

**Bistable Linear Moving Magnet  
PRODUCT AND WARRANTY INFORMATION**

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**Version : 1.0  
Date : 25/07/2013**

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## **CAUTION: READ BEFORE OPENING**

For safety purposes these instructions must be read before use of this product.

BLMM product is not warranted against mechanical damage resulting from improper use, wherein excessive force, voltage or current that are outside specified range are applied.

Only qualified personnel should work on or around this equipment and only after becoming thoroughly familiar with all warnings, safety notices, and procedures contained herein.

The successful and safe operation of this equipment is dependent on proper handling, installation and operation.

A "qualified person" is one who is familiar with the installation, construction and operation of the equipment and the hazards involved. In addition, he/she has the following qualifications:

- is trained and authorized to energize, de-energize, clean, and ground equipment in accordance with established practices,
- is trained in the proper care and use of protective equipment in accordance with established safety practices.

<b>1.</b>	<b>GENERAL</b>	<b>4</b>
<b>2.</b>	<b>MOUNTING PROCEDURES</b>	<b>5</b>
2.1.	BLMM-1 mechanical interfaces	5
2.2.	BLMM-1 Electrical connections	5
<b>3.</b>	<b>WARRANTY CONDITIONS AND EXCEPTIONS</b>	<b>6</b>
<b>4.</b>	<b>INSPECTION UPON RECEIPT</b>	<b>6</b>
<b>5.</b>	<b>AFTER-SALE SERVICE</b>	<b>6</b>
	<b>ANNEX 1: UNDERSTANDING THE FACTORY VERIFICATION SHEET</b>	<b>7</b>
	<b>ANNEX 2: TROUBLE SHOOTING FORM</b>	<b>8</b>

## **1. GENERAL**

BLMM must be handled carefully due to his light mass, compact volume and small force capability. Lifetime of BLMM is limited by self heating of the coil and bearing wear.

The lifetime and performances of a BLMM Actuators are a function of many combined parameters; the most influencing being the applied voltage & current, the temperature, the humidity and external vibrations.

Performances in technical datasheet of our actuators are given for a temperature between 15°C and 25°C and humidity of less than 50% with non condensed water.

A high self heating of the BLMM may occur during a long use in dynamic operation with operating frequency higher than 1 Hz. This can lead to electrical breakdown of the coil.

**When driving the BLMM, it is recommended to apply pulsed width signal of 2 ms with a max duty cycle of 2%. It is forbidden to apply DC voltage and current for more than 1 second and to apply more than 15 switches per second.**

The mechanical installation or the induced moments under operation by the mechanism are the main sources of failure.

## 2. MOUNTING PROCEDURES

### 2.1. BLMM-1 MECHANICAL INTERFACES

There are no mechanical interfaces on the BLMM-1 (see figure 2.1). The mounting of the BLMM-1 body and the payload on the moving shaft will be done either by glue or clamp.

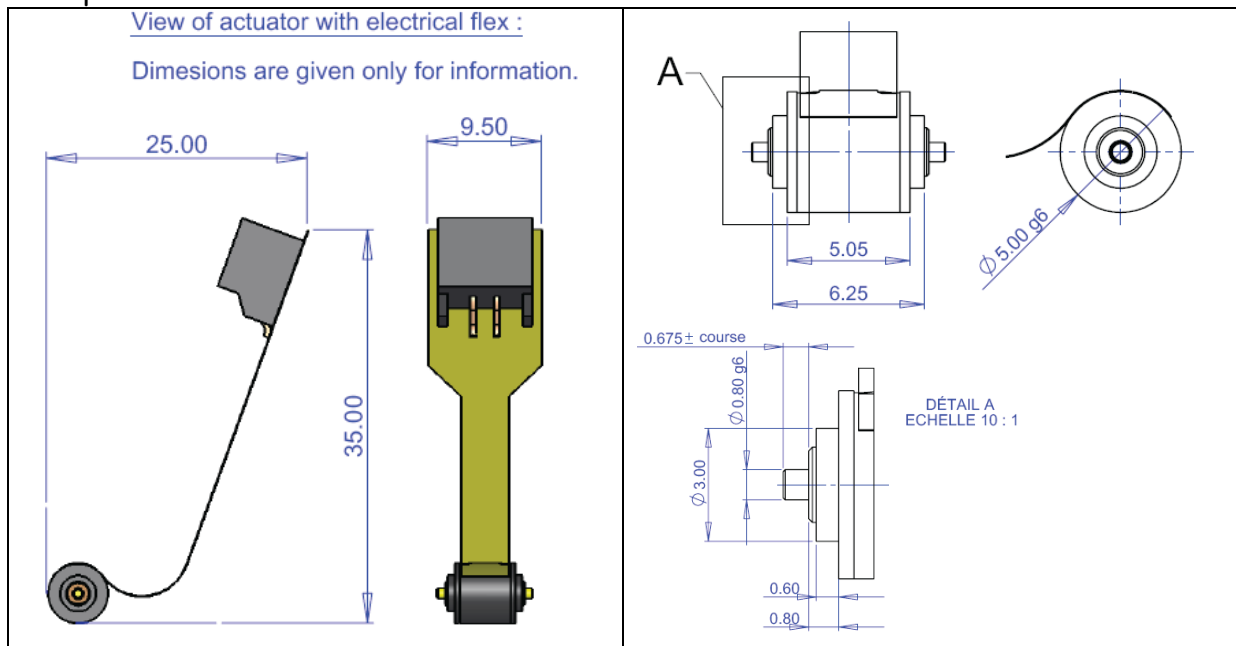


Figure 2.1: Mechanical interfaces of the BLMM-1

It is recommended not to fix payload with mass bigger than 0.05 grams on the shaft. Care must be taken to avoid torque or twist in the actuator's shaft.

It is furthermore recommended to handle with care and not to clamp the body at the PCB flex location.

### 2.2. BLMM-1 ELECTRICAL CONNECTIONS

The BLMM electrical connection is made of 2 pins. The nominal switching current and voltage shall be respectively less than +/- 1.2 A and +/- 3V for a max 2 ms switching time.

**CAUTION:** *It is recalled that the actuator must be driven with pulse signal and not continuous DC signal.*

### **3. WARRANTY CONDITIONS AND EXCEPTIONS**

The equipment is warranted for a period of one year from date of shipment, including parts and labor, and only under standard technical conditions as outlined above and expressly mentioned in the technical data sheet. Repairs will be carried out at Cedrat Technologies or through your vendor. During the warranty period, Cedrat Technologies will, at its option, either repair or replace products which prove to be defective.

**Interventions or attempts to service or repair the Actuators by any unauthorized persons will invalidate this warranty.**

In addition, this warranty will not apply if the actuator is subjected to any of the following:

- improper handling, including, but not limited to, shocks and abrasions
- improper installation, including, but not limited to, excessive mechanical forces and moments, failure to use the standard electrical and mechanical interfaces
- excessive voltage and current, including, but not limited to, peak values outside the recommended operating range, DC values applied for excessive time periods
- inappropriate environmental conditions, including, but not limited to, high temperatures or high humidity
- attempt to modify the standard electrical connection of the BLMM (soldering out of electrical wires, plugs change,...) or the standard mechanical interfaces

No other warranty is expressed or implied. Cedrat Technologies specifically disclaims the implied warranties of merchantability and fitness for a particular purpose

### **4. INSPECTION UPON RECEIPT**

This product has been inspected and shown to operate correctly at the time of shipment, as verified by the Factory Verification form that accompanies the actuator.

Immediately upon receipt of the product, it should be inspected carefully for any signs of damage that may have occurred during shipment. If any damage is found, a claim should be filed with the carrier.

The package should also be inspected for completeness according to the enclosed packing list. If an order is incorrect or incomplete, contact your distributor.

### **5. AFTER-SALE SERVICE**

If a device requires service, please contact Cedrat Technologies or your local vendor. Please include the device model and serial number in all correspondence with Cedrat Technologies or your vendor.

# **ANNEX 1: UNDERSTANDING THE FACTORY VERIFICATION SHEET**

## **ANNEX 2: TROUBLE SHOOTING FORM**

In case of trouble or breakdown with the BLMM,

- Please check the electrical impedance (Inductance and insulation resistance) of the actuator and communicate it to your vendor.

This form must be completed by the customer in order to:

- allow Cedrat Technologies to authorise the product return back to the factory,
- help Cedrat Technologies in repairing it.

**Product:** Please mention here the references and delivery date,

**History:** Please summarise here every action which has been performed with the device since the delivery,

**Problem description:** Please describe here the problems