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User's Manual

PMM SB-10

SWITCHING CONTROL BOX

SERIAL NUMBER OF THE INSTRUMENT

You can find the Serial Number in a side of the box.

Serial Number is in the form : 0000X00000.

The first four digits and the letter are the Serial Number prefix, the last five digits are the Serial Number suffix. The prefix is the same for identical instruments, it changes only when a configuration change is made to the instrument.

The suffix is different for each instrument.

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NOTE:

If the instrument is used in any other way than as described in this Users Manual, it may become unsafe

Before using this product, the related documentation must be read with great care and fully understood to familiarize with all the safety prescriptions.



To ensure the correct use and the maximum safety level, the User shall know all the instructions and recommendations contained in this document.

This product is a **Safety Class III** instrument according to IEC classification and has been designed to meet the requirements of EN61010-1 (Safety Requirements for Electrical Equipment for Measurement, Control and Laboratory Use).

In accordance with the IEC classification, the power supply of this product meets requirements **Safety Class II** and **Installation Category II** (having double insulation and able to carry out mono-phase power supply operations).



This product has a **Pollution Degree II** normally only non-conductive pollution occurs. Occasionally, however, a temporary conductivity caused by condensation must be expected.

The information contained in this document is subject to change without notice.

KEY TO THE ELECTRIC AND SAFETY SYMBOLS:

You now own a high-quality instrument that will give you many years of reliable service. Nevertheless, even this product will eventually become obsolete. When that time comes, please remember that electronic equipment must be disposed of in accordance with local regulations. This product conforms to the WEEE Directive of the European Union (2002/96/EC) and belongs to Category 9 (Monitoring and Control Instruments).



You can return the instrument to us free of charge for proper environment friendly disposal. You can obtain further information from your local NARDA Sales Partner or by visiting our website at www.narda-sts.it.



Warning, danger of electric shock



Earth



Read carefully the Operating Manual and its instructions, pay attention to the safety symbols.



Unit Earth Connection



Earth Protection



Equipotential

KEY TO THE SYMBOLS USED IN THIS DOCUMENT:



DANGER

The DANGER sign draws attention to a potential risk to a person's safety. All the precautions must be fully understood and applied before proceeding.



WARNING

The WARNING sign draws attention to a potential risk of damage to the apparatus or loss of data. All the precautions must be fully understood and applied before proceeding.



CAUTION

The CAUTION sign draws attention against unsafe practices for the apparatus functionality.



NOTE:

The NOTE draw attention to important information.

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SAFETY RECOMMENDATIONS AND INSTRUCTIONS

This product has been designed, produced and tested in Italy, and it left the factory in conditions fully complying with the current safety standards. To maintain it in safe conditions and ensure correct use, these general instructions must be fully understood and applied before the product is used.

- When the device must be connected permanently, first provide effective grounding;
- If the device must be connected to other equipment or accessories, make sure they are all safely grounded;
- In case of devices permanently connected to the power supply, and lacking any fuses or other devices of mains protection, the power line must be equipped with adequate protection commensurate to the consumption of all the devices connected to it;
- In case of connection of the device to the power mains, make sure before connection that the voltage selected on the voltage switch and the fuses are adequate for the voltage of the actual mains;
- Devices in Safety Class I, equipped with connection to the power mains by means of cord and plug, can only be plugged into a socket equipped with a ground wire;
- Any interruption or loosening of the ground wire or of a connecting power cable, inside or outside the device, will cause a potential risk for the safety of the personnel;
- Ground connections must not be interrupted intentionally;
- To prevent the possible danger of electrocution, do not remove any covers, panels or guards installed on the device, and refer only to NARDA Service Centers if maintenance should be necessary;
- To maintain adequate protection from fire hazards, replace fuses only with others of the same type and rating;
- Follow the safety regulations and any additional instructions in this manual to prevent accidents and damages.

EC Conformity Certificate

(in accordance with the directives: EMC 89/336/EEC and low voltage 73/23/EEC)

This is to certify that the product: PMM SB-10 Switching Control Box

Produced by: Narda Safety Test Solutions S.r.l.
Via Benessea 29/B
17035 Cisano sul Neva (SV) - ITALY

complies with the following European Standards
Safety: CEI EN 60950 - CEI EN 60950/A4 – CEI EN 60950/A11
EMC: EN 61326-1 - EN 61326/A1

This product complies with the requirements of the Low Voltage Directive 73/23/EEC, amended by 93/68/EEC, and the EMC Directive 89/336/EEC amended by 92/31/EEC, 93/68/EEC, 93/97/EEC.

NARDA S.r.l.

1 - General Information

1.1 Documentation

Enclosed with this manual are:

- a service questionnaire to send back to NARDA in case of equipment service is needed
- an accessories check list to verify all accessories enclosed in the packaging.

1.2 Introduction to PMM SB-10

The PMM SB-10 Switch Control Box is a versatile and expandable accessory for the electric and magnetic fields and electrosmog measurement devices family.

Either the OR-03 Optical Repeater with all their field probes and the EP60X series are supported. The EHP-50, EHP-50A, EPH-50B, EHP-50C, EHP-50D and EHP-50E are not supported.

One PMM SB-10 allows to take field measurement with up to 10 measuring devices connected at the same time, either placed in different measuring points and/or working on different frequency and full scale ranges. It is possible to have a chain up to five SB-10 to connect up to 50 remote devices.

The PMM SB-10 is powered by an External DC supply or by a PC with appropriate USB A or B type cable. With the USB it is possible to supply only up to three SB-10 (30 remote devices).

One PMM SB-10 allows to connect up to ten devices via optical fiber to the Personal Computer by a single RS232 interface connection. Besides, using one free USB port, you can connect another SB-10 with low consumption.

1.3 Standard accessories

The standard accessories included with PMM SB-10 are:

- External DC supply (DC 12 V, 1.25 A)
- USB cable, type A-B (1.8 m long);
- RS232 serial cable with 9/25 pin adapter (2 m long);
- SB-10 to SB-10 Expansion cable (20 cm long);
- Optical connectors protection caps (20 pcs)
- Operating Manual;
- Certificate of Compliance;
- Return for Repair Form.

1.4 Main specifications The following Table list the PMM SB-10 performance specifications.

The following conditions apply to all specifications:

- The ambient temperature shall be -10° to 40° C.

TABLE 1-1 PMM SB-10 Technical specifications

Compatibility	with all filed probe via OR-03 optical repeater
External DC supply	DC, 12 V, I = 1.25 A or connect or PC USB (A or B type) port.
Optical fiber connection	up to 80 m long
Connections	Up to ten devices connected via optical fiber, expandable up to five PMM SB-10 for a total of 50 measuring devices connected. Via RS-232 serial port for remote operation and firmware update.
Operating temperature	-10 to +40°C
Storage temperature	-20 to +70°C
Dimensions (H x W x D)	Metal case (HxWxD) 37 x 280 x 219 mm
Weight	1300 g

1.5 Optional accessories

The following accessories can be ordered as options:

- Electric Field Probe EP-105 (100 KHz – 1000 MHz) 0.05 – 50 V/m
- Electric Field Probe EP-300 (10 kHz - 3 GHz) 0,1 - 300 V/m
- Electric Field Probe EP-330 (100 kHz - 3 GHz) 0,3 - 300 V/m
- Electric Field Probe EP-301 (100 kHz – 3 GHz) 1 – 1000 V/m
- Electric Field Probe EP-333 (100 kHz – 3.6 GHz) 0.15 – 300 V/m
- Electric Field Probe EP-183 (1 MHz – 18 GHz) 0.8 – 800 V/m
- Electric Field Probe EP-408 (1 MHz – 40 GHz) 0.8 – 800 V/m
- Electric Field Probe EP-44M (100 kHz – 800 MHz) 0.25 – 250 V/m
- Electric Field Probe EP-33M (700 MHz – 3 GHz) 0.3 – 300 V/m
- Electric Field Probe EP-33A (925 MHz - 960 MHz) 0,03 - 30 V/m
- Electric Field Probe EP-33B (1805 MHz - 1880 MHz) 0,03 - 30 V/m
- Electric Field Probe EP-33C (2110 MHz - 2170 MHz) 0,03 - 30 V/m
- Electric Field Probe EP-201 (60 MHz - 12 GHz) 3 - 500 V/m
- Electric Field Probe EP-600 (100 kHz – 9.25 GHz) 0.14 - 140 V/m
- Electric Field Probe EP-601 (10 kHz – 9.25 GHz) 0.5 - 500 V/m
- Electric Field Probe EP-602 (5 kHz – 9.25 GHz) 1.5 - 1500 V/m
- Electric Field Probe EP-603 (300 kHz - 18 GHz) 0.17 - 170 V/m
- Electric Field Probe EP-645 (100 kHz – 6.5 GHz) 0.35 - 450 V/m
- Electric Field Probe EP-745 (100 kHz - 7 GHz) 0.35 - 450 V/m
- Magnetic Field Probe HP-032 (0.1 – 30 MHz) 0.01 – 20 A/m
- Magnetic Field Probe HP-102 (30 MHz – 1000 MHz) 0.01 – 20 A/m
- Magnetic field Probe HP-050 (10 Hz – 5 kHz) 10 nT – 40µT
- Magnetic field Probe HP-051 (10 Hz – 5 kHz) 50 nT – 200µT
- FO-8053/10 Fiber Optic Cable (10m)
- FO-8053/20 Fiber Optic Cable (20m)
- FO-8053/40 Fiber Optic Cable (40m)
- FO-8053/80 Fiber Optic Cable (80m)
- OR-03 Programmable Optical Repeater

1.6 Front panels

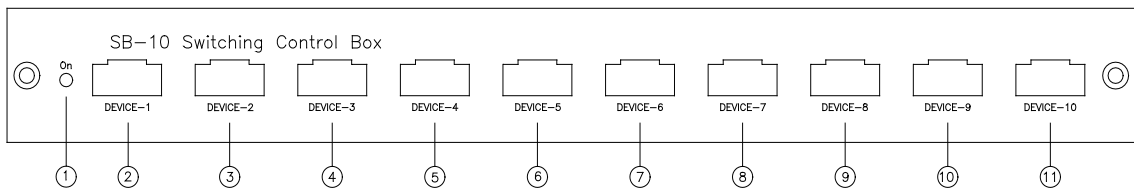


Fig. 1-1 Front panel

Legend:

1. On Led ;
2. Device-1 Fiber optic connector;
3. Device-2 Fiber optic connector;
4. Device-3 Fiber optic connector;
5. Device-4 Fiber optic connector;
6. Device-5 Fiber optic connector;
7. Device-6 Fiber optic connector;
8. Device-7 Fiber optic connector;
9. Device-8 Fiber optic connector;
10. Device-9 Fiber optic connector;
11. Device-10 Fiber optic connector.

1.7 Rear panels

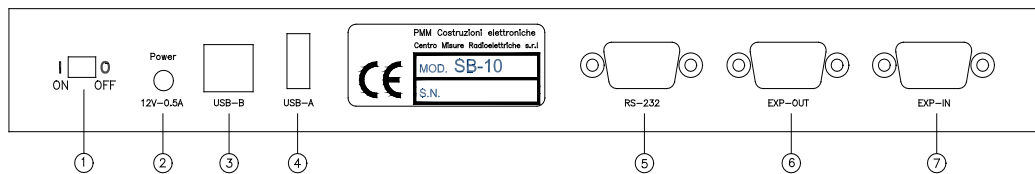


Fig. 1-2 Rear panel

Legend:

1. Power On/Off push-button;
2. External DC supply connector
3. USB type B connector;
4. USB type A connector;
5. RS 232 Connector
6. Expansion out connector;
7. Expansion in connector.

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2 - Installation and use

2.1 Introduction

This section provides the information needed to install and use your PMM SB-10 Switching Control Box.

It includes the information pertinent to initial inspection, power requirements, connections, operating environment, instrument mounting, cleaning, storage and shipment.

2.2 Initial inspection

When receiving the equipment, first inspect the shipping card box for any damages.

If the shipping box is damaged, it should be kept until the contents of the shipment have been checked for completeness and the instrument has been checked mechanically and electrically.

2.3 Packing and Unpacking

Verify the availability of all the shipped items with reference to the shipping check list enclosed with the Operating Manual.

Notify any damage to the forwarder personnel as well as to your NARDA Representative.



To avoid further damage, do not turn on the instrument when there are signs of shipping damage to any portion of it.

2.4 Environment

The operating environment of the PMM SB-10 Switching Control Box is specified to be within the following limitations:

- Temperature -10° to +40° C
- Humidity < 90% relative

The instrument should be stored and shipped in a clean, dry environment which is specified to be within the following limitations:

- Temperature -20° to + 70° C
- Humidity < 95% relative

2.5 Return for service

If the instrument should be returned to NARDA for service, please complete the service questionnaire enclosed with the Users Manual and attach it to the instrument.

To minimize the repair time, be as specific as possible when describing the failure. If the failure only occurs under certain conditions, explain how to duplicate the failure.

If possible, reuse of the original packaging to ship the equipment is preferable.

In case other package should be used, ensure to wrap the instrument in heavy paper or plastic.

Use a strong shipping container and use enough shock absorbing material around all sides of the equipment to provide a firm cushion and prevent movement in the container.

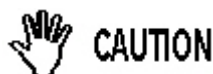
To prevent damage during shipment in particular protect the front panel.

Seal the shipping container securely.

Mark the shipping container FRAGILE to encourage careful handling.

2.6 Equipment cleaning

Use a clean, dry, non-abrasive cloth for external cleaning of the equipment.



To clean the equipment do not use any solvent, thinner, turpentine, acid, acetone or similar matter to avoid damage to external plastic or surfaces.

**2.7 PMM SB-10
Installation and use**

The PMM SB-10 Switching Control Box can function together with several NARDA isotropic probes with a wide frequency and level operating range. The following figure shows an example of SB-10 interconnection:

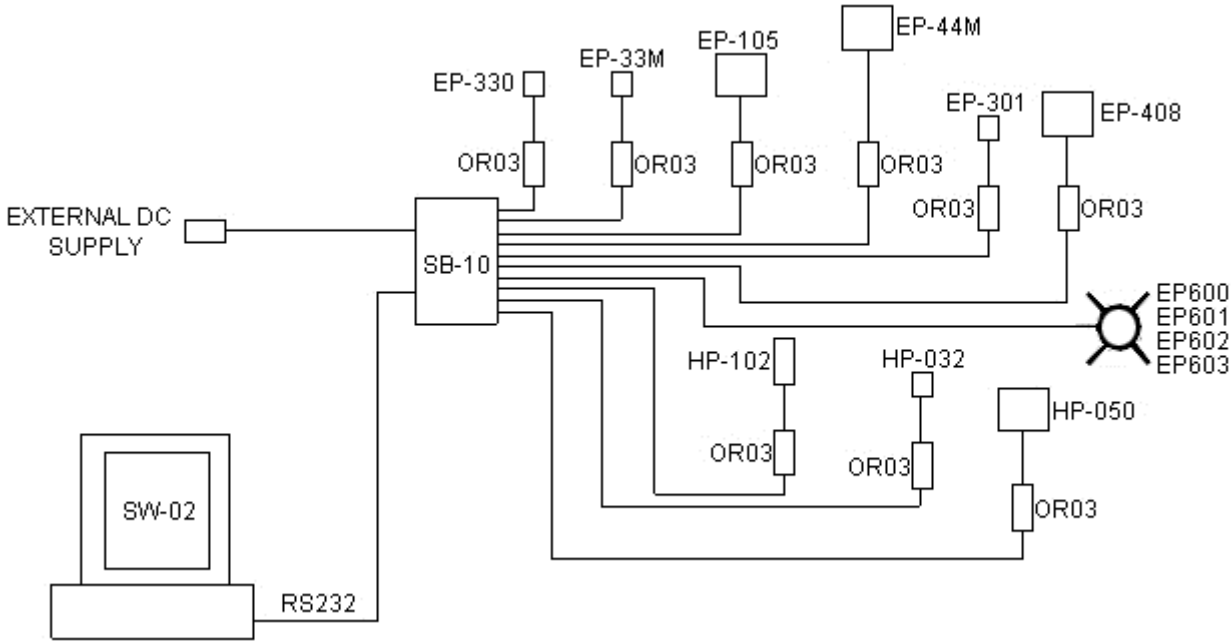


Fig. 2-1 Single SB-10 installation

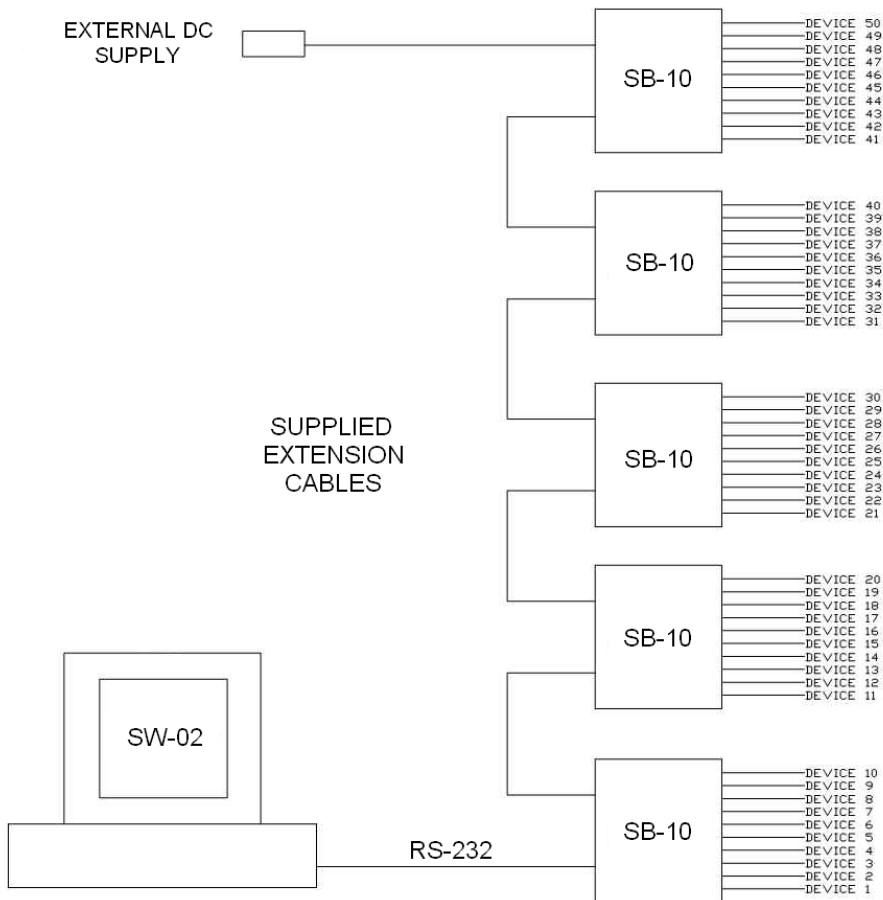


Fig. 2-2 Multiple SB-10 installation

2.8 External DC supply

The PMM SB-10 can be powered either by an external power supply or by the USB port of the Personal Computer.

The provided DC external power supply can be used at 50 or 60 Hz from 100 up to 240 V. It is provided with different mains plugs according to different international requirement.

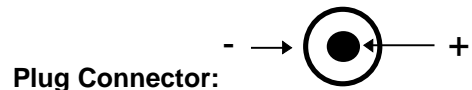
In case the PMM SB-10 is powered by an external power supply, follow the procedure below:

- Connect the external DC supply into the mains;
- Connect the external DC supply output connector to the **POWER** input on the rear panel of the PMM SB-10.

NOTE

Always connect the external power supply to the mains before connecting the POWER to the PMM SB-10.

**External power supply:
DC, 10 - 15 V, ~ 500 mA**



Power on and off is accomplished by the **ON-OFF** push-button on the equipment rear panel.

After power, the color of **LED** is green.

In case the PMM SB-10 is powered by the PC USB port, follow the procedure below:

- Connect the USB A/B connector on the rear panel to one free USB port of the Personal Computer.

Up to five SB-10 can be powered by the PC USB port.

2.9 Installation

To install the PMM SB-10 simply connect the provided optical fiber to the **DEVICE-X** connector on the front panel taking care of the insertion key, then connect the other side of the optic fiber cable to the measuring device **OPTIC LINK** connector, either a Probe with optic link built in or the PMM OR03 for probes without optic link built in.

On the SB-10 rear panel there are the following connections:

- **POWER** connector - to be connected to the external DC supply;
- **USB type B** connector – to be connected to the PC USB port or another dispositive with the supplied USB cable;
- **USB type A** connector - to be connected to the PC USB port or another dispositive with the supplied USB cable;
- **RS232** - to be connected to a free serial connector on the user Personal Computer with the supplied serial cable;
- **EXP-OUT** - to be connected to the **EXP-IN** connector of the next PMM SB-10 (if required) with the supplied Extension Cable.

NOTE

When more than one up to five SB-10 are used each of them can be powered using only one power supply.

The External DC supply can be connected to either of them.

The supply voltage is propagated between boxes by the Extension Cable.

To power on or off the PMM SB-10 operate the **ON-OFF** push button on the rear panel.

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3 –PMM SET ADDRESS Operating instructions

3.1 Introduction

This chapter is a guide for using the PMM SET Address Utility provided with the PMM SB-10 Switching Control Box.

The PMM SET ADDRESS is an utility that integrates the PMM SB10 Switching Control Box and the PMM OR03 Optical Repeater. When several PMM OR03 Optical Repeater with probe are connected to the PMM SB-10 each of them need to be set with a different address. With the PMM SET ADDRESS Utility you can associate an address at each Optical Repeater connected to the PMM SB-10.

NOTE

When several PMM EP600/EP601/EP602/EP603 are connected to the PMM SB-10 and each of them need to be set with a different address, it is suggested to use the utility SetAddEP600 provided with the probe self. Please refer to EP600/EP601/EP602/EP603 user's manual for detailed information regarding the utility.

3.2 Hardware requirements

Minimum requirements:

- Processor: Pentium
- 16 Mb of RAM;
- 10 Mb of free hard disk space;
- 1 free USB or RS232 port
- Windows™ 95/98/2000/XP Operating System.

NOTE

To guarantee the operation with PMM SET ADDRESS the firmware of the OR03 must be updated to Version 2.08 or later.

NOTE

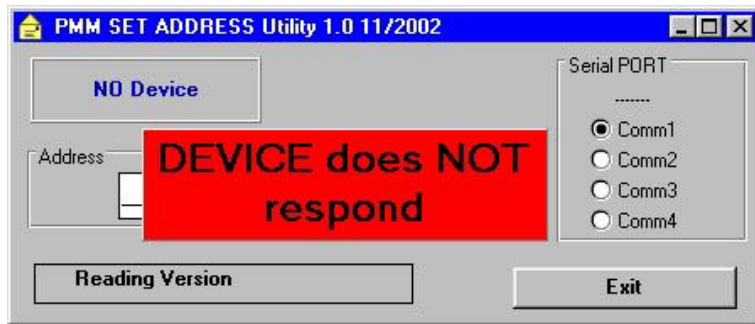
The updates for PMM OR03 software and firmware are available for download from the internet web site www.narda-sts.it or directly from the commercial offices of NARDA.

3.3 Hardware installation The PMM SB-10 Switching Control Box works in conjunction with various device in a wide range of frequencies and levels. The examples in the Chapter 2 show the connection of PMM SB10 with Personal Computer, PMM OR03 Programmable Optical Repeater and its probes, and PMM EP600/601/602/603. PMM SB10 allows the user to take field measurements with up to 10 device, connected at the same time, placed at different measuring locations and/or working on different frequencies, and full scale ranges by using a single RS232 port to the PC. After having completed the setup, run the PMM SET ADDRESS Utility.

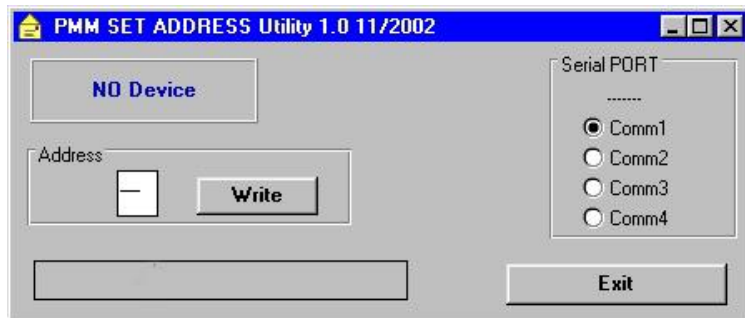
3.4 To run the program To run the utility double click on the **Setadd53.exe** icon



3.5 To start the program In case the PMM SB10 or PMM OR03 are OFF or they are not connected properly or the serial port is wrong or the communication is not correct an error message window will be displayed:



Once the connection is established, the main window will be displayed:



3.5.1 Main Window

The main windows is divided into the following sectors:

- **Title bar:** It shows some information about the PMM SET ADDRESS Utility: Release and relative date (month /year);



- **Device:** It shows the name and the release firmware of the device connected to the SB-10.



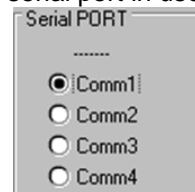
- **Address:** It shows the address that must be assigned at the device connected at the SB10; the address range is from 00 to 10



- **Reading Status:** It shows the current process.



- **Serial Port:** It shows the serial port in use.



3.6 To use the software

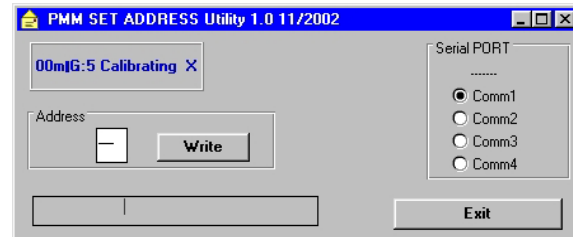
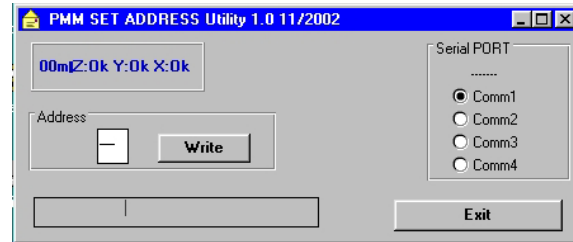
Once the connection is established, the utility starts to recognize the device and the probe connected to the PMM SB-10.



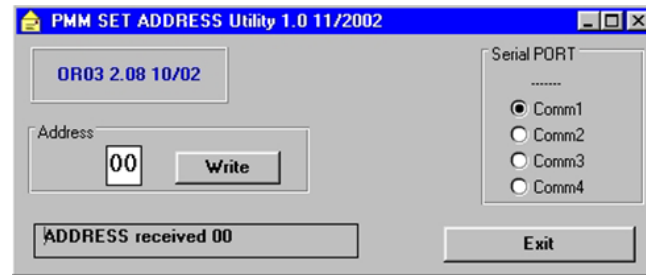
If the probe is not connected to the device, the utility shows the message "Probe missing":



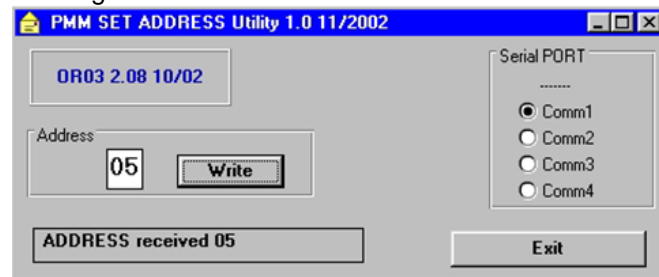
Once the connection is established, the utility starts to check and calibrate each axis:



At the end of the process, the software shows the Release and Date of the device connected to the SB-10.

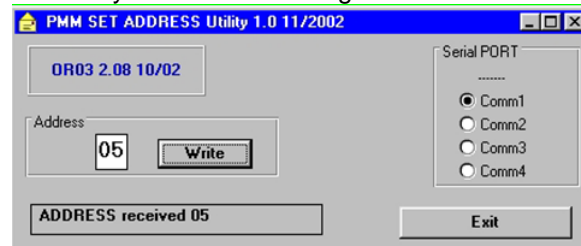


The default address of each device is 00 and the utility will show the message "ADDRESS received 00".



To change the address of the device, enter a new address (for example 05) and click WRITE.

The utility shows the message "ADDRESS received 05"



Press EXIT to close the utility.

Caro cliente

grazie per aver acquistato un prodotto NARDA! Sei in possesso di uno strumento che per molti anni ti garantirà un'alta qualità di servizio. NARDA riconosce l'importanza del Cliente come ragione di esistenza; ciascun commento e suggerimento, sottoposto all'attenzione della nostra organizzazione, è tenuto in grande considerazione. La nostra qualità è alla ricerca del miglioramento continuo. Se uno dei Suoi strumenti NARDA necessita di riparazione o calibrazione, può aiutarci a servirla più efficacemente compilando questa scheda e accludendola all'apparecchio.

Tuttavia, anche questo prodotto diventerà obsoleto. In questo caso, ti ricordiamo che lo smaltimento dell'apparecchiatura deve essere fatto in conformità con i regolamenti locali. Questo prodotto è conforme alle direttive WEEE dell'Unione Europea (2002/96/EC) ed appartiene alla categoria 9 (strumenti di controllo). Lo smaltimento, in un ambiente adeguato, può avvenire anche attraverso la restituzione del prodotto alla NARDA senza sostenere alcuna spesa. Può ottenere ulteriori informazioni contattando i venditori NARDA o visitando il nostro sito Web www.narda-sts.it.

Dear Customer

thank you for purchasing a NARDA product! You now own a high-quality instrument that will give you many years of reliable service. NARDA recognizes the importance of the Customer as reason of existence; in this view, any comment and suggestion you would like to submit to the attention of our service organization is kept in great consideration. Moreover, we are continuously improving our quality, but we know this is a never ending process. We would be glad if our present efforts are pleasing you. Should one of your pieces of NARDA equipment need servicing you can help us serve you more effectively filling out this card and enclosing it with the product.

Nevertheless, even this product will eventually become obsolete. When that time comes, please remember that electronic equipment must be disposed of in accordance with local regulations. This product conforms to the WEEE Directive of the European Union (2002/96/EC) and belongs to Category 9 (Monitoring and Control Instruments). You can return the instrument to us free of charge for proper environment friendly disposal. You can obtain further information from your local NARDA Sales Partner or by visiting our website at www.narda-sts.it.

Servizio richiesto: *Service needed:*

Solo taratura Riparazione Riparazione & Taratura Taratura SIT Altro:
 Calibration only Repair Repair & Calibration Certified Calibration Other:

Ditta:

Company:

Indirizzo:

Address:

Persona da contattare:

Technical contact person:

Telefono:

Phone n.

Modello:

Equipment model:

Numero di serie:

Serial n.

Accessori ritornati con l'apparecchiatura: **Nessuno** **Cavo(i)** **Cavo di alimentazione** **Altro:**
 Accessories returned with unit: None Cable(s) Power cable Other:

Sintomi o problemi osservati: *Observed symptoms / problems:*

Guasto: **Fisso** **Intermittente** **Sensibile a:** **Freddo** **Caldo** **Vibrazioni** **Altro**
 Failure: Continuous Intermittent *Sensitive to:* Cold Heat Vibration Other

Descrizione del guasto/condizioni di funzionamento:

Failure symptoms/special control settings description:

Se l'unità è parte di un sistema descriverne la configurazione:

If unit is part of system please list other interconnected equipment and system set up:

