

# Apgar Timer VM3COP47.05

## Technical Manual



**Table of contents**

Section 1	<b>Cautions &amp; warnings</b> – page 2.
Section 2	<b>Cleaning instructions</b> – page 2.
Section 3	<b>Packaging &amp; return information</b> – page 3.
Section 4	<b>Warranty information</b> – page 4.
Section 5	<b>Equipment required to test the Apgar timer</b> – page 4
Section 6	<b>Routine testing of the Apgar timer</b> – page 5
Section 7	<b>Disassembly of the Apgar timer</b> – page 6
	i. Keypad replacement – page 7
	ii. LCD replacement – page 8
	iii. PCB replacement – page 11
	iv. Battery compartment replacement – page 12
Section 8	<b>Manufacturer</b> – page 14

## Section 1 – Cautions & warnings

### **Caution:**

A prerequisite before using this manual is that the user should be familiar with the operation of the Apgar timer in accordance with the operating instructions supplied with the unit.


### **Caution:**

The circuitry inside the Apgar timer does not require any periodic maintenance or calibration. Any sign or evidence of opening the unit or field service by non-Viamed personnel; tampering, or any kind of misuse or abuse of the system shall void the warranty in its entirety. All repairs and service should be performed by Viamed, or a service representative authorized by Viamed.

The Apgar timer is designed to be robust yet compact in size. Without access to specialised equipment, troubleshooting and repair of circuit board components is not feasible.

### **Caution:**

Dispose of used batteries in accordance with local ordinances and regulations.

 There are user-serviceable parts inside the Apgar timer. The casing should only be removed by qualified service personnel.

## Section 2 – Cleaning instructions

### **To surface clean the Apgar timer:**

With reference to the Medical Devices Agency document “Sterilization, disinfection and cleaning of medical equipment: Guidance on decontamination from the Microbiology Advisory Committee to Department of Health Medical Devices Agency” (known as the MAC Manual), “Introduction to Part 1 - Table 1: Classification of infection risk associated with the decontamination of medical devices”; the Apgar timer is classified as low risk, due to being “In contact with healthy skin, or not in contact with the patient”. The recommended decontamination method for low risk items is to clean in accordance with the guidelines in the MAC Manual “Part 2; Cleaning (manual) - non-immersion”.

Use TECcare Control surface wipes or textured surface wipes, these are available from Viamed Ltd.

Alternatively use a soft cloth dampened with either a commercial non-abrasive cleaner, or a solution of 70% isopropyl alcohol in water.

Lightly wipe the surfaces of the unit.

**To disinfect the Apgar timer:**

Use TECcare Control surface wipes or textured surface wipes, these are available from Viamed Ltd.

Alternatively use a soft cloth saturated with a solution of 10% chlorine bleach in tap water.

**Section 3 - Packaging and return procedure**

Obtain a Return Authorization number and shipping instructions before returning a DB3 for service by contacting the manufacturer / service centre:

Viamed Ltd.  
15 Station Road  
Cross Hills  
Keighley  
West Yorkshire BD20 7DT  
United Kingdom

Tel. +44 (0)1535 634542  
Fax. +44 (0)1535 635582  
Email: [info@viamed.co.uk](mailto:info@viamed.co.uk)

Please clean contaminated equipment before returning it to Viamed.  
Follow the cleaning procedures as in Section 2 - do not autoclave.

Package the equipment in the original packaging materials. However, if the original packaging is not available, use a suitable carton with appropriate packing material to protect it during shipping.

Enclose a letter specifying the following items:

1. Return Authorization number obtained from Viamed.
2. Service required:

For repair service please quote reference – 0340015.

Detail any difficulties experienced with the Apgar timer.

For routine service please quote reference – 0380015

For an accuracy test certificate please quote reference – 0380016

Revision date: 17-Aug-17

3. The serial number of the Apgar timer. The serial number label is located inside the battery compartment.
4. The invoicing information of the sender - for returning the serviced Apgar timer and invoicing of any chargeable repair costs.
5. Contact information for any questions about the service; including:  
Name, department and mail/telephone/fax number.

Return equipment by shipping a method that provides proof of delivery.

## **Section 4- Warranty information**

This product is warranted against defects in material and workmanship, and to operate within published specifications under normal use for a period of one year from the date of original shipment. Batteries are not warranted.

To request a warranty claim, contact Viamed for return authorization and instructions.

If an examination by Viamed discloses such products or component parts to be defective, Viamed's sole obligation is limited to repair or replacement (at Viamed's option) of the defective product or component and shall not include shipping costs.

This warranty does not extend to any product that was subject to misuse, neglect or accident; that was damaged by causes external to the product; or that was used in violation of the operating instructions supplied with the product. This warranty does not extend to any product that was modified in any way, or disassembled or reassembled by anyone other than Viamed or an authorized Viamed agent.

This warranty, together with any other express written warranty that may be issued by Viamed is the sole and exclusive warranty as to Viamed's products. This warranty is expressly in lieu of any oral or implied warranties; including without limitation any implied warranty of merchantability or fitness for a particular purpose. Viamed shall not be liable for any incidental, special or consequential loss, damage or expense directly or indirectly arising from the loss of use of any products.

## **Section 5 - Equipment required for testing the Apgar timer**

The Apgar timer should be tested using test equipment: **CE0185**


TF930 3 GHz Counter,

manufactured by Thurlby Thandar Instruments (Aim TTi).

The Apgar timer does not require calibration. However, if a calibration certificate or other accuracy test is required, then the unit can be tested in accordance with the Viamed Apgar timer accuracy test procedure. Quote reference – 0380016

## Section 6 - Routine testing of the Apgar timer

a) Testing the batteries. Using a digital multi-meter, test the voltage of the battery.

-  Ensure that the batteries used are four AA/LR6 alkaline batteries, such as the following:  
Duracell Procell MN1500



b) Routine testing procedure.

Ensure that the batteries of the Apgar timer are in good condition. For optimal performance, batteries should be replaced on an annual basis. If the Apgar timer is to be removed from service or stored, the batteries must be removed.

The LCD flashing between the messages “Lo” and “Batt” indicates a low battery condition, when this message appears, the batteries should be replaced at the earliest opportunity.

To replace the batteries, remove the mounting bracket from the rear of the timer using a 3/16<sup>th</sup> inch Allen Key. Using a flat blade screwdriver, release the battery cover. Remove the existing batteries and insert new ones. (4 x AA/LR6/MN1500 1.5V Alkaline), observing the correct polarity.

## Section 7 – Disassembly of the Apgar timer

-  There are replaceable parts with in the Apgar timer, however, disassembly is not advised. For service or repair, return the unit to Viamed Ltd.
-  The initial disassembly is the same for the replacement of the PCB, keypad or/and the LCD display.

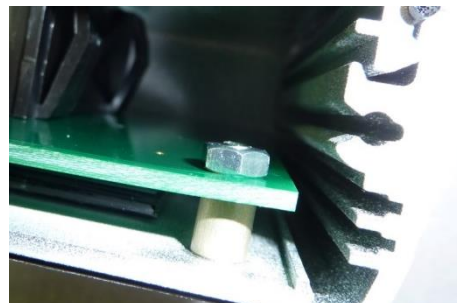
- 1) Remove the batteries from the rear of the case.



- 2) Remove the 4 screw caps and screws from the top and bottom case ends.

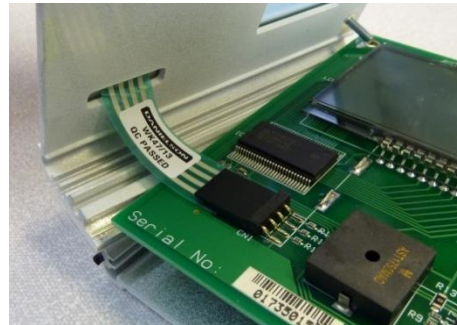


- 3) Remove the retaining nuts from the case threads.





- 4) Separate the case halves, taking care not to strain the keypad ribbon connector then disconnect the keypad connector.



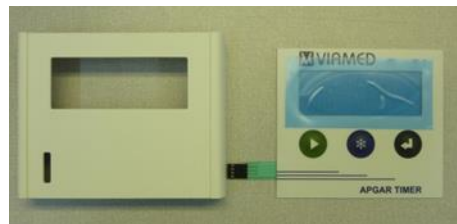
#### Key pad replacement:

The key pad is adhesively attached to the front case panel. The keypad can be removed by carefully lifting one corner and lifting the membrane away. Discard the old keypad.

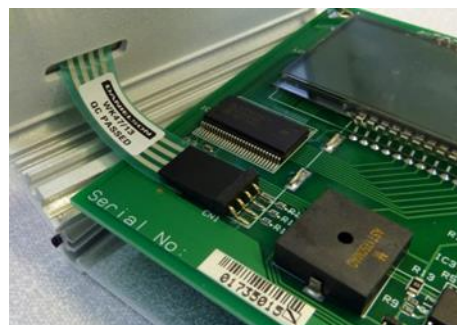
PN:0330570



Peel away the adhesive backing from the keypad. Route the keypad connector through the small hole and stick the keypad down.



Connect the keypad connector to the PCB.



Place the spacers over the retaining screws on the front case.

PN:0330566 – PCB spacer

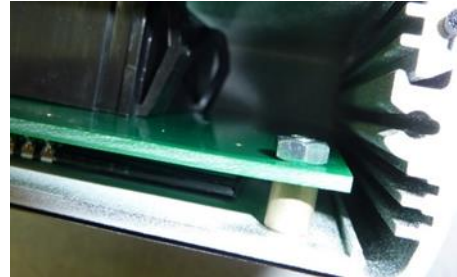




Guide the screws through the holes in the PCB then span the two case halves together.



Using a 5.5mm spanner, affix the retaining nuts to each screw thread.



PN:0330567 – M3 hex nut

Position the top cap on the case, ensure that the seal is correctly located. Using a torx T-10 driver, screw the cap down. Repeat the process for the bottom cap.



Insert the screw covers to all four screw holes.



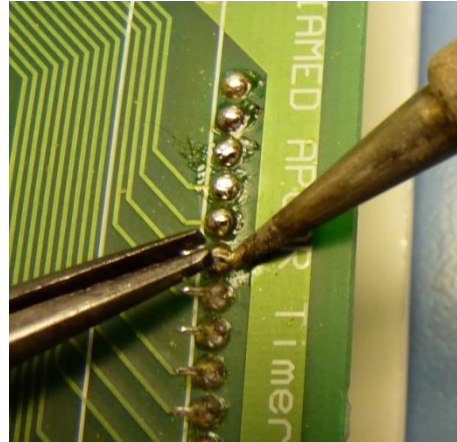
#### **LCD replacement:**

The LCD is soldered directly to the main PCB. It is difficult to desolder the LCD. Carefully, cut each of the LCD contacts, leave a good length to the remaining pin, to aid extraction.

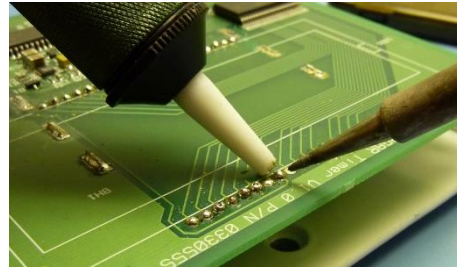


PN:0330575 – Apgar timer LCD

Using long nose pliers and a soldering iron, remove the remaining contact.



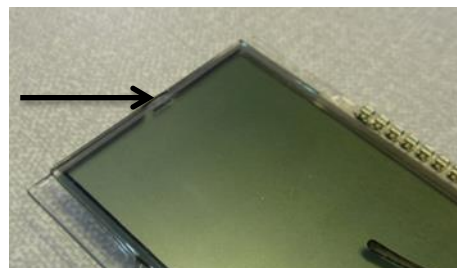
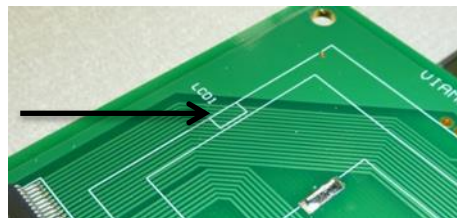
Clean any excess solder from the PCB contacts.



The PCB is now ready for the replacement LCD.



Locate the display orientation markers on the PCB and LCD.



With the orientation markers aligned, insert the LCD contacts into the PCB.



Support the display at each end.



Solder the LCD to the PCB then remove the supports.



Remove the protective film from the LCD.



Follow the steps previously mentioned in the keypad replacement section to re-assemble.





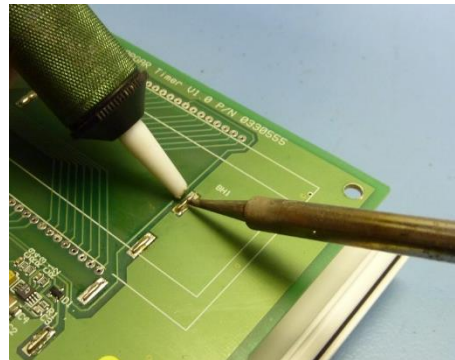
**PCB replacement:**

It will be necessary to remove the LCD before the PCB can be replaced. It is advised, that the battery compartment and contacts be replaced at the same time as the PCB.

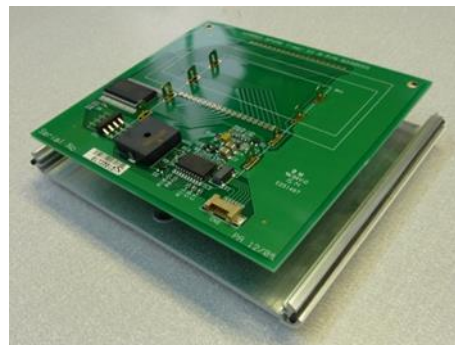
PN:0330555 – Apgar timer PCB



The PCB is held in place with the battery contacts. Desolder the battery contacts to remove the PCB.



Place the PCB over the battery contacts.



Ensure that the PCB is flush to the battery compartment, then solder the contacts to the PCB.



Trim away the excess battery contact tab.



Follow the steps previously mentioned in the keypad replacement section and LCD replacement section, to re-assemble.

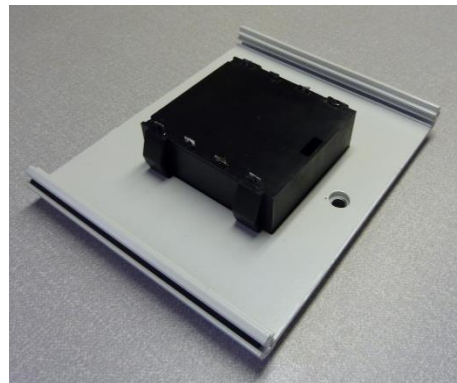


### **Battery compartment / contacts replacement:**

It will be necessary to remove the LCD and PCB before the battery compartment before the contacts can be replaced.

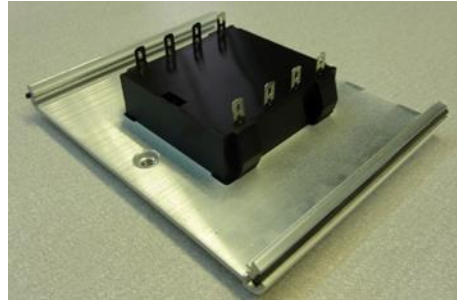
PN:0330558 – Battery holder

The battery compartment can be removed by pushing it through the rear side of the case.



Insert the battery compartment into the rear case panel.





Follow the steps previously mentioned in the keypad replacement section, LCD replacement section and PCB replacement section, to re-assemble.



## **Section 8 - Manufacturer**

Viamed Ltd.  
15 Station Road  
Cross Hills  
Keighley  
West Yorkshire BD20 7DT  
United Kingdom

Tel: +44 (0)1535 634542  
Fax: +44 (0)1535 635582  
Email: [info@viamed.co.uk](mailto:info@viamed.co.uk)  
Website: [www.viamed.co.uk](http://www.viamed.co.uk)

### **Quality standards accreditations:**

BS EN ISO 9001-2000  
ISO 13485-2003  
CMDCAS

### **Waste Electrical and Electronic Equipment Regulations 2006:**

Environment Agency producer registration number - WEE/DD1952ZQ

**Note:** Specifications subject to change.

Please contact Viamed for further specifications and information.