


### 6.4.3 Gassonic EH6028 Delay Test

This test requires communication between the user and the control room.

The detector should be inhibited during the test.

Select the Test delay function:



Verify Test delay function:

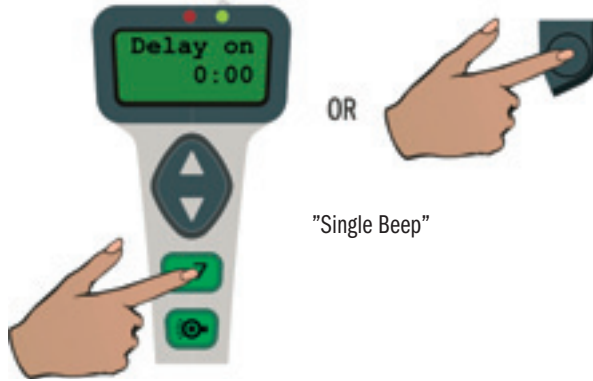


Place the detector cap of the Gassonic 1701 over the sensor-head of the Gassonic EH6028.

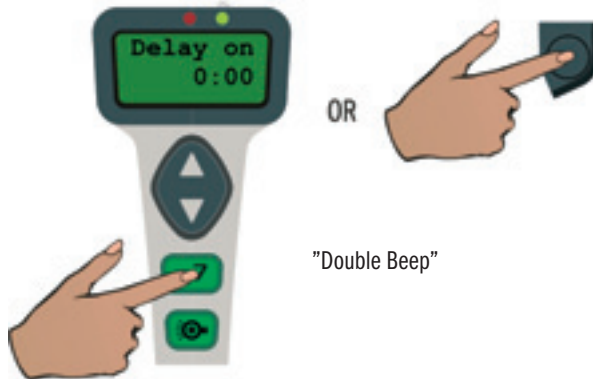




Start test:



The actual test time elapsed is shown on the display. When the control room observes an alarm, press "ENTER" or "TEST" to stop the test. The time readout on the display corresponds to the alarm delay setting of the system. This delay should be at least 10 seconds.







Move one menu level up to select another Gassonic EH6028



Move another menu level up to select another unit:





## 6.5 ERROR MESSAGES

The red LED lights and the following message is displayed when either:

- The Gassonic 1701 is not properly attached to the detector being tested. Or
- The detector being tested is defective.







## 7. CLEANING AND MAINTENANCE

### Cleaning the glass surface on the optical link

Make sure that the glass surface on the optical link is always clean.  
Use a soft cloth with ethanol to clean:



### Removing dirt and lime-scale

Dirt, such as lime-scale, can easily be removed from the water resistant loudspeaker placed inside the top of the Gassonic 1701. Use a clean cloth to wipe away any dirt.





## 8. CALIBRATION

Since the Gassonic 1701 is a calibrating device, the unit itself must be calibrated in frequent intervals. Innova Gassonic recommends that the Gassonic 1701 is calibrated once a year.

For re-calibration, the Gassonic 1701 needs to be sent to Innova Gassonic in Denmark. Please contact your local Innova Gassonic representative for further information.

The order number for re-calibration is UA1095





## 9. DISCLAIMER, LIMITATION OF DAMAGES AND PRODUCT LIABILITY

### 9.1 The Product

The Gassonic 1701 is a hand held testing device for periodical testing of the Innova Gassonic Instrument Ultrasonic Gas Leak Detectors.

The Gassonic 1701 is approved for use in explosive hazardous areas and the Unit can be used in such areas with classification up to EEx ib IIC T3.

### 9.2 Safety Considerations

The battery in the Gassonic 1701 must only be recharged outside explosive areas and the battery as well as other parts of the Gassonic 1701 must only be disassembled outside explosive areas.

The Gassonic 1701 must never be used in explosive areas when the instrument is only partly assembled. Batteries must only be recharged with the original charging unit.

Always inform all safety personnel and control room staff before testing the Ultrasonic Gas Leak detectors.

### 9.3 Exclusion and Limitation of Liability

Innova Gassonic shall in no event be liable directly or indirectly as indemnitor, for any damages or losses whatsoever due to any use of the Product that is not in full compliance with the guidelines or safety considerations issued by Innova Gassonic.



Furthermore, Innova Gassonic shall in no event including negligence on the part of Innova Gassonic be liable directly or indirectly as indemnitor, for indirect, special, incidental, or consequential damages or losses including, but not limited to, loss of income or profit and or loss of opportunities or use.

Innova Gassonic shall in no way be liable for the Product if the Customer has repaired, modified or altered the Product in any way.

The total aggregate liability of Innova Gassonic shall be limited to 250,000.00 DKK.

#### **9.4 Product Liability**

Should the Product cause bodily injury, Innova shall be liable only if it can be proved that such injury was due to negligence on the part of Innova Gassonic or of others for whom Innova Gassonic is responsible.

In no event including negligence on the part of Innova Gassonic shall Innova Gassonic be liable for damage to property caused by the Product during the time when it is in the possession of the Customer. Nor shall Innova Gassonic be liable for damages to products manufactured or extracted by the Customer.

To the extent Innova might incur product liability towards any third party, the Customer shall indemnify Innova Gassonic as far as Innova Gassonic's liability has been limited in the provisions above.

If a claim for damages as described in this clause is lodged by a third party against one of the parties, the latter shall immediately inform the other party thereof. Innova Gassonic shall have sole control of the defence against such action.

Notwithstanding anything else contained in these provisions Innova Gassonic aggregate product liability shall be limited to the obtainable insurance coverage under Innova Gassonic's existing product liability insurance (at the present time 20,000,000.00 DKK)







# GASSONIC 1701

From serial number: 2008-001

BB 6012-01  
CAPITOL COPENHAGEN +45 4580 0831



## **INNOVA GASSONIC**

Energivej 30

DK-2750 Ballerup

Denmark

Tel +45 4420 0100

Fax +45 4420 0101

mail@gassonic.com

www.gassonic.com

