

ENS/Cadon/Dpt Rhynique Jan. '07

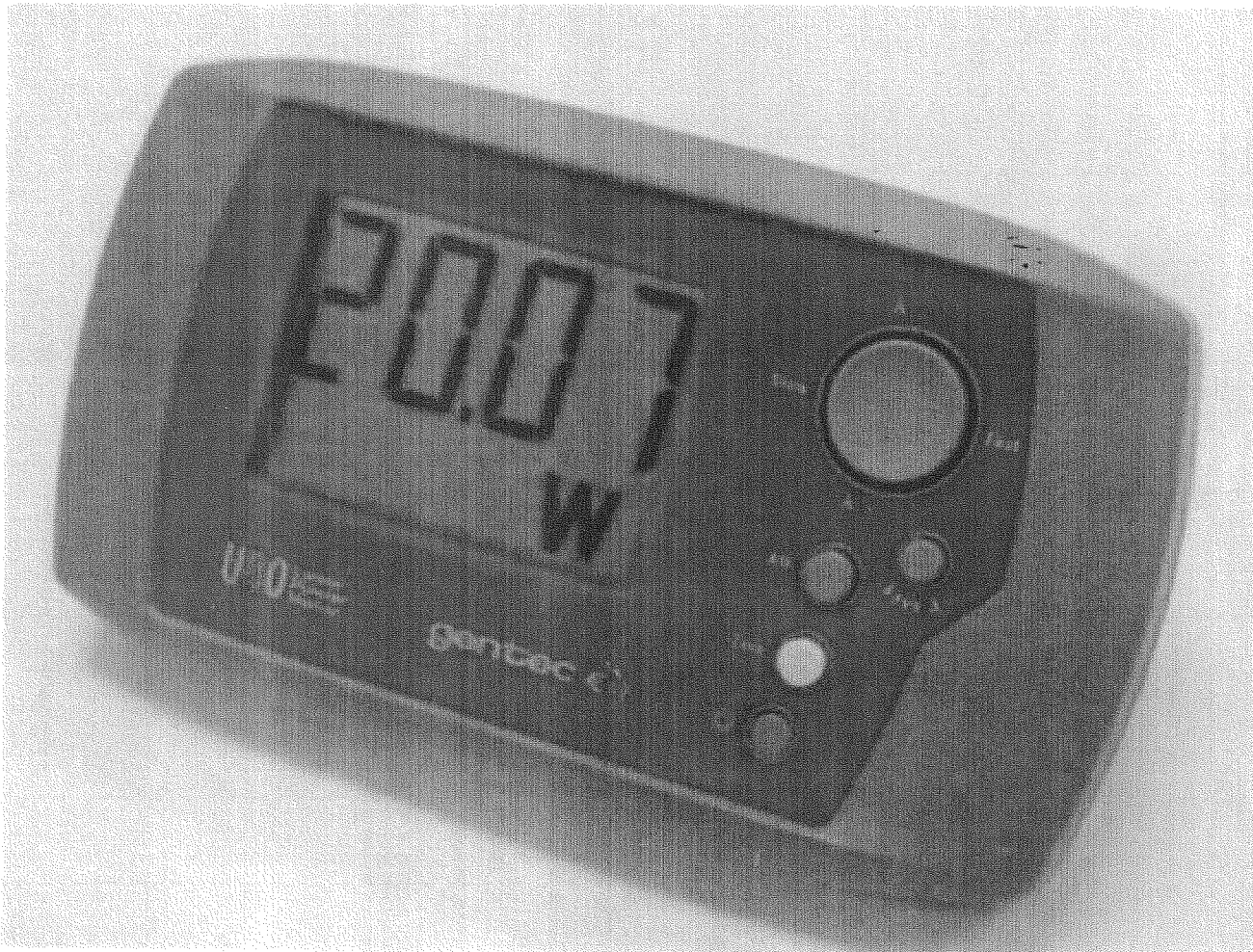
gentec-eo

SINGLE CHANNEL LASER POWER METER

UNO

INSTRUCTION MANUAL

121-101251



Revision -1.0
January 2007

RoHS	100-200982	2006/12/19
	UNO	
	S/N:168661	

WARRANTY

The Gentec-EO UNO Single Channel Laser Power Meter comes with a one-year warranty (from date of shipment) against material and/or workmanship defects, when used under normal operating conditions. The warranty does not cover damages related to battery leakage or misuse.

Gentec-EO Inc. will repair or replace, optionally, any UNO that proves to be defective during the warranty period, except in the case of product misuse.

Any attempt by an unauthorized person to alter or repair the product voids the warranty.

The manufacturer is not liable for consequential damages of any kind.

Customers must fill in and mail the warranty card in order to activate the warranty.

In case of malfunction, contact your local Gentec-EO distributor or nearest Gentec-EO Inc. office to obtain a return authorization number. The material should be returned to:

Gentec Electro-Optics, Inc.
445, St-Jean-Baptiste, Suite 160
Québec, QC
Canada G2E 5N7

Tel: (418) 651-8003
Fax: (418) 651-1174
e-mail: info@gentec-eo.com

Website: www.gentec-eo.com

CLAIMS

To obtain warranty service, contact your nearest Gentec-EO agent or send the product, with a description of the problem, prepaid shipping and insurance, to the nearest Gentec-EO agent. Gentec-EO Inc. assumes no risk for damage in transit. Gentec-EO Inc. will, at its option, repair or replace the defective product free of charge or refund your purchase price. However, if Gentec-EO Inc. deems that the failure is caused by misuse, alterations, accident or abnormal condition of operation or handling, you will be billed for the repair and the repaired product will be returned to you (repative, see above).

SAFETY INFORMATION

Do not use the UNO if the device or the detector looks damaged, or if you suspect that the UNO is not operating properly.

Appropriate installation must be done for water-cooled and fan-cooled detectors. Refer to the specific instructions for more information. The user must wait for a while before handling these detectors after power is applied. Surfaces of the detectors get very hot and there is a risk of injury if they are not allowed to cool down.

Note:

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, it is suggested to try to correct the interference by taking one or more of the following steps:

- Reorient or relocate the receiving antenna.
- Increase the distance between the equipment and receiver.
- Connect the equipment to an outlet that is on a different circuit than the receiver.
- Consult the dealer or an experienced radio/TV technician for help.

Caution: Changes or modifications not expressly approved in writing by Geniec-EO Inc. may void the user's authority to operate this equipment.

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1 THE UNO SINGLE CHANNEL LASER POWER METER



1.1 Introduction

To obtain full performance from the UNO, we recommend that you read this manual carefully.

The UNO is a large display laser power monitor that features outstanding efficiency, ease of use and battery life.

Unpacking

Each Geniec-EO UNO is thoroughly tested and calibrated prior to shipment.

Visually inspect every UNO unit after removing it from the shipping containers. If you see any damage, retain all packaging materials and shipping receipts. Any damage claim should be made promptly to the shipping company. Notify the nearest Geniec-EO representative concerning the claim, so that any repair or replacement can be arranged as soon as possible.

1.2 Specifications

The following specifications are based on a one-year calibration cycle, an operating temperature of 18 to 28°C (64 to 82°F) and a relative humidity not exceeding 80%.

Table 1-1 List of Specifications

UNO POWER METER SPECIFICATIONS	
Power Range	10 nW to 10 kW
Power Scales (photodetector)	autoscale
Power Scales (thermal head)	single wide range scale
Digital Resolution (photodetector)	1 pW
Digital Resolution (thermal detector)	1 mW
Monitor Accuracy	$\pm 1\% \pm 5 \mu V$
Response Time (accelerated)	1 sec
Sampling Frequency	16.67 Hz
Digital Display	7.6 x 5.7 mm LCD
Display Rate	2 Hz
Dimensions	210 mm(W) x 122 mm (H) x 44 mm (D)
Weight (including batteries)	0.47 kg
Batteries (included)	4 Alkaline AA batteries
Battery life (with thermal detector)	670 hours (estimated)
External Power Supply (not included)	Input: 100/240 VAC 50-60 Hz, Output 9 VDC 1.5 A

¹ Varies with detector head.

1.3 Front Panel Description

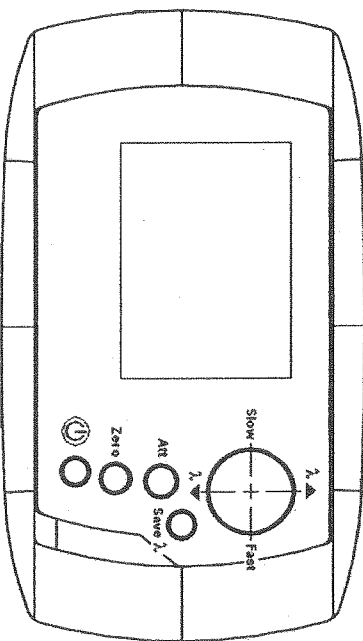


Fig. 1-1 UNO Front Panel

- 1- **① control key.**
UNO on and off.
- 2- **Zero control key.**
Cancels electronic offset, detector offset and ambient light on the detector. This key should be pressed before taking measurements. Refer to p.7 adjusting the zero (steps 8 and 9)
- 3- **Att control key.**
Photodetectors can be calibrated with and without attenuator. This key allows the user to select the proper configuration and wavelength. The ATT LCD annunciator indicates whether the attenuator sensitivity is activated.
- 4- **Save A control key.**
After selecting the proper wavelength using the A up and A down control keys, pressing the Save A control key stores the wavelength in non-volatile memory and returns to the measurements with the corresponding sensitivity.
- 5- **A up and A down control keys.**
Allows the user to select the appropriate wavelength.
- 6- **Fast and Slow control keys.**
These keys are only useful with thermal detector heads. The fast mode enables anticipation, which shortens the natural response time of the detector. The slow mode disables anticipation. By default, the monitor is in Fast mode. This setting is not stored in non-volatile memory and therefore returns to Fast mode on every power-up.

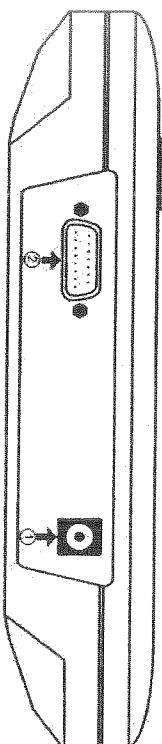


Fig. 1-2: UNO Connectors

1.4 Connector Description

1- EXTERNAL POWER SUPPLY INPUT JACK.

Input voltage required: 9 VDC/100 mA. The external power supply does not charge the batteries; it allows the use of the monitor without batteries, with dead batteries or simply to avoid discharging the batteries inside the monitor.

2- PROBE INPUT JACK.

The UNO uses a DB-15 female connector to mate with the detector heads (probes).

The UNO works with all Gentec-EO power detectors currently sold. It automatically recognizes every power detector head, which ensures accurate auto-calibration. More importantly, it can take advantage of our "Personal wavelength correction". It reads the memory in the Smart Interface connector to provide a wavelength correction that is based on spectral data measured from that specific detector.

2 Getting Started

This section contains important information concerning the installation and operation of the UNO. The UNO is delivered ready to use. Just install the 4 AA batteries, insert a detector head in the Probe Input Jack (#2 in Figure 1-2) and press the I/O key.

2.1 Power measurement procedure

- 1- Install the power detector on its optical stand.
- 2- First, slide the connector latch to the right to unlock the connector.
- 3- Turn the UNO off and connect a power detector head to the UNO using the PROBE INPUT JACK (see Fig. 1-2). It is recommended to turn the UNO off before connecting a new head in order to prevent any loss of information from the detector head's EEPROM.
- 4- Slide the latch to the left to lock the connector into place.
- 5- Switch the UNO ON using the I/O key. The UNO displays the current wavelength for a moment before displaying measurements. If this wavelength is not the wavelength of the laser, go to step 6, otherwise proceed to step 7.
- 6- Select the proper wavelength using the A up and A down control keys. Then press the Save A control key to store the wavelength in non-volatile memory and return to the measurement mode.

Adjusting the zero (steps 7 to 11)

7- Remove the detector's protective cover.

Put the detector into the laser beam path. The entire laser beam must be within the sensor aperture. Do not exceed maximum specified densities, energies or powers. For the most accurate measurement, spread the beam across 60% to 80% of the sensor area. Leave it there until the detector has reached its equilibrium temperature.

8- Block off laser radiation to the detector.

The power read by the UNO when no laser beam is incident on the detector may not be exactly zero. This is because the detector is not thermally stabilized OR there was a heat source in the detector's field of view when you turned on the UNO, OR from the internal electronic offset of the UNO.

9- To reset the zero, wait until the reading has stabilized and press the Zero button on the front panel. The UNO will display "----" for a moment and then return to the normal measurement. You are now ready to make an accurate measurement. Pressing the Zero button again will not undo the zero; it will re-do it.

10- When you select ATT you must enter a wavelength and then press Save A to exit.

11- Apply the laser beam to the detector. The laser must be CW for photodetectors.

Notes:

- Refer to the specific power detector documentation for complete installation and operating instructions.
- The power detectors are thermal sensors sensitive to temperature variations.

For high-precision measurements, it is recommended to:

- Allow the power detector's temperature to stabilize before zeroing the UNO.
- Do not touch the detector itself when handling the power detector. Touch only the stand.
- Avoid forced airflow or drafts around the detector.

2.2 Display description

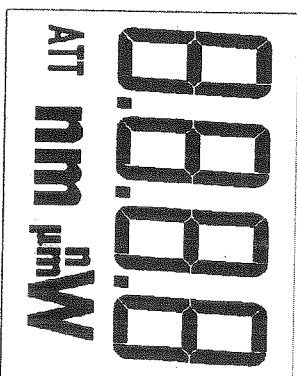


Fig. 1-3 UNO LCD Display

The LCD provides measurement information, wavelength information, attenuator selection and other useful messages.

When the batteries are discharged enough to compromise the measurement, the UNO displays "LO" instead of the measurement. Refer to the battery maintenance section to replace the batteries.

The ATT field indicates if the detector sensitivity used takes into account the presence of the attenuator that the detector was calibrated with.

Error messages can also be displayed:

E-05 indicates that no detector is present on power-up.

E-07 appears after pressing the ATT control key with a detector that does not have attenuator calibration. The message disappears a few seconds after pressing the control key.

E-08 indicates that the detector is not supported or that the detector calibration EEPROM is corrupted. It can also appear if the DB15 is poorly secured or is worn out.

E-09 appears after pressing the FAST or SLOW control key with a detector that does not have anticipation (photodetectors). The message disappears a few seconds after pressing the control key.

Any other error message indicates a malfunction and should be reported.

3 BATTERIES



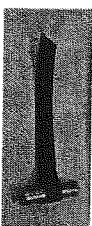
3.1 Battery selection

To avoid leakage and poor autonomy, it is highly recommended that only good quality, new and identical alkaline batteries be put into the UNO. Good quality rechargeable batteries can also be used with the UNO and recharged with an external charger.

The batteries need to be replaced if the UNO displays "LO" on its digital display or if it does not power-up when the I/O control key is pressed.

3.2 Battery installation

- Put the UNO face down on a flat surface.
- Lift the Kickstand.
- Open and remove the battery door.
- Insert one battery in the nylon strap (to ease removal) and insert it at one extremity of the UNO battery compartment with the right polarity. To avoid intermittent contact and involuntary disconnection, firmly insert the batteries. Insert the other batteries over the nylon strap with the right polarity so that pulling on the strap will pull every battery out of the UNO.



- Put the battery door back in place.

3.3 Battery removal

- Put the UNO face down on a flat surface.
- Lift the kickstand.
- Open and remove the battery door.
- Hold down the UNO and slowly pull on the nylon strap to remove the batteries. Do not use a pointed tool to remove the batteries, since that could puncture them. The batteries need a firm pull to be removed in order to have a reliable contact.

4- DECLARATION OF CONFORMITY

Application of Council Directive(s):

89/336/EEC The EMC Directive
73/23/EEC Low Voltage Directive

Manufacturer's Name:
Manufacturer's Address:

Genlec Electro Optics, Inc.
445 St-Jean Baptiste, suite 160
Québec (Québec), Canada G2E 5N7

European Representative's Name:
Representative's Address:

ÉQUIPEMENTS SCIENTIFIQUES S.A.
127, Rue de Buzenval, B.P. 26,
92380 Garches, (France)

Type of Equipment:
Model No.:
Year of test & manufacture:

Laser Power/Energy Meter
UNO
2006

Standard(s) to which Conformity is declared:
EN 61326:1997 Emission generic standard



Standard	Description	Performance Criteria
EN 61326:1997	Limits and methods of measurement of radio interference characteristics of information technology equipment. Testing and measurements of conducted emission	Class A
EN 61326:1997	Limits and methods of measurement of radio interference characteristics of information technology equipment. Testing and measurements of radiated emission	Class A
EN 61000-4-2:1995	Electromagnetic compatibility (EMC) - Part 4: Testing and measurements techniques- Section 4.2: Electrostatic discharge	Class B
EN 61000-4-3:1996	Electromagnetic compatibility (EMC) - Part 4: Testing and measurements techniques- Section 3: Radiated, Radio Frequency immunity	Class B
ENV 50204:1995	Radiated Electromagnetic field from digital radio telephones- Immunity test 900MHz pulsed	Class A
EN 61000-4-4:1995	Electromagnetic compatibility (EMC) - Part 4: Testing and measurements techniques- Section 4: Electrical fast transient/burst immunity	Class A
EN 61000-4-6:1996	Electromagnetic compatibility (EMC) - Part 4: Testing and measurements techniques- Section 6: Immunity to conducted Radio Frequency	Class A

I, the undersigned, hereby declare that the equipment specified above conforms to the above Directive(s) and Standard(s).

Place: Québec (Québec)

Date: December 1, 2006

(President)

4 APPENDIX



4.1 Recycling and separation procedure

This section is used by the recycling center when the monitor reaches its end of life. Breaking the calibration seal or opening the monitor will void the UNO warranty.

The complete Monitor contains

1 Monitor

4 AA Alkaline Batteries

1 Instruction manual

1 Calibration certificate

4.2 Separation

Paper : manual and certificate.

Plastic: stand, connector plate, battery door, monitor enclosure, keypad.

Wires.

AA batteries: inside battery compartment.

Metal battery clips.

Printed circuit board: inside the monitor featuring a liquid crystal display less than 100 cm².

4.3 Dismantling procedure

- Remove batteries.

- Remove the posts on each side of the DB15 connector using pliers.

- Open monitor by removing the Phillips head screws in the 4 corners.

- Cut the wires on the PCB side and battery clips side with cutters.

- Remove battery clips with pliers.

BNS/Cadron/Dpt. Régionale Jan. '05

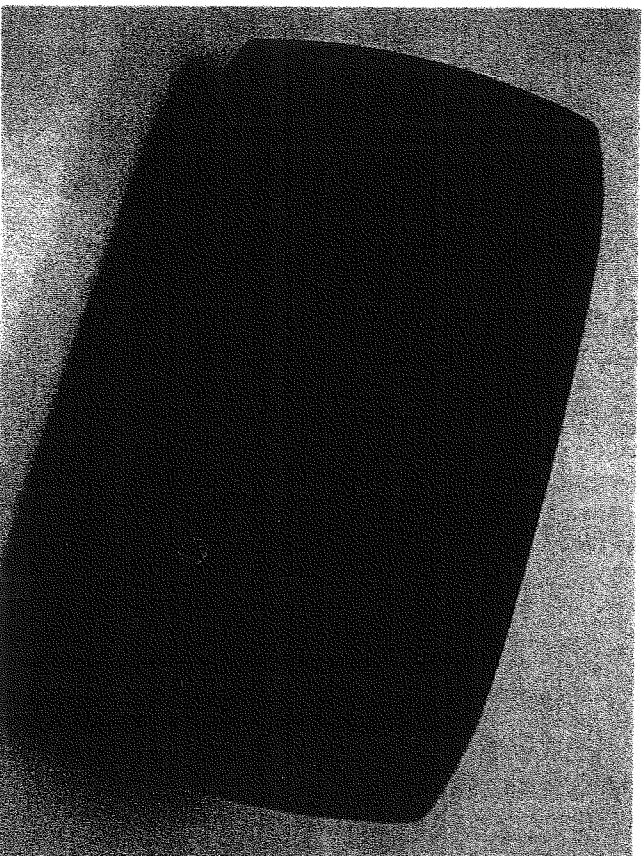
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