

BMM[®] System Manual

BMM Activator

Type 5

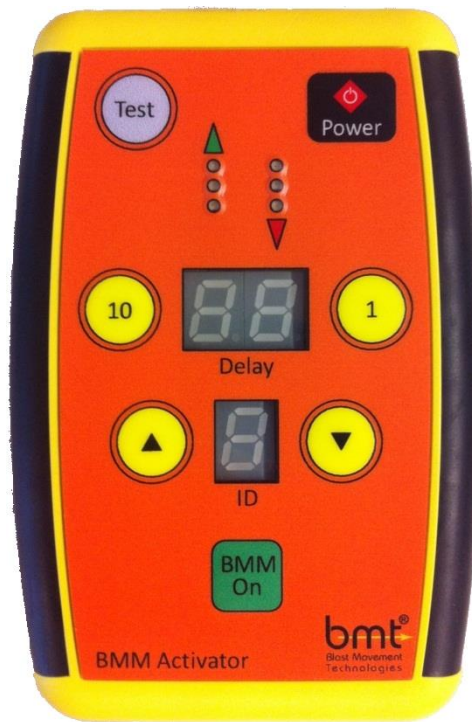


TABLE OF CONTENTS

BMM® System Manual _____ **1**

BMM Activator _____ **1**

1 Introduction _____ **1**

2 Using the BMM activator _____ **1**

 2.1 Hardware.....1

 2.2 Quick Start.....2

 2.3 Test Button.....3

 2.4 Delayed Start-up3

 2.5 Miscellaneous.....3

3 Troubleshooting _____ **4**

4 Specifications _____ **4**

1 INTRODUCTION

Blast Movement Monitors (BMM®s) are delivered to site with the transmitter in a low power hibernation state. The BMM® transmitter must be switched on **before** installation into the blast.

The BMM® can only be switched on by a specially coded signal which eliminates accidental activation. The BMM Activator (*Activator*) is a remote control device that provides the signal to turn a BMM® on and to also assign a delayed start-up time if required. It is also useful to quickly determine if a BMM® is transmitting.

The signal from the *Activator* is low power to limit its range to approximately 0.5 m. This is to control which BMM®s are switched on.

WARNING *All BMM®s that are within range of the Activator will switch on when the BMM On button is pressed. Ensure other BMM®s are well out of range (several metres to be certain) of the BMM® to be turned on or programmed. Do not play with the Activator anywhere near BMM®s. Store BMM®s in a separate location to the Activator*

2 USING THE BMM ACTIVATOR

2.1 Hardware

The *Activator* consists of a tough ABS plastic case with a sealed low-profile keypad. The battery compartment can be accessed by pressing and sliding a section at the back of the case. Use a good quality 9 V alkaline or rechargeable Nickel Metal Hydride (NiMH) battery.

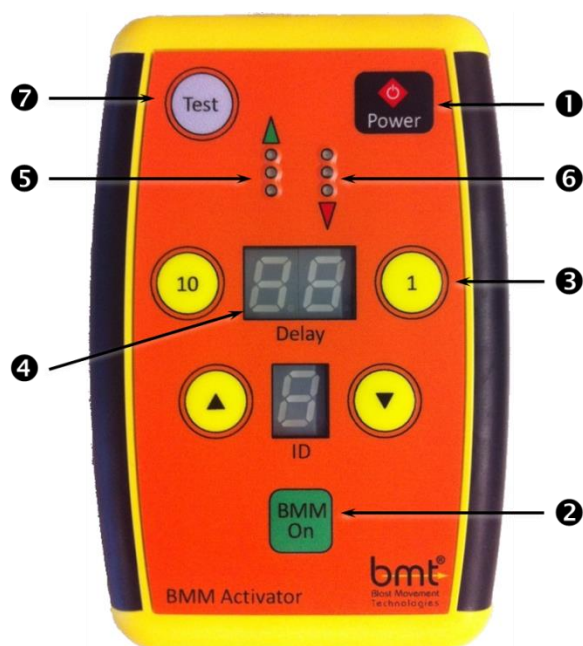
The BMM® System kit is supplied with an Aquapak. It is a transparent case that is 100% waterproof when closed. It has a cord for hanging around the user's neck, which frees up hands for other tasks and eliminates the chance of dropping the *Activator* into a blast hole.



- i** It is strongly advised that the *Activator* be placed inside the supplied Aquapak and hung around the user's neck.

2.2 Quick Start


- Turn the *Activator* on by pressing the **Power** button **1**. The digital display **4** will quickly show the battery voltage, and then show “00”. Once less than 8.5, it is close to flat so have a spare battery available.
- Press the yellow **1 or 10** button **3** to select the desired start-up delay time in multiples of 4 hours up to a maximum of 36 hours. The display **4** shows the actual delay in hours.
- Position the *Activator* close to the BMM® to be switched on (within 100 mm), and press the green **BMM On** button **2** briefly – the green (transmit) LEDs **5** will illuminate briefly. Activation is more reliable if the *Activator* is pointing down at the BMM® (approx. 45°) as shown in the photo in Section 2.1.
- If the transmitter switches on, the red (receive) LEDs **6** will illuminate and an audible tone will be generated at regular intervals (beep, beep, beep...).
- Keep the *Activator* within range of the BMM® for at least ten seconds, to make sure the BMM® continues to transmit. As a final check to make sure the BMM® is still transmitting, move the *Activator* out of range of the BMM® and then back within range.
- If the BMM® does not turn on, the respective transmit and receive aerials may be unfavourably orientated, so move the *Activator* around the BMM® by 90° and try again.





WARNING *The BMM® cannot be switched off once activated*

- **i** In the future, the BMMs will be able to be assigned an ID code that will make each one uniquely identifiable in a blast. The Type 5 *Activator* has been designed with this feature but it is not enabled at this time.

2.3 Test Button

-  The *Test* function only confirms that the BMM® is functioning by turning it on briefly. It is not necessary to use this during normal use and it is best to avoid using this function onsite.

If Test Mode has to be used to confirm a BMM® is functioning, position the activator as previously described and press the grey *Test* button  (the display  can be any number). The BMM® will then transmit for about **five seconds** and then turn off, ready to be switched on normally.

2.4 Delayed Start-up


The BMM® transmits at constant power for about 10 – 12 hours so to accurately calculate the depth of the BMM®s after the blast, they must be located within this period. The BMM® will continue to transmit for about 24 hours beyond this time (total ~36 hrs) but the signal will slowly decrease and eventually switch off. If the BMM® is located after the initial 10 hr period, its horizontal location will be accurate but not its depth. The delayed start-up feature was specifically designed for mines that could not access the muckpile immediately after blasting due to light and/or safety reasons. It can also be used to install the BMM®s well before the blast for operational reasons.

Once activated with a delayed start-up, the BMM® will transmit for approximately **15 minutes** before switching off and *sleeping* for the requested period. At the end of the delay period, it will transmit normally until the battery goes flat – just as it does with zero delay. Refer to the “Monitoring Procedure Manual” for more information about how the delayed start may be used.

Delays can be set in multiples of 4 hours, up to 36 hours. The displayed number is the *actual delay in hours*, which is **different to the old Type 4 Activator**.

WARNING *Once a BMM® is activated for delayed start-up it cannot be changed. That is, it cannot be switched off nor be made to switch on earlier or later.*

2.5 Miscellaneous

The *BMM Activator* is also useful to quickly determine if a BMM® is transmitting since the red receive LED  will illuminate intermittently with sound whenever a BMM® signal is detected.

3 TROUBLESHOOTING

Fault	Solution
The <i>Activator</i> won't turn on	<ul style="list-style-type: none"> • Check the status of the battery and replace as necessary.
The display turns off during operation	Low battery – replace
BMM® won't turn on	<ul style="list-style-type: none"> • Change proximity of <i>Activator</i> and transmitter and try again...and again. • Confirm that the green button is depressed until the transmit LEDs flash. • Install an appropriate fresh battery. The transmit power may be below the required threshold. • The BMM® transmitter may be faulty. Set it aside, mark it appropriately and contact BMT.

4 SPECIFICATIONS

Battery Type: 9V PP Alkaline or rechargeable NiMH

Transmission frequency: 111.1 KHz

Equivalent Isotropically Radiated Power (EIRP): 2.5 μ W

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This device complies with part 15 of the FCC rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) This device must accept any interference received, including interference that may cause undesired operation. Changes or modifications not expressly approved by the manufacturer could void the user's authority to operate the equipment.

DISCLAIMER

While every effort has been made to ensure the *BMM Activator* functions as specified in this manual, Blast Movement Technologies makes no guarantee to its continued function, except that should it cease to function as specified, a replacement unit will be provided.

Please read the operating manual prior to using the *BMM activator*.

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