GOLDILUX LIGHT METERS

USER INFORMATION (BASIC) for *GUVA-1L, (GBIL-1L), GUVAP-1L, GUVBP-1L, GUVCP-1L (UV-C & UVGI, UV GERMICIDAL)* PROBE

('P' at the end denotes 'probe', GAL-3L is a readout-only or display unit, for probe readouts)

GENERAL DESCRIPTION

The GOLDILUX SERIES of PROFESSIONAL LIGHT METERS are hand-held instruments designed to measure ILLUMINANCE of VISIBLE SPECTRAL RADIATION in LUX units. Developed at the CSIR – they have been tried and tested by many users where they have been evaluated for reliability, stability of measurement and performance of cost vs quality especially in view of the excellent recalibration accuracy, around 1% or less. Goldilux instruments are a fully designed, developed and manufactured South African product. Being sturdy and robust Goldilux meters are suitable as a measuring instrument in the field as well as in the laboratory. They are very easy to operate, have no obsolescence, can be re-calibrated and repaired in South Africa.

An external probe, of any GOLDILUX type, may be plugged into or attached to a LIGHT METER OR GAL-3L readout, in this case the detector in the light meter is automatically disconnected - and the displayed reading corresponds to the QUANTITY and UNITS measured with the PROBE.

The LCD (display) of the meters (GAL-2L, GAL-2H) is auto-ranging, self-adjusting, over one decimal point.External probes (e.g. GUVA-1L) have a built-in **probe gain selector switch** with two different settings – the probes therefore cover a wider range of readings with one fixed detector. The probe gain settings are multiplied as indicated on the probe labels and the switch setting indicated by the **probe range factor**. Probes combined with a non-specific meter (display - GAL-3L) offer the best combination with the widest possible measuring range.

EXTERNAL FEATURES AND CONTROLS

The ON/OFF switch is located on the left side of the meter housing. To switch ON move it forward. The meter is OFF when the switch is in the lower position.

The HOLD button (raised, white, top left button) is pushed to "freeze" the reading at any given time as required by the operator. There is a 5 m extended range option for the hold button operation, with the remote hold cable.

The ANALOG OUTPUT is available for various applications where a 2V output for a full-scale reading can be used for direct analogue measurement input. It has an output impedance of 10 kΩ.

OPERATING INSTRUCTIONS

1) Remove the instrument from its casing/packaging and mount or hold it in the desired measurement position.
2) Switch on the instrument with the slide switch on the left hand side of the housing and check its zeroing with the cap firmly on the detector. *
3) Remove the protective cap from the detector.
4) Instrument will start readings. Check on the units (microwatts/cm2) as indicated by the label.
5) Press the white hold button on top of the instrument to freeze the reading at any given time of the measurement procedure.

NB – a 9V (alkaline) battery is required to operate the instrument long-term and is to be inserted at the back of the meter. A basic zinc-carbon battery is included in the packaging for start-up purposes.

*If the zero reading cannot be obtained – the instrument the instrument needs to be sent for calibration. Any user attempting to make adjustments via the potentiometer (accessible through the latch opening in the battery compartment) will invalidate the calibration. The warranty of the instrument is also no longer applicable.

(A metrologist in a calibration lab will be doing the re-calibration by means of an adjustment of the potentiometer).

For the trained metrology practitioner (See basic calibration below)

SPECIFICATIONS

Measurement parameter: Irradiance (power per unit area) or energy density**,** (dose). **Dynamic range:** Meters: 1:200 000, Probes: 1 : 2 000 000. **Readout:** 4½ digit LCD display with autoranging over one decade**, Power source :** 9V type PP3 battery. Battery life approximately 200 hours for alkaline battery (without using an external probe). **Detector:** UV-enhanced silicon photodiode with filtering for either UV-A, UV-B or UV-C. **Spectral response:** As indicated in Fig. 4 (nominal values). **Accuracy:** ***Factory setting 5% (UV-A), 10% (UV-B), 15% UV-C.*** These figures are applicable for line sources centred at ***365 nm (UV-A), 313 nm (UV-B) and 253.7 nm (UV-C, UVGI).*** Otherwise, as stated on the calibration certificate by a recognized calibration laboratory. **Angular response:** preferably face the UV source, refer to website. **Dimensions:** 150 x 80 x 37 mm, Probes: 110 x 60 x 30 mm. **Mass**: ***230 g (with battery), Probes: 120 g*** (with cable). **Accessories:** Protective cap for detector, manual. **Re-calibration:** Return unit to a recognized calibration laboratory for re-calibration every 6-12 months (depending on total dose exposed to) or if calibration is in doubt for any reason.

MAINTENANCE & PRECAUTIONS

When not in use, switch the instrument OFF, by sliding the switch on the left side downwards. Always put the protective cap on the detector and keep the instrument in a safe place.

The 'LOW BATTERY' warning will come up on the screen when the battery needs replacing.
If necessary, clean the detector with a soft cloth and alcohol. The white diffuser housing of the detector should be clean and free from grime or smudges as this may affect readings. Intensive use of the instrument in high salty climates might lead to the detector glass become corroded. If you suspect this situation, have your meter re-calibrated or ask the manufacturer for an inspection.

BASIC CALIBRATION – instructions for the metrologist in a calibration lab

1) Meters

a) Meters with a built-in detector (e.g. GUVA-1L): adjust the meter reading to zero via the potentiometer accessible through the opening in the open battery compartment – and have the cap firmly on the detector
b) Expose meter to known illuminance, emitted by a tungsten filament light source (NOT fluorescent or LED). Alternatively, measure it with a calibrated light meter.
c) Adjust the meter with the calibration adjustment (trimpot under CAL sticker) until it reads correctly.
d) Seal the small hole exposing the trimpot with a suitable calibration sticker.

2) Probes

a) Plug the probe into the meter. Set the probe's range selector switch (microswitch in the removable flap of probe) to the lowest setting (that the digital output is of lower value).
b) With the dust cap firmly in place check the meter reading of zero.
c) Expose probe as in 1b) above.
d) If required, the reading is adjusted by turning the potentiometer (trimpot) until the reading is correct.
e) Set the probe range factor to the highest range factor and adjust until a reading of exactly 10 times lower is achieved than with the selector switch in the lowest range factor setting.

NOTE: Instrument readings may change over time due to unknown environmental factors, therefore it is important to certify your instrument's readings. Instruments that are used commercially, are expected to have accredited calibration. ANNUAL CALIBRATION – for best results, it is recommended that Goldilux instruments be calibrated annually by an accredited calibration laboratory (this includes the issuing of a calibration certificate to the user).

WARRANTY INFORMATION

One (1) year limited warranty.
The manufacturer warrants the light meters and probes against defects in materials and workmanship for a period of one (1) year from the date of original retail purchase (proof of purchase required). The interpretation of this warranty must be read in conjunction with the LIMITATION OF WARRANTY referring to a fitness for a particular purpose.

Exclusions

The above warranty shall not apply to defects resulting from improper or inadequate maintenance by the customer, customer-supplied software or interfacing, unauthorized modifications or misuse, operation outside the environmental specifications for the product, improper site operation and maintenance, an accident or abuse.

Obtaining warranty service

If an approved distributor receives notice of such defects during the warranty period, he will either, at his option, repair or replace products which prove to be defective and receive a replacement from the manufacturer.
To obtain warranty service, the products must be returned by the purchaser to an approved distributor. A distributor will return the instruments to the manufacturer where a full evaluation will guide the decision where a repair or replacement of the instrument is needed. The purchaser will be informed of the outcome of the evaluation. A warranty claim or a repair of the faulty product will be processed from there with the understanding and agreement of the user/purchaser. Shipping charges from the distributor to the manufacturer shall be paid by the approved distributor.
The manufacturer shall pay for the return of the replacement product to the approved distributor, who shall be responsible for the shipping charges to the customer.

Warranty limitations

The manufacturer makes no other warranty, either expressed or implied, with respect to these products. The manufacturer specifically disclaims the implied warranties of merchantability and fitness for a particular purpose.
Some states or provinces do not allow limitations on the duration of an implied warranty, therefore the above limitations or exclusion may not apply to you. However, an implied warranty of merchantability or fitness is limited to the one (1) year duration of this written warranty.
This warranty gives you specific legal rights, and you may also have other rights which may vary from state to state, or province to province.

Exclusive remedies

The remedies provided herein are the customer's sole and exclusive remedies. In no event shall the manufacturer be liable for any direct, indirect, special, incidental or consequential damages, whether based on contract, tort or any other legal theory. Some states or provinces do not allow the exclusion or limitations of incidental or consequential damages, thus the above limitation or exclusion may not apply to you.

Approved distributor addresses (South Africa):

AMS HADEN, Roodepoort, Gauteng, www.amshaden.co.za, 011 475 2064
H. Rohloff (Pty) Ltd, Krugersdorp,Gauteng, www.rohloff.co.za, 011 704 2233
ENVIROCON INSTRUMENTATION C.C., Northcliff, Johannesburg, www.envirocon.co.za, 011 476-7323
GAMMATEC ENGINEERING (Pty) Ltd, Vereeniging, www.gammatecsa.com, 016 423 7731
Glenmed Healthcare Solutions, Durban, www.glenmedsolutions.com, 031 202 4115
Techtra Engineering Consultants, Honeydew, Gauteng, www.techtra.co.za, 011 794 9265
TNT::Tools for Non-Destructive Testing, Cape Town, https://ndtequipment.co.za, 021 948 3089
Arrabon Trading CC, Centurion, Gauteng, http://arrabon.biz, 0861 000 743
Health and Occupational Hygiene Lab CC, Centurion, Gauteng, http://ohlearning.com, 012 653 3850
GfG (Pty) Ltd, Krugersdorp, Gauteng, gfgsa@icon.co.za, Google, 011 955 4862
Technology Solutions, Route 21 Corporate Park, Irene, Gauteng, www.technologysolutions.co.za, 012 345 5358
Professional Illumination Design, Cape Town, www.pidesign.co.za, 021 706 0590